

Introduction to Continuous Integration with Jenkins

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True North <?PHP?>
November 2 2012



Fear



Doubt



**Continuous
Integration**



Jenkins

An extendable open source continuous integration server

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Meet Jenkins

Find out what Jenkins is and get started.



Use Jenkins

See how to get more out of your Jenkins.



Customize Jenkins

Choose from over 600 plugins to customize Jenkins exactly to your needs.



Extend Jenkins

Learn how to build Jenkins or extend Jenkins by writing plugins.

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[Release](#)[Long-Term Support Release](#)

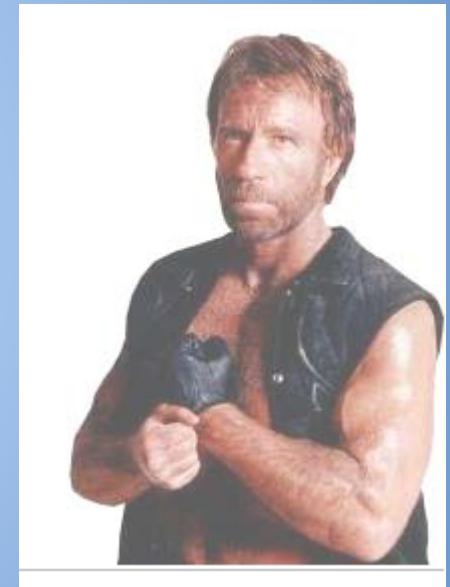
Java Web Archive (.war)

[Latest and greatest \(1.486\)](#)[changelog](#) | [past releases](#) | [RC](#)[upgrading from Hudson?](#)

Or native package

[Windows](#)[Ubuntu/Debian](#)[Red Hat/Fedora/CentOS](#)[Mac OS X](#)[openSUSE](#)[FreeBSD](#)[OpenBSD](#)[Solaris/OpenIndiana](#)[Gentoo](#)[FOLLOW US ON twitter](#)

Chuck Norris Plugin



Chuck Norris doesn't need a debugger, he just stares down the bug until the code confesses.



Installation



Tools

Test Result

6 failures (-6)

56 tests (-56)

Took 95 ms.

 [add description](#)

All Failed Tests

Test Name	Duration	Age
">>>> CoordinateTest.testGetKey	2 ms	3
">>>> GridSplitterTest.testGetAllLinesValues	6 ms	3
">>>> GridSplitterTest.testGetAllColumnsValues	2 ms	3
">>>> GridSplitterTest.testGetAllGridsValues	12 ms	3
">>>> GridTest.testGridHas4CellAfterAdding4	0 ms	3
">>>> LoaderTest.testCellsWithQuestionsMarksAreNotSet	1 ms	3

PHPUnit

Regression

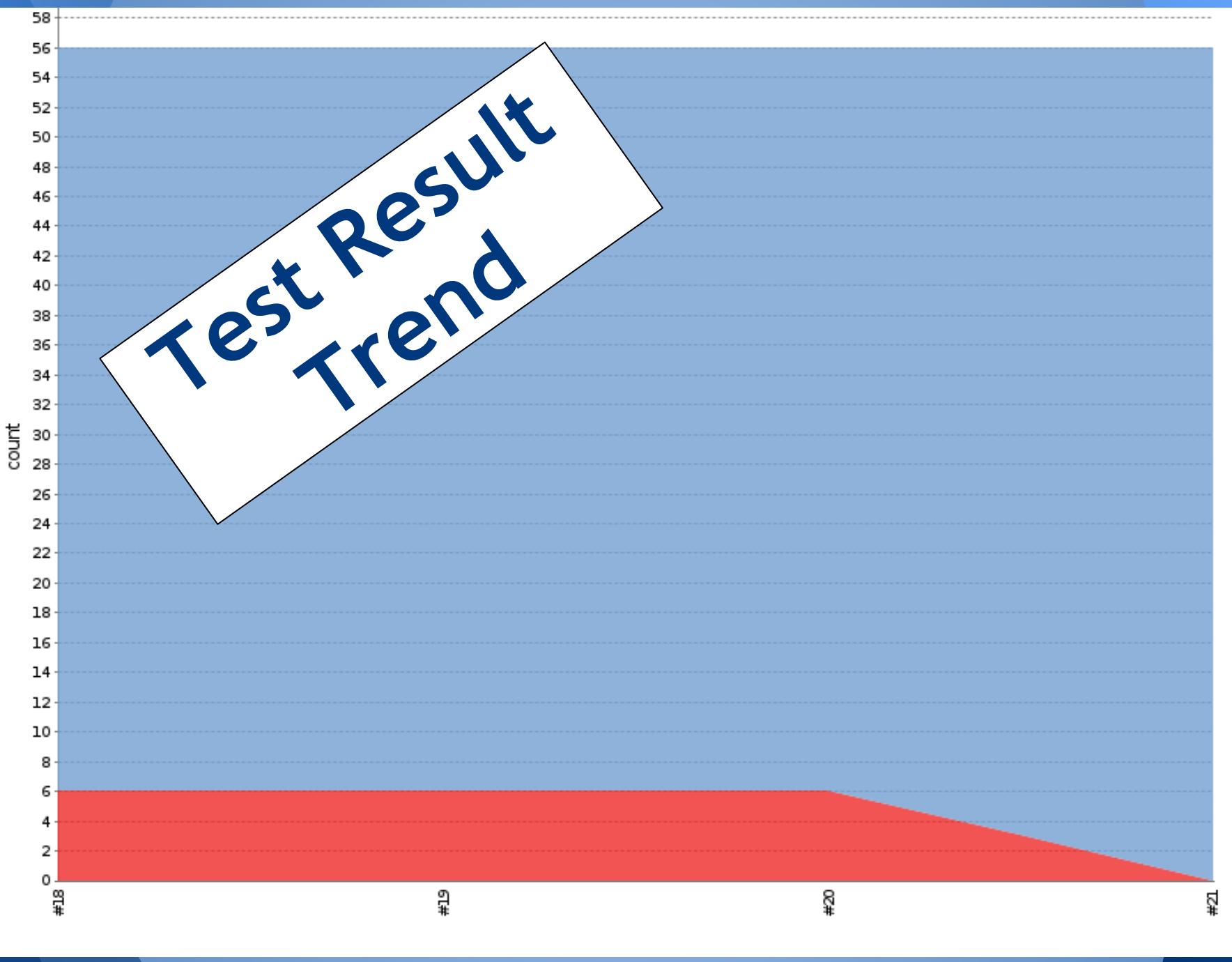
`GridTest.testGridHas1CellAfterAdding1`

Stacktrace

```
GridTest::testGridHas1CellAfterAdding1  
Failed asserting that 0 is identical to 1.
```

