

# Code coverage: making sure your code is tested

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## Keywords

Opensource, Cdk, Junit

## Abstract

Recently I discussed JUnit testing from within Eclipse , and blogged at several occasions about it in other situations. I cannot stress enough how useful unit testing is: it adds this extra set of eyeballs to make bugs shallow. And it does that, indeed.

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## chem-bla-ics

Recently I [discussed JUnit testing from within Eclipse](#) , and blogged at [several occasions](#) about it in other situations. I cannot stress enough how useful unit testing is: it adds this extra set of [eyeballs to make bugs shallow](#). And it does that, indeed.

Ensuring that you actually test all the code you write, however, is not easy. A couple of years back I read an article about [Hansel](#), which does code coverage checking, but never got it nicely working for the [CDK project](#). Never looked at that lately, so no idea how the current release would work out. Hansel is an extension of [JUnit](#), and requires hard coding class names, which conflicts with CDK's module setup.

Thomas Kuhn pointed me last week to [Emma](#), which seems a nice tool. It does not require hacking our source, and generates cool HTML:

The screenshot shows a web browser window titled "EMMA Coverage Report - Konqueror". The address bar shows "EMMA Coverage Report". The page content includes a title bar "EMMA Coverage Report (generated Tue Nov 28 22:16:19 CET 2006)" and a subtitle "[all classes][org.openscience.cdk]".

**COVERAGE SUMMARY FOR SOURCE FILE [ReactionSet.java]**

name	class, %	method, %	block, %	line, %
ReactionSet.java	100% (2/2)	80% (12/15)	76% (204/267)	77% (42.3/55)

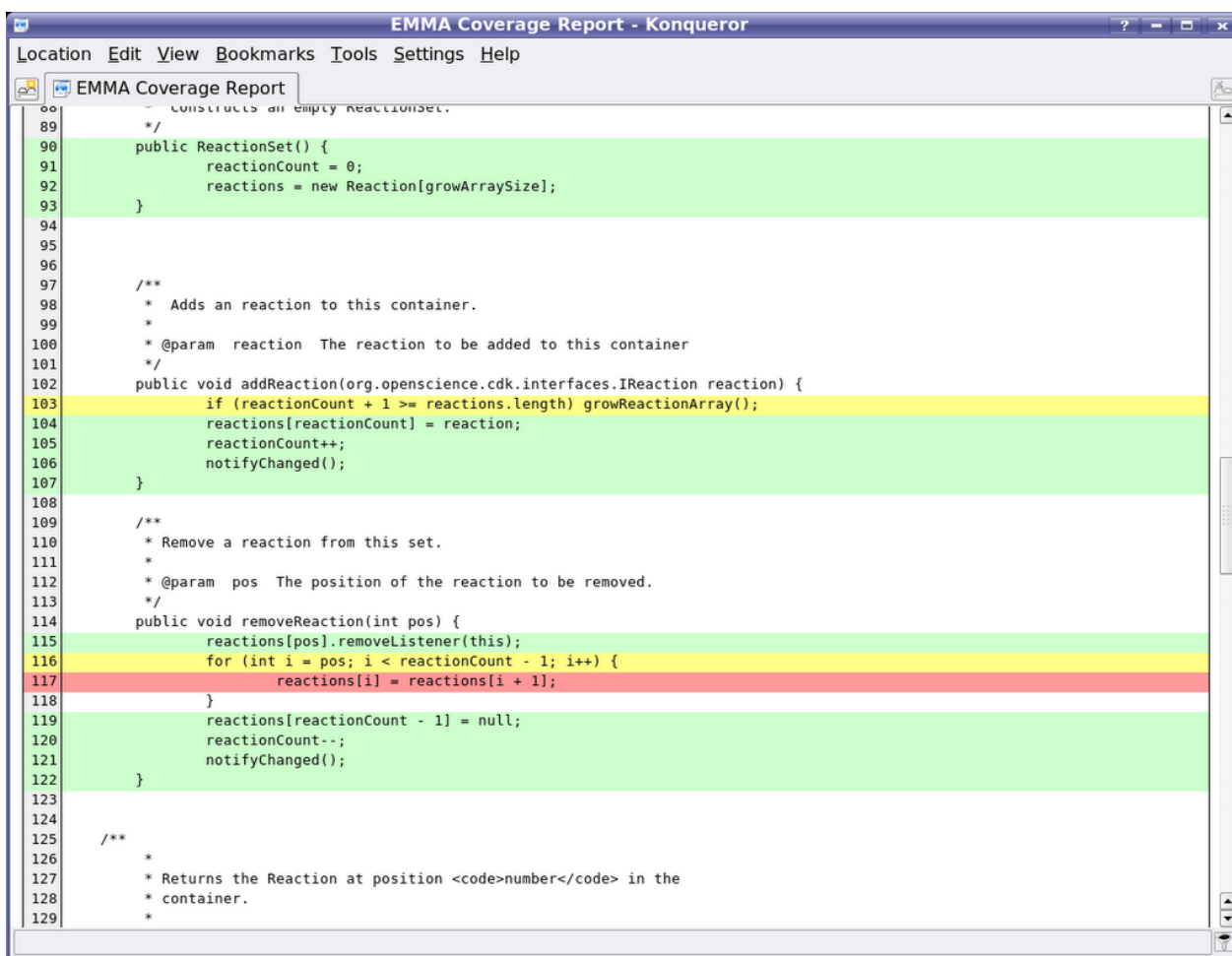
**COVERAGE BREAKDOWN BY CLASS AND METHOD**

