Maven 2
a.k.a. M2, mvn

The Java Developer's Very Best Frenemy

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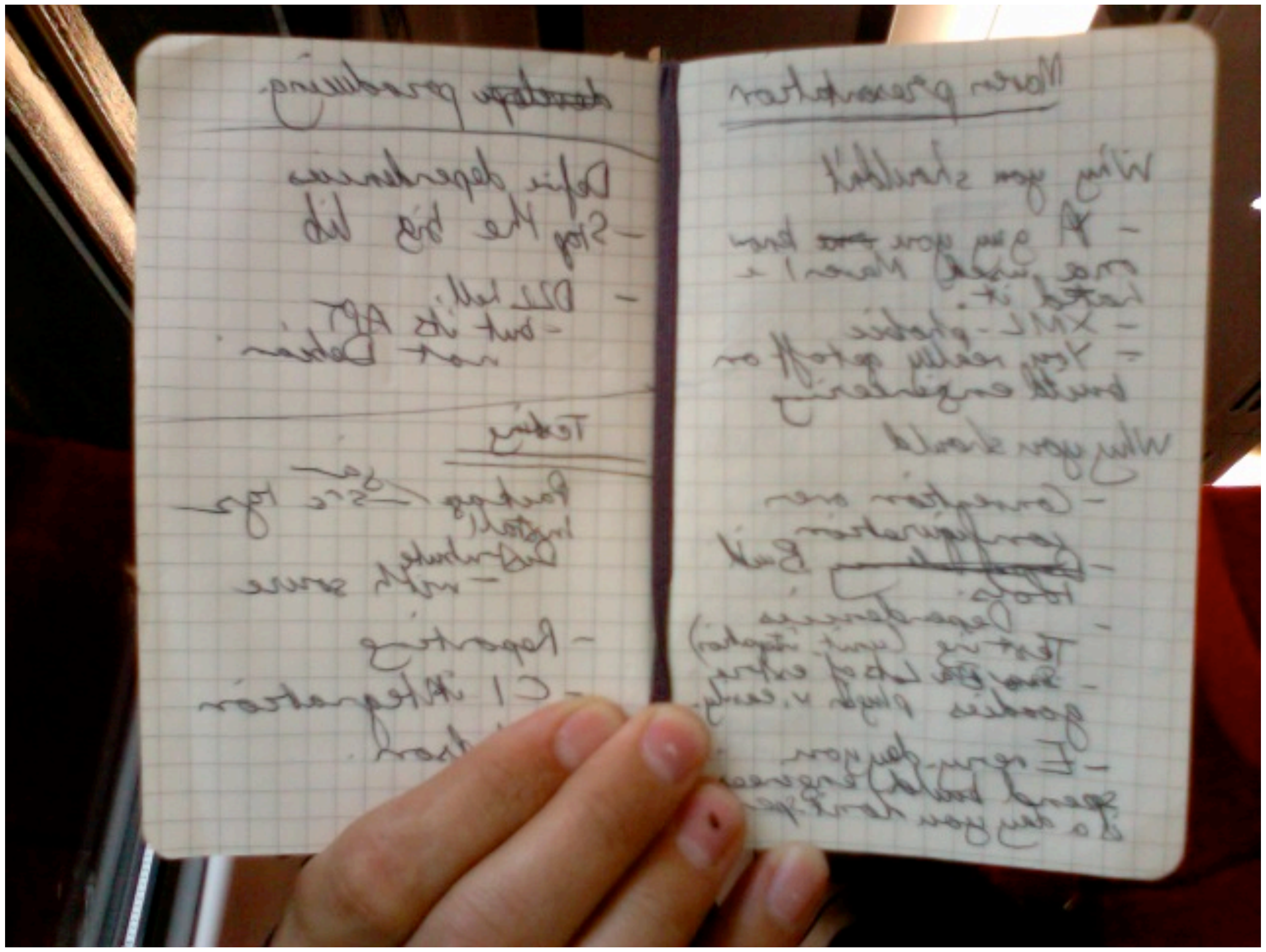


Plan

Reasons you **shouldn't** use M2

- Bob
- Wuss
- Perversion
- Allergic to paracetamol

Bob - some guy you know once used Maven1 and didn't like it. (Not the best way to make tool decisions)
Wuss - M2 uses XML. A lot. If you're scared of XML, you shouldn't use M2
Perversion - if you really get off on build engineering, then M2 is going to spoil your fun because it makes it too easy.
Allergic - when M2 goes off the rails it can be a pain to figure out. Be prepared for brief periods of headache.

