

Setting up a Continuous Integration Server

for Ubuntu with Codeigniter and
Github

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Platform

- Ubuntu 11.04 (natty)
- Apache/2.2.17
- MySQL 14.14
- PHP 5.3.5
- CodeIgniter 2.0.1
- SimpleTest 1.1

Prerequisites

- LAMP stack running in Ubuntu
 - <http://www.techrepublic.com/blog/opensource/quickly-install-a-lamp-server-on-ubuntu/298>
 - Alternatively: `sudo tasksel`
- Java 1.6.0
 - http://www.java.com/en/download/help/linux_install.xml

Installing Jenkins

Run the following in terminal:

```
wget -q -O - http://pkg.jenkins-ci.org/debian/jenkins-ci.org.key | sudo apt-key add -
```

Add the following line to `/etc/apt/sources.list`

```
deb http://pkg.jenkins-ci.org/debian binary/
```

Run the following in terminal:

```
sudo apt-get update
```

```
sudo apt-get install jenkins
```

Jenkins can be accessed by default at <http://localhost:8080>

Configuring Jenkins

- Install and configure Git plugin
 - requires git be installed on the OS
 - Jenkins->Manage Jenkins->Manage Plugins->Available
 - Check Git Plugin, scroll down and click install
 - Restart Jenkins
 - Note: you may need to manually set the path the git executable on your system. This is under Manage Jenkins->Configure System
- New Project
 - Freestyle project
 - Under source control, check git and supply repo url
 - Schedule a build

Configuring Jenkins (cont.)

- Install Ant plugin via Jenkins interface
- Write build script titled build.xml and put it in root folder of application
 - This script should clear out old test results, set any config options and prepare folders for the new results
- Add build step invoking ant
- Add build step executing shell script to convert simpletest output to JUnit XML
 - `#!/bin/bash`
`php unit_test.php > build/testresults/results.xml`
`xsltproc build/simpletest_to_junit.xsl`
`build/testresults/results.xml >`
`build/testresults/results-1.xml`
- Publish Junit test result report using the XML files at `build/testresults/results-*.xml`

Setting up Simpletest

- CodeIgniter's built in testing class very weak
- Used a simpletest plugin for CodeIgniter
 - "codeigniter-simpletest" written by ericbarnes
 - Extends CodeIgniter's built in testing with the functionality of simpleTest
- unit_test.php file goes in the root folder
- "tests" directory in the root folder
 - simpletest library in here
 - As well as directories containing tests
- By default, uses old version of simpletest which is not compatible with PHP 5.3
 - We replaced the simpletest library with the most up-to-date
 - Numerous compatibility changes in the unit_test.php file
 - PHP changed how constructors are handled
 - Old: `ClassName();`
 - New: `__construct();`
 - `addTestFile('test')` becomes `addFile('test')`

