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JSCalendar: Converting from and to iCalendar  
draft-ietf-calext-jscalendar-icalendar-00

## Abstract

This document provides an informational guideline for converting JSCalendar from and to iCalendar.

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[1.](#) Introduction[1.1.](#) Motivation

The JSCalendar [[draft-ietf-calext-jscalendar](#)] data format is used to represent calendar data, and is meant as an alternative to the widely deployed iCalendar [[RFC5545](#)] data format.

While new calendaring services and applications might use JSCalendar as their main data format to exchange calendaring data, they are likely to interoperate with services and clients that just support iCalendar. Similarly, existing calendaring data is stored in iCalendar format in databases and other calendar stores, and providers and users might want to represent this data also in JSCalendar. Lastly, some implementations might want to preserve custom iCalendar properties, that have no equivalent in JSCalendar when converting between these formats.

To facilitate these use cases, this document provides an informational guide how to convert JSCalendar data from and to iCalendar.

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### [1.2.](#) Scope and caveats

JSCalendar and iCalendar have a lot of semantics in common, but they are not interchangeable formats:

- o JSCalendar contains a richer data model to express calendar information such as event locations and participants; while future iCalendar extensions may allow a direct mapping, for now there may be no representation directly in iCalendar of some properties and these have been marked as implementation specific for mapping.
- o iCalendar may contain arbitrary, non-standardised data with custom properties/attributes. Translating these into JSCalendar is implementation specific.
- o iCalendar has some obsolete features that have been removed from JSCalendar due to not being useful and/or supported in the real world (e.g. custom email alerts to send to random people). Translating these may lose some of the original fidelity.
- o Implementations may use a custom property to store data that could not be mapped directly in either direction in the original or a custom format, however this is not interoperable.

Accordingly, this document does not standardize a canonical translation between iCalendar and JSCalendar, and implementations **MUST NOT** make any assumptions how iCalendar data is represented in JSCalendar by other systems.

### [1.3.](#) Notational Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

## [2.](#) JSEvent

A `_JSEvent_` maps to the the iCalendar VEVENT component type [[RFC5545](#)]. The following tables maps the JSEvent-specific properties to iCalendar:

| Property              | iCalendar counterpart   |
|-----------------------|---|
| <code>duration</code> | DURATION property. If the VEVENT contains a DTEND property, the this maps to the <code>_duration_</code> property as the time span between DTSTART and DTEND when converting the respective time points to the UTC time zone. |

Table 1: Mapping JSEvent properties

### 3. JSTask

A `_JSTask_` object maps to the iCalendar VTOD0 component type [[RFC5545](#)]. The following tables maps the JSTask-specific properties to iCalendar:

| Property                       | iCalendar counterpart  |
|--------------------------------|--|
| <code>due</code>               | DUE property   |
| <code>estimatedDuration</code> | ESTIMATED-DURATION property in the RFC draft [ <a href="#">draft-apthorp-ical-tasks</a> ], or the DURATION property otherwise. |
| <code>statusUpdatedAt</code>   | COMPLETED property. The JSTask status property MUST have value "completed".  |

|          |  |
|----------|--|
| progress | PARTSTAT and COMPLETED properties, including the definitions in the RFC draft <a href="#">[draft-apthorp-ical-tasks]</a> . |
| status   | STATUS property, including the definitions in the RFC draft <a href="#">[draft-apthorp-ical-tasks]</a> .                   |

Table 2: Mapping JSTask properties

#### 4. JSGroup

A JSGroup maps to a iCalendar VCALENDAR containing VEVENT or VTODO components.

| Property | iCalendar counterpart  |
|----------|--|
| entries  | VEVENT and VTODO components embedded in a VCALENDAR component. |
| source   | SOURCE property.   |

Table 3: Mapping JSGroup properties

#### 5. Common properties

This section contains recommendations how to map JSCalendar from and to iCalendar. It lists all common JSCalendar object properties in alphabetical order.

| Property | iCalendar counterpart  |
|----------|--|
| @type    | Determined by the iCalendar component type: "jsevent" for VEVENT, "jstask" for |

|                        |  |
|------------------------|--|
|                        | VTODO, "jsgroup" for VCALENDAR.  |
| alerts                 | Each entry maps to a VALARM component. The ACTION property maps to <code>_action_</code> , where both "DISPLAY" and "AUDIO" values map to the "display" action. An EMAIL value maps to a JSCalendar "email" action. <code>_relativeTo_</code> and <code>_offset_</code> map to the TRIGGER property. |
| categories             | CONCEPT property, defined in <a href="#">[draft-ietf-calext-ical-relations]</a> .  |
| color                  | COLOR property, as specified in <a href="#">[RFC7986]</a> .  |
| created                | CREATED property.  |
| description            | DESCRIPTION property.  |
| descriptionContentType | Implementation-specific.   |
| excluded               | EXDATE property.   |
| freeBusyStatus         | TRANSP property.   |

|          |   |
|----------|---|
| isAllDay | See <a href="#">Section 5.1</a> .   |
| keywords | CATEGORIES property, as specified in <a href="#">[RFC7986]</a> .  |
| links    | ATTACH ( <a href="#">[RFC5545]</a> ), URL or IMAGE ( <a href="#">[RFC7986]</a> ) properties with URI value types map to the the Link <code>_href_</code> . The FMTTYPE parameter maps to <code>_type_</code> , the SIZE parameter to <code>_size_</code> . Mapping other properties is implementation-specific. |
| locale   | LANGUAGE parameter of the SUMMARY or DESCRIPTION property.  |

