

# The Launch Pad

The main user's entry point



The screenshot shows the TestFarm Launch Pad interface with several callouts:

- The System notebook shows all available Test systems.** (Points to the 'System' tab)
- The Edit button starts the Test Suite Builder** (Points to the 'Edit' button)
- The Execute button starts the Test Suite Runner** (Points to the 'Execute' button)
- All available Test Suites are scanned and gathered into this tree view** (Points to the Test Suites tree view)
- The Launch Queue notebook allows to schedule several Test Suites** (Points to the 'Launch Queue' tab)
- Test results are not overwritten over test suite executions. Test Reports can be managed from this area.** (Points to the Test Report Generator section)

The interface includes a 'Rescan' and 'Quit' button at the top left. The main area has tabs for 'System', 'Test Suite', 'Launch Queue', and 'Console'. Below the tabs are buttons for 'Edit', 'Execute', '+ Add', and '- Remove'. A table of Test Suites is displayed:

Test Suites	Status	System	Descripti
▼ EWD			Demo/EV
EWD		EWDsystem	EWD Der
▼ TKit			Demo/TK
TrainingSuite		DemoSystem	TestFarr
ManualTimeSwitch		DemoSystem	TestFarr
TrainingSuite01		DemoSystem	TestFarr
TrainingSuite04		DemoSystem	TestFarr
TrainingSuite02		DemoSystem	TestFarr
TimeSwitch		DemoSystem	TestFarr
TrainingSuite03		DemoSystem	TestFarr
▶ test			Demo/kit

On the right, the 'Test Report Generator' section has 'Config' and 'Build' buttons. Below it are 'View', 'Log', 'Copy', and 'Delete' buttons. A file list table is shown:

File Name	Size	Date
▶ EWD		12-Jan-2010 23:17:37
▶ EWD.61		12-Jan-2010 23:08:13
▶ EWD.60		12-Jan-2010 21:33:50
▶ EWD.59		11-Jan-2010 23:16:44
▶ EWD.58		11-Jan-2010 23:15:12
▶ EWD.57		11-Jan-2010 23:14:06
▶ EWD.56		11-Jan-2010 23:10:51
▶ EWD.55		11-Jan-2010 22:51:18
▶ EWD.54		10-Jan-2010 23:44:10
▶ EWD.53		10-Jan-2010 23:40:42
▶ EWD.52		10-Jan-2010 23:35:11
▶ EWD.51		10-Jan-2010 23:34:25
▶ EWD.50		10-Jan-2010 23:28:10

# The Test Suite Builder

Editing a test tree and its associated scripts



The screenshot shows the TestFarm Test Suite Builder interface. The main window is titled "TestFarm Test Suite Builder". On the left, there is a vertical toolbar with icons for Add, Remove, Up, Down, Parent, Child, Edit, Make, Update, and Clean. The central area displays a test tree with columns for "Test Suite", "Flg", and "File". The tree structure is as follows:

Test Suite	Flg	File
▼ [T] EWD		EWD.tree
[C] Layout	✖	Layout.pm
▼ [S] F1		F1/tree
▶ [S] F1::S1		F1/S1/tree
▼ [S] F1::S2		F1/S2/tree
[C] F1::S2::a		F1/S2/a.wiz
[C] F1::S2::b		F1/S2/b.wiz
▶ [S] F2		F2/tree
▶ [S] F3		F3/tree
▶ [S] F4		F4/tree
[C] End		End.wiz

The right-hand panel, titled "TestFarm", shows the configuration for the selected test case "F1::S2::b". It includes fields for "Id" (b), "Type" (Test Case (.wiz)), "Desc" (Right display (PWR2)), "Ref", "Default Criticality" (Major), and "Failure Shortcut" (-). There is a "Compile this Script" button and "Apply" and "Revert" buttons at the bottom.

