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Title: RESULTS FROM FIRST RECURRENCE QUESTIONNAIRE

Version: 1.0

Date: 21 July 2005

Contributed: TC-RECURR – Recurrence Technical Committee

The Recurrence Technical Committee of CalConnect (The Calendaring and Scheduling Consortium) has collected specific information on how C&S implementations have, or have not, implemented the Recurrence Rules of RFCs 2445 and 2446, iCalendar and iTIP. This document is part of the committee's work to compile actual usage information and interoperability issues.

The Recurrence Committee recently collected information in the form of a Recurrence Questionnaire, which allowed vendors and other producers and consumers of iCalendar recurrences to list the features of iCalendar that they implemented. The questionnaire also contained space for comments about each line item in the RFCs and also overall issues with recurrences. The Recurrence Technical Committee has since analyzed the results of the questionnaire into this document.

The Committee and the Consortium would like to thank all those who took part in this effort by filling out the Recurrence Questionnaire.

This document is generally available to all who responded to the questionnaire in evaluating their implementation against others, and to all organizations and implementors working with Calendaring and Scheduling implementations. The Recurrence Technical Committee of Calconnect would appreciate feedback on the value and relevance of this material from those who make use of it. Feedback and comments may be sent to the Executive Director of the Consortium via Dave.Thewlis@calconnect.org.

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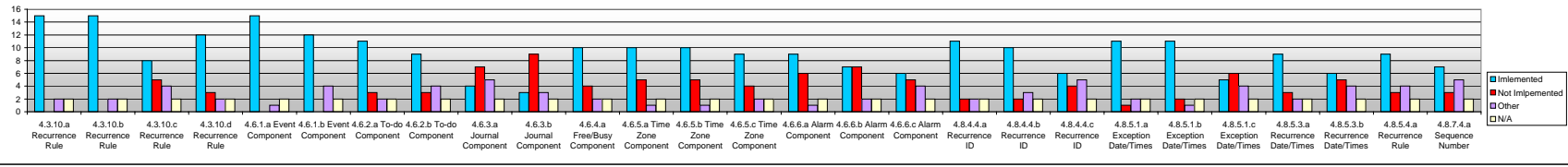
Aggregate of Results for 19 Respondents

