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TOP REASONS WHY YOU SHOULD SWITCH TO MAVEN 3

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CONNECTING BUSINESS & TECHNOLOGY

- Systems Architect
- Java since 1996
- Maven PMC member since 2006
- Maven expert at Devoteam Quint

10. LATEST AND GREATEST

- This is where all the fixes go in
- 6-week release-cycles for Maven 3
- Maven 2 is stable, but there isn't much development done there, except for critical patches

9. SEPARATION OF REPOSITORIES

- Repositories for normal project dependencies have been separated from repositories for plugins and their dependencies
- Look out if you have shared Checkstyle configurations or shared Assembly descriptors.

8. EXTENSIONS FOR LAYOUTS

- In Maven 3 it is possible to create extensions for other repository layouts
- Tycho is such an extension, which is useful for those who want to build Eclipse plugins with Maven

7. EMBEDDABLE

- Same version of Maven in all tools (i.e. m2eclipse)
- Better consistency between CLI and IDEs

6. BETTER ARTIFACT/DEPENDENCY RESOLUTION

- Especially from the reactor, thanks to the new Aether library
- Hands up – who hasn't had a project that you can not build using “mvn verify” without first installing it in your local repository
- The Release Plugin no longer needs to be configured to run “mvn clean install” – now it works with “mvn clean verify”

5. BETTER LOGGING

- You can see plugin versions
- ArtifactId for the current module
- Links to the wiki for common errors

5. BETTER LOGGING

Maven 2

```
[INFO] [compiler:compile {execution: default-compile}]  
[INFO] Compiling 82 source files to G:\apache\maven\trunks\plugins\maven-assembly-  
plugin\target\classes
```

Maven 3

```
[INFO] --- maven-compiler-plugin:2.3.1:compile (default-compile) @ maven-assembly-plugin ---  
[INFO] Compiling 82 source files to G:\apache\maven\trunks\plugins\maven-assembly-  
plugin\target\classes
```

4. BETTER CLASS LOADING IN MULTI MODULE BUILDS

- Every plugin execution now has its own classpath. In Maven 2 the first declaration determines the classpath for all executions
- See MNG-1323 with 60 votes that collects all related issues
- For example look at Maven Antrun Plugin, MANTRUN-51 with 31 votes - most of all Antrun Plugin issues - and 6 other issues

3. BETTER AND MORE STRICT POM VALIDATION

- This helps you to improve the quality of your project and prevents future errors and problems
- Checks that you have specified versions for all plugins
- Checks <relativePath> to parent (Maven 3 uses a local parent only if the relativePath is correct)
- Warns about duplicate dependencies within the same POM

3. BETTER AND MORE STRICT POM VALIDATION

Wrong relativePath

```
[WARNING]
[WARNING] Some problems were encountered while building the effective model for
org.apache.maven.plugins:maven-assembly-plugin:maven-plugin:2.2.1-SNAPSHOT
[WARNING] 'parent.relativePath' points at org.apache.maven.plugins:maven-plugins-aggregator
instead of org.apache.maven.plugins:maven-plugins, please verify your project structure @
line 25, column 11
[WARNING]
```

Duplicate dependency

```
[WARNING]
[WARNING] Some problems were encountered while building the effective model for
org.apache.maven.shared:maven-filtering:jar:1.0-SNAPSHOT
[WARNING] 'dependencies.dependency.(groupId:artifactId:type:classifier)' must be unique:
org.codehaus.plexus:plexus-utils:jar -> version 1.5.15 vs 2.0.5 @ line 97, column 17
[WARNING]
```

2. SUPPORT FOR PARALLEL BUILDS

- Requires that plugins are marked as `@threadSafe` to work in parallel
- A wide dependency tree gives a better effect than a deep one
- Some things like Integration Tests can not be run in parallel
- Maven Surefire Plugin configured with `forkMode=never` will not run in parallel either
- See wiki for information about which plugin versions are `@threadSafe`
- Maven Plugin Plugin 2.7 generates info about thread safety for every plugin goal

2. SUPPORT FOR PARALLEL BUILDS

Using plugins that are not marked as thread safe

```
[WARNING] *****
[WARNING] * Your build is requesting parallel execution, but project      *
[WARNING] * contains the following plugin(s) that are not marked as      *
[WARNING] * @threadSafe to support parallel building.                    *
[WARNING] * While this /may/ work fine, please look for plugin updates  *
[WARNING] * and/or request plugins be made thread-safe.                 *
[WARNING] * If reporting an issue, report it against the plugin in      *
[WARNING] * question, not against maven-core                             *
[WARNING] *****
[WARNING] The following plugins are not marked @threadSafe in Maven Assembly Plugin:
[WARNING] org.apache.maven.plugins:maven-remote-resources-plugin:1.1
[WARNING] org.apache.maven.plugins:maven-jar-plugin:2.3
[WARNING] org.apache.maven.plugins:maven-enforcer-plugin:1.0-beta-1
[WARNING] org.apache.maven.plugins:maven-plugin-plugin:2.6
[WARNING] org.apache.maven.plugins:maven-resources-plugin:2.4
[WARNING] org.codehaus.plexus:plexus-maven-plugin:1.3.8
[WARNING] *****
```

1. BETTER PERFORMANCE

- Faster
- Lower memory footprint
- Gain depends on your project structure and content

- Benchmarks was run on Windows XP, JDK 1.5.0_22, 2.4GHz AMD dual core, 4GB RAM. The numbers are averages over 5 runs. Plugins were updated to @threadSafe versions where possible.