At the bottom of the window, a status bar shows the results of a "Make" operation:

```
✓ F4/S2/j.pm syntax OK
twiz-script -q F4/S2/done.wiz
twiz-check F4/S2/done.pm
✓ F4/S2/done.pm syntax OK
twiz-script -q End.wiz
twiz-check End.pm
✓ End.pm syntax OK
Leaving directory `~/home/test/Demo/EWD'
```

Test scripts are modified from a Text editor. A test script can be written in Perl, or in a higher-level macro-language based on your own test vocabulary.

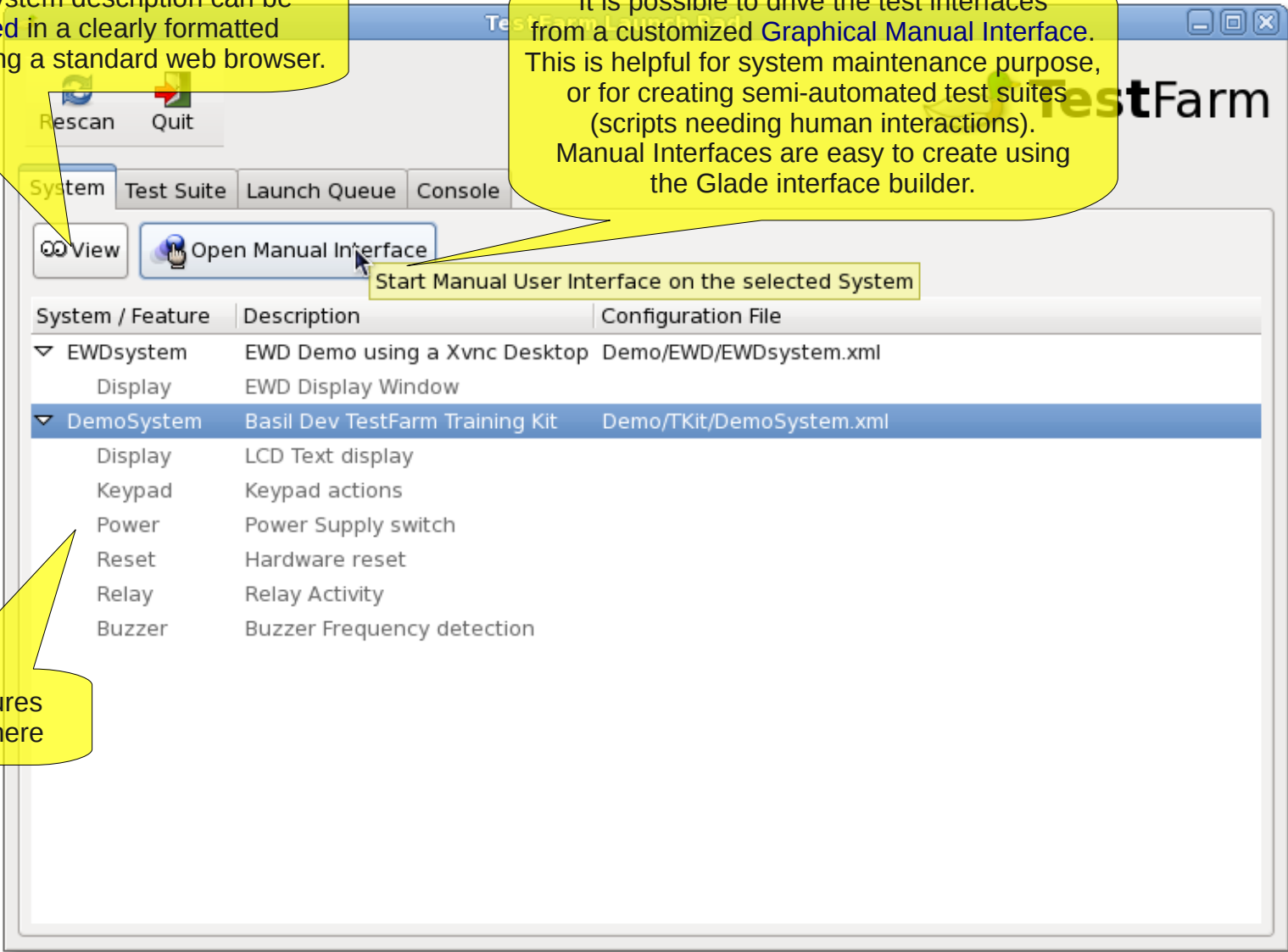
# Test System Configurations



The test interfaces and their associated actions are described in XML files. All systems available from the computer are summarized here.

