F' Integration Test Code Review

Presented by Kevin Oran on July 17, 2019

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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, documentation, and unit tests
  - I have yet to add Event Severity as a field in the API. This will get done.
  - I have yet to add auto-logging all evrs to the test log. This will also be added.
- Test API
  - Implementation, documentation and most unit tests
- Test Logger
  - Implementation, documentation, 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.

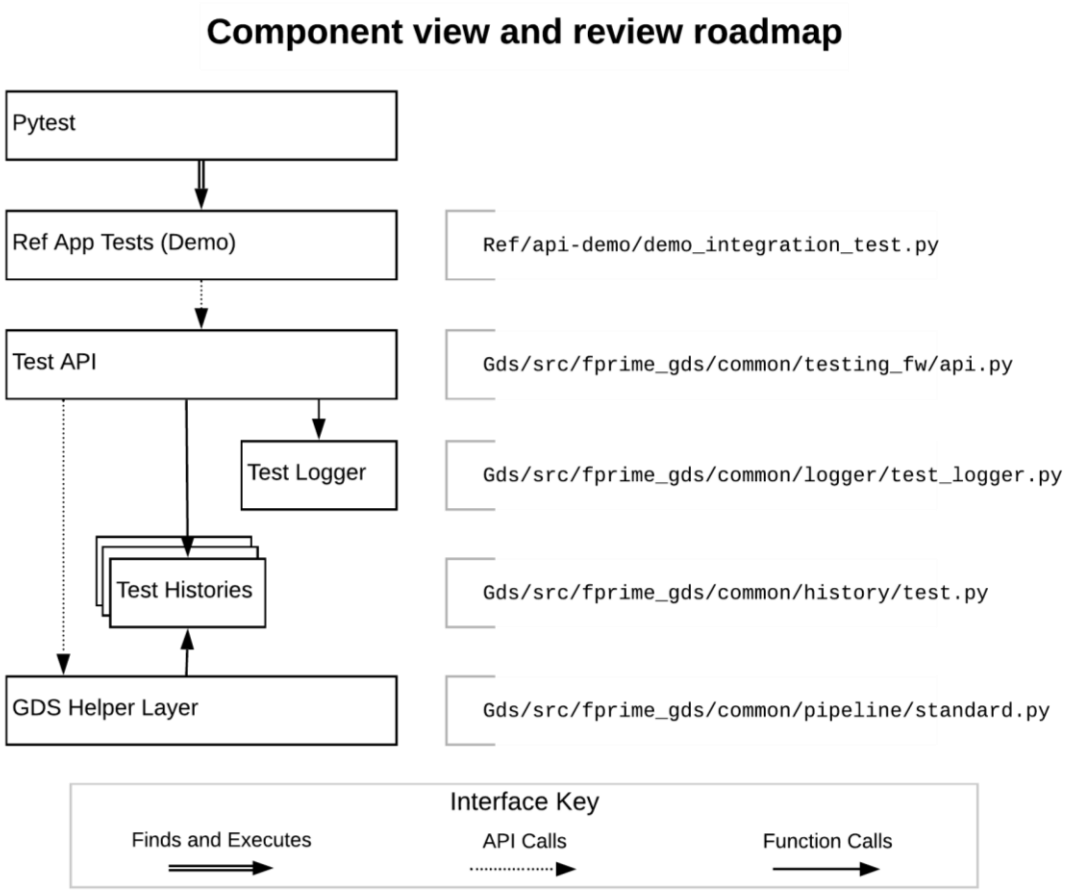
	A	B	C
1	**Time**	**Sender**	**Message**
2	**17:21:47.517860**	**Test API**	**[STARTING CASE] test_is_streaming**
3	17:21:47.519156	Test API	Clearing Test Histories
4	17:21:47.520846	Test API	Awaiting a count (5) of telemetry updates.
5	17:21:47.622510	Test API	Count search counted another item: 2019-07-11 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
11	17:21:49.679099	Test API	Telemetry Count Assertion was successful. assert F(5), where F(x) evaluates x == 5
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.



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
Even Asserts	3
History Searches	3
Total	**32**

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