Jenkins

Configuring Jobs

What is Jenkins?

Originally called Hudson, it is an open source Continuous Integration tool written in Java.

Well what is Continuous Integration?

CI born to address the pitfalls of the Integration Phase of waterfall practices.

Continuous Integration attributes

- Immediate change detection
- Code base health (code quality/code coverage)
- Automated acceptance tests
- Communication
- , Automated deployment process

Continuous Integration summary

Essentially CI is about reducing risk by providing faster feedback by:

- identify and fix integration/regression issues faster
- better visibility for tech/non-tech on state of project
- automation gets software to testers and end-users taster

Continuous Deployment

Automation of deployment process for pushing every successful build directly into production is generally known as Continuous Deployment.

Continuous Delivery

is a slight variation of Continuous Deployment where every successful build can potentially be deployed into production.

Cl areas to address

- time to get small code change out to production
- problems due to conflicts between developers resolved earlier
- labor intensive manual testing by QA teams
- select few manual deployment steps where knowledge known by

Implementing Continuous Integration

Cl is no "silver bullet". Takes time to fully implement with well as improvements to practices and culture of teams. incremental improvements to technical infrastructure as

Jenkins

- **Branched from Hudson**
- Java based Continuous Build System

Runs in servlet container Glassfish, Tomcat or as service

- Supported by hundreds plugins
- SCM, Testing, Notifications, Reporting, Artifact Saving, Triggers, External Integration
- Under development since 2005
- http://jenkins-ci.org

What Jenkins offers

- Building/testing software projects continuously
- Jenkins provides an easy-to-use continuous integration system, obtain a fresh build. The automated, continuous build increases the easier for developers to integrate project changes, and easier to productivity.
- Monitoring executions of externally-run jobs
- Jenkins keeps those outputs and makes it easy for you to notice when something is wrong

Why Jenkins?

- Flexibility
- Jenkins is highly configurable by itself
- Community developed plugins offer more flexibility
- Combine with Ant, Maven, Gradle, or other build systems

Why Jenkins?

- , Free / OSS
- Jenkins is released under the MIT license
- There is a large support community and thorough documentation
- It's easy to write plugins
- Think something is wrong with it, you can fix it!

What can Jenkins do?

- Generate test reports
- Integrate with many different Version Control Systems
- Push to various artifact repositories
- Deploys directly to production or test environments
- Notify stakeholders of build status
- and more...

Jenkins out of the box

- Associating with a version control server
- Triggering builds
- Polling, Periodic, Building based on other projects
- Execution of shell scripts, bash scripts, Ant targets, and Maven targets
- Artifact archival
- Publish JUnit test results and Javadocs
- Email notifications

As stated earlier, plugins expand the functionality even further

Jenkins pre-requisites

- Java 6 or higher (JDK 1.6+)
- Maven

Install JDK

- go to http://www.oracle.com/technetwork/java/javase/ downloads/index.html
- download Java SE 7u51 JDK
- create JAVA_HOME variable

Install Maven

- go to: http://maven.apache.org/ download.cgi
- grab apache-maven-3.1.1-bin.zip/tar.gz
- unzip into desired location: C:\apachemaven-3.1.1 or /root/apache-maven-3.1.1
- add to Path

