DRUPALCON SYDNEY

DEV TRACK | LEE ROWLANDS | FEBRUARY 8 2013

Show me the tests!

Writing Automated Tests for Drupal

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Me

Lee Rowlands - @larowlan

- Senior Drupal Developer with PreviousNext
- Working with Drupal 4+ years
- Maintainer of 35+ contrib modules in various degrees
- Maintainer of core forum.module since 7.8
- Member of Drupal security team
- 60+ core commit mentions

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Session Goals

From 'click monkey' to 'code monkey'

- Why, when, what and how of tests

The click monkey way

Tests everything with the mouse

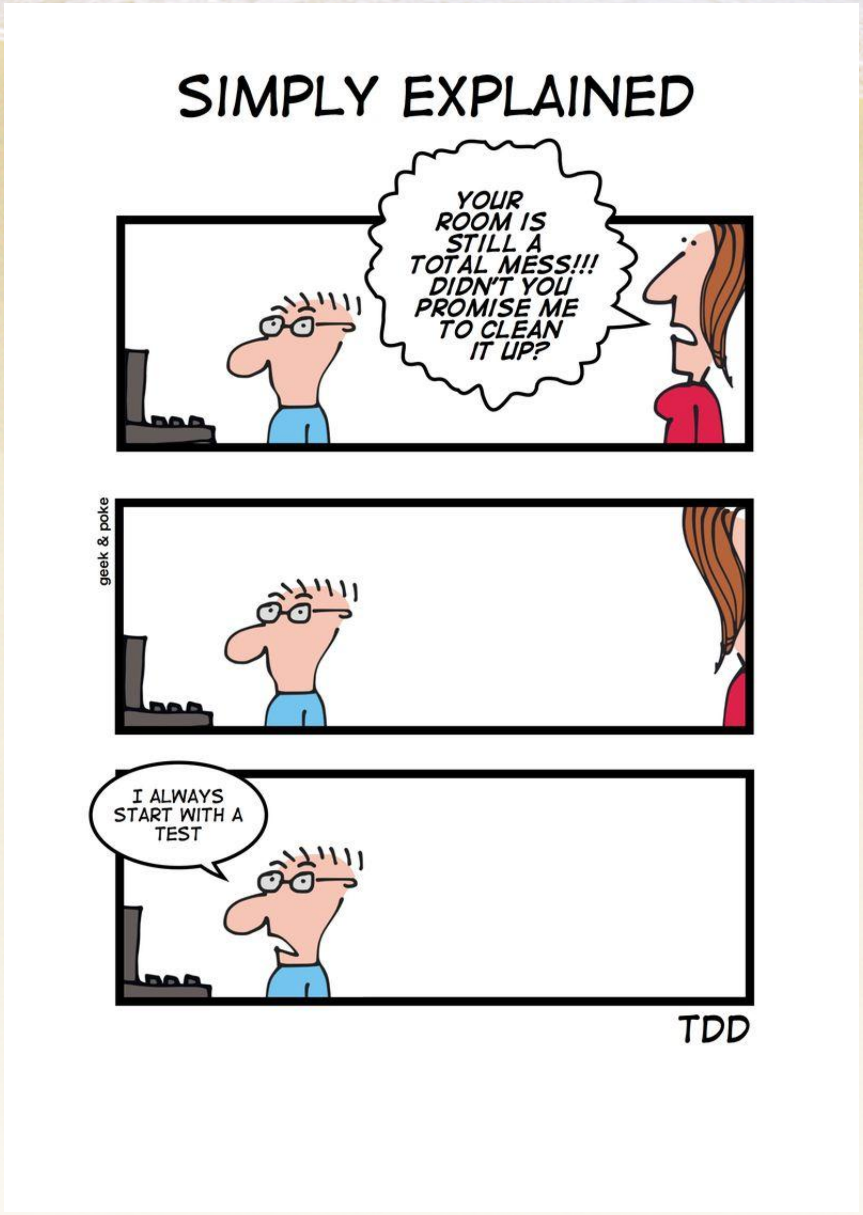
- Repetitive
- A lot of effort = normally avoided
- Not as easy to track when something stopped working

