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# ♥ Git & Maven for releasing software artifacts Q&A

Posted on [March 27, 2015](#) by [Arulkumaran Kumaraswamipillai](#)

**Q1.** What are the general steps involved in making a software release?

**A1.**

**#1:** Checking out the software artifacts to you build server or local box from a source control management (i.e. SCM) system.

**#2:** Giving it a version so it can be uniquely identified

**#3:** Building, testing and packaging the artifacts.

**#4:** Deploying the built artifacts a repository like Nexus where the artifacts can be picked up for for actual roll out on target servers by the release team.

**#5:** Tagging this state in SCM so it can be associated with the matching artifacts.

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**Q2.** How will you go about using Git and Maven to perform software releases?

**A2.**

**Step #1:** Checking the software out from Git and checkout if you want to release from a branch

```
1 git clone ssh://user@server:/GitRepos/myproject.g
```

```
1 git checkout my-current-branch
```

**Step #2:** Giving it a version. "0.0.1-SNAPSHOT" in pom.xml becomes "0.0.2-RC1" (that is Release Candidate 1)

```
1 mvn versions:set -DnewVersion=0.0.2-RC1
```

You should not have any "SNAPSHOT" in your multi-module pom files.

```
1 find . -maxdepth 2 -type f -name pom.xml -exec g
```

If you find any "SNAPSHOT", manually update them with something like

```
1 find . -maxdepth 2 -type f -name pom.xml -exec g
```

**Step #3:** Building, testing, packaging and deploying it to an artifact repository like Nexus.

```
1 mvn deploy
```

You need to have the path to the Nexus configured in your pom.xml with "**distributionManagement**"

```
1 <distributionManagement>
2   <snapshotRepository>
3     <id>myapp-snapshots</id>
```

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```

4         <name>MyApp Snapshots</name>
5         <url>http://sdlc/nexus/content/repos
6         <uniqueVersion>false</uniqueVersion>
7     </snapshotRepository>
8     <repository>
9         <id>myapp-releases</id>
10        <name>MyApp Releases</name>
11        <url>http://sdlc/nexus/content/repos
12    </repository>
13 </distributionManagement>
14

```

and the Maven settings.xml configured with user/password to connect to the Nexus repo

```

1 <settings>
2     ...
3     <servers>
4         <server>
5             <id>bfs-releases</id>
6             <username>user</username>
7             <password>password</password>
8         </server>
9         <server>
10            <id>bfs-snapshots</id>
11            <username>user</username>
12            <password>password</password>
13        </server>
14    </servers>
15    ....
16
17    <proxies>
18        <proxy>
19            <id>myproxy</id>
20            <active>true</active>
21            <protocol>http</protocol>
22            <host>proxy.myapp</host>
23            <port>8080</port>
24            <username>user</username>
25            <password>password</password>
26        </proxy>
27    </proxies>
28 </settings>
29

```

**Step #4:** Tagging this state in SCM.

```
1 mvn scm:tag -Dtag="0.0.2-RC1"
```

You need to have the “SCM” configured in your pom.xml file

```

1 <scm>
2     <url>ssh://git@stash.internal.myhost.com/mypr
3     <connection>scm:git:ssh://git@stash.internal.
4     <developerConnection>scm:git:ssh://git@stash.

```

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```
5 </scm>
6
```

**Step #5** Advance with the maven pom.xml tags to 0.0.3-SNAPSHOT to continue with the development work.

```
1 mvn versions:set -DnewVersion=0.0.3-SNAPSHOT
```

**Note:** in your pom.xml file

```
1 <build>
2     <pluginManagement>
3         <plugins>
4             <plugin>
5                 <groupId>org.codehaus.mojo</groupId>
6                 <artifactId>versions-maven-p</artifactId>
7                 <version>1.3.1</version>
8                 <configuration>
9                     <generateBackupPoms>false</generateBackupPoms>
10                </configuration>
11            </plugin>
12        </plugins>
13    </pluginManagement>
14 </build>
15
```

if you have set the “generateBackupPoms” to “true” then you need to run “mvn versions:commit” or “mvn versions:rollback”.

The “scm” plugin needs the following config in the pom.xml file

```
1 ...
2     <scm>
3         <url>ssh://git@stash.internal.mydomain.com</url>
4         <connection>scm:git:ssh://git@stash.internal.mydomain.com</connection>
5         <developerConnection>scm:git:ssh://git@stash.internal.mydomain.com</developerConnection>
6     </scm>
7     ...
8     <build>
9         <pluginManagement>
10             <plugins>
11                 <plugin>
12                     <groupId>org.apache.maven.plugins</groupId>
13                     <artifactId>maven-scm-plugin</artifactId>
14                     <version>1.4</version>
15                     <configuration>
16                         <connectionType>development</connectionType>
17                     </configuration>
18                 </plugin>
19             </plugins>

```

```
20     </pluginManagement>
21 </build>
22
```

The “**versions**” and “**scm**” plugins give you better control in releasing your software artifacts. There is another approach where Maven does most of the hard work for you if your release is very straight forward. This is with the help of the maven “**release**” plugin. In the pom.xml file you need to have

```
1 <plugin>
2   <groupId>org.apache.maven.plugins</groupId>
3   <artifactId>maven-release-plugin</artifactId>
4   <version>2.2.1</version>
5   <configuration>
6     <autoVersionSubmodules>true</autoVersionSubmodules>
7   </configuration>
8 </plugin>
9
```

and then use it in the command-line as:

```
1 mvn release:prepare
2 mvn release:perform
3
```

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