`/var/lib/jenkins/jobs/CIPresentation/workspace/tests/unitTests/GridTest.php:17`

Expectations



Coverage Summary

Clover PHP Coverage Report

Project

Overall Coverage Summary

name	Total Coverage %	LOC	NCLOC	method, %	statements, %
Project	<div style="width: 93.5%; background-color: green; height: 10px;"></div>	404	395	93.5% (43/46)	94.5% (155/164)

Coverage Breakdown by File

name	Total Coverage %	LOC	NCLOC	method, %	statements, %
src/CellNotSetException.php	<div style="width: 0%; background-color: grey; height: 10px;"></div>	5	5	- (0/0)	- (0/0)
src/Coordinate.php	<div style="width: 100%; background-color: green; height: 10px;"></div>	30	28	100% (5/5)	100% (7/7)
src/DuplicateValuesException.php	<div style="width: 0%; background-color: grey; height: 10px;"></div>	5	5	- (0/0)	- (0/0)
src/EmptyGridException.php	<div style="width: 0%; background-color: grey; height: 10px;"></div>	5	5	- (0/0)	- (0/0)
src/FileNotFoundException.php	<div style="width: 0%; background-color: grey; height: 10px;"></div>	5	5	- (0/0)	- (0/0)
src/Grid.php	<div style="width: 100%; background-color: green; height: 10px;"></div>	36	35	100% (6/6)	100% (12/12)
src/GridCriterion.php	<div style="width: 100%; background-color: green; height: 10px;"></div>	34	34	100% (7/7)	100% (7/7)
src/GridSplitter.php	<div style="width: 94.4%; background-color: green; height: 10px;"></div>	187	185	94.4% (17/18)	99% (97/98)
src/Loader.php	<div style="width: 100%; background-color: green; height: 10px;"></div>	33	33	100% (3/3)	100% (17/17)
src/Solver.php	<div style="width: 50%; background-color: green; height: 10px;"></div>	16	15	50% (1/2)	80% (4/5)
src/Validator.php	<div style="width: 61.1%; background-color: green; height: 10px;"></div>	48	45	80% (4/5)	61.1% (11/18)

	Code Coverage							
	Lines		Functions and Methods			Classes and Traits		
Total	<div style="width: 94.51%;"> </div>	94.51%	155 / 164	<div style="width: 93.48%;"> </div>	93.48%	43 / 46	<div style="width: 72.73%;"> </div>	72.73% 8 / 11
CellNotSetException.php	<div style="width: 100%;"> </div>	100.00%		<div style="width: 100%;"> </div>	100.00%	5 / 5	<div style="width: 100%;"> </div>	100.00% 1 / 1
Coordinate.php	<div style="width: 100%;"> </div>	100.00%	7 / 7	<div style="width: 100%;"> </div>	100.00%	5 / 5	<div style="width: 100%;"> </div>	100.00% 1 / 1
DuplicateValuesException.php	<div style="width: 100%;"> </div>	100.00%		<div style="width: 100%;"> </div>	100.00%		<div style="width: 100%;"> </div>	100.00% 1 / 1
EmptyGridException.php	<div style="width: 100%;"> </div>	100.00%		<div style="width: 100%;"> </div>	100.00%		<div style="width: 100%;"> </div>	100.00% 1 / 1
FileNotFoundException.php	<div style="width: 100%;"> </div>	100.00%		<div style="width: 100%;"> </div>	100.00%		<div style="width: 100%;"> </div>	100.00% 1 / 1
Grid.php	<div style="width: 100%;"> </div>	100.00%	12 / 12	<div style="width: 100%;"> </div>	100.00%	6 / 6	<div style="width: 100%;"> </div>	100.00% 1 / 1
GridCriterion.php	<div style="width: 100%;"> </div>	100.00%	7 / 7	<div style="width: 100%;"> </div>	100.00%	7 / 7	<div style="width: 100%;"> </div>	100.00% 1 / 1
GridSplitter.php	<div style="width: 98.98%;"> </div>	98.98%	97 / 98	<div style="width: 94.44%;"> </div>	94.44%	17 / 18	<div style="width: 0%;"> </div>	0.00% 0 / 1
Loader.php	<div style="width: 100%;"> </div>	100.00%	17 / 17	<div style="width: 100%;"> </div>	100.00%	3 / 3	<div style="width: 100%;"> </div>	100.00% 1 / 1
Solver.php	<div style="width: 80%;"> </div>	80.00%	4 / 5	<div style="width: 50%; background-color: orange;"> </div>	50.00%	1 / 2	<div style="width: 0%;"> </div>	0.00% 0 / 1
Validator.php	<div style="width: 61.11%; background-color: orange;"> </div>	61.11%	11 / 18	<div style="width: 80%;"> </div>	80.00%	4 / 5	<div style="width: 0%;"> </div>	0.00% 0 / 1

Legend

Coverage HTML

Line By Line Coverage

```
35     public function isValidGrid() {
36         if (!$this->areAllValuesSet()) return false;
37
38         $allSections = array_merge($this->splitter->getAllLinesValues(),
39                                   $this->splitter->getAllColumnsValues(), $this->splitter->getAllSubGridsValues());
40
41         foreach($allSections as $section) {
42             if (!$this->areValuesValid($section)) return false;
43             if ($this->haveDuplicates($section)) return false;
44         }
45
46         return true;
47     }
```

PHP Code Sniffer

CheckStyle Result

Warnings Trend

All Warnings	New Warnings	Fixed Warnings
9	9	0

Summary

Total	High Priority	Normal Priority	Low Priority
9	2	2	0

Details

Files	Categories	Warnings	Details	New	High	Normal
Grid.php						
Loader.php						
Solver.php						
Validator.php						
Total		9				

File	Total	Distribution
Grid.php	1	
Loader.php	2	
Solver.php	2	
Validator.php	4	
Total	9	

PHPCS Details

Details

Files Categories Warnings Details New High Normal

[Grid.php:16](#), NotAllowed, Priority: High

Inline control structures are not allowed

No description available. Please upgrade to latest checkstyle version.

