USEABILITY AND RELIABILITY

WHAT DO OUR USER INTERFACES SAY ABOUT MANTID?

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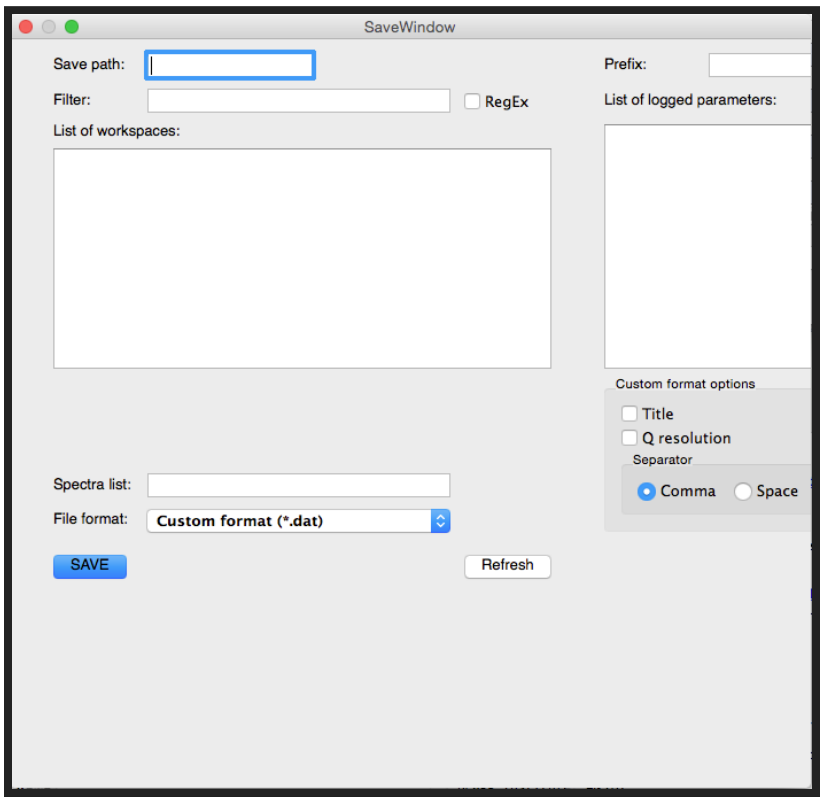
ABOUT THE MANTID PROJECT

- Unique example of cross-facility, international collaboration in science and engineering
- 62 Developers contributed over the last 12 months
- Zero compiler warnings on all target platforms
- Over $9x10^3$ unit tests, over $3x10^2$ system tests, over $1x10^2$ performance tests
- Highly Commended at UK IT Awards 2015

