

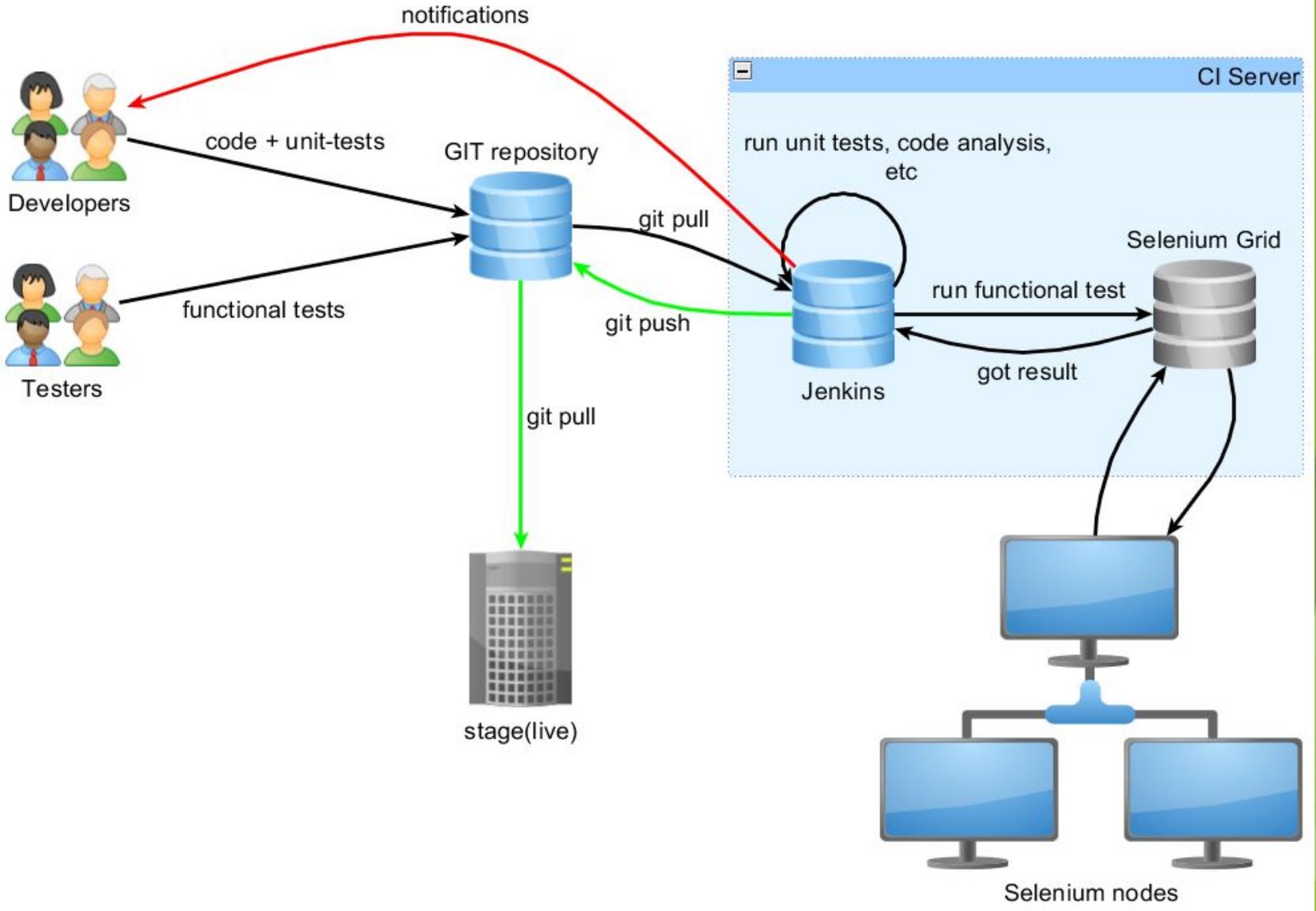
# Continuous Integration

# Немного теории:

**Continuous Integration (CI)** - одна из фундаментальных инженерных практик в Agile разработке. Выполняет роль системы раннего обнаружения ошибок путём автоматического выполнения задач компиляции, запуска юнит тестов, сборки проекта, запуска интеграционных тестов и многого другого...

