

Introducing **iCalVerter**

The ics to O365 cleanup tool

Welcome attendees.
Thanks for coming.
etc



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Introduction. Social media. Amsys for 11 years.

Introduction

Introduction

- Better 'Cloud' Solutions for email
- Moving more and more of our small / medium Business customers to Cloud solutions
- Made easier with on-boarding tools
- Current solution is Kerio Connect
- Kerio is incompatible with the Exchange-based on-boarding tools.

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Over the last few years, cloud-hosted solutions, specifically Mail, Contacts and Calendars solutions have become more popular, simpler and cheaper.

As a result, we've moved more and more of our Small / Medium business customers to cloud solutions (specifically O365).

Most of these clients (as you can imagine) run Mac servers, so Kerio Connect was used to host their 'current' mail solutions as we felt its a better offering than the built in Mail server.

O365 makes this process simpler with this on-boarding or migration tools.

Kerio Connect spoofs an Exchange server for connectivity, but not enough to use the O365 Exchange migration tools.

Introduction

- IMAP migration required for email
- Manual export / import (per user) required for contacts and calendars.



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That means we need to rely on the O365 IMAP migration for email data. Not too bad.

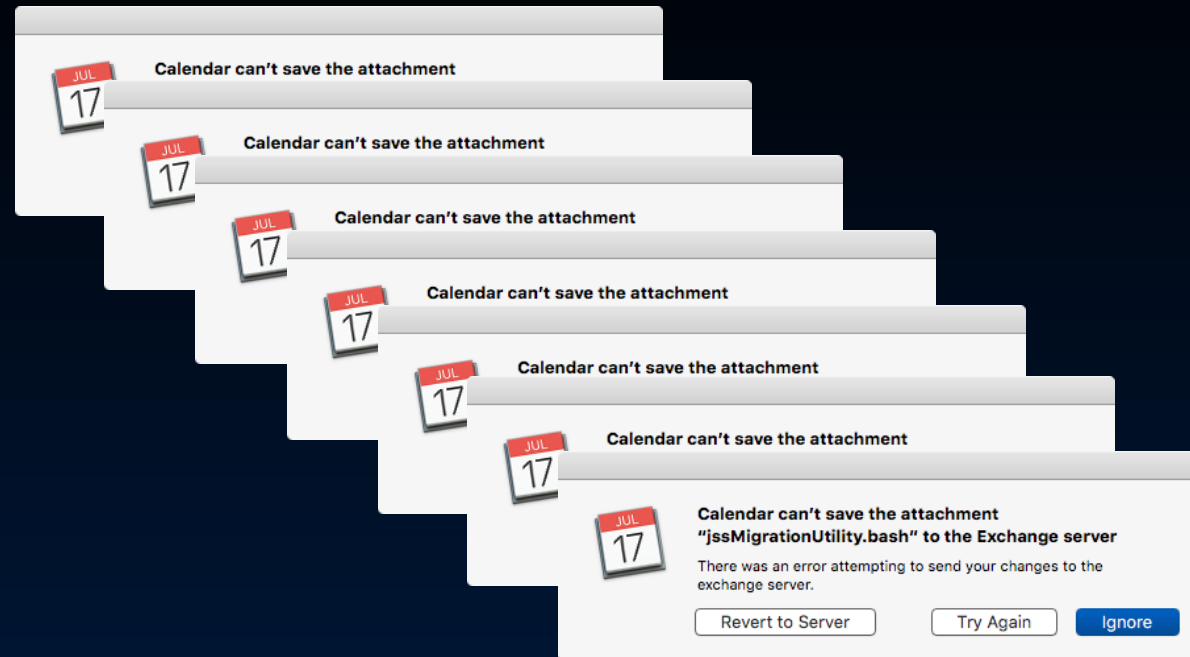
What about Calendars and contacts? *CLICK*

Manual export required. Per user/account... *CLICK*

The Issue Challenge

Now thats time consuming but isn't too difficult or technically taxing...
That is, until the Calendar imports hit something they don't like...

The Issue Challenge



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And you see this message ^^

This appears when trying to import / upload an event that the system doesn't like.

CLICK

This happens for every single event that the import doesn't like

CLICK

This can be anywhere between a few times...up to 100s especially if the user in question has years and years of calendar data to be imported (David Acland can attest to this when we completed our internal migration).

Additionally, the only option that seems to clear the message fully is the "Revert to Server" button, and this then does not import the event causing the issue at all

The Issue Challenge



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Unfortunately we can't have an engineer sitting at the workstation for days clicking a button.

Neither can we really ask the customer's users.