	Yes	No	Othr	N/A	Total	Percent	Summary Comments
iCalendar Elements						54%	
4.3.10.a Recurrence Rule	15	0	2	2	19	79%	Only use first instance. No errors for incorrect data
4.3.10.b Recurrence Rule	15	0	2	2	19	79%	No errors for incorrect data. Some do not support 'SECONDLY' / 'MINUTELY' / 'HOURLY' frequencies
4.3.10.c Recurrence Rule	8	5	4	2	19	42%	Issues related to use of timezones in UNTIL: some only handle UTC. One does DATE only not DATE-TIME in UNTIL. One does not export UNTIL any longer due to legacy and server compatibility issues, but attempts to read UNTIL as best it can.
4.3.10.d Recurrence Rule	12	3	2	2	19	63%	BYSETPOS not fully supported. No errors for incorrect data.
4.6.1.a Event Component	15	0	1	2	18	83%	Some PROPS not stored, Only last value used if specified more than once. One vendor does not export geo and url.
4.6.1.b Event Component	12	0	4	2	18	67%	Some do not support EXRULE, RDATE etc. Some PROPS not stored. Only first instance of PROP used. One does not export comment, exrule, rstatus, and related. Some only support zero or one RRULE, and no exrules.
4.6.2.a To-do Component	11	3	2	2	18	61%	Some do not support TODO. Some PROPS not stored.
4.6.2.b To-do Component	9	3	4	2	18	50%	Some do not support EXRULE, RDATE etc. Some do not support TODO. Some PROPS not stored. Only first instance of PROP used. Some do not support RRULE and EXRULE for VTODOS.
4.6.3.a Journal Component	4	7	5	2	18	22%	Most do not generate VJOURNAL. Some consume it. Some ignore it.
4.6.3.b Journal Component	3	9	3	2	17	18%	Most do not generate VJOURNAL. Some consume it. Some ignore it.
4.6.4.a Free/Busy Component	10	4	2	2	18	56%	Some do not support VFREEBUSY. Some issues with timezones. One only imports and exports with the Internet Free Busy feature. Some ignore it.
4.6.5.a Time Zone Component	10	5	1	2	18	56%	Some only use UTC.
4.6.5.b Time Zone Component	10	5	1	2	18	56%	Some only use UTC. One always exports UTC or Floating time if possible, but can import iCals which use this area of the spec.
4.6.5.c Time Zone Component	9	4	2	2	17	53%	Some only use UTC.
4.6.6.a Alarm Component	9	6	1	2	18	50%	Some do not support VALARM. Some do not support repeating alarms. Some support sending alarm components.
4.6.6.b Alarm Component	7	7	2	2	18	39%	Some do not support VALARM. Some do not support repeating alarms.
4.6.6.c Alarm Component	6	5	4	2	17	35%	Some do not support VALARM. Some do not support repeating alarms.
4.8.4.4.a Recurrence ID	11	2	2	2	17	65%	Some do not implement. Some produce just the date portion for RECURRENCE-ID; no Time and do not set DATE parameter.
4.8.4.4.b Recurrence ID	10	2	3	2	17	59%	Some do not implement. Some do not handle more than one R-ID. Some do not import/export DATE-TIME or rangeparam.
4.8.4.4.c Recurrence ID	6	4	5	2	17	35%	Some do not support XPARAMS. One only reads first XPARAM.
4.8.5.1.a Exception Date/Times	11	1	2	2	16	69%	One changes start date of instance.
4.8.5.1.b Exception Date/Times	11	2	1	2	16	69%	Some do not implement. One does not export DATE-TIME since that's implicit.
4.8.5.1.c Exception Date/Times	5	6	4	2	17	29%	Some ignore XPARAMS on EXDATE.
4.8.5.3.a Recurrence Date/Times	9	3	2	2	16	56%	One does not implement RDATE only RRULE. Some do not support VALUE=PERIOD for EXDATES or RDATES.
4.8.5.3.b Recurrence Date/Times	6	5	4	2	17	35%	Some do not support RDATE only RRULE. Some do not support XPARAMS
4.8.5.4.a Recurrence Rule	9	3	4	2	18	50%	Some do not support RDATE. Some generate new components if component changed. Some use EXDATE to detach instances. Some do not support PERIOD in RDATES.
4.8.7.4.a Sequence Number	7	3	5	2	17	41%	One changes SEQUENCE when other PROPS change. Some require new event for change. Some do not increment sequence of instance when start or end of instance is changed.
iTIP Elements						18%	
3.2.4.a VEVENT CANCEL	9	4	2	2	17	53%	Some do not support. One generates OK, but does not consume it OK.
3.2.4.b VEVENT CANCEL	6	7	2	2	17	35%	Some do not support. One generates OK, but does not consume it OK. Some use EXDATE for cancellations.
3.2.4.c VEVENT CANCEL	2	8	5	2	17	12%	Some do not support. One generates OK, but does not consume it OK. Some use EXDATE for cancellations. Some only handle single instance or the entire set. Some do not support RANGE in RECURRENCE-ID.
3.4.5.a VTODOS CANCEL	3	9	3	2	17	18%	Some do not support. Some do not support iTIP + VTODOS. One generates OK, but does not consume it OK.
3.4.5.b VTODOS CANCEL	3	9	3	2	17	18%	Some do not support. Some do not support iTIP + VTODOS. One generates OK, but does not consume it OK.
3.4.6.a VTODOS REFRESH	1	10	3	2	16	6%	Some do not support. Some do not support iTIP + VTODOS. One generates OK, but does not consume it OK.
3.5.3.a VJOURNAL CANCEL	1	10	3	2	16	6%	Some do not support. Some do not support iTIP + VJOURNAL.
3.5.3.b VJOURNAL CANCEL	0	11	3	2	16	0%	Some do not support. Some do not support iTIP + VJOURNAL.