# Организация работы:

- ▶ Получаем свежий код из репозитория
- ▶ Производим сборку проекта (например «накатываем» миграции)
- ▶ Выполняем тесты (unit+functional)
- ▶ Выполняем дополнительные действия (например анализ кода)
- ▶ Собираем и отображаем отчёты
- ▶ Рассылаем уведомления, заливаем билд на live сервер, etc...



# Плюсы:

- ▶ Много различных инструментов
- ▶ Тестируется всегда «свежий» билд
- ▶ Актуальные сведения о состоянии системы
- ▶ Подробные отчёты (что упало, кто виноват)
- ▶ Регрессионное тестирование (одно «подкрутили» - другое «отвалилось»)
- ▶ Всё это происходит **автоматически(!)**

# Минусы:

- ▶ Необходим отдельный сервер
- ▶ Затраты на поддержание инфраструктуры
- ▶ Необходимо обучение людей
- ▶ Затраты времени на написание\поддержку тестов (и разработчиком, и тестирующим)

Инструменты:

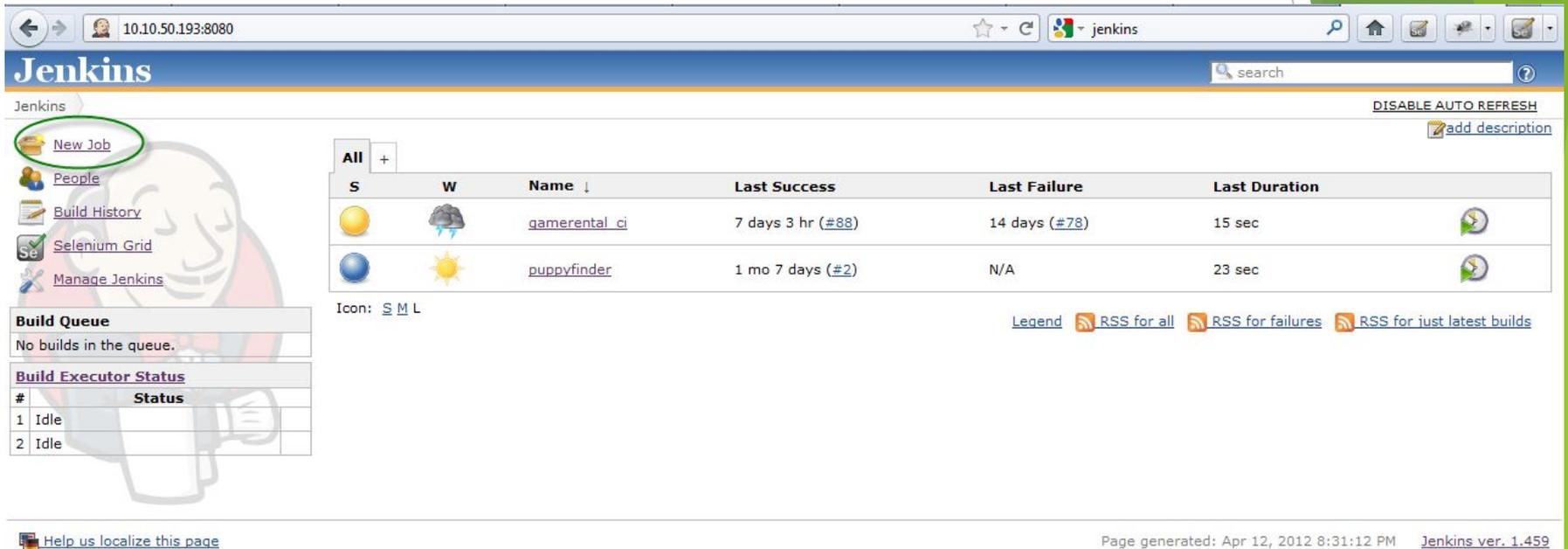


# Jenkins

Git+



# Создание проекта (шаг 1)



The screenshot shows the Jenkins web interface in a browser window. The address bar displays '10.10.50.193:8080'. The page title is 'Jenkins'. The left sidebar contains navigation links: 'New Job' (highlighted with a green circle), 'People', 'Build History', 'Selenium Grid', and 'Manage Jenkins'. The main content area features a table of jobs. The table has columns for 'S' (Success), 'W' (Warning), 'Name', 'Last Success', 'Last Failure', and 'Last Duration'. Two jobs are listed: 'gamerental\_ci' and 'puppyfinder'. Below the table, there are links for 'Icon: S M L' and 'Legend' with RSS feeds for 'all', 'failures', and 'just latest builds'. The footer includes 'Help us localize this page' and 'Page generated: Apr 12, 2012 8:31:12 PM Jenkins ver. 1.459'.