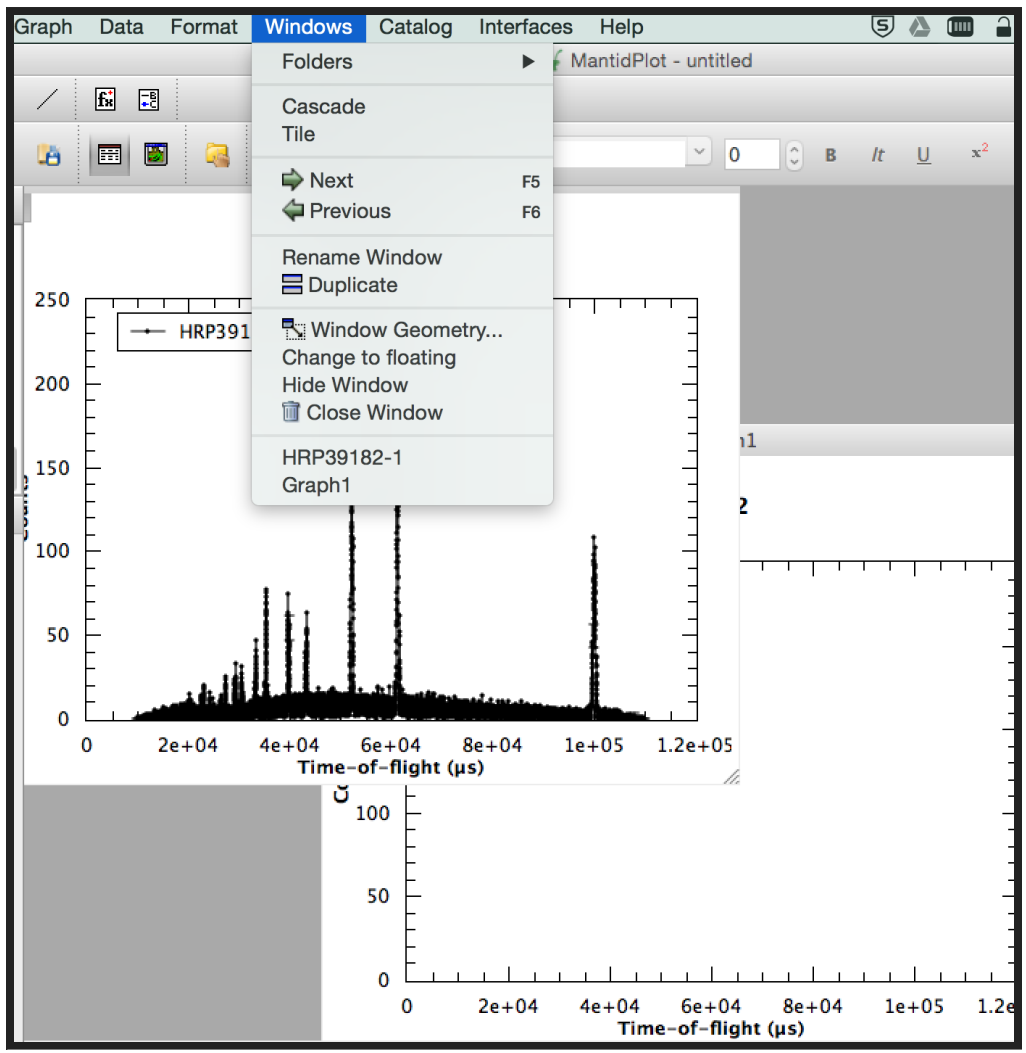
BUT TO MOST USERS

*“Custom interface **X** IS the Mantid Project.”*

WE SHIPPED THIS IN VERSION 3.5



WE SHIPPED THIS IN VERSION 3.5



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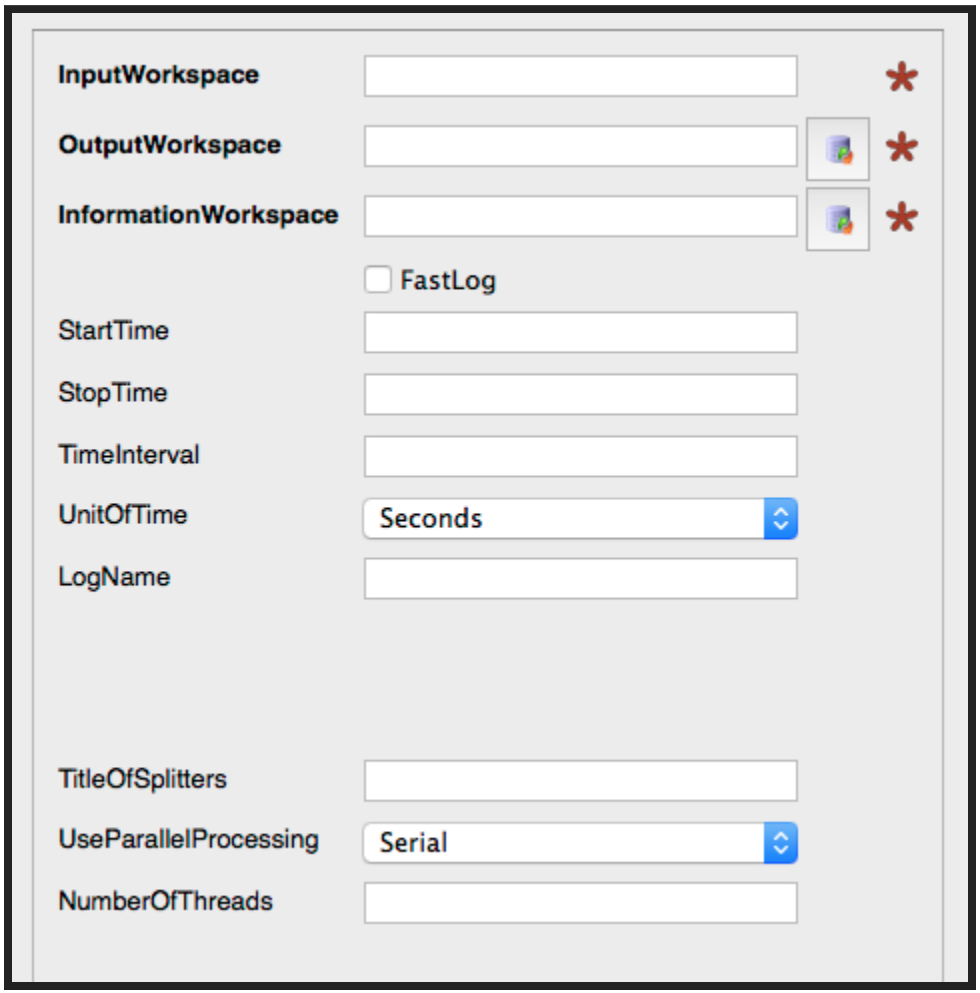


We have also shipped broken UIs in full releases of Mantid.

