Parasoft Findings for SonarQube

In this section:

View online: https://docs.parasoft.com/x/Ny1-C

Introduction

The Parasoft Findings Plugin for SonarQube allows you to view static analysis, functional test results, unit test results, and code coverage results within SonarQube. It grants SonarQube the ability to analyze data from Parasoft XML reports and use it to report bugs, vulnerabilities, functional test results, unit test results, code coverage or code smells from within SonarQube. See Uploading Project Results for more details.

The plugin can consume the following report types:

- Static analysis, metrics analysis, code coverage, and unit test reports generated by 2022.2+ versions of C/C++test, Jtest, and dotTEST.
- Functional test reports generated by Parasoft SOAtest 2022.2+.

Requirements

- For version 10.6.1, a Parasoft product must be installed on the same machine as the SonarQube server since the plugin loads rules from a Parasoft product installation.
  - For C/C++test, the Standard edition must be installed even if you are sending C/C++test Professional reports to SonarQube.
  - This requirement does not apply to version 10.6.2+.
- SonarQube versions 8.9+ are supported.
- SonarQube Developer edition or better is required to process C/C++test reports.
- Language projects versions 2022.2+ are supported.

Installing the Parasoft Findings Plugin

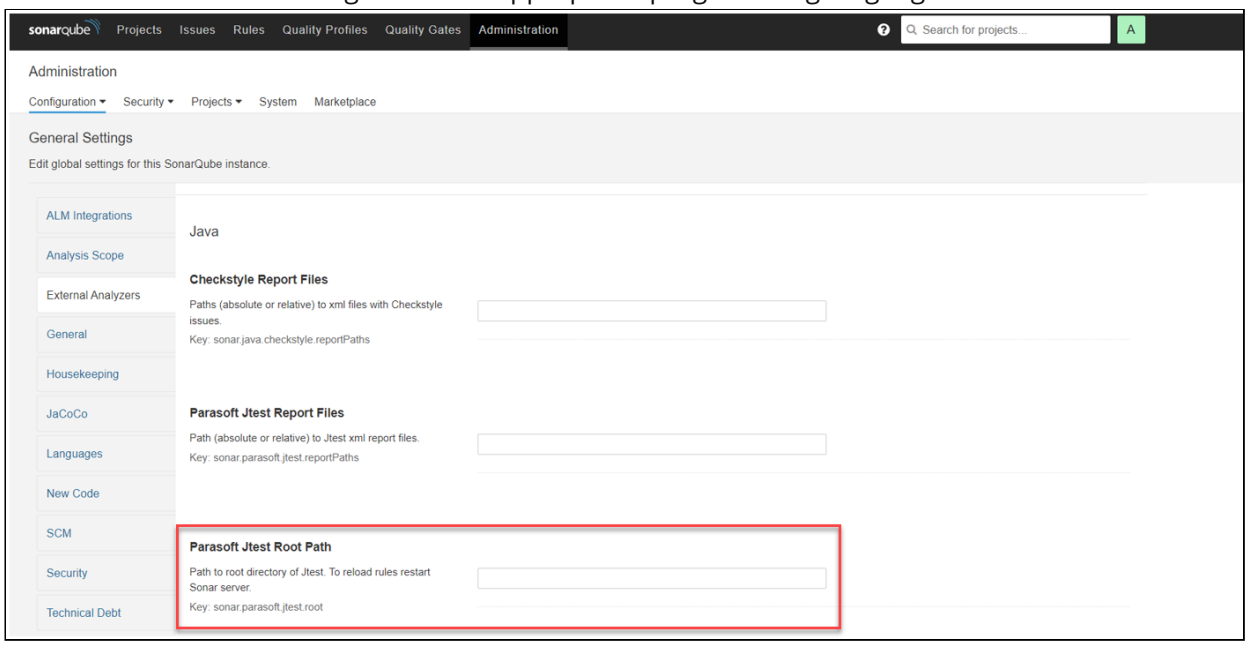
1. Either download the plugin or build it yourself (10.6.2+ only):
   a. To download the plugin, go to https://customerportal.parasoft.com/lightningportal/s/marketplace and download the Parasoft SonarQube plugin jar `parasoft.findings.sonar-<VERSION>.jar`.
      - Be sure to download the version of the plugin that matches the version of your Parasoft product. For example, if you are using Jtest, dotTEST, or C++Test 2023.1, you would download `parasoft.findings.sonar-2023.1.jar`.
   b. To build the plugin yourself, see Building Your Own Plugin.
2. Copy the plugin jar into the SonarQube `extensions/plugins` directory.
3. Restart the SonarQube server.
4. For version 10.6.1: set the root path to the Parasoft product (see Setting the Root Path to the Parasoft Product for Version 10.6.1).
   a. Starting with version 10.6.2, rule files are packaged in the plugin jar, so it is not necessary to set the root path to load rules with version 10.6.2+.

See https://docs.sonarqube.org/latest/setup/install-plugin/ for more details.

Setting the Root Path to the Parasoft Product for Version 10.6.1

1. In the SonarQube web UI go to **Administration > Configuration > General Settings > External Analyzers**.

2. Locate the **Root Path** setting under the appropriate programming language.



3. In the field enter the absolute path to the Parasoft product installation and click **Save**.
4. Restart the SonarQube server so that the rule definitions are loaded.
5. After the server has restarted, go to **Quality Profiles** in the web UI and select the built-in Parasoft profile under the appropriate supported language. Verify that the rule definitions are loaded successfully under the profile.

If zero or only one rule is loaded, then loading of rules failed. In this case:

a. Check that the root path is correct.
b. Review the SonarQube web server logs for any error messages.

Building Your Own Plugin

You can build your own plugin for your Parasoft products. To do so, you will need JDK 11+, Maven 3.3+, and your Parasoft products installed on the same machine.

