SonarQube Integration with Jenkins server

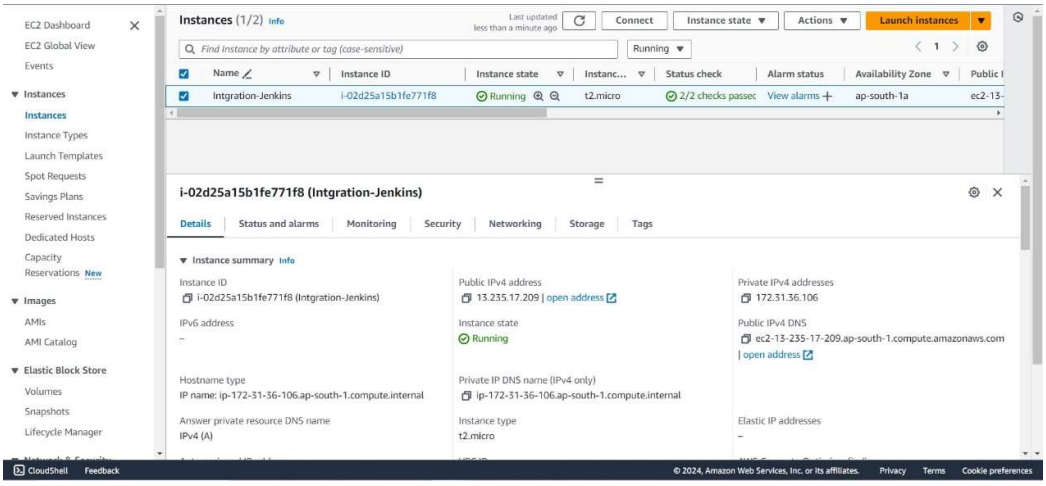
Setup and Configuration:

Prerequisites

Jenkins Installation on AWS EC2:

Step 1: Create and configure an EC2 Instance for Jenkins

1. **Create an EC2 instance** using Ubuntu 20.04 or later (Ubuntu Linux AMI). Select a t2.micro instance type for basic testing.



2. **Connect to your EC2 instance** using SSH or a terminal application.
3. **Update all packages**:
    - sudo apt update -y
4. **Install Java (Jenkins requires Java to run)**:
    - sudo apt install openjdk-11-jdk -y

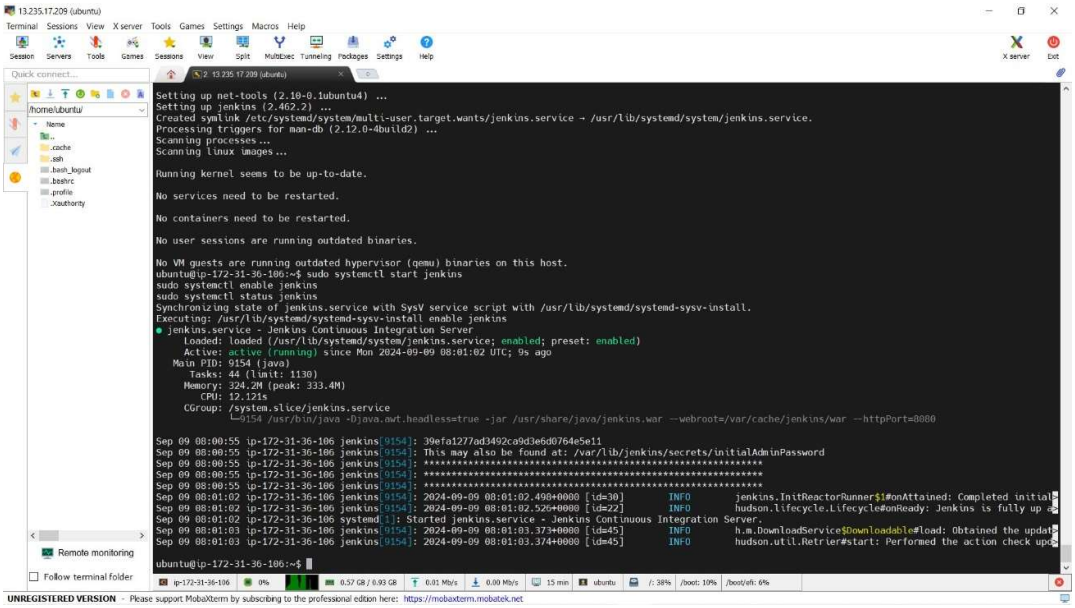
Step 2: Install Jenkins Using apt

1. **Add Jenkins to your apt repository**:
    - curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee \ /usr/share/keyrings/jenkins-keyring.asc > /dev/null
    - echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debian-stable binary/ | sudo tee \ /etc/apt/sources.list.d/jenkins.list > /dev/null
2. **Install Jenkins**:

