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TITLE: **Calendar Interoperability Testing Report – Public
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Author: Patricia Egen

Contributing Authors: Gordon Connelly, Cyrus Daboo, Bernard Desruisseaux, Michael
Douglass, Jon Drummond, Firdosh Ghyara, Helge Heß, Morgen Sagen,
Matt Shepherd

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Introduction

The June 2009 CalConnect interoperability testing event was held at the Vendor 2 campus at Redwood Shores, California. Participants of the testing event used predetermined test scenarios. Rather than post the full scenarios in this document, they can be found on the CalConnect website at the following URL: <http://www.calconnect.org/iop testing.shtml>.

The documents used in this testing event were the CalConnect CalDAV Matrix for Draft 08, in particular the scheduling section and iCalendar, iMIP and iTIP testing matrix. Summaries and specific findings and issues found are noted in this document.

Participants

Organization	Participants	Versions Tested
Apple	Cyrus Daboo	iCal Server and client - OS X 10.5.3 iCal client 4.0
	Morgen Sagen	
	Jon Drummond	
	Matt Shepherd	
Microsoft	Firdosh Ghyara	Exchange 14 Beta
Oracle	Bernard Desruisseaux	
	Simon Vaillancourt	
RPI	Michael Douglass	Bedework
PeopleCube	Kellie Hunter	Meetingmaker V8.8
	Gordon Connelly	
Zideone	Helge Heß	
CalConnect Reps		
Interop Manager Logistics	Pat Egen Dave Thewlis	

Participant Comments and Findings

CALDAV Testing:

Vendor 1

Vendor 2 server worked well with Vendor 1. We had some trouble at first with recurring meetings, but that was resolved server-side. The only part of the interop that didn't end in an outright "Pass" was the use of the inbox, since the server uses a "virtual" inbox and doesn't actually create and store messages in it. Either way, this didn't really have any impact on Vendor 1. The auto-scheduling was working nicely.

Vendor 1 vs. Vendor 5:

We had some initial issues where the server did not adhere to various elements of the WebDAV/CalDAV spec, which caused problems with loading the account into Vendor 1. I hacked around that on the client side in order to test and reported the issues to Vendor 5, but that will need to be fixed server-side before it will work with stock Vendor 1.

Vendor 1 encountered many 500 errors from the server, so testing was limited by that. The server was continually setting the organizer's attendee to RSVP=TRUE, which caused display issues in Vendor 1. The server also stripped all but display alarms. Free-busy lookups did work well, though.

Vendor 1 vs. VENDOR 3:

500 errors when adding alarms or attendees prevented much of the tests in the matrix.

Vendor 1 client testing matrix results chart.

Vendor 2	Servers			P = Pass / F = Fail / N = Not supported	Comments
	Vendor 5	VENDOR 3			
			1.	Event creation.	
P	P	P	1.1.	Create new single-instance meeting titled "Meeting 1.1" with the location "Durham".	Vendor 5: setting organizer's attendee to RSVP=TRUE causes display weirdness in Vendor 1
P	P	P	1.2.	Create new meeting titled "Meeting 1.2" recurring every Monday from 10:00 AM to 11:00 AM for 4 weeks.	
P	P	F	1.3.	Create new single-instance meeting titled "Meeting 1.3" with 2 other attendees.	
P	P/F	F	1.4.	Create new single-instance meeting titled "Meeting 1.4" with an alarm set to trigger 15 minutes prior to the schedule time of the meeting.	Vendor 5: only DISPLAY alarms remain, all others are stripped
			2.	Event modification	
P	P/F	P	2.1.	Modify the title of meeting "Meeting 1.1" to "Meeting 1.1bis".	Vendor 5: sometimes it worked, sometimes it failed.
P	P/F	P	2.2.	Modify the location of the meeting "Meeting 1.1bis" to "Seattle bis".	Vendor 5: see 2.1
P	P	P	2.3.	Reschedule meeting "Meeting 1.1bis" to the next day.	
P	P	F	2.4.	Add an attendee to "Meeting 1.1bis".	
P	P	F	2.5.	Add an alarm to "Meeting 1.1bis".	
P	F	P	2.6.	Modify the title of the 1st instance of the recurring meeting created in 1.2.	
P	P	F	2.7.	Modify the participation status of the 1st attendee in meeting 1.3 to DECLINED.	VENDOR 3: cannot add attendees
P	P	P	2.8.	Cancel the 4th instance of the recurring meeting created in 1.2.	
P	P	F	2.9.	One client changes "Meeting 1.1bis" to a different time, second client 'refreshes' its	VENDOR 3: see 1.3, 2.7

display to see the modification.

