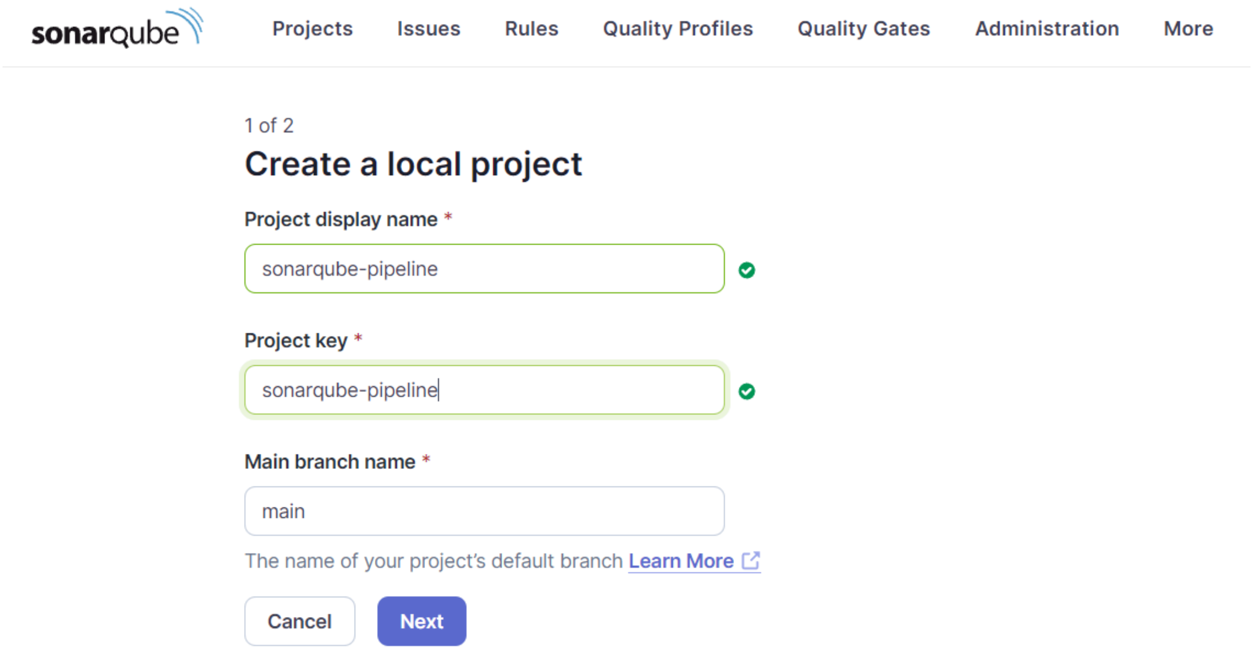
Shravani Anil Patil **D15A-38**

Advanced Devops
Experiment No:08

Aim: **Create a Jenkins CICD Pipeline with SonarQube / GitLab Integration to perform a static analysis of the code to detect bugs, code smells, and security vulnerabilities on a sample Web / Java / Python application.**

Step 1: Log in to sonarqube portal and create a local project.



1 of 2

Create a local project

Project display name *

sonarqube-pipeline

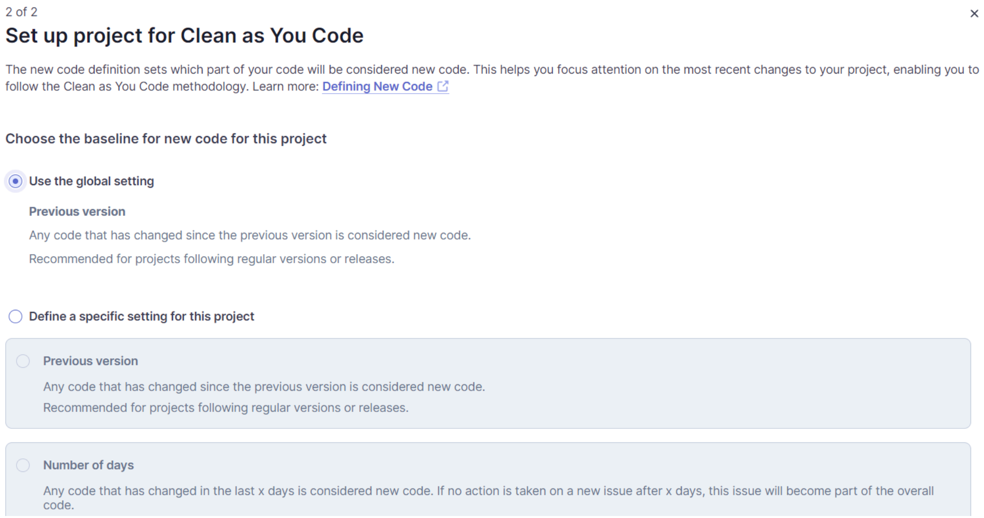
Project key *

sonarqube-pipeline

Main branch name *

main

The name of your project's default branch Learn More



2 of 2

Set up project for Clean as You Code

The new code definition sets which part of your code will be considered new code. This helps you focus attention on the most recent changes to your project, enabling you to follow the Clean as You Code methodology. Learn more: Defining New Code

Choose the baseline for new code for this project

● Use the global setting

Previous version

Any code that has changed since the previous version is considered new code.

Recommended for projects following regular versions or releases.