- sudo apt-get update
- sudo apt-get install jenkins -y

3. **Start and enable Jenkins service**:

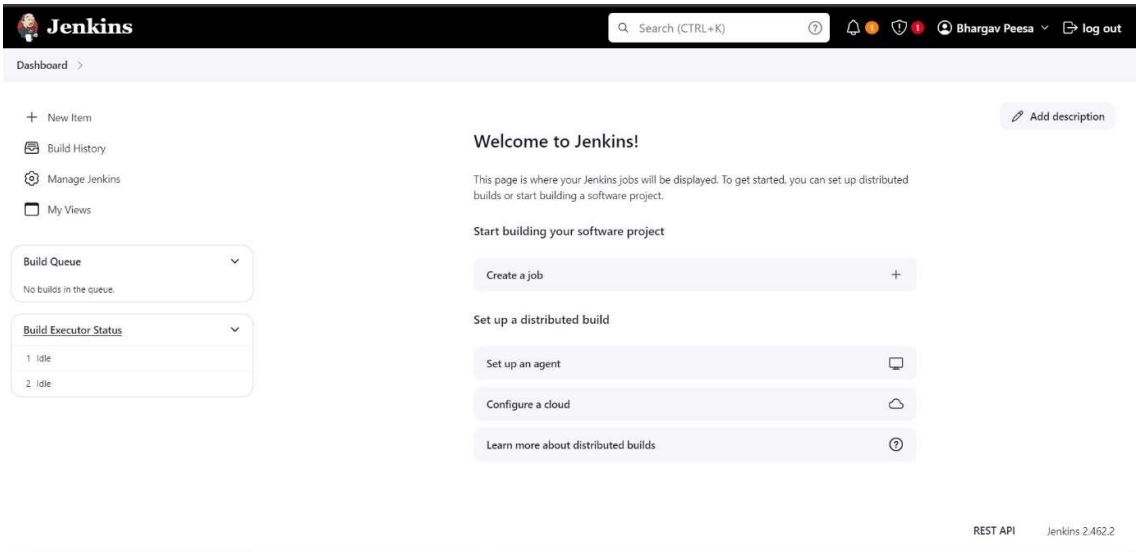
- sudo systemctl start jenkins
- sudo systemctl enable jenkins
- sudo systemctl status Jenkins



4. **Get the initial administration password**:

    - sudo cat /var/lib/jenkins/secrets/initialAdminPassword

- **Open Jenkins in a browser**:
  Access Jenkins using the public IP of your EC2 instance with port 8080 (http://<public_IP>:8080/).
  Ensure you have added an inbound rule for port 8080 in your EC2 security group.