The code monkey way

Tests everything with automated tests

- Set and forget
- Add new tests for new features
- Pinpoint what commit cause the regression
- Dovetails nicely with continuous integration

TDD


SIMPLY EXPLAINED
YOUR ROOM IS STILL A TOTAL MESS!!! DIDN'T YOU PROMISE ME TO CLEAN IT UP?
geek & poke
I ALWAYS START WITH A TEST
TDD

http://geek-and-poke.com/2012/09/simply-explained-tdd.html

A hypothetical example

Online classifieds site

Our requirements

- Anonymous users can create content
- The content is unpublished until they 'pay to publish'
- 'Commerce Node Checkout'
- Focus on end to end Integration

Getting off on the right foot

You need a code based methodology

If not, you're doing it wrong

Reproducible environment for testing

See http://sydney2013.drupal.org/managing-code-and-configuration-update-functions-and-staying-sane

and

http://sydney2013.drupal.org/configuration-management-drupal-7

(Highly recommended)

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Getting off on the right foot

You need a solid version control workflow

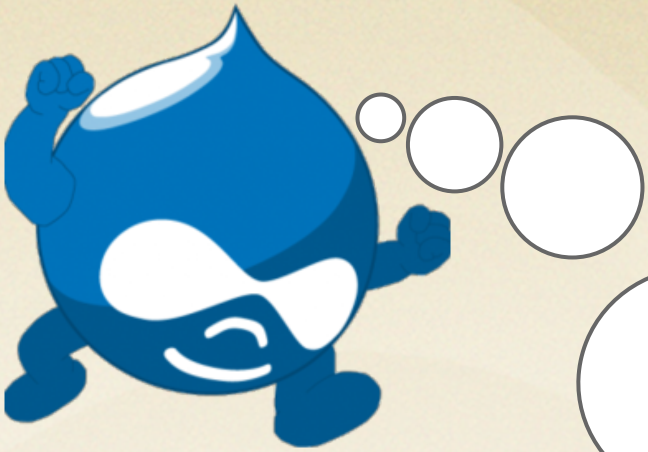
If not, you're doing it wrong

Code Monkey approved

Keeps bugs/features in isolated commits

Consider gitflow approach http://nvie.com/posts/a-successful-git-branching-model/

Several weeks later



This site is great now to just make sure the checkout process does what it should....

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Decision time

Manual test or Automated tests?

- Symptoms of the hard way
  - 4111 1111 1111 1111 anyone?
  - Macro plugins
  - Form autocomplete
- Time to weigh up the costs.

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When to test

A number of factors

- Budget
  - Maintenance cost
- Click fatigue
- Importance
- Regressions
- Quality

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What to test

Should be obvious

- Critical functionality
- New features
- Bugs
- Complexity
- So for our example?

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Manual test run

Best way to start

- Work through it manually.
- Lets look at basics

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Less yak more hack

Show me the tests!

- Extend the base classes
- Register your classes
- Clear your cache

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Drupal 7

Extend DrupalWebTestCase

- Create a new .test file in your module/profile

- Define the test info using the ::getInfo() method
- Set up the tests using the ::setUp() method
- Tests are methods that are prefixed with 'test'

Drupal 8

Extend Drupal\simpletest\WebTestBase

- Main differences
    - PSR-0
- Declare required modules as @var $modules
- Testing profile

Code sprint on Saturday

So back to our checkout testing

Follow through in a logical manner

- Navigate to a page
- Submit forms
- Basically what you'd do in the browser

Asserting

Checking things are behaving

- Check for raw output (markup etc) with `$this->assertRaw()`
- Check plain text (strip the markup) with `$this->assertText()`
- Check for specific markup where possible - try and pick something that is unlikely to change from time to time.
- Use `$this->fail()` and `$this->pass()` as required
- `$this->assertResponse()` to ensure the response code (eg 200, 301 etc)
- Many other assert helpers, eg `::assertFieldById()`, `::assertOptionSelected()`,
- Use `::xpath()` for xpath (similar to jquery) dom selections

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Drupalisms - helper functions

Creating nodes, users, running cron

- Lots of helper functions
- `::drupalCreateNode()`
- `::drupalCreateUser()`
- More for content types, roles, logout etc
- `::cronRun()`
- `::clickLink()`
- `::drupalGetNodeByTitle()`

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Running the tests!

