

# SonarQube with Docker

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## 1. Build/Run a SonarQube Server Docker Image

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### 1.1. Create the Docker Initial Image

1. Change/Customize your image name/tag into `docker_build.sh`

Refers Dockerfile: `Dockerfile.sonarqube`

2. Run the shell file `docker_build.sh` to build the initial docker image

### 1.2. Create/Run the Container

1. Change/Customize your image name/tag, hosts, ports and container name into `docker_run.sh`

Refers init command: `run.sh`

2. Run `docker_run.sh` to create and start the container from image created at step 1

Then use `docker stop|start container_name` commands to stop/start the container

Check your container with `docker ps`

Remove your container with `docker rm container_name`

## 1.3. BASH Shell Session to the Container

1. Change/Customize your container name into `docker_exec.sh`
2. Run `docker_exec.sh` to create a bash shell session to the container

## 1.4. Notes

- Original Official Dockerfile for SonarQube: [https://registry.hub.docker.com/\\_/sonarqube/](https://registry.hub.docker.com/_/sonarqube/)
- How to install and configure SonarQube Runner (Analyser):  
<http://docs.sonarqube.org/display/SONAR/Installing+and+Configuring+SonarQube+Runner>
- How to analyse your source code:  
<http://docs.sonarqube.org/display/SONAR/Analyzing+with+SonarQube+Runner>

## 1.5. Important Before Continuing Further

- Prepare the /etc/hosts of the Docker Host: `192.168.99.100 sonarqube.zenentropy.net`

```
$ docker-machine ls
```

NAME	ACTIVE	DRIVER	STATE	URL	S
WARM					
dev	*	virtualbox	Running	tcp://192.168.99.100:2376	

- Once the container is started test SonarQube Web front end from host browser:  
<http://sonarqube.zenentropy.net:9000>  

No need to be logged in to browse an analysed project (public access)
- Double check and eventually install/update the right language plugin (Java plugin is installed by default but might need an update): <http://docs.sonarqube.org/display/PLUG/Java+Plugin>
  1. Login as administrator  
**Administrator user credentials:** admin/admin
  2. Go to: Settings | System | Update Center
  3. Use: "Installed Plugins" or "Available Plugins" or "Plugin Updates" depending on your source code language requirement
  4. A restart of SonarQube will generally be needed after an install/update
  5. Exit any Docker exec session and restart the container

## 2. Setup Sonar Runner to Analyse Java Source Code

### 2.1. Analysing the source code

- Start a Docker exec session with a bash shell

```
$ docker_exec.sh

root@sonarqube:/opt/sonarqube# cd
root@sonarqube:~# sonar-runner -h
INFO:
INFO: usage: sonar-runner [options]
INFO:
INFO: Options:
INFO:  -D,--define <arg>      Define property
INFO:  -e,--errors             Produce execution error messages
INFO:  -h,--help              Display help information
INFO:  -v,--version            Display version information
INFO:  -X,--debug             Produce execution debug output
```

- Get the source code and expand it under the defined project directory

```
root@sonarqube:~/MySampleSources# curl -O http://<source>/MySampleSources-Tree.tgz
root@sonarqube:~/MySampleSources# tar xvzf MySampleSources-Tree.tgz
root@sonarqube:~/MySampleSources# rm MySampleSources-Tree.tgz
root@sonarqube:~/MySampleSources# cd ..
```

- Launch Sonar Runner

Sonar Runner command must be executed at the same level as the corresponding project properties file `sonar-project.properties`, otherwise use the `-D` switch, or change the `sonar.sources` property accordingly

```
sonar-runner -Dsonar.sources=./MySampleSources \
-Dsonar.projectKey=MySampleSources \
-Dsonar.projectName=MySampleSources \
-Dsonar.projectVersion=1.0
```