○ Define a specific setting for this project

○ Previous version

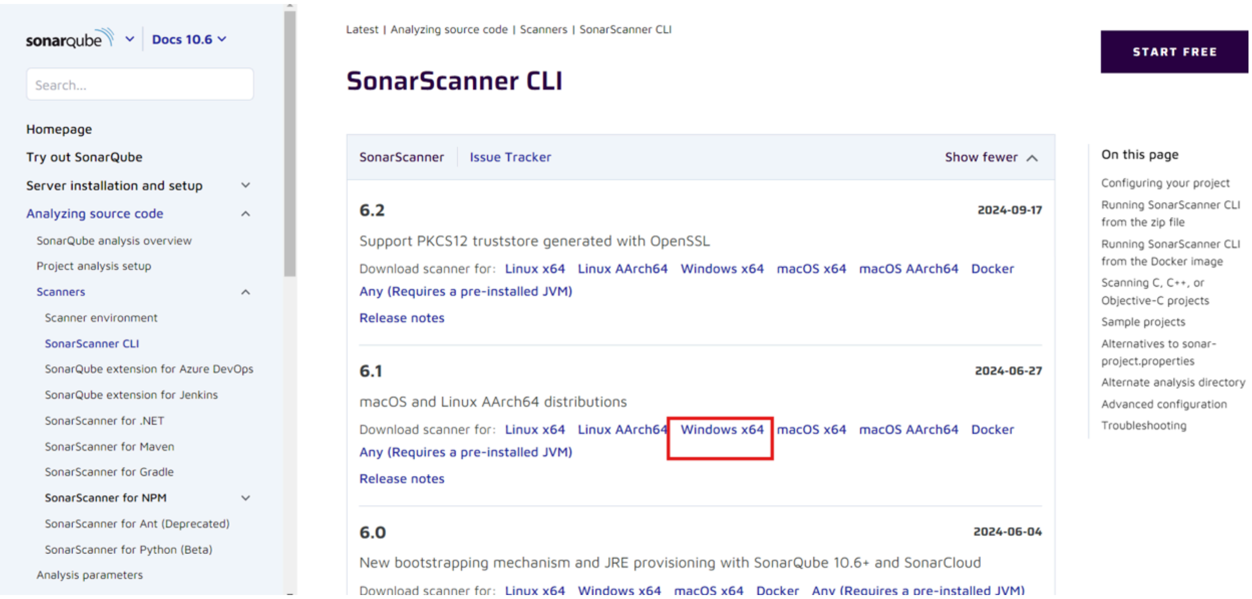
Any code that has changed since the previous version is considered new code.

Recommended for projects following regular versions or releases.

○ Number of days

Any code that has changed in the last x days is considered new code. If no action is taken on a new issue after x days, this issue will become part of the overall code.

Step 2: Go to download_sonarscanner to download sonar scanner


sonarqube
Docs 10.6
Search...
Homepage
Try out SonarQube
Server installation and setup
Analyzing source code
SonarQube analysis overview
Project analysis setup
Scanners
Scanner environment
SonarScanner CLI
SonarQube extension for Azure DevOps
SonarQube extension for Jenkins
SonarScanner for .NET
SonarScanner for Maven
SonarScanner for Gradle
SonarScanner for NPM
SonarScanner for Ant (Deprecated)
SonarScanner for Python (Beta)
Analysis parameters
Latest | Analyzing source code | Scanners | SonarScanner CLI
START FREE
SonarScanner
Issue Tracker
Show fewer
On this page
Configuring your project
Running SonarScanner CLI from the zip file
Running SonarScanner CLI from the Docker image
Scanning C, C++, or Objective-C projects
Sample projects
Alternatives to sonar-project.properties
Alternate analysis directory
Advanced configuration
Troubleshooting

SonarScanner CLI

6.2 2024-09-17

Support PKCS12 truststore generated with OpenSSL

Download scanner for: Linux x64 Linux AArch64 Windows x64 macOS x64 macOS AArch64 Docker Any (Requires a pre-installed JVM)

Release notes

6.1 2024-06-27

macOS and Linux AArch64 distributions

Download scanner for: Linux x64 Linux AArch64 Windows x64 macOS x64 macOS AArch64 Docker Any (Requires a pre-installed JVM)

Release notes

6.0 2024-06-04

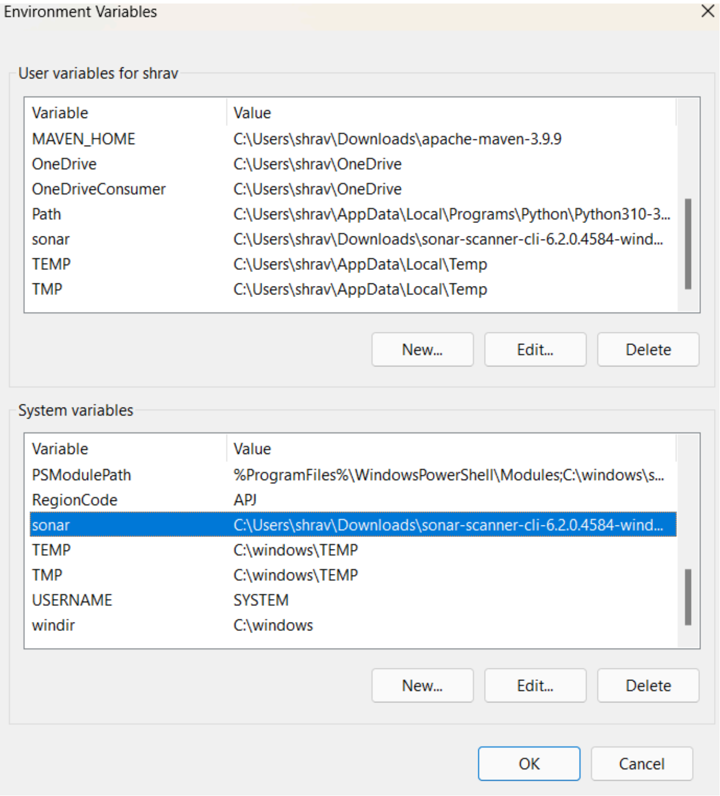
New bootstrapping mechanism and JRE provisioning with SonarQube 10.6+ and SonarCloud

Download scanner for: Linux x64 Windows x64 macOS x64 Docker Any (Requires a pre-installed JVM)

After the download is complete, extract the file and copy the path to bin folder

Go to environment variables, system variables and click on path

Add a new path, paste the path copied earlier.