For one, its pretty boring and disruptive.

Step up **iCalVerter**



Time to introduce iCalverter!

Step up **iCalVerter**

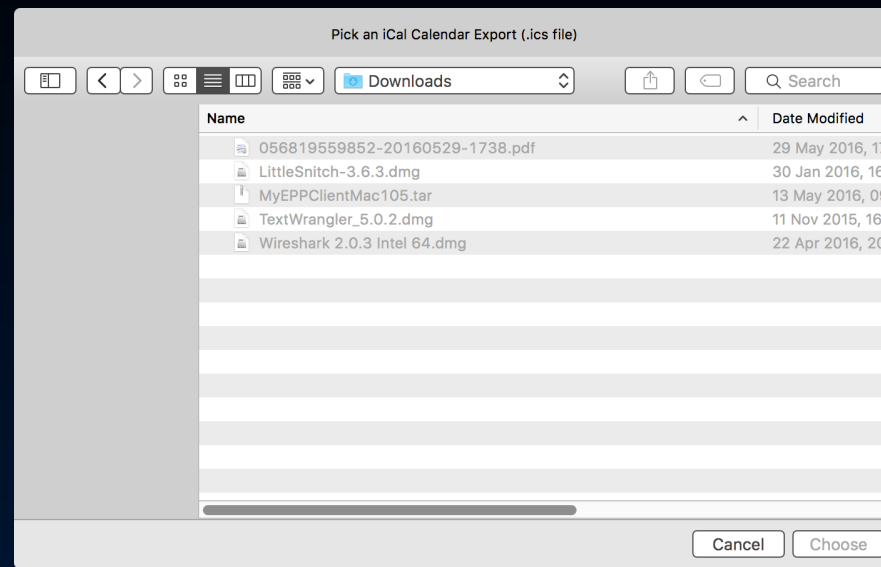
iCalVerter:

- Is a Python script, wrapped in an AppleScript Application
- Can loop through an ics file (calendar export)
- Removes parts of events that cause these popups
- Spits out a second 'output file' with the changed data
- This output file can then be cleanly imported into an Office 365 account.

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iCalverter is an AppleScript Application and Python script to remove the parts of events in a Calendar export that cause these popups. The result is a second ics file, ready for importing into Office 365

Step up iCalVerter



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First Screen: Pick an ics file

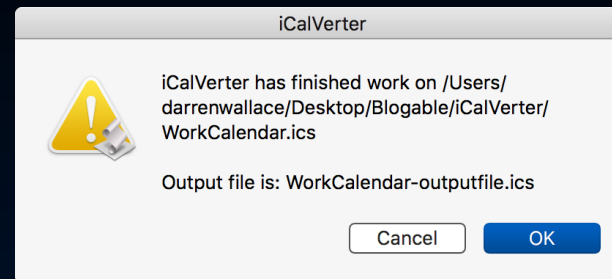
Step up **iCalVerter**



(Sorry no 'in progress' message - yet...)

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It does it's work (sorry no in progress message or wheel....yet)

Step up iCalVerter



Saving attachments to ical.png			25 Mar 2010, 10:42	2.3 KB
	WorkCalendar-outputfile.ics	Today, 11:18		2.3 MB
	WorkCalendar.ics	Today, 10:42		2.3 MB

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Final Screen: Work completed.

Details the path of the file worked on, and the output filename

Technical Bit

Ok, I've explained the reasons why and the high level of using the tool.
How about the technical bit?

Technical Bit - Why?

Following events have a 'high' chance of causing variations of the "can't..." message:

- File Attachments on events
- Reoccurring events
- Events where other users are invited
- Events where the current user has been invited.

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How about why this happens?

Well, after some trial and error, we found the following events have a 'high' chance of causing variations of the "Can't" message:

- Events with file attachments - Didn't know you could do that?
- Events that reoccur
- Events with invitees - e.g. you invite people to it.
- Events with you as the attendee - e.g. you got invited to it.

Technical Bit - What?