Testing all of core is slow

- Testing key functionality with automated tests ~~can be~~ is normally faster than doing it by hand.
- Allow me to demonstrate...

Imagine how less anxious you would be about module/core updates if you had test coverage!

An example

Special cases - image/file fields

Media and Image fields are slightly different

- Get a reference to a test file using

```
$image = current($this->drupalGetTestFiles('image'));
```

- Support various file types
- When constructing your $_POST values, use `drupal_realpath($image)` as the submitted value
- For media module, it expects an fid. You can get the fid from the $image variable ($image->fid) but you should check to see it exists first

Debugging

Things go wrong during testing

- There, I said it
- Use the `debug()` function
- Don't be afraid to hack core/contrib to debug
- Watchdog isn't available.... or is it?
- https://github.com/larowlan/watchdog-simpletest

Unit tests

Drupal 7 - extend DrupalUnitTestCase

- Testing when x goes in y should come out
- No database or files
- Cannot enable modules
- Can't use watchdog() or module_implements() or ...
- Ideal for testing utility functions
- Ideal where DrupalWebTestCase is too heavy
- Limited set of assertion functions
- You need to take care of loading files/modules

Unit tests

Drupal 7 - extend DrupalUnitTestCase

- You can 'fake' enable a module using

```
/**
 * Fake enables a module for the purpose of a unit test.
 */
protected function enableModule($name) {
  $modules = module_list();
  $modules[$name] = $name;
  module_list(TRUE, FALSE, FALSE, $modules);
}
```

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Unit Tests

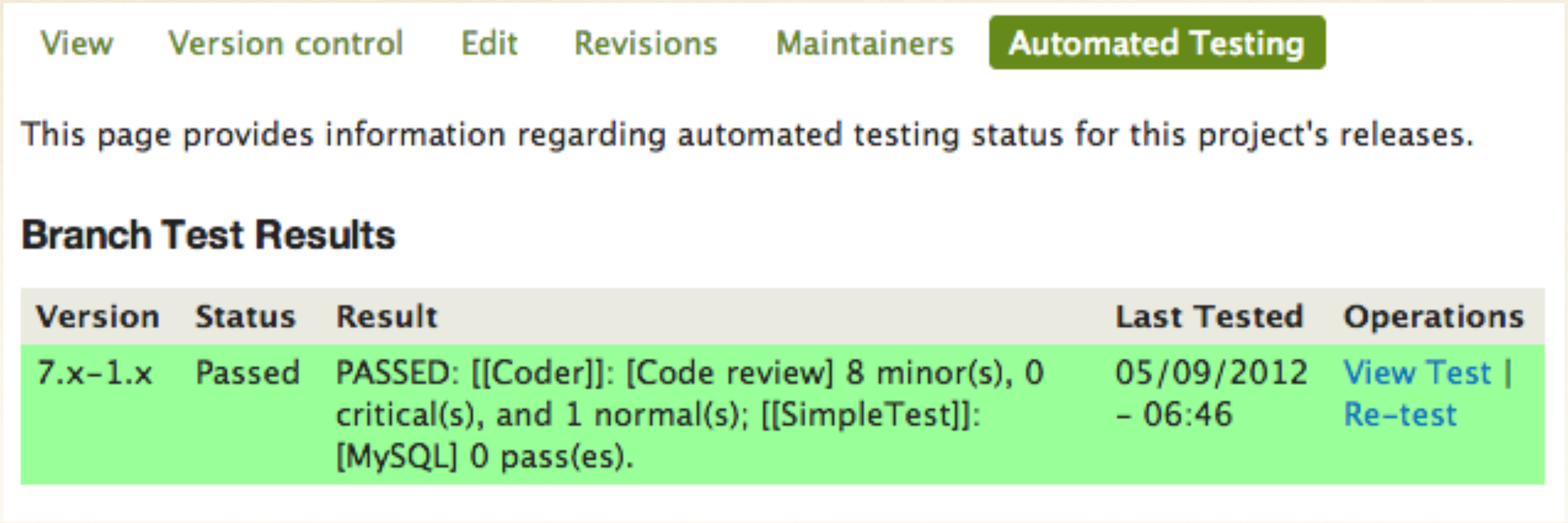
Drupal 8 - Unit Tests Remastered

- See http://drupal.org/node/1829160
- Adds Drupal\simpletest\DrupalUnitTestBase in addition to Drupal\simpletest\UnitTestBase
- Provides **empty** Drupal environment with mock hooks, module installation etc
- More performant than WebTestBase