Environment Variables

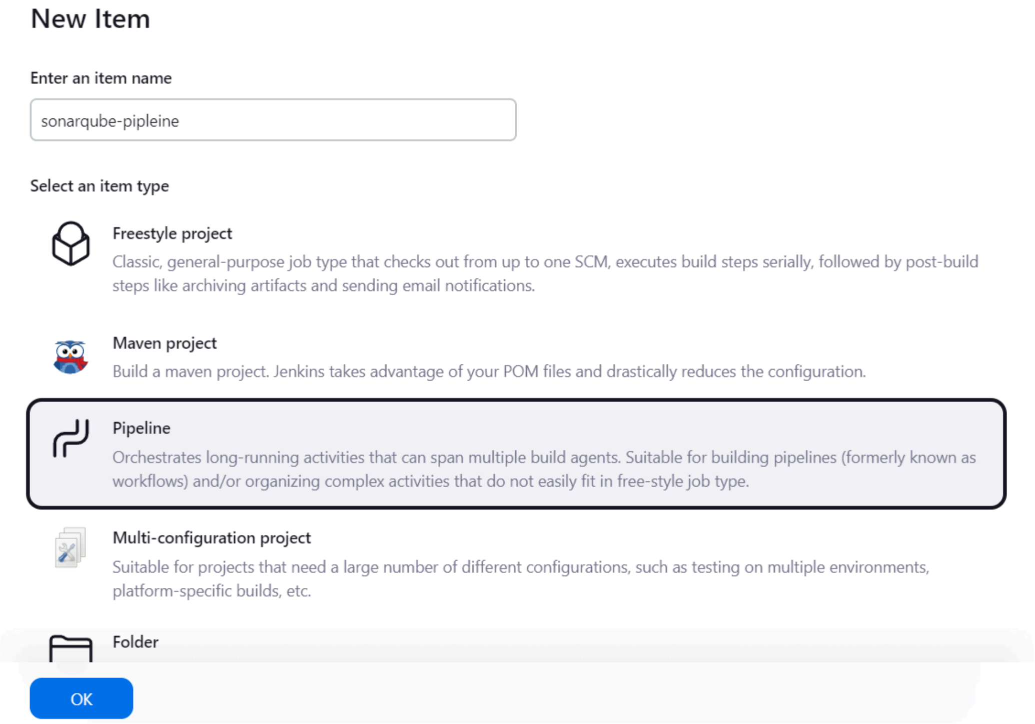
User variables for shrav

Variable	Value
MAVEN_HOME	C:\Users\shrav\Downloads\apache-maven-3.9.9
OneDrive	C:\Users\shrav\OneDrive
OneDriveConsumer	C:\Users\shrav\OneDrive
Path	C:\Users\shrav\AppData\Local\Programs\Python\Python310-3...
sonar	C:\Users\shrav\Downloads\sonar-scanner-cli-6.2.0.4584-wind...
TEMP	C:\Users\shrav\AppData\Local\Temp
TMP	C:\Users\shrav\AppData\Local\Temp

System variables

Variable	Value
PSModulePath	%ProgramFiles%\WindowsPowerShell\Modules;C:\windows\s...
RegionCode	APJ
sonar	C:\Users\shrav\Downloads\sonar-scanner-cli-6.2.0.4584-wind...
TEMP	C:\windows\TEMP
TMP	C:\windows\TEMP
USERNAME	SYSTEM
windir	C:\windows

Step 3: Create a New Item in Jenkins, choose Pipeline.



New Item

Enter an item name

sonarqube-pipleine

Select an item type

Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

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

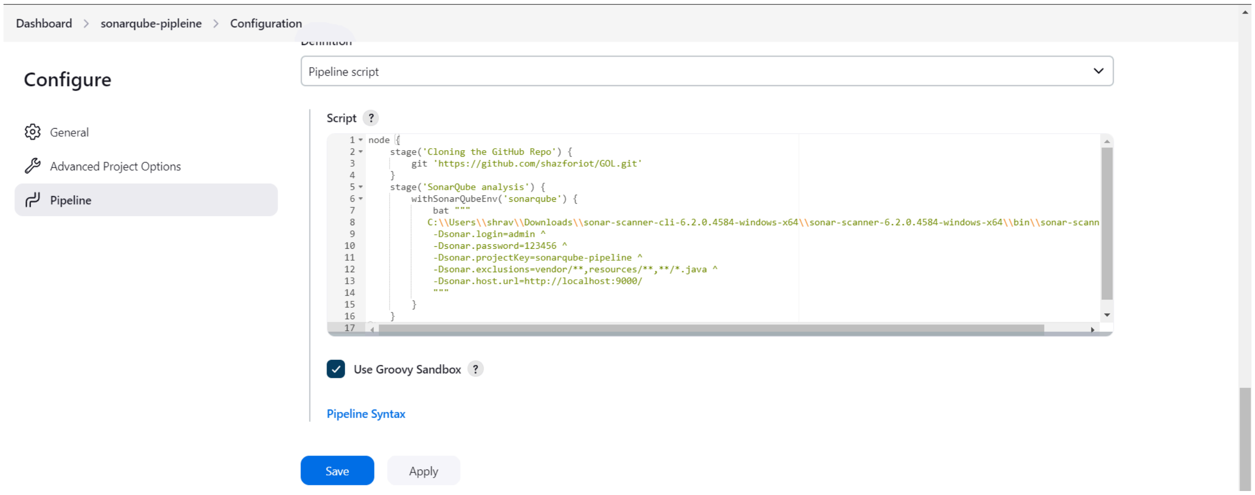
Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

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

Add pipeline script :

```
node {
    stage('Cloning the GitHub Repo') {
        git 'https://github.com/shazforiot/GOL.git'
    }
    stage('SonarQube analysis') {
        withSonarQubeEnv('sonarqube') {
            bat """
C:\\Users\\shrav\\Downloads\\sonar-scanner-cli-6.2.0.4584-windows-x64\\sonar-scanner-6.2.0.4584-windows-x64\\bin\\sonar-scanner.bat ^
            -Dsonar.login=admin ^
            -Dsonar.password=123456 ^
            -Dsonar.projectKey=sonarqube-pipeline ^
            -Dsonar.exclusions=vendor/**,resources/**,**/*.java ^
            -Dsonar.host.url=http://localhost:9000/
            """
        }
    }
}
```



