

# Maven 3 and Beyond

## Development and the Roadmap of Maven



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# About me

- build and configuration management, software developer, trainer  
Java(EE), TestNG, Mockito, Jenkins, Git, Subversion, Maven, Nexus, NinjaFramework
- Apache Maven PMC Member, MojoHaus Member, Codehaus-Plexus Member, RisingOak Member

# Agenda

- History
- Ecosystem
- Important Changes / Improvements
- Howto control your environment?
- Roadmap - Plugins
- Roadmap - Maven
- Questions

# History

- Maven 1.0 – release date 07/13/2004
- Maven 1.1 – release date 06/25/2007

**End of Live: 02/18/2014**

<http://maven.apache.org/archives/maven-1.x/>

<http://maven.apache.org/docs/history.html>

given dates: MM/DD/YYYY

# History

- Maven 2.0
  - release date 10/20/2005
- Maven 2.0.11
  - release date 02/26/2010

given dates: MM/DD/YYYY

# History

- Maven 2.2.0 – release date 06/30/2009  
– Java 1.5
- Maven 2.2.1 – release date 11/08/2009

End of Live: 02/18/2014

<http://maven.apache.org/maven-2.x-eol.html>

given dates: MM/DD/YYYY

# History

- Maven 3.0 – release date 10/08/2010
- Maven 3.0.5 – release date 02/23/2013

End of Live: Not Yet but...?

<http://maven.apache.org/docs/history.html>  
given dates: MM/DD/YYYY

# History

- Maven 3.1.0 - release date 07/15/2013
- Maven 3.1.1 - release data 10/04/2013

<http://maven.apache.org/docs/history.html>  
given dates: MM/DD/YYYY



# History

- Maven 3.2.1 – release date 02/21/2014  
– Java 1.6
- Maven 3.2.5 – release date 12/20/2014

<http://maven.apache.org/docs/history.html>  
given dates: MM/DD/YYYY

# History

- Maven 3.3.1 – release date 03/18/2015  
– Java 1.7
- Maven 3.3.3 – release date 04/28/2015

<http://maven.apache.org/docs/history.html>  
given dates: MM/DD/YYYY

# Maven Ecosystem Overview

- Apache Maven (Core)
- Apache Maven Plugins (49)
- Apache Shared Components (27)
- Apache POM Parents (ASF, Maven Plugins, Maven Shared)

<http://maven.apache.org/ref/current/>

<http://maven.apache.org/plugins/>

<http://maven.apache.org/shared/>

<http://maven.apache.org/pom/>

# Maven Ecosystem Overview

- Apache Maven SCM, Maven Ant Tasks, Maven Archetype, Maven Doxia, Maven JXR, Maven Plugin Testing, Maven Plugin Tools, Skins, ...

<http://maven.apache.org/jxr/>

<http://maven.apache.org/archetype/>

<http://maven.apache.org/scm/>

<http://maven.apache.org/plugin-testing/>

<http://maven.apache.org/plugin-tools/>

<http://maven.apache.org/skins/>

# Maven Ecosystem Overview

- MojoHaus (formerly CodeHaus 05/31/2015):

appassembler-maven-plugin, buildnumber-maven-plugin, build-helper-maven-plugin, clirr-maven-plugin, cobertura-maven-plugin, exec-maven-plugin, extra-enforcer-rules, findbugs-maven-plugin, flatten-maven-plugin, sql-maven-plugin, versions-maven-plugin, ....

<http://www.mojohaus.org>

<https://github.com/mojohaus>

# Maven Ecosystem Overview

- Codehaus-plexus (formerly CodeHaus 05/31/2015):
- Plexus components
  - plexus-compiler, modello, plexus-interpolation, plexus-utils, plexus-archiver etc.