A XML system description can be displayed in a clearly formatted manner using a standard web browser.

It is possible to drive the test interfaces from a customized Graphical Manual Interface. This is helpful for system maintenance purposes, or for creating semi-automated test suites (scripts needing human interactions). Manual Interfaces are easy to create using the Glade interface builder.



Test System features are summarized here

# Test System Configuration

Example of XML file view



TestFarm System Configuration - Mozilla Firefox

file:///home/test/Demo/TKit/DemoSystem.xml

## TestFarm System Configuration

### SYSTEM INFORMATION

Info	Content
System Description	Basil Dev TestFarm Training Kit
Training Kit Version	A1
Serial Number	001
TTY	/dev/ttyUSB0

### SERVICES

Service	Command	Mode	Info
LCD	lcd-screen -alpha -g 20x2		
Time_Switch	perl Minuterie/minuterie.pl \$INFO[TTY] > /dev/null	MANUAL	

### INTERFACES, FEATURES AND ACTIONS

Interface	Type	Address	Mode	Info	Features
UF120	TestFarm::UF120			version:	Display
UR111	TestFarm::UR111			version:	Keypad Power Reset Re
AUDIO	TestFarm::Audio	-f 16000 -dsp /dev/dsp -mix /dev/mixer		version:	Buzzer

Feature	Mode	Description	Interface	Actions
Buzzer		Buzzer Frequency detection	AUDIO	BuzzerDetect
Display		LCD Text display	UF120	DisplayClock DisplayTrig
Keypad		Keypad actions	UR111	KeyMap Dial KeyPress ChangeTime KeyTrig
Power		Power Supply switch	UR111	PowerSwitch
Relay		Relay Activity	UR111	RelayTrig RelayShow
Reset		Hardware reset	UR111	ResetSwitch Reset

Action	Prototype	Feature	Interface
BuzzerDetect	(\$)	Buzzer	AUDIO

All system components are listed and clearly identified

External processes and services can be automatically launched before running the test suites.

All system capabilities (a.k.a. Test Features) are listed as cross-reference tables