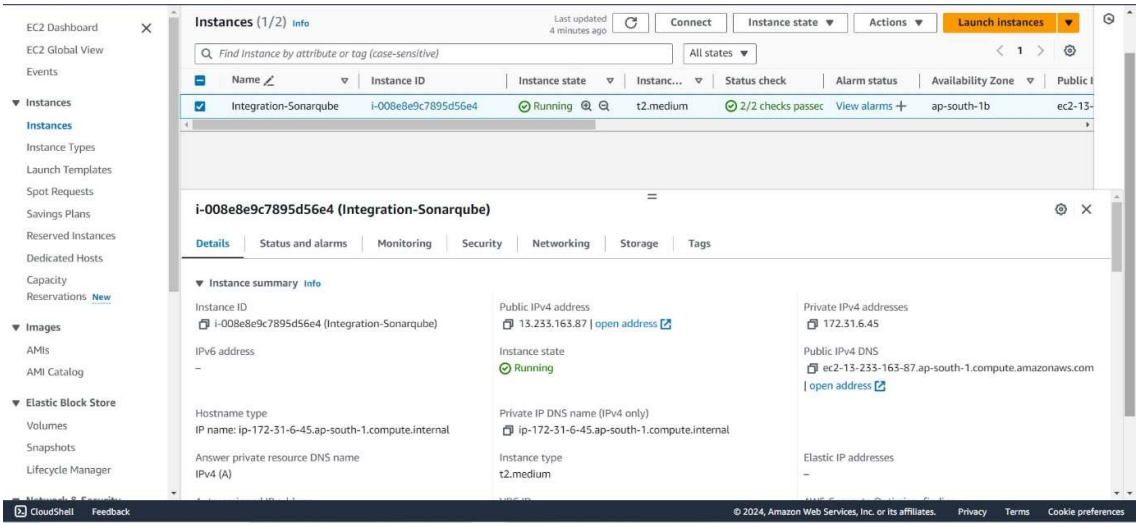
Step 3: Install Plugins in Jenkins

- After accessing Jenkins, provide the initial admin password.
- Select "Install Suggested Plugins" to install common plugins.

SonarQube Installation on AWS EC2:

Step 1: Create and configure an EC2 Instance for SonarQube

1. **Create an EC2 instance** with at least 4 GB of RAM (e.g., t2.medium) to meet SonarQube's minimum requirements.



2. **Connect to your EC2 instance** using SSH or a terminal application.
3. **Switch to the root user**:

- sudo -i

4. **Update all packages**:

- sudo apt update -y

5. **Install wget package**:

- sudo apt install wget -y

6. **Install Java (SonarQube requires Java to run)**:

- sudo apt install openjdk-11-jdk -y
- java --version

Step 2: Install SonarQube

1. **Change to the /opt directory**:

- cd /opt

2. **Download the SonarQube zip file**:

- wget https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-8.4.0.35506.zip

3. **Unzip the SonarQube package**:

- sudo apt install unzip -y
- unzip sonarqube-8.4.0.35506.zip

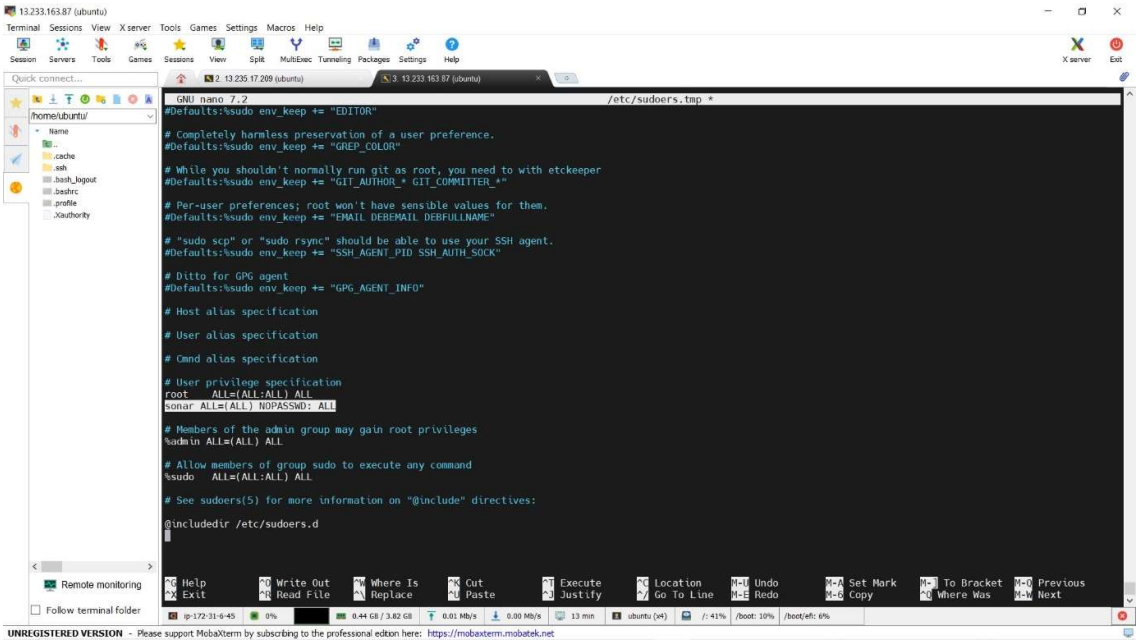
Step 3: Configure SonarQube User and Permissions