[Loader.php:8](#), NotAllowed, Priority: Normal

Avoid function calls in a FOR loop test part

No description available. Please upgrade to latest checkstyle version.

[Loader.php:26](#), NotAllowed, Priority: Normal

Avoid function calls in a FOR loop test part

No description available. Please upgrade to latest checkstyle version.

[Solver.php:12](#), NotAllowed, Priority: High

Inline control structures are not allowed

No description available. Please upgrade to latest checkstyle version.

PHP Mess Detector



PMD Result

Warnings Trend

All Warnings	New Warnings	Fixed Warnings
3	3	0

Summary

Total	High Priority	Normal Priority	Low Priority
3	0	3	0

Details

Files Categories **Types** Warnings Details New

Type	Total	Distribution
ShortVariable	1	
UnusedLocalVariable	2	
Total	3	

PMD Results

PHP Depend

Summary

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

Package	TC	CC	AC	Ca	Ce	A	I	D	V
+global	11	11	0	0	1	0.0%	100.0%	0.0%	

Packages

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

+global

Afferent Couplings	Efferent Couplings	Abstractness	Instability	Distance
0	1	0.0%	100.0%	0.0%
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	CellNotSetException Coordinate DuplicateValuesException EmptyGridException FileNotFoundException Grid GridCriterion GridSplitter Loader Solver Validator	None	+core	

Cycles

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

There are no cyclic dependencies.

Explanation

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

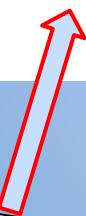
The following explanations are for quick reference and are lifted directly from the original JDepend documentation.

Term	Description
Number of Classes	The number of concrete and abstract classes (and interfaces) in the package is an indicator of the extensibility of the package.
Afferent Couplings	The number of other packages that depend upon classes within the package is an indicator of the package's responsibility.
Efferent Couplings	The number of other packages that the classes in the package depend upon is an indicator of the package's independence.
Abstractness	The ratio of the number of abstract classes (and interfaces) in the analyzed package to the total number of classes in the analyzed package. The range for this metric is 0 to 1, with A=0 indicating a completely concrete package and A=1 indicating a completely abstract package.
Instability	The ratio of efferent coupling (Ce) to total coupling (Ce / (Ce + Ca)). This metric is an indicator of the package's resilience to change. The range for this metric is 0 to 1, with I=0 indicating a completely stable package and I=1 indicating a completely unstable package.
Distance	The perpendicular distance of a package from the idealized line $A + I = 1$. This metric is an indicator of the package's balance between abstractness and stability. A package squarely on the main sequence is optimally balanced with respect to its abstractness and stability. Ideal packages are either completely abstract and stable ($x=0, y=1$) or completely concrete and unstable ($x=1, y=0$). The range for this metric is 0 to 1, with D=0 indicating a package that is coincident with the main sequence and D=1 indicating a package that is as far from the main sequence as possible.
Cycles	Packages participating in a package dependency cycle are in a deadly embrace with respect to reusability and their release cycle. Package dependency cycles can be easily identified by reviewing the textual reports of dependency cycles. Once these dependency cycles have been identified with JDepend, they can be broken by employing various object-oriented techniques.

Summary

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

Package	TC	CC	AC	Ca	Ce	A	I	D	V
+global	11	11	0	0	1	0.0%	100.0%	0.0%	

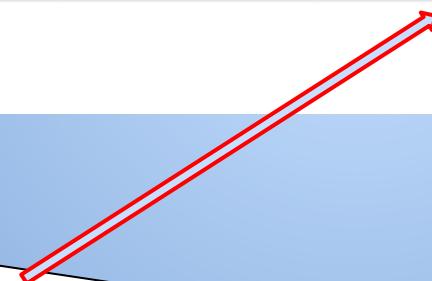


Classes

Summary

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

Package	TC	CC	AC	Ca	Ce	A	I	D	V
+global	11	11	0	0	1	0.0%	100.0%	0.0%	

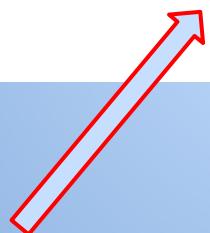


Abstraction

Summary

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

Package	TC	CC	AC	Ca	Ce	A	I	D	V
+global	11	11	0	0	1	0.0%	100.0%	0.0%	



Coupling

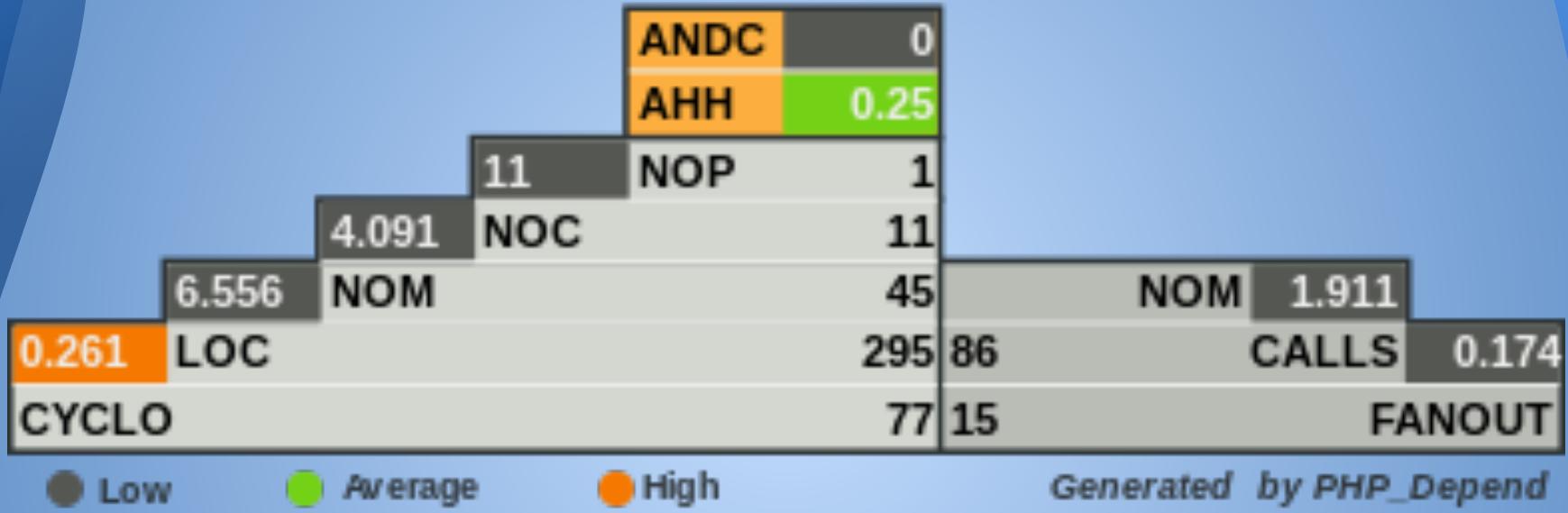
Summary

[[summary](#)] [[packages](#)] [[cycles](#)] [[explanations](#)]