1. Clone the source code from GitHub found here: https://github.com/parasoft/parasoft-findings-sonar.

2. Run a Maven package command that is appropriate for the Parasoft products you have installed. The example below includes Jtest, dotTEST, and C++Test; if you don't have one or more of these installed, remove its root path reference:

```
mvn clean package -DjtestRootPath="<JTEST-INSTALL-ROOT-PATH>" -DdottestRootPath="
<DOTTEST-INSTALL-ROOT-PATH>" -DcpptestRootPath="<CPPTEST-INSTALL-ROOT-PATH>"
```

   - For C/C++test, the root path must be set to Standard edition, even if you are sending C/C++test Professional reports to SonarQube.

   The plugin jar that is created will be in the `<SOURCE-CODE-ROOT-PATH>/target` folder and will include the rule files for your Parasoft product.

Activating Parasoft Profiles

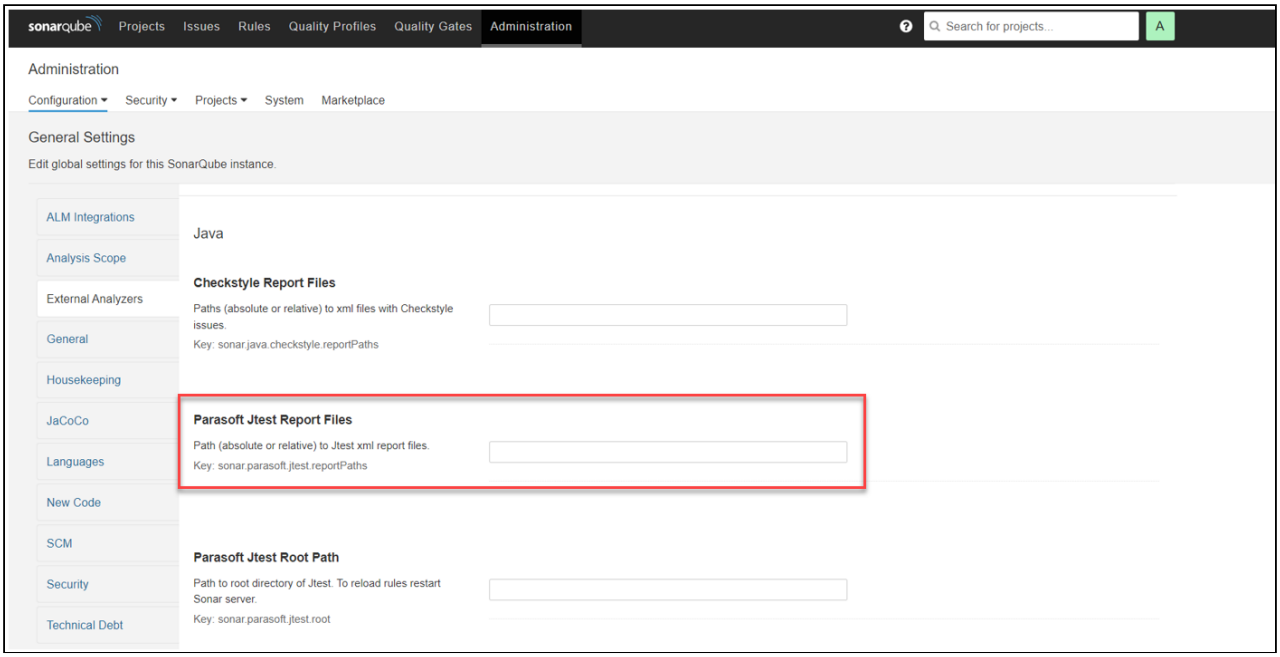
There are two ways to enable the Parasoft profile for your projects:

- To set a Parasoft profile as the default for new projects, go to **Quality Profiles** and select **Set as Default** from the gear menu to the right of the profile.
- To set a Parasoft profile for a given project, go to **Quality Profiles** section in the project settings. Select the **Change Profile** button on the right side of the appropriate language.

Setting the Report Path for Static Analysis and Test Execution Results

For Parasoft results to be uploaded, the path to the report files must be set. There are several ways to configure this.

- To configure the path globally go to **Administration > Configuration > General Settings > External Analyzers** and find the **Report Files** setting for your Parasoft product.



Enter the path to the report.xml file of your project. For example:

```
target/jtest/report.xml
```

You can add multiple paths, each in a separate field. When the Parasoft scanner runs, results will be loaded from each valid report file path.

- To configure the path for a project, go to the **External Analyzers** section in the project's settings.
- To configure the path when running the sonar scanner, include the report path's settings key. For example:

- Jtest using Maven:

```
mvn sonar:sonar -Dsonar.token=<your sonar token> -Dsonar.host.url="http://
<your sonar server>:<your sonar server port>/"
 -Dsonar.parasoft.jtest.reportPaths=target/report.xml...<additional sonar
settings>
```

- Jtest using sonar-scanner:

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar token> -Dsonar.host.url="http://<your sonar server>:<your sonar
server port>/" -Dsonar.parasoft.jtest.reportPaths=target/
report.xml...<additional sonar settings>
```

- C/C++test using sonar-scanner:

```
build-wrapper-win-x86-64.exe --out-dir
build_wrapper_output_directory...<your build commands i.e.: make clean all
"C:/cpptest/examples/FlowAnalysisCpp">
```

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar token> -Dsonar.host.url="http://<your sonar server>:<your sonar
server port>/" -Dsonar.parasoft.cpptest.reportPaths=target/
report.xml...<additional sonar settings>
```

- dotTEST using .NET's sonar-scanner (**Note**: Sonar-scanner must be installed via the command: `dotnet tool install --global dotnet-sonarscanner`):

```
dotnet sonarscanner begin /k:"<your solution>" /d:sonar.token="<your sonar
token>" /d:sonar.parasoft.dottest.reportPaths="target/report.xml"...<additi
onal sonar settings>
```

```
dotnet build <your solution>
```

```
dotnet sonarscanner end /d:sonar.token="<your sonar token>"
```

- dotTEST using Sonar's provided sonar-scanner:

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar token> -Dsonar.host.url="http://<your sonar server>:<your sonar
server port>/" -Dsonar.parasoft.dottest.reportPaths=target/
report.xml...<additional sonar settings>
```

- SOAtest using Sonar's provided sonar-scanner:

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar token> -Dsonar.host.url="http://<your sonar server>:<your sonar
server port>/" -Dsonar.parasoft.soatest.reportPaths=target/
report.xml...<additional sonar settings>
```

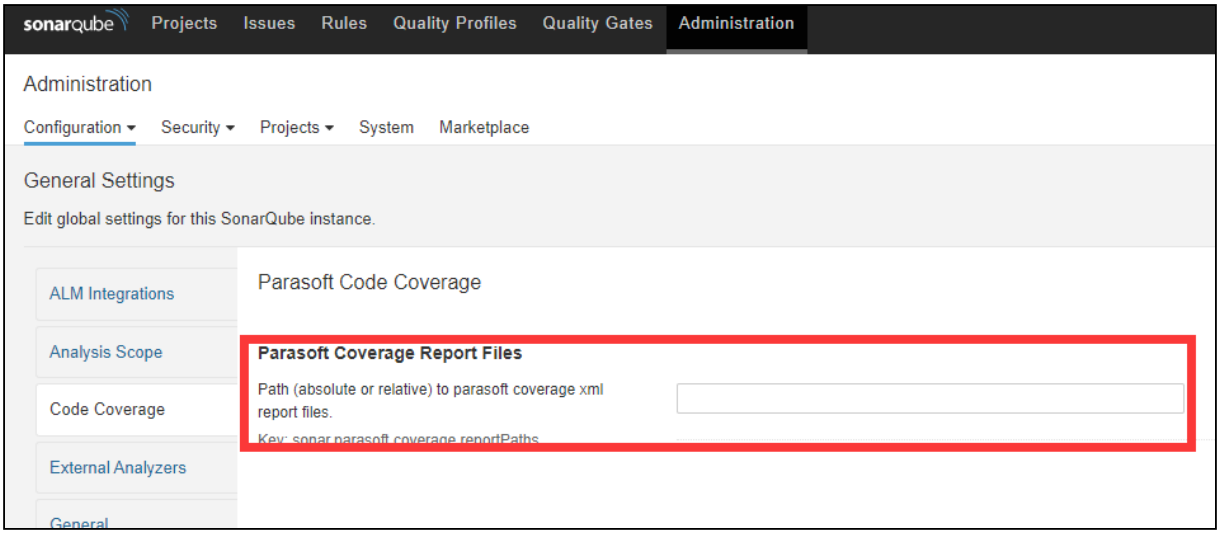
- Sonar-scanner can be downloaded from: https://docs.sonarqube.org/latest/analyzing-source-code/scanners/sonarscanner/
- Jtest unit test results will be skipped if Maven Surefire reports exist in target/surefire-reports folder for the project, which will be parsed automatically by the built-in sensor of Sonar.
- You can include multiple report files:

```
mvn sonar:sonar -Dsonar.parasoft.jtest.reportPaths=target/report.xml
-Dsonar.parasoft.jtest.reportPaths=target/report_2.xml...<additional sonar
settings>
```

Setting the Report Path for Coverage

For Parasoft results to be uploaded, the path to the report files must be set. There are several ways to configure this.

- To configure the path globally go to **Administration > Configuration > General Settings > Code Coverage** and find the **Parasoft Coverage Report Files** setting for your Parasoft product.



  Enter the path to the report.xml file of your project. For example:
  `report/coverage.xml`
  or
  `D:\project\report\coverage.xml`

- To configure the path when running the sonar scanner, include the report path's settings key. For example:
  - Jtest using Maven:

```
mvn sonar:sonar -Dsonar.token=<your sonar key> -Dsonar.host.url="http://
<your sonar server>:<your sonar server port>/"
 -Dsonar.parasoft.coverage.reportPaths=target/coverage.xml...<additional
sonar settings>
```

  - Jtest using sonar-scanner:

View online: https://docs.parasoft.com/x/Ny1-C

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar key> -Dsonar.host.url="http://<your sonar server>:<your sonar server
port>/" -Dsonar.parasoft.coverage.reportPaths=target/
coverage.xml...<additional sonar settings>
```

- C/C++test using sonar-scanner:

```
build-wrapper-win-x86-64.exe --out-dir
build_wrapper_output_directory...<your build commands i.e.: make clean all
"C:/cpptest/examples/FlowAnalysisCpp">
```

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar key> -Dsonar.host.url="http://<your sonar server>:<your sonar server
port>/" -Dsonar.parasoft.coverage.reportPaths=target/
coverage.xml...<additional sonar settings>
```

- dotTEST using .NET's sonar-scanner (**Note**: Sonar-scanner must be installed via the command: `dotnet tool install --global dotnet-sonarscanner`):

```
dotnet sonarscanner begin /k:"<your solution>" /d:sonar.token="<your sonar
key>" /d:sonar.parasoft.coverage.reportPaths="target/coverage.xml"...<addit
ional sonar settings>
```

```
dotnet build <your solution>
```

```
dotnet sonarscanner end /d:sonar.token="<your sonar key>"
```

- dotTEST using Sonar's provided sonar-scanner:

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar key> -Dsonar.host.url="http://<your sonar server>:<your sonar server
port>/" -Dsonar.parasoft.coverage.reportPaths=target/
coverage.xml...<additional sonar settings>
```

- SOAtest using Sonar's provided sonar-scanner:

```
sonar-scanner-<version>-windows/bin/sonar-scanner.bat -Dsonar.token=<your
sonar key> -Dsonar.host.url="http://<your sonar server>:<your sonar server
port>/" -Dsonar.parasoft.soatest.reportPaths=target/
report.xml...<additional sonar settings>
```

- Sonar-scanner can be downloaded from: https://docs.sonarqube.org/latest/analyzing-source-code/scanners/sonarscanner/

Uploading Project Results

To upload Parasoft results for a project, first run the command which generates the report.xml file, and then run the usual Sonar scanner command. For example, with a Maven project setup using Jtest, a single command can be run from the root directory of your project:

```
mvn jtest:jtest sonar:sonar -Dsonar.projectKey=<project key> -Dsonar.host.url=<server url> -Dsonar.token=<login token>
```

See the documentation for your Parasoft product for details on how to run test cases and generate a test execution report:

- For Jtest: https://docs.parasoft.com/display/JTEST20232/Running+Unit+Tests
- For dotTEST: https://docs.parasoft.com/display/DOTTEST20232/Running+Unit+Tests
- For C/C++test: https://docs.parasoft.com/display/CPPTEST20232/Integrating+with+CppUnit+and+CppUtest
- For SOAtest: https://docs.parasoft.com/display/SOAVIRT20232/CLI+Usage

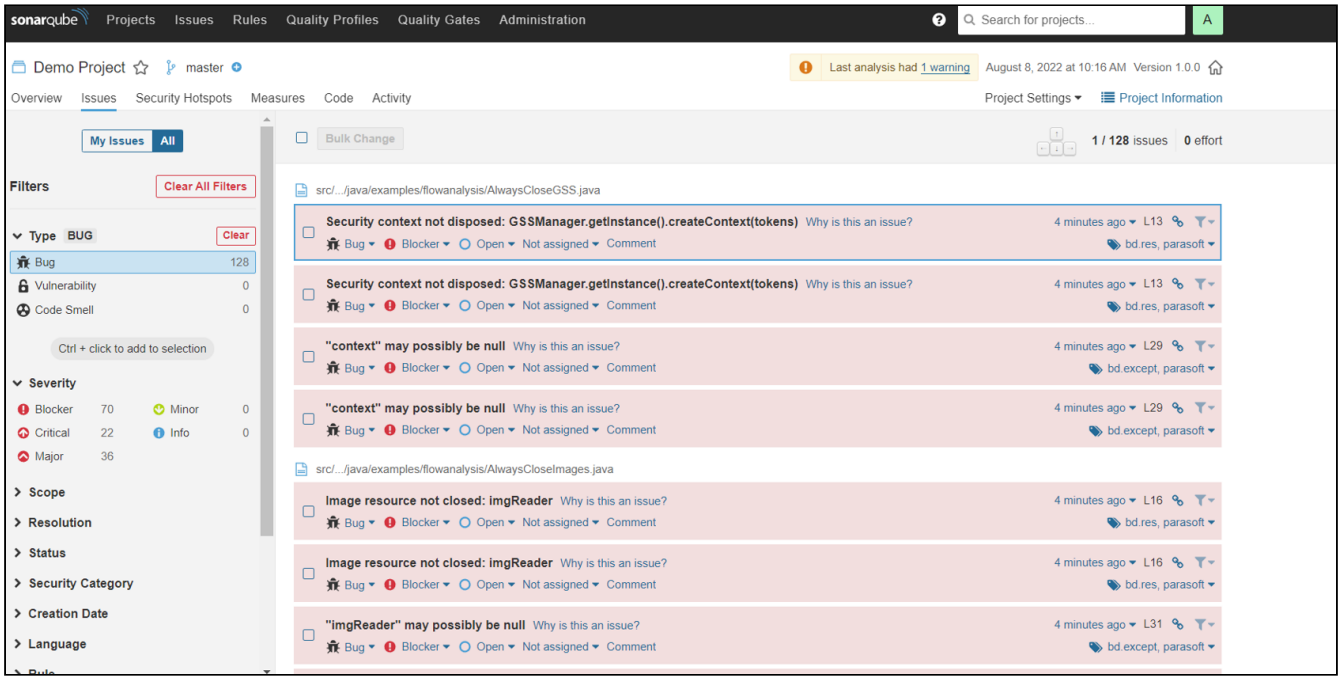
See the documentation for your Parasoft product for details on how to run test cases and generate a coverage report:

- For Jtest: https://docs.parasoft.com/display/JTEST20232/Coverage+for+Unit+Test
- For dotTEST: https://docs.parasoft.com/display/DOTTEST20232/Coverage+for+Unit+Test
