



# 소프트웨어검증 발표

—#2 build environment

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# CI(Continuous Integration)



Martin Fowler

Continuous Integration is a software development practice where members of a team integrate their work frequently, usually each person integrates at least daily - leading to multiple integrations per day. Each integration is verified by an automated build (including test) to detect integration errors as quickly as possible.



# Key Features

- Maintain a Single Source Repository.
- Automate the Build.
- Make Your Build Self-Testing.
- Everyone Commits To the Mainline Every Day.
- Every Commit Should Build the Mainline on an Integration Machine.
- Keep the Build Fast.
- Test in a Clone of the Production Environment.
- Make it Easy for Anyone to Get the Latest Executable.
- Everyone can see what's happening.
- Automate Deployment.



# Benefits of CI

- The greatest and most wide ranging benefit of CI is reduced risk.
- At all times you know where you are, what works, what doesn't, the outstanding bugs you have in your system.
- Improve the readability of the program.



# Ant

2014/4/4 Friday



# What is Ant?

- Automating software build processes.
- Open source(java) build tool.
- Created by XML document.
- Instead “Make” Etc. command.



# Advantages of Ant

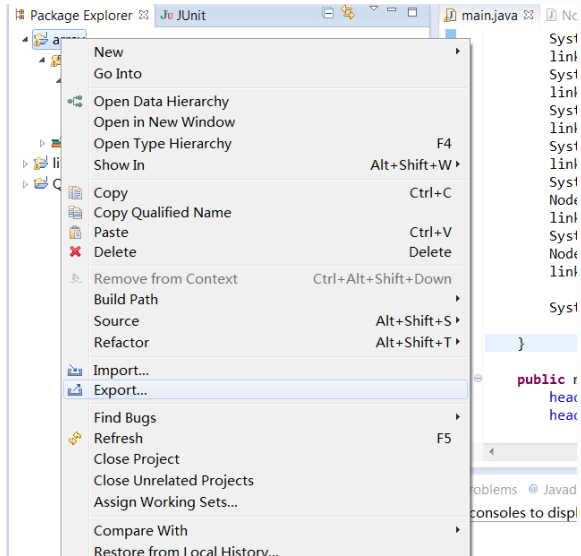
- Ant build file can be used on other environment.
- In JAVA language specialized.
- Build in ordered task.