Force the ics file to open in a plain text editor

(Please don't use TextEdit)

```
412 END:VEVENT
413 BEGIN:VEVENT
414 CREATED:20120727T100122Z
415 UID:EE9A1808-97FE-4282-97E8-6EE289D0B7DD
416 DTEND;TZID=Europe/London:20120907T153000
417 TRANSP:OPAQUE
418 X-APPLE-TRAVEL-ADVISORY-BEHAVIOR:AUTOMATIC
419 SUMMARY:EHTC - Support
420 DTSTART;TZID=Europe/London:20120907T081500
421 DTSTAMP:20151218T090007Z
422 SEQUENCE:0
423 END:VEVENT
424 BEGIN:VEVENT
425 CREATED:20120110T153803Z
426 UID:6C0D0702-59D2-48C1-A4D6-143481056ADC
427 DTEND;TZID=Europe/London:20120118T190000
428 TRANSP:OPAQUE
429 X-APPLE-TRAVEL-ADVISORY-BEHAVIOR:AUTOMATIC
430 SUMMARY:Traveling
431 DTSTART;TZID=Europe/London:20120118T173000
432 DTSTAMP:20151218T090433Z
433 SEQUENCE:0
434 END:VEVENT
435 BEGIN:VEVENT
```

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Ok, what does an ics file look like so we can maybe do something about that?

Turns out, you can force an ics file to open in a plain text editor (please don't use TextEdit)!

Technical Bit - What?

Each 'item' is wrapped within a "VEVENT" tag

```
END:VEVENT
BEGIN:VEVENT
CREATED:20120110T153803Z
UID:6C000702-59D2-48C1-A4D6-143481056ADC
DTEND:TZID=Europe/London:20120118T190000
TRANSP:OPAQUE
X-APPLE-TRAVEL-ADVISORY-BEHAVIOR:AUTOMATIC
SUMMARY:Traveling
DTSTART:TZID=Europe/London:20120118T173000
DTSTAMP:20151218T090433Z
SEQUENCE:0
END:VEVENT
BEGIN:VEVENT
CREATED:20131004T080021Z
UID:ED7F6C96-79C2-4632-92CC-7BC4FB60C5B0
DTEND:TZID=Europe/London:20131120T191500
TRANSP:OPAQUE
X-APPLE-TRAVEL-ADVISORY-BEHAVIOR:AUTOMATIC
SUMMARY:Traveling
DTSTART:TZID=Europe/London:20131120T174500
DTSTAMP:20151218T084226Z
LAST-MODIFIED:20131025T085921Z
SEQUENCE:0
BEGIN:VALARM
X-WR-ALARMUID:FBD2FF68-27D8-4358-83DF-E40E610F33E4
UID:FBD2FF68-27D8-4358-83DF-E40E610F33E4
TRIGGER;VALUE=DATE-TIME:19760401T005545Z
ACTION:NONE
END:VALARM
END:VEVENT
BEGIN:VEVENT
CREATED:20140915T075021Z
```

BEGIN:VEVENT

END:VEVENT

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Each event 'item' starts with a "BEGIN: VEVENT" and ends with an...
"END: VEVENT"

After further testing, we found that the four tags in each event that we were having issues with...

Technical Bit - What?

Reoccurring events

```
X-APPLE-TRAVEL-ADVISORY-BEHAVIOR:AUTOMATIC  
CREATED:20151108T200004Z  
RRULE:FREQ=WEEKLY;INTERVAL=1;COUNT=5;BYDAY=MO,TU,WE,TH,FR;WKST=SU  
BEGIN:VALARM  
X-WR-ALARMUID:2DC7CDDC-73CB-4E69-AAFE-6EEB6B06EF94
```

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Reoccurring events had a "RRULE" tag

Technical Bit - What?

Events where 'you' have invited other users

```
X-APPLE-TRAVEL-ADVISORY-BEHAVIOR:AUTOMATIC  
CREATED:20160414T135108Z  
ATTENDEE;CN="Darren Wallace";CUTYPE=INDIVIDUAL;PARTSTAT=ACCEPTED;ROLE=REQ-PARTICIPANT;mailto:darrenw@amsys.co.uk  
BEGIN:VALARM
```

Events where 'you' have been invited

```
TRANSP:OPAQUE  
DTEND;TZID=Europe/London:20160125T120000  
ORGANIZER;CN="David Acland":mailto:REDACTED@amsys.co.uk  
UID:5BD18BD9-482E-4175-B87B-09A4B28118B9  
DTSTAMP:20160122T094522Z
```

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Events where other users are invited had a "ATTENDEE" tag

Events where the user was invited had a "ORGANIZER" tag

Technical Bit - What?