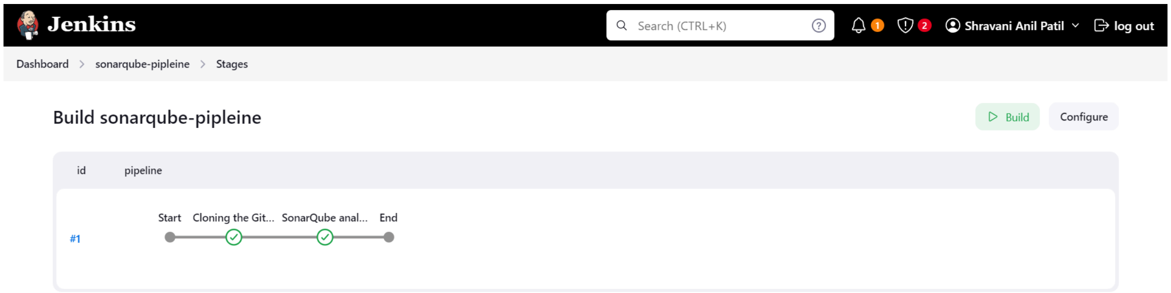
Pipeline script

Script

```
node {
    stage('Cloning the GitHub Repo') {
        git 'https://github.com/shazforiot/GOL.git'
    }
    stage('SonarQube analysis') {
        withSonarQubeEnv('sonarqube') {
            bat """
           C:\\Users\\shrav\\Downloads\\sonar-scanner-cli-6.2.0.4584-windows-x64\\sonar-scanner-6.2.0.4584-windows-x64\\bin\\sonar-scann
            -Dsonar.login=admin ^
            -Dsonar.password=123456 ^
            -Dsonar.projectKey=sonarqube-pipeline ^
            -Dsonar.exclusions=vendor/**,resources/**,**/*.java ^
            -Dsonar.host.url=http://localhost:9000/
            """
        }
    }
```

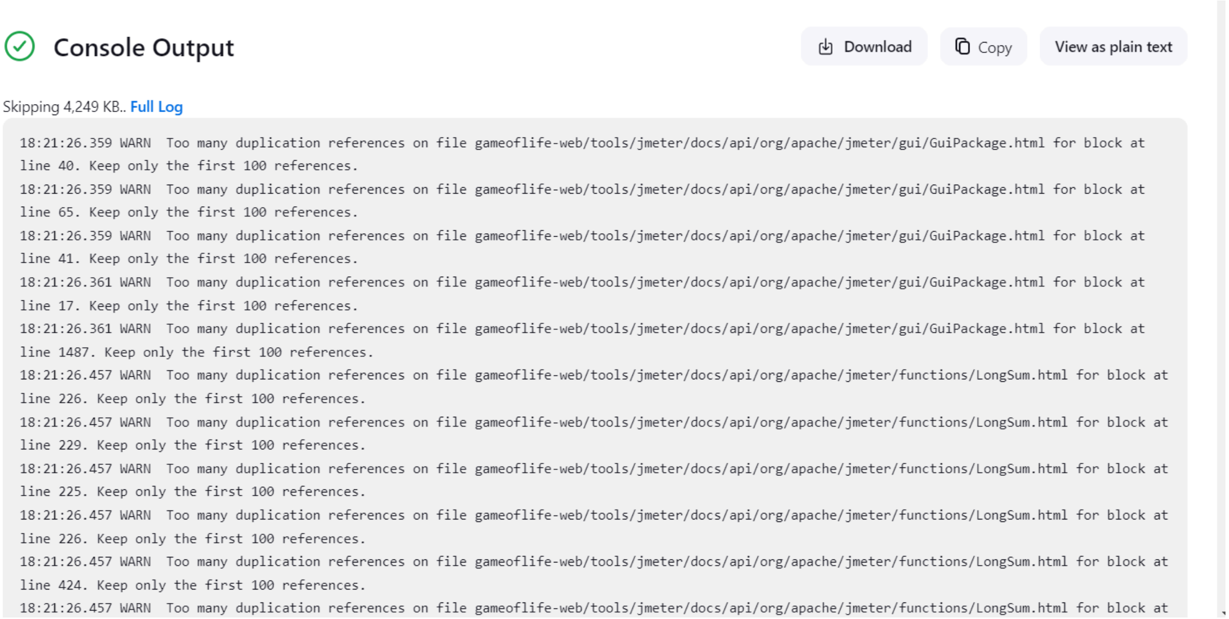
☑ Use Groovy Sandbox

Step 4: Save the pipeline and build it.



Build sonarqube-pipleine

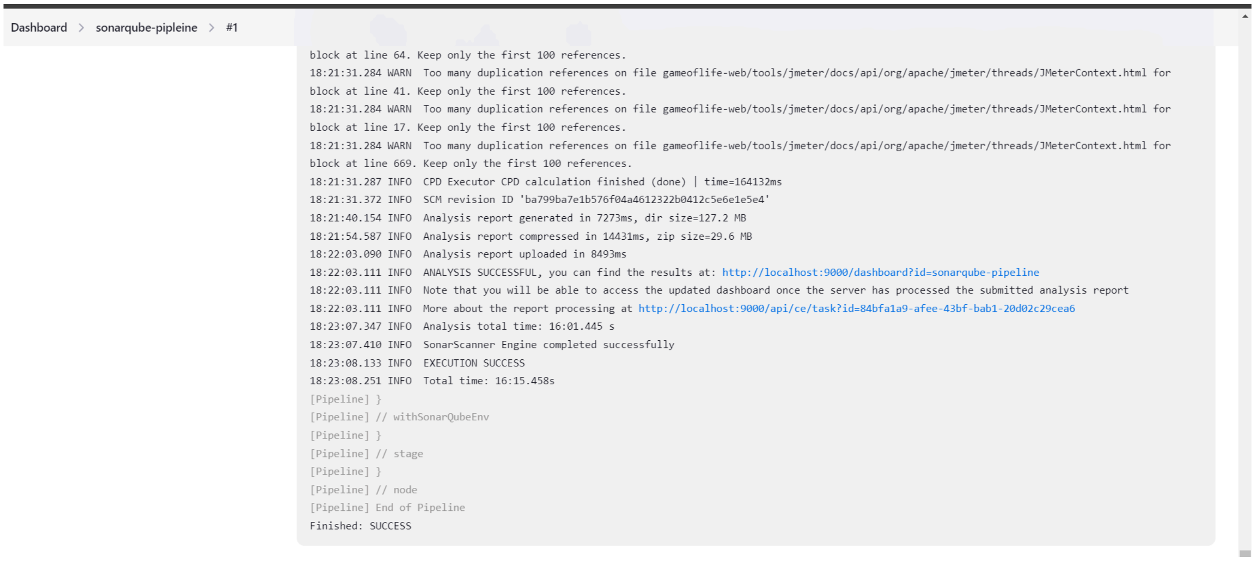
Console output:



Console Output

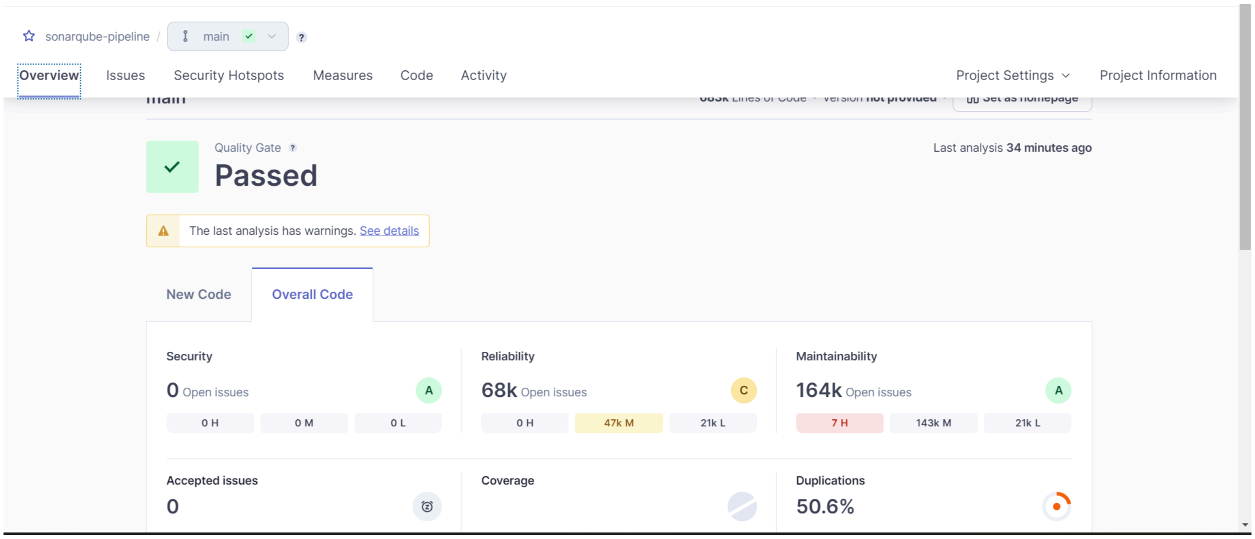
Skipping 4,249 KB.. Full Log

```
18:21:26.359 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/gui/GuiPackage.html for block at
line 40. Keep only the first 100 references.
18:21:26.359 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/gui/GuiPackage.html for block at
line 65. Keep only the first 100 references.
18:21:26.359 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/gui/GuiPackage.html for block at
line 41. Keep only the first 100 references.
18:21:26.361 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/gui/GuiPackage.html for block at
line 17. Keep only the first 100 references.
18:21:26.361 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/gui/GuiPackage.html for block at
line 1487. Keep only the first 100 references.
18:21:26.457 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/functions/LongSum.html for block at
line 226. Keep only the first 100 references.
18:21:26.457 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/functions/LongSum.html for block at
line 229. Keep only the first 100 references.
18:21:26.457 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/functions/LongSum.html for block at
line 225. Keep only the first 100 references.
18:21:26.457 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/functions/LongSum.html for block at
line 226. Keep only the first 100 references.
18:21:26.457 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/functions/LongSum.html for block at
line 424. Keep only the first 100 references.
18:21:26.457 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/functions/LongSum.html for block at
```



```
block at line 64. Keep only the first 100 references.
18:21:31.284 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/threads/JMeterContext.html for
block at line 41. Keep only the first 100 references.
18:21:31.284 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/threads/JMeterContext.html for
block at line 17. Keep only the first 100 references.