<http://codehaus-plexus.github.io/>  
<https://github.com/codehaus-plexus>

# Important Changes/Improvements

- Maven 3.0 Versioning
  - Versions like:  
1.0.0.10.0-SNAPSHOT,  
1.0.0.9.0-SNAPSHOT
  - Maven 2
    - 2.0.1-xyz < 2.0.1
  - but in Maven 3
    - 2.0.1 < 2.0.1-xyz

<https://cwiki.apache.org/confluence/display/MAVENOLD/Versioning>

# Important Changes/Improvements

- Maven 3.1.X

Allow the use of JSR330 annotation in  
Maven extensions and plugins

<https://issues.apache.org/jira/secure/ReleaseNote.jspa?projectId=12316922&version=12330182>  
<http://maven.apache.org/maven-jsr330.html>



# Important Changes/Improvements

- Maven 3.2.1

## Transitive Dependency excludes

```
<dependency>  
  <groupId>net.sourceforge.jwebunit</groupId>  
  <artifactId>jwebunit-core</artifactId>  
  <version>3.2</version>  
  <exclusions>  
    <exclusion>  
      <artifactId>*</artifactId>  
      <groupId>*</groupId>  
    </exclusion>  
  </exclusions>  
</dependency>
```

<https://issues.apache.org/jira/secure/ReleaseNote.jspa?projectId=12316922&version=12330185>

# Important Changes/Improvements

- Maven 3.2.1
  - Reactor Changes
    - Plugable Reactor makes it possible to implement new behaviour for multi-module projects.
  - New Builder Interface, `AbstractMavenLifecycleParticipant` changes

<https://issues.apache.org/jira/browse/MNG-5578> <https://issues.apache.org/jira/browse/MNG-5557>

<https://issues.apache.org/jira/browse/MNG-5582> <https://issues.apache.org/jira/browse/MNG-5230>

<https://issues.apache.org/jira/browse/MNG-5575> <https://issues.apache.org/jira/browse/MNG-5389>

# Important Changes/Improvements

- Maven 3.2.1
  - Continuous delivery friendly versions `${revision}`, `${sha1}`, `${changelist}` could be used as version values instead of literal values.

(Demo)

<https://issues.apache.org/jira/browse/MNG-5576>

# Important Changes/Improvements

- Maven 3.2.2  
Support version ranges in parent elements.

```
<project>
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>org.apache</groupId>
    <artifactId>apache</artifactId>
    <version>[3.0,4.0)</version>
  </parent>
  <groupId>org.apache.maven.its.mng2199</groupId>
  <artifactId>valid</artifactId>
  <version>1</version>
  <packaging>pom</packaging>
</project>
```

<https://issues.apache.org/jira/browse/MNG-2199>

# Important Changes/Improvements

- Maven 3.2.3
  - Maven Central Access via https://

<https://issues.apache.org/jira/browse/MNG-5672>

# Important Changes/Improvements

- Maven 3.2.5
  - Provide a tool to test Maven version parsing and comparison.

<https://issues.apache.org/jira/browse/MNG-5730>

# Important Changes/Improvements

- Maven 3.3.1
  - Java 1.7
  - Toolchain mechanism improved
  - Core Extension mechanism improved  
.mvn/extensions.xml (see examples).
  - Maven options via .mvn/maven.config
  - JVM Options via .mvn/jvm.config

<https://issues.apache.org/jira/browse/MNG-5767> <https://issues.apache.org/jira/browse/MNG-5768>  
<https://issues.apache.org/jira/browse/MNG-5771> <https://issues.apache.org/jira/browse/MNG-5780>

# Important Changes/Improvements

- Maven 3.3.1
  - Calling plugin goals from CLI with different configurations.

