Codenarc Revisited

Jenn Strater
@codeJENNerator

OBJECT PARTNERS

Follow Along

- https://github.com/jlstrater/gr8data/tree/master/config/codenarc
- https://github.com/jlstrater/groovy-spring-boot-restdocs-example/tree/master/gradle/codenarc

About Me

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- Senior Consultant at Object Partners, Inc.

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- 2016 - 2017 Fulbright US Student Program Selectee to Denmark

Background

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- Spring Boot with Groovy

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- Ratpack with Groovy

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- Ratpack with Groovy
- Grails

Background

- Spring Boot with Groovy
- Ratpack with Groovy
- Grails
- Anything Else?

What is CODENARC?

Less Bugs Better Code

“CodeNarc is a static analysis tool for Groovy source code, enabling monitoring and enforcement of many coding standards and best practices…

CodeNarc is similar to popular static analysis tools such as PMD or Checkstyle. Unlike those tools which analyze Java code, CodeNarc analyzes Groovy code.”

https://github.com/CodeNarc/CodeNarc

CODENARC
Less Bugs Better Code

- Website
  - codenarc.sourceforge.net

- Website
  - codenarc.sourceforge.net
- Current Version
  - 0.25.2

CODENARC
Less Bugs Better Code

- Mailing List
  - https://sourceforge.net/p/codenarc/mailman

- Mailing List
  - https://sourceforge.net/p/codenarc/mailman
- Project Admin
  - Chris Mair

Why use Codenarc?

- Improves readability
- Saves time with code reviews
- Code with fewer bugs
- Help onboard new team members

INTERNS...
WHAT ARE THEY DOING?
memegen.com

.equals instead of ==

DEF ALL THE
THINGS

```
def someMethod(def something, def somethingElse) {
    if (something) {
        doSomething()
    }
    else if(somethingElse) {
        doSomethingElse()
    }
}
```

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    if (something) {
        doSomething()
    }
    else if(somethingElse) {
        doSomethingElse()
    }
}
```

The Convert

```
println “This is an unnecessary Groovy String”
```

```
this.something.getThisThing()
```

HELLO
my name is
New Team Member

```
if(true) { }
vs
if  (true) { }
vs
if (ready){ }
```

https://flic.kr/p/de4pmb

Leaning Tower of Code

OBJECT PARTNERS

@codeJENNerator

Summary

- Useful For:
  - Interns/Junior Devs
  - Java Devs converting to Groovy
  - New Team Members
  - YOU!

Approaches

Approaches

- Start with one project or team

Approaches

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  - Turn on all rules

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- Start with one project or team
  - Turn on all rules
  - Look at all of the violations

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  - Turn off rules that don't make sense for your team

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Approaches

- Start with one project or team
  - Turn on all rules
  - Look at all of the violations
  - Turn off rules that don't make sense for your team
  - Fix all the problems
  - Once you have a good set of rules with minimal false positives, set that as the standard for all teams using Groovy

The elevator
to success
is out of order.
You'll have to
use the stairs...
one step at a time.
~Joe Girard

Approaches

- Turn on all the rules
  - Set a violation limit and fail builds that add go above the limit

Basics

https://flic.kr/p/oiAEx6

What is a rule?

What is a rule?

MissingBlankLineAfterPackage

What is a rule?

MissingBlankLineAfterPackage