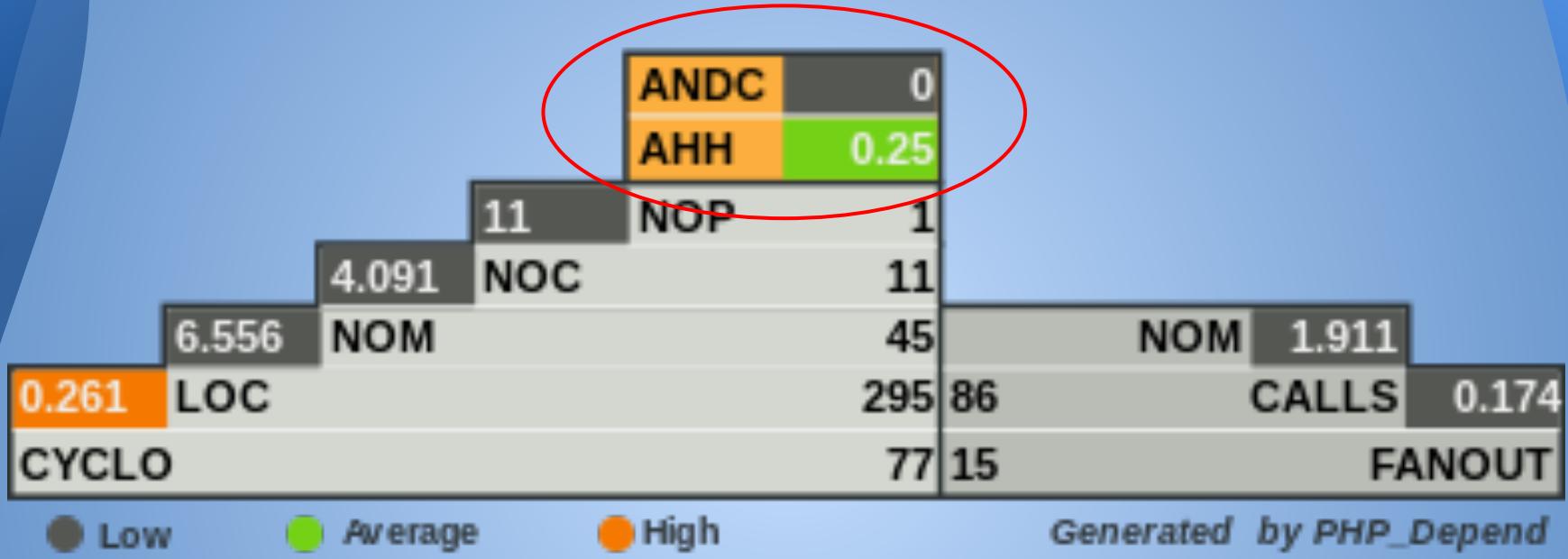
Package	TC	CC	AC	Ca	Ce	A	I	D	V
+global	11	11	0	0	1	0.0%	100.0%	0.0%	



