



F' Integration Test Code Review

Presented by Kevin Oran on July 17, 2019



Project Schedule

Changes

- Moved F' Unit testing forward to last week.
- Prepared small Ref App Demo this week.

F' Integration Test Framework Project Schedule								2019	
Wk	Task	Days	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	Learn how the F' Framework works	1	June 2	3 F' Workshop	4 F' Workshop	5 F' Workshop	6	7 RDO	8
2	Initial design work and project planning	5	9	10	11	12	13	14	15
3	Design review and begin coding	3.5	16	17	18	19	20 Half Day	21 RDO	22
4	Implement Integration Test API	5	23	24	25	26	27	28	29
5	Test API Done	2	30	July 1	2	3 JPL Holiday	4 JPL Holiday	5 RDO	6
6	Unit tests for the Test API	5	7	8	9	10	11	12	13
7	Ref app example tests	4	14	15	16	17	18	19 RDO	20
8	Ref app example tests	5	21	22	23	24	25	26	27
9	Implement Test Runner CLI	4	28	29	30	31	August 1	2 RDO	3
10	Presentation and final documentation	5	4	5	6	7	8	9 Last Day 🥲	10

Project Progress

What is done?

- Test History
 - Implementation, doc-strings, and unit tests
- Predicates
 - Implementation, doc-strings, and unit tests
 - I have yet to add Event Severity as a field in the API. This will get done.
- Test API
 - Implementation, doc-strings, and most unit tests
 - I have yet to add auto-logging all evrs to the test log. This will also be added.
- Test Logger
 - Implementation, doc-strings, no tests

Project Progress

What is in progress?

- Test API Unit Tests
 - Finishing test cases for Event Assert and Await methods. Unit tests for `get_latest_time` and `clear_histories` still need to be added
- Ref App Tests
 - Have currently connected API to ref app and prepared several example tests for demo. The demo will also generate a test log.

API Demo

Reference app example tests

- For today, I have prepared a demo on the Ref app. The demo includes an API log and a couple example tests.
- This demo will be expanded to integration tests for the Ref app.

	A	B	C
1	Time	Sender	Message
2	17:21:47.517860	Test API	[STARTING CASE] test_is_streaming
3	17:21:47.519156	Test API	Clearing Test Histories
4	17:21:47.520846	Test API	Awaiting a count (5) of telemetry updates.
5	17:21:47.622510	Test API	Count search counted another item: 2019-07-11 17:21:46: SendSta
6	17:21:47.623427	Test API	Count search counted another item: 2019-07-11 17:21:46: BD_Cycl
7	17:21:48.662241	Test API	Count search counted another item: 2019-07-11 17:21:47: BD_Cycl
8	17:21:49.675888	Test API	Count search counted another item: 2019-07-11 17:21:48: SendSta
9	17:21:49.676921	Test API	Count search counted another item: 2019-07-11 17:21:48: BD_Cycl
10	17:21:49.677827	Test API	Count search found a correct number of items: 5
	17:21:49.679099	Test API	Telemetry Count Assertion was successful. assert F(5), where F(x) evaluates x == 5
11			
12	17:21:49.683080	Test API	[STARTING CASE] test_send_command
13	17:21:49.684617	Test API	Clearing Test Histories
14	17:21:49.686941	Test API	Sending Command: CMD_NO_OP []
15	17:21:49.691277	Test API	[STARTING CASE] test_send_and_assert_no_op
16	17:21:49.693060	Test API	Clearing Test Histories
17	17:21:49.696824	Test API	Sending Command: CMD_NO_OP []
18	17:21:49.701142	Test API	Awaiting a sequence of 3 event messages.
19	17:21:49.806110	Test API	Sequence search found the next item: 2019-07-11 17:21:49: OpCoc
20	17:21:49.807222	Test API	Sequence search found the next item: 2019-07-11 17:21:49: NoOpf
21	17:21:49.808242	Test API	Sequence search found the next item: 2019-07-11 17:21:49: OpCoc
22	17:21:49.809140	Test API	Sequence search found the last item.
	17:21:49.810416	Test API	Event Sequence Assertion was successful. assert F(3), where F(x) evaluates