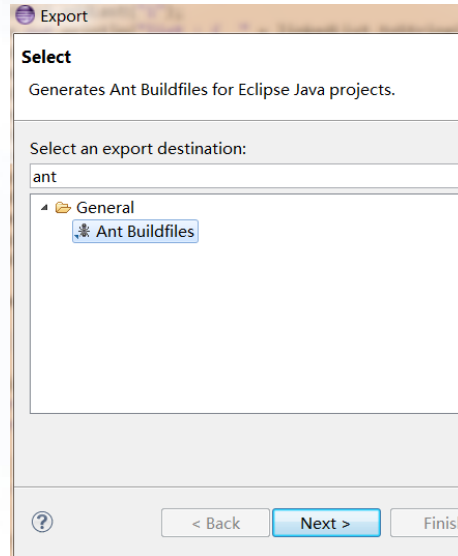


# HOW TO USE?

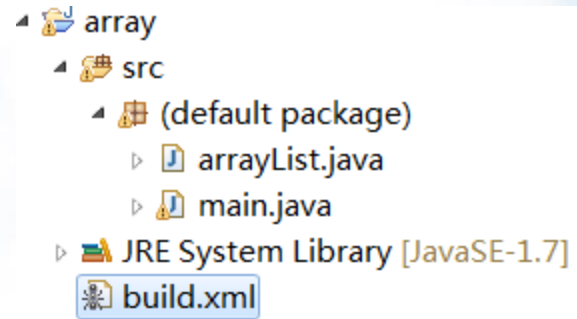
Package Explorer > Export



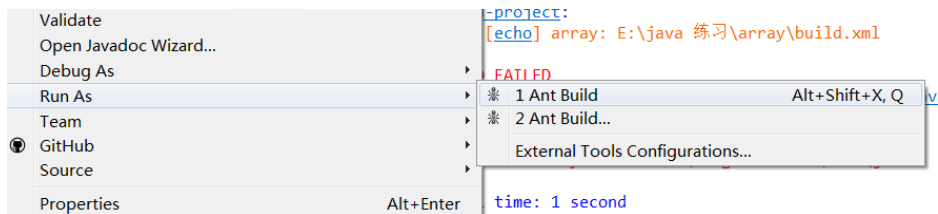
Import Ant <next



Build.xml made



# HOW TO USE?



Run as 1 ant build

xml build

```
<property environment="env"/>
<property name="ECLIPSE_HOME" value="../../编程/eclipse-SDK-4.3.2-win32/eclipse"/>
<property name="debuglevel" value="source,lines,vars"/>
<property name="target" value="1.7"/>
<property name="source" value="1.7"/>
<path id="array.classpath">
  <pathelement location="bin"/>
</path>
<target name="init">
  <mkdir dir="bin"/>
  <copy includeemptydirs="false" todir="bin">
    <fileset dir="src">
      <exclude name="**/*.java"/>
    </fileset>
  </copy>
</target>
<target name="clean">
  <delete dir="bin"/>
</target>
<target depends="clean" name="cleanall"/>
<target depends="build-subprojects,build-project" name="build"/>
<target name="build-subprojects"/>
<target depends="init" name="build-project">
  <echo message="${ant.project.name}: ${ant.file}"/>
```

# Cruise Control

# Introduction

- **Java-based framework for CI.**
- **Use XML .**
- **Version control.**
- **Java Web Application Offer.**



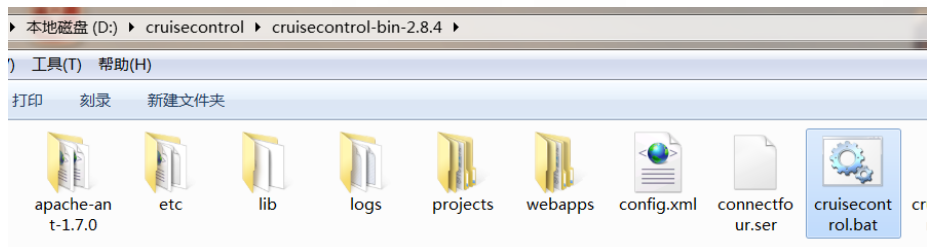
# advantages

- **Automated build process.**
- **Results of the project.**
- **Can be more easily find errors per hour .**





# install



Run the  
CruiseControl.bat

Download address: <http://cruisecontrol.sourceforge.net/download.html>

A screenshot of a Windows command prompt window titled 'C:\windows\system32\cmd.exe'. It displays a Java stack trace error. The error message is: 'Caused by: com.thoughtworks.xstream.converters.reflection.ObjectAccessException: Cannot construct net.sourceforge.cruisecontrol.BuildLoopInformation as it does not have a no-args constructor'. The stack trace includes the following lines:

```
at org.mortbay.jetty.Server.handle(Server.java:324)
at org.mortbay.jetty.HttpConnection.handleRequest(HttpConnection.java:505)
at org.mortbay.jetty.HttpConnection$RequestHandler.content(HttpConnection.java:843)
at org.mortbay.jetty.HttpParser.parseNext(HttpParser.java:647)
at org.mortbay.jetty.HttpParser.parseAvailable(HttpParser.java:211)
at org.mortbay.jetty.HttpConnection.handle(HttpConnection.java:388)
at org.mortbay.io.nio.SelectChannelEndPoint.run(SelectChannelEndPoint.java:395)
at org.mortbay.thread.QueuedThreadPool$PoolThread.run(QueuedThreadPool.java:488)
Caused by: com.thoughtworks.xstream.converters.reflection.ObjectAccessException:
Cannot construct net.sourceforge.cruisecontrol.BuildLoopInformation as it does
not have a no-args constructor
at com.thoughtworks.xstream.converters.reflection.PureJavaReflectionProvider.newInstance(PureJavaReflectionProvider.java:59)
at com.thoughtworks.xstream.converters.reflection.AbstractReflectionConverter.instantiateNewInstance(AbstractReflectionConverter.java:257)
at com.thoughtworks.xstream.converters.reflection.AbstractReflectionConverter.unmarshal(AbstractReflectionConverter.java:124)
at com.thoughtworks.xstream.core.TreeUnmarshaller.convert(TreeUnmarshaller.java:56)
... 35 more
```