<https://issues.apache.org/jira/browse/MNG-5767> <https://issues.apache.org/jira/browse/MNG-5768>  
<https://issues.apache.org/jira/browse/MNG-5771> <https://issues.apache.org/jira/browse/MNG-5780>



# Important Changes/Improvements

- Maven 3.3.3
  - Maven extensions can not be retrieved from authenticated repositories

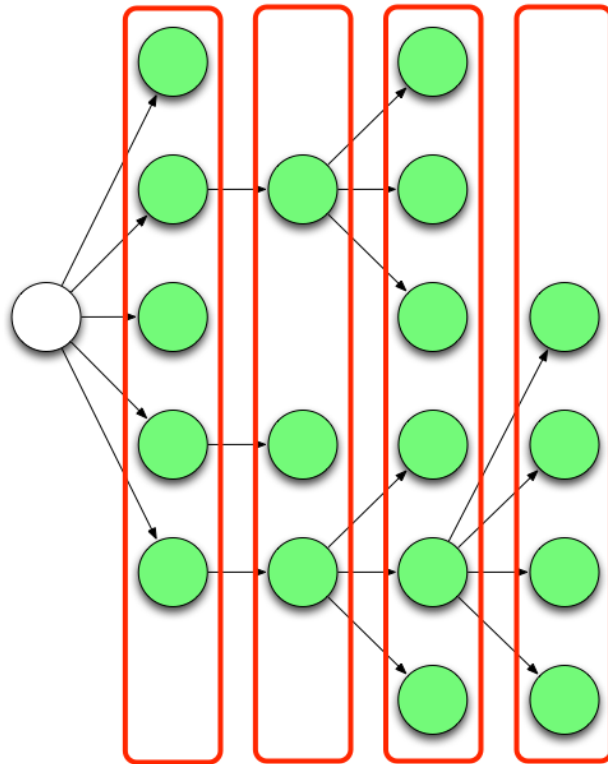
<https://issues.apache.org/jira/browse/MNG-5795>

# Important Changes/Improvements

- Performance of builds
  - One solution parallelization:

```
mvn -T 4 clean deploy
```