Configuring SimpleTest

- Modified `unit_test.php` file to work from command line

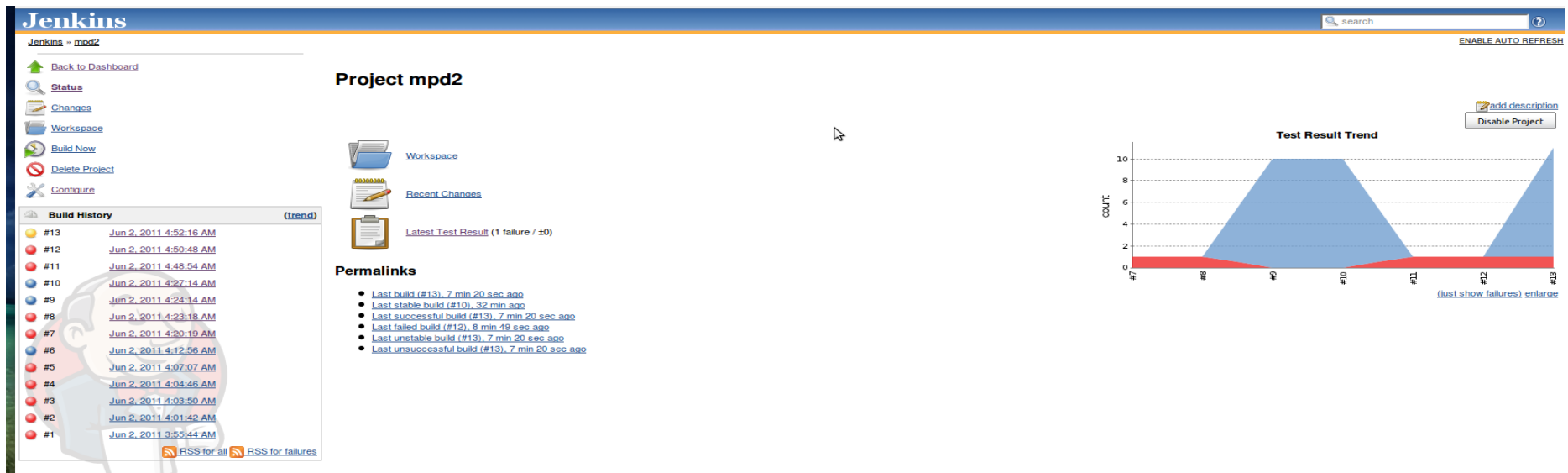
```
o //take in args
if(isset($argv))
    $cli_mode = setup_cli($argv);
else
    $cli_mode = false;

o //Report with custom XML reporter if CLI
if($cli_mode) {
    exit ($test_suite->run(new XMLtimeReporter()) ? 0 : 1); }
else {
    include(TESTS_DIR . 'test_gui.php');}
```

- Built test database that that can be loaded, populated and torn down from the test cases like so:

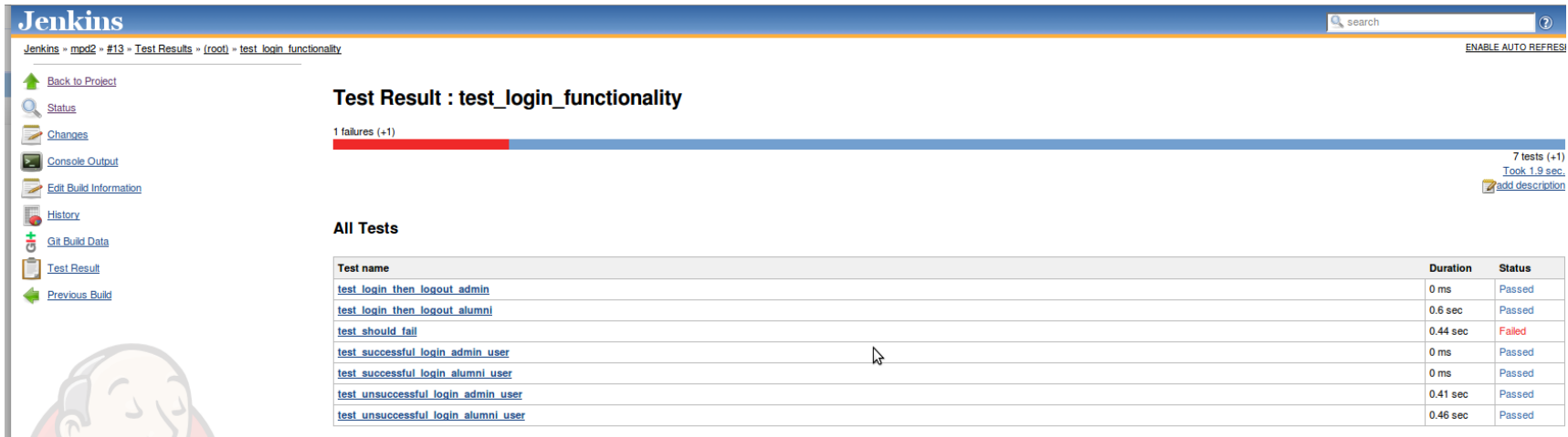
```
o setup: $this->_ci->load->database('test','true');
        // insert data
o teardown: $this->_ci->db->truncate('images');
o $this->_ci->db->truncate('alumni');
o $this->_ci->db->truncate('users');
  $this->_ci->db->truncate('project');
  $this->_ci->load->database('default', 'true');
```

Example Run



The Jenkins Interface

Example Run (cont.)