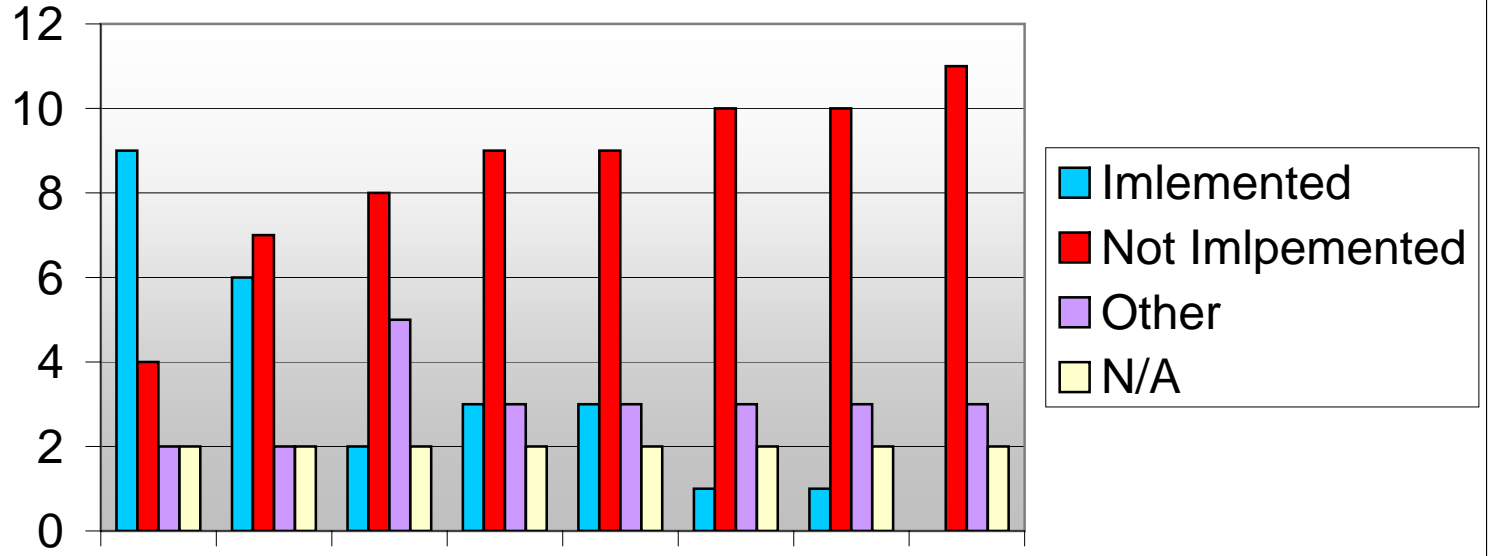
Part 3
See Part 3 tab

Part 4
See Part 4 tab

iCalendar Elements



iTip Elements



3.2.4.a VEVENT CANCEL
3.2.4.b VEVENT CANCEL
3.2.4.c VEVENT CANCEL
3.4.5.a VTODO CANCEL
3.4.5.b VTODO CANCEL
3.4.6.a VTODO REFRESH
3.5.3.a VJOURNAL CANCEL
3.5.3.b VJOURNAL CANCEL

Part 3

iTIP

Reschedules:

Additionally we have issues with other vendors who send a new rule on reschedule of recurring meeting. Reschedules are problematic for us with interop with other vendors. The other vendors want to remove the old set and replace it with the new set, but we don't allow that. We preserve the original set and try to move it to the new dates.times, but that isn't always possible if the new set that's sent has fewer/more instances than the original one.

Removing an invitee (not strictly specific to recurring):

For removing an invitee (which was bundled in with CANCEL), we do not increment sequence number on the instance (recurring or single actually) so that we can add that user back into the meeting later. If we increment the sequence number on removal, then when we try to see who is coming to our meeting, the sequence #'s will no longer match up - that data is stale now. The responses will be off by 1 (from the removal). Remove should be a separate workflow event, not requiring a bump of sequence number, be it repeating or single.

Broken up recurrence sets:

For meetings that have shifted, as in a 5 day daily repeating meeting:

Monday, Tuesday, Wednesday, Thursday, Friday all from 10-11am. If we reschedule each of these individually to be of different times, say Monday (9-10), Tuesday(8-9), Wednesday(7-8), Thursday(12-1), Friday(1-2) and then reschedule the entire set to be from 3-4pm, does that mean that the user wants each day to be from 3-4pm?

Additionally with the same scenario, if I change Monday's body item (or just 1 other field, like Subject) and then apply that to the entire set, should all of the data on Monday be deposited into the rest of the set? What if I had booked a different Room for Thursday? What if all I expected was the body to be updated (since that's all I changed) and now the Subject, location, etc. - all the fields have changed (one vendor's implementation). That's not what I expected - I expected to know that I

only wanted to update just the body field, but ical does not give us the information to know that we only intended to change body for just this instance.

Vendor has a bit of iTIP implementation, enough to accept/reject invitations, but that's it.

Rules and Rdates

RDATE is not supported at all (WHY?)

The iCalendar Recurrence rule section is very elaborate. I'm not aware of any product that conforms to it fully. Specifically, most products recognize only one RRULE and the others are ignored.

