

cfcUnit Crash Course

Automated testing is a Good Thing.



alagad

120 Nelson Lane - Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248 7836 | www.alagad.com | info@alagad.com

Doug Hughes, President

What You Will Learn

- How to test your components with Unit Tests
- Why you should make unit testing a part of your development process

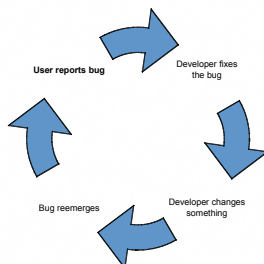
120 Nelson Lane - Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248 7836 | www.alagad.com | info@alagad.com



How Do You Test Your Code?

- Q/A group?
- Developer testing?
- User feedback?
- How well does it work for you?

120 Nelson Lane - Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248 7836 | www.alagad.com | info@alagad.com



The Life-Cycle of a Bug

120 Nelson Lane - Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248 7836 | www.alagad.com | info@alagad.com



The Solution

- On every change, test everything you've ever changed before!
- This is tedious, manual, error prone and impractical.
- What if you could automatically test for every bug you've ever fixed?

Unit Testing To the Rescue

- Individually test components reporting unexpected results and errors
- You write tests and run them on demand
- Unit Test helps to insure changes did not introduce bugs
- Unit Test help insure new code works as expected

Porting Procedural Code to OO

- Unit tests are particularly helpful!
 - You write your tests first
 - Port your code to satisfy the tests
 - Run your tests
 - When they pass your code is ported

Test Driven Development

- Write your tests first
- Write your components
- Expand your tests as needed
- Keep running your tests
- Write unit tests instead of .cfm scripts

cfcUnit

- A unit testing framework for ColdFusion
- By Paul Kenny of Adobe

Getting cfcUnit

- Download from cfcUnit.org
- CVS
- You should have been provided a copy

Installing the Framework

- Copy /org to your webroot
 - Or make a /org/cfcunit pointing to /org/cfcunit
 - This is the testing framework's model
- Copy /cfcunit to your webroot
 - A mapping will not work
 - This is the testing user interface

Bugs Alive!

- The latest version has a show stopper bug in ColdFusion 6 and 7 only.
- /org/cfcunit/service/TestListener.cfc
 - Line 37, change type="component" to type="any"

Writing Tests

- Setup your component before each test
- Test each route through each function
- Assert what you expect
- Cleanup after yourself after each test

Assertions, Page 1

(Abridged)

- `assertTrue(value, failureMessage)`
- `assertFalse(value, failureMessage)`
- `assertEqualsNumber(expected, actual, failureMessage)`
- `assertEqualsDate(expected, actual, failureMessage)`
- `assertEqualsArray(expected, actual, failureMessage)`
- `assertEqualsBoolean(expected, actual, failureMessage)`

Assertions, Page 2

(Abridged)

- `assertEqualsString(expected, actual, failureMessage)`
- `assertEqualsQuery(expected, actual, failureMessage)`
- `assertEqualsStruct(expected, actual, failureMessage)`
- `assertRegexMatch(regex, string, failureMessage)`
- `fail(failureMessage)`

Writing Tests

- Write a CFC that extends
`org.cfcunit.framework.TestCase`

```
<cfcomponent extends="org.cfcunit.framework.TestCase" output="false">
</cfcomponent>
```

Writing Tests

- Create a setup method
 - This is optional
 - Setup is run before each test method.
 - Used to setup any requirements.

```
<cfunction name="setup" returnType="void" access="private">
  <cfset Fortune = CreateObject("Component",
    "Fortune").init("Fortune", "", "") />
</cfunction>
```

120 Nelson Lane, Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248.7636 | www.alagad.com | info@alagad.com



Writing Tests

- Create one or more public functions whose names start with "test".
- Call methods on your objects and use assertions to test results.

```
<cfunction name="testGetCategories" returnType="void" access="public">
  <cfset var categories = Fortune.getCategories() />

  <!-- this query must have columns named categoryId and category -->
  <cfset assertTrue(ListFindNoCase(categories.columnList, "categoryId"),
    "Query did not include a column named categoryId") />
  <cfset assertTrue(ListFindNoCase(categories.columnList, "category"),
    "Query did not include a column named category") />
</cfunction>
```

120 Nelson Lane, Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248.7636 | www.alagad.com | info@alagad.com



Writing Tests

- Create a teardown method
 - Optional
 - Is run after each test method
 - Used to clean up after any mess you may have made (temp files, test data, etc)

```
<cfunction name="teardown" returnType="void" access="private">
  </cfunction>
```

120 Nelson Lane, Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248.7636 | www.alagad.com | info@alagad.com



Testing Gotchas

- Each test function must start with "test"
- Each test function must be public

120 Nelson Lane, Clayton, NC 27527 | p 1 888 ALAGADA | f 1 888 248.7636 | www.alagad.com | info@alagad.com



Running your test

- Use HTML test runner
 - <http://localhost/cfcunit>
- Enter fully qualified path to test

Test Suites

- Test Suites let you run multiple Unit Tests at the same time.

```
<cfcomponent>
<cffunction name="suite" returntype="org.cfcunit.framework.Test" access="public"
  output="false">
  <cfset var suite = CreateObject("component",
    "org.cfcunit.framework.TestSuite").init("Test Suite") />

  <!-- add tests -->
  <cfset suite.addTestSuite(CreateObject("component",
    "Unit Tests.TestFortune"))>

  <!-- add other suites -->
  <cfset suite.addTestSuite(CreateObject("component",
    "Unit Tests.Example.AllTests").suite())>

  <cfreturn suite/>
</cffunction>
</cfcomponent>
```

- Enter fully qualified path to test in the HTML test runner.

Documentation

- A few tutorials on [cfcUnit.org](http://cfcunit.org)
- </cfcunit/documentation/index.html>

What You Learned

- What a Unit Test is
- How Unit Tests can help you maintain code
- How Unit Tests can help you port old code
- How to write and run unit tests with cfcUnit

Questions and Answers

Exercise

- Write a unit test for your fortune cfc
- Run it via the test runner interface

Let's Talk

- What's your take on unit tests?
- Which would you rather do? Visit the dentist or write unit tests?