Jenkins

Jenkins » mod2 » #13 » Test Results » (root) » test_login_functionality

ENABLE AUTO REFRESH

Back to Project
Status
Changes
Console Output
Edit Build Information
History
Git Build Data
Test Result
Previous Build

Test Result : test_login_functionality

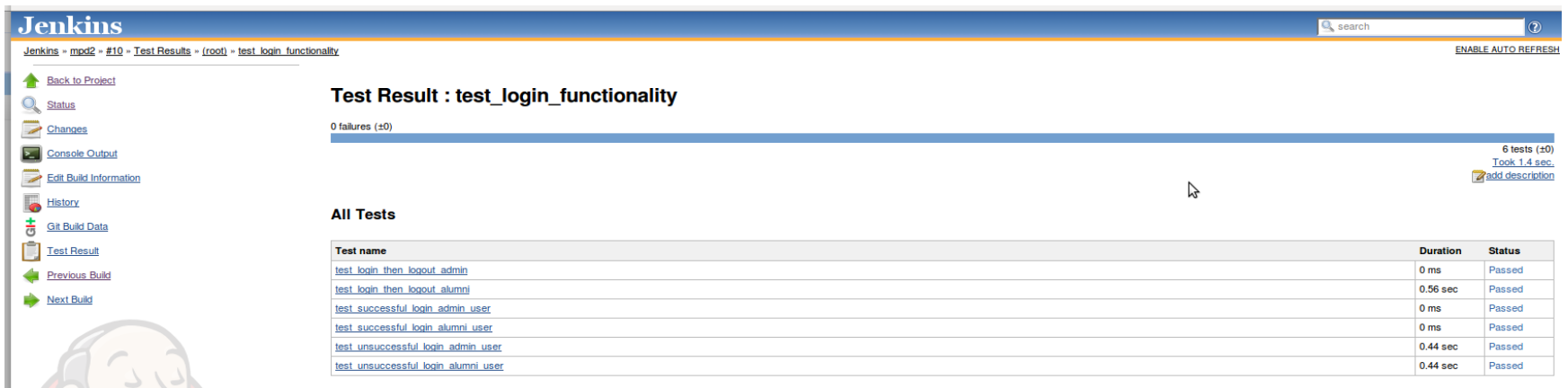
1 failures (+1)

7 tests (+1)
Took 1.9 sec.
add description

All Tests

| Test name | Duration | Status |
|---|----------|--------|
| test_login_then_logout_admin | 0 ms | Passed |
| test_login_then_logout_alumni | 0.6 sec | Passed |
| test_should_fail | 0.44 sec | Failed |
| test_successful_login_admin_user | 0 ms | Passed |
| test_successful_login_alumni_user | 0 ms | Passed |
| test_unsuccessful_login_admin_user | 0.41 sec | Passed |
| test_unsuccessful_login_alumni_user | 0.46 sec | Passed |

A failing test case



Jenkins

Jenkins » mod2 » #10 » Test Results » (root) » test_login_functionality

ENABLE AUTO REFRESH

Back to Project
Status
Changes
Console Output
Edit Build Information
History
Git Build Data
Test Result
Previous Build
Next Build

Test Result : test_login_functionality

0 failures (±0)

6 tests (±0)
Took 1.4 sec.
add description

All Tests

| Test name | Duration | Status |
|---|----------|--------|
| test_login_then_logout_admin | 0 ms | Passed |
| test_login_then_logout_alumni | 0.56 sec | Passed |
| test_successful_login_admin_user | 0 ms | Passed |
| test_successful_login_alumni_user | 0 ms | Passed |
| test_unsuccessful_login_admin_user | 0.44 sec | Passed |
| test_unsuccessful_login_alumni_user | 0.44 sec | Passed |

Now passing

Blind Alleys

- Tomcat/Java servlet
 - Tomcat doesn't work well with PHP by default
- Shared hosting
 - In order to configure everything properly, the user will need full control over the server
- TOAST unit testing
 - Limited functionality for testing (only assert equal/notequal and assert true/false)'

Resources

- <http://www.michaelpacock.co.uk/blog/entry/jenkins-ci-an-introduction-for-php-developers>
- <https://github.com/ericbarnes/codeigniter-simpletest>
- <https://techknowhow.library.emory.edu/blogs/rsutton/2009/07/24/using-hudson-php-simpletest>