There is more than one way to specify recurrences. For example, we can specify a daily event as a FREQ=WEEKLY event with weekday = su, mo...sa or as a FREQ=DAILY. It is relatively easy to implement a recurrence engine to generate events using the rules, but we find it hard to recognize it as a daily event to be displayed in User Interface.

What is the acceptability of interpreting one rule as another (e.g. reinterpret yearly as every 12 months repeat)?

No support for multiple RRULES.

No support for EXRULES.

Cannot modify the RRULE attribute (But RDATES and EXDATES can be added).

No support/limited support for these attributes: INFINITE, SECONDLY.

Vendor supports a special recurrence option for monthly meetings where an instance that falls on a weekend can be shifted to a weekday, either the preceding Friday, the following Monday, or whichever is closer. There is no way to sufficiently represent this in iCalendar. Hypothetically, a complex series of RRULES can come close, but in cases where the adjustment would cross a month boundary there is no recourse.

Vendor is using a lot the RECURRENCE-ID / UID identification in data model to represent "detached" events, specialization for a given occurrence in a recurrence. This is apparently a much debated point in the interpretation of the specification. Vendor would like to stress the fact that iTIP support is great for invitation interoperability, but the first level should be even before invitations handling, just representation of a given

calendar ("PUBLISH" support) so entire calendars can be published, stored, subscribed and imported.

Some other problematic points with recurrences, as seen by Vendor:

the exact semantic of date-based triggers for alarms set on a recurring event

the lack of a standard, commonly accepted vtimezone definitions is a major roadblock to correctly interpret recurrences.

Date handling

DTEND property was not well defined. For example, if we have event with DTSTART=20040404T100000 and DURATION=PT2H, it is not clear if the DTEND should be 120000 or 115900. We have seen iCalendars with both the conventions.

All times are written in UTC (even when the event/todo has an RRULE) - (WHY?)

Timezones

Though not directly linked to recurrences, the timezone is one of most difficult part to implement and least useful for majority of users. Many users just use one timezone.

The big piece of hard functionality from 2445 that vendor hasn't implemented is timezones.

Standard C library APIs deal well with only two timezones: UTC, and the local timezone (whatever that is). So, vendor's library works well in these two cases, including with RRULEs that cross DST shifts. Vendor needs to implement a date-time abstraction that uses timezones as specified by VTIMEZONE. Vendor Vendor hasn't had the time yet. Suspects that the widespread lack of good apis to deal with timezones will be the biggest interop headache for many implementations. But, vendor feels that we can't take timezones out of the spec, they are critical to how time is measured/used, and we need a protocol that will work properly between CUAs in various timezones. This is hard, butr necessary.

Vendor confused by 4.6.5.c and posted two possible answers:

- 1) We never export invalid time zone information, and we never reference undeclared time zones.
- 2) A recurring apointment which gets shifted by a time zone (e.g. Daily from 1pm to 2pm PST) *can" have an exception which is all day long (floating).

CPL

Vendor implements a subset of RFC 2445, primarily RRULE reoccurrence to do time handling as specified in CPL in CPL (RFC 3880) - which in turn refers to RFC 2445 for it's implementation. CPL is a script language which

allows for the declaration of complex call forwarding behaviors, in IP telephony systems.

Sequence Number

Vendor has not seen any product that uses the sequence number field correctly.

vTo Dos and vJournal

Partial support for VTODOs (Intending on improving it).

Support for VJOURNALS in our internal API but not in ICALENDAR.

Vendor does not support VJOURNAL (little customer interest)

General Comments

It's not clear if the questions are for reading or for writing

Vendor's product really doesn't implement an iCalendar protocol.

Vendor licenses its operating system as a platform for handset manufacturers to build their products with. The answers to the questionnaire describe what conformance is enabled by the PIM data stores provided in a particular version of the vendor's operating system

Other versions do not provide iCalendar parsing/generation or RFC 2446 implementation - this functionality will be provided by handset manufacturers.

Vendor has created a toolkit, which at its lowest level is built on an RFC 2425 encoder/decoder, so it's possible to encode ANYTHING. An app built on this toolkit may encode according to the MUST rules, or may not, so many of the questions don't really apply. You can do it right, or you can do it wrong, and on decoding, vendor tries and be liberal in what is accepted. So, most of answers are either OTHER or NO. Despite this, vendor feels compliance is pretty good (in the things implemented), it's just that it's very hard to write a flexible toolkit that makes it impossible to generate calendars that break the rules.