- For C/C++test: https://docs.parasoft.com/display/CPPTEST20232/Collecting+Application+Coverage+for+CMake+Projects

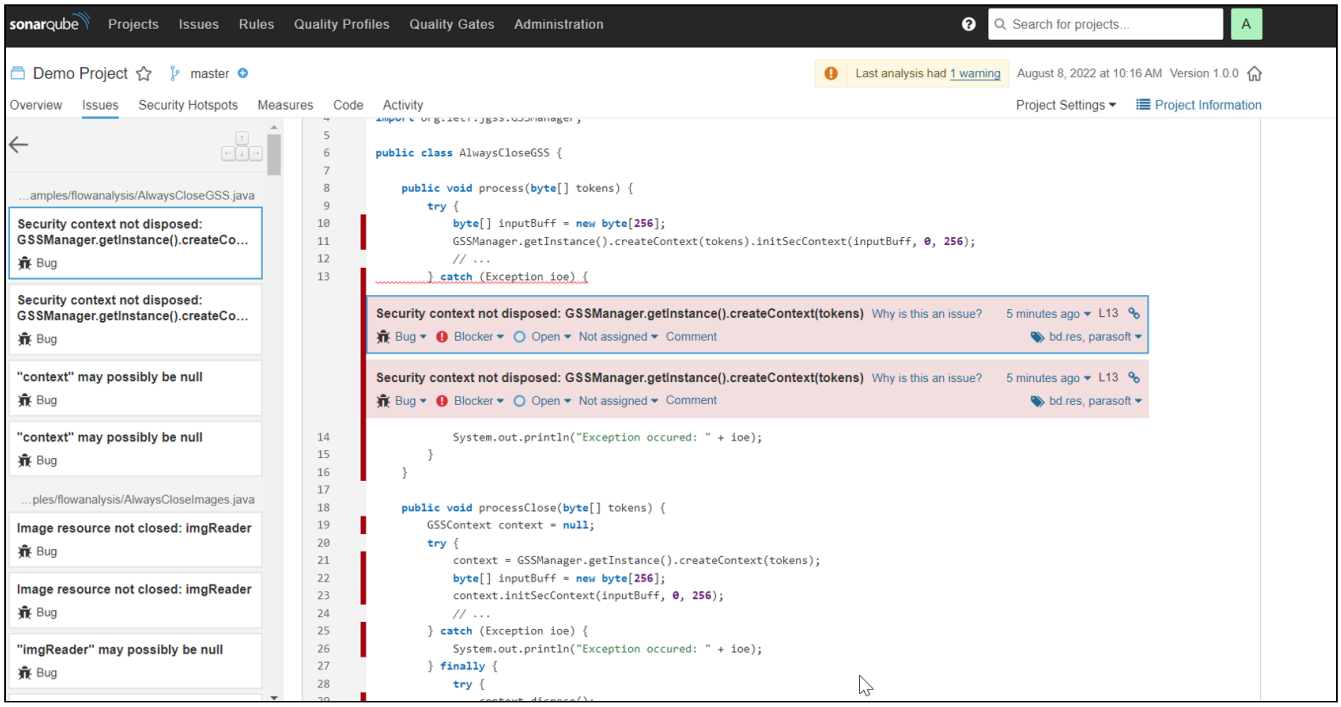
See https://docs.sonarqube.org/latest/analysis/overview/ for details on how to run the Sonar scanner on projects using different build systems.

Viewing Static Analysis Results

After the results are uploaded, they can be viewed in the project in the **Issues** tab.



View online: https://docs.parasoft.com/x/Ny1-C

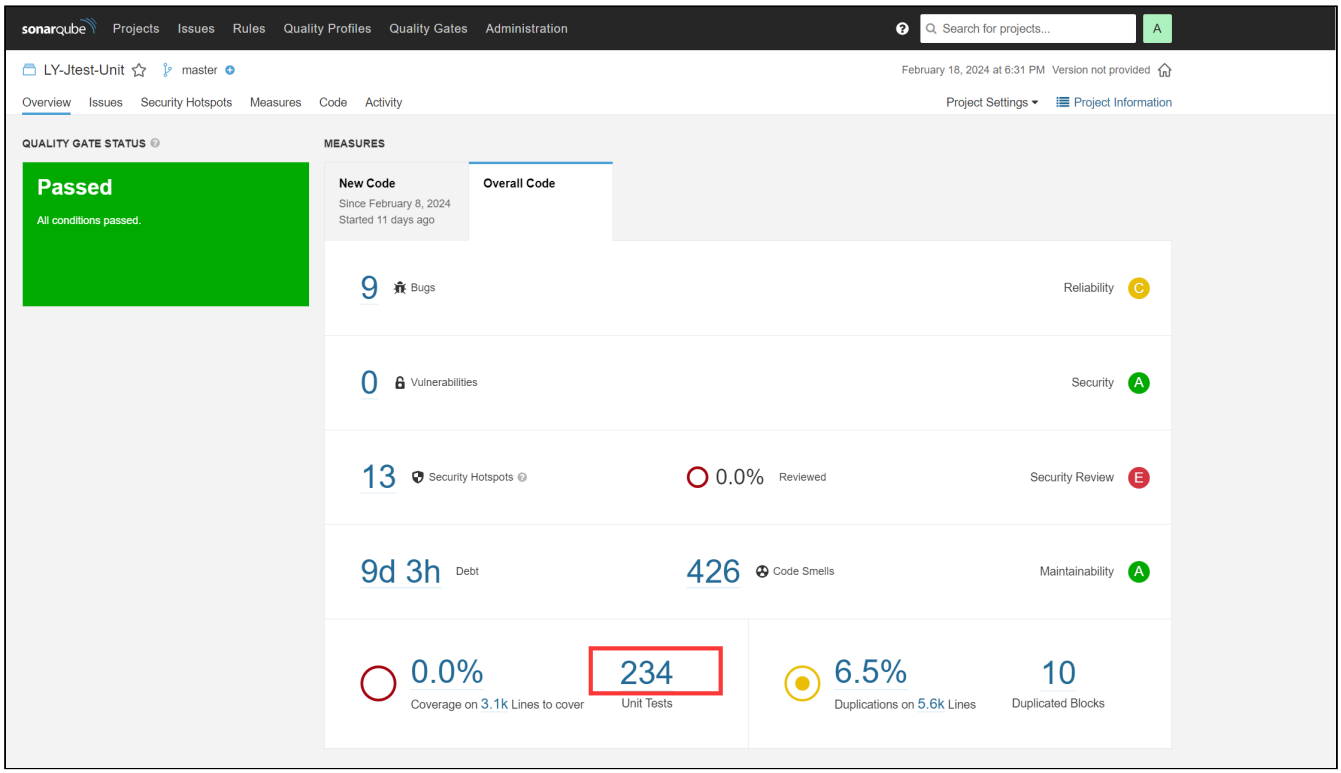


C/C++test Professional Report Settings

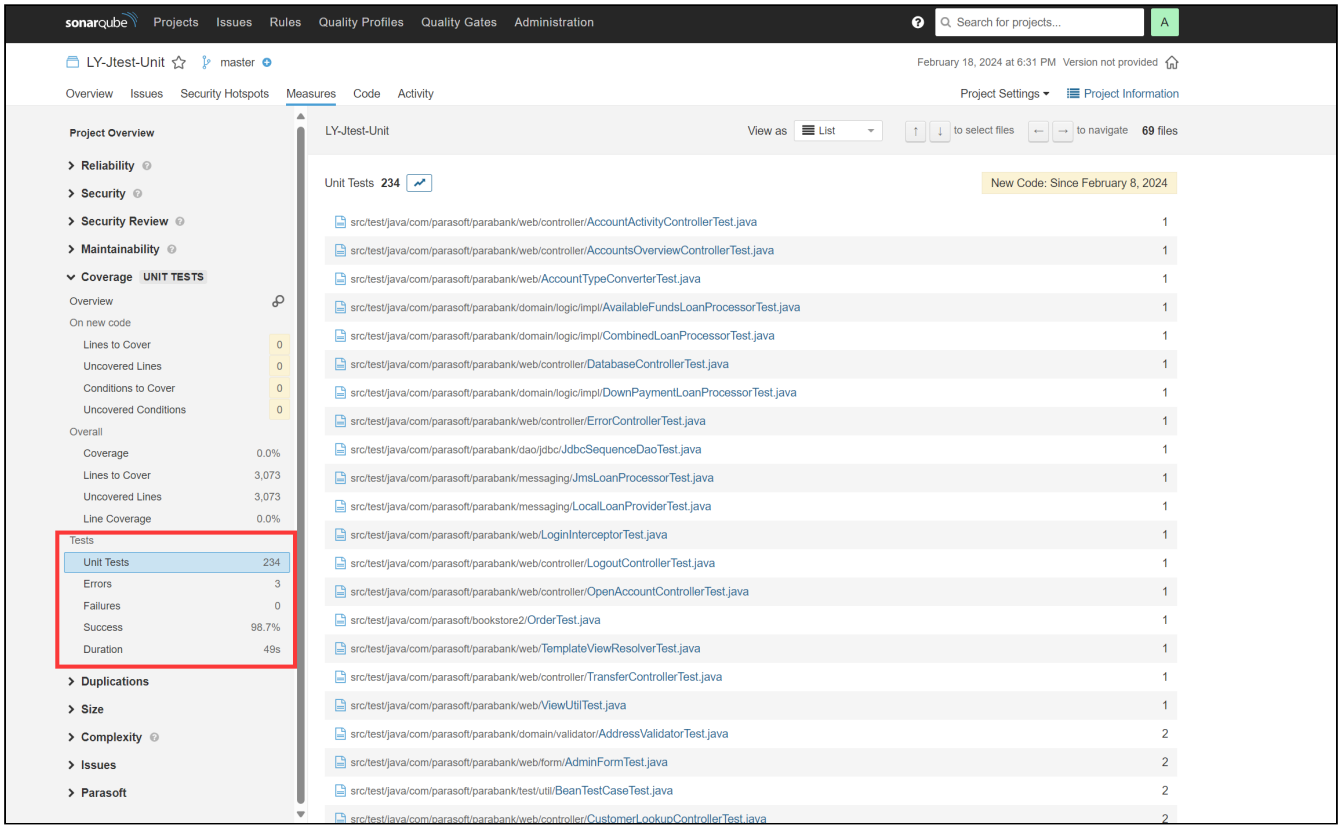
If you are generating static analysis reports with C/C++test Professional 2023.1 or earlier, make sure the **Add absolute file paths to XML data** option is enabled to show the issues if it is stored in the SonarQube project. You can enable this option on the command line by using the option `-property report.contexts_details=true` or by setting the `report.contexts_details=true` property in the settings file.