18:21:31.284 WARN  Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/threads/JMeterContext.html for
block at line 669. Keep only the first 100 references.
18:21:31.287 INFO  CPD Executor CPD calculation finished (done) | time=164132ms
18:21:31.372 INFO  SCM revision ID 'ba799ba7e1b576f04a4612322b0412c5e6e1e5e4'
18:21:40.154 INFO  Analysis report generated in 7273ms, dir size=127.2 MB
18:21:54.587 INFO  Analysis report compressed in 14431ms, zip size=29.6 MB
18:22:03.090 INFO  Analysis report uploaded in 8493ms
18:22:03.111 INFO  ANALYSIS SUCCESSFUL, you can find the results at: http://localhost:9000/dashboard?id=sonarqube-pipeline
18:22:03.111 INFO  Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report
18:22:03.111 INFO  More about the report processing at http://localhost:9000/api/ce/task?id=84bfa1a9-afee-43bf-bab1-20d02c29cea6
18:23:07.347 INFO  Analysis total time: 16:01.445 s
18:23:07.410 INFO  SonarScanner Engine completed successfully
18:23:08.133 INFO  EXECUTION SUCCESS
18:23:08.251 INFO  Total time: 16:15.458s
[Pipeline] }
[Pipeline] // withSonarQubeEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Step 5: After that, check the project in SonarQube



sonarqube-pipeline / main ?

Overview Issues Security Hotspots Measures Code Activity Project Settings Project Information

main

683k Lines of Code · Version not provided · Set as homepage

Quality Gate ?

Passed

Last analysis **34 minutes ago**

The last analysis has warnings. See details

New Code | Overall Code

Security

0 Open issues A

0 H | 0 M | 0 L

Reliability

68k Open issues C

0 H | 47k M | 21k L

Maintainability

164k Open issues A

7 H | 143k M | 21k L

Accepted issues

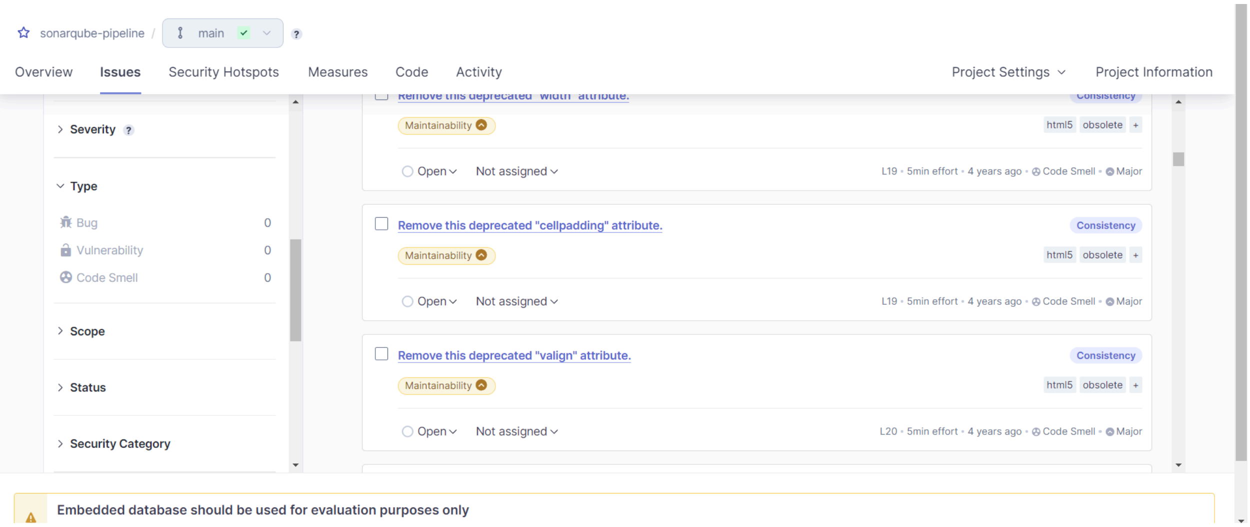
0

Coverage

Duplications

50.6%

Under different tabs, check all different issues with the code



sonarqube-pipeline / main ?

Overview Issues Security Hotspots Measures Code Activity Project Settings Project Information

Severity ?

Type

Bug	0
Vulnerability	0
Code Smell	0

Scope

Status

Security Category