Reasons you **should** use M2

- Convention over configuration
- Toys
- Enjoy programming

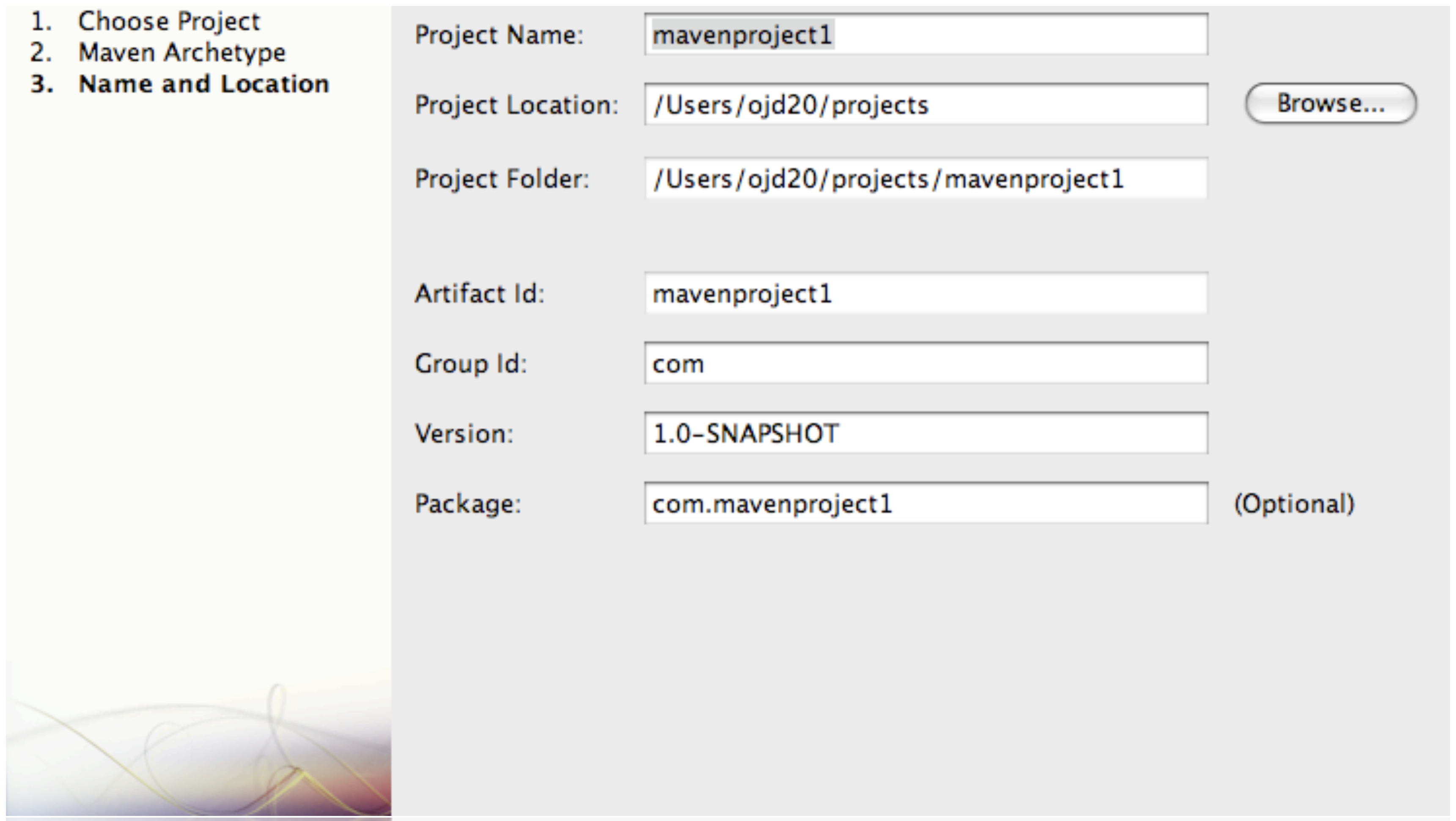
M2 works through convention in how projects are laid out, how they fit together and how they are built and deployed. This standardisation is generally a Good Thing.
M2 has loads of plugins, which work together wonderfully.
Productivity is gained to the cost of production. Every day you spend fiddling with your build engineering is a day you **don't** spend talking to users, programming or testing.