# Graphical Manual Interface

An example for a small terminal with LCD screen



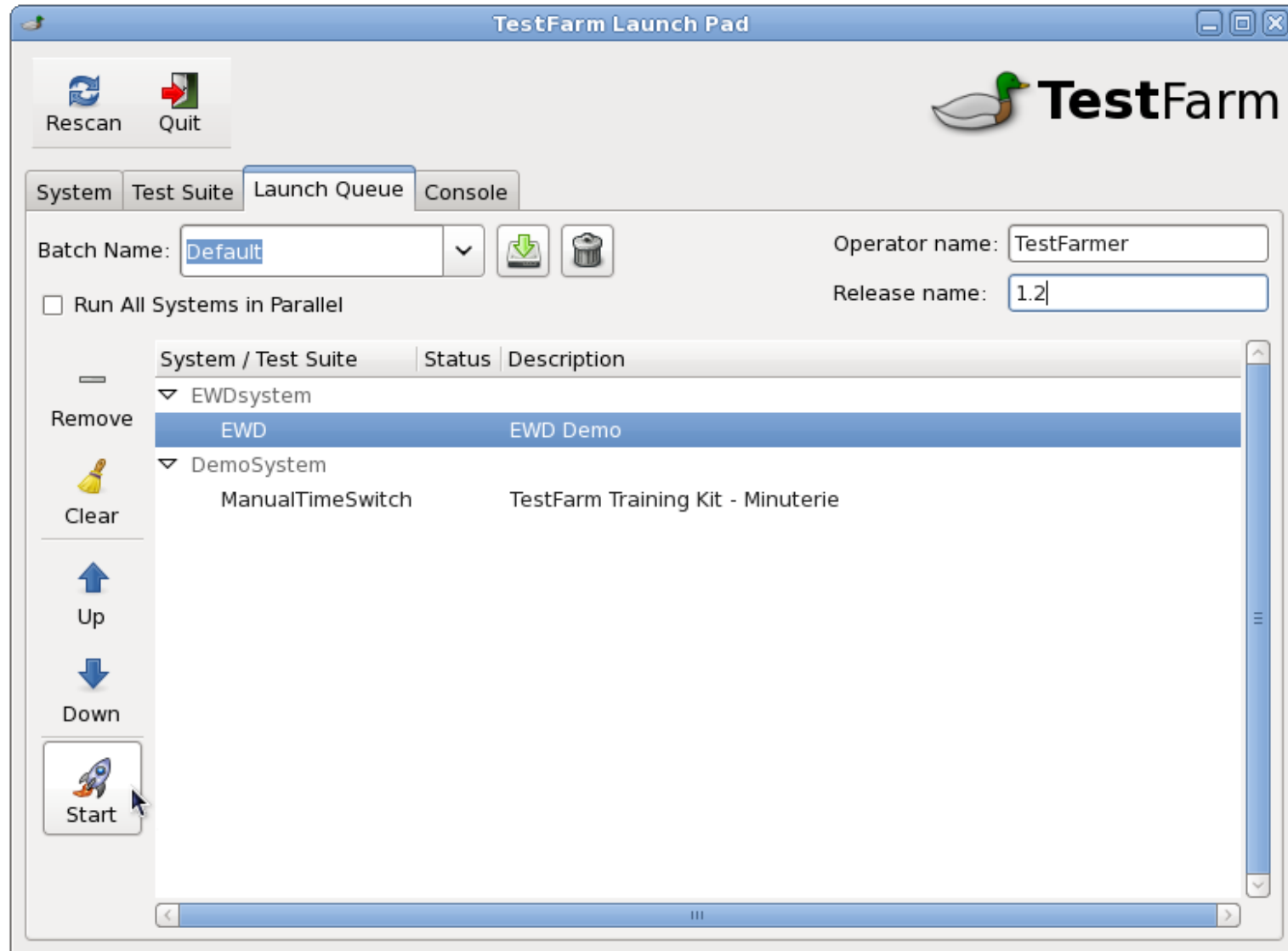
A Manual Interface is easy to create using the Glade Interface builder. It connects directly to the test interfaces declared in the XML system configuration.

A Graphical Manual Interface is helpful for system maintenance. It also permits to create semi-automated test suites, with scripts that wait for answers from the test operator.



# The Launch Queue

Schedule a batch of several Test Suites



# Test Suite Runner

Test Suites are executed from here



Test Suite execution can be controlled for debugging.

Test Logs contain the dialog between the Test Scripts and the Test Interfaces. They are stored to the XML test results, They can be browsed using the Test Log Viewer.

Test Reports can be generated on-the-fly..

The screenshot shows the TestFarm Runner application window. The title bar reads "TestFarm Runner - EWD". The menu bar includes "Session", "Execution", "Debug", "Results", "System", and "Help". The toolbar contains icons for "Reset", "Go", "Step", "Abort", "BrkPt", "Skip", "Clear", "Verdicts", "Log", and "Report".