1. **Create a new user** called sonar:

- sudo useradd sonar

2. **Modify sudoers file** to give sonar user necessary permissions:

- sudo visudo
- Add the following line:
- sonar ALL=(ALL) NOPASSWD: ALL



3. **Change ownership of the SonarQube directory**:

- sudo chown -R sonar:sonar /opt/sonarqube-8.4.0.35506

4. **Change file permissions**:

- sudo chmod -R 775 /opt/sonarqube-8.4.0.35506

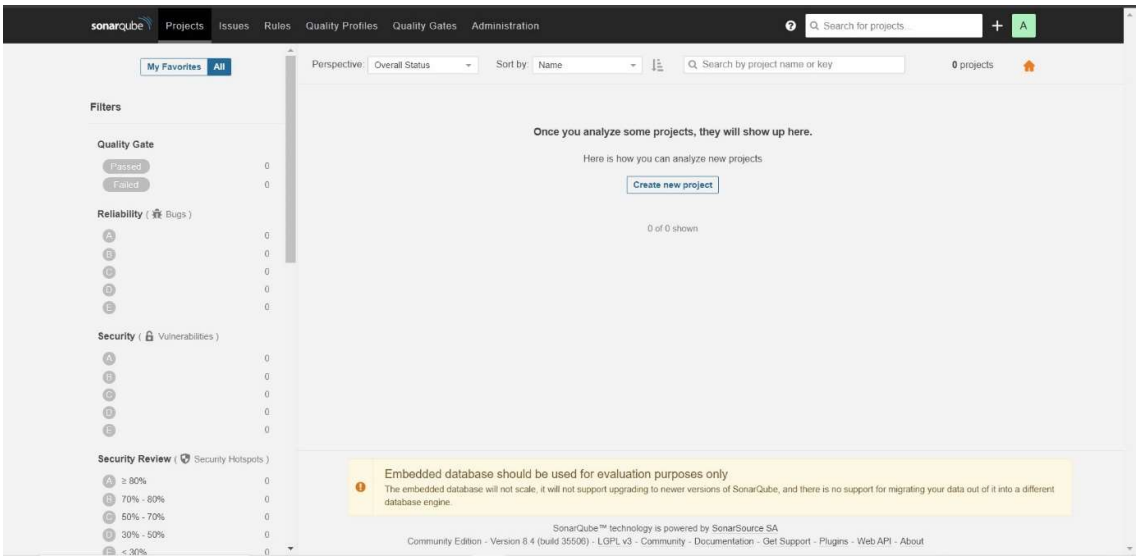
5. **Switch to the sonar user**:

- sudo su - sonar

6. **Navigate to the SonarQube bin directory and start SonarQube**:

- cd /opt/sonarqube-8.4.0.35506/bin/linux-x86-64
- ./sonar.sh start

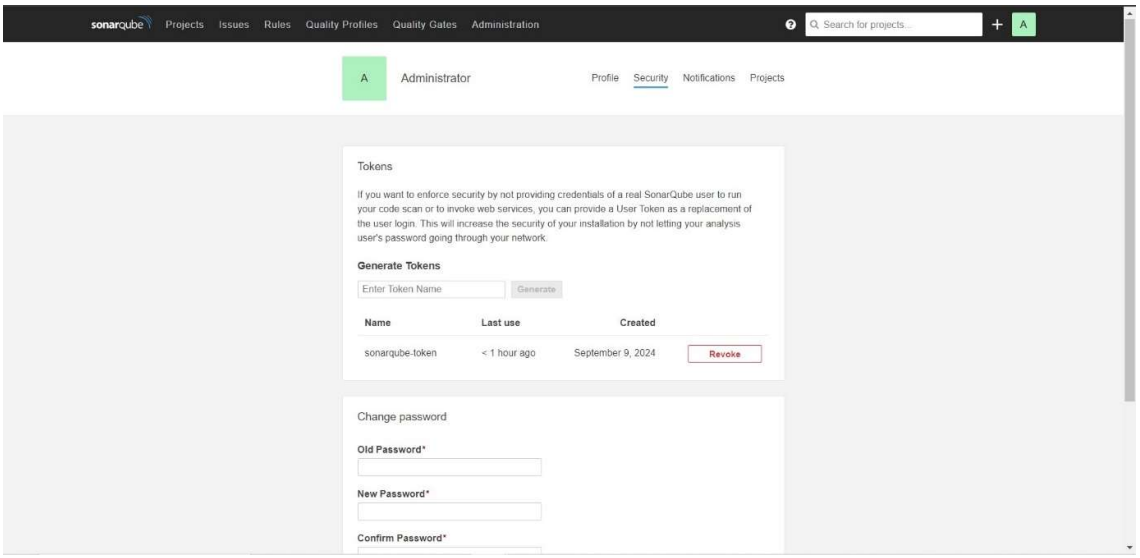
7. **Access SonarQube**:
   Open the browser and enter http://<EC2-Public-IP>:9000/.
   Make sure port 9000 is enabled in your EC2 security group.