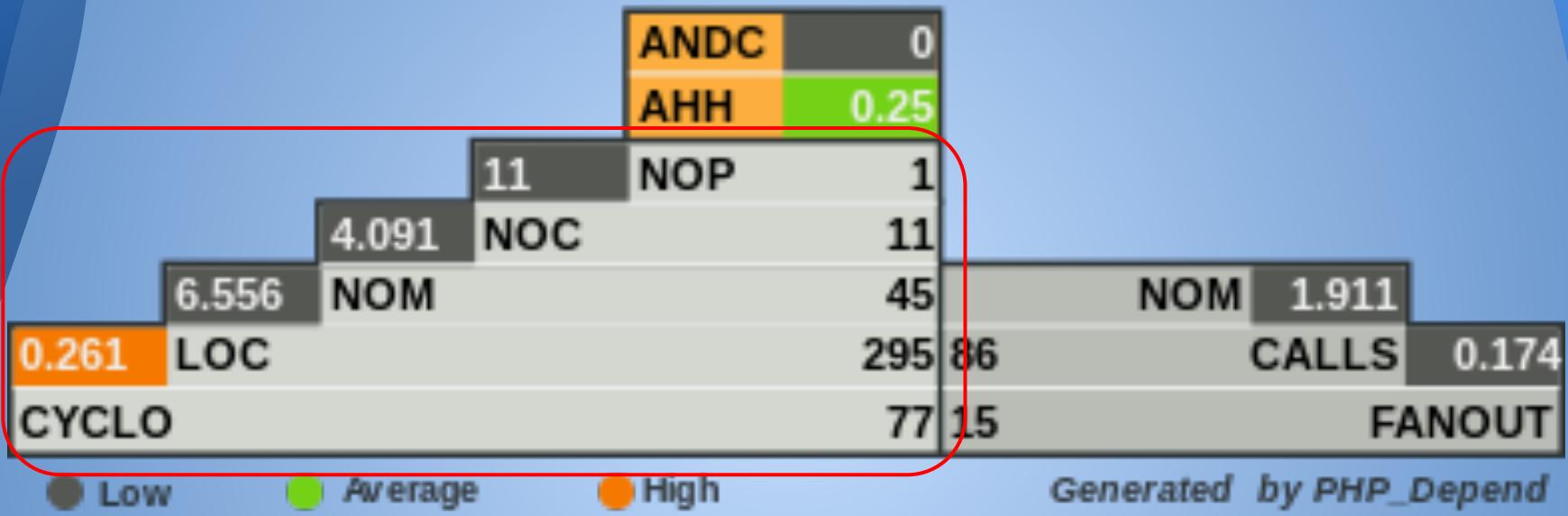
Instability



Overview Pyramid

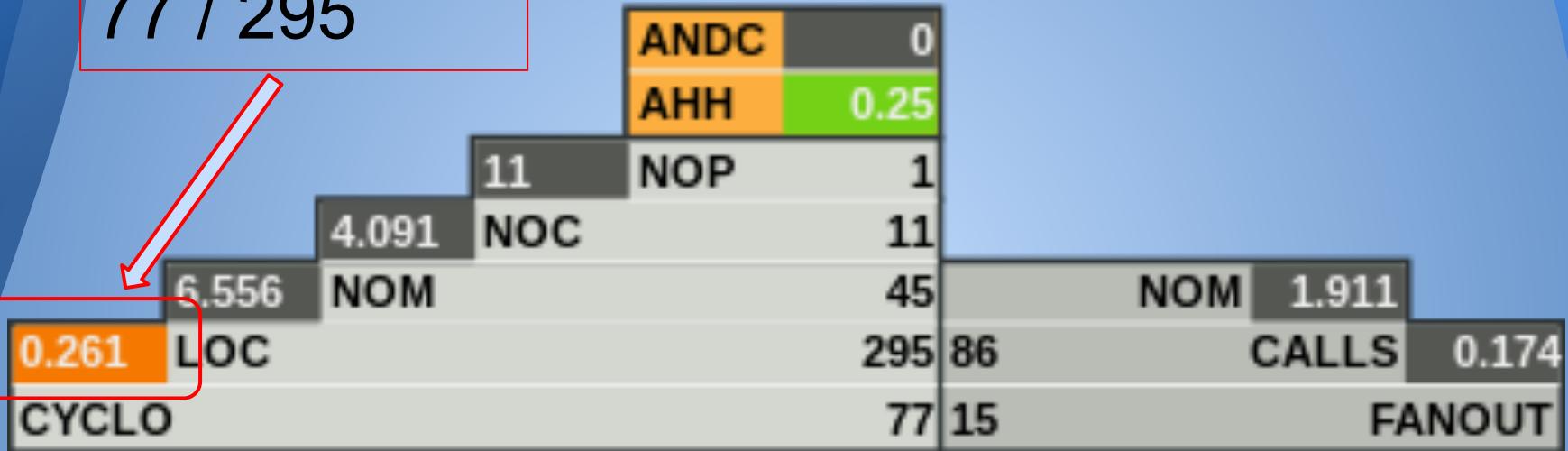


Overview Pyramid Inheritance



Overview Pyramid Size and Complexity

Cyclo / LOC
77 / 295



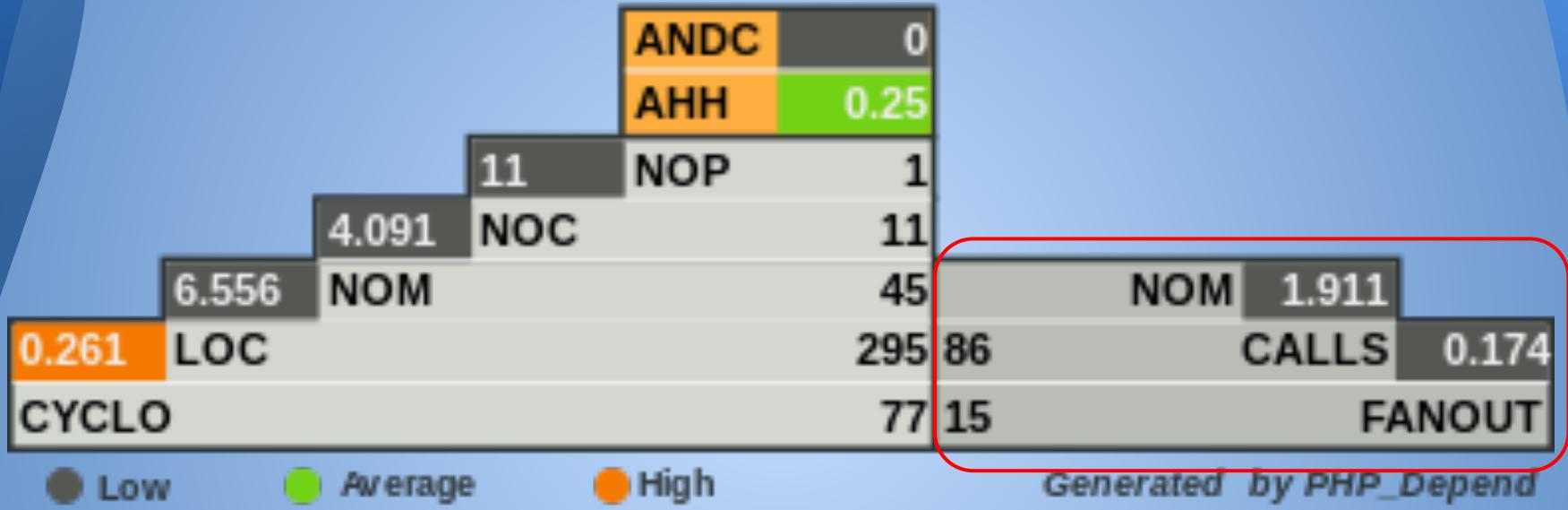
● Low

● Average

● High

Generated by PHP_Depend

Overview Pyramid
Size and Complexity



Overview Pyramid Coupling

More Tools



Connecting The Pieces



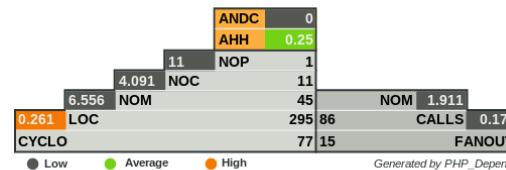
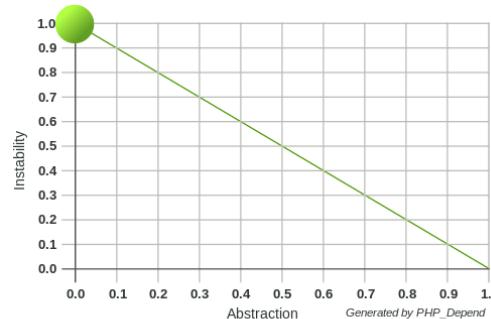
Build