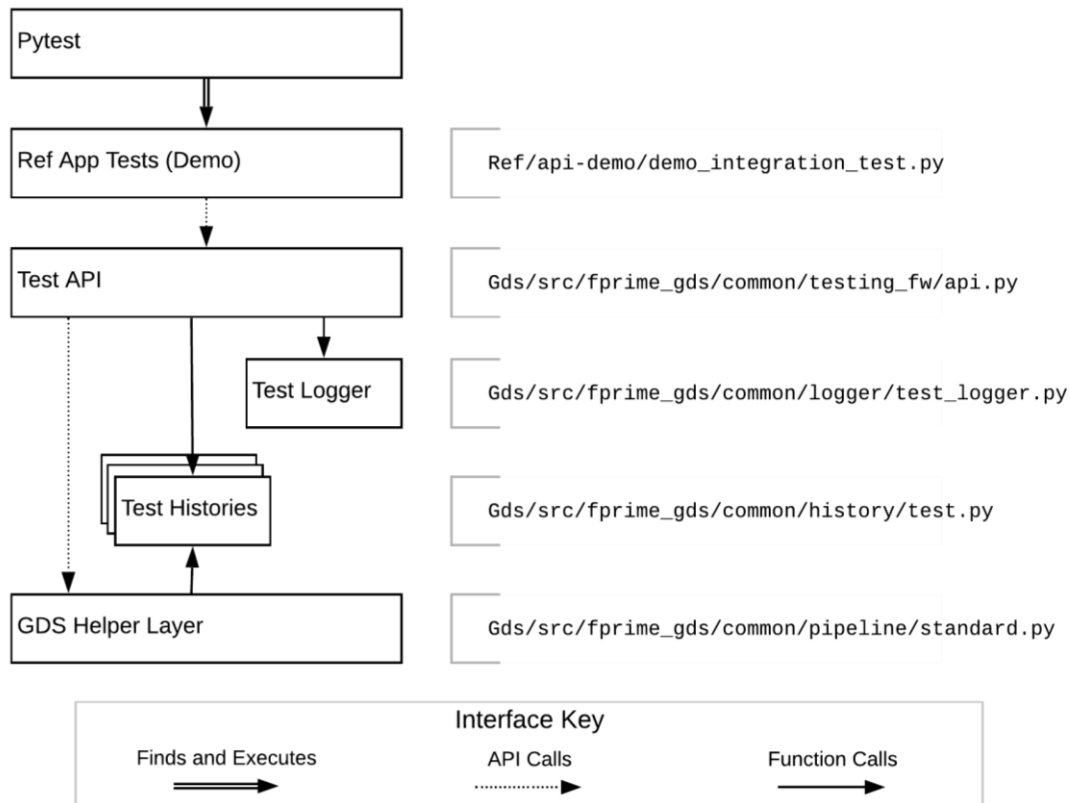
Sample of the API Log output

Code Review Road Map

Notes for reviewers

- The history searches are over-complicated. It's not something we can probably solve in this meeting, but it's on my list.
- Please share suggestions on API interface itself if there are any.
- Please share suggestions on API features that may still be missing.
- I'm still implementing a better way to handle timestamps in the API. Suggestions for that are also welcome.

Component view and review roadmap



API Overview

How is the API organized?

- There are three fundamental searches: item, count, and sequence.
 - All searches can specify a timeout to await
 - All searches can specify a starting point in a history
 - Most searches can substitute a user-created, filtered history
- There are two versions of each search: await and assert.
 - By default await begins the search at the end of the current history (can be changed)
 - By default asserts only search on the current history (can be changed)

Category	Methods
API Functions	7
Command Functions	4
Command Asserts	2
Telemetry Functions	5
Telemetry Asserts	3
Event Functions	5
Event Asserts	3
History Searches	3
Total	32



Jet Propulsion Laboratory
California Institute of Technology