# config.xml

```
- <cruisecontrol>
- <project name="connectfour">
- <listeners>
  <currentbuildstatuslistener file="logs/${project.name}/status.txt" />
</listeners>
- <bootstrappers>
  <antbootstrapper anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" target="clean" />
</bootstrappers>
- <modificationset quietperiod="30">
  <!-- touch any file in connectfour project to trigger a build -->
  <filesystem folder="projects/${project.name}" />
</modificationset>
- <schedule interval="300">
  <ant anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" />
</schedule>
- <log>
  <merge dir="projects/${project.name}/target/test-results" />
</log>
- <publishers>
  - <onsuccess>
    <artifactspublisher dest="artifacts/${project.name}" file="projects/${project.name}/target/${project.name}.jar" />
  </onsuccess>
</publishers>
</project>
</cruisecontrol>
```

*<Project name> indentified project name.*





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  - <onsuccess>
    <artifactspublisher dest="artifacts/${project.name}" file="projects/${project.name}/target/${project.name}.jar" />
  </onsuccess>
</publishers>
</project>
</cruisecontrol>
```

*<bootstrappers> Before the start of the build process*



# config.xml

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- <cruisecontrol>
- <project name="connectfour">
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  <currentbuildstatuslistener file="logs/${project.name}/status.txt" />
</listeners>
- <bootstrappers>
  <antbootstrapper anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" target="clean" />
</bootstrappers>
- <modificationset quietperiod="30">   <Modificationset> To know what be changed.
  <!-- touch any file in connectfour project to trigger a build -->
  <filesystem folder="projects/${project.name}" />
</modificationset>
- <schedule interval="300">
  <ant anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" />
</schedule>
- <log>
  <merge dir="projects/${project.name}/target/test-results" />
</log>
- <publishers>
  - <onsuccess>
    <artifactspublisher dest="artifacts/${project.name}" file="projects/${project.name}/target/${project.name}.jar" />
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</listeners>
- <bootstrappers>
  <antbootstrapper anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" target="clean" />
</bootstrappers>
- <modificationset quietperiod="30">
  <!-- touch any file in connectfour project to trigger a build -->
  <filesystem folder="projects/${project.name}" />
</modificationset>
- <schedule interval="300">    <schedule> Define the time interval to build.
  <ant anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" />
</schedule>
- <log>
  <merge dir="projects/${project.name}/target/test-results" />
</log>
- <publishers>
  - <onsuccess>
    <artifactspublisher dest="artifacts/${project.name}" file="projects/${project.name}/target/${project.name}.jar" />
  </onsuccess>
</publishers>
</project>
</cruisecontrol>
```