- [Back to Dashboard](#)
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- [Build Now](#)
- [Delete Project](#)
- [Configure](#)
- [Checkstyle Warnings](#)
- [PMD Warnings](#)
- [Clover HTML Report](#)
- [Git Polling Log](#)

Build History	(trend)
#36	Oct 23, 2012 12:30:03 PM
#35	Oct 23, 2012 9:41:19 AM
#34	Oct 22, 2012 9:38:25 PM
#33	Oct 21, 2012 9:54:00 PM
#32	Oct 21, 2012 9:52:17 PM
#31	Oct 21, 2012 3:26:30 PM
#30	Oct 21, 2012 3:22:21 PM
#29	Oct 21, 2012 11:31:21 AM
#28	Oct 21, 2012 11:25:46 AM
#27	Oct 21, 2012 11:11:01 AM
#26	Oct 21, 2012 10:59:19 AM
#25	Oct 20, 2012 6:49:25 PM
#24	Oct 20, 2012 5:22:23 PM
#23	Oct 20, 2012 5:16:04 PM
#22	Oct 20, 2012 5:14:42 PM
#21	Oct 20, 2012 4:34:51 PM
#20	Oct 20, 2012 4:27:41 PM
#19	Oct 20, 2012 4:25:51 PM
#18	Oct 20, 2012 4:21:51 PM
#17	Oct 20, 2012 4:08:43 PM
#16	Oct 20, 2012 3:27:17 PM
#15	Oct 20, 2012 3:26:11 PM
#14	Oct 20, 2012 3:22:12 PM
#13	Oct 20, 2012 1:36:12 PM
localhost:8112	Oct 20, 2012 1:32:44 PM

Project CI Presentation


[Clover HTML Report](#)

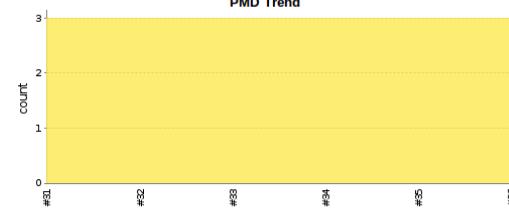
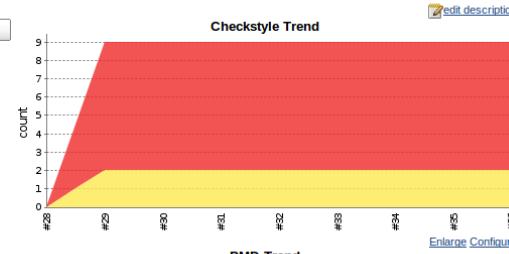
[Workspace](#)

[Recent Changes](#)

[Latest Test Result \(no failures\)](#)

Permalinks

- Last build (#36), 20 hr ago
- Last stable build (#36), 20 hr ago
- Last successful build (#36), 20 hr ago
- Last failed build (#26), 2 days 21 hr ago
- Last unsuccessful build (#26), 2 days 21 hr ago



For Chuck Norris, NP-Hard = O(1).