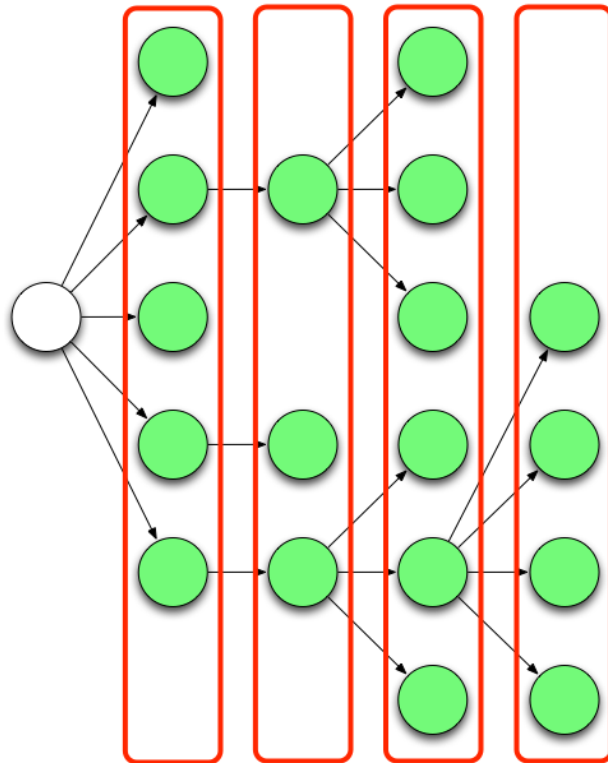
# Important Changes/Improvements



Standard Multi-Threaded Maven Scheduler

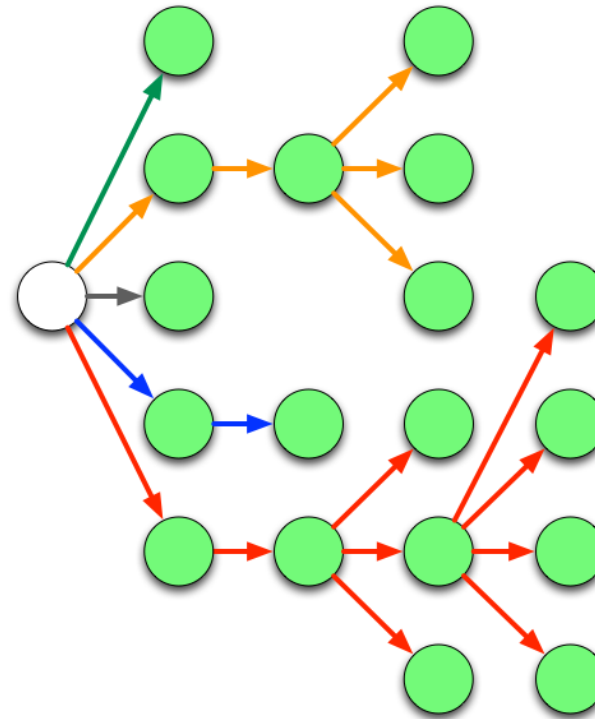
Note: Usage of the images has been friendly permitted by Jason van Zyl (takari.io)

# Important Changes/Improvements



Standard Multi-Threaded Maven Scheduler

VS



Smart Builder Scheduler

Note: Usage of the images has been friendly permitted by Jason van Zyl (takari.io)

# Important Changes/Improvements

- An other solution:
  - Takari Smart Builder

```
mvn clean deploy --builder smart -T4
```

<http://takari.io/book/30-team-maven.html#takari-smart-builder>

# Important Changes/Improvements

- You don't like to write your pom's in XML?
- Why not writing pom's in Groovy, Ruby, Yaml, Scala, Atom?

(DEMO)

<https://github.com/takari/polyglot-maven>

<https://github.com/takari/polyglot-maven-examples>

# Important Changes/Improvements

- (Integration) testing of maven-plugins?
  - How to do that?

# Important Changes/Improvements

- Integration testing of maven-plugins?
  - Mocking + JUnit/TestNG
  - For simple MOJO operations fine.
  - For full blown integration tests it's hard.



# Important Changes/Improvements

- Integration testing of maven-plugins?
  - maven-plugin-testing-harness
  - maven-invoker-plugin (better but sometimes not very convenient).
    - Debugging plugins is hard.

<https://maven.apache.org/plugin-testing/maven-plugin-testing-harness/>

<https://maven.apache.org/plugins/maven-invoker-plugin/>

# Important Changes/Improvements

- Integration testing of maven-plugins?
  - Eclipse Integration + takari-plugin-testing
  - Fully debug integration test within Eclipse.

<https://github.com/takari/takari-plugin-testing-project>

<https://github.com/ifiedorenko/com.ifiedorenko.m2e.mavendev>

# How to control your environment?

- Which Maven version do you need to build your projects?
  - Use maven-enforcer to make sure you are using the correct Maven version to build your project.
  - (NOTE: JDK etc. as well).

<https://maven.apache.org/enforcer/maven-enforcer-plugin/>

# How to control your environment?

- How to get the correct version of Maven?
  - Use the Maven Wrapper

<https://github.com/takari/maven-wrapper>

# How to control your environment?

- Which plugin versions do you use?
  - Make a corporate/organization pom which contains all plugin versions and other configurations.
  - Are you up-to-date?

<https://github.com/khmarbaise/smpp/>

<https://github.com/simpligility/progressive-organization-pom>

<https://maven.apache.org/plugins/>

# How to control your environment?

- JVM configuration?
  - `.mvn/jvm.config`
  - Part of the project and is under version control.
  - No more `MAVEN_OPTS`

<http://blog.soebes.de/blog/2015/03/17/apache-maven-3-dot-3-1-features/>

# How to control your environment?

- Maven configuration?
  - `.mvn/maven.config`
  - Put general calling options into the configuration file which will be checked in as well.

```
mvn -T 3 -fail-at-end -U
```