Lots of stuff vendor hasn't done are easy, just haven't had the time or need for them yet.

In general, vendor does not always return errors for incorrect data input. However, they consume correct data properly, and produce right data in most of the above cases.

Vendor has always considered it unusual that monthly recurrence rules that might fall outside the range of shorter months result in the instance being skipped. Vendor actually forbids such a meeting, but if iCalendar is to allow such a recurrence rule, it should follow the lead of many other applications and pull the instance back to the last day of the month. Currently, it's just a little silly. If a company's employees get paid on the 15th and 30th of every month, shouldn't my iCalendar-compliant accounting application be capable of doing "the right thing" in February?

Vendor's resource scheduler product does not accept iCal documents, only generates them. Currently does not create recurrence data.

Vendor's library provides applications with support for recurrences mainly in three areas:

- translating RFC2445-style recurrences into an internal structure;
- creating recurrences (and exceptions) with a procedural API;
- iterating over instances.

Everything else is expected to be handled by the application.

More tests are needed. This is a direct consequence of the extreme complexity of the specification and the many corner cases that need to be tested.

(What are the complex areas and what corner cases need to be flushed out?)

Part 4

(1) Would you like to see a similar questionnaire for all of RFCs 2445 and 2446 (knowing that it would be quite large).

Vendor would like to see similar questionnaire for all of RFCs 2445 and especially 2446.

Vendor would like to see a similar questionnaire for RFC2445 and 2446.

(2) Was it worthwhile for you to fill this out in the sense that it allows you to compare your implementation to the proposed standards?

Yes

It was useful to fill out the questionnaire.

(3) Can you offer us any additional comments to help us do better in the future?

To be accurate, the question "Does your product conform the specification" should be split into (a) Does your product access iCalendar objects conforming to the specification and (b) Does your product generate iCalendar objects conforming to the specification. I've answered the second question because most of the time, we were reading iCalendar objects generated by us.
[We will answer this part in the second questionnaire by asking those exact questions]

Another vendor commented about the use of yes/no instead of producing/consuming.

Vendor thought It would be very helpful when all the replies would be open for reading by everyone, so that we can compare our implementations.

Vendor felt that to assist completion of future questionnaires, examples for complex areas would be useful.



Questionnaire on Implementation of Recurrence

The Recurrence Technical Committee of the Consortium is collecting specific information on how calendaring and scheduling implementations have implemented or not implemented the recurrence rules of iCalendar as part of its work to compile actual usage information and develop recommendations to CalSIFY and other efforts.

This questionnaire is **NOT** limited to Consortium members; we need information from as many different implementations as possible. We appreciate your responding to this questionnaire with as much information about your implementation as you can. If you do not know whether the response to an individual rule instance is "Yes" or "No" please leave the response blank. We welcome as much information as you are able and willing to supply. If we have questions or are unclear about your responses we will contact you via the e-mail address you supply.

Our goal is to obtain a broad perspective on how recurrence has been dealt with in existing implementations. The final report which the Consortium will make public will not identify any particular product or implementation, nor will it present the results in a way which will allow such inferences to be made.

Part 1. Product/Implementation being reported

Please specify the product or implementation name, your name, and your e-mail address. We will contact you via e-mail if we have any questions or are unclear about any of your responses.

Product/Implementation Name:

Name of Person Reporting:

E-Mail Address:

Part 2. Specific Implementation Information

This table contains elements for specific rules from RFC 2445. For each one, please indicate whether the implementation does (Yes) or does not (No)

conform to the stated rule. If you have comments, issues or questions about this rule please enter in the Comment line under the rule.

Note 1: The *MUSTs*, *MUST NOTs*, etc. in the specs refer to both consumption and production of the relevant items. To be compliant you have to do both correctly. So for the purposes of the questionnaire please answer *YES* only if you both produce and consume the item correctly (or if your implementation only does one thing - i.e. just consumes - then answer *YES* to that if it conforms). Ignore any behavior for non-compliant data being consumed.

Note 2: If you cannot reasonably answer either *Yes* or *No* to a question, please respond "*Other*" and explain the problem or situation in the comment line (or, if the statement is too long for the comment line, in the comment area at the end of the form.