Viewing Test Execution Results

After the results are uploaded, in addition to SOAtest test execution results, they can be viewed in the project in the **Overview** tab.

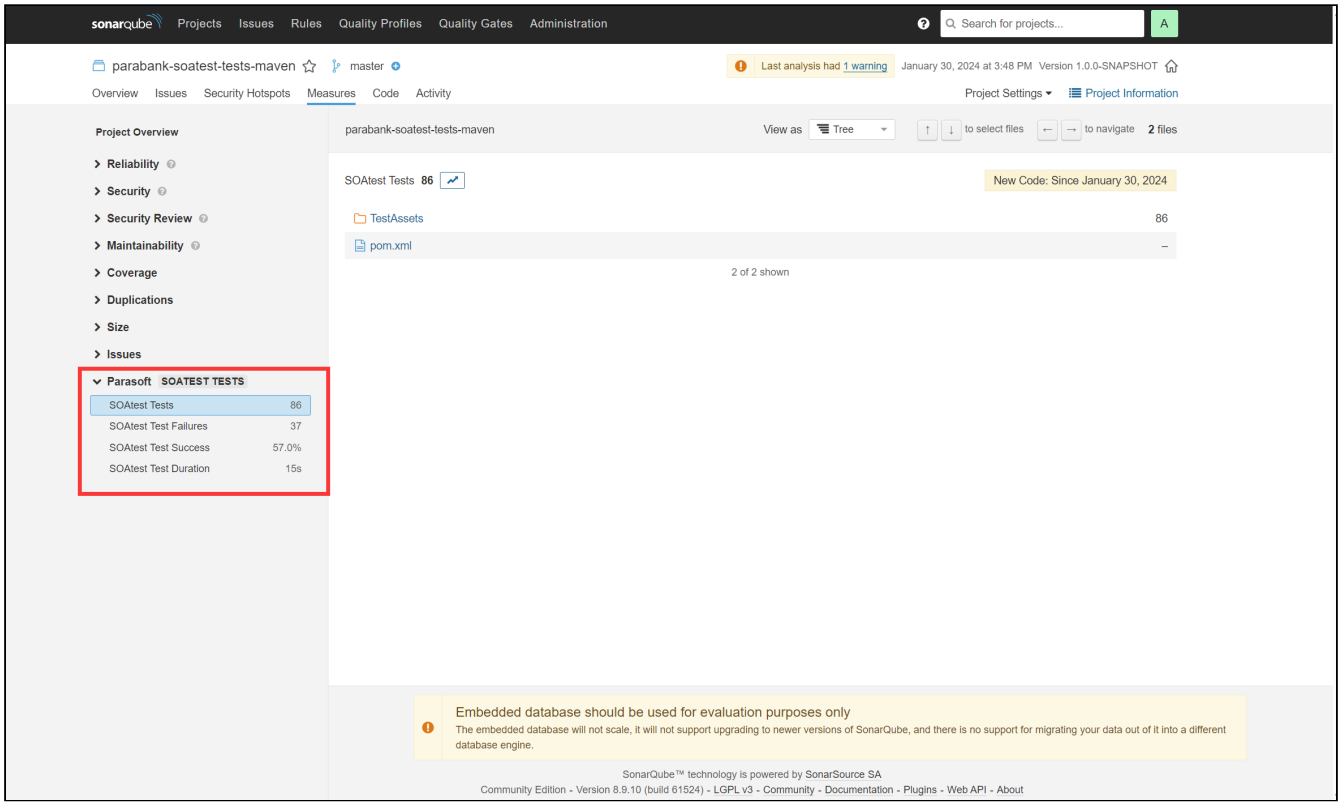


View online: https://docs.parasoft.com/x/Ny1-C



For SOAtest test execution results, it can be viewed in the project in the **Measures** tab.

View online: https://docs.parasoft.com/x/Ny1-C



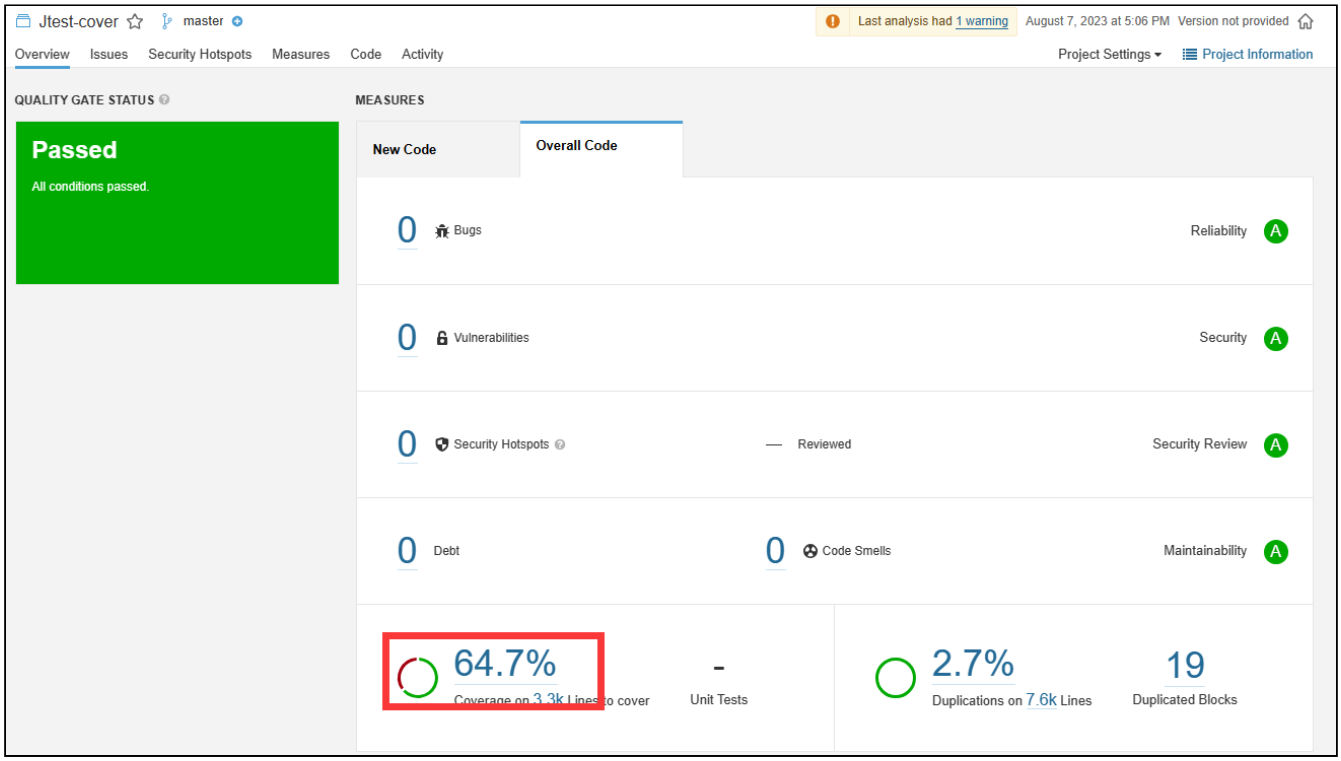
C/C++test Professional Unit Test Results

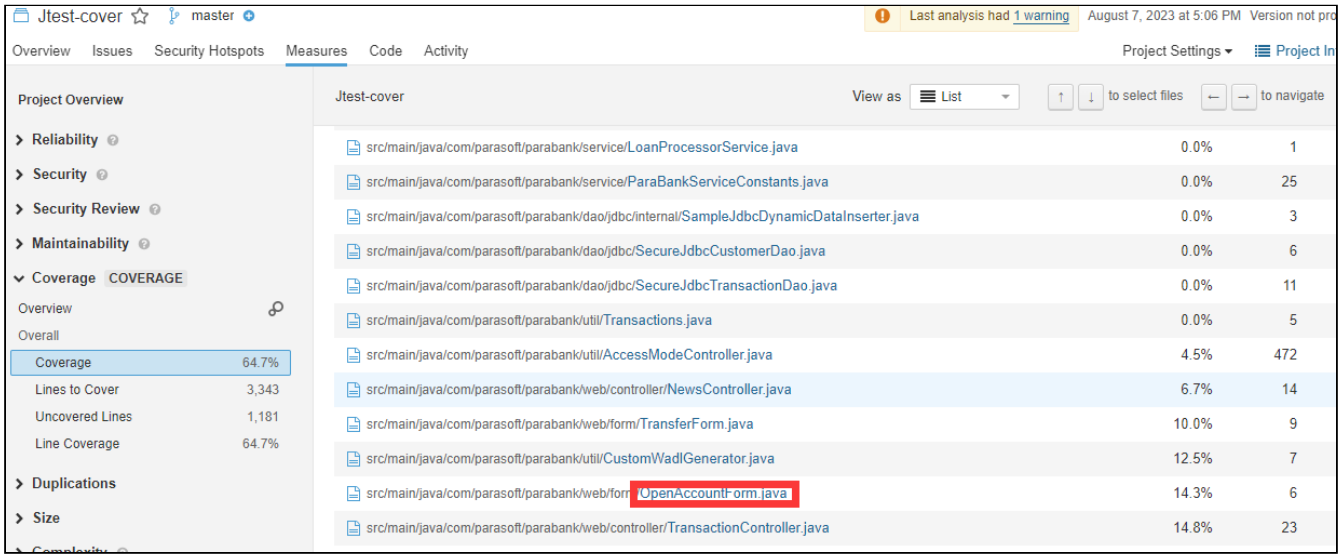
C/C++test reports for unit test results must be generated with the **Overview of checked files and executed tests** option enabled. You can enable this option on the command line by using the option `-property report.contexts_details=true` or by setting the `report.contexts_details=true` property in the settings file.

Starting with version 2024.1, you can also use the command line option `-property report.additional.report.dir=<REPORT_DIR>` when generating the reports and use reports generated in this directory.

