Success with Test Automation

John Green
VMware
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Topics

- Process
- Coding Standards
- Drive out False Negatives
- Publish Results Publically
- Developer Build Tests

Process

- Plan/Prioritize
- Develop
- Run/Triage

Test Planning

- Inputs: Specs, Developers, Defects
- Developer Reviews – Find gaps
- Peer Reviews – Learn and teach
- Post-mortem Reviews - How did we do?
- Prioritize for automation

Test Types

- **BATs** – 30 minutes including Install/Uninstall – Triage results within 1 hour (every build)
- **Smoke** – Feature BATs – 15% of Regression – Triaged results within 3 hours (4 days per week) (P0)
- **Regression** – All Tests – Triaged Results within 24 hours (1 day per week) (P1-P2)

Test Development

- Build Reusable (Data driven testcases)
- Write maintainable code
- Build modular code
- Use records and functions to isolate testcases from GUI details

Test Development, cont

- Coding Standards create maintainable code
- Reviews prevent problems and teach junior team members and enforce coding standards

Test Execution

- **Build-triggered** – Script polls build API, downloads build, executes Primary BATS, then Secondary BATs automatically. Email notification is sent to assigned triage engineer
- **On-Demand** – All Tests are available anytime to run against any available build on a selection of operating systems

Triage

- Review and resolve all failed defects
- Publish results to team after triage
- View previous results
- Link to defect tracking system
- View test case steps and expected results
- Results are inserted so triage can start after the first result is posted.

Coding Standards

- Give and Take required to come to agreement
- Enforcement (otherwise you have guidelines)
- Code Reviews
- Coding standards improve maintainability

Automation Environment

- Drive the machine to a known state before executing a set of testcases.
- Drive the application to a known state before each testcase (Recovery – DefaultBaseState)

Publish Results Publically

- Show all Test Results
- Show Verification Points
- Capture Screenshot on Failures
- Upload Log Files
- Provide easy access to results

