

1. Install SonarQube server: <https://www.voyalab.com/2016/10/06/install-sonarqube-ubuntu/>
2. Install Sonar Scanner: <https://www.voyalab.com/2016/10/08/installing-sonarqube-scanner/>
3. Sonar report analyze: <https://www.voyalab.com/2016/10/12/analyze-sample-project-with-sonarqube/>
4. It required MySQL server: <https://www.digitalocean.com/community/tutorials/how-to-install-the-latest-mysql-on-ubuntu-16-04>
5. It also need Java 8: <https://www.digitalocean.com/community/tutorials/how-to-install-java-with-apt-get-on-ubuntu-16-04>

How to execute:

1. mvn clean install -e -DskipTests=false (execute test cases while building)
2. mvn sonar:sonar -Dsonar.host.url=<sonarQube host url with port>

How get coverage report:

1. During maven build, reports are generated in **/target** folder which are then used by sonar.
2. Sonar, by-default takes only unit test reports. Not integration test results.
3. So get overall coverage (unit + integration), use **Surefire** (for unit test) and **Failsafe** (for integration test) plugins in pom.xml

```
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-surefire-plugin</artifactId>
<version>2.12.1</version>
<configuration>
<excludes>
<exclude>**/*IntegrationTest*</exclude>
</excludes>
</configuration>
</plugin>

<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-failsafe-plugin</artifactId>
<version>2.12.4</version>
<configuration>
<includes>
<include>**/*IntegrationTest*</include>
</includes>
</configuration>
<executions>
<execution>
<goals>
<goal>integration-test</goal>
<goal>verify</goal>
</goals>
</execution>
```

```
</executions>  
</plugin>
```

4. **JaCoCo** agent is required to analyze surefire and failsafe reports.

```

<plugin>
<groupId>org.jacoco</groupId>
<artifactId>jacoco-maven-plugin</artifactId>
<version>${jacoco.version}</version>
<executions>
<!-- Prepares a variable, jacoco.agent.ut.arg, that contains the info
to be passed to the JVM hosting the code being tested. -->
<execution>
<id>prepare-ut-agent</id>
<phase>process-test-classes</phase>
<goals>
<goal>prepare-agent</goal>
</goals>
<configuration>
<destFile>${sonar.jacoco.reportPath}</destFile>
<propertyName>jacoco.agent.ut.arg</propertyName>
<append>true</append>
</configuration>
</execution>
<!-- Prepares a variable, jacoco.agent.it.arg, that contains the info
to be passed to the JVM hosting the code being tested. -->
<execution>
<id>prepare-it-agent</id>
<!-- moved to package phase to be sure all pre-integration test have
it already set to bring up environments with jacoco agent as JVM params -->
<phase>package</phase>
<goals>
<goal>prepare-agent-integration</goal>
</goals>
<configuration>
<destFile>${sonar.jacoco.itReportPath}</destFile>
<propertyName>jacoco.agent.it.arg</propertyName>
<append>true</append>
</configuration>
</execution>
</executions>
</plugin>

```

5. Use below properties in pom.xml for sonar-jacoco integration:

```

<properties>
<sonar.java.coveragePlugin>jacoco</sonar.java.coveragePlugin>
<sonar.dynamicAnalysis>reuseReports</sonar.dynamicAnalysis>
<jacoco.version>0.7.6.201602180812</jacoco.version>
<jacoco.outputDir>${project.build.directory}/jacoco</jacoco.outputDir>
<jacoco.out.ut.file>jacoco-ut.exec</jacoco.out.ut.file>
<jacoco.out.it.file>jacoco-it.exec</jacoco.out.it.file>
<sonar.jacoco.reportPath>${jacoco.outputDir}/${jacoco.out.ut.file}</sonar.jacoco.reportPath>
<sonar.jacoco.itReportPath>${jacoco.outputDir}/${jacoco.out.it.file}</sonar.jacoco.itReportPath>
</properties>

```

6. Login to sonarqube server (default username/password: admin/admin)
7. Go to **Administration > General Settings > Analysis Scope > Code Coverage** and mention the packages/classes which needs to be excluded for coverage.
8. Run mvn cmd for build and sonar analysis.

#### Notes:

1. Best practice is to end the unit test classes with \*UnitTest.java and integration test classes with \*IntegrationTest.java

#### Links:

1. <https://aroundthecode.org/2014/07/07/unit-and-integration-tests-coverage-with-sonarqube-and-jacoco/>
2. <http://ashismo.github.io/java-code%20quality%20analyzer/2016/03/14/SONAR-JaCoCo-And-Maven-Integration>
3. <https://docs.sonarqube.org/display/SONAR/Narrowing+the+Focus#NarrowingtheFocus-IgnoreCodeCoverage>
4. <https://docs.sonarqube.org/display/PLUG/SonarJava>
5. <https://docs.sonarqube.org/display/PLUG/Code+Coverage+by+Unit+Tests+for+Java+Project>

#### Final Target folder structure:

Name	Date modified	Type	Size
classes	7/12/2017 8:07 PM	File folder	
failsafe-reports	7/12/2017 8:12 PM	File folder	
generated-sources	7/12/2017 8:07 PM	File folder	
generated-test-sources	7/12/2017 8:07 PM	File folder	
jacoco	7/12/2017 8:11 PM	File folder	
maven-archiver	7/12/2017 8:11 PM	File folder	
maven-status	7/12/2017 8:07 PM	File folder	
sonar	7/12/2017 8:13 PM	File folder	
surefire-reports	7/12/2017 8:11 PM	File folder	
test-classes	7/12/2017 8:08 PM	File folder	
profileLHub-0.0.1-SNAPSHOT	7/12/2017 8:11 PM	Executable Jar File	54,492 KB
profileLHub-0.0.1-SNAPSHOT.jar.original	7/12/2017 8:11 PM	ORIGINAL File	1,499 KB