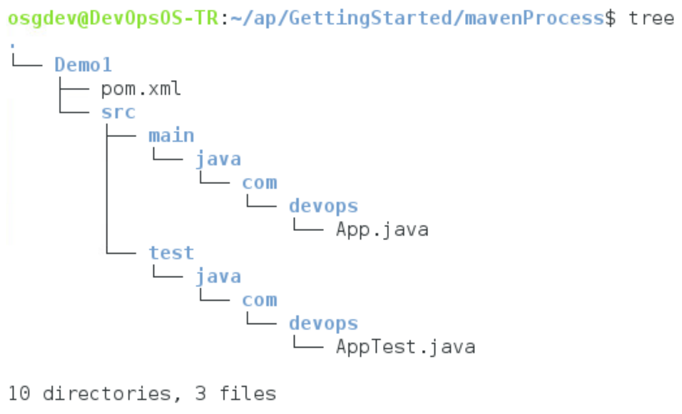
DEVOPS PROFESSIONAL CERTIFICATION PROGRAM

Lab – 6: Continuous Integration – SCM + Code Review

- ➢ Create Maven Project
- ➢ Configure SonarQube Scanner

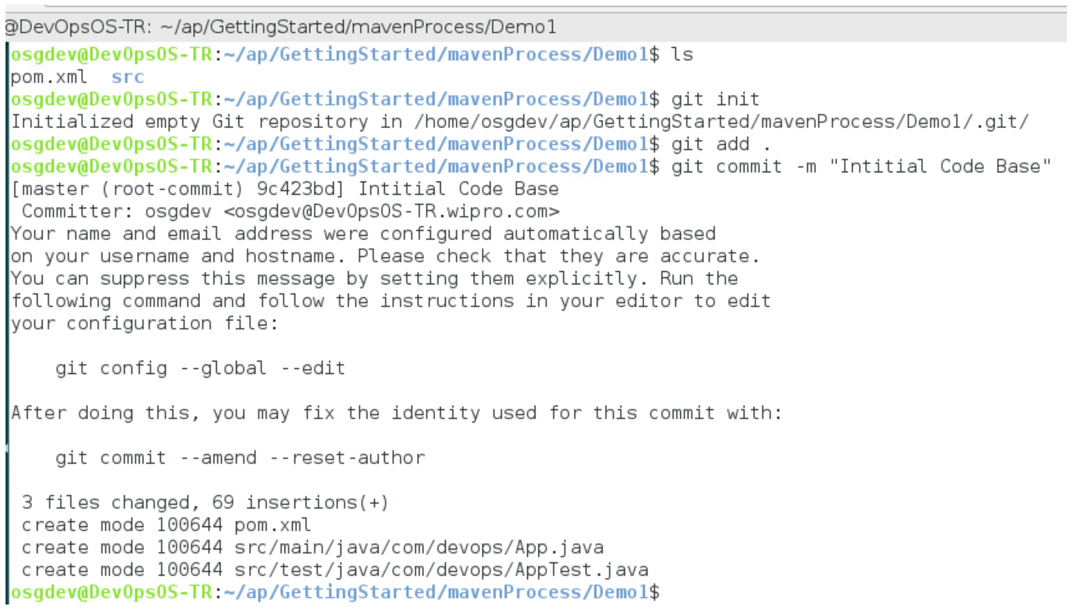
Prepared By:
avinash.patel@wipro.com

- **Use maven project (Demo1) created (quickstart type) in previous Lab**



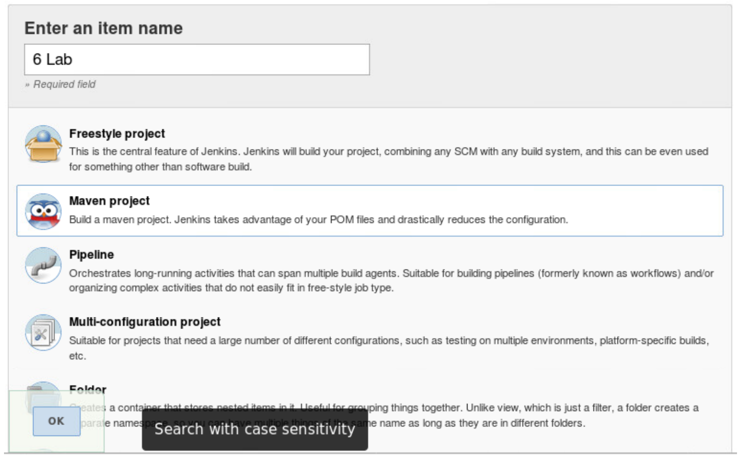
```
osgdev@DevOpsOS-TR:~/ap/GettingStarted/mavenProcess$ tree
.
└── Demo1
    ├── pom.xml
    └── src
        ├── main
        │   └── java
        │       └── com
        │           └── devops
        │               └── App.java
        └── test
            └── java
                └── com
                    └── devops
                        └── AppTest.java

10 directories, 3 files
```