Getting started

Install it, obviously

Use the archetype plugin to create a basic project

```
> mvn -DarchetypeVersion=1.0 \
-Darchetype.interactive=false \
-DgroupId=com.example \
-DarchetypeArtifactId=\
maven-archetype-quickstart \
-Dversion=1.0-SNAPSHOT \
-Dpackage=com.example \
-DartifactId=example \
archetype:generate
```



1. Choose Project
2. Maven Archetype
3. **Name and Location**

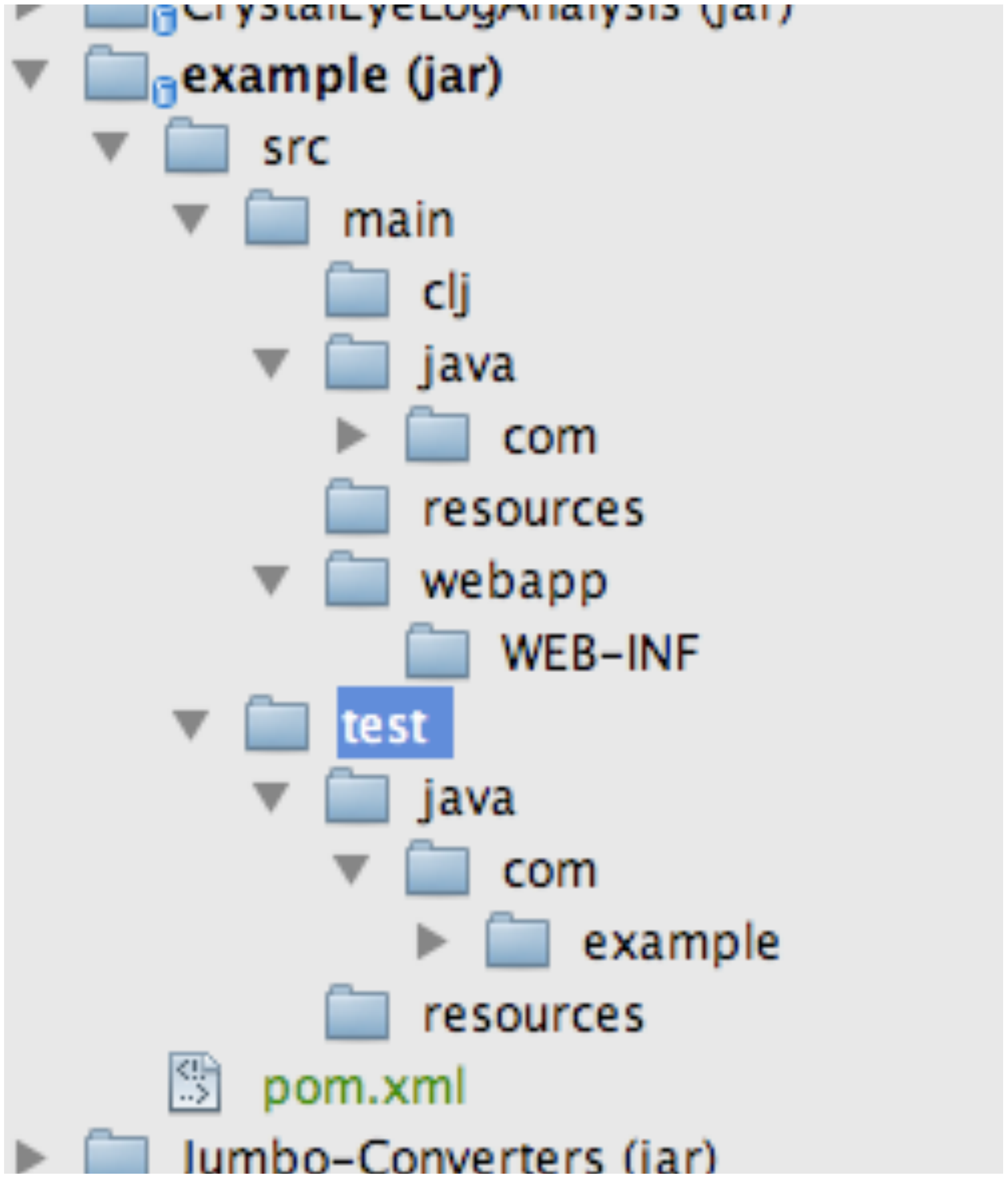
Project Name:	mavenproject1	
Project Location:	/Users/ojd20/projects	Browse...
Project Folder:	/Users/ojd20/projects/mavenproject1	
Artifact Id:	mavenproject1	
Group Id:	com	
Version:	1.0-SNAPSHOT	
Package:	com.mavenproject1	(Optional)

Netbeans GUI version

If you're a GUI type of a person, this might appeal more. Or you can hack it out manually without using the archetype stuff. Up to you.

