

USEABILITY AND RELIABILITY

WHAT DO OUR USER INTERFACES SAY ABOUT
MANTID?

Author [Owen Arnold](#)

ABOUT THE MANTID PROJECT

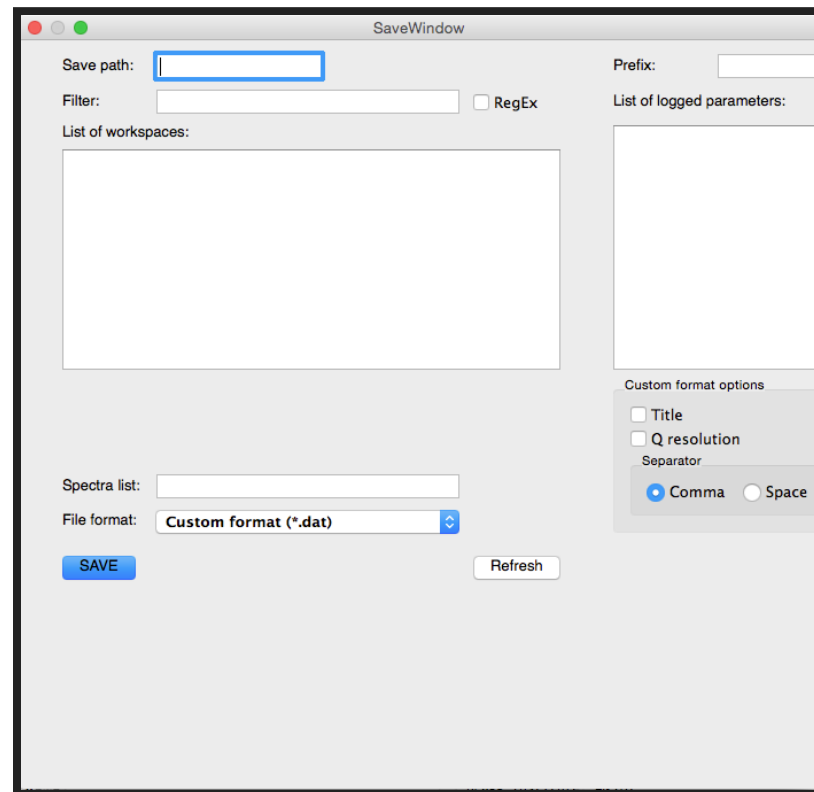
- Unique example of cross-facility, international collaboration in science and engineering
- 62 Developers contributed over the last 12 months
- Zero compiler warnings on all target platforms
- Over 9×10^3 unit tests, over 3×10^2 system tests, over 1×10^2 performance tests
- Highly Commended at UK IT Awards 2015



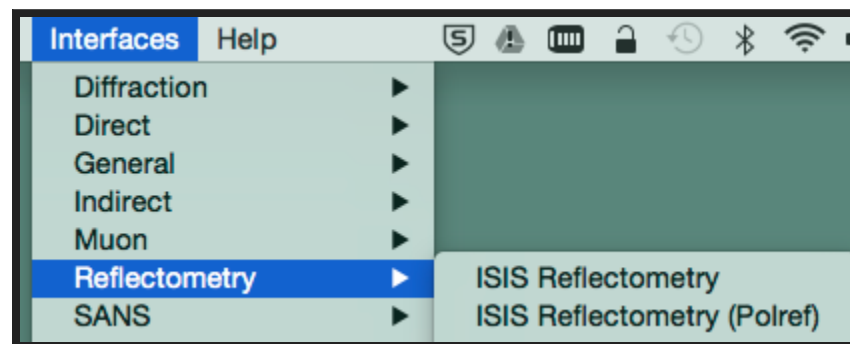
BUT TO MOST USERS

“Custom interface X IS the Mantid Project.”








WE SHIPPED THIS IN VERSION 3.5



WE SHIPPED THIS IN VERSION 3.5



WE SHIPPED THIS IN VERSION 3.5

InputWorkspace	<input type="text"/>	
OutputWorkspace	<input type="text"/>	 
InformationWorkspace	<input type="text"/>	 
	<input type="checkbox"/> FastLog	
StartTime	<input type="text"/>	
StopTime	<input type="text"/>	
TimeInterval	<input type="text"/>	
UnitOfTime	<input type="text" value="Seconds"/>	
LogName	<input type="text"/>	
TitleOfSplitters	<input type="text"/>	
UseParallelProcessing	<input type="text" value="Serial"/>	
NumberOfThreads	<input type="text"/>	