Jenkins

10.10.50.193:8080

jenkins

search

Jenkins

DISABLE AUTO REFRESH

add description

New Job

People

Build History

Selenium Grid

Manage Jenkins

S	W	Name ↓	Last Success	Last Failure	Last Duration
		<a href="#">gamerental_ci</a>	7 days 3 hr (#88)	14 days (#78)	15 sec
		<a href="#">puppyfinder</a>	1 mo 7 days (#2)	N/A	23 sec

Icon: [S](#) [M](#) [L](#)

Legend [RSS for all](#) [RSS for failures](#) [RSS for just latest builds](#)

**Build Queue**

No builds in the queue.

**Build Executor Status**

#	Status
1	Idle
2	Idle

[Help us localize this page](#)

Page generated: Apr 12, 2012 8:31:12 PM [Jenkins ver. 1.459](#)

# Создание проекта (шаг 2)

10.10.50.193:8080/view/All/newJob

## Jenkins

Jenkins All

- New Job
- People
- Build History
- Selenium Grid
- Manage Jenkins

**Build Queue**  
No builds in the queue.

**Build Executor Status**

#	Status
1	Idle
2	Idle

Job name

**Build a free-style software project**  
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be more powerful than software build.

**Build multi-configuration project**  
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

**Monitor an external job**  
This type of job allows you to record the execution of a process run outside Jenkins, even on a remote machine. This is designed to be used as a dashboard of your existing automation system. See [the documentation for more details](#).

**Copy existing Job**  
Copy from

OK

[Help us localize this page](#)

Page generated: Apr 12, 2014

# Создание проекта (шаг 3)

Project name:

Description:

Discard Old Builds

[Preview](#)

**Source Code Management**

CVS

Git

Repositories

Repository URL:

Branches to build

Branch Specifier (blank for default):

Repository browser

URL:

 Server returned HTTP response code: 502 for URL: http://code.quartsoft.com/browse/GameRental/

None

# Создание проекта (шаг 4)

**Build**

Invoke Phing targets

Targets

build

Phing Build File phing\_project.xml

Properties

Use ModuleRoot as working directory

Delete

Add build step ▾

# Создание проекта (шаг 5)

**Post-build Actions**

Publish Checkstyle analysis results

Publish PMD analysis results

Publish duplicate code analysis results

Duplicate code results

Fileset `includes` setting that specifies the generated raw XML report files, such as `**/cpd.xml` or `**/simian.xml`. Basedir of the fileset is [the workspace root](#). If no value is set, then the default `**/cpd.xml` is used. Be sure not to include any non-report files into this pattern.

High priority threshold

Minimum number of duplicated lines for high priority warnings.

Normal priority threshold

Minimum number of duplicated lines for normal priority warnings.

Aggregate downstream test results

Archive the artifacts

Build other projects

Plot build data

Publish Clover PHP Coverage Report

Clover XML Location

Specify the name of the Clover xml file generated relative to [the workspace root](#).

Publish HTML Report

Clover HTML report directory

Specify the path to the directory that contains the Clover HTML report file, relative to [the workspace root](#)

Disable report archiving

Publish JUnit test result report

Test report XMLs

Fileset `includes` setting that specifies the generated raw XML report files, such as `'myproject/target/test-reports/*.xml'`. Basedir of the fileset is [the workspace root](#).

Retain long standard output/error

Advanced...

Advanced...

# Запускаем билд:

**Jenkins**

Jenkins > gamerental\_ci

- [Back to Dashboard](#)
- [Status](#)
- [Changes](#)
- [Workspace](#)
- [Build Now](#)**
- [Delete Project](#)
- [Configure](#)
- [Duplicate Code](#)
- [Clover HTML Report](#)

### Project gamerental\_ci

- [Clover HTML Report](#)
- [Workspace](#)
- [Recent Changes](#)
- [Latest Test Result \(2 failures / -4\)](#)