<http://blog.soebes.de/blog/2015/03/17/apache-maven-3-dot-3-1-features/>

# Roadmap – Plugins

## 10. March 2015

Maven Version Prerequisite 2.0 (1 / 49)	Maven Version	JDK Version
<a href="#">maven-scm-plugin</a> 1.9.2	2.0	1.5
Maven Version Prerequisite 2.0.6 (2 / 49)	Maven Version	JDK Version
<a href="#">maven-docck-plugin</a> 1.0	2.0.6	1.4
<a href="#">maven-verifier-plugin</a> 1.0	2.0.6	1.4
Maven Version Prerequisite 2.0.7 (1 / 49)	Maven Version	JDK Version
<a href="#">maven-archetype-plugin</a> 2.2	2.0.7	1.5
Maven Version Prerequisite 2.0.8 (1 / 49)	Maven Version	JDK Version
<a href="#">maven-eclipse-plugin</a> 2.9	2.0.8	1.5
Maven Version Prerequisite 2.0.9 (1 / 49)	Maven Version	JDK Version
<a href="#">maven-compiler-plugin</a> 3.2	2.0.9	1.5
Maven Version Prerequisite 2.2.0 (1 / 49)	Maven Version	JDK Version
<a href="#">maven-doap-plugin</a> 1.1	2.2.0	1.5
Maven Version Prerequisite 2.2.1 (40 / 49)	Maven Version	JDK Version
<a href="#">maven-acr-plugin</a> 1.1	2.2.1	1.5
<a href="#">maven-ant-plugin</a> 2.4	2.2.1	1.5
<a href="#">maven-antrun-plugin</a> 1.8	2.2.1	1.5



# Roadmap - Plugins

- Upgrade Plugins to 2.2.1 minimum (done).
- Upgrade Plugins to 3.0 minimum  
Make all plugins Maven 3.X only which results in many code cleanup's (under going).

# Roadmap - Plugins

## 28. May 2015

Maven Version Prerequisite 2.2.1 (47 / 49)	Maven Version	JDK Version
<a href="#">maven-acr-plugin</a> 1.1	2.2.1	1.5
<a href="#">maven-ant-plugin</a> 2.4	2.2.1	1.5
<a href="#">maven-antrun-plugin</a> 1.8	2.2.1	1.5
<a href="#">maven-archetype-plugin</a> 2.3	2.2.1	1.5
<a href="#">maven-assembly-plugin</a> 2.5.4	2.2.1	1.5
<a href="#">maven-changelog-plugin</a> 2.3	2.2.1	1.5
<a href="#">maven-changes-plugin</a> 2.11	2.2.1	1.5
<a href="#">maven-checkstyle-plugin</a> 2.15	2.2.1	1.6
<a href="#">maven-clean-plugin</a> 2.6.1	2.2.1	1.5
<a href="#">maven-compiler-plugin</a> 3.3	2.2.1	1.5
<a href="#">maven-dependency-plugin</a> 2.10	2.2.1	1.5
<a href="#">maven-deploy-plugin</a> 2.8.2	2.2.1	1.5
<a href="#">maven-doap-plugin</a> 1.2	2.2.1	1.5
<a href="#">maven-docck-plugin</a> 1.1	2.2.1	1.5
<a href="#">maven-ear-plugin</a> 2.10	2.2.1	1.5
<a href="#">maven-eclipse-plugin</a> 2.10	2.2.1	1.5
<a href="#">maven-ejb-plugin</a> 2.5	2.2.1	1.5
<a href="#">maven-enforcer-plugin</a> 1.4	2.2.1	1.5
<a href="#">maven-failsafe-plugin</a> 2.18.1	2.2.1	1.5
<a href="#">maven-gpg-plugin</a> 1.6	2.2.1	1.5
<a href="#">maven-help-plugin</a> 2.2	2.2.1	1.5

# Maven Ecosystem Roadmap

- Consumer POM (flatten-maven-plugin)
  - Remove build based configuration
  - Leave only things which are needed to consume the pom.

<http://www.mojohaus.org/flatten-maven-plugin/>

# Maven Roadmap....?

- Enhancing Life cycle with pre-build, build (initialize...verify), post-build (install, deploy)
- Definition of Mojo Execution explicitly
- Plugin/Dependencies using xml attributes (Maven 4 ?).