Integration Steps

1. **Install SonarQube Scanner Plugin in Jenkins**:
   - Go to Manage Jenkins -> Manage Plugins.
   - Click on Available tab, search for "SonarQube Scanner", and install it.

2. **Configure SonarQube Server in Jenkins**:
   - Go to Manage Jenkins -> Configure System.
   - Scroll down to SonarQube servers and add a new server.
   - Fill in the required details:
     - **Name**: Sonar -server -8.4
     - **Server URL**: http://<SonarQube-EC2-Public-IP>:9000
     - **Server Authentication Token**: (Generate this token in SonarQube under "My Account" -> "Security" -> "Generate Tokens").
     - Back in Jenkins, click on Add next to the Server Authentication Token.
     - Choose Jenkins credential provider and select Secret text as the credential type.
     - Enter the token generated in SonarQube in the Secret field and provide an ID and description.
     - Click Add to save the credentials.



3. **Configure SonarQube Scanner in Jenkins**:

    - Go to Manage Jenkins -> Global Tool Configuration.
    - Scroll down to SonarQube Scanner and click Add SonarQube Scanner.
    - Enter details like Name: Sonar -Scanner-4.7 and select the installed version.

4. **Install Apache Maven on Jenkins Server**:

    Connect to the Jenkins EC2 instance and execute:

    - sudo su
    - cd /opt
    - wget https://dlcdn.apache.org/maven/maven-3/3.8.8/binaries/apache-maven-3.8.8-bin.tar.gz
    - tar -xvf apache-maven-3.8.8-bin.tar.gz

5. **Create Jenkins Pipeline for Code Analysis**:

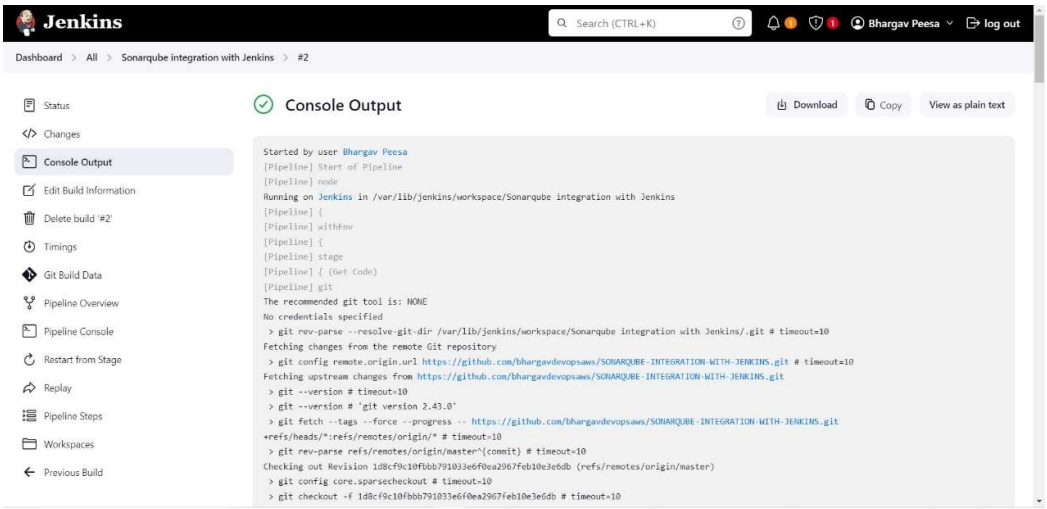
Pipeline Script Example:

```
pipeline {
  agent any
  environment {
    PATH = "$PATH:/opt/apache-maven-3.8.8/bin" // Ensure Maven is in the PATH
  }
  stages {
    stage("Get Code") {
      steps {
        git " https://github.com/bhargavdevopsaws/SonarQube-Integration-with-Jenkins-server.git"
      }
```

```
    }
    stage("Build") {
      steps {
        sh "mvn clean package"
      }
    }
    stage("SonarQube Analysis") {
      steps {
        withSonarQubeEnv('Sonar -server -8.4') {
          sh "mvn sonar:sonar"
        }
      }
    }
  }
}
```