The main interface is divided into three main sections:

- Test Tree (Left):** A hierarchical tree view showing test cases. The current test case "F2::S1::a" is selected and highlighted in orange. It has a green checkmark in the "Verdict" column.
- Log Viewer (Center):** A text area displaying the output of the test script. The text includes: "Display 68.4", "Display TOGA", "Display 69.7", "Object TOGA found at +254+10", and "Screenshot : report/EWD/screenshot0001.png (6...". Below the text area are expandable sections for "Verdict Input" and "Script Validation".
- Summary Panel (Right):** A summary of test results. It shows "TOTAL: 63" and "Executed: 11 %". It also shows "SIGNIFICANT: 7" and "PASSED: 100 %". Other categories like "FAILED: 0 %" and "INCONCLUSIVE: 0 %" are also listed.

At the bottom of the window, the status bar shows "System: EWDsystem", "Halted", and "Test Case 'F2::S1::a' done". There are also buttons for "Spot in Tree" and "Spot in Log".

Messages printed by the test scripts are shown here. They are stored to the XML test results.

# Test Log Viewer

The Test Log is a record of the messages exchanged with the Test Interfaces.



Events are time-stamped to allow real-time analysis

	Date	Time	Global TS	Global dT	Interface	Local TS	Local dT	Tag	Info
2789	12-Jan-2010	23:15:23	396.074255		ENGINE	*		STEP	BEGIN CHECK_BLINKING DIGITS_90 1s
2790	12-Jan-2010	23:15:23	396.074329		ENGINE	*		TRIG	DIGITS_90 0 periph=VISU regex='MATCH\s+\s+\s+*
2791	12-Jan-2010	23:15:23	396.075258		VISU	396.074446		MATCH	DIGITS_90 frame=(root) window=106x36+82+132 appear=yes
2792	12-Jan-2010	23:15:23	396.266500	[1] 395.729s	VISU	396.266014		PWR1	VALUE=90.0
2793	12-Jan-2010	23:15:23	396.819825		VISU	396.819506		PWR1	VALUE=90.0
2794	12-Jan-2010	23:15:24	397.260741	[2792] 994.241ms	VISU	397.260297	994.283ms	PWR1	VALUE=90.0
2795	12-Jan-2010	23:15:24	397.817337		VISU	397.816859		PWR1	VALUE=90.0
2796	12-Jan-2010	23:15:25	398.262630	[2794] 1001.889ms	VISU	398.262173	1001.876ms	PWR1	VALUE=90.0
2797	12-Jan-2010	23:15:25	398.815106		VISU	398.814660		PWR1	VALUE=90.0
2798	12-Jan-2010	23:15:26	399.264812		VISU	399.264365		PWR1	VALUE=90.0
2799	12-Jan-2010	23:15:26	399.820731		VISU	399.820407		PWR1	VALUE=90.0
2800	12-Jan-2010	23:15:27	400.266017		VISU	400.266017		PWR1	VALUE=90.0
2801	12-Jan-2010	23:15:27	400.811287		VISU	400.811287		PWR1	VALUE=90.0
2802	12-Jan-2010	23:15:28	401.268151		VISU	401.267707		PWR1	VALUE=90.0
2803	12-Jan-2010	23:15:28	401.809753		VISU	401.809301		PWR1	VALUE=90.0
2804	12-Jan-2010	23:15:29	402.270165		VISU	402.269720		PWR1	VALUE=90.0
2805	12-Jan-2010	23:15:29	402.807807		VISU	402.807359		PWR1	VALUE=90.0
2806	12-Jan-2010	23:15:30	403.267038		VISU	403.266716		PWR1	VALUE=90.0
2807	12-Jan-2010	23:15:30	403.802550		VISU	403.802230		PWR1	VALUE=90.0
2808	12-Jan-2010	23:15:31	404.268450		VISU	404.268110		PWR1	VALUE=90.0
2809	12-Jan-2010	23:15:31	404.800139		VISU	404.799818		PWR1	VALUE=90.0
2810	12-Jan-2010	23:15:32	405.269511		VISU	405.269162		PWR1	VALUE=90.0
2811	12-Jan-2010	23:15:32	405.798294		VISU	405.797808		PWR1	VALUE=90.0
2812	12-Jan-2010	23:15:33	406.075332		ENGINE	*		STEP	END CHECK_BLINKING DIGITS_90 1s
2813	12-Jan-2010	23:15:33	406.075837		VISU	406.075506		MATCH	DIGITS_90 removed
2814	12-Jan-2010	23:15:33	406.270161		VISU	406.269720		PWR1	VALUE=90.0
2815	12-Jan-2010	23:15:33	406.794309		VISU	406.793868		PWR1	VALUE=90.0
2816	12-Jan-2010	23:15:34	407.075545		ENGINE	*		DONE	F4::S1::g
2817	12-Jan-2010	23:15:34	407.075900		ENGINE	*		VERDICT	PASSED
2818	12-Jan-2010	23:15:34	407.078253		ENGINE	*		CASE	F4::S1::h