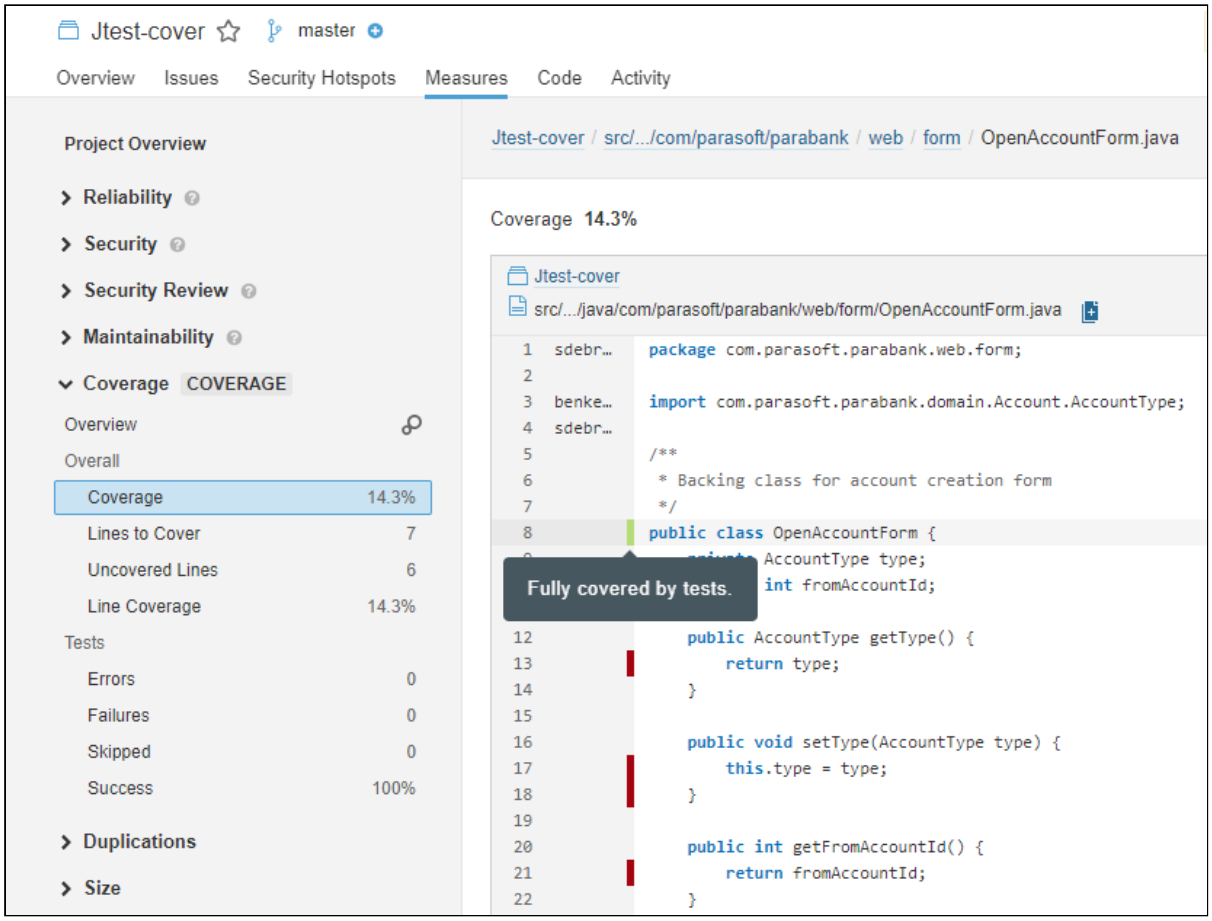
Viewing Code Coverage Results

After the results are uploaded, they can be viewed in the project in the **Overview** tab.





View online: https://docs.parasoft.com/x/Ny1-C



C/C++test Professional Reports

Code coverage reports for C/C++test Professional are not supported for versions prior to 2024.1.

Starting with version 2024.1, you can also use the command line option `-property report.additional.report.dir=<REPORT_DIR>` when generating the reports and use reports generated in this directory.

Third-party Acknowledgments

The Parasoft Findings Plugin for SonarQube uses the following third-party software:

Apache Commons Codec

This software is used under an Apache License 2.0 with this notice.

Apache Commons Collections

This software is used under an Apache License 2.0 with this notice.

Apache HttpClient

This software is used under an Apache License 2.0 with this notice.

Apache HttpClient Fluent API

This software is used under an Apache License 2.0 with this notice.

Apache HttpClient Mime

This software is used under an Apache License 2.0 with this notice.

Apache HttpCore

This software is used under an Apache License 2.0 with this notice.

Dom4j

This software is used under a BSD License.

Jackson-annotations

This software is used under an Apache License 2.0 with this notice.

Jackson-core

This software is used under an Apache License 2.0 with this notice.

jackson-databind

This software is used under an Apache License 2.0 with this notice.

JRCS Diff

This software is used under a LGPL License.

Saxon-HE

This software is used under an MPL 2.0 license.

SLF4J API Module

This software is used under an MIT License.

xmlresolver

This software is used under an Apache License 2.0.

zip4j

This software is used under an Apache License 2.0 with this notice.