NOTE: The `sonar-project.properties` file defines the project (source code tree) to be analysed, the source directory location is relative to the properties file as the `sonar.sources` property is meant to define it (`./MySampleSources`)

```
root@sonarqube:~/# sonar-runner
SonarQube Runner 2.4
Java 1.8.0_45-internal Oracle Corporation (64-bit)
Linux 4.0.5-boot2docker amd64
INFO: Runner configuration file: /root/sonar-runner-2.4/conf/sonar-runner.p
roperties
INFO: Project configuration file: /root/sonar-project.properties
INFO: Default locale: "en", source code encoding: "UTF-8" (analysis is plat
form dependent)
INFO: Work directory: /root/./sonar
INFO: SonarQube Server 5.1.1
15:10:25.918 INFO - Load global repositories
15:10:26.048 INFO - Load global repositories (done) | time=131ms
15:10:26.049 INFO - Server id: 20150624133445
15:10:26.051 INFO - User cache: /root/.sonar/cache
15:10:26.068 INFO - Install plugins
15:10:26.073 INFO - Download sonar-email-notifications-plugin-5.1.1.jar
15:10:26.109 INFO - Download sonar-core-plugin-5.1.1.jar
15:10:26.114 INFO - Download sonar-java-plugin-3.3.jar
15:10:26.167 INFO - Download sonar-scm-git-plugin-1.1.jar
15:10:26.210 INFO - Download sonar-l10n-en-plugin-5.1.1.jar
15:10:26.214 INFO - Download sonar-scm-svn-plugin-1.1.jar
15:10:26.343 INFO - Install JDBC driver
15:10:26.346 INFO - Download h2-1.3.176.jar
15:10:26.365 INFO - Create JDBC datasource for jdbc:h2:tcp://localhost:909
2/sonar
15:10:27.462 INFO - Initializing Hibernate
15:10:28.428 INFO - Load project repositories
15:10:28.773 INFO - Load project repositories (done) | time=345ms
15:10:28.774 INFO - Load project settings
15:10:28.998 INFO - Load technical debt model
15:10:29.016 INFO - Apply project exclusions
15:10:29.716 WARN - SCM provider autodetection failed. No SCM provider cla
ims to support this project. Please use sonar.scm.provider to define SCM of
your project.
15:10:29.718 INFO - ----- Scan MySampleSources
15:10:29.722 INFO - Load module settings
15:10:29.994 INFO - Load rules
15:10:30.192 INFO - Base dir: /root
15:10:30.192 INFO - Working dir: /root/.sonar
```

```
15:10:30.193 INFO - Source paths: MySampleSources
15:10:30.193 INFO - Source encoding: UTF-8, default locale: en
15:10:30.194 INFO - Index files
15:10:30.640 INFO - 627 files indexed
15:10:33.035 INFO - Quality profile for java: Sonar way
15:10:33.052 INFO - Sensor JavaSquidSensor
15:10:33.387 INFO - Java Main Files AST scan...
15:10:33.390 INFO - 627 source files to be analyzed
15:10:43.391 INFO - 461/627 files analyzed, current is /root/MySampleSources/2.0.2-SNAPSHOT/oc-server-session-agent-services/src/main/java/com/indigo/oc/session/agent/service/DeviceAliasHelper.java
15:10:46.360 INFO - Java Main Files AST scan done: 12973 ms
15:10:46.360 INFO - 627/627 source files analyzed
15:10:46.361 WARN - Java bytecode has not been made available to the analyzer. The org.sonar.java.bytecode.visitor.DependenciesVisitor@1539e85, org.sonar.java.checks.UnusedPrivateMethodCheck@239ee8b6, org.sonar.java.checks.RedundantThrowsDeclarationCheck@29cf4f43 are disabled.
15:10:46.361 INFO - Java Test Files AST scan...
15:10:46.362 INFO - 0 source files to be analyzed
15:10:46.362 INFO - Java Test Files AST scan done: 1 ms
15:10:46.362 INFO - 0/0 source files analyzed
15:10:46.655 INFO - Sensor JavaSquidSensor (done) | time=13603ms
15:10:46.655 INFO - Sensor Lines Sensor
15:10:46.671 INFO - Sensor Lines Sensor (done) | time=16ms
15:10:46.672 INFO - Sensor QProfileSensor
15:10:46.675 INFO - Sensor QProfileSensor (done) | time=3ms
15:10:46.675 INFO - Sensor InitialOpenIssuesSensor
15:10:47.528 INFO - Sensor InitialOpenIssuesSensor (done) | time=853ms
15:10:47.528 INFO - Sensor ProjectLinksSensor
15:10:47.534 INFO - Sensor ProjectLinksSensor (done) | time=6ms
15:10:47.535 INFO - Sensor VersionEventsSensor
15:10:47.545 INFO - Sensor VersionEventsSensor (done) | time=10ms
15:10:47.546 INFO - Sensor SurefireSensor
15:10:47.546 INFO - parsing /root/target/surefire-reports
15:10:47.546 WARN - Reports path not found: /root/target/surefire-reports
15:10:47.546 INFO - Sensor SurefireSensor (done) | time=0ms
15:10:47.546 INFO - Sensor SCM Sensor
15:10:47.547 INFO - No SCM system was detected. You can use the 'sonar.scm.provider' property to explicitly specify it.
15:10:47.547 INFO - Sensor SCM Sensor (done) | time=1ms
```

```
15:10:47.547 INFO - Sensor CPD Sensor
15:10:47.547 INFO - JavaCpdEngine is used for java
15:10:47.549 INFO - Cross-project analysis disabled
15:10:48.168 INFO - Sensor CPD Sensor (done) | time=621ms
15:10:48.170 INFO - No quality gate is configured.
15:10:48.203 INFO - Compare to previous analysis (2015-06-24)
15:10:48.208 INFO - Compare over 30 days (2015-05-25, analysis of Tue Jun
23 21:57:46 UTC 2015)
15:10:48.359 INFO - Execute decorators...
15:10:52.918 INFO - Store results in database
15:11:01.523 INFO - Analysis reports generated in 203ms, dir size=1 MB
15:11:01.875 INFO - Analysis reports compressed in 351ms, zip size=896 KB
15:11:01.923 INFO - Analysis reports sent to server in 48ms
15:11:01.923 INFO - ANALYSIS SUCCESSFUL, you can browse http://localhost:9
000/dashboard/index/MySampleSources
15:11:01.923 INFO - Note that you will be able to access the updated dashb
oard once the server has processed the submitted analysis report.
INFO: -----
---
INFO: EXECUTION SUCCESS
INFO: -----
---
Total time: 36.655s
Final Memory: 13M/252M
INFO: -----
---
```

## 2.2. Browse the Analysis

- SonarQube Web front end from host browser: <http://sonarqube.zenentropy.net:9000>
  - ▮ No need to be logged in to browse an analysed project (public access)
- MySampleSources project should be listed in the Project folder, select it and navigate...
  - ▮ Direct URL: <http://sonarqube.zenentropy.net:9000/dashboard/index/MySampleSources>

## 3. TBD

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### 1. *SourceMeter Plugin:*

- <https://www.sourcemeter.com/>
- <https://github.com/FrontEndART/SonarQube-plugin>
- <http://conferences.computer.org/scam/2014/papers/6148a077.pdf>
- <http://stackoverflow.com/questions/5479019/is-sonar-replacement-for-checkstyle-pmd-findbugs>
- <https://wikis.forgerock.org/confluence/display/QA/Security+Testing>