Common Results Repository

- Windows – XP, XP64, Vista, 2000, 2003
- Linux – RHEL, Ubuntu
- Mac – OSX

One Product – Today's results

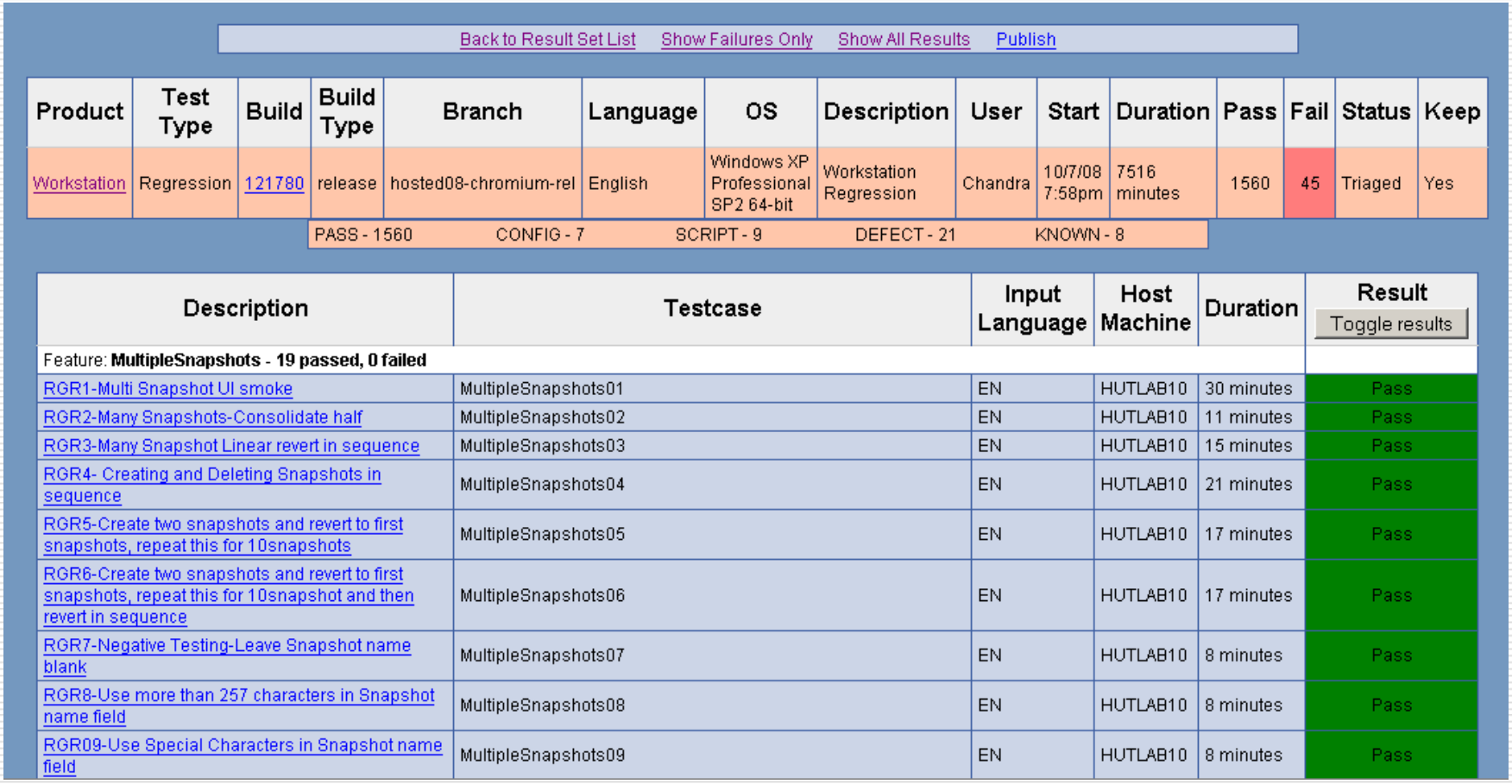
Results for Workstation - Today

Product	Test Type	Build	Build Type	Branch	Language	Host OS	Description	User	Start	Duration	Pass	Fail	Status	Keep
Workstation														
Workstation	BATS	123164	release	hosted08-chromium-rel	English	Linux (Red Hat Enterprise Linux Client release 5.1 (Tikanga) - i	Workstation BATS	Hutlab	10/14/08 9:13am	36 minutes	5	0	Complete	Yes
Workstation	BATS	123164	release	hosted08-chromium-rel	English	Windows XP Professional SP2	Workstation BATS-i18n	Hutlab	10/14/08 8:07am	21 minutes	5	0	Complete	Yes
Workstation	BATS	123164	release	hosted08-chromium-rel	English	Windows Vista Enterprise Edition	WS Secondary BATS	Hutlab	10/14/08 3:06am	319 minutes	5	0	Complete	Yes
Workstation	BATS	123164	release	hosted08-chromium-rel	English	Windows 2000 Professional SP4	WS Secondary BATS	Hutlab	10/14/08 3:05am	320 minutes	5	0	Complete	Yes
Workstation	BATS	123164	release	hosted08-chromium-rel	Japanese	Windows XP Professional SP2	Workstation BATS	Hutlab	10/14/08 1:23am	39 minutes	3	4	Triaged	Yes
Workstation	BATS	123164	release	hosted08-chromium-rel	English	Windows XP Professional SP2 64-bit	WS Secondary BATS	Hutlab	10/14/08 12:39am	30 minutes	5	0	Complete	Yes
Workstation	BATS	123164	release	hosted08-chromium-rel	English	Windows XP Professional	Workstation	Hutlab	10/14/08	34 minutes	5	0	Complete	Yes

Result Details

	VM power off operation	FALSE	FALSE		Pass
	VM > Power menu exists	TRUE	TRUE		Pass
	1:Open the VM after the Initial PreConfigured setup is executed				
	Open VM - VMX file exists - (c:/silk/vms/existing/Windows 2000 Professional/Windows 2000 Professional.vmx)	TRUE	TRUE		Pass
	Open win2000Pro VM	TRUE	TRUE		Pass
	2: Power On the VM				
	VM power on operation	TRUE	TRUE		Pass
	VM > Power menu exists	TRUE	TRUE		Pass
	3.Power off the VM				
	VM power off operation	FALSE	FALSE		Pass
	VM > Power menu exists	TRUE	TRUE		Pass
	4.Taking Snapshot 1				
	taking snapshot with name as Snapshot 1				
	5.Power On the VM				
	VM power on operation	TRUE	TRUE		Pass
	VM > Power menu exists	TRUE	TRUE		Pass
	6.Taking Snapshot 2				
	taking snapshot with name as Snapshot 2				
	7.Power off the VM				
	VM power off operation	FALSE	FALSE		Pass
	VM > Power menu exists	TRUE	TRUE		Pass
	8.Power On the VM				
	VM power on operation	TRUE	TRUE		Pass
	VM > Power menu exists	TRUE	TRUE		Pass
	9. Revert to Snapshot 1				
	Snapshot 1 found under VM>Snapshot	TRUE	TRUE		Pass
	10.Power On the VM				
	VM power on operation	TRUE	TRUE		Pass