Code Coverage - 94.3% (199/211 elements)
Methods 93.5% Statements 94.5%

Jenkins

- Git

Plugins



Plugins

- Git
- xUnit



Plugins

- Git
- xUnit
- Clover PHP



Plugins

- Git
- xUnit
- Clover PHP
- Checkstyle



Plugins

- Git
- xUnit
- Clover PHP
- Checkstyle
- PMD

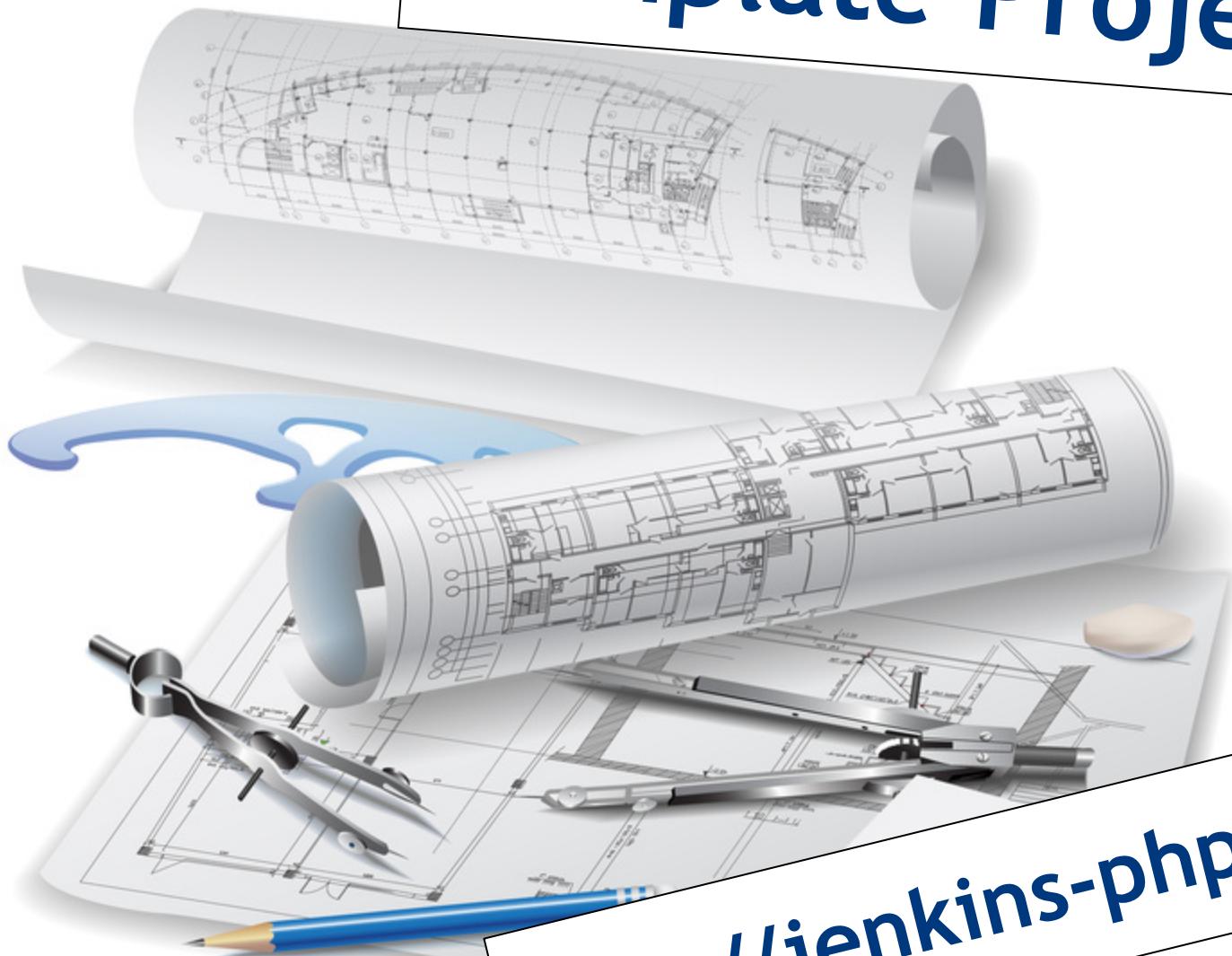


Plugins



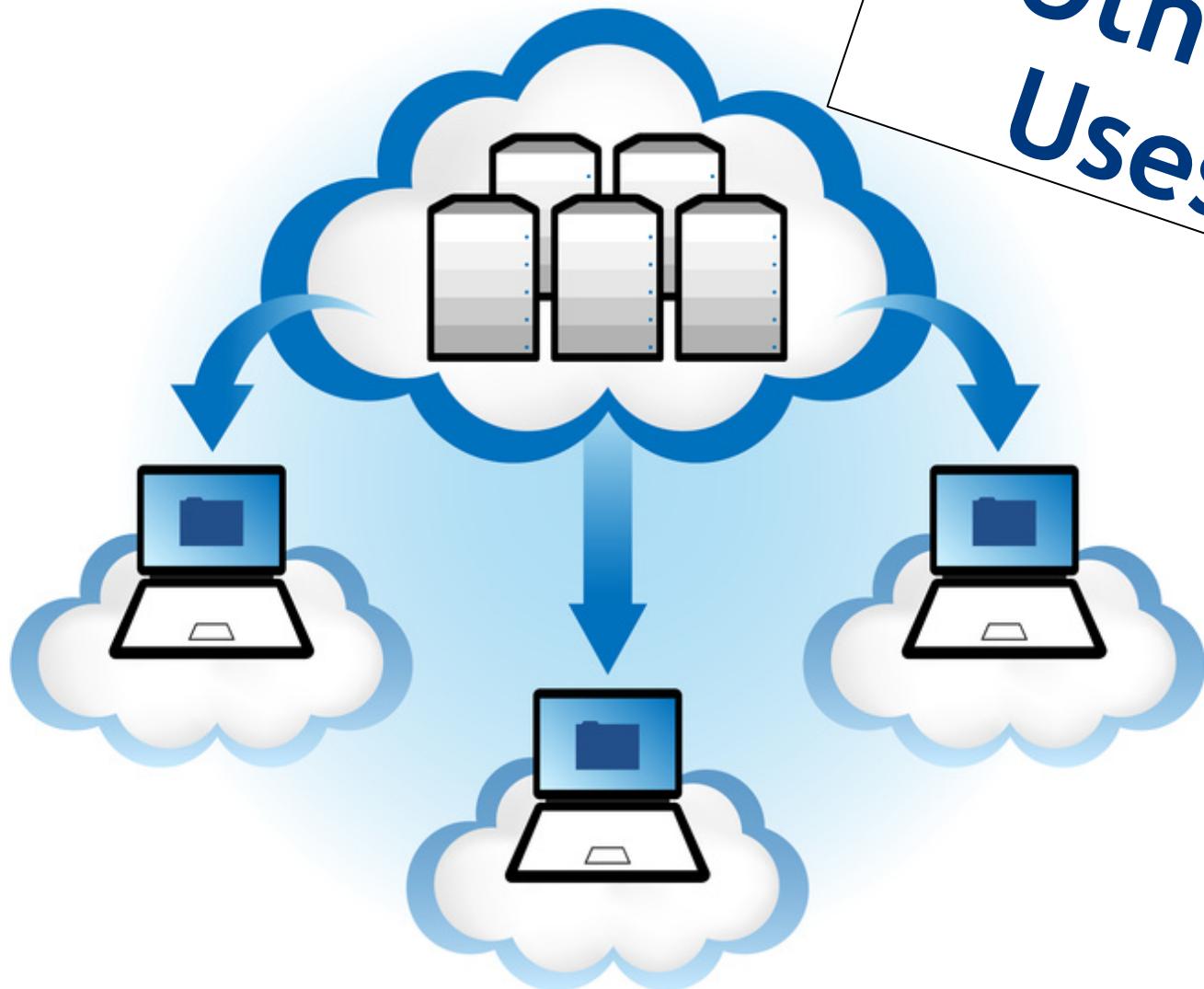
- Git
- xUnit
- Clover PHP
- Checkstyle
- PMD
- JDepend