Selecting events shows time difference between them

Events can be filtered by interface and message type.

You can also search for a keyword..

# Back to the Launch Pad...

...Managing test reports



Different Test Report layouts can be defined Using the Test Report Configuration tool..

You can easily generate several HTML Test Reports from the same XML results, with different stylesheets and/or different layouts, in order to adapt to the intended audience (developpers, integrators, managers, customers, etc).

You can also browse the Test Log stored in the XML test results.

The screenshot shows the TestFarm interface. On the left, the 'TestFarm - Report Configuration' dialog is open, showing the 'General Options' tab. The 'Stylesheet' section has 'Use standard Test Report layout' checked. Below it are several other options, all checked: 'Show Operator name', 'Show IN\_TITLE output messages', 'Show IN\_HEADER output messages', 'Show IN\_VERDICT output messages', 'Show durations', 'Names in parenthesis if test not validated', and 'Generate HTML Test Log links'. The 'Config Name' is set to 'Full-With-Logs'. The 'OK' button is highlighted with a mouse cursor. A red arrow points from the 'Config' button in the 'Test Report Generator' window to the 'Use standard Test Report layout' checkbox in the configuration dialog.

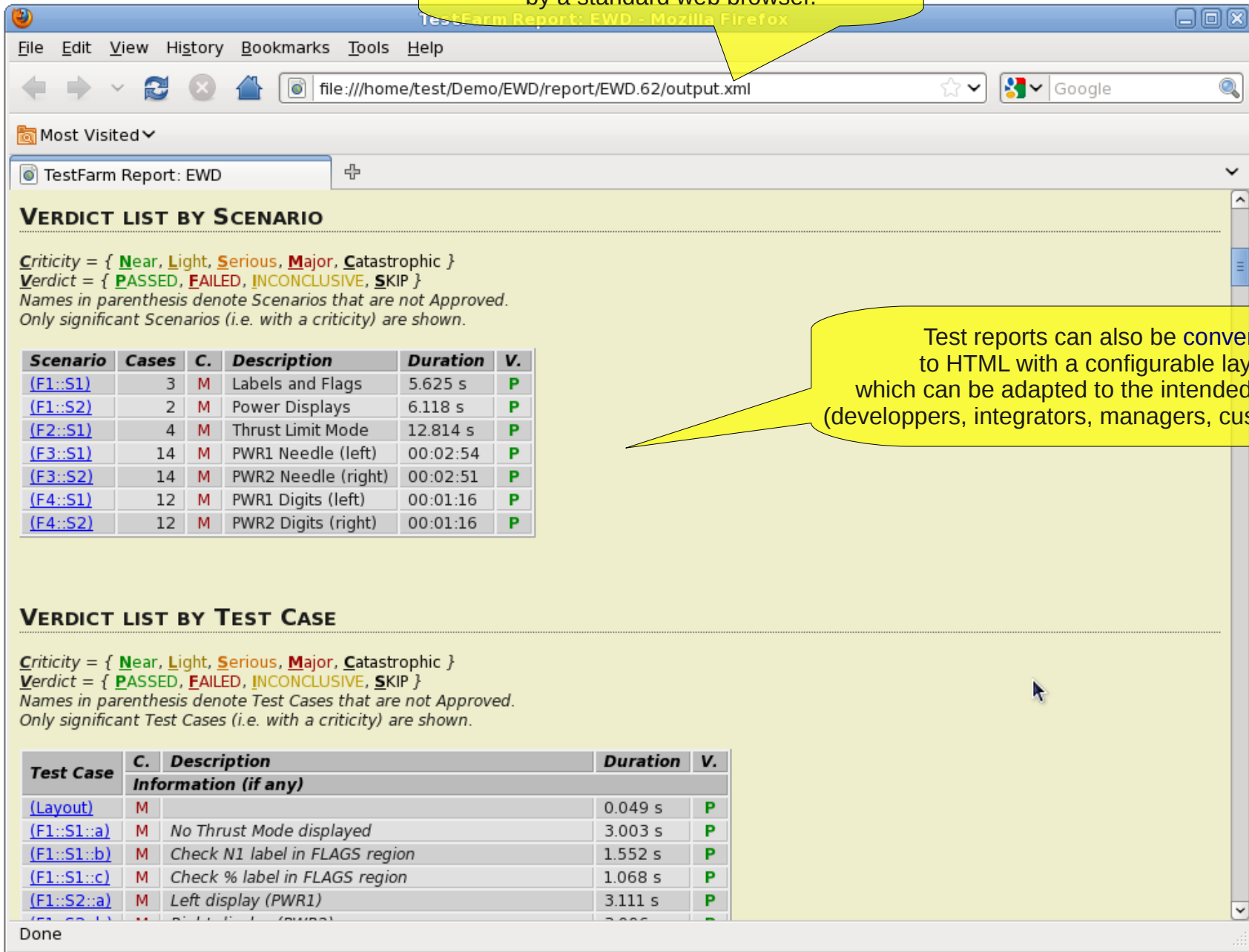