Regression Display



Back to Result Set List | Show Failures Only | Show All Results | Publish

Product	Test Type	Build	Build Type	Branch	Language	OS	Description	User	Start	Duration	Pass	Fail	Status	Keep
Workstation	Regression	121780	release	hosted08-chromium-rel	English	Windows XP Professional SP2 64-bit	Workstation Regression	Chandra	10/7/08 7:58pm	7516 minutes	1560	45	Triaged	Yes

PASS - 1560 CONFIG - 7 SCRIPT - 9 DEFECT - 21 KNOWN - 8

Description	Testcase	Input Language	Host Machine	Duration	Result (Toggle results)
Feature: **MultipleSnapshots - 19 passed, 0 failed**					
RGR1-Multi Snapshot UI smoke	MultipleSnapshots01	EN	HUTLAB10	30 minutes	Pass
RGR2-Many Snapshots-Consolidate half	MultipleSnapshots02	EN	HUTLAB10	11 minutes	Pass
RGR3-Many Snapshot Linear revert in sequence	MultipleSnapshots03	EN	HUTLAB10	15 minutes	Pass
RGR4- Creating and Deleting Snapshots in sequence	MultipleSnapshots04	EN	HUTLAB10	21 minutes	Pass
RGR5-Create two snapshots and revert to first snapshots, repeat this for 10snapshots	MultipleSnapshots05	EN	HUTLAB10	17 minutes	Pass
RGR6-Create two snapshots and revert to first snapshots, repeat this for 10snapshot and then revert in sequence	MultipleSnapshots06	EN	HUTLAB10	17 minutes	Pass
RGR7-Negative Testing-Leave Snapshot name blank	MultipleSnapshots07	EN	HUTLAB10	8 minutes	Pass
RGR8-Use more than 257 characters in Snapshot name field	MultipleSnapshots08	EN	HUTLAB10	8 minutes	Pass
RGR09-Use Special Characters in Snapshot name field	MultipleSnapshots09	EN	HUTLAB10	8 minutes	Pass

Results organized by Feature

Product	Test Type	Build	Build Type	Branch	Language	OS	Description	User	Start	Duration	Pass	Fail	Status	Keep
Workstation	Smoke	122984	release	hosted08-chromium-rel	English	Windows XP Professional SP2	MS	Raghu	10/13/08 11:21pm	551 minutes	114	1	Triaged	Yes

PASS - 114 DEFECT - 1

Description	Testcase	Input Language	Host Machine	Duration	Result (Toggle results)
Feature: **MultipleSnapshots - 8 passed, 0 failed**					
RGR1-Multi Snapshot UI smoke	MultipleSnapshots01	EN	HUTLAB6	29 minutes	Pass
RGR2-Many Snapshots-Consolidate half	MultipleSnapshots02	EN	HUTLAB6	8 minutes	Pass
RGR12--Max Out Description field during creation of snapshot	MultipleSnapshots12	EN	HUTLAB6	6 minutes	Pass
RGR13-Snapshots in Possible execution states-Power on, Power off and Suspended state	MultipleSnapshots13	EN	HUTLAB6	12 minutes	Pass
RGR14-Snapshot Kill UI	MultipleSnapshots14	EN	HUTLAB6	7 minutes	Pass
RGR15-Snapshot Menu is active for the Correct Versions	MultipleSnapshots15	EN	HUTLAB6	16 minutes	Pass
RGR17-Verify that Snapshot Manager is correctly placing snapshots	MultipleSnapshots17	EN	HUTLAB6	8 minutes	Pass
RGR16-Verifying the functionality of Snapshot Manager	MultipleSnapshots16	EN	HUTLAB6	11 minutes	Pass
Feature: **WSClone - 31 passed, 0 failed**					
Create Linked Clone from Template VM (no snapshots)	CreateLinkedClonefromTemplateVMNosnapshots	EN	HUTLAB8	3 minutes	Pass
Create Linked Clone from Template VM with Snapshots)	CreateLinkedClonefromTemplateVMWithsnapshots	EN	HUTLAB8	10 minutes	Pass
Create Full Clone from template VM (with snapshot)	CreateFullClonefromTemplateVMWithsnapshots	EN	HUTLAB8	10 minutes	Pass
Delete linked clone reference	LinkedCloneDeleteReference	EN	HUTLAB8	4 minutes	Pass
Create Linked clone from VM having independent disk	CreateLCfromVMwithIndependentdisk	EN	HUTLAB8	2 minutes	Pass

