

Summary

Test Automation [http://en.wikipedia.org/wiki/Test_automation] means several unit test classes created by developers (TestCase) and auto performing TestSuite then reporting. This document discusses ideas of Test Automation and how to do it.

Description

Test Automation came out of the notion, "Make Your Build Self-Testing" [<http://www.martinfowler.com/articles/continuousIntegration.html#MakeYourBuildSelf-testing>], one of the practice plans for Continuous Integration (CI [<http://www.martinfowler.com/articles/continuousIntegration.html>]), aims for maximizing the benefits of CI by auto testing unit test classes against source code, testing and checking the result every day.

As explained in Code-driven testing [http://en.wikipedia.org/wiki/Test_automation#Code-driven_testing], once developer writes several unit test classes against target code, TestCases can be performed with these unit tests grouped into several categories or using build tools, to create result report.

Connecting CI server also provides basis for persistent testing to be included in build process to be performed periodically.

If you need more detailed information, refer to this article from IBM "Automation for People: Continuous Testing" [<http://www.ibm.com/developerworks/kr/library/j-ap03137/>].

Test Automation OpenSource

Ant and Maven are one of the Open source projects for Test Automation. JUnit, a framework for TestCase generation, provides automatic test perform and reporting.

Feature	Maven Plug-in	Ant Task
Build tool	Maven [http://maven.apache.org/] 2.0	Ant [http://ant.apache.org/] 1.6.5 or higher
Test Auto Perform	Maven Surefire Plugin [http://maven.apache.org/plugins/maven-surefire-plugin/]	Ant JUnit Task [http://ant.apache.org/manual/OptionalTasks/junit.html]
Test report generation	Maven Surefire Report Plugin [http://maven.apache.org/plugins/maven-surefire-report-plugin/]	Ant JUnit Report Task [http://ant.apache.org/manual/OptionalTasks/junitreport.html]

This IDE selected Ant since it's widely used, however, Maven was selected as a distribution tool. Usage covers using both tools. But the differences are pretty restricted in the way of using tools..

Test Automation Process

Write TestSuite : Groups written TestCase classes into some or one group to run test.

Run TestSuite : Perform all tests in TestCase groups altogether.

Test Reporting : Report the test result in Text, XML, HTML, Excel.

Environmental settings

- Install Ant, Maven Eclipse Plugin
- Install JUnit Eclipse Plugin ¹⁾
- Add library(pom.xml) for TestSuite:Refer to Setting pom.xml dependency for creating Unit Test
- Add configuration to setting.xml if you want excel reporting.

Manual

Follow steps below to run Test Automation.

- Write TestSuite :write TestSuite class, or specify Test cases to execute test in build tools.
- Run TestSuite :Run test using eclipse plug-in on build tools.
- Test Reporting :Review test result report in Text, XML, HTML, Excel format.

Sample

Test Automation - Maven

You can configure as shown in Setting pom.xml for Test Automation.

Test Automation - Ant

You can configure as shown in Setting build.xml for Test Automation.

References

- JUnitHome : <http://junit.org/> [<http://junit.org/>]
- Maven Surefire Plugin Home : <http://maven.apache.org/plugins/maven-surefire-plugin/> [<http://maven.apache.org/plugins/maven-surefire-plugin/>]
- Maven Surefire Report Plugin Home : <http://maven.apache.org/plugins/maven-surefire-report-plugin/> [<http://maven.apache.org/plugins/maven-surefire-report-plugin/>]
- Maven Emma Plugin Home : <http://emma.sourceforge.net/maven-emma-plugin/> [<http://emma.sourceforge.net/maven-emma-plugin/>]
- Ant JUnitTask : <http://ant.apache.org/manual/OptionalTasks/junit.html> [<http://ant.apache.org/manual/OptionalTasks/junit.html>]
- Ant JUnit Report Task : <http://ant.apache.org/manual/OptionalTasks/junitreport.html> [<http://ant.apache.org/manual/OptionalTasks/junitreport.html>]
- EMMA Home : <http://emma.sourceforge.net> [<http://emma.sourceforge.net>]
- EclEmmaHome : <http://www.eclEmma.org> [<http://www.eclEmma.org>]
- m2eclipse Home : <http://m2eclipse.sonatype.org/index.html> [<http://m2eclipse.sonatype.org/index.html>]
- Automation for human, removing 'Duplication of performance' [<http://www.ibm.com/developerworks/kr/series/j-ap.html>]

¹⁾ Eclipse 3.4 JEE includes JUnit v3.8 and v4.3 Plugin as default.