Events with attachments

```
BEGIN:VEVENT
CREATED:20160531T130156Z
ATTACH;ENCODING=BASE64;FMTTYPE=application/zip;VALUE=BINARY;X-APPLE-ews-
ATTACHMENTID=AAMkAD8hNDQ5MmM1LWQyOTctNGI4Zi1hMWYyLTYxNTZjOWM1YTBkMgBGAAA
AAAEqKctk4hbR423UCrQB6tVBwC3eQZFuzAVQKUrti4dhH1AAB5QpHRAAC3eQZFuzAVQKU
rRTi4dhH1AAB5QpmhAAABEgAQAppIeFeXEJlKlLFkpG53bAo=;X-APPLE-FILENAME=iCalV
erter.app.zip:UESDBAoAAAAALp8b0gAAAAAAAAAAAAAAAAAPABAAaUNhbFZlcnRlcj5hcH
AvVVgMAFAs6FZQL0hW9gEUAfBLAwQKAAAAAAAAUUX1IAAAAAAAAAAAAAAAAAAGAAQAG1DYWxWZX
J0ZXIuYXBwL0NvbnRlbnRzL1VYDAAYRvpWGEb6VvYBFABQSwMEFAAIAAgAFFf9SAAAAAAAA
AAAAACIAEABpQ2FsVmVydGVyLmFwcC9Db250ZW50cy9JbmZvLnBsaXN0VVGMAbhG+lYYRv
pW9gEUAJVUaW/aMBj+PH6Fl+/E4SiwiabilCqldTQTfs0mfglWHXszHY49utnIFyhUTVFIg
Ge4z0ep/+wSTlagdJMinun4Xo0AhFLykRy77zNpvWe8+DX+l/HL6PZr3CCMs60QeHbMHgcIa
e08SDL0GA8no1RGDxGM2Q1MJ4808hZGpN9x3i9Xrtkh3Jjme6AGodKZqDMNrBidUtwqaG0tT
moX5Vjf6UsNn7tS/8dtv5o0swF5TDgXK6f2AZoIGPC2V9iLEX38Q5ksUblgMukMayAyywFYV
4hsfgTXBt10/YnIrEVLpu4+F7iTzYQ54bMOZSJ+/5MFe8xlmLK/ptFbZ1swUCVeXa0xUSjWL
HMTGgzUrmMuiPCQVCi6g0t7SiJqFYXCzm2g7VTIGr74zDys1HH9ar4zyS96efojj51D0n8Th
KYbbMbKUEYB1W0aCmVKWqN9ogyu+E2K8ksEcTk6oM18JtCg+iJCZbmabTVBtLCc7gdqHjJDM
RX0kVAD8xNr/0Z0z7+dyZMczuXJyay1UH0Cn9ynkCPiJnf70Faxi+ZoHTdGWTar0eH1LMVq6
```

+ ~133,000 lines

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and Events with attachments had a "ATTACH" tag.

that's the attachment Base64 encoded attachment

Technical Bit - How?

We have all the information:

- Export the user's calendar
- Remove any event tags called "*ATTACH*", "*RRULE*", "*ORGANIZER*", or "*ATTENDEE*"
- Reimport Calendar.

But doing this manually:

- Long and time consuming
- Therefore prone to errors
- Some tags are multi-line.

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Now the good part. We have all the information:

- 1) Export calendar
- 2) Clean out any tags that are for Attachments, reoccurring events and / or Invites.
- 3) Reimport calendar

But Manually sucks

- 1) long
- 2) Humans suck and so this process will be prone to errors.
- 3) Some tag data is multi-line and so a simple 'find and replace' won't work

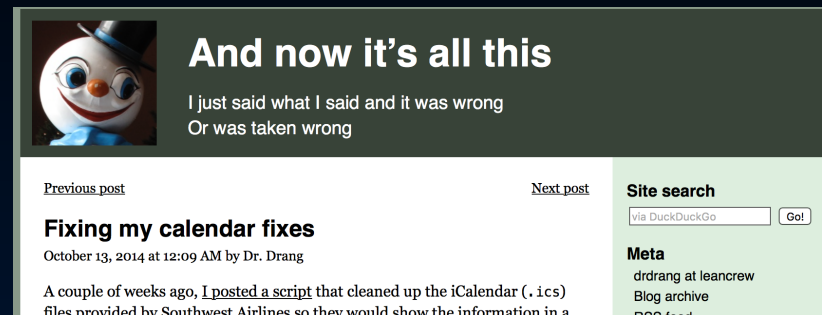
Script it!

Scripting Time

Time to script it...

Scripting Time

<http://www.leancrew.com/all-this/2014/10/fixing-my-calendar-fixes/>



Used a Python script and library to modify ics files

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After a lot of digging, I found the "And now it's all this" blog, where 'Dr Drang' used a Python script to tidy up and alter an ics file they downloaded from their Airline's website.