N	N	N	3. Event retrieval	
			3.1. calendar-query REPORT	Vendor 1 does not implement calendar-query REPORT
			3.1.1. No filtering (match everything)	
			3.1.1.1. Query all components and return all data. (tests <calendar-query> and <filter>)	
			3.1.1.2. Query all components and return ETag WebDAV property and all data. (tests <calendar-query>+ <DAV:prop> and <filter>)	
			3.1.1.3. Query all components and return just entire VEVENT components. (tests <calendar-query> , <filter>+<comp-filter>)	
			3.1.1.4. Query all components and return VEVENT components with only DTSTART, DTEND/DURATION, SUMMARY, UID, SEQUENCE, RRULE, RDATE, EXRULE, EXDATE, RECURRENCE-ID. (tests <calendar-query> , <filter>+<comp-filter>, <calendar-data>+<comp>+<prop>)	
			3.1.2. time-range filtering	
			3.1.2.1. Query all components within a one day time-range and return all data. Make sure that there is a recurring event that starts prior to the chosen time-range but has one non-overridden instance within the time-range. (tests <calendar-query> , <filter>+<time-range>)	
			3.1.2.2. Query all components within a one week time-range and return just entire VEVENT components. Make sure that there is a recurring event that starts prior to the chosen time-range but has one overridden instance within the time-range. (tests <calendar-query> , <filter>+<time-range>)	
			3.1.3. component based filtering	
			3.1.3.1. Query all components that contain an embedded VALARM component. (tests <calendar-query> , <filter>+<comp-filter>)	

- 3.1.3.2. Query all components that contain an embedded VALARM component whose trigger falls within a specific time-range. (tests <calendar-query> , <filter>+<comp-filter>+<prop-filter>+<time-range>)
- 3.1.4. property based filtering
 - 3.1.4.1. Query all components that contain any ORGANIZER property. (tests <calendar-query> , <filter>+<prop-filter>+<is-defined>)
 - 3.1.4.2. Query all components that contain an ORGANIZER property with a specific CUA text value case-insensitively. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<caseless>)
 - 3.1.4.3. Query all components that contain an ORGANIZER property with a specific CUA text value case-sensitively. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<caseless>)
- 3.1.5. parameter based filtering
 - 3.1.5.1. Query all components that contain a DTSTART property with a TZID parameter. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<param-filter>+<is-defined>)
 - 3.1.5.2. Query all components that contain an ATTENDEE property with PARTSTAT=NEEDS-ACTION parameter. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<param-filter>+<text-match>)
- 3.2. calendar-multiget REPORT
 - 3.2.1. Query a specific href and return all data. (tests <calendar-multiget >)
 - 3.2.2. Query multiple hrefs (some of which do not exist) and return all data. (tests <calendar-multiget >)
 - 3.2.3. Query a specific href and return ETag WebDAV property and all data. (tests <calendar-multiget >+ <DAV:prop >)

			3.2.4.	Query multiple hrefs (some of which do not exist) and return ETag WebDAV property and all data. (tests <calendar-multiget >+ <DAV:prop >)	
			3.2.5.	Query a specific href and return VEVENT components with only DTSTART, DTEND/DURATION, SUMMARY, UID, SEQUENCE, RRULE, RDATE, EXRULE, EXDATE, RECURRENCE-ID. (tests <calendar-query >, <calendar-data>+<comp>+<prop>)	
			3.2.6.	Query multiple hrefs (some of which do not exist) and return VEVENT components with only DTSTART, DTEND/DURATION, SUMMARY, UID, SEQUENCE, RRULE, RDATE, EXRULE, EXDATE, RECURRENCE-ID. (tests <calendar-query >, <calendar-data>+<comp>+<prop>)	
			4.	Event deletion	
P	P	P	4.1.	Delete a single non-recurring meeting.	
P	P	P	4.2.	Delete a single recurring meeting with no overridden instances.	Vendor 2: 4.2-4.5 originally failed but server changes made during meeting led to success.
P	F	P	4.3.	Delete a single recurring meeting with overridden instances.	
P	F	P	4.4.	Delete a non-overridden instance of a recurring meeting.	
P	F	P	4.5.	Delete an overridden instance of a recurring meeting.	
			5.	Access Control	
N	N	N	5.1.	View access control details on current user's main calendar.	
N	N	N	5.2.	Change access control details on current user's main calendar to add another user with read-only access. Verify that other user can view the calendar but not change it.	
N	N	N	5.3.	Change access control details on current user's main calendar to add another user with read-write access. Verify that other user can view the calendar and change it. Verify that changes done by one user are seen by	

the other.