#### Build History (trend)

#89	<a href="#">Apr 12, 2012 8:55:22 PM</a>
#88	<a href="#">Apr 5, 2012 5:23:26 PM</a>
#87	<a href="#">Apr 4, 2012 7:21:10 PM</a>
#86	<a href="#">Apr 3, 2012 9:53:52 PM</a>
#85	<a href="#">Mar 29, 2012 8:44:48 PM</a>
#84	<a href="#">Mar 29, 2012 8:37:25 PM</a>
#83	<a href="#">Mar 29, 2012 8:09:35 PM</a>
#82	<a href="#">Mar 29, 2012 8:00:10 PM</a>
#81	<a href="#">Mar 29, 2012 7:50:49 PM</a>
#80	<a href="#">Mar 29, 2012 7:49:27 PM</a>
#79	<a href="#">Mar 29, 2012 6:31:04 PM</a>
#78	<a href="#">Mar 29, 2012 6:30:09 PM</a>
#77	<a href="#">Mar 29, 2012 6:10:42 PM</a>
#76	<a href="#">Mar 29, 2012 6:07:41 PM</a>
#75	<a href="#">Mar 29, 2012 2:12:06 PM</a>
#74	<a href="#">Mar 28, 2012 8:47:19 PM</a>
#73	<a href="#">Mar 28, 2012 7:43:07 PM</a>

[RSS for all](#) [RSS for failures](#)

#### Permalinks

- [Last build \(#88\), 7 days 3 hr ago](#)
- [Last stable build \(#84\), 14 days ago](#)
- [Last successful build \(#88\), 7 days 3 hr ago](#)
- [Last failed build \(#78\), 14 days ago](#)
- [Last unstable build \(#88\), 7 days 3 hr ago](#)
- [Last unsuccessful build \(#88\), 7 days 3 hr ago](#)

# Анализируем результат

(выход из консоли):

Jenkins gamerental\_ci #89

[Back to Project](#)  
[Status](#)  
[Changes](#)  
**Console Output**  
[Edit Build Information](#)  
[Previous Build](#)

Progress: [View as plain text](#)

## Console Output

Started by user [anonymous](#)  
Building in workspace /var/lib/jenkins/jobs/gamerental\_ci/workspace  
Checkout: workspace /var/lib/jenkins/jobs/gamerental\_ci/workspace - hudson.remoting.LocalChannel@8f334b  
Using strategy: Default  
Last Built Revision: Revision 1e0653e60ec28d822b30366527439ff2c74e1e62 (origin/testing)  
Fetching changes from 1 remote Git repository  
Fetching upstream changes from git@pm.quart-soft.com:gamerental  
Commencing build of Revision 1e0653e60ec28d822b30366527439ff2c74e1e62 (origin/testing)  
Checking out Revision 1e0653e60ec28d822b30366527439ff2c74e1e62 (origin/testing)  
looking for '/var/lib/jenkins/jobs/gamerental\_ci/workspace/phing\_project.xml' ...  
use '/var/lib/jenkins/jobs/gamerental\_ci/workspace' as a working directory.  
[workspace] \$ phing -buildfile /var/lib/jenkins/jobs/gamerental\_ci/workspace/phing\_project.xml build -logger phing.listener.DefaultLogger  
Buildfile: /var/lib/jenkins/jobs/gamerental\_ci/workspace/phing\_project.xml

```
GameRental > update:

[echo] Making directory ../assets ../protected/runtime ../protected/views/emails/compiled
[delete] Deleting directory /var/lib/jenkins/jobs/gamerental_ci/workspace/assets
[mkdir] Created dir: /var/lib/jenkins/jobs/gamerental_ci/workspace/assets
[delete] Deleting directory /var/lib/jenkins/jobs/gamerental_ci/workspace/protected/runtime
[mkdir] Created dir: /var/lib/jenkins/jobs/gamerental_ci/workspace/protected/runtime
[delete] Deleting directory /var/lib/jenkins/jobs/gamerental_ci/workspace/protected/views/emails/compiled
[mkdir] Created dir: /var/lib/jenkins/jobs/gamerental_ci/workspace/protected/views/emails/compiled
[echo] done...
[echo] Making yiic executable
[chmod] Changed file mode on '/var/lib/jenkins/jobs/gamerental_ci/workspace/protected/yiic' to 755
[echo] done...
[echo] Starting DB migration
[echo] done...
[echo] Making directory for phppunit logs
[delete] Deleting directory /var/lib/jenkins/jobs/gamerental_ci/workspace/build/logs
[mkdir] Created dir: /var/lib/jenkins/jobs/gamerental_ci/workspace/build/logs
[delete] Deleting directory /var/lib/jenkins/jobs/gamerental_ci/workspace/build/coverage
[mkdir] Created dir: /var/lib/jenkins/jobs/gamerental_ci/workspace/build/coverage
[echo] done...
```

```
GameRental > phpcpd:

[echo] Find duplicate code using PHPCPD
[echo] done...
```

```
GameRental > phpunit:

[echo] Run tests using PHPUnit
[echo] done...
```

```
GameRental > build:

[echo] The end.

BUILD FINISHED

Total time: 25.8188 seconds
```