# config.xml

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- <cruisecontrol>
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</bootstrappers>
- <modificationset quietperiod="30">
  <!-- touch any file in connectfour project to trigger a build -->
  <filesystem folder="projects/${project.name}" />
</modificationset>
- <schedule interval="300">
  <ant anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" />
</schedule>
- <log>
  <merge dir="projects/${project.name}/target/test-results" /> <log> save the log file.
</log>
- <publishers>
  - <onsuccess>
    <artifactspublisher dest="artifacts/${project.name}" file="projects/${project.name}/target/${project.name}.jar" />
  </onsuccess>
</publishers>
</project>
</cruisecontrol>
```



# config.xml

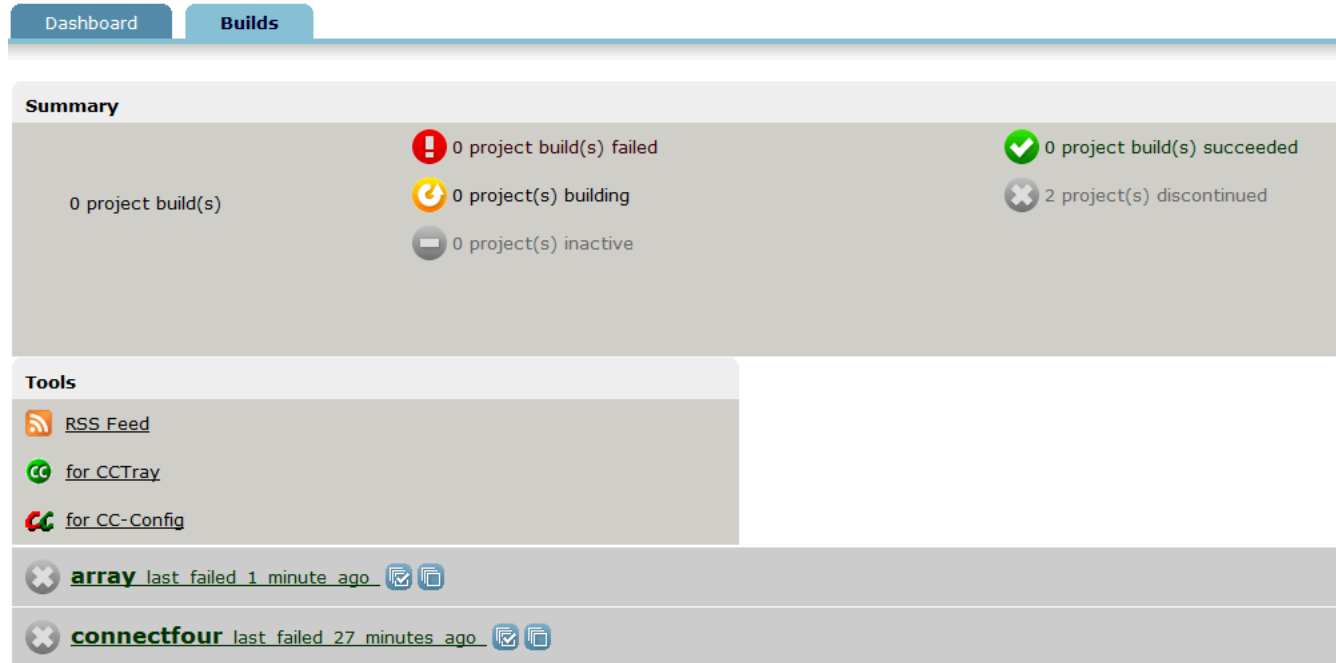
```
- <cruisecontrol>
- <project name="connectfour">
- <listeners>
  <currentbuildstatuslistener file="logs/${project.name}/status.txt" />
</listeners>
- <bootstrappers>
  <antbootstrapper anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" target="clean" />
</bootstrappers>
- <modificationset quietperiod="30">
  <!-- touch any file in connectfour project to trigger a build -->
  <filesystem folder="projects/${project.name}" />
</modificationset>
- <schedule interval="300">
  <ant anthome="apache-ant-1.7.0" buildfile="projects/${project.name}/build.xml" />
</schedule>
- <log>
  <merge dir="projects/${project.name}/target/test-results" />
</log>
- <publishers>
  <i><publishers> when the build is completed. Build report</i>
  - <onsuccess>
    <artifactspublisher dest="artifacts/${project.name}" file="projects/${project.name}/target/${project.name}.jar" />
  </onsuccess>
</publishers>
</project>
</cruisecontrol>
```



Check the result  
<http://localhost:8080/dashboard>

### Dashboard Server : jinliangPC

The result is a project of building  
Icons of the current state



The screenshot shows a dashboard with two tabs: 'Dashboard' and 'Builds'. The 'Builds' tab is active. Below the tabs is a 'Summary' section with a grey background. On the left, it says '0 project build(s)'. To the right, there are four status indicators: a red exclamation mark for '0 project build(s) failed', a green checkmark for '0 project build(s) succeeded', a yellow circular arrow for '0 project(s) building', and a grey 'X' for '2 project(s) discontinued'. Below the summary is a 'Tools' section with three items: 'RSS Feed', 'for CCTray', and 'for CC-Config'. At the bottom of the dashboard, there are two failed build entries: 'array last failed 1 minute ago' and 'connectfour last failed 27 minutes ago', each with a red 'X' icon and a copy icon.

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# Icons introduction



This indicates a project build has been successful for more than 24 hours, and is currently in the queue waiting to build.



This indicates a project build has been successful for less than 24 hours.



This indicates a project build that has failed for more than 24 hours.



