Code Quality (Clean Code)
with SonarSource products

SonarSource has different solutions
for improving code quality

- sonar-scanner CLI (the core)
- SonarQube (the analysis platform)
- SonarLint (linting in IDE, requires JDK)
- SonarCloud (hosted version of SonarQube)

install sonar-scanner

- extract archive anywhere
- add path to bin directory to your PATH variable
- sonar-scanner --help
- (alternatively using sonarqube-scanner (NodeJS))

install SonarQube demo instance
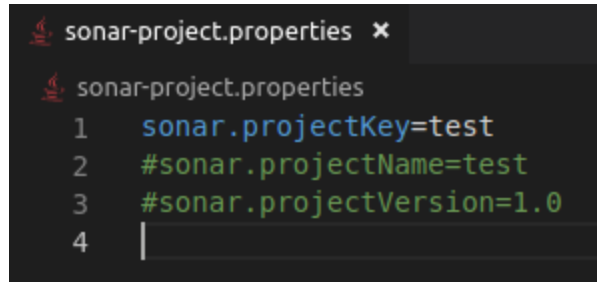- Docker (docker pull sonarqube)
- or manually

SonarQube should run on port 9000 by default
(docker run -p 9000:9000 sonarqube)

setup a new project

start SonarQube

```
2019.08.01 12:51:34 INFO  ce[][o.s.c.c.CePluginRepository] Load plugins
2019.08.01 12:51:35 INFO  ce[][o.s.c.c.ComputeEngineContainerImpl] Running Community edition
2019.08.01 12:51:35 INFO  ce[][o.s.ce.app.CeServer] Compute Engine is operational
2019.08.01 12:51:36 INFO  app[][o.s.a.SchedulerImpl] Process[ce] is up
2019.08.01 12:51:36 INFO  app[][o.s.a.SchedulerImpl] SonarQube is up
```

create config file

projectKey is required, everything else is optional

add .scannerwork directory (project cache) to .gitignore

run sonar-scanner in project

```
→ sonarqube-demo sonar-scanner
INFO: Scanner configuration file: /home/druf/Downloads/sonar-scanner-4.0.0.1744-linux/conf/sonar-scanner.properties
INFO: Project root configuration file: /home/druf/Schreibtisch/projects/sonarqube-demo/sonar-project.properties
INFO: SonarQube Scanner 4.0.0.1744
INFO: Java 11.0.3 AdoptOpenJDK (64-bit)
INFO: Linux 4.15.0-55-generic amd64
INFO: User cache: /home/druf/.sonar/cache
INFO: SonarQube server 7.9.1
INFO: Default locale: "de_DE", source code encoding: "UTF-8" (analysis is platform dependent)
INFO: Load global settings
INFO: Load global settings (done) | time=132ms
INFO: Server id: BF41A1F2-AWxNO4_mU59Oxw_7nTRx
INFO: User cache: /home/druf/.sonar/cache
INFO: Load/download plugins
INFO: Load plugins index
INFO: Load plugins index (done) | time=64ms
INFO: Load/download plugins (done) | time=146ms
INFO: Process project properties
INFO: Execute project builders
INFO: Execute project builders (done) | time=4ms
INFO: Project key: test
INFO: Base dir: /home/druf/Schreibtisch/projects/sonarqube-demo
INFO: Working dir: /home/druf/Schreibtisch/projects/sonarqube-demo/.scannerwork
INFO: Load project settings for component key: 'test'
INFO: Load quality profiles
INFO: Load quality profiles (done) | time=125ms
INFO: Load active rules
INFO: Load active rules (done) | time=3795ms
WARN: SCM provider autodetection failed. Please use "sonar.scm.provider" to define SCM of your project, or disable the
 SCM Sensor in the project settings.
INFO: Indexing files...
INFO: Project configuration:
INFO: Load project repositories
INFO: Load project repositories (done) | time=8ms
INFO: 2 files indexed
INFO: Quality profile for css: Sonar way
INFO: ------------ Run sensors on module test
INFO: Load metrics repository
INFO: Load metrics repository (done) | time=73ms
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by net.sf.cglib.core.ReflectUtils$1 (file:/home/druf/.sonar/cache/866bb1adbf016ea51
5620f1aaa15ec53/sonar-javascript-plugin.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,i
nt,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of net.sf.cglib.core.ReflectUtils$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
INFO: Sensor SonarCSS Metrics [cssfamily]
INFO: Sensor SonarCSS Metrics [cssfamily] (done) | time=28ms
INFO: Sensor SonarCSS Rules [cssfamily]
INFO: Sensor SonarCSS Rules [cssfamily] (done) | time=930ms
INFO: Sensor JaCoCo XML Report Importer [jacoco]
INFO: Sensor JaCoCo XML Report Importer [jacoco] (done) | time=3ms
INFO: Sensor JavaXmlSensor [java]
INFO: Sensor JavaXmlSensor [java] (done) | time=1ms
INFO: Sensor HTML [web]
INFO: Sensor HTML [web] (done) | time=11ms
INFO: ------------ Run sensors on project
INFO: Sensor Zero Coverage Sensor
INFO: Sensor Zero Coverage Sensor (done) | time=1ms
INFO: No SCM system was detected. You can use the 'sonar.scm.provider' property to explicitly specify it.
INFO: Calculating CPD for 0 files
INFO: CPD calculation finished
INFO: Analysis report generated in 69ms, dir size=72 KB
INFO: Analysis report compressed in 10ms, zip size=10 KB
INFO: Analysis report uploaded in 289ms
INFO: ANALYSIS SUCCESSFUL, you can browse http://localhost:9000/dashboard?id=test
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:9000/api/ce/task?id=AWxNPUT8U59Oxw_7nVaK
INFO: Analysis total time: 7.489 s
INFO: ------------------------------------------------------------------------
INFO: EXECUTION SUCCESS
INFO: ------------------------------------------------------------------------
INFO: Total time: 8.642s
INFO: Final Memory: 6M/30M
INFO: ------------------------------------------------------------------------
```