Standard Project Layout

src / target
main / test



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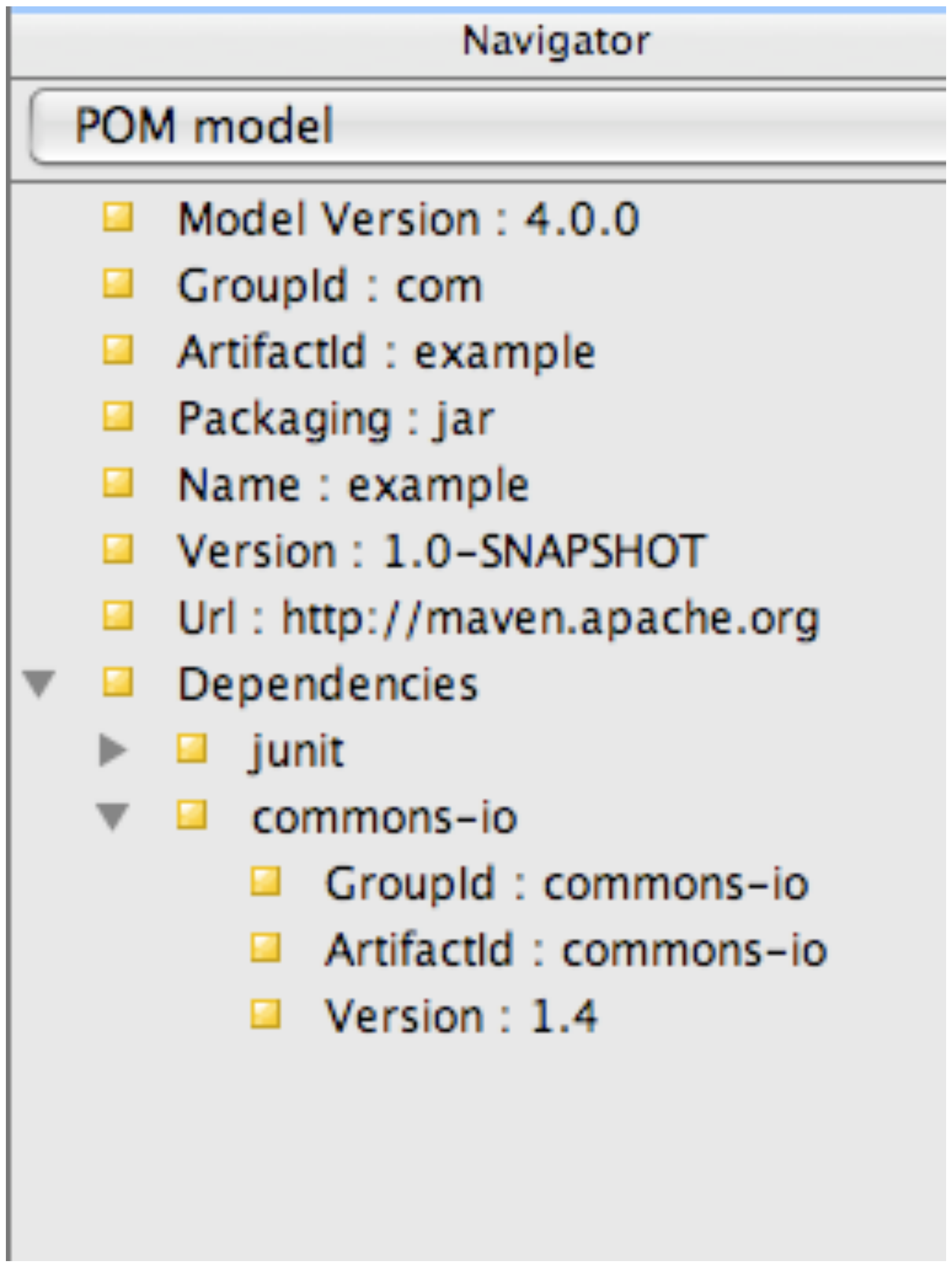
I know you're thinking "overkill! overkill!". Turns out to be really useful later on.

Tiddly POM



```
Model Version : 4.0.0
GroupId : com
ArtifactId : example
Packaging : jar
Name : example
Version : 1.0-SNAPSHOT
Url : http://maven.apache.org
Dependencies
  junit
  commons-io
    GroupId : commons-io
    ArtifactId : commons-io
    Version : 1.4
```