- **Project working directory initialize with git repository and commit.**



```
@DevOpsOS-TR: ~/ap/GettingStarted/mavenProcess/Demo1
osgdev@DevOpsOS-TR:~/ap/GettingStarted/mavenProcess/Demo1$ ls
pom.xml  src
osgdev@DevOpsOS-TR:~/ap/GettingStarted/mavenProcess/Demo1$ git init
Initialized empty Git repository in /home/osgdev/ap/GettingStarted/mavenProcess/Demo1/.git/
osgdev@DevOpsOS-TR:~/ap/GettingStarted/mavenProcess/Demo1$ git add .
osgdev@DevOpsOS-TR:~/ap/GettingStarted/mavenProcess/Demo1$ git commit -m "Intitial Code Base"
[master (root-commit) 9c423bd] Intitial Code Base
 Committer: osgdev <osgdev@DevOpsOS-TR.wipro.com>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 3 files changed, 69 insertions(+)
 create mode 100644 pom.xml
 create mode 100644 src/main/java/com/devops/App.java
 create mode 100644 src/test/java/com/devops/AppTest.java
osgdev@DevOpsOS-TR:~/ap/GettingStarted/mavenProcess/Demo1$
```

- **Create Jenkins Job – Maven Project**



Enter an item name

6 Lab

» Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

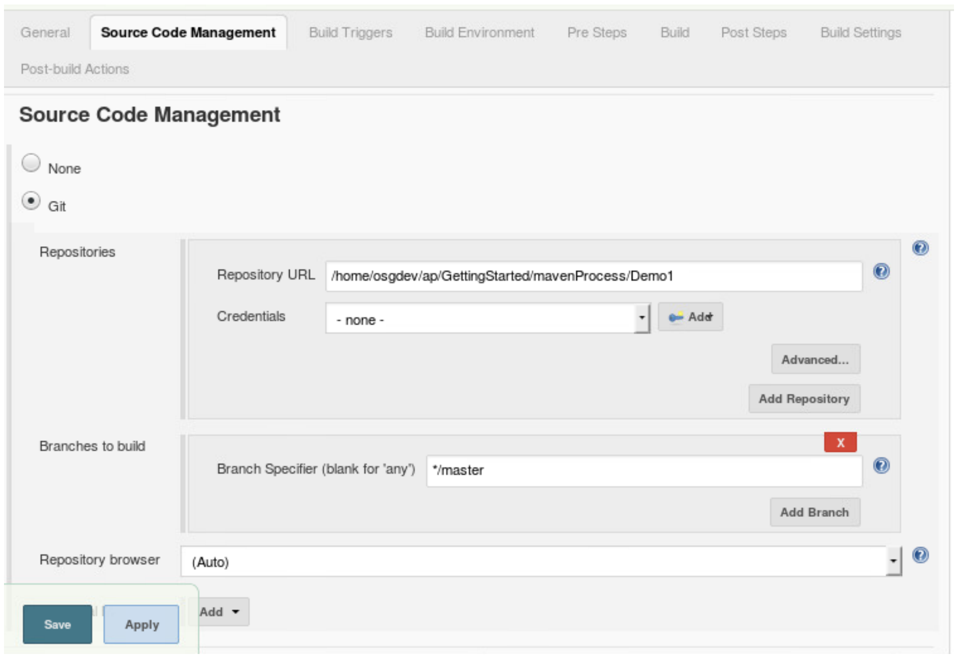
Maven project
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

- **Configure SCM**



Source Code Management

None
Git [✓]