RFC 2445 - iCalendar elements		
4.3.10.a Recurrence Rule <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	Individual rule parts MUST only be specified once. <input type="text"/>
4.3.10.b Recurrence Rule <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	The <i>FREQ</i> rule part identifies the type of recurrence rule. This rule part MUST be specified in the recurrence rule. <input type="text"/>
4.3.10.c Recurrence Rule <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	If <i>UNTIL</i> is specified as a date-time value, then it MUST be specified in a UTC time format. <input type="text"/>
4.3.10.d Recurrence Rule <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	<i>BYSETPOS</i> MUST only be used in conjunction with another <i>BYxxx</i> rule part. <input type="text"/>
4.6.1.a Event Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	The following are optional but MUST NOT occur more than once: <i>class</i> / <i>created</i> / <i>description</i> / <i>dtstart</i> / <i>geo</i> / <i>last-mod</i> / <i>location</i> / <i>organizer</i> / <i>priority</i> / <i>dstamp</i> / <i>seq</i> / <i>status</i> / <i>summary</i> / <i>transp</i> / <i>uid</i> / <i>url</i> / <i>recurid</i> . <input type="text"/>
4.6.1.b Event Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MAY	The following are optional and MAY occur more than once: <i>attach</i> / <i>attendee</i> / <i>categories</i> / <i>comment</i> / <i>contact</i> / <i>exdate</i> / <i>exrule</i> / <i>rstatus</i> / <i>related</i> / <i>resources</i> / <i>rdate</i> / <i>rrule</i> / <i>x-pro</i> . <input type="text"/>
4.6.2.a To-do Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	The following are optional, but MUST NOT occur more than once: <i>class</i> / <i>completed</i> / <i>created</i> / <i>description</i> / <i>dstamp</i> / <i>dtstart</i> / <i>geo</i> / <i>last-mod</i> / <i>location</i> / <i>organizer</i> / <i>percent</i> / <i>priority</i> / <i>recurid</i> / <i>seq</i> / <i>status</i> / <i>summary</i> / <i>uid</i> / <i>ur</i> . <input type="text"/>
4.6.2.b To-do Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MAY	The following are optional, and MAY occur more than once: <i>attach</i> / <i>attendee</i> / <i>categories</i> / <i>comment</i> / <i>contact</i> / <i>exdate</i> / <i>exrule</i> / <i>rstatus</i> / <i>related</i> / <i>resources</i> / <i>rdate</i> / <i>rrule</i> / <i>x-pro</i> . <input type="text"/>
4.6.3.a Journal Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	The following are optional, but MUST NOT occur more than once: <i>class</i> / <i>created</i> / <i>description</i> / <i>dtstart</i> / <i>dstamp</i> / <i>last-mod</i> / <i>organizer</i> / <i>recurid</i> / <i>seq</i> / <i>status</i> / <i>summary</i> / <i>uid</i> / <i>url</i> . <input type="text"/>

4.6.3.b Journal Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MAY	The following are optional, and MAY occur more than once: attach / attendee / categories / comment / contact / exdate / exrule / related / rdate / rule / rstatus / x-pro. <hr/>
4.6.4.a Free/Busy Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	The recurrence properties ('RRULE','EXRULE','RDATE','EXDATE') are not permitted within a 'VFREEBUSY' calendar component. Any recurring events are resolved into their individual busy time periods using the 'FREEBUSY' property. <hr/>
4.6.5.a Time Zone Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	The 'VTIMEZONE' calendar component MUST be present if the iCalendar object contains an RRULE that generates dates on both sides of a time zone shift. <hr/>
4.6.5.b Time Zone Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MAY	A 'VTIMEZONE' calendar component MAY be present if the iCalendar object does not contain an RRULE that generates dates on both sides of a time zone shift. <hr/>
4.6.5.c Time Zone Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	If an RRULE that generates dates on both sides of a time zone shift is present, there MUST be valid time zone information for all recurrence instances. <hr/>
4.6.6.a Alarm Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	'DURATION' and 'REPEAT' are both optional, and MUST NOT occur more than once each, but if one occurs, so MUST the other. <hr/>
4.6.6.b Alarm Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	A definition of an alarm with a repeating trigger MUST include both the 'DURATION' and 'REPEAT' properties. <hr/>
4.6.6.c Alarm Component <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	Both 'DURATION' and 'REPEAT' properties MUST be present in order to specify a repeating alarm. If one of these two properties is absent, then the alarm will not repeat beyond the initial trigger. <hr/>
4.8.4.4.a Recurrence ID <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	If the value of the 'DTSTART' property is a 'DATE' type value, then the value MUST be the calendar date for the recurrence instance. <hr/>
4.8.4.4.b Recurrence ID <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	The following are optional, but MUST NOT occur more than once: "VALUE" "=" ("DATE-TIME" / "DATE"), tzidparam, rangeparam. <hr/>
4.8.4.4.c Recurrence ID <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MAY	The following are optional, and MAY occur more than once: xparam. <hr/>
4.8.5.1.a Exception Date/Times <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	The "EXDATE" property can be used to exclude the value specified in "DTSTART". However, in such cases the original "DTSTART" date MUST still be maintained by the calendaring and scheduling system because the original "DTSTART" value has inherent usage dependencies by other properties such as the "RECURRENCE-ID".