MAVEN SCM TRUNK (32 MODULES)

package - clean

3:20 - 0:31 MAVEN 2.2.1

3:15 - 0:30 MAVEN 3.0.2

2:26 - 0:24 MAVEN 3.0.2, 4 THREADS IN PARALLEL

53/99M - 13/24M MAVEN 2.2.1

27/51M - 6/14M MAVEN 3.0.2

28/62M - 6/12M MAVEN 3.0.2, 4 THREADS IN PARALLEL

CORPORATE PROJECT (11 MODULES)

package - clean		
1:04 - 0:09	MAVEN 2.2.1	
0:54 - 0:06	MAVEN 3.0.2	
0:40 - 0:04	MAVEN 3.0.2, 4 THREADS IN PARALLEL	
48/87M - 10/20M	MAVEN 2.2.1	
15/35M - 3/6M	MAVEN 3.0.2	
16/42M - 3/6M	MAVEN 3.0.2, 4 THREADS IN PARALLEL	

TOP CHALLENGES WHEN SWITCHING TO MAVEN 3



5. REMOVED SUPPORT FOR LEGACY REPOSITORIES

- Legacy layout repositories, as used by Maven 1, has been removed
- If you still use legacy repositories, install a repository manager that can give you a Maven 2 compatible view of legacy repositories

4. FEWER WAGONS

- The number of built-in wagons have been reduced
- Maven 3 comes with wagons for file, http and https
- Maven 3.0.1 uses Wagon version 1.0-beta-7
- Maven 2 comes with wagon for file, http, https, **scp** and **webdav**
- Maven 2.2.1 uses Wagon version 1.0-beta-6

4. FEWER WAGONS

Adding a Wagon extension

```
<project>
  ...
  <build>
    <extensions>
      <extension>
        <groupId>org.apache.maven.wagon</groupId>
        <artifactId>wagon-ssh</artifactId>
        <version>1.0-beta-7</version>
      </extension>
    </extensions>
  </build>
  ...
</project>
```

3. IDE INTEGRATION

- If you are using m2eclipse you are already using Maven 3, so do it from the CLI as well. m2eclipse uses Maven 3 internally
- NetBeans 7 (planned release in April 2011) uses Maven 3
- When it comes to IntelliJ IDEA, a Maven 3 integration is not yet in place. IDEA 10.0 uses Maven 2.2.1, but Maven 3 support is coming in IDEA 10.x, according to IDEA-53501 – go there and vote

2. SITE HAS BEEN SEPARATED FROM THE CORE

- Reporting plugins is no longer handled by Maven 3
- They are now the responsibility of Maven Site Plugin 3, which is still in beta and has not stabilized yet
- Maven 2 + Site Plugin 2 and Maven 3 + Site Plugin 3
- With the help of profiles you can run Maven 2 and Maven 3 in parallel
- The goal `site:deploy-site-descriptor` is no longer run automatically by Maven 3, so you need to add configuration for it manually
- The reason for that is that Maven 3 should not directly invoke plugins

2. SITE HAS BEEN SEPARATED FROM THE CORE

Maven 3 profile for Site Plugin

```
<profile>
  <id>maven-3</id>
  <activation>
    <file>
      <!-- The basedir expression is only recognized by Maven 3.x (see MNG-2363) -->
      <exists>${basedir}</exists>
    </file>
  </activation>
  <build>
    <pluginManagement>
      <plugins>
        <plugin>
          <groupId>org.apache.maven.plugins</groupId>
          <artifactId>maven-site-plugin</artifactId>
          <version>3.0-beta-3</version>
        </plugin>
      </plugins>
    </pluginManagement>
  </build>
</profile>
```

1. REQUIRES THAT YOU FOLLOW THE MAVEN WAY

- Maven 3 will annoy you until you configure your project to follow the “The Maven Way” to a higher degree than before
- This is a good thing™, but it may require some work on your part if you are trying to migrate a “bad” project to Maven 3
- Listen to the advice that Maven 3 gives you, in the form of the warnings we looked at earlier

- Give Maven 3 a try
- Use it in parallel with Maven 2
- Improve your POMs as you go along
- Make the switch

REFERENCES

- <https://cwiki.apache.org/confluence/display/MAVEN/Maven+3.x+Compatibility+Notes>
- <https://cwiki.apache.org/confluence/display/MAVEN/Parallel+builds+in+Maven+3>
- <http://jira.codehaus.org/browse/MANTRUN-51>
- <http://jira.codehaus.org/browse/MNG-1323>
- <http://tycho.sonatype.org/>
- <https://cwiki.apache.org/confluence/display/MAVEN/Maven+3.x+and+site+plugin>
- <http://youtrack.jetbrains.net/issue/IDEA-53501>

CONTACT

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