Repositories

Repository URL: /home/osgdev/ap/GettingStarted/mavenProcess/Demo1

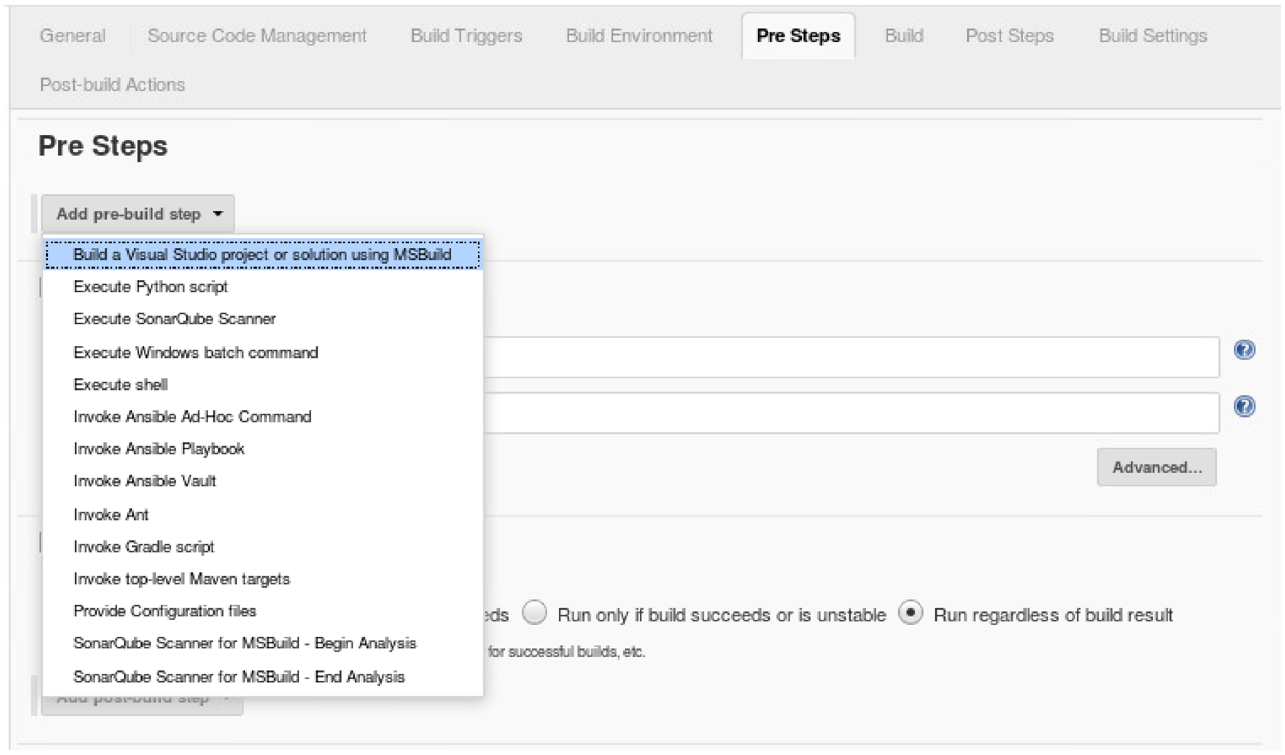
Credentials: - none -

Branches to build

Branch Specifier (blank for 'any'): */master

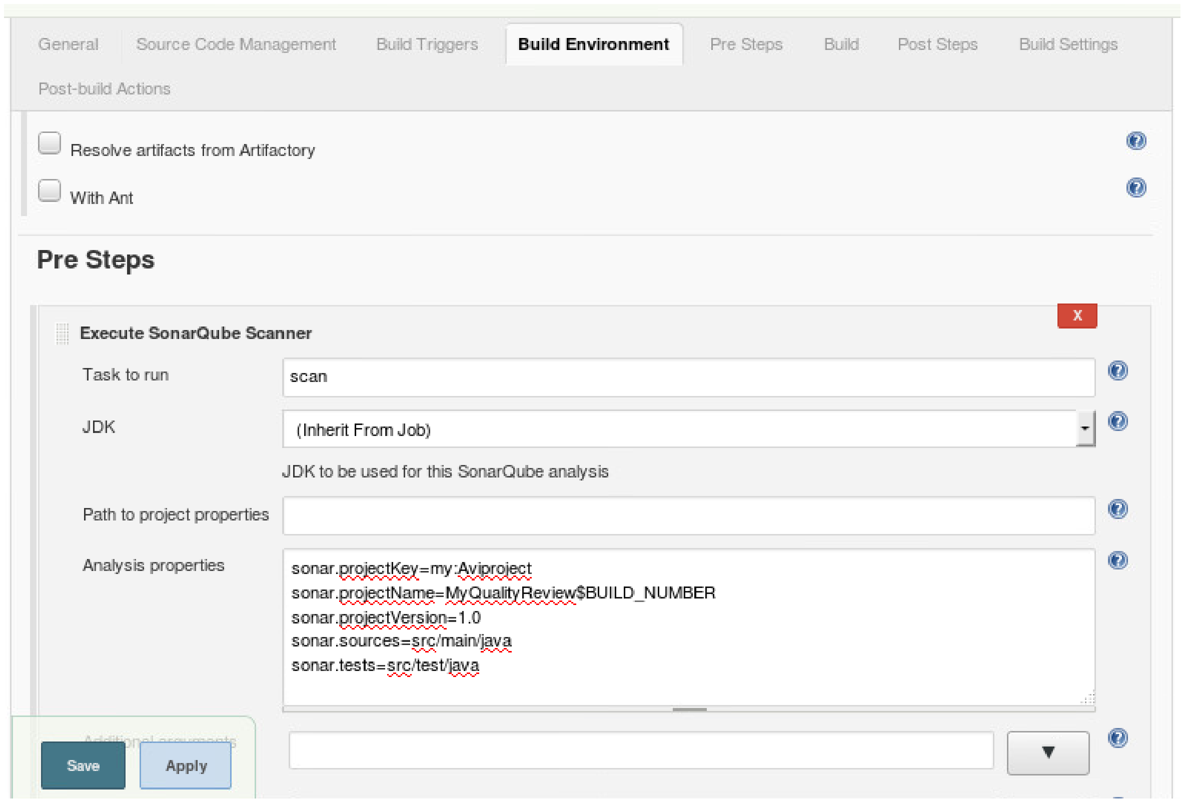
Repository browser: (Auto)