Scripting Time

<http://icalendar.readthedocs.io/en/latest/index.html>

[Docs](#) » Internet Calendaring and Scheduling (iCalendar) for Python

[Edit on GitHub](#)

Internet Calendaring and Scheduling (iCalendar) for Python

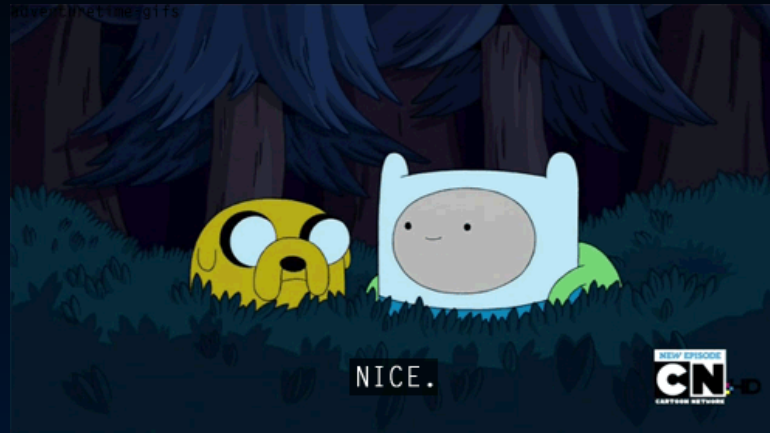
The [icalendar](#) package is a parser/generator of iCalendar files for use with Python.

Python 'parser / generator' of ics files

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Further digging found the 'icalendar' framework that allows the manipulation of VEVENTS in ics files.

Scripting Time



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Nice!

Scripting Time

- Combined both the script and the icalendar framework.
- This became the core "Calendar Assistant.py" Python script inside the AppleScript Application

```
for ics in sys.argv[1:]:
    # Open the ics file and extract the events
    cal = Calendar.from_ical(open(ics).read())
    for component in cal.walk():
        ics_old = os.path.splitext(ics)[0]
        out_file = ics_old + "-outputfile.ics"
        # Erase the event's RRULE, ATTACH and ATTENDEE items
        component['RRULE'] = ''
        component['ATTACH'] = ''
        component['attendee'] = []
        component['ORGANIZER'] = ''

    # Write the changes back to the original file.
    f = open(out_file, 'w')
    f.write(cal.to_ical())
    f.close()

# Use sed to remove the placeholder values
subprocess.call(['sed', '-i', '', '/RRULE/d', out_file])
subprocess.call(['sed', '-i', '', '/ATTENDEE/d', out_file])
subprocess.call(['sed', '-i', '', '/ATTACH/d', out_file])
subprocess.call(['sed', '-i', '', '/ORGANIZER/d', out_file])
```

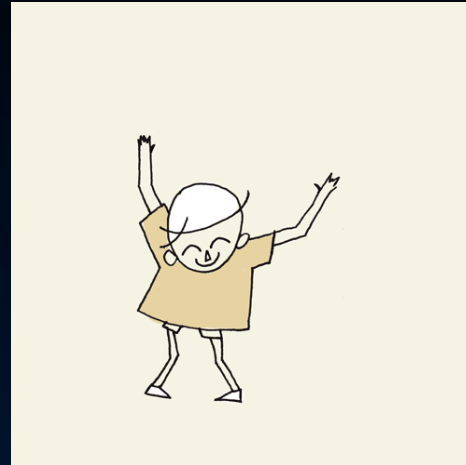
I did mention I'm still learning Python, right?

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I combined my rudimentary knowledge of Python, with the script from Dr Drang and the framework from the icalendar team to produce the "Calendar Assistant.py" script inside the AppleScript Application.

I did mention I'm still trying to learn Python...right?

Scripting Time



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Next Steps



Next Steps...

Next Steps

My Thoughts:

- Moving the `sed` calls inside the main loop
- Adding a progress bar to the GUI
- Rewrite the `sed` calls to exclusively use a Python call?
- More real world testing!

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My thoughts on next steps:

- Moving the sed calls into the main loop
- - Will allow the processing of multiple ics files at once
- Adding a progress bar to the GUI
- - Feedback, especially on the larger ics files
- Rewrite the `sed` calls to use something in Python
- - Making the script full-Python
- More real world testing!

Thanks

Q & A

<http://www.amsys.co.uk/2016/06/introducing-icalverter-ics-o365-cleanup-tool>

<http://tinyurl.com/iCalVerter>

The code is up on a GitHub repo. Link on the blog post linked here.

Asking for advice.

Provide it by:

- Now (Q and A)
- Issue / Pull request on GitHub
- Speak to me afterwards

Q and A time!

To the Pub!



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<http://tinyurl.com/iCaIVerter>

To the pub