```
package org.codenarc
import java.util.Date   // violation

class MyClass {
    void go() { /* ... */ }
}
```

What is a ruleset?

What is a ruleset?

Formatting Rules ("rulesets/formatting.xml")

Rule Configuration

Rule Configuration

- Priority

Rule Configuration

- Priority
- ViolationMessage

Rule Configuration

- Priority
- ViolationMessage
- Description

Rule Configuration

- Priority
- ViolationMessage
- Description
- Name

Rule Configuration

Rule Configuration

- Custom Parameters

Rule Configuration

- Custom Parameters
- applyToClassNames

Rule Configuration

- Custom Parameters
- applyToClassNames
- applyToFileNames

Ways to add codenarc to your project

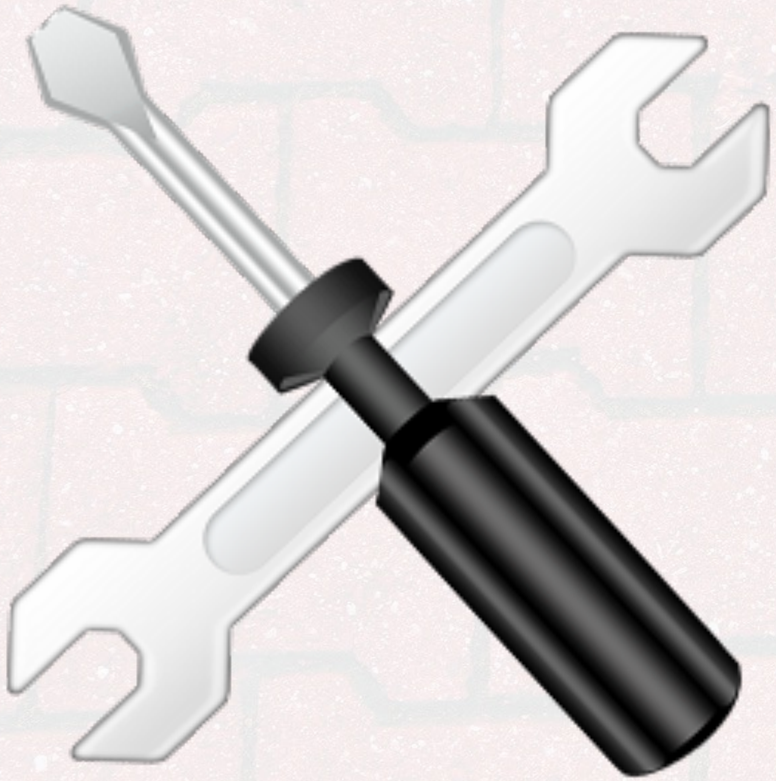
CODENARC
Less Bugs Better Code

Gradle

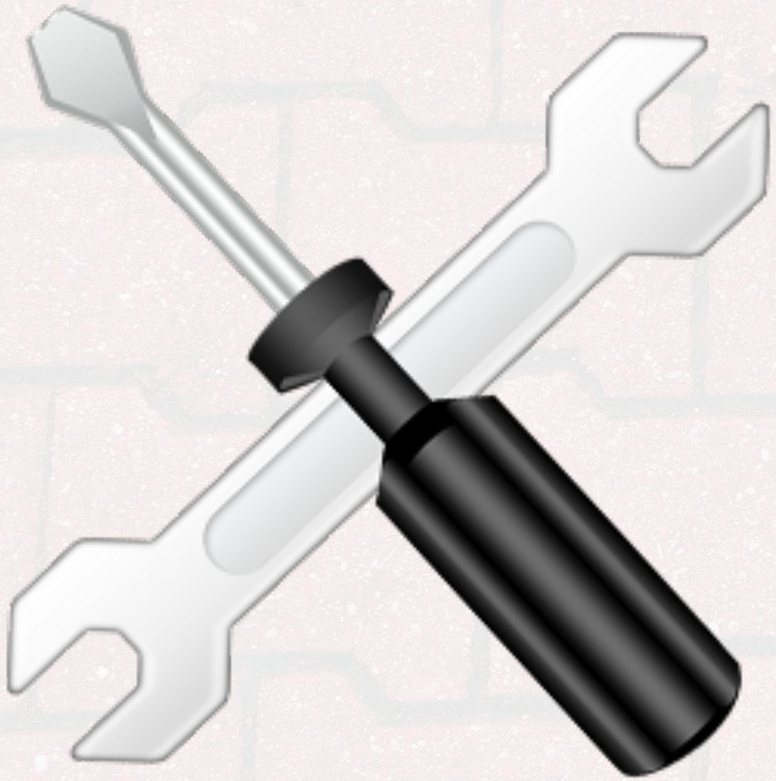
- runs with **gradle check**

https://docs.gradle.org/current/userguide/codenarc_plugin.html

Config Options

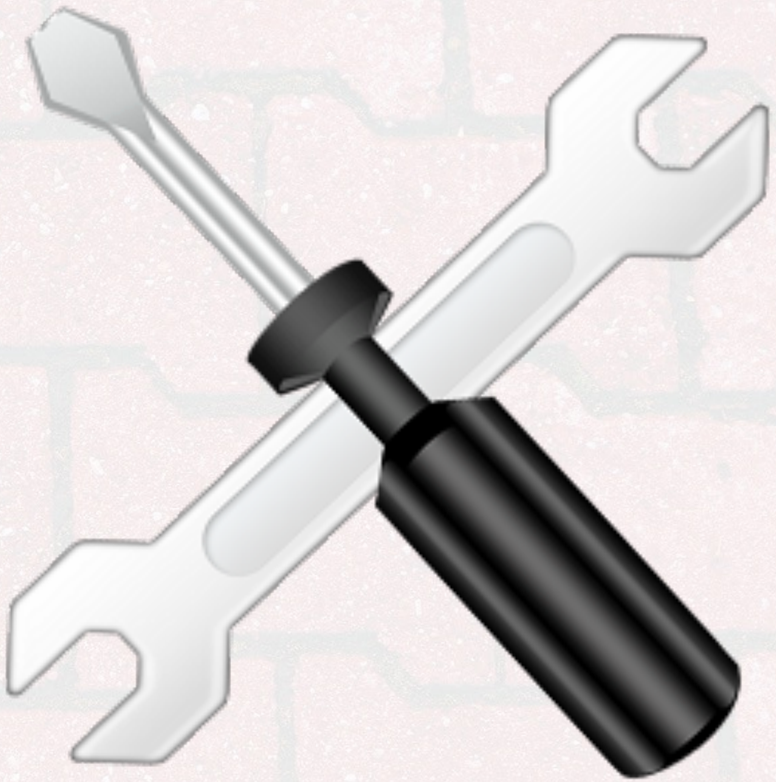


Config Options



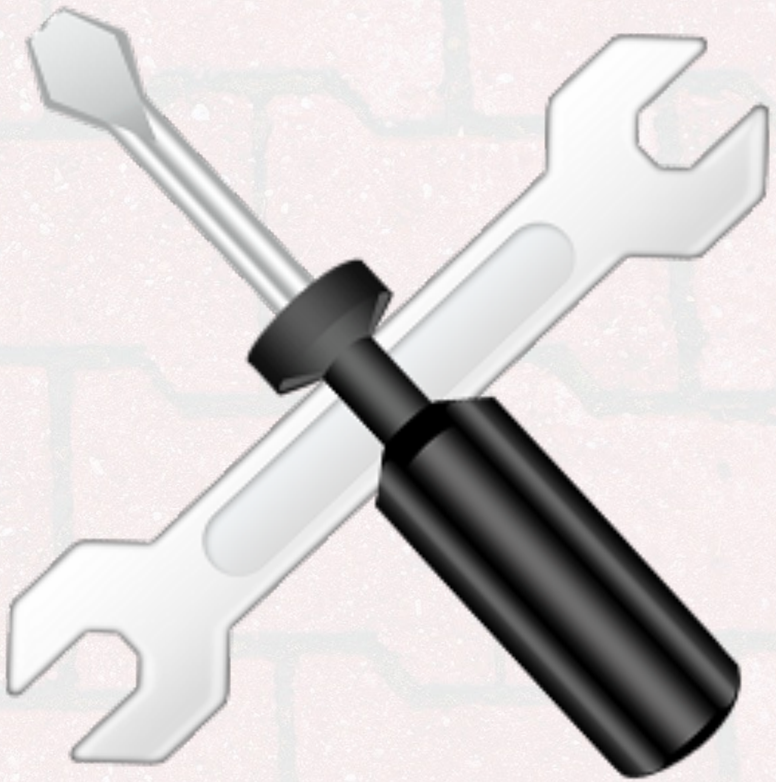
- configFile
- ignoreFailures
- maxPriority1Violations
- maxPriority2Violations
- maxPriority3Violations

Config Options



Config Options

- reportFormat
- reportsDir
- sourceSets
- toolVersion