Drupal.org testing infrastructure

For core and contrib

- qa.drupal.org allows you to automatically test patches uploaded to issue queues
- To enable testing for your contrib modules - visit the automated testing tab



This page provides information regarding automated testing status for this project's releases.

Branch Test Results

Version	Status	Result	Last Tested	Operations
7.x-1.x	Passed	PASSED: [[Coder]]: [Code review] 8 minor(s), 0 critical(s), and 1 normal(s); [[SimpleTest]]: [MySQL] 0 pass(es).	05/09/2012 - 06:46	View Test | Re-test

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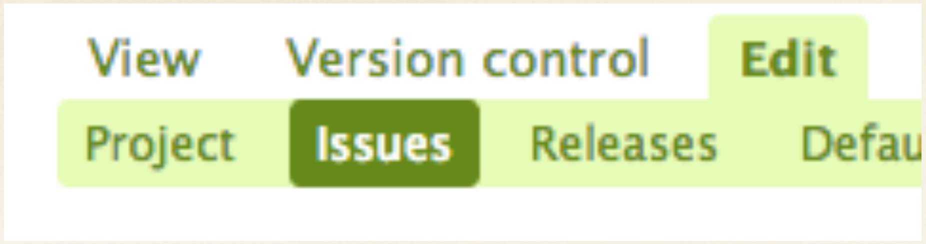
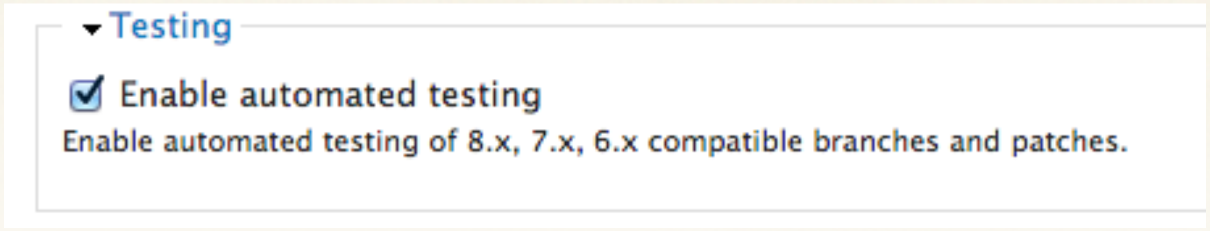
Drupal.org testing infrastructure

For core and contrib

- To enable auto-testing of 'needs review' issues with patches - visit the 'issues' secondary tab whilst editing the project





☑ Enable automated testing

Enable automated testing of 8.x, 7.x, 6.x compatible branches and patches.

Getting started with core tests

You know you want to!

- Dip your toe in the water
- Learn from example/ reading code
- Checkout the 'Needs tests' tag in the issue queue:
  http://drupal.org/project/issues/search/drupal?issue_tags=Needs+tests
- Find a 'needs work' issue that has failing tests and start debugging....
- <plug>Come along to the core sprint day on Saturday</plug>

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The next level

Continuous integration

- Automatically run relevant test-suites
- Jenkins + drush scripts to build a site, enable simpletest, run the tests and tear down
- Running tests using phing
- For more info see one of these guys during conference
  - Kim Pepper (@Scorchio96)
  - Miguel Jacq (@_mig5)
  - Nick Schuch (@sanic1989)

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Questions?

Please come to the code sprint!

More info

See https://github.com/larowlan/sellyastuff for code from this session.

BOF straight after this session to discuss more, with focus on core.

See Jess Myrbo's (xjm's) presentation (core focussed) http://midwest-developer-summit.com/sessions/automated-testing-drupal`

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