WE CAN FIX THINGS

Lets split the problems up

- Improving reliability
- Improving useability

IMPROVING RELIABILITY

To improve the reliability we need feedback. These three approaches have been shown to work.

IMPROVING RELIABILITY: POWER USER

Example: ISIS SANS

IMPROVING RELIABILITY: SQUISH

Squish report

19:05:37 refl_gui_tests - Test cases 1, Passes 25, Fails 0
19:05:54 refl_gui_tests - Test cases 1, Passes 25, Fails 0

Summary - refl_gui_tests

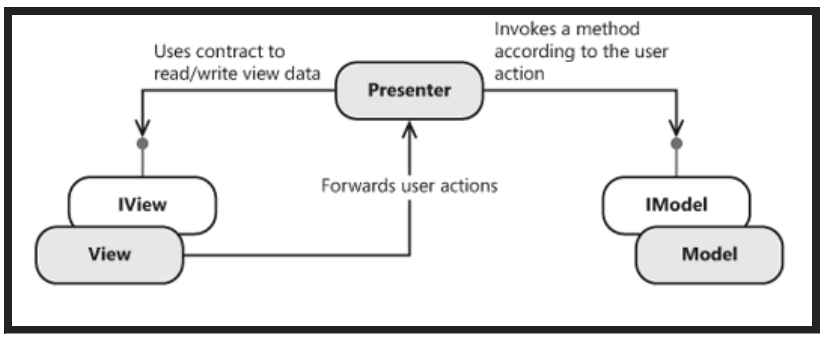
Test cases	1
Tests	25
Passes	25 (including 0 expected failures)
Fails	0 (including 0 unexpected passes)
Errors	0
Fatals	0

Results

tst_basic_operation

START	Fri Dec 18 19:05:37 UTC 2015		Start 'tst_basic_operation'	Test 'tst_basic_operation' started
PASS	Fri Dec 18 19:05:43 UTC 2015	/home/builder/Jenkins/workspace/squishtest/MantidPlot/test/squish_test_suites/refl_gui_tests/tst_basic_operation/test.py:89	Verified	True expression 13460_IvsQ should exist in output
PASS	Fri Dec 18 19:05:43 UTC 2015	/home/builder/Jenkins/workspace/squishtest/MantidPlot/test/squish_test_suites/refl_gui_tests/tst_basic_operation/test.py:90	Verified	True expression 13460_IvsLam should exist in output
PASS	Fri Dec 18 19:05:43 UTC 2015	/home/builder/Jenkins/workspace/squishtest/MantidPlot/test/squish_test_suites/refl_gui_tests/tst_basic_operation/test.py:91	Verified	True expression Should have a TOF group in the output

IMPROVING RELIABILITY: MVP



Test Result : CustomInterfacesTest

0 failures (±0)

221 tests (±0)
Took 5.9 sec.

All Tests

Class	Duration	Fail	(diff)	Skip	(diff)	Pass	(diff)	Total	(diff)
ALCBaselineModellingModelTest	1 ms	0		0		6		6	
ALCBaselineModellingPresenterTest	3 ms	0		0		17		17	
ALCDataLoadingPresenterTest	2.2 sec	0		0		16		16	
ALCPeakFittingModelTest	1 ms	0		0		3		3	
ALCPeakFittingPresenterTest	2 ms	0		0		14		14	
EnggDiffractionPresenterTest	1.3 sec	0		0		28		28	
IO_MuonGroupingTest	48 ms	0		0		3		3	
ImageROIPresenterTest	0 ms	0		0		13		13	
MeasurementItemTest	0 ms	0		0		6		6	
MuonAnalysisHelperTest	40 ms	0		0		6		6	
ParseKeyValueStringTest	0 ms	0		0		1		1	
ReflGenerateNotebookTest	1 ms	0		0		15		15	
ReflLegacyTransferStrategyTest	0 ms	0		0		6		6	
ReflMainViewPresenterTest	0.91 sec	0		0		36		36	
ReflMeasureTransferStrategyTest	0 ms	0		0		8		8	
ReflNexusMeasurementItemSourceTest	1.2 sec	0		0		2		2	
StackOfImagesDirsTest	0 ms	0		0		9		9	
TomographyIfacePresenterTest	31 ms	0		0		19		19	
UserInputValidatorTest	0 ms	0		0		13		13	