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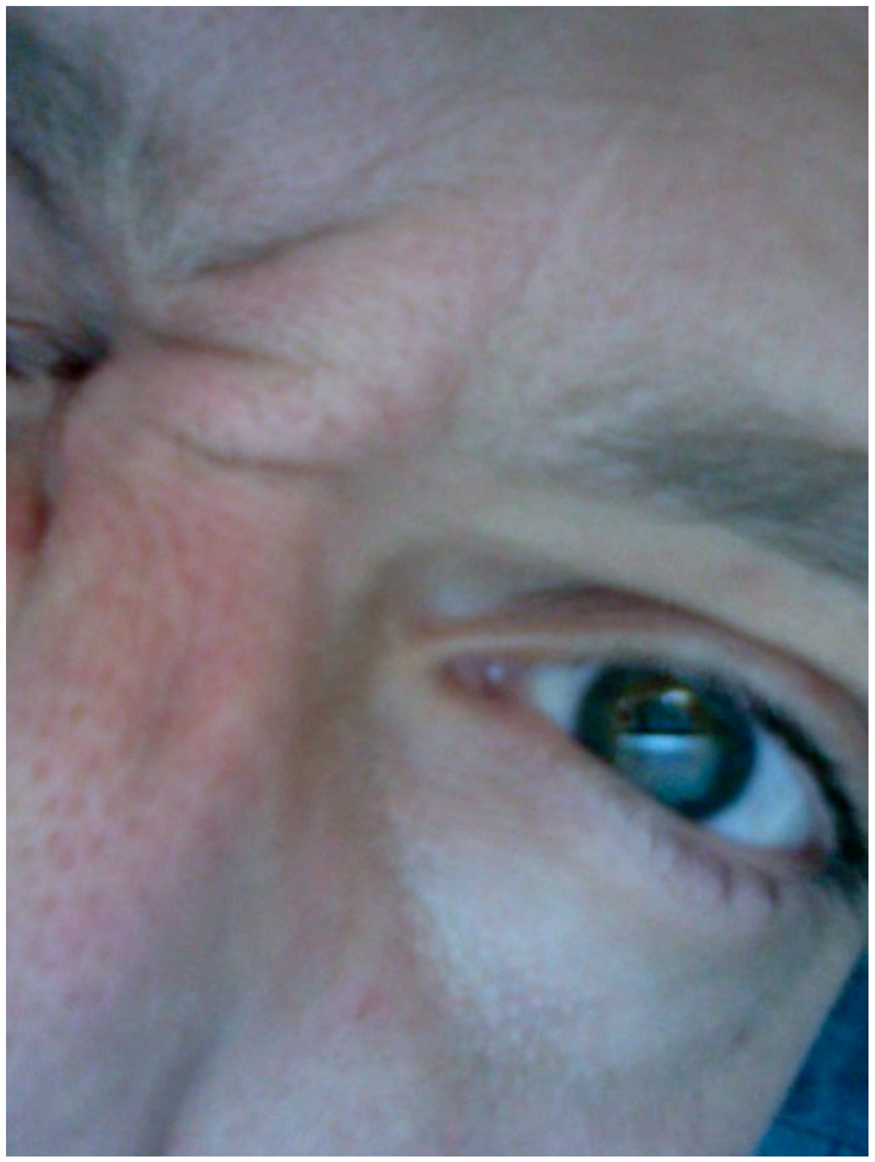
Dependencies

- lib/ considered harmful
- APT, not Debian



Still awake?

compile, test, integration-test, package
et cetera et blah blah blah
lots of things your IDE can do, or that take 5 mins in ant... not the point, what you really get is

A Number of Goodies in return for Remarkably Little Effort

The reason this is better than ant is that it’s easier to write plugins because the build process and the project layout is standard.

Distributing Code

1. Set up a DAV folder on a server
2. Bit of XML
3. mvn deploy

```
  <distributionManagement>
    <repository>
        <id>wwmm-dav</id>
        <name>WWMM</name>
        <url>dav:http://wwmm.ch.cam.ac.uk/maven2</url>
    </repository>
</distributionManagement>
```

Assembly

```
<plugin>
  <artifactId>maven-assembly-plugin</artifactId>
  <configuration>
    <descriptorRefs>
      <descriptorRef>src</descriptorRef>
    </descriptorRefs>
  </configuration>
</plugin>
```

Does executable jars (bundling all the libraries), source and binary distributions for sourceforge etc.

Jetty

```
<plugin>
    <groupId>org.mortbay.jetty</groupId>
    <artifactId>maven-jetty-plugin</artifactId>
    <configuration>
        <scanIntervalSeconds>5</scanIntervalSeconds>
        <connectors>
            <connector
implementation="org.mortbay.jetty.nio.SelectChannelConnector">
                <port>8111</port>
            </connector>
        </connectors>
    </configuration>
</plugin>
```