### Executed Phing Targets

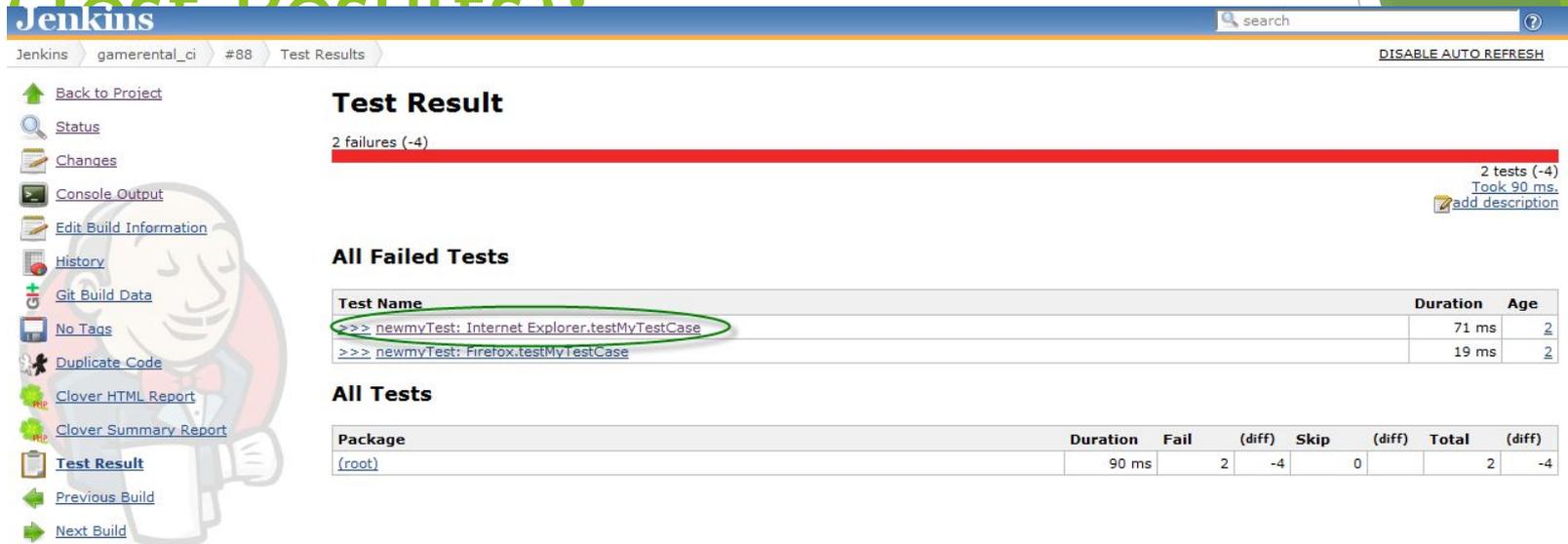
- [update](#)
- [phpcpd](#)
- [phpunit](#)
- [build](#)



# Анализируем результат (общая информация):

The screenshot shows the Jenkins web interface for a build. The browser address bar shows the URL `10.10.50.193:8080/job/gamerental_ci/88/`. The Jenkins logo and name are at the top. The breadcrumb navigation shows `Jenkins > gamerental_ci > #88`. On the left, there is a sidebar with navigation links: [Back to Project](#), [Status](#), [Changes](#), [Console Output](#), [Edit Build Information](#), [Git Build Data](#), [No Tags](#), [Duplicate Code](#), [Clover HTML Report](#), [Clover Summary Report](#), [Test Result](#), [Previous Build](#), and [Next Build](#). The main content area displays the build details for **Build #88 (Apr 5, 2012 5:23:26 PM)**. A green oval highlights the **Changes** section, which lists three items: `1. new phpwebdriver added (detail / FishEye)`, `2. new phpwebdriver added (detail / FishEye)`, and `3. new phpwebdriver added (detail / FishEye)`. Below this, it says **Started by anonymous user**. The **Revision** is `1e0653e60ec28d822b30366527439ff2c74e1e62` with a sub-item `• origin/testing`. The **Duplicate Code** section shows `20 warnings` from one analysis. The **Clover Code Coverage** section shows `0% method 0/0, statement 0/0`. A second green oval highlights the **Test Result** section, which shows `Test Result (2 failures / -4)` and a link `Show all failed tests >>>`. A watermark of a cartoon character is visible in the background.