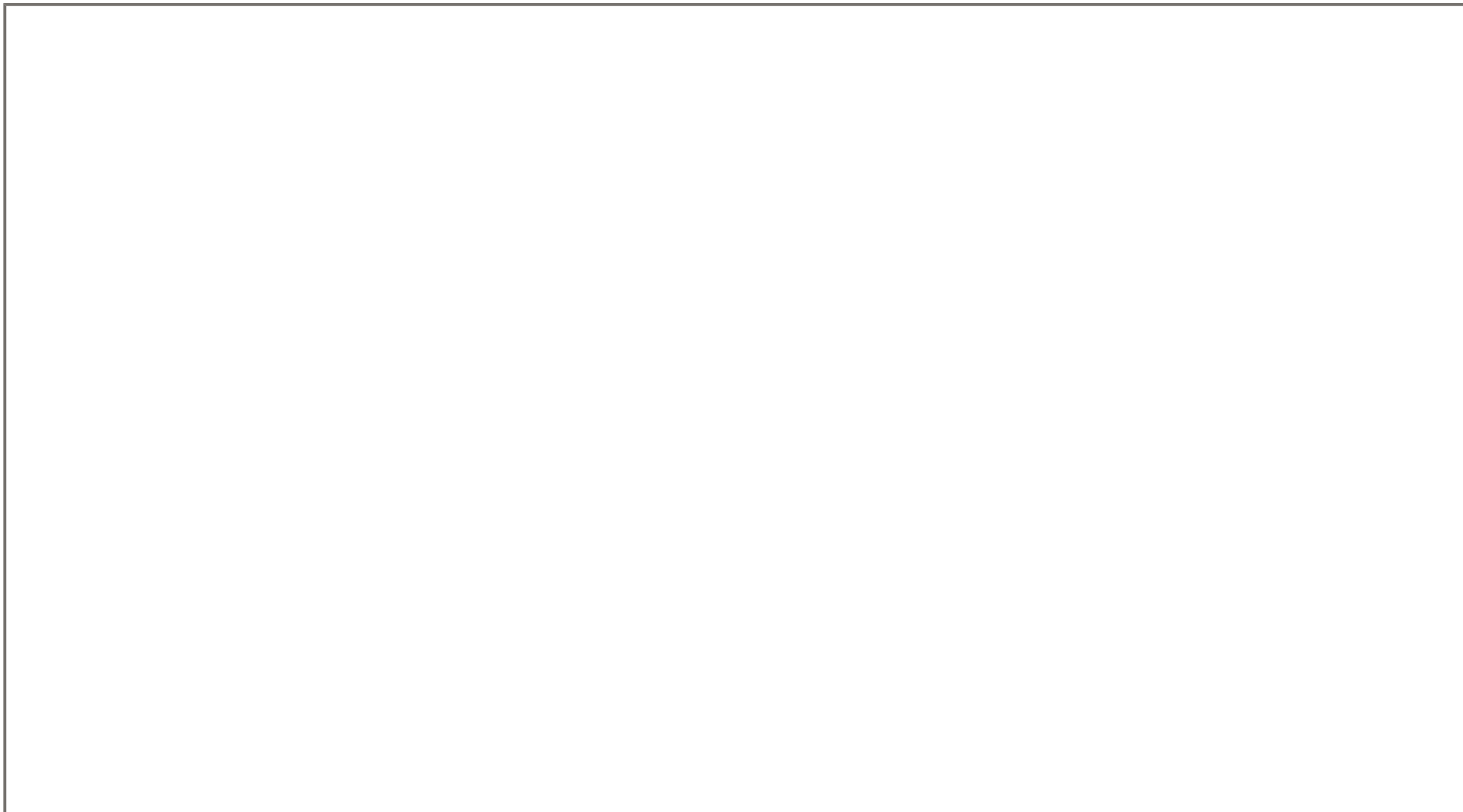
4.8.5.1.b Exception Date/Times <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	The following are optional, but MUST NOT occur more than once: "VALUE" "=" ("DATE-TIME" / "DATE"), tzidparam. _____ _____
4.8.5.1.c Exception Date/Times <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MAY	The following is optional, and MAY occur more than once: xparam. _____ _____
4.8.5.3.a Recurrence Date/Times <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST NOT	The following are optional, but MUST NOT occur more than once: "VALUE" "=" ("DATE-TIME" / "DATE" / "PERIOD"), tzidparam. _____ _____
4.8.5.3.b Recurrence Date/Times <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MAY	The following is optional, and MAY occur more than once: xparam. _____ _____
4.8.5.4.a Recurrence Rule <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	Any duration associated with the iCalendar object applies to all members of the generated recurrence set. Any modified duration for specific recurrences MUST be explicitly specified using the "RDATE" property. _____ _____
4.8.7.4.a Sequence Number <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	When the "Organizer" makes changes to one of the following properties, the sequence number MUST be incremented: "DTSTART", "DTEND", "DUE", "RDATE", "RRULE", "EXDATE", "EXRULE", "STATUS". _____ _____
RFC 2446 - iTIP elements		
3.2.4.a VEVENT CANCEL <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	To cancel the complete range of a recurring event, the "UID" property value for the event MUST be specified and a "RECURRENCE-ID" MUST NOT be specified in the "CANCEL" method. _____ _____
3.2.4.b VEVENT CANCEL <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	In order to cancel an individual instance of the event, the "RECURRENCE-ID" property value for the event MUST be specified in the "CANCEL" method. _____ _____
3.2.4.c VEVENT CANCEL <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	Cancelling multiple VEVENT instances MUST be done with either "RECURRENCE-ID" and "RANGE" OR multiple "RECURRENCE-ID" values. _____ _____
3.4.5.a VTODO CANCEL <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	To cancel the complete range of a recurring "VTODO" calendar component, the "UID" property value for the "VTODO" calendar component MUST be specified and a "RECURRENCE-ID" MUST NOT be specified in the "CANCEL" method. _____ _____
3.4.5.b VTODO CANCEL <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other	MUST	In order to cancel an individual instance of a recurring "VTODO" calendar component, the "RECURRENCE-ID" property value for the "VTODO" calendar component MUST be specified in the "CANCEL" method. _____ _____