N	N	N	5.4.	Remove another user's access to the current user's main calendar and verify they can no longer access the calendar.	
			6	Calendar Management	
P	P	P	6.1	Browse the list of calendars on the server, including the current user's personal calendars.	
P	F/N	F	6.2	Create a new calendar in the current user's personal calendar space.	Vendor 5: does not support this
N	N	N	6.3	Create a regular collection in the current user's personal calendar space.	Vendor 1 does not implement creation of regular collections.
N	N	N	6.4	Create a new calendar inside the collection created in 6.3.	
P	N	F	6.5	Delete the calendar created in 6.2.	
N	N	N	6.6	Delete the collection created in 6.3.	
			7	Free Busy Reports	
			Setup	Create a new calendar and populate it with the following for one week:	NOTE: Vendor 1 does not differentiate between tentative and unavailable in the availability interface UI.
				Event on Monday, 9 am - 11 am, recurs every day for five times	
				Event on Monday, 12 pm - 1 pm, status tentative	
				Event on Monday, 2 pm - 3 pm, status cancelled	
				Event on Tuesday, 11 am - 12 pm	
				Event on Tuesday, 2 pm - 4 pm, recurs every day for four times	
				Event on Tuesday, 3 pm - 5 pm	
				Event on Wednesday, 11 am - 12 pm, status tentative	
				Event on Wednesday, 3 pm - 5 pm, status tentative	
				Event on Thursday, 11 am - 12 pm, status cancelled	
				Event on Thursday, 3 pm - 5 pm, status cancelled	
P	P	?	7.1	Run a free-busy report for the entire week.	VENDOR 3: unable to test because cannot add attendees
P	P	?	7.1.1	Verify two FREEBUSY periods for Monday, the second is	

BUSY-TENTATIVE.

P	P	?	7.1.2	Verify two FREEBUSY periods for Tuesday.	
P	P	?	7.1.3	Verify four FREEBUSY periods for Wednesday, second and fourth are BUSY-TENTATIVE and one hour long.	
P	P	?	7.1.4	Verify two FREEBUSY periods for Thursday.	
			7.1.5		
P	P	?	7.1.5	Verify two FREEBUSY periods for Friday.	
			8	Scheduling	
			Setup	Three user accounts user1 (role Organizer), user2 (role Attendee), user3 (role Attendee) provisioned with suitable principal properties for calendar home, inbox, outbox and user addresses.	NOTE: Vendor 2 server uses a virtual inbox, and attendee replies are not relayed back to the organizer. Vendor 5 does not make use of the inbox (events are updates automatically by the server); VENDOR 3: unable to test because cannot add attendees
P	N	?	8.1	Organizer (user1) sends non-recurring message invite for Monday at 9am (1 hour) to each attendee. Verify that each attendee Inbox receives a copy of the invite.	
F/N	N	?	8.2	Attendee (user2) accepts invite and sends back reply. Verify that reply is placed in Organizer Inbox.	
P/N	N	?	8.3	Organizer (user1) updates invite with user2 accept state and resends invite. Verify that each attendee Inbox receives a copy of the new invite.	
F/N	N	?	8.4	Attendee (user3) accepts updated invite and sends back reply. Verify that reply is placed in Organizer Inbox.	
P/N	N	?	8.5	Organizer (user1) updates invite with user3 accept state and resends invite. Verify that each attendee Inbox receives a copy of the new invite.	Vendor 2 passes inbox messages only for certain event updates.
F/N	N	?	8.6	Organizer (user1) cancels the invite. Verify that each attendee Inbox receives the cancellation.	

Vendor 1 server observations:

Primarily interested in testing with Vendor 6. Some bugs found and fixed. Overall seemed to work well. We also did some CardDAV testing with Vendor 6. Again bugs found and fixed.

VENDOR 3 Observations

VENDOR 3 spent a significant amount of time with Vendor 6 testing the CardDAV server against their Outlook plugin. As a first try went fairly well. Vendor 6 was eventually able to create and read CardDAV entries.

Following day spent some time with Vendor 2 product testing iSchedule. After some fixing of bugs at both ends managed to successfully handle a meeting invitation.

Vendor 1 tried against Vendor 3 on Monday and ran into a recently introduced bug which was fixed soon after. I don't believe they retried any tests.