# Анализируем результат (Test Results):



**Jenkins** | gamerental\_ci | #88 | Test Results | DISABLE AUTO REFRESH

[Back to Project](#) | [Status](#) | [Changes](#) | [Console Output](#) | [Edit Build Information](#) | [History](#) | [Git Build Data](#) | [No Tags](#) | [Duplicate Code](#) | [Clover HTML Report](#) | [Clover Summary Report](#) | **Test Result** | [Previous Build](#) | [Next Build](#)

## Test Result

2 failures (-4) 2 tests (-4) Took 90 ms. [add description](#)

### All Failed Tests

Test Name	Duration	Age
>>> newmyTest: Internet Explorer.testMyTestCase	71 ms	2
>>> newmyTest: Firefox.testMyTestCase	19 ms	2

### All Tests

Package	Duration	Fail	(diff)	Skip	(diff)	Total	(diff)
(root)	90 ms	2	-4	0		2	-4



**Jenkins** | gamerental\_ci | #88 | Test Results | (root) | newmyTest: Internet Explorer | testMyTestCase | DISABLE AUTO REFRESH

[Back to Project](#) | [Status](#) | [Changes](#) | [Console Output](#) | [Edit Build Information](#) | [History](#) | [Git Build Data](#) | [No Tags](#) | [Duplicate Code](#) | [Clover HTML Report](#) | [Clover Summary Report](#) | **Test Result**

## Failed

**newmyTest: Internet Explorer.testMyTestCase** (from newmyTest\_ Internet Explorer) Failing for the past 2 builds (Since #87) Took 71 ms. [add description](#)

### Stacktrace

```
newmyTest::testMyTestCase
RuntimeException: Invalid response while accessing the Selenium Server at 'http://localhost:4444/selenium-server/driver/': <html>
<head>
<title>Error 500 java.lang.NullPointerException</title>
</head>
<body>
<h2>HTTP ERROR: 500</h2><pre>java.lang.NullPointerException</pre>
<p>RequestURI=/selenium-server/driver/</p>
<p><i><a href="http://jetty.mortbay.org">Powered by Jetty://</a></i></p>
```

# Анализируем результат (Test Results).

Jenkins

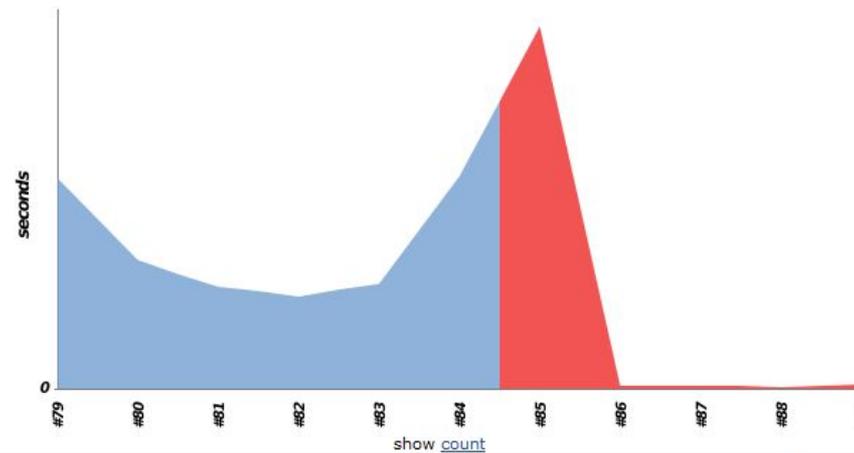
search

Jenkins > gamerental\_ci > #88 > Test Results

DISABLE AUTO REFRESH

- [Back to Project](#)
- [Status](#)
- [Changes](#)
- [Console Output](#)
- [Edit Build Information](#)
- [History](#)
- [Git Build Data](#)
- [No Tags](#)
- [Duplicate Code](#)
- [Clover HTML Report](#)
- [Clover Summary Report](#)
- [Test Result](#)
- [Previous Build](#)
- [Next Build](#)

