User Manual

Table of contents

Home

Welcome to the sonar-frama-c-plugin wiki! 

Table of contents

About

Sonar-frama-c-plugin is a SonarQube plugin integrating frama-c results into SonarQube dashboard.

Build

Required : git, Java 8 and maven 3.5.0 (or latest)

- Clone github repository : `git clone https://github.com/lequal/sonar-frama-c-plugin.git`
- Build using maven from the project directory : `mvn clean install`
- The generated plugin can be found into the target directory `(<sonar-frama-c-plugin_dir>/target)`

Install

- Copy the generated jar into `<SonarQube_installation_directory>/extensions/plugins`.
- Restart SonarQube : `sonar restart` or `service sonar restart`
- Check SonarQube logs : `tail -f <SonarQube_installation_directory>/logs/web.log`

Configure

- Open SonarQube web interfaces `http://<SonarQube_installation_host_ip>:9000` or `http://localhost:9000` if your are on the host machine
- Select "FramaC Quality Profile" and add selected Frama-c rules to the Profile.

Run

Prepare Frama-c project

For all project source files, run: `frama-c -metrics -val <source_file.c> > ./<report_dir>/source_file.res.out>`

Where:

- The parameter `-metrics` produce global metrics output
- The parameter `-val` produce a Frama-C value analysis

- The source file `<source_file.c>` shall have for extension ***.c*** or ***.i***
- The sub-directory `<report_dir>` is used to store Frama-C stdout stream
- The Frama-C standard output stream shall be stored into a report file with the same name as the source file and a specific extension name `res.out`

Configure sonar-scanner

In your project directory, create sonar-project.properties file, containing the following items :

```
sonar.projectKey=<your project key>
sonar.projectName=<your project name>
sonar.projectVersion= <your project version>
# Comma-separated paths to directories with sources (required)
sonar.sources=.
# Tells SonarQube where the frama-C analysis reports are
sonar.framac.reportsPath=<report_dir>
# Encoding of the source files
sonar.sourceEncoding=UTF-8
```

Run sonar-scanner

Once you got frama-c results and sonar-project.properties configured, you can launch sonar scanner from you project directory : `sonar-scanner`

Frama-c plugin rules definition

sonar-frama-c-plugin analyses frama-c text output and extracts the following rule's violations, defined by pattern. Complete explanation on the results are available from frama-c.

Rule id	Pattern
VALUE.0	[value] warning:
VALUE.1	[value] warning: accessing uninitialized left-value
VALUE.2	[value] warning: signed overflow
VALUE.3	[value] warning: global initialization of volatile variable
VALUE.4	[value] warning: non-finite
VALUE.5	[value] warning: initialization of volatile variable
VALUE.6	[value] warning: pointer comparison
VALUE.7	[value] warning: division by zero
VALUE.8	[value] warning: locals
VALUE.9	[value] warning: detected recursive call
VALUE.10	[value] warning: during initialization of variable
VALUE.11	[value] warning: ignoring non-existing function
SYNTAX.0	[kernel] warning:
SYNTAX.1	[kernel] warning: dropping duplicate def'n of func
SYNTAX.2	[kernel] warning: Variable-sized local
SYNTAX.3	[kernel] warning: Clobber list contain "memory" argument
SYNTAX.4	[kernel] warning: Too many initializers for structure
SYNTAX.5	[kernel] warning: merging definitions of enum E using int type
SYNTAX.6	[kernel] warning: Calling undeclared function

Rule id	Pattern
SYNTAX.7	[kernel] warning: Body of function
SYNTAX.8	[kernel] warning: Neither code nor specification for function
SYNTAX.9	[kernel] imprecise size for variable
SYNTAX.10	[kernel] warning: Unspecified sequence with side effect
SYNTAX.11	[kernel] warning: Floating-point constant

Contribute

You can contribute to sonar-frama-c-plugin :

- following the defined CODE_OF_CONDUCT
- using the PULL_REQUEST_TEMPLATE
- using the ISSUE_TEMPLATE

Support

Contact : L-lequal@cnes.fr

Bugs and Feature requests : https://github.com/lequal/sonar-frama-c-plugin/issues

Licensing

sonar-frama-c-plugin is under GNU GPL v3.

Documentation

Documentation

User manual

manual.pdf

The User Manuel is generated from this wiki by Wikito Converter GitHub

Plugin Overwiev

presentation.pdf

Architecture

Overview of Sonar Plug-in Frama-C architecture

Packages

fr.cnes.sonarqube.plugins.framac

Defined all plug-in elements. These elements extends Sonar and add to it:

- languages: Specific Plug-in language
- measures: Metrics and computed measures definitions
- report: Parse a Frama-C output report
- rules: Frama-C rules definition
- sensor: Sensor executed by sonar-scanner into Frama-C projects
- settings: Plug-in preferences

fr.cnes.sonarqube.plugins.framac.languages

Define a new specific language used to:

- Aggregate Frama-C Metrics and Rules
- Allow Sonar administrator to edit the plug-in preferences Define a default Quality Profile.

fr.cnes.sonarqube.plugins.framac.measures

Define Metrics and computed measures.

fr.cnes.sonarqube.plugins.framac.report

Frama-C output report parser and Frama-C sensor interfaces.

fr.cnes.sonarqube.plugins.framac.rules

Define all Frama-C rules.

fr.cnes.sonarqube.plugins.framac.sensor

Define how to read Frama-C output report and produce measures and issues.

fr.cnes.sonarqube.plugins.framac.settings

Define plugin preferences.