```
codenarc {
    toolVersion = '0.25.2'
}

codenarcMain {
    configFile file('config/codenarc/codenarc.groovy')
}

codenarcTest {
    configFile file('config/codenarc/codenarcTest.groovy')
}
```

CODENARC Plugin

Less Bugs Better Code

- Grails Projects Version < 3.0
- runs with **grails codenarc**

http://grails.org/plugin/codenarc

Other Codenarc Plugins

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- IDEs
  - IntelliJ
  - Eclipse

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Other Codenarc Plugins

- IDEs
  - IntelliJ
  - Eclipse
- Sonar
- Maven
- Jenkins (formerly Hudson)

Reports

CodeNarc Report

Report title:	
Date:	May 10, 2016 11:25:52 AM
Generated with:	CodeNarc v0.25.2

Summary

Package	Total Files	Files with Violations	Priority 1	Priority 2	Priority 3
All Packages	3	1	-	-	3
sample	1	-	-	-	-
sample/domain	1	-	-	-	-
sample/web	1	1	-	-	3

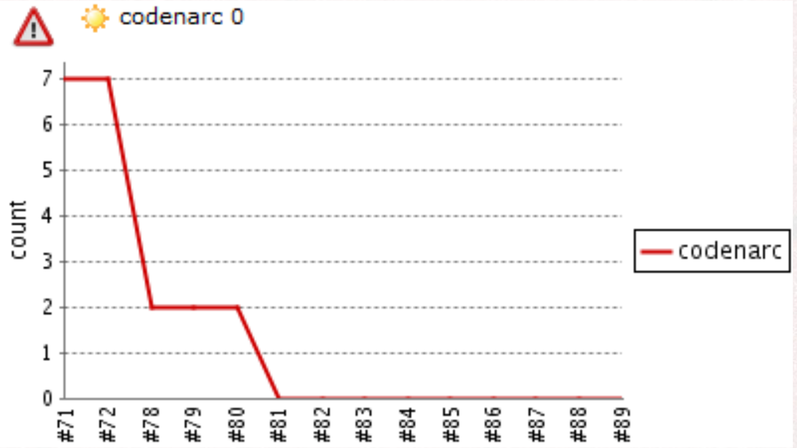
Package: sample.web

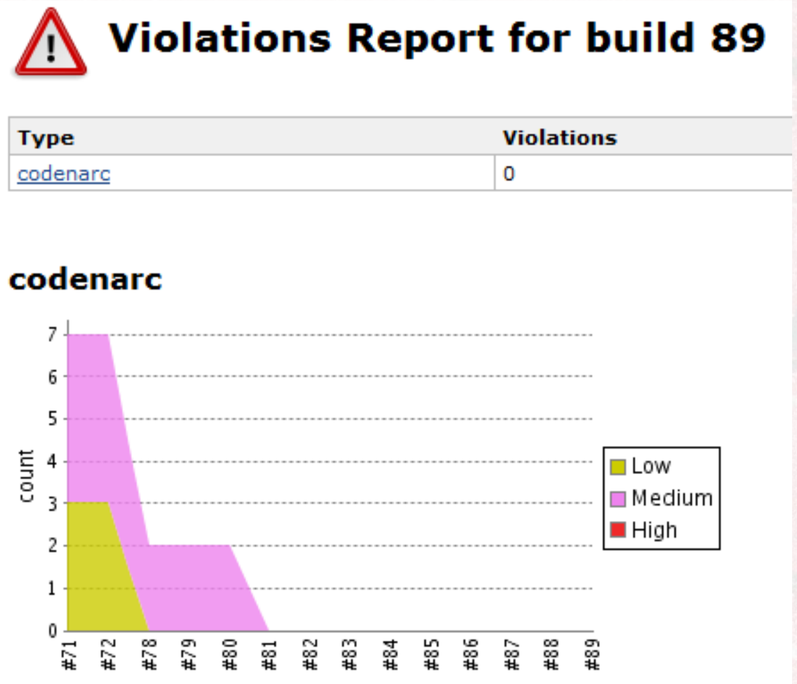
➥ **ExampleController.groovy**

Rule Name	Priority	Line #	Source Line / Message
MissingBlankLineAfterPackage	3	1	[SRC] import groovy.transform.CompileStatic [MSG] *Missing blank line after package statement in file ExampleController.groovy*
ConsecutiveBlankLines	3	10	[MSG] *File ExampleController.groovy has consecutive blank lines*
ConsecutiveBlankLines	3	11	[MSG] *File ExampleController.groovy has consecutive blank lines*

build/reports/codenarc/main.html

Jenkins Violations Plugin





img src: https://leanjavaengineering.wordpress.com/2010/08/25/grails-codenarc-hudson/

https://flic.kr/p/c8QjRC

Starter Ruleset

http://codenarc.sourceforge.net/StarterRuleSet-AllRulesByCategory.groovy.txt

config/codenarc/codenarc.groovy