## History for Test Results



Build	Description	Duration	Fail	Skip	Total
<a href="#">gamerental_ci #89</a>		0.36 sec	2	0	2
<a href="#">gamerental_ci #88</a>		90 ms	2	0	2
<a href="#">gamerental_ci #87</a>		0.25 sec	6	0	6
<a href="#">gamerental_ci #86</a>		0.25 sec	4	0	4
<a href="#">gamerental_ci #85</a>		41 sec	2	0	6
<a href="#">gamerental_ci #84</a>		24 sec	0	0	4
<a href="#">gamerental_ci #83</a>		12 sec	0	0	2
<a href="#">gamerental_ci #82</a>		10 sec	0	0	2
<a href="#">gamerental_ci #81</a>		11 sec	0	0	2
<a href="#">gamerental_ci #80</a>		14 sec	0	0	2
<a href="#">gamerental_ci #79</a>		24 sec	0	0	2

# Анализируем результат

## (Duplicate Code).

Jenkins > gamerental\_ci > #89 > Duplicate Code

- [Back to Project](#)
- [Status](#)
- [Changes](#)
- [Console Output](#)
- [Edit Build Information](#)
- [Git Build Data](#)
- [No Tags](#)
- [Duplicate Code](#)**
- [Clover HTML Report](#)
- [Clover Summary Report](#)
- [Test Result](#)
- [Previous Build](#)

### Duplicate Code Result

#### Warnings Trend

All Warnings	New Warnings	Fixed Warnings
20	0	0

#### Summary

Total	High Priority	Normal Priority	Low Priority
20	4	4	12

#### Details

Folders Files Warnings Details **High** Normal Low

##### [Biz.php:42](#), Duplicate Code, Priority: High

639 lines of duplicate code.

Duplicated in:

- [protected/vendors/Zend/Validate/Hostname/Jp.php \(33\)](#)

##### [Biz.php:749](#), Duplicate Code, Priority: High

2,101 lines of duplicate code.

Duplicated in:

- [protected/vendors/Zend/Validate/Hostname/Cn.php \(31\)](#)

##### [Cn.php:31](#), Duplicate Code, Priority: High

2,101 lines of duplicate code.

Duplicated in:

- [protected/vendors/Zend/Validate/Hostname/Biz.php \(749\)](#)

##### [Jp.php:33](#), Duplicate Code, Priority: High

639 lines of duplicate code.

Duplicated in:

- [protected/vendors/Zend/Validate/Hostname/Biz.php \(42\)](#)



# А как же Selenium?

## Jenkins

Jenkins Selenium Grid

[Back to Dashboard](#)

[Status](#)

[Console Output](#)

search

[DISABLE AUTO REFRESH](#)

### Registered Remote Controls

Selenium Grid is running at 10.10.50.193:4444. Selenium 1 clients should connect as follows:

```
Selenium selenium = new DefaultSelenium("10.10.50.193", 4444, "*firefox", "http://jenkins-ci.org/");
```

Selenium 2 clients should connect as follows:

```
WebDriver driver = new RemoteWebDriver(new URL("http://10.10.50.193:4444/wd/hub"), capability);
```

Host	Capabilities	Status
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*googlechrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*googlechrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*googlechrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*googlechrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*googlechrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*googlechrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=Selenium, browserName=*ieexplorer, maxInstances=1, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=firefox, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=chrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=chrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=chrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=chrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=chrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=chrome, maxInstances=5, jenkins.nodeName=}	Idle
http://10.10.50.193:55226	{seleniumProtocol=WebDriver, browserName=internet explorer, maxInstances=1, jenkins.nodeName=}	Idle

## Jenkins

Jenkins

[New Job](#)

[People](#)

[Build History](#)

[Selenium Grid](#)

[Manage Jenkins](#)

**Build Queue**

No builds in the queue.

**Build Executor Status**

#	Status
1	Idle
2	Idle

All  
S



Icon: S

# Материалы:

- ▶ Phing <http://www.phing.info/docs/guide/stable/>
- ▶ PHPUnit <http://www.phpunit.de/manual/3.6/en/appendixes.configuration.html>
- ▶ Jenkins <http://wiki.jenkins-ci.org/display/JENKINS/Home>