6. **Run the Jenkins Job**:

   - Go to Jenkins Dashboard.
   - Click on New Item, give it a name, select Pipeline, and click OK.
   - Paste the pipeline script above in the pipeline configuration.
   - Apply and save the configuration.
   - Click on Build Now to run the job.



Dashboard > All > Sonarqube integration with Jenkins > #2

```
[INFO] 16:44:47.276 Sensor Java CPD Block Indexer
[INFO] 16:44:47.327 Sensor Java CPD Block Indexer (done) | time=51ms
[INFO] 16:44:47.333 SCM Publisher SCM provider for this project is: git
[INFO] 16:44:47.336 SCM Publisher 9 source files to be analyzed
[INFO] 16:44:48.321 SCM Publisher 9/9 source files have been analyzed (done) | time=980ms
[INFO] 16:44:48.374 CPD Executor 3 files had no CPD blocks
[INFO] 16:44:48.378 CPD Executor Calculating CPD for 4 files
[INFO] 16:44:48.397 CPD Executor CPD calculation finished (done) | time=19ms
[INFO] 16:44:48.636 Analysis report generated in 225ms, dir size=102 KB
[INFO] 16:44:48.831 Analysis report compressed in 188ms, zip size=27 KB
[INFO] 16:44:49.283 Analysis report uploaded in 446ms
[INFO] 16:44:49.293 ANALYSIS SUCCESSFUL, you can browse http://13.233.163.87:9000/dashboard?id=com.spring.rest.app%3ASpringRestIntegrationApp
[INFO] 16:44:49.293 Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report
[INFO] 16:44:49.293 More about the report processing at http://13.233.163.87:9000/api/ce/task?id=AZHKr-HTRS09BayFDoy6s
[INFO] 16:44:49.323 Analysis total time: 13.842 s
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  17.845 s
[INFO] Finished at: 2024-09-09T16:44:49Z
[INFO] ------------------------------------------------------------------------
[Pipeline] }
[Pipeline] // withSonarQubeEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Jenkins

Search (CTRL+K) | Bhargav Peesa | log out

Dashboard > All > Sonarqube integration with Jenkins >

- Status
- Changes
- Build Now
- Configure
- Delete Pipeline
- SonarQube
- Stages
- Rename
- Pipeline Syntax

Build History trend

Filter...

#2 Sep 9, 2024, 4:44 PM

#1 Sep 9, 2024, 8:44 AM

Sonarqube integration with Jenkins

Add description

SonarQube Quality Gate

SpringRestIntegrationApp Maven Webapp **Passed**

server-side processing: **Success**

Permalinks

- Last build (#2), 5 min 52 sec ago
- Last stable build (#2), 5 min 52 sec ago
- Last successful build (#2), 5 min 52 sec ago
- Last unsuccessful build (#1), 8 hr 5 min ago
- Last completed build (#2), 5 min 52 sec ago

sonarqube | Projects | Issues | Rules | Quality Profiles | Quality Gates | Administration | Search for projects... | A

SpringRestIntegrationApp Maven Webapp | master

September 9, 2024 at 10:14 PM Version 0.0.1-SNAPSHOT

Overview | Issues | Security Hotspots | Measures | Code | Activity

Project Settings | Project Information

QUALITY GATE STATUS

Passed

All conditions passed.

MEASURES

New Code | Overall Code

4 Bugs		Reliability C
0 Vulnerabilities		Security A
0 Security Hotspots	— Reviewed	Security Review A
1h 1min Debt	9 Code Smells	Maintainability A
0.0%	-	
0.0%	0	