```
ruleset {
    // rulesets/basic.xml
    AssertWithinFinallyBlock
    AssignmentInConditional
    BigDecimalInstantiation
    BitwiseOperatorInConditional
    BooleanGetBoolean
    BrokenNullCheck
    BrokenOddnessCheck
    ClassForName
    ComparisonOfTwoConstants
    ComparisonWithSelf
    ConstantAssertExpression
    ConstantIfExpression
    ConstantTernaryExpression
    .
    .
    .
    // rulesets/braces.xml
    ElseBlockBraces(bracesRequiredForElseIf: true)
    ForStatementBraces
    IfStatementBraces
    WhileStatementBraces
    .
    .
    .
}
```

Turning Off Rules - Comments

```
ruleset {
    /*
    // rulesets/braces.xml
    ElseBlockBraces(bracesRequiredForElseIf: true)
    ForStatementBraces
    IfStatementBraces
    WhileStatementBraces
   */
}
```

Turning Off Rules - Enabled:False

```
ruleset {
    ruleset('rulesets/basic.xml') {
        CatchThrowable(enabled:false)
    }
}
```

Suppress Warnings

```
@SuppressWarnings('DuplicateStringLiteral')
class MyClass {
    def y = 'x'
    def z = 'x'

    @SuppressWarnings(['IfStatementBraces', 'ThrowException'])
    int getCount() {
        if (!ready) throw new Exception('Not ready')
    }
}
```

https://flic.kr/p/rmit9T

0.21

- No Wildcard Imports
- Lots of New Formatting Rules
  - Consecutive Blank Lines
  - Blank Line Before Package
  - FileEndsWithoutNewline

0.22

- No Def
- Unnecessary Safe Navigation Operator

0.23

- Nested For Loop

0.25

- No Tab Character
- Trailing Comma

https://flic.kr/p/3mPXcD

Each Release Improves Existing Rules

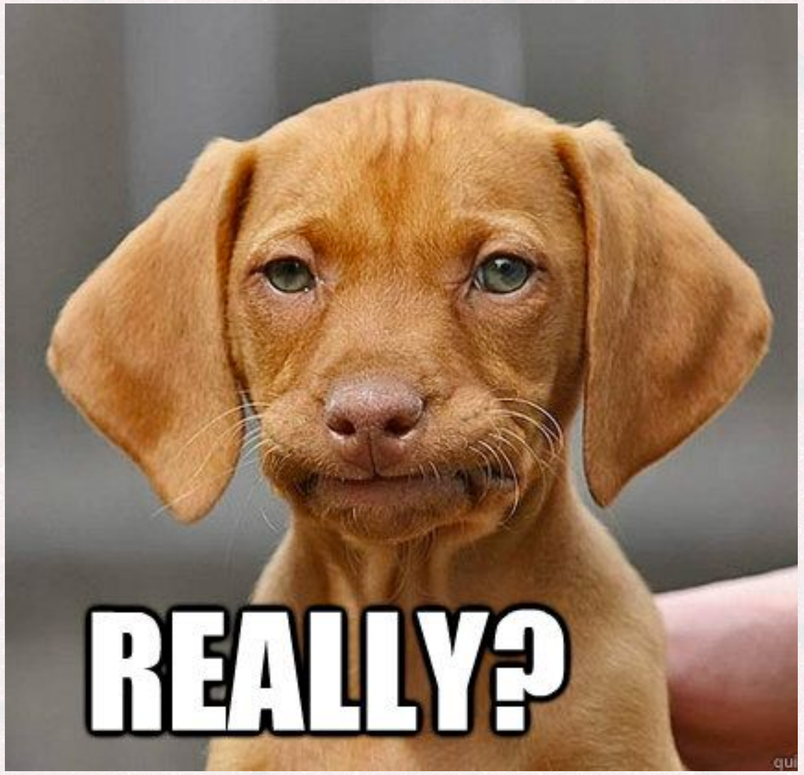
Rules Worth Talking About

File Ends Without NewLine

img src: https://flic.kr/p/rehEf5

I don't like all of the Codenarc Rules!

Dry



- DuplicateListLiteral
- DuplicateMapLiteral
- DuplicateNumberLiteral
- DuplicateStringLiteral