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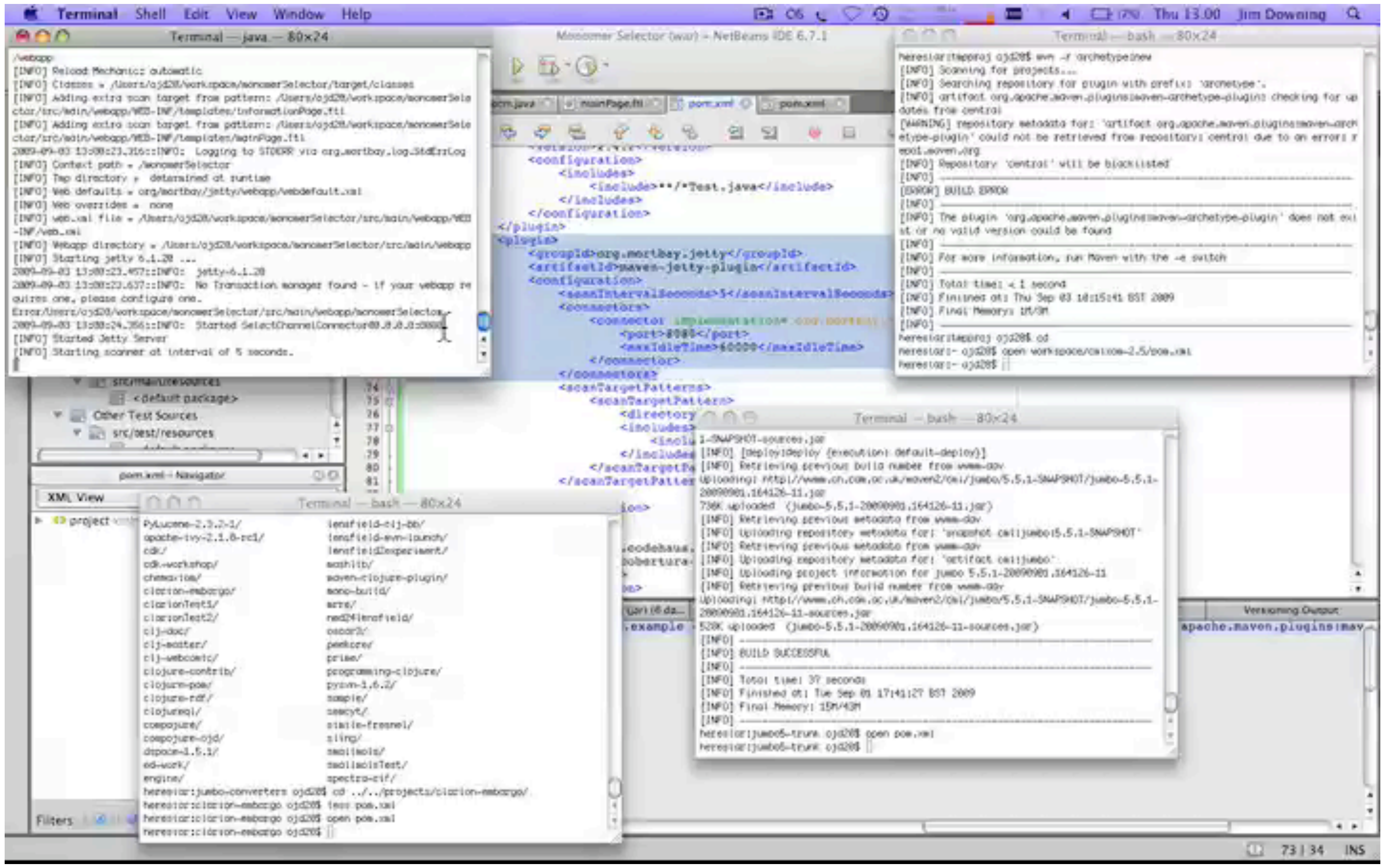
Good for rapid development, also allows integration testing.



```
/webapp
[INFO] Reload Mechanic: automatic
[INFO] Classes = /Users/ojd20/workspace/monomerSelector/target/classes
[INFO] Adding extra scan target from pattern: /Users/ojd20/workspace/monomerSele
ctor/src/main/webapp/WEB-INF/templates/informationPage.ftl
[INFO] Adding extra scan target from pattern: /Users/ojd20/workspace/monomerSele
ctor/src/main/webapp/WEB-INF/templates/mainPage.ftl
2009-09-03 13:00:23.316::INFO:  Logging to STDERR via org.mortbay.log.StdErrLog
[INFO] Context path = /monomerSelector
[INFO] Tmp directory =  determined at runtime
[INFO] Web defaults = org/mortbay/jetty/webapp/webdefault.xml
[INFO] Web overrides =  none
[INFO] web.xml file = /Users/ojd20/workspace/monomerSelector/src/main/webapp/WEB
-INF/web.xml
[INFO] Webapp directory = /Users/ojd20/workspace/monomerSelector/src/main/webapp
[INFO] Starting jetty 6.1.20 ...
2009-09-03 13:00:23.457::INFO:  jetty-6.1.20
2009-09-03 13:00:23.637::INFO:  No Transaction manager found - if your webapp re
quires one, please configure one.
Error/Users/ojd20/workspace/monomerSelector/src/main/webapp/monomerSelector
2009-09-03 13:00:24.356::INFO:  Started SelectChannelConnector@0.0.0.0:8080
[INFO] Started Jetty Server
[INFO] Starting scanner at interval of 5 seconds.
```

```
    <configuration>
        <includes>
            <include>**/*Test.java</include>
        </includes>
    </configuration>
</plugin>
<plugin>
    <groupId>org.mortbay.jetty</groupId>
    <artifactId>maven-jetty-plugin</artifactId>
    <configuration>
        <scanIntervalSeconds>5</scanIntervalSeconds>