- **Configure SonarQube Scanner within pre Steps section**


General
Source Code Management
Build Triggers
Build Environment
Pre Steps
Build
Post Steps
Build Settings
Post-build Actions
Pre Steps
Add pre-build step
Build a Visual Studio project or solution using MSBuild
Execute Python script
Execute SonarQube Scanner
Execute Windows batch command
Execute shell
Invoke Ansible Ad-Hoc Command
Invoke Ansible Playbook
Invoke Ansible Vault
Invoke Ant
Invoke Gradle script
Invoke top-level Maven targets
Provide Configuration files
SonarQube Scanner for MSBuild - Begin Analysis
SonarQube Scanner for MSBuild - End Analysis
Advanced...
Add post-build step

Run only if build succeeds or is unstable   [✓ Run regardless of build result]

for successful builds, etc.



Task to run: scan

JDK: (Inherit From Job)

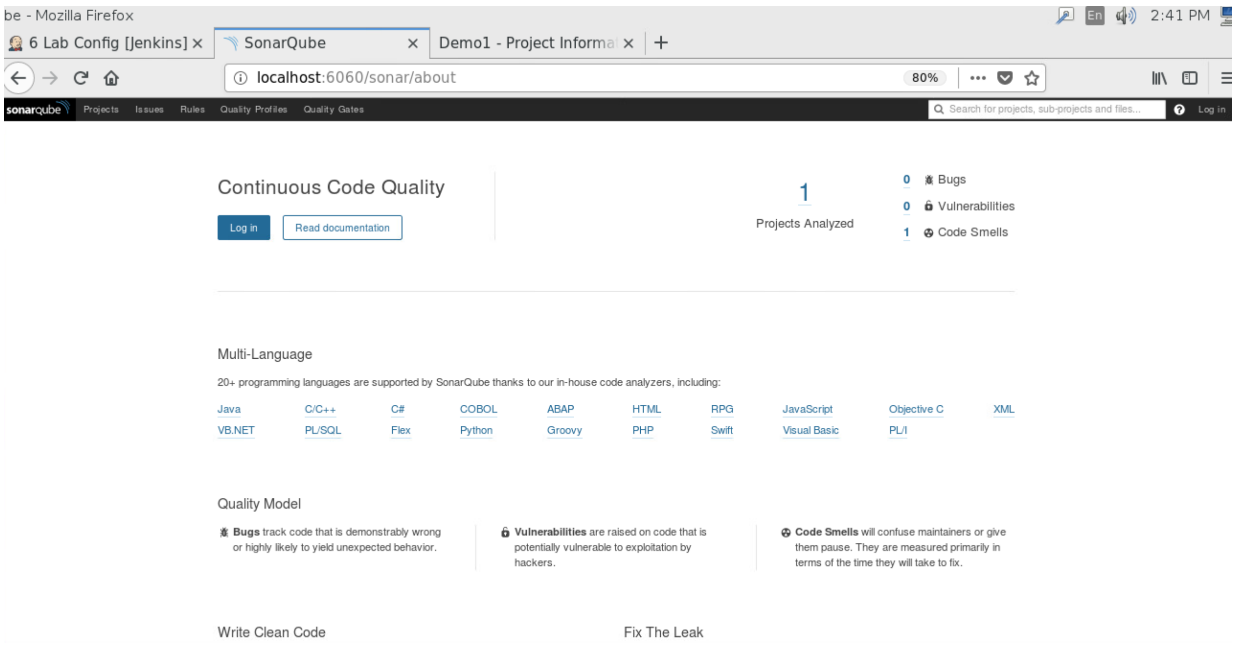
JDK to be used for this SonarQube analysis

Path to project properties:

Analysis properties:

```
sonar.projectKey=my:Aviproject
sonar.projectName=MyQualityReview$BUILD_NUMBER
sonar.projectVersion=1.0
sonar.sources=src/main/java
sonar.tests=src/test/java
```

Additional arguments:



Continuous Code Quality

1 Projects Analyzed

0 Bugs
0 Vulnerabilities
1 Code Smells

Multi-Language

20+ programming languages are supported by SonarQube thanks to our in-house code analyzers, including:

Java	C/C++	C#	COBOL	ABAP	HTML	RPG	JavaScript	Objective C	XML
VB.NET	PL/SQL	Flex	Python	Groovy	PHP	Swift	Visual Basic	PL/I	

Quality Model

Bugs track code that is demonstrably wrong or highly likely to yield unexpected behavior.