Could Be Elvis

Lots of false positives

JUnit Ruleset

Doesn't work well with Spock

No Def

https://flic.kr/p/apRkJh

No Def

- Great for Spring Boot

https://flic.kr/p/apRkJh

No Def

- Great for Spring Boot
- Problematic with Grails

https://flic.kr/p/apRkJh

Good in Theory

Good in Theory

- Unnecessary Return

Good in Theory

- Unnecessary Return
- Line Length

Debatable

Debatable

- Unnecessary Groovy String

Debatable

- Unnecessary Groovy String
- Unnecessary Getter

Debatable

Debatable

- Misordered Static Imports

Debatable

- Misordered Static Imports
- No Wildcard Imports

Still Deciding

Still Deciding

- Complexity Metrics

- Enhanced Ruleset does not work with the gradle codenarc plugin
- https://objectpartners.com/2016/03/16/resolving-codenarc-compilation-warnings/

Create a Custom Rule

```
import org.codenarc.rule.AbstractRule
import org.codenarc.source.SourceCode

/**
 * Sample rule. Checks for static fields.
 */
class MyStaticFieldRule extends AbstractRule {
    String name = 'MyStaticField'
    int priority = 2

    void applyTo(SourceCode sourceCode, List violations) {
        sourceCode.ast.classes.each { clazz ->
            clazz.fields.each { fieldNode ->
                if (fieldNode.static) {
                    violations << createViolation(sourceCode, fieldNode)
                }
            }
        }
    }
}
```

Contribute

- http://codenarc.sourceforge.net/codenarc-developer-guide.html

- https://github.com/CodeNarc/CodeNarc

Read the docs for more on..

- Rule Specifics
- Ant Task
- Command Line

Example Rulesets

- Grails
  - https://github.com/jlstrater/gr8data/tree/master/config/codenarc
- Spring Boot
  - https://github.com/jlstrater/groovy-spring-boot-restdocs-example/tree/master/gradle/codenarc

Conclusion

Questions?

https://flic.kr/p/5DeuzB