check results

sonarqube   Projects   Issues   Rules   Quality Profiles   Quality Gates   ❓ 🔍 Search for projects and files...   Log in

Continuous Code Quality

Log in   Read documentation

1

Projects Analyzed

2   🐞 Bugs

0   🔒 Vulnerabilities

0   ⊗ Code Smells

0   🔓 Security Hotspots

demo login is admin / admin

sonarqube

Projects   Issues   Rules   Quality Profiles   Quality Gates

Search for projects and files...   Log in

Filters

Perspective: Overall Status   Sort by: Last analysis date   Search by project name or key   **1** projects

Quality Gate

Passed   1

Failed   0

Reliability (🐛 Bugs)

A   0

B   0

C   0

D   1

E   0

Security (🔓 Vulnerabilities)

A   1

B   0

C   0

test   Passed

Last analysis: August 1, 2019, 2:52 PM

2 D   0 A   0 A   —   ◯ 0.0%   5 XS
🐛 Bugs   🔓 Vulnerabilities   ☢ Code Smells   Coverage   Duplications   CSS

1 of 1 shown

sonarqube Projects   Issues   Rules   Quality Profiles   Quality Gates

Search for projects and files...   Log in

test   master ⊕   ⚠ Last analysis had 1 warnings   August 1, 2019, 2:52 PM Version not provided

Overview   **Issues**   Measures   Code   Activity

← **1 / 2** issues   ↻

test   /button.css   See all issues in this file

button.css

Unexpected shorthand "font" after "font-size"
🐛 Bug

Unexpected missing generic font family
🐛 Bug

2 of 2 shown

```
1  …    .button--success {
2            font-size: 12px;
3            color: green;
4            font: 10px Arial;
```

Unexpected shorthand "font" after "font-size" See Rule   1 minute ago ▾ L4 🔗
🐛 Bug ⬆ Critical ◯ Open Not assigned 5min effort   🏷 No tags

Unexpected missing generic font family See Rule   1 minute ago ▾ L4 🔗
🐛 Bug ⬆ Major ◯ Open Not assigned 1min effort   🏷 No tags

```
5        }
6
```

many default rules and rule sets

**3400+ Static Analysis Rules
across 27 programming languages**

Carefully annotated and continuously refined