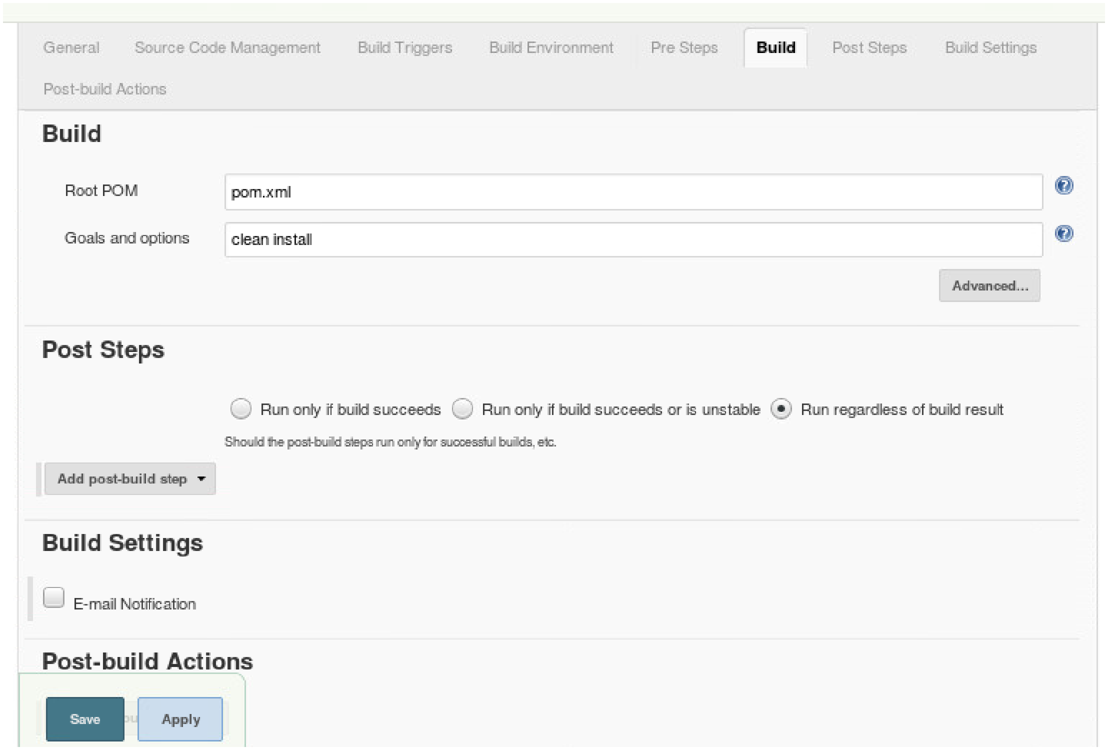
Vulnerabilities are raised on code that is potentially vulnerable to exploitation by hackers.

Code Smells will confuse maintainers or give them pause. They are measured primarily in terms of the time they will take to fix.

Write Clean Code

Fix The Leak

- **Configure Build with maven goal (Example: install)**



Build

Root POM: pom.xml

Goals and options: clean install

Post Steps

Run only if build succeeds / Run only if build succeeds or is unstable / [✓ Run regardless of build result]