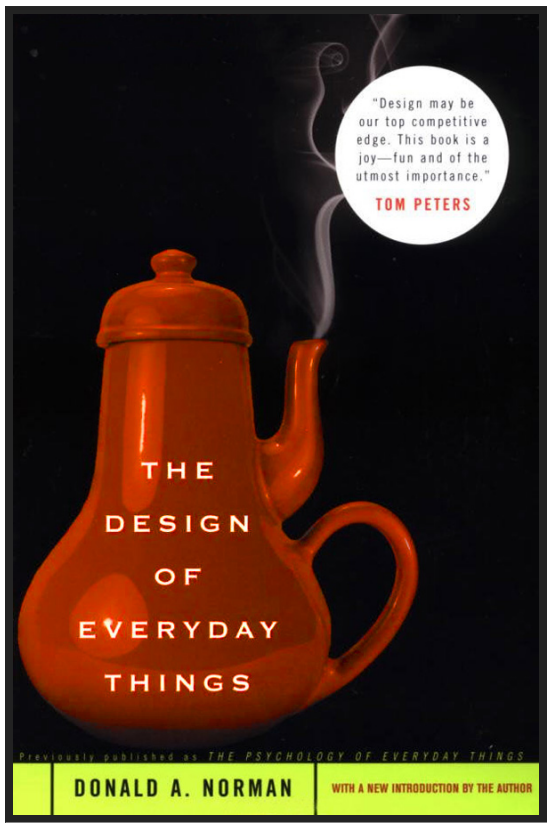
IMPROVING USEABILITY

To improve the usability we also need feedback

Things we should do (and often do already)

- UI Mockups using tool like Basamiq
- Paper prototyping
- Software Prototypes
- Component based software engineering

IMPROVING USEABILITY

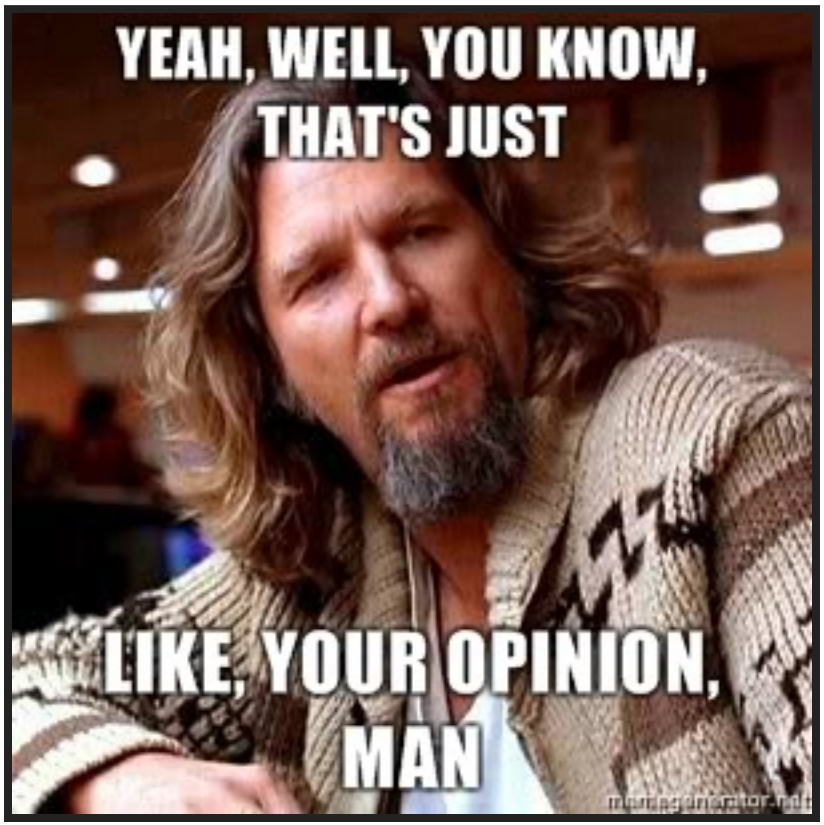


THINGS WE SHOULD STOP DOING

- Say things like:

> *“We'll quickly create a GUI as a first-cut.”*

- Have less new developer work on “less critical.” things such as GUIs
- Lean on late unscripted testing to uncover bugs
- Assume that beta testers are all equally thorough


YEAH, WELL, YOU KNOW, THAT'S JUST
LIKE, YOUR OPINION, MAN

TO MOST USERS

*“Custom interface **X** IS the Mantid Project.”*