Vendor 5 observations:

Vendor 5 servlet vs. Vendor 1

Issues found that resulted in problems loading the account into Vendor 1 client. These issues do not occur with the current release version of Vendor 1 Vendor 1 3.x. Additional testing with the Vendor 1 Vendor 1 4.0 client to understand the changes and tighter adaptation of the CalDAV specification in specific areas is required on the Vendor 5 Servlet.

Found that a new draft regarding delegates is in the works and has been adopted by Vendor 1 and others already. Vendor 5 will review and make changes as it appears to be a cleaner way to manage and display delegates.

Found defects related to recurring patterns and modification of single instance. Additional instances added after exceptions are made to the recurring string.

Need additional support in Vendor 5 CalDAV servlet for all notification options.

Need to determine why we are adding RSVP=TRUE value for the organizer of an event after a modification. Caused internal error 500 issues and display issues.

Limited clients to test against server this time around.

Vendor 6 Observations

In summary the test event was very useful for us. From a CalDAV perspective all products are still in very early stages (IMHO). The event showed quite a few serious issues in the CalDAV layer of all products. For me this was a reason why we couldn't do that much 'formal' testing. We always ran into issues to be solved quite quickly. What I basically did was:

- a) test against Vendor 2
 - initially the server 'crashed' (500 HTTP error) on some requests sent by us, but Simon was able to rather quickly fix this
 - we tested a bit of implicit scheduling, this worked quite well
- b) test against the Vendor 3 LDAP<->CardDAV gateway
 - the Vendor 3 CardDAV gateway was in its very early stages, so I worked with Mike to improve it
 - at the end of the IOP we could get/edit contacts in the server.

- also discussed issues with cross-server CalDAV result sets, which Vendor 3 seems to be using and which seems to break many clients (didn't manage to test it). Cyrus suggested to use WebDAV Binds instead.

c) test against Vendor 5

- this server was a bit slow (requiring ~20s to update a record), but was the only one which didn't produce 500 errors :-)
- didn't test that much on it, but the shallow testing I did, was OK

d) test against Vendor 1

- we found issues in the 'principal discovery', when trying to query the root of the server
- this seems to be a rather 'generic' issue which produces interop issues
- We tested implicit scheduling and found a bug in our Vendor 1 code which we fixed on site.
- Discussed the implementation of WebDAV XMPP.
- (BTW: Vendor 1 didn't bring its new CardDAV server, but we successfully tested that before)

The table below shows the CALDAV testing matrix items tested by Vendor 6 against the Vendor 1 server.

	1.	Event creation.	
P	1.1.	Create new single-instance meeting titled "Meeting 1.1" with the location "Durham".	
P	1.2.	Create new meeting titled "Meeting 1.2" recurring every Monday from 10:00 AM to 11:00 AM for 4 weeks.	
P	1.3.	Create new single-instance meeting titled "Meeting 1.3" with 2 other attendees.	
P/N	1.4.	Create new single-instance meeting titled "Meeting 1.4" with an alarm set to trigger 15 minutes prior to the schedule time of the meeting.	alarm not exported, but stored locally, won't trigger alarms in secondary folders
	2.	Event modification	
P	2.1.	Modify the title of meeting "Meeting 1.1" to "Meeting 1.1bis".	
P	2.2.	Modify the location of the meeting "Meeting 1.1bis" to "Seattle bis".	
P	2.3.	Reschedule meeting "Meeting 1.1bis" to the next day.	
P	2.4.	Add an attendee to "Meeting 1.1bis".	does not prompt to send an email
P	2.5.	Add an alarm to "Meeting 1.1bis".	alarm not exported, but stored locally, won't trigger alarms in secondary folders
N	2.6.	Modify the title of the 1st instance of the recurring meeting created in 1.2.	recurrence exceptions still unsupported
P	2.7.	Modify the participation status of the 1st attendee in meeting 1.3 to DECLINED.	Partstat panel does not show up (hm). Had to press 'send invitations' to make it show up. Then it worked for a Vendor 1 server external participant (plain email)
N	2.8.	Cancel the 4th instance of the recurring meeting created in 1.2.	recurrence exceptions still unsupported