Generate Maven Project

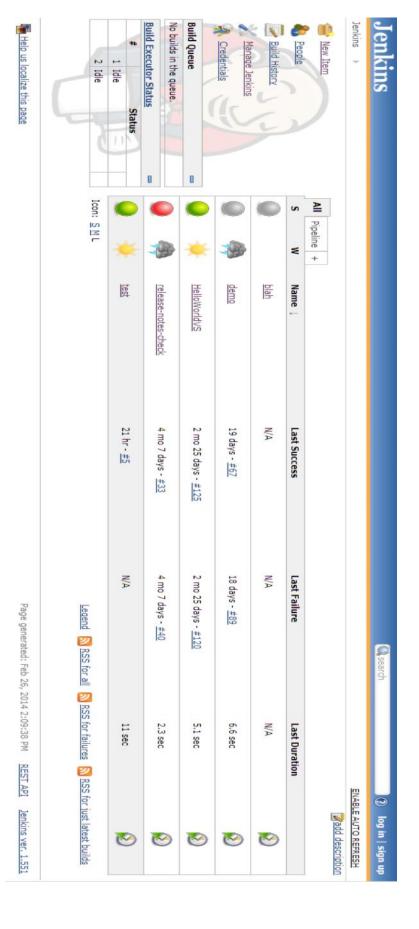
- create project directory
- C:\Projects or /root/Projects
- run command

```
mvn archetype:generate \
                                                             -DartifactId=maven-training \
                        -Dversion=1.0 \
                                                                                                    -DgroupId=com.orasi \
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```

Let's Install Jenkins

- download jenkins.war
- 0 http://mirrors.jenkins-ci.org/war-stable/latest/ <u>jenkins.war</u>
- , move to C:\ or /root
- run war
- java -jar <path to war file>

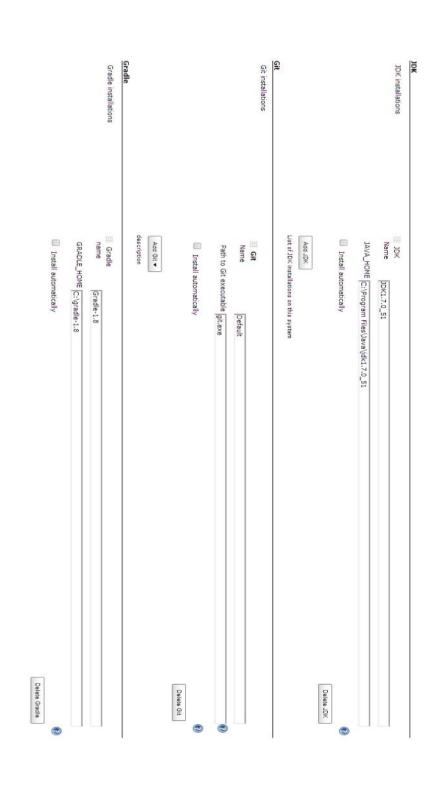
Jenkins Dashboard

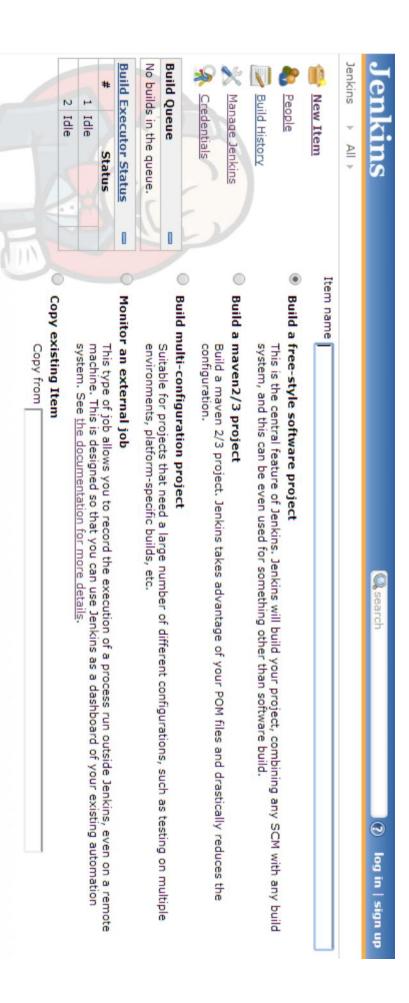




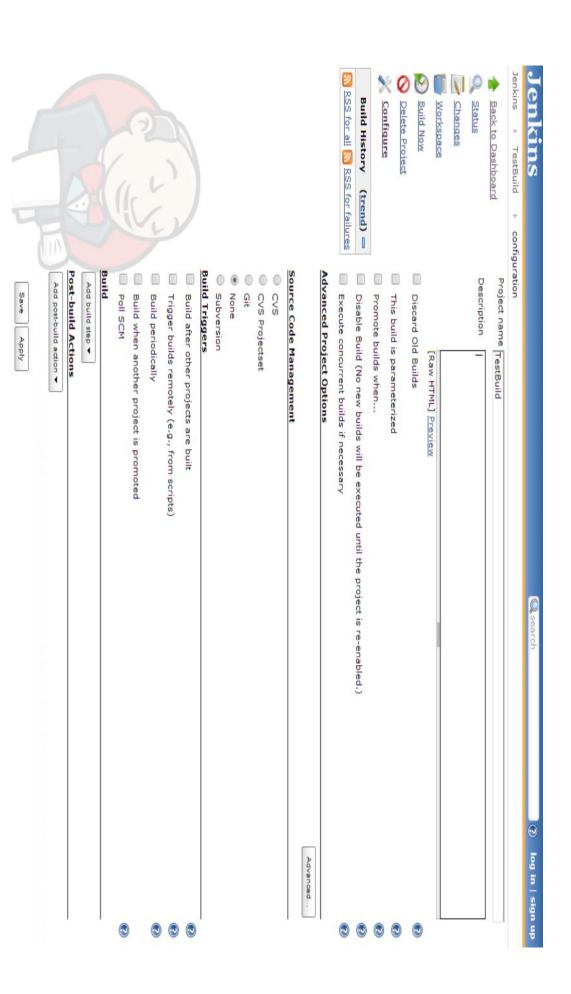
Click Manage Jenkins then Configure System

Need to point to JDK/Maven





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Root POM Chiprojects\maven-training\pom.xml Goals and options Glean install Post Steps Run only if build succeeds Run only if build succeeds or is unstable Run regardless of build result Should the post-build steps run only for successful builds, etc. Execute Windows batch command Java -cp Ji\Projects\maven-training\target\maven-training-1.0-SNAPSHOT.jar com.orasi.App	Pre Steps Add pre-build step Build	
© Run only if build succeeds © Run only if build succeeds or is unstable © Run regardless of build result Should the post-build steps run only for successful builds, etc. te Windows batch command java -cp J:\Projects\maven-training\target\maven-training-1.0-SNAPSHOT.jar com.orasi.App		Ct\Projects\maven-training\pom.xml
Run only if build succeeds Run only if build succeeds or is unstable Run regardless of build result Should the post-build steps run only for successful builds, etc. **Text		clean install
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Execute Windows batch command java -cp J:\Projects\maven-training\target\maven-training-1.0-SNAPSHOT.jar com.orasi.App		Run only if build succeeds Run only if build succeeds or is unstable Run regardless of build result Should the post-build steps run only for successful builds, etc.
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	Command java -c	cp J:\Projects\maven-training\target\maven-training-1.0-SNAPSHOT.jar com.orasi.App
	-	* a.n.

Job page



Changing Jenkins port in jenkins.xml

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40 38
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-</service>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <description>This service runs Jenkins continuous integration system.</description>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <id>jenkins</id>
                                        <onfailure action="restart" />
                                                                                                                                    <le><logmode>rotate</le>
                                                                                                                                                                                                                            <interactive />
                                                                                                                                                                                                                                                                                                                                                                                                         <arguments>-Xrs -Xmx256m -Dhudson.lifecycle=hudson.lifecycle.WindowsServiceLifecycle -jar "%BASE%)jenkins.war" --httpPort=9090</arguments>
                                                                                                                                                                                                                                                                                                                                                                                                                                                       <executable>%BASE%\jre\bin\jaya</executable>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <env name="JENKINS_HOME" value="%BASE%"/>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <name>Jenkins</name>
                                                                                                                                                                                                                                                                        I'm still debugging this.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The following value assumes that you have java in your PATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if you'd like to run Jenkins with a specific version of Java, specify a full path to java.exe.
                                                                                                                                                                                                                                                                                                                     interactive flag causes the empty black Java window to be displayed
```

Extending Jenkins with Plugins

Manage Jenkins -> Manage plugins

Conclusion

- benefits it provides regarding early detection of problems Continuous integration is a necessity on complex projects due to the
- expects from such a system existing development environments and provide all the features a team A good continuous build system should be flexible enough to fit into pre-
- through a plugin system continuous integration system due to it's core feature set and extensibility Jenkins, a continuous build system, can be an integral part of any