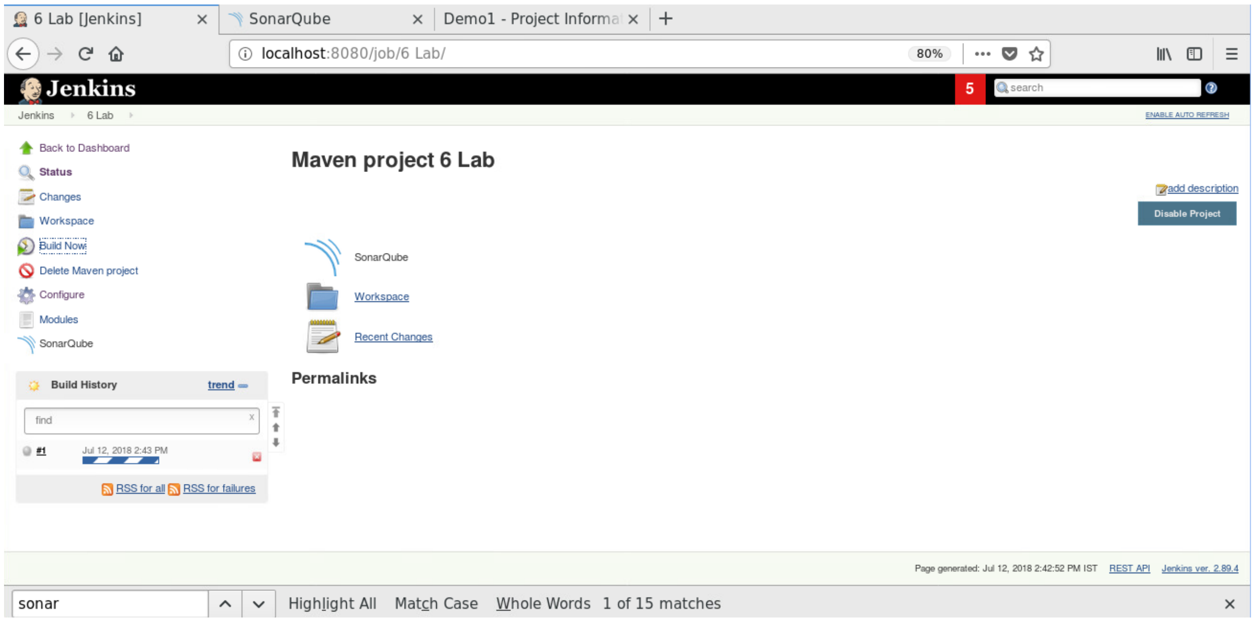
Should the post-build steps run only for successful builds, etc.

Build Settings

E-mail Notification

Post-build Actions

- **Initiate Build process by clicking “Build Now” and observe Jenkins console responses**