P	2.9.	One client changes "Meeting 1.1bis" to a different time, second client 'refreshes' its display to see the modification.	Prompts the user and reminds that the reminder won't be triggered.
	3.	Event retrieval	
N	3.1.	calendar-query REPORT	not used in Vendor 6
N	3.1.1.	No filtering (match everything)	not used in Vendor 6
N	3.1.1.1.	Query all components and return all data. (tests <calendar-query> and <filter>)	not used in Vendor 6
N	3.1.1.2.	Query all components and return ETag WebDAV property and all data. (tests <calendar-query>+ <DAV:prop> and <filter>)	not used in Vendor 6
N	3.1.1.3.	Query all components and return just entire VEVENT components. (tests <calendar-query> , <filter>+<comp-filter>)	not used in Vendor 6
N	3.1.1.4.	Query all components and return VEVENT components with only DTSTART, DTEND/DURATION, SUMMARY, UID, SEQUENCE, RRULE, RDATE, EXRULE, EXDATE, RECURRENCE-ID. (tests <calendar-query> , <filter>+<comp-filter> , <calendar-data>+<comp>+<prop>)	not used in Vendor 6
N	3.1.2.	time-range filtering	not used in Vendor 6
N	3.1.2.1.	Query all components within a one day time-range and return all data. Make sure that there is a recurring event that starts prior to the chosen time-range but has one non-overridden instance within the time-range. (tests <calendar-query> , <filter>+<time-range>)	not used in Vendor 6
N	3.1.2.2.	Query all components within a one week time-range and return just entire VEVENT components. Make sure that there is a recurring event that starts prior to the chosen time-range but has one overridden instance within the time-range. (tests <calendar-query> , <filter>+<time-range>)	not used in Vendor 6
N	3.1.3.	component based filtering	not used in Vendor 6
N	3.1.3.1.	Query all components that contain an embedded VALARM component. (tests <calendar-query> , <filter>+<comp-filter>)	not used in Vendor 6
N	3.1.3.2.	Query all components that contain an embedded VALARM component whose trigger falls within a specific time-range. (tests <calendar-query> , <filter>+<comp-filter>+<prop-filter>+<time-range>)	not used in Vendor 6
N	3.1.4.	property based filtering	not used in Vendor 6
N	3.1.4.1.	Query all components that contain any ORGANIZER property. (tests <calendar-query> , <filter>+<prop-filter>+<is-defined>)	not used in Vendor 6

N	3.1.4.2.	Query all components that contain an ORGANIZER property with a specific CUA text value case-insensitively. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<caseless>)	not used in Vendor 6
N	3.1.4.3.	Query all components that contain an ORGANIZER property with a specific CUA text value case-sensitively. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<caseless>)	not used in Vendor 6
N	3.1.5.	parameter based filtering	not used in Vendor 6
N	3.1.5.1.	Query all components that contain a DTSTART property with a TZID parameter. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<param-filter>+<is-defined>)	not used in Vendor 6
N	3.1.5.2.	Query all components that contain an ATTENDEE property with PARTSTAT=NEEDS-ACTION parameter. (tests <calendar-query> , <filter>+<prop-filter>+<text-match>+<param-filter>+<text-match>)	not used in Vendor 6
P	3.2.	calendar-multiget REPORT	used and works
P	3.2.1.	Query a specific href and return all data. (tests <calendar-multiget >)	
P	3.2.2.	Query multiple hrefs (some of which do not exist) and return all data. (tests <calendar-multiget >)	hard to trigger in the Vendor 6 plugin, but works
P	3.2.3.	Query a specific href and return ETag WebDAV property and all data. (tests <calendar-multiget >+ <DAV:prop >)	used and works
P	3.2.4.	Query multiple hrefs (some of which do not exist) and return ETag WebDAV property and all data. (tests <calendar-multiget >+ <DAV:prop >)	hard to trigger in the Vendor 6 plugin, but works
N	3.2.5.	Query a specific href and return VEVENT components with only DTSTART, DTEND/DURATION, SUMMARY, UID, SEQUENCE, RRULE, RDATE, EXRULE, EXDATE, RECURRENCE-ID. (tests <calendar-query > , <calendar-data>+<comp>+<prop>)	not used in Vendor 6
N	3.2.6.	Query multiple hrefs (some of which do not exist) and return VEVENT components with only DTSTART, DTEND/DURATION, SUMMARY, UID, SEQUENCE, RRULE, RDATE, EXRULE, EXDATE, RECURRENCE-ID. (tests <calendar-query > , <calendar-data>+<comp>+<prop>)	not used in Vendor 6

Summary

This Interop showed continued improvement in iCalendar and CALDAV interoperability. As is typical, 500 errors caused difficulties in interoperability with several clients and servers.

We are starting to see a bit of testing with CardDAV and iSchedule. This is still quite early in the development cycle of these protocols and no set testing matrix is in place for testing.

Our thanks to all participants and contributors to this document.

Respectfully submitted by Pat Egen, CalConnect Interop Manager.