This indicates a project build that has failed for less than 24 hours and is currently paused.



This indicates a project that passed last time it ran and is currently building.

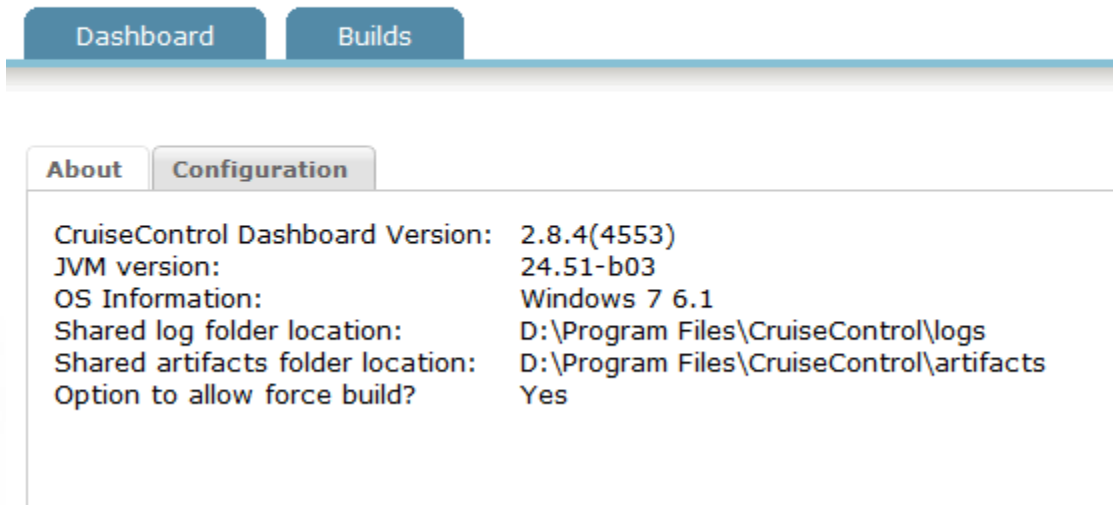


This indicates an inactive or discontinued project\*.



- Configuration can be found.

## Dashboard Server : jinliangPC



The screenshot shows the CruiseControl Dashboard interface. At the top, there are two tabs: "Dashboard" and "Builds". Below these, there are two sub-tabs: "About" and "Configuration". The "Configuration" tab is selected, displaying the following information:

CruiseControl Dashboard Version:	2.8.4(4553)
JVM version:	24.51-b03
OS Information:	Windows 7 6.1
Shared log folder location:	D:\Program Files\CruiseControl\logs
Shared artifacts folder location:	D:\Program Files\CruiseControl\artifacts
Option to allow force build?	Yes





## Build results menu

**BUILD COMPLETE - build.23**

Date of build: 2013-03-31T13:48:13  
Time to build: 7 seconds  
Last changed: 2013-03-31T13:47:43  
Last log entry:  
[Build Artifacts](#)

**Errors/Warnings: (3)**

C:\cc-sandbox\cruisecontrol-bin-2.8.4\projects\UDTestresul\build.xml:32: warning: 'includeantruntime' was not set, defaulting to build.sysclasspath=last; set to false for repeatable builds  
Note: C:\cc-sandbox\cruisecontrol-bin-2.8.4\projects\UDTestresul\map.java uses unchecked or unsafe operations.  
Note: Recompile with -Xlint:unchecked for details.

**Unit Tests: (0)**

No Tests Run  
This project doesn't have any tests

**Modifications since last successful build: (15)**

Change	User	File	Time
change	User	projects\UDTestresul\sample.jar	2013-03-31T13:47:43
change	User	projects\UDTestresul\Cal.class	2013-03-31T13:47:42
change	User	projects\UDTestresul\MainFrame\$1.class	2013-03-31T13:47:42
change	User	projects\UDTestresul\MainFrame\$2.class	2013-03-31T13:47:42
change	User	projects\UDTestresul\MainFrame\$3.class	2013-03-31T13:47:42
change	User	projects\UDTestresul\MainFrame\$4.class	2013-03-31T13:47:42

Build Results	<b>Test Results</b>	XML Log File	Metrics	Config	Control Panel
---------------	---------------------	--------------	---------	--------	---------------

Name	Status	Time
<b>.net.sourceforge.cruisecontrol.sampleproject.connectfour.CellTest</b>		
testConstructor	Success	0.016
<b>.net.sourceforge.cruisecontrol.sampleproject.connectfour.PlayingStandTest</b>		
testFourConnected	Success	0.016
testFourConnectedHorizontally	Success	0.000
testFourConnectedDiagonally	Success	0.000

## Test result menu

# Others

**Maven:** Apache Maven is a software project management and comprehension tool. Based on the concept of a project object model (POM), Maven can manage a project's build, reporting and documentation from a central piece of information.

**Redmine:** Redmine is a flexible project management web application. Written using the Ruby on Rails framework, it is cross-platform and cross-database.



Thank you!

The end