Defect

Description	Testcase	i18N Lang	Host Machine	Duration	Result
BAT 2 - Launch WS, Create and Power on VM, Close WS	BAT2	JP	HUTLAB7	1 minute	Defect

Verifications

Description	Actual	Expected	Attachment	Result
Step 1. Launch Workstation				
Unexpected Error	*** Error: Window '[DialogBox]*VMware Workstation*' was not found Occured in Start Called from LaunchWorkstation at wslibrary.inc (58) Called from BAT2 at WSBATS.t (46) Called from RunOneTest at ../../../lib/Silk/i18N.inc (98) Called from Wrapper at ../../../lib/Silk/i18N.inc (32)		Screen_26846_HUTLAB7_1.png	Fail

Triage

X	Helena:Launch Workstation failed because of Bug 330919: The WS and Player EULA are corrupt on Japanese host. It take about 2 or 3 mins to launch WS for the first time.

Pass

Multiple Technologies Report

- SilkTest
- Python (Applescript, LDTP)
- Java
- C#

Virtualization

- Unlimited multiple configurations can be configured (OS, Memory, Disk Space, Versions of Software)
- Snapshots capture a virtual machine at a specific point in time.

VMware Lab Manager

- Create and deploy complex multi-tier system and network configurations on demand in a matter of seconds.
- Capture test configurations “in state” in the library and share them with developers anywhere to eliminate guesswork when troubleshooting and resolving defects.
- Integrations with SilkCentral Test Manager, TestDirector, Electric Commander, AnthillPro3, plus API

Tips

- False Negatives cause loss of confidence in automation results. Drive them out!
- Build reusable data-driven testcases
- Build testcases that can run in multiple operating systems
- Build testcases that can accept alternate inputs (i18N) and multiple languages (L10N)

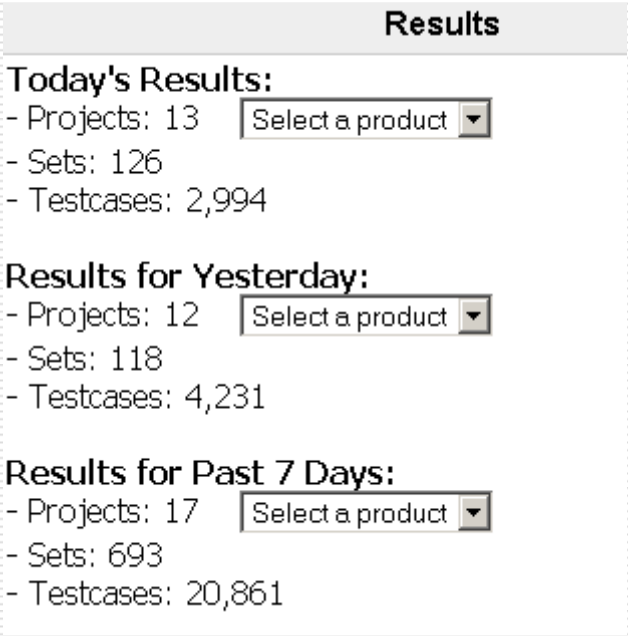
More tips

- Hire people with coding skills to do automation
- Build reusable functions organically from testcases. This allows you to get started quickly and produce useful results.
- Talk to the “customers” of your information so you can improve

Developer Build Tests

- Allows developers to test pre-checkin builds
- Builds partnership between development and QA
- Reduces broken builds

Result Summary



Questions?

- jgreen@vmware.com