localhost:8080/job/6 Lab/

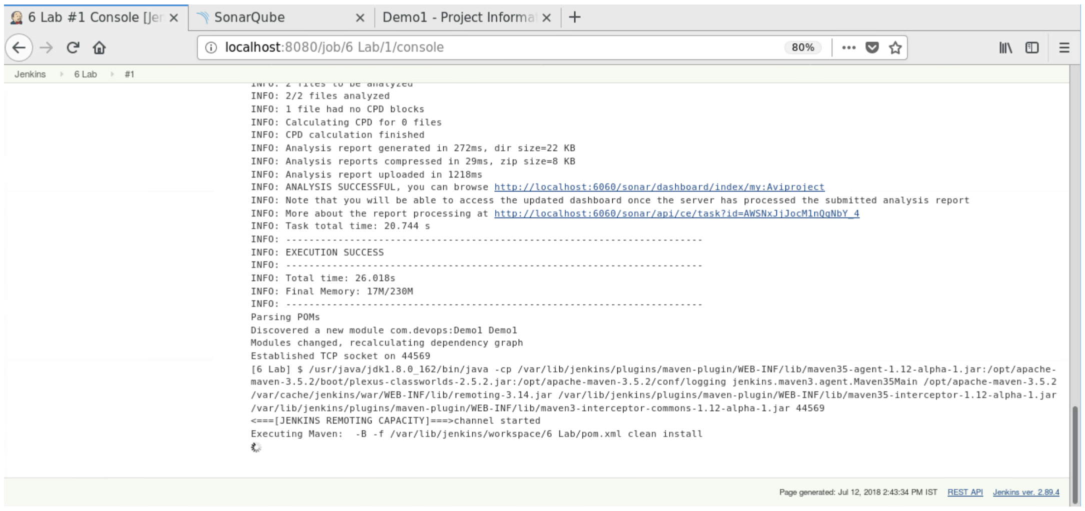
Maven project 6 Lab

Build History

#1 Jul 12, 2018 2:43 PM

Page generated: Jul 12, 2018 2:42:52 PM IST REST API Jenkins ver. 2.89.4

sonar Highlight All Match Case Whole Words 1 of 15 matches



```
INFO: 2/2 files analyzed
INFO: 1 file had no CPD blocks
INFO: Calculating CPD for 0 files
INFO: CPD calculation finished
INFO: Analysis report generated in 272ms, dir size=22 KB
INFO: Analysis reports compressed in 29ms, zip size=8 KB
INFO: Analysis report uploaded in 1218ms
INFO: ANALYSIS SUCCESSFUL, you can browse http://localhost:6060/sonar/dashboard/index/my:Aviproject
INFO: Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report
INFO: More about the report processing at http://localhost:6060/sonar/api/ce/task?id=AWSNxJjJocM1nQgNbY_4
INFO: Task total time: 20.744 s
INFO: ------------------------------------------------------------------------
INFO: EXECUTION SUCCESS
INFO: ------------------------------------------------------------------------
INFO: Total time: 26.018s
INFO: Final Memory: 17M/230M
INFO: ------------------------------------------------------------------------
Parsing POMs
Discovered a new module com.devops:Demo1 Demo1
Modules changed, recalculating dependency graph
Established TCP socket on 44569
[6 Lab] $ /usr/java/jdk1.8.0_162/bin/java -cp /var/lib/jenkins/plugins/maven-plugin/WEB-INF/lib/maven35-agent-1.12-alpha-1.jar:/opt/apache-
maven-3.5.2/boot/plexus-classworlds-2.5.2.jar:/opt/apache-maven-3.5.2/conf/logging jenkins.maven3.agent.Maven35Main /opt/apache-maven-3.5.2
/var/cache/jenkins/war/WEB-INF/lib/remoting-3.14.jar /var/lib/jenkins/plugins/maven-plugin/WEB-INF/lib/maven35-interceptor-1.12-alpha-1.jar
/var/lib/jenkins/plugins/maven-plugin/WEB-INF/lib/maven3-interceptor-commons-1.12-alpha-1.jar 44569
<===[JENKINS REMOTING CAPACITY]===>channel started
Executing Maven:  -B -f /var/lib/jenkins/workspace/6 Lab/pom.xml clean install
```

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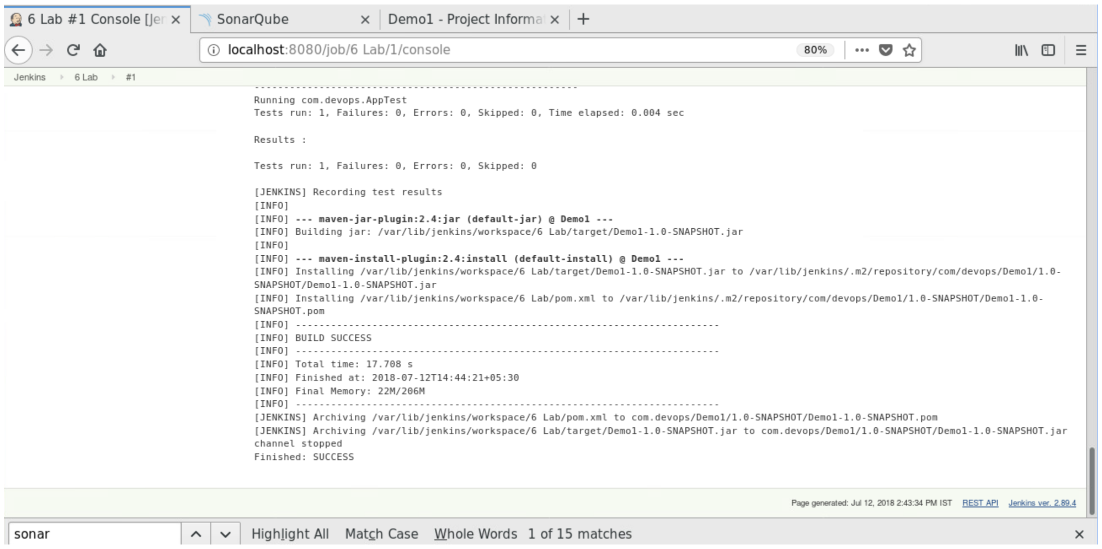
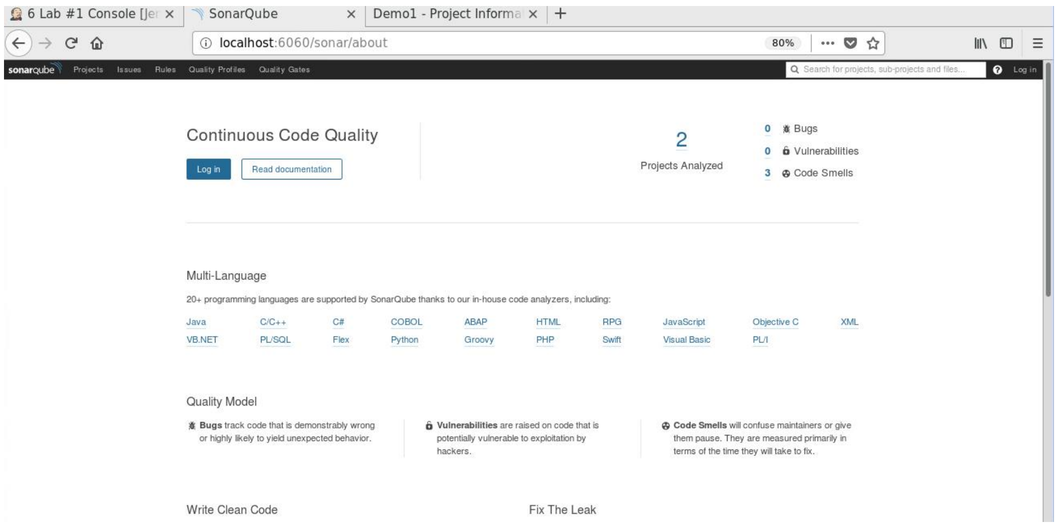


```
Running com.devops.AppTest
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.004 sec

Results :

Tests run: 1, Failures: 0, Errors: 0, Skipped: 0

[JENKINS] Recording test results
[INFO]
[INFO] --- maven-jar-plugin:2.4:jar (default-jar) @ Demo1 ---
[INFO] Building jar: /var/lib/jenkins/workspace/6 Lab/target/Demo1-1.0-SNAPSHOT.jar
[INFO]
[INFO] --- maven-install-plugin:2.4:install (default-install) @ Demo1 ---
[INFO] Installing /var/lib/jenkins/workspace/6 Lab/target/Demo1-1.0-SNAPSHOT.jar to /var/lib/jenkins/.m2/repository/com/devops/Demo1/1.0-
SNAPSHOT/Demo1-1.0-SNAPSHOT.jar
[INFO] Installing /var/lib/jenkins/workspace/6 Lab/pom.xml to /var/lib/jenkins/.m2/repository/com/devops/Demo1/1.0-SNAPSHOT/Demo1-1.0-
SNAPSHOT.pom
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 17.708 s
[INFO] Finished at: 2018-07-12T14:44:21+05:30
[INFO] Final Memory: 22M/206M
[INFO] ------------------------------------------------------------------------
[JENKINS] Archiving /var/lib/jenkins/workspace/6 Lab/pom.xml to com.devops/Demo1/1.0-SNAPSHOT/Demo1-1.0-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/6 Lab/target/Demo1-1.0-SNAPSHOT.jar to com.devops/Demo1/1.0-SNAPSHOT/Demo1-1.0-SNAPSHOT.jar
channel stopped
Finished: SUCCESS
```