The 'Test Report Generator' window is on the right. It has a 'Config' button highlighted with a red box. Below it are buttons for 'View', 'Log', 'Copy', and 'Delete'. A file list is shown with columns for 'File Name', 'Size', and 'Date'. The file 'EWD.62/output.xml' is selected and highlighted in blue.

File Name	Size	Date
EWD		25-Jan-2
EWD.63		25-Jan-2
EWD.62		25-Jan-2
EWD.62/output.xml	364K	12-Jan-2
EWD.62/index.html	58K	25-Jan-2
EWD.61		12-Jan-2
EWD.60		12-Jan-2
EWD.59		11-Jan-2
EWD.58		11-Jan-2
EWD.57		11-Jan-2
EWD.56		11-Jan-2
EWD.55		11-Jan-2
EWD.54		10-Jan-2

# Test Reports



Test results are generated in XML, so they can be directly formatted and viewed by a standard web browser.



**VERDICT LIST BY SCENARIO**

*Criticality = { Near, Light, Serious, Major, Catastrophic }  
Verdict = { PASSED, FAILED, INCONCLUSIVE, SKIP }  
Names in parenthesis denote Scenarios that are not Approved.  
Only significant Scenarios (i.e. with a criticality) are shown.*

Scenario	Cases	C.	Description	Duration	V.
<a href="#">(F1::S1)</a>	3	M	Labels and Flags	5.625 s	P
<a href="#">(F1::S2)</a>	2	M	Power Displays	6.118 s	P
<a href="#">(F2::S1)</a>	4	M	Thrust Limit Mode	12.814 s	P
<a href="#">(F3::S1)</a>	14	M	PWR1 Needle (left)	00:02:54	P
<a href="#">(F3::S2)</a>	14	M	PWR2 Needle (right)	00:02:51	P
<a href="#">(F4::S1)</a>	12	M	PWR1 Digits (left)	00:01:16	P
<a href="#">(F4::S2)</a>	12	M	PWR2 Digits (right)	00:01:16	P