        <connectors>
            <connector implementation="org.mortbay.
                <port>8080</port>
                <maxIdleTime>60000</maxIdleTime>
            </connector>
        </connectors>
        <scanTargetPatterns>
            <scanTargetPattern>
                <directory
                <includes>
                    <inclu
                </includes
            </scanTargetPa
        </scanTargetPatter
```

```
herestar:tmpproj ojd20$ mvn -r archetype:new
[INFO] Scanning for projects...
[INFO] Searching repository for plugin with prefix: 'archetype'.
[INFO] artifact org.apache.maven.plugins:maven-archetype-plugin: checking for up
dates from central
[WARNING] repository metadata for: 'artifact org.apache.maven.plugins:maven-arch
etype-plugin' could not be retrieved from repository: central due to an error: r
epo1.maven.org
[INFO] Repository 'central' will be blacklisted
[INFO] ------------------------------------------------------------------------
[ERROR] BUILD ERROR
[INFO] ------------------------------------------------------------------------
[INFO] The plugin 'org.apache.maven.plugins:maven-archetype-plugin' does not exi
st or no valid version could be found
[INFO] ------------------------------------------------------------------------
[INFO] For more information, run Maven with the -e switch
[INFO] ------------------------------------------------------------------------
[INFO] Total time: < 1 second
[INFO] Finished at: Thu Sep 03 10:15:41 BST 2009
[INFO] Final Memory: 1M/3M
[INFO] ------------------------------------------------------------------------
herestar:tmpproj ojd20$ cd
herestar:~ ojd20$ open workspace/cmlcom-2.5/pom.xml
herestar:~ ojd20$
```