Page generated: Jul 12, 2018 2:43:34 PM IST REST API Jenkins ver. 2.89.4

- **Refresh SonarQube and walkthrough project Analyzed for more details**



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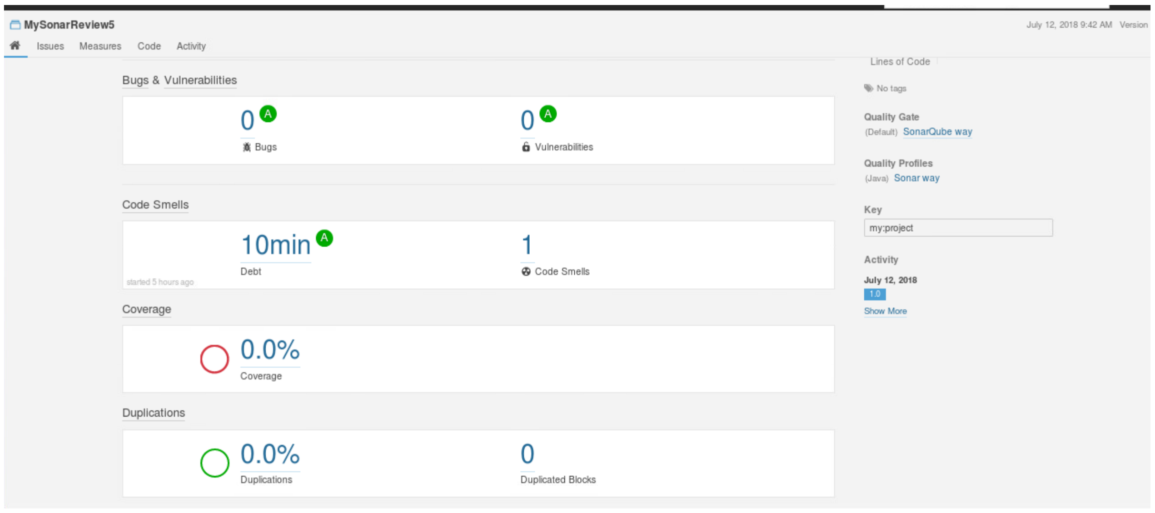
MySonarReview5 July 12, 2018 9:42 AM Version

Bugs & Vulnerabilities

0 A Bugs

0 A Vulnerabilities

Code Smells

10min A Debt

1 Code Smells

started 5 hours ago

Coverage

0.0% Coverage

Duplications

0.0% Duplications

0 Duplicated Blocks

Lines of Code

No tags

Quality Gate
(Default) SonarQube way

Quality Profiles
(Java) Sonar way

Key
my:project

Activity
July 12, 2018
1.0
Show More