name	class, %	method, %	block, %	line, %
class ReactionSet\$ReactionIterator	100% (1/1)	75% (3/4)	74% (31/42)	71% (5/7)
remove (): void		0% (0/1)	0% (0/11)	0% (0/2)
ReactionSet\$ReactionIterator (ReactionSet): void		100% (1/1)	100% (9/9)	100% (2/2)
hasNext (): boolean		100% (1/1)	100% (10/10)	100% (2/2)
next (): Object		100% (1/1)	100% (12/12)	100% (1/1)
class ReactionSet	100% (1/1)	82% (9/11)	77% (173/225)	78% (37.3/48)
growReactionArray (): void		0% (0/1)	0% (0/26)	0% (0/5)
stateChanged (IChemObjectChangeEvent): void		0% (0/1)	0% (0/4)	0% (0/2)
removeReaction (int): void		100% (1/1)	72% (31/43)	79% (5.5/7)
toString (): String		100% (1/1)	82% (36/44)	80% (8/10)
addReaction (IReaction): void		100% (1/1)	92% (23/25)	96% (4.8/5)
ReactionSet (): void		100% (1/1)	100% (14/14)	100% (5/5)
clone (): Object		100% (1/1)	100% (34/34)	100% (6/6)
getReaction (int): IReaction		100% (1/1)	100% (6/6)	100% (1/1)
getReactionCount (): int		100% (1/1)	100% (3/3)	100% (1/1)
reactions (): Iterator		100% (1/1)	100% (6/6)	100% (1/1)
removeAllReactions (): void		100% (1/1)	100% (20/20)	100% (5/5)

```
1 /* $RCSfile$
2  * $Author: egonw $
3  * $Date: 2006-07-30 22:02:25 +0200 (Sun, 30 Jul 2006) $
4  * $Revision: 6705 $
5  *
6  * Copyright (C) 2003-2006 Egon Willighagen <egonw@users.sf.net>
7  *
8  * Contact: cdk-devel@lists.sourceforge.net
9  *
10 * This program is free software; you can redistribute it and/or
11 * modify it under the terms of the GNU Lesser General Public License
12 * as published by the Free Software Foundation; either version 2.1
```

Page loaded.

And even highlights the source code:



BTW, I seem to be in good company: [Classpath](#) is [using it too](#).

Below is the command I issued to generate the HTML output. Rajarshi, maybe this can be integrated into [Nightly](#)? Note that it only runs the tests for the data module:

```

ant dist-large dist-test-large
java -cp ~/tmp/emma-2.0.5312/lib/emma.jar emmarun \
    -cp develjar/junit.jar:dist/jar/cdk-svn-20061128.jar:dist/jar/cdk-test-
svn-20061128.jar \
    -r html -sp src junit.textui.TestRunner org.openscience.cdk.test.MdataTest

```