

## SonarQube Server

# SonarQube Material

<b>Mithun Technologies</b> <b>+91-9980923226</b>	<b>SonarQube Server</b> <b>info@mithuntechnologies.com</b>	<b>Author</b> <b>Web site</b>	<b>Mithun Reddy L</b> <b>http://mithuntechnologies.com</b>
---	---	----------------------------------	---

## Document History

Version	Release Date	Author	Description	Document Reviewer
1.0	24.06.2016	Mithun Reddy L	Created	Mithun Reddy L

## Table of Contents

1.	Introduction.....	
2.	Pre-Requisites	
3.	Architecture	
4.	Installation	
5.	Change the Port Number	
6.	Executing	
7.	Configure Email settings	
8.	Create Custom Quality Profiles	
9.	Create Custom Quality Gates	
10.	Create Users	
11.	Create Groups	
12.	Resources .....	

<b>Mithun Technologies</b> +91-9980923226	<b>SonarQube Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Mithun Reddy L</b>	<b>Web site</b> http://mithuntechnologies.com
--	--	--	--

## Introduction

- SonarQube (previously called Sonar) is an open source software quality management tool.
- It will continuously analyse and measures quality of the source code.
- I will generate the report if any issues in html format/PDF format.
- It is a web based tool supports multiple languages (Java, C#, JS ...)
- It will support multi OS platform (Windows. MAC, Linux...).
- It will support multiple databases (MySQL, Oracle, Microsoft SQL Server, PostgreSQL ...)
- Supports multiple browsers (IE, Microsoft Edge, FF, Chrome, Safari)
- It will identify the below category of issues.
  - Duplicated code
  - Coding standards
  - Unit tests
  - Complex code
  - Comments
  - Potential Bugs
  - Architecture & Design
- Initially it is developed only for Java projects.
- Today it is supporting over twenty languages.
- Commercial: ABAP, Cfamily(C, C++, and Objective-C), COBOL, PL/SQL, Visual Basic, Natural, VB.Net, RPG, Swift ..
- Open source: Java, Java Script, C#, Web(HTML, JSP, JSF, ..) XML, Python, Groovy, PHP, Puppet, Lua, Groovy, FxCop, Flex, Erlang ...

## Pre-requisites

- The only prerequisite for running SonarQube v6.2 is to have Java (Oracle JRE 8 onwards or OpenJDK 8 onwards) installed on your machine.
- Java 8 onwards
- MySQL DB 5.6 onwards - Optional
- Oracle 11g onwards - Optional

SonarQube Details	
<b>Type</b>	Source Continuous Code Quality
<b>Vendor</b>	SonarQube
<b>Is Open Source?</b>	Yes
<b>Version</b>	7.x
<b>Operating system</b>	Cross Platform
<b>Software Download URL</b>	<a href="http://www.sonarqube.org/downloads/">http://www.sonarqube.org/downloads/</a>
<b>Is executable software?</b>	No, download as zip, extract and use it.
<b>Reference Websites</b>	1) <a href="https://docs.sonarqube.org/">https://docs.sonarqube.org/</a>

<b>Mithun Technologies</b> +91-9980923226	<b>SonarQube Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Web site</b>	<b>Mithun Reddy L</b> http://mithuntechnologies.com
--	--	----------------------------------	--

## Installation of Sonar Scanner

---

### Linux

---

```
cd /opt
wget https://binaries.sonarsource.com/Distribution/sonar-scanner-cli/sonar-scanner-cli-3.3.0.1492-linux.zip
unzip sonar-scanner-cli-3.3.0.1492-linux.zip
/opt/sonar-scanner-cli-3.3.0.1492-linux/bin
echo "export SONAR_SCANNER_HOME=/opt/sonar-scanner-3.3.0.1492-linux" >> /etc/environment
echo 'export PATH=$PATH:$SONAR_SCANNER_HOME/bin' >> /etc/environment
source /etc/environment
```

```
sonar-scanner -v
```

---

### How to change the default port number from 9000 to custom port in SonarQube server?

Go to the conf directory and open the sonar.properties and search for  
 Sonar.web.port=9000 and  
 Replace 9000 with 9001

---

### How to start the sonarqube server in Linux server?

#### Login as Normal User

```
mkdir sonarqube
cd sonarqub
sudo yum install wget unzip -y
wget https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-7.6.zip
unzip sonarqube-7.6.zip

cd /home/ec2-user/sonarqube/sonarqube-7.6/bin/linux-x86-64/
sh sonar.sh start
sh sonar.sh status
```

#### Starting Sonar as a service

**Create the file /etc/init.d/sonar as follows.**

```
sudo vi /etc/init.d/sonar
```

**Add the following lines and save as follows.**

```
#!/bin/sh
/usr/bin/sonar $*
```

<b>Mithun Technologies</b> +91-9980923226	<b>SonarQube Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Mithun Reddy L</b>	<b>Web site</b> http://mithuntechnologies.com
--	--	--	--

**Open a terminal and enter the following commands.**

```
sudo ln -s /home/ec2-user/sonarqube/sonarqube-7.7/bin/linux-x86-64/sonar.sh /usr/bin/sonar
sudo chmod 755 /etc/init.d/sonar
sudo update-rc.d sonar defaults
```

**How to execute the SonarQube report for ant java projects.**

Ans) create a file called sonar-project.properties file in the project root directory for which project need to execute the report with below properties.

```
sonar.projectName=MithunTechnologies
sonar.projectKey=com.mt
sonar.projectversion=1.0
sonar.sources=src
```

**How to execute the SonarQube report for maven java projects.**

Ans) mvn sonar:sonar

```
mvn clean sonar:sonar install -Dsonar.host.url=http://localhost:9000
```

```
mvn clean install sonar:sonar
```

## SonarQube Cloud

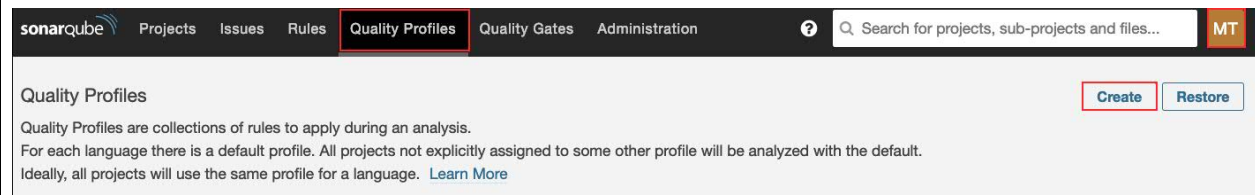
<http://sonarcloud.io/>

## SonarQube Server Administration

### Creating the Custom Quality Profiles

Login into SonarQube with admin credentials (default credentials admin/admin).

As soon as login into SonarQube dashboard, click on Quality Profiles,  
You will see all the language profiles.



Click on Create and provide the Name of the profile and select the language and , Click on Create button.

## New Profile

Name\* MithunTechnologiesCustomQualityProfile

Language\* Java

Create

Cancel

Click on **Active More**

Quality Profiles / Java

## MithunTechnologiesCustomQualityProfile

Rules	Active	Inactive
<b>Total</b>	<b>0</b>	<b>491</b>
Bugs	0	111
Vulnerabilities	0	43
Code Smells	0	327
Security Hotspots	0	10

Activate More

Select the rule and click on **Active**, you will get the one popup and again you can click on **Activate** as follows.

Bulk Change

1 / 491 rules

Activate In Quality Profile

Quality Profile MithunTechnologiesCustomQualityPro...

Severity Major

Activate Cancel

multi-threading Activate

Java Bug Activate