Template Project



<http://jenkins-php.org/>

*Other
Uses*



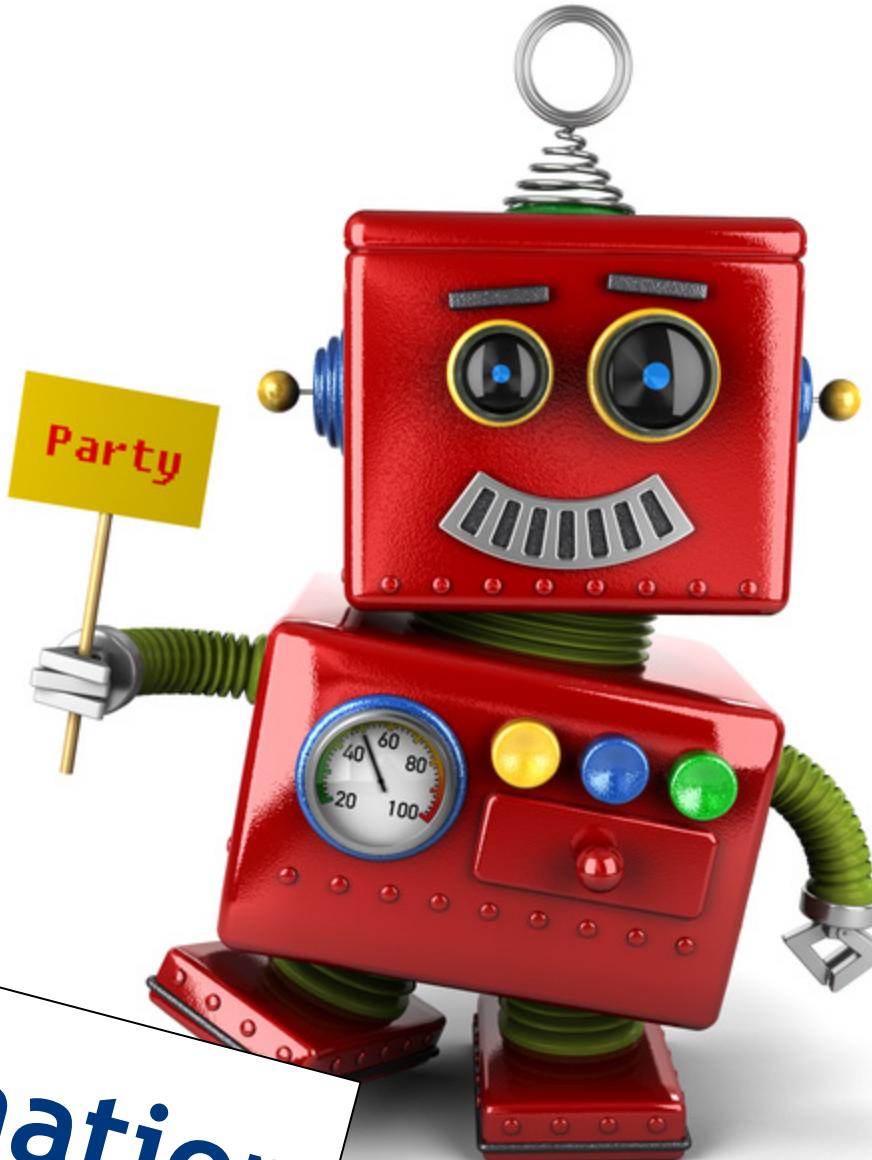
Benefits

Results

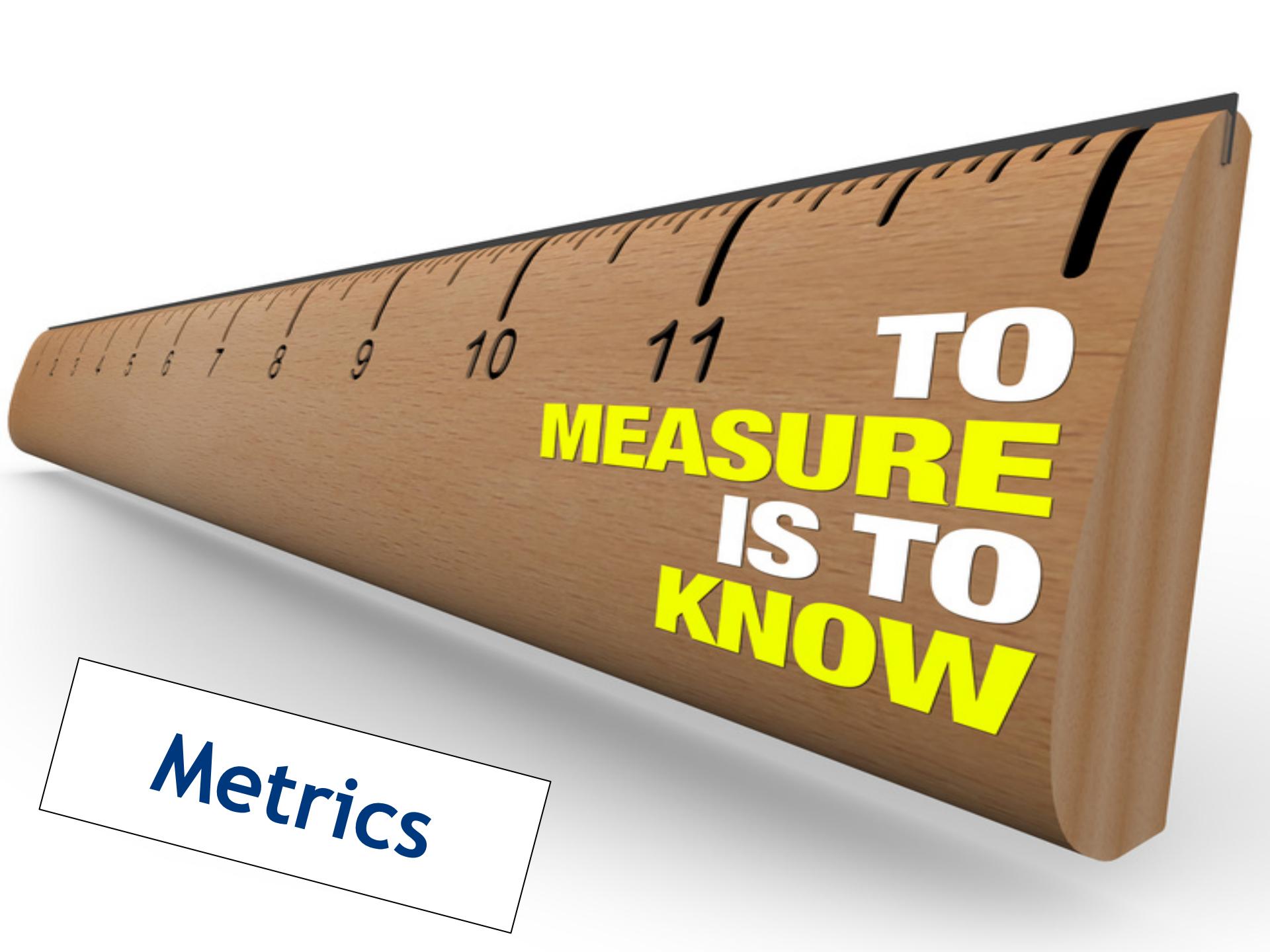
EXIT



**Quick
Feedback**



Automation



**TO
MEASURE
IS TO
KNOW**

Metrics



Fear

WELCOME TO
TRUST

ENJOY THE JOURNEY

Confidence

ANY
questions?

Links

Please rate this talk:

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Slides:

<http://www.slideshare.net/EricHogue>

The code:

<https://github.com/EricHogue/CIPresentation>

Twitter:

@ehogue

Blog:

<http://erichogue.ca/>