**VERDICT LIST BY TEST CASE**

*Criticality = { Near, Light, Serious, Major, Catastrophic }  
Verdict = { PASSED, FAILED, INCONCLUSIVE, SKIP }  
Names in parenthesis denote Test Cases that are not Approved.  
Only significant Test Cases (i.e. with a criticality) are shown.*

Test Case	C.	Description Information (if any)	Duration	V.
<a href="#">(Layout)</a>	M		0.049 s	P
<a href="#">(F1::S1::a)</a>	M	No Thrust Mode displayed	3.003 s	P
<a href="#">(F1::S1::b)</a>	M	Check N1 label in FLAGS region	1.552 s	P
<a href="#">(F1::S1::c)</a>	M	Check % label in FLAGS region	1.068 s	P
<a href="#">(F1::S2::a)</a>	M	Left display (PWR1)	3.111 s	P
<a href="#">(F1::S2::b)</a>	M	Right display (PWR2)	3.003 s	P

Test reports can also be converted to HTML with a configurable layout, which can be adapted to the intended audience (devellopers, integrators, managers, customers, etc).

# Test Reports

## Adding enriched content



Test Reports can be illustrated with screenshots or graphs. This can be done from the Test Scripts by printing HTML tags.

Test Logs can be converted to HTML and attached to the Test Report.

```


Display 90..10
Needle PWR1: VALUE=10.2 MIN=10.2 MAX=89.4

(F3::S1::k) * : 45.137 s : PASSED

Display
Display -5..10
Display 10..-10
Display -10..10
Display 10..-15
Display -15..0
Needle PWR1: VALUE=-0.0 MIN=-5.9 MAX=10.2

report/EWD/movie0001.gif: 115 frames, 20.798 seconds

Movie : report/EWD/movie0001.*.png (200x200+0+0) -> report/EWD/movie0001.gif
    
```



```

(F3::S1::l) * : 17.617 s : PASSED
    
```

P	BEGIN SELECT_REGION FLAGS
P	END SELECT_REGION FLAGS
P	BEGIN SPOT_COLOR AMBER gap=10
G	TPAD 0 periph=VISU regex='^\d+\s+PAD\s+COLOR_AMBER\s+'
T	TPAD
	COLOR_AMBER frame=(root) 79x21+260+19
T	CONTINUE TPAD
G	TPAD '15571600 PAD COLOR_AMBER frame=(root) 79x21+260+19'
P	END SPOT_COLOR AMBER gap=10
P	BEGIN SPOT_OBJECT TOGA
G	TOGA 0 periph=VISU regex='MATCH\s+TOGA\s+\S*APPEAR\s+'
T	TOGA
CH	TOGA frame=(root) window=200x200+200+0 appear=yes disappear=no retrigger=no fuzz=#080808 image=objects/TOGA.png
CH	TOGA APPEAR @93x39+254+10 dt=15.119ms
T	CONTINUE TOGA
G	TOGA '16066061 MATCH TOGA APPEAR @93x39+254+10 dt=15.119ms'
P	END SPOT_OBJECT TOGA 3s
	BEGIN SELECT_REGION NONE
	END SELECT_REGION NONE
	BEGIN TAKE_SCREENSHOT
	TRIG TGRAB 0 periph=VISU regex='^\d+\s+GRAB\s+'
	WAIT TGRAB
	VISU 16.068019 16.067938 MATCH TOGA removed
	VISU 16.098327 16.068244 GRAB frame=(root) window=600x200+0+0 report/EWD/screenshot0001.png
	WAIT CONTINUE TGRAB
	TRIG TGRAB '16068244 GRAB frame=(root) window=600x200+0+0 report/EWD/screenshot0001.png'
	END TAKE_SCREENSHOT
	DONE F2::S1::a
	<b>VERDICT PASSED</b>