

JUnit



By Rabia Selin Erdem and Moritz Brandstätter

General Information:

- *JUnit is a framework for writing, executing and generating Unit tests in the programming language Java, that help testing enterprise-grade programs quicker and more efficiently.*
- *Unit tests are mostly used to find bugs and eliminate them.*

Requirements:

- *A JDK (1.7 and up) has to be installed.*
- *Java and JUnit knowledge.*
 - *The tests have to be already written.*
- *An exported .jar-file.*

Usage:

- *Please refer to the [Documentation-section](#) for the usage of the Action-Pack!*

Team:

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Documentation

The action pack can be found under: **PCK.CUSTOM_JUNIT_4**

Setup

- JDK (1.7 or higher) must be installed on the Agent
- When using Windows, the PATH variable (in the section 'environment variables') needs to point to Java's executable
- Insert the wanted action in the Workflow
- Refer to the action's specific documentation for further steps

Action **Execute Unit-Test**:

- The path of the project's .jar-file needs to be given as path in the input field (1) (e.g.: "C:\Users\admin\Desktop\test.jar")

Jar-Path

Jar-File *

- Additionally the path to the class containing the tests has to be given in another input field (2) (e.g.: "com.Automic.TestProject.Tests.CalculatorTest")

Class-Path

Test-Path *

- The user can decide whether or not the action should break on error (3)

Break-Parameter

Break ☐ On error 3

- Failures and Errors, including their details, can be seen in the Report (4)

Report

20160718/092927.121 - U02001096 Job '1199765' uses client-wide resource '100:JUNIT_REQUIRED_FILES/HAMCREST' - 'C:\Automic
20160718/092927.123 - U02001096 Job '1199765' uses client-wide resource '100:JUNIT_REQUIRED_FILES/JUNIT' - 'C:\Automic\1
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' started
UCMDJP: *****
UCMDJP: ** JOB 0001199765 (ProcID:0000000036) START AT 18.07.2016/09:29:39 **
UCMDJP: ** UTC TIME 18.07.2016/07:29:39 **
UCMDJP: *****
Connected with agent 'VVIETRAINEE02'
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' terminated normally
Running test(s) ...
JUnit version 4.12
.
Time: 0,012

OK (1 test)

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JUnit 4

Jar-File *

Test-Path *

Break ☐ On error 3

```

20160718/092927.121 - U02001096 Job '1199765' uses client-wide resource '100:JUNIT_REQUIRED_FILES/HAMCREST' - 'C:\Automic
20160718/092927.123 - U02001096 Job '1199765' uses client-wide resource '100:JUNIT_REQUIRED_FILES/JUNIT' - 'C:\Automic\1
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' started
UCMDJP: *****
UCMDJP: ** JOB 0001199765 (ProcID:000000036) START AT 18.07.2016/09:29:39 **
UCMDJP: **                               UTC TIME 18.07.2016/07:29:39 **
UCMDJP: *****
Connected with agent 'VVIETRAINEE02'
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' terminated normally
Running test(s) ...
JUnit version 4.12
.
Time: 0,012

OK (1 test)

```

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Action **Execute Unit-Suite**:

- The path of the project's .jar-file needs to be given as path in the input field (1) (e.g.: "C:\Users\admin\Desktop\test.jar")

Jar-Path

Jar-Path *

- Additionally the path to the class containing the test-suite's custom runner has to be given in another input field (2) (e.g.: "com.Automic.TestProject.Tests.TestSuiteRunner")

Test-Runner-Path

Test-Runner-Path *

- The user can decide whether or not the action should break on error (3)

Break-Parameter

Break ☐ On error 3

- The runner's output can be seen in the Report (4)

Report

```

20160718/100829.030 - U02001096 Job '1203280' uses client-wide resource '100:JUNIT_REQUIRED_FILES/HAMCREST' - 'C:\Automi
20160718/100829.032 - U02001096 Job '1203280' uses client-wide resource '100:JUNIT_REQUIRED_FILES/JUNIT' - 'C:\Automic\1
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' started
UCMDJP: *****
UCMDJP: ** JOB 0001203280 (ProcID:0000002852) START AT 18.07.2016/10:08:29 **
UCMDJP: **                               UTC TIME 18.07.2016/08:08:29 **
UCMDJP: *****
Connected with agent 'VVIETRAINEE02'
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' terminated normally
Running test(s) ...
evaluatesExpression(com.automic.JUnit.Tests.CalculatorTest02): expected:<7> but was:<6>
false

```

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Jar-Path *

Test-Runner-Path *

Checkbox ☐ On error 3

```
20160718/100829.030 - U02001096 Job '1203280' uses client-wide resource '100:JUNIT_REQUIRED_FILES/HAMCREST' - 'C:\Automi
20160718/100829.032 - U02001096 Job '1203280' uses client-wide resource '100:JUNIT_REQUIRED_FILES/JUNIT' - 'C:\Automic\1
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' started
UCMDJP: *****
UCMDJP: ** JOB 0001203280 (ProcID:0000002852) START AT 18.07.2016/10:08:29 **
UCMDJP: **                               UTC TIME 18.07.2016/08:08:29 **
UCMDJP: *****
Connected with agent 'WVIETRAINEE02'
Program 'UC4 Job Messenger' version '12.0.0-dev+main.build.2487' terminated normally
Running test(s) ...
evaluatesExpression(com.automic.JUnit.Tests.CalculatorTest02): expected:<7> but was:<6>
false
```

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Action Generate Unit-Tests:

This action generates useful Unit Tests, using the Randoop Framework. These tests can be categorized as Regression - and Error tests. Regression tests are tests which executed with expected behaviour.

Error tests are tests which executed in an exceptional way.

Finally it will show an output of the amount of generated tests, which tests were generated and how many failing inputs were brought up during the execution of the action.

- The project's .jar-file needs to be given as path in the input field (1) (e.g.: "C:\Users\admin\Desktop\test.jar")
- Furthermore, the text file containing the classes that tests should be generated for has to be given as path in the input field (2) (e.g.: "C:\Users\admin\Desktop\classes-text.txt")
- The user can decide whether or not the action should output the tests or not (3)
- If the user wants to have the tests outputted, the tests' output path has to be given as path in the input field (4) (e.g.: "C:\Users\admin\Desktop\")
- The user can decide whether or not the action should break on an error (5)
- A timeout in seconds can be given by the user's liking. Otherwise the default value will be taken as the timeout. (6)
- Custom command-line arguments can be input (7)
 - These can be found under: <https://randoop.github.io/randoop/manual/index.html>

Remarks

JUnit is distributed under the [Eclipse Public License](#)

For the Action [Generate Unit-Tests](#) the framework [Randoop](#) is used. It is distributed under the [MIT License](#), therefore free to use.

Exceptions are:

- src/randoop/util/StreamRedirectThread.java ([Sun License](#), free to use)
- src/randoop/util/StringEscapeUtils.java ([Apache License 2.0](#), open source)
- src/randoop/util/StringPrintWriter.java ([Apache License 2.0](#), open source)
- plugin/src/randoop/plugin/util/ReaderInputStream.java ([Apache License 2.0](#), open source)

The files can be found in the [Randoop GitHub](#) repository.