# Questions/Informations about Maven

- Every Thursday at 08:00 PM (20:00 CET)  
Maven Hangout (Google Hangout)

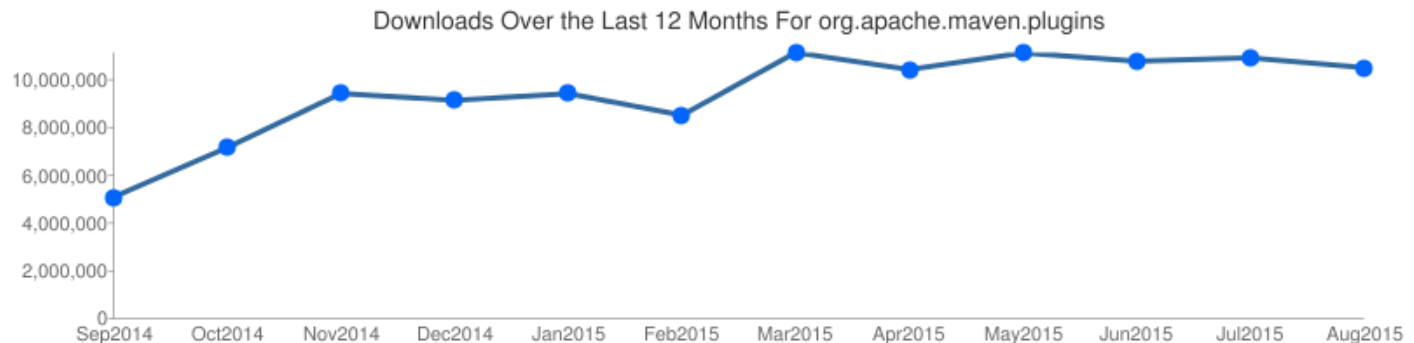
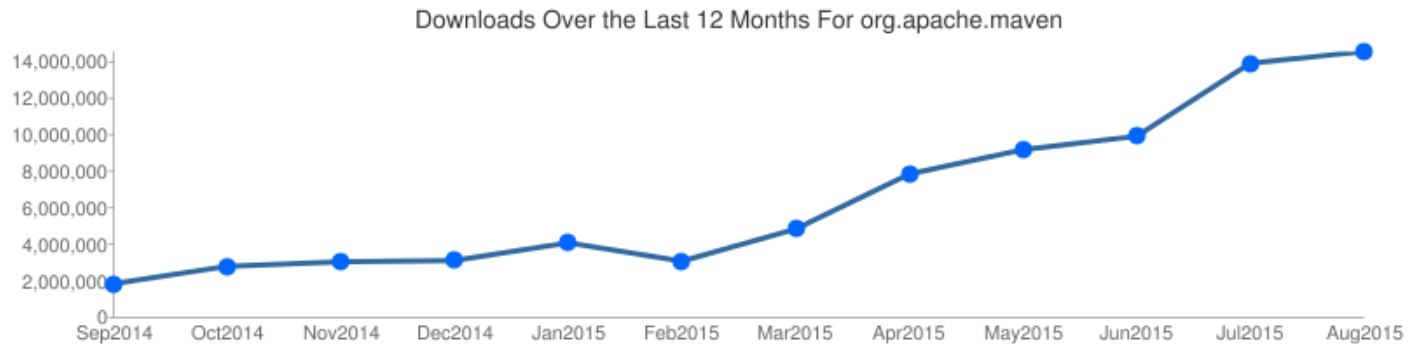
# Maven Central

- Number of Artifacts: 1,070,944
- Current Size: 1,761,203 MB (not available yet).

<http://search.maven.org/#stats>

17. September 2015

# Maven Central Statistics



# Questions?

[bed-con2015@soebes.com](mailto:bed-con2015@soebes.com)

Thank you for your attention.