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

WE CAN FIX THINGS

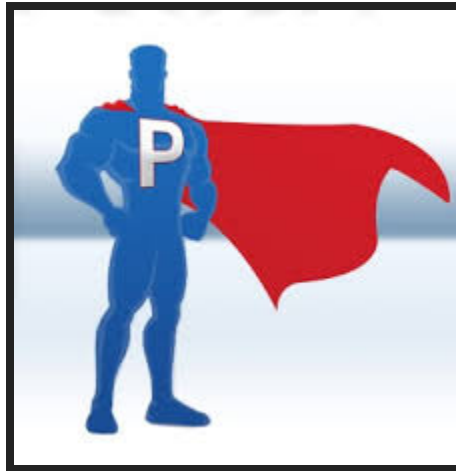
Lets split the problems up

- 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

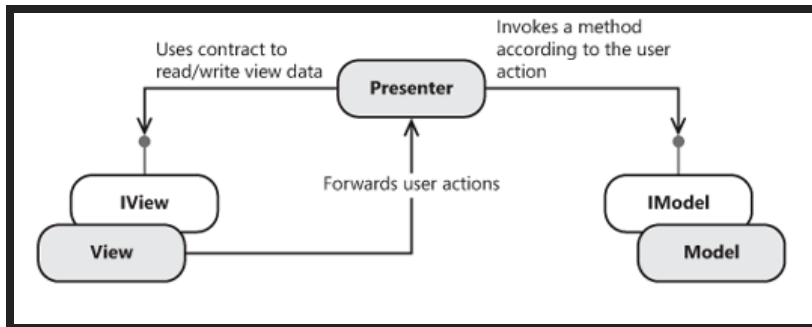
Fatals 0

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_lvsQ 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_lvsLam 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	
RefGenerateNotebookTest	1 ms	0		0		15		15	
RefLegacyTransferStrategyTest	0 ms	0		0		6		6	
RefMainViewPresenterTest	0.91 sec	0		0		36		36	
RefMeasureTransferStrategyTest	0 ms	0		0		8		8	
RefNexusMeasurementItemSourceTest	1.2 sec	0		0		2		2	
StackOfImagesDirTest	0 ms	0		0		9		9	
TomographyFacePresenterTest	31 ms	0		0		19		19	
UserInputValidatorTest	0 ms	0		0		13		13	

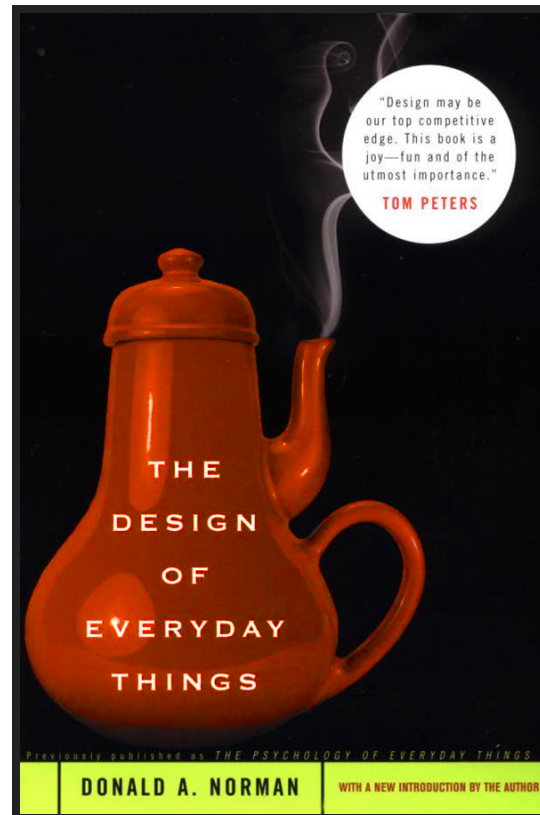
IMPROVING USEABILITY

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

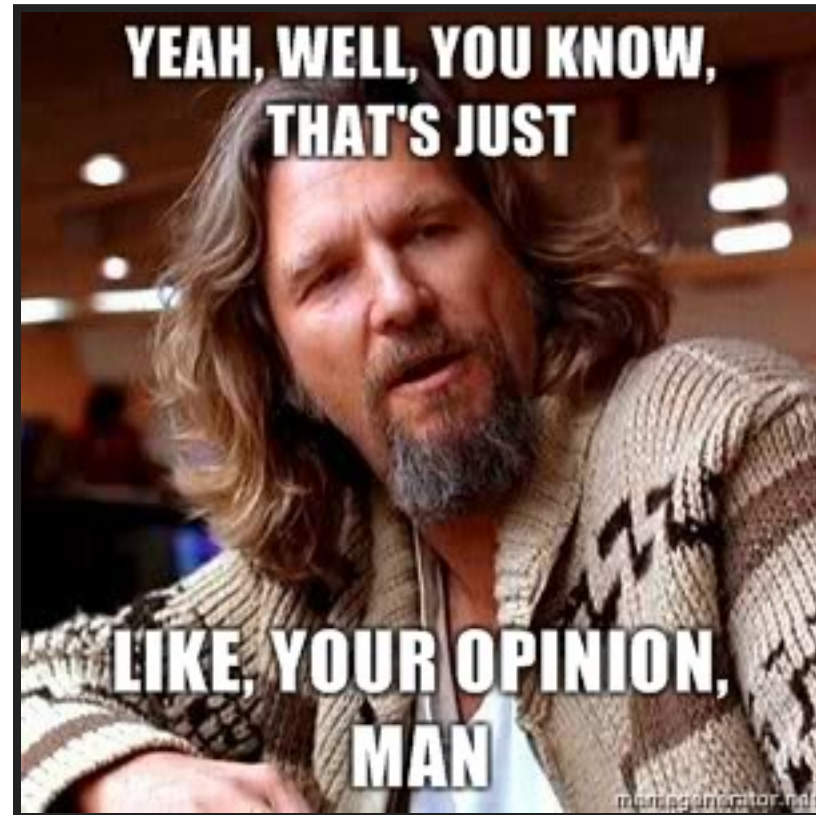


THINGS WE SHOULD STOP DOING

- 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



TO MOST USERS

“Custom interface X IS the Mantid Project.”