<p>3.4.6.a VTODDO REFRESH</p> <p><input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other</p>	MUST	<p>A refresh of a recurrence instance of a "VTODDO" calendar component may be requested by specifying the "RECURRENCE-ID" property corresponding to the associated "VTODDO" calendar component. The "Organizer" responds with the latest description and rendition of the "VTODDO" calendar component. In most cases this will be a REQUEST unless the "VTODDO" has been cancelled, in which case the ORGANIZER must send a "CANCEL". This method is intended to facilitate machine processing of requests for updates to a "VTODDO" calendar component.</p>
<p>3.5.3.a VJOURNAL CANCEL</p> <p><input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other</p>	MUST	<p>To cancel the complete range of a recurring journal entry, the "UID" property value for the journal entry MUST be specified and a "RECURRENCE-ID" property MUST NOT be specified in the "CANCEL" method.</p>
<p>3.5.3.b VJOURNAL CANCEL</p> <p><input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Other</p>	MUST	<p>In order to cancel an individual instance of the journal entry, the "RECURRENCE-ID" property value for the journal entry MUST be specified in the "CANCEL" method.</p>

Part 3. Additional Comments or Issues with Recurrences

Please use the following area¹ to provide any additional comments or issues with recurrences that may not be addressed above; known interop issues with a particular other implementation that might conflict with your implementation; etc.

¹If your comments are likely to be long, please send them by e-mail to Dave.Thewlis@calconnect.org and reference the questionnaire response to which they belong.



Part 4. Feedback on Value of this Questionnaire

We would appreciate your feedback on this questionnaire. Specifically, (1) Would you like to see a similar questionnaire for all of RFCs 2445 and 2446 (knowing that it would be quite large). (2) Was it worthwhile for you to fill this out in the sense that it allows you to compare your implementation to the proposed standards? (3) Can you offer us any additional comments to help us do better in the future?

Part 5. Completion and Submission

Please review your completed questionnaire carefully. You may use the "CLEAR" button below to clear the entire form and re-enter all information. Use the "SEND" button to transmit the completed questionnaire to us.

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