□ Remove this deprecated "width" attribute. Consistency

Maintainability html5 obsolete +

○ Open Not assigned L19 · 5min effort · 4 years ago · Code Smell · Major

□ Remove this deprecated "cellpadding" attribute. Consistency

Maintainability html5 obsolete +

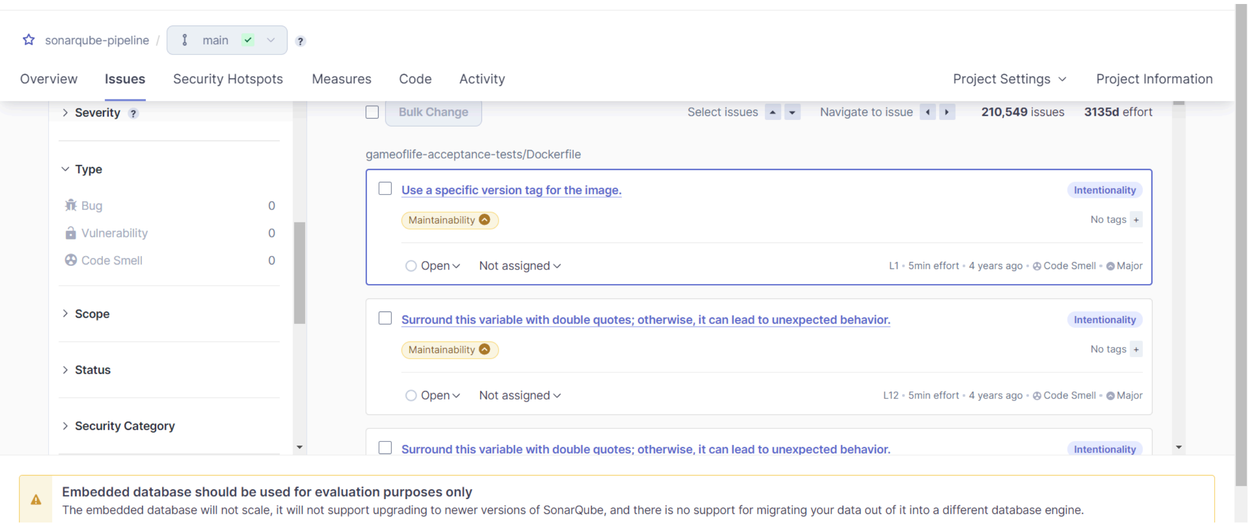
○ Open Not assigned L19 · 5min effort · 4 years ago · Code Smell · Major

□ Remove this deprecated "valign" attribute. Consistency

Maintainability html5 obsolete +

○ Open Not assigned L20 · 5min effort · 4 years ago · Code Smell · Major

Embedded database should be used for evaluation purposes only



Type	
Bug	0
Vulnerability	0
Code Smell	0

210,549 issues **3135d** effort

gameoflife-acceptance-tests/Dockerfile

□ Use a specific version tag for the image. — Intentionality

Maintainability — No tags +

○ Open ⌄ Not assigned ⌄ — L1 • 5min effort • 4 years ago • Code Smell • Major

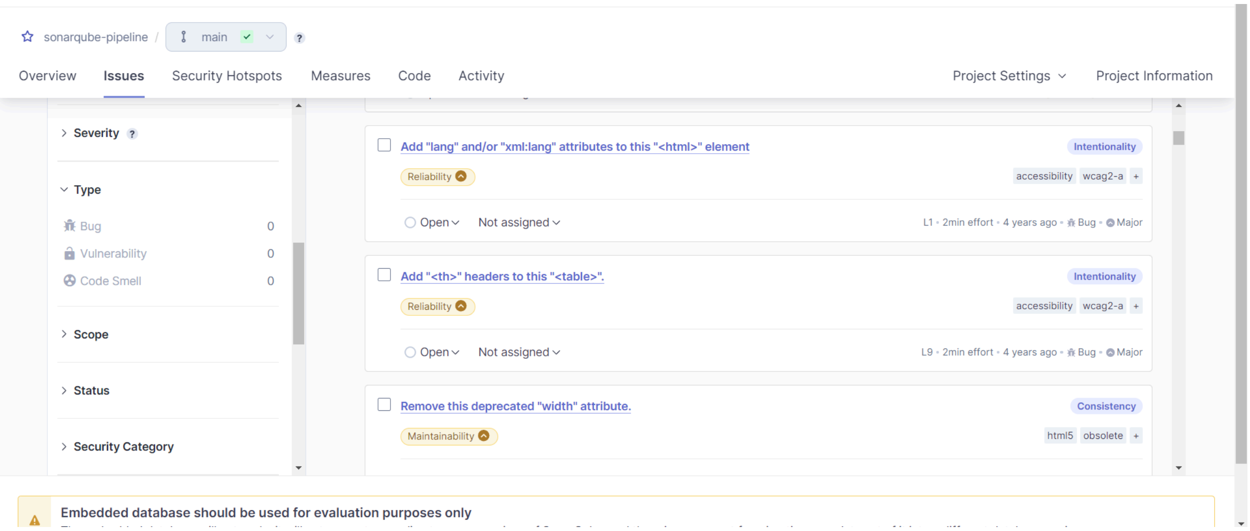
□ Surround this variable with double quotes; otherwise, it can lead to unexpected behavior. — Intentionality

Maintainability — No tags +

○ Open ⌄ Not assigned ⌄ — L12 • 5min effort • 4 years ago • Code Smell • Major

□ Surround this variable with double quotes; otherwise, it can lead to unexpected behavior. — Intentionality

Embedded database should be used for evaluation purposes only
The embedded database will not scale, it will not support upgrading to newer versions of SonarQube, and there is no support for migrating your data out of it into a different database engine.



Type	
Bug	0
Vulnerability	0
Code Smell	0

□ Add "lang" and/or "xml:lang" attributes to this "<html>" element — Intentionality

Reliability — accessibility wcag2-a +

○ Open ⌄ Not assigned ⌄ — L1 • 2min effort • 4 years ago • Bug • Major

□ Add "<th>" headers to this "<table>". — Intentionality

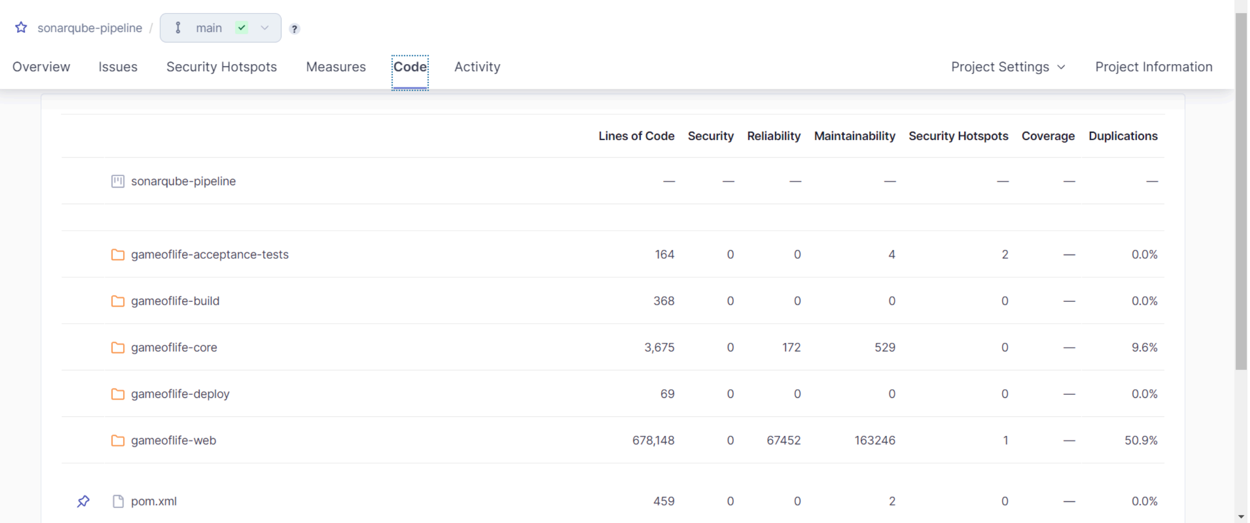
Reliability — accessibility wcag2-a +

○ Open ⌄ Not assigned ⌄ — L9 • 2min effort • 4 years ago • Bug • Major

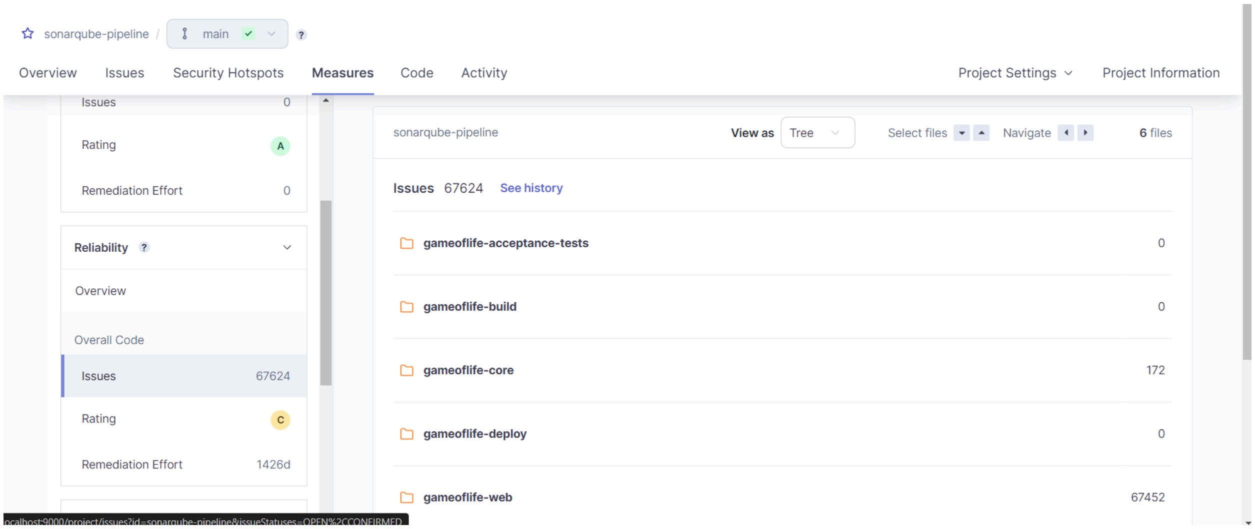
□ Remove this deprecated "width" attribute. — Consistency