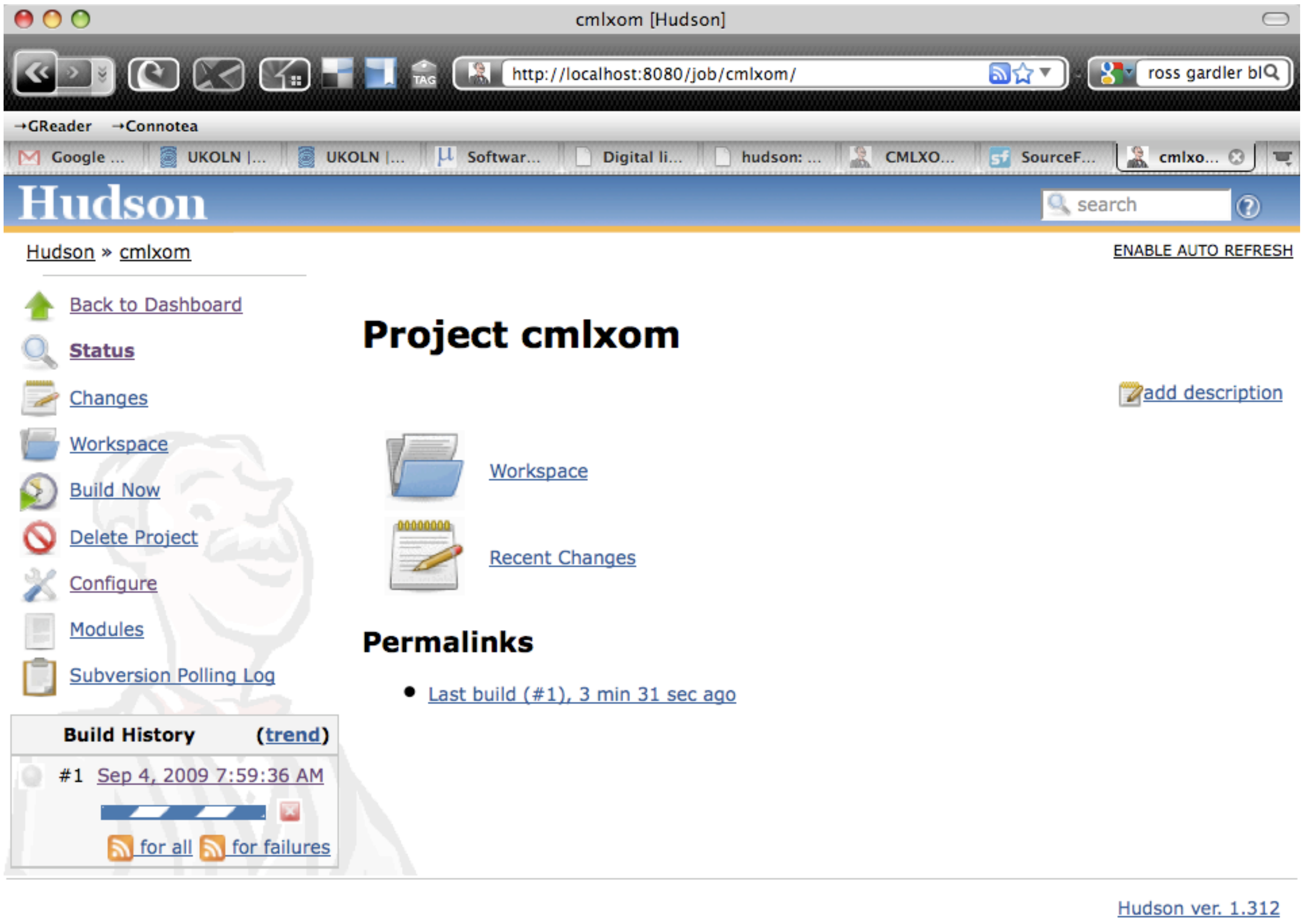
```
1-SNAPSHOT-sources.jar
[INFO] [deploy:deploy {execution: default-deploy}]
[INFO] Retrieving previous build number from wwmm-dav
Uploading: http://wwmm.ch.cam.ac.uk/maven2/cml/jumbo/5.5.1-SNAPSHOT/jumbo-5.5.1-
20090901.164126-11.jar
736K uploaded  (jumbo-5.5.1-20090901.164126-11.jar)
[INFO] Retrieving previous metadata from wwmm-dav
[INFO] Uploading repository metadata for: 'snapshot cml:jumbo:5.5.1-SNAPSHOT'
[INFO] Retrieving previous metadata from wwmm-dav
[INFO] Uploading repository metadata for: 'artifact cml:jumbo'
[INFO] Uploading project information for jumbo 5.5.1-20090901.164126-11
[INFO] Retrieving previous build number from wwmm-dav
Uploading: http://wwmm.ch.cam.ac.uk/maven2/cml/jumbo/5.5.1-SNAPSHOT/jumbo-5.5.1-
20090901.164126-11-sources.jar
520K uploaded  (jumbo-5.5.1-20090901.164126-11-sources.jar)
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESSFUL
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 37 seconds
[INFO] Finished at: Tue Sep 01 17:41:27 BST 2009
[INFO] Final Memory: 15M/43M
[INFO] ------------------------------------------------------------------------
herestar:jumbo5-trunk ojd20$ open pom.xml
herestar:jumbo5-trunk ojd20$
```

```
PyLucene-2.3.2-1/                    lenafield-clj-bb/
apache-ivy-2.1.0-rc1/                lenafield-mvn-launch/
cdk/                                 lenafieldExperiment/
cdk-workshop/                        mashlib/
chemaxiom/                           maven-clojure-plugin/
clarion-embargo/                     mono-build/
clarionTest1/                        mrre/
clarionTest2/                        ned24lenafield/
clj-doc/                             oscar3/
clj-matter/                          peekcore/
clj-webcomic/                        prism/
clojure-contrib/                     programming-clojure/
clojure-pom/                         pysvn-1.6.2/
clojure-rdf/                         sample/
clojureql/                           semcyt/
compojure/                           static-fresnel/
compojure-ojd/                       sling/
dspace-1.5.1/                        smallmols/
ed-work/                             smallmolsTest/
engine/                              spectra-cif/
herestar:jumbo-converters ojd20$ cd ../../projects/clarion-embargo/
herestar:clarion-embargo ojd20$ less pom.xml
herestar:clarion-embargo ojd20$ open pom.xml
herestar:clarion-embargo ojd20$
```

Reports

```
<reporting>
    <plugins>
        <plugin>
         <groupId>org.apache.maven.plugins</groupId>
         <artifactId>maven-project-info-reports-plugin</artifactId>
         <reportSets>
             <reportSet>
                 <reports>
                  <report>index</report>
                  <report>summary</report>
                  <report>dependencies</report>
                  <report>project-team</report>
                  <report>license</report>
                 </reports>
             </reportSet>
         </reportSets>
         </plugin>
...
```

CI made easy



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Hudson. Because the project layout is standard, and the build phases are standard, it's really easy for tools like Hudson to do their thing.