|                     |  |
|---------------------|--|
| localizations       | Implementation-specific.   |
| locations           | See <a href="#">Section 5.2</a> .  |
| method              | METHOD property of the embedding VCALENDAR.  |
| participants        | See <a href="#">Section 5.3</a> .  |
| priority            | PRIORITY property.   |
| privacy             | CLASS property.  |
| prodId              | PRODID property.   |
| recurrenceOverrides | RDATE and EXDATE properties, and any VEVENT or VTODO instances with a recurrence-id and same UID as the mapped main object.  |
| recurrenceRule      | RRULE property. For all-day calendar objects, map the <code>_until_</code> property value to an iCalendar DATE (effectively removing the time component). To convert a DATE-typed UNTIL from iCalendar, set the time components of the <code>LocalDate</code> value to "23:59:59". If the iCalendar UNTIL value is a UTC date time, convert it to the local time in the <code>JSCalendar</code> calendar object time zone. |
| relatedTo           | RELATED-TO property.   |

|          |   |
|----------|---|
| replyTo  | An iCalendar ORGANIZER with a <code>mailto:</code> URI mapped to the "imip" method, or any other URI mapped to the "other" method. Mapping multiple methods is implementation-specific. |
| sequence | SEQUENCE property.  |

|                  |  |
|------------------|--|
| start            | See <a href="#">Section 5.1</a> .  |
| status           | STATUS property.   |
| timeZone         | See <a href="#">Section 5.1</a> .  |
| timeZones        | Each entry in the property maps to a VTIMEZONE in the embedding VCALENDAR component. |
| title            | SUMMARY property.  |
| uid              | UID property.  |
| updated          | DTSTAMP and LAST-MODIFIED properties.  |
| useDefaultAlerts | Implementation-specific.   |
| virtualLocations | See <a href="#">Section 5.2</a> .  |

Table 4: Translation between JSCalendar and iCalendar

### [5.1](#). Time

JSEvent and JSTask objects share the `_start_`, `_timeZone_` and `_isAllDay_` properties to express their occurrence in time. The following table defines how to map these properties:



| Property                                      | iCalendar counterpart  |
|---|--|
| start and non-null timeZone                   | The <code>_start_</code> property value maps to an iCalendar DTSTART of type local DATE-TIME and the <code>_timeZone_</code> value to its TZID parameter. If the time zone is "Etc/UTC", then the start time may alternatively map to an iCalendar UTC DATE-TIME without a TZID parameter. |
| start and isAllDay is true                    | The <code>_start_</code> property value maps to an iCalendar DTSTART property value of type DATE. When mapping from iCalendar, the time component of the <code>_start_</code> property value is zero.  |
| start and null timeZone and isAllDay is false | The <code>_start_</code> property value maps to an iCalendar DTSTART of type local DATE-TIME and no TZID parameter.  |

Table 5: Mapping common time properties

## 5.2. Locations

The iCalendar counterpart for JSCalendar Location objects is the iCalendar [[RFC5545](#)] LOCATION property, or implementation-specific.

| Property    | iCalendar counterpart          |
|-------------|--------------------------------|
| coordinates | GEO property.                  |
| description | Implementation-specific.       |
| linkIds     | Implementation-specific.       |
| name        | LOCATION property value.       |
| rel         | Implementation-specific.       |
| timeZone    | Implementation-specific.       |
| uri         | The LOCATION ALTREP parameter. |

Table 6: Mapping Location properties

The iCalendar counterpart for JSCalendar VirtualLocation objects is the iCalendar [\[RFC7986\]](#) CONFERENCE property.

| Property    | iCalendar counterpart      |
|-------------|----------------------------|
| description | Implementation-specific.   |
| name        | LABEL parameter.           |
| uri         | CONFERENCE property value. |

Table 7: Mapping virtualLocation properties

### 5.3. Participants

The following table outlines translation of JSCalendar participants. An iCalendar ORGANIZER maps to `_replyTo_` and a participant with role "owner". If an ATTENDEE with the same CAL-ADDRESS value exists, then it maps to the same participant as the ORGANIZER participant. Other participants map to ATTENDEEs.

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| Property            | iCalendar counterpart  |
|---------------------|--|
| attendance          | ROLE parameter values REQ-PARTICIPANT, OPT-PARTICIPANT and NON-PARTICIPANT.  |
| delegatedFrom       | DELEGATED-FROM parameter   |
| delegatedTo         | DELEGATED-TO parameter   |
| email               | EMAIL parameter, if defined. Otherwise the CAL-ADDRESS property value, if it is a mailto: URI.                               |
| expectReply         | RSVP parameter   |
| kind                | CUTYPE parameter   |
| linkIds             | Implementation-specific.   |
| locationId          | Implementation-specific.   |
| memberOf            | MEMBER parameter   |
| name                | CN parameter   |
| participationStatus | PARTSTAT parameter   |
| roles               | ROLE parameter.  |
| scheduleSequence    | SEQUENCE property of the participant's latest iMIP message   |
| scheduleUpdated     | DTSTAMP property of the participant's latest iMIP message  |
| sendTo              | A CAL-ADDRESS with a mailto: URI maps to the JSCalendar "imip" method, any other URI to the "other" method. Mapping multiple |



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