Maintainability — html5 obsolete +

Embedded database should be used for evaluation purposes only



	Lines of Code	Security	Reliability	Maintainability	Security Hotspots	Coverage	Duplications
sonarqube-pipeline	—	—	—	—	—	—	—
gameoflife-acceptance-tests	164	0	0	4	2	—	0.0%
gameoflife-build	368	0	0	0	0	—	0.0%
gameoflife-core	3,675	0	172	529	0	—	9.6%
gameoflife-deploy	69	0	0	0	0	—	0.0%
gameoflife-web	678,148	0	67452	163246	1	—	50.9%
pom.xml	459	0	0	2	0	—	0.0%



☆ sonarqube-pipeline / main ✓ ?

Overview Issues Security Hotspots **Measures** Code Activity Project Settings Project Information

Issues	0
Rating	A
Remediation Effort	0

Reliability ?

Overview

Overall Code

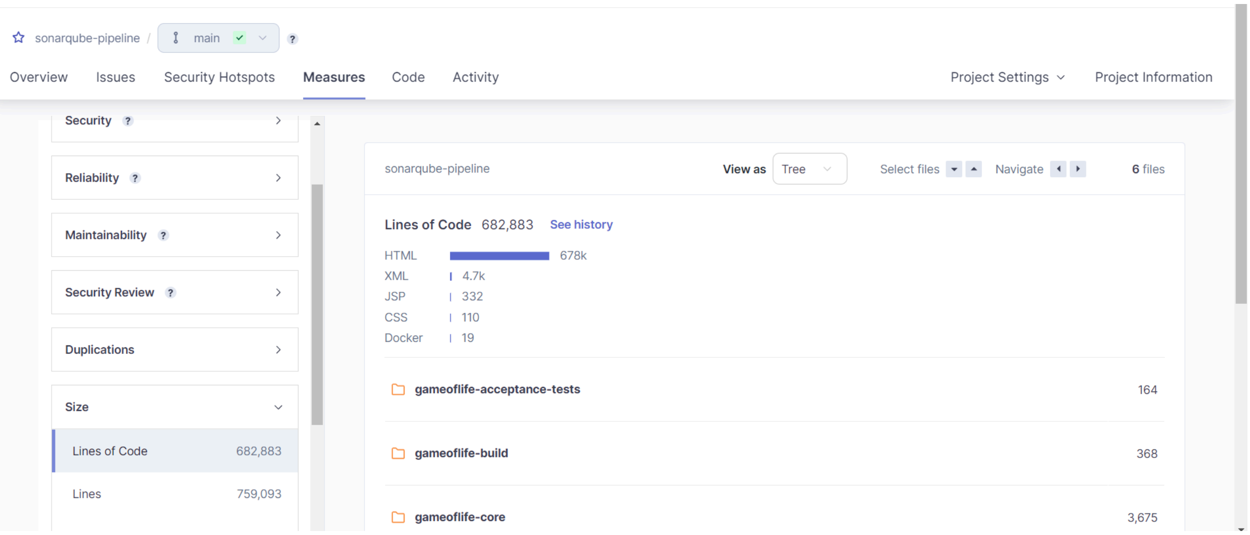
Issues	67624
Rating	C
Remediation Effort	1426d

sonarqube-pipeline **View as** Tree Select files Navigate **6** files

Issues 67624 See history

gameoflife-acceptance-tests	0
gameoflife-build	0
gameoflife-core	172
gameoflife-deploy	0
gameoflife-web	67452

ocalhost:9000/project/issues?id=sonarqube-pipeline&issueStatuses=OPEN%2CCONFIRMED



☆ sonarqube-pipeline / main ✓ ?

Overview Issues Security Hotspots **Measures** Code Activity Project Settings Project Information

Security ?

Reliability ?

Maintainability ?

Security Review ?

Duplications

Size

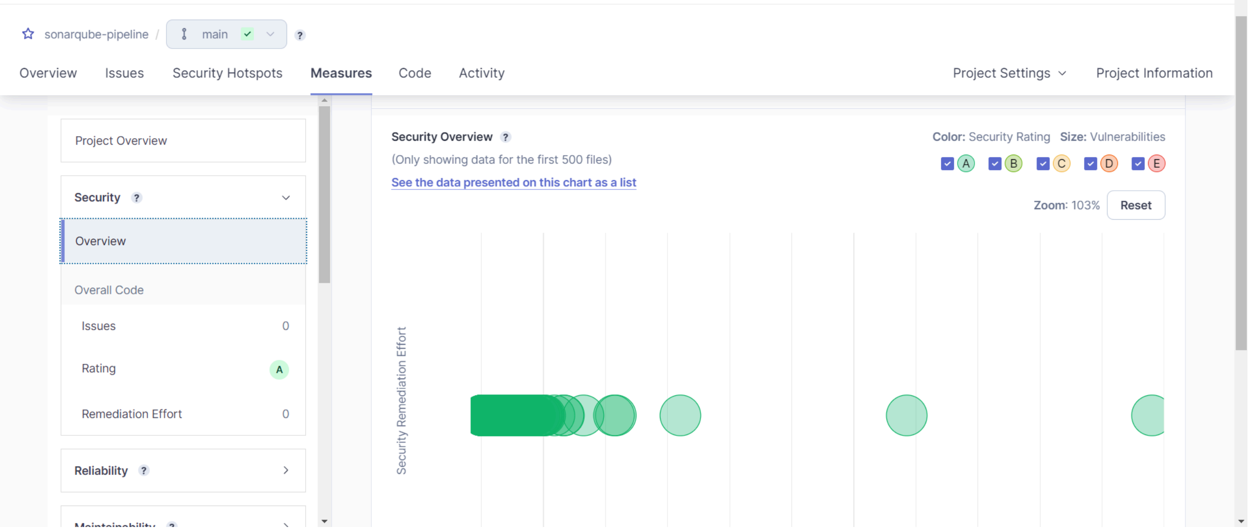
Lines of Code	682,883
Lines	759,093

sonarqube-pipeline **View as** Tree Select files Navigate **6** files

Lines of Code 682,883 See history

HTML	678k
XML	4.7k
JSP	332
CSS	110
Docker	19

gameoflife-acceptance-tests	164
gameoflife-build	368
gameoflife-core	3,675



☆ sonarqube-pipeline / main ✓ ?

Overview Issues Security Hotspots **Measures** Code Activity Project Settings Project Information

Project Overview

Security ?

Overview

Overall Code

Issues	0
Rating	A
Remediation Effort	0

Reliability ?

Maintainability ?

Security Overview ?

(Only showing data for the first 500 files)

See the data presented on this chart as a list

Color: Security Rating **Size:** Vulnerabilities

☑ A ☑ B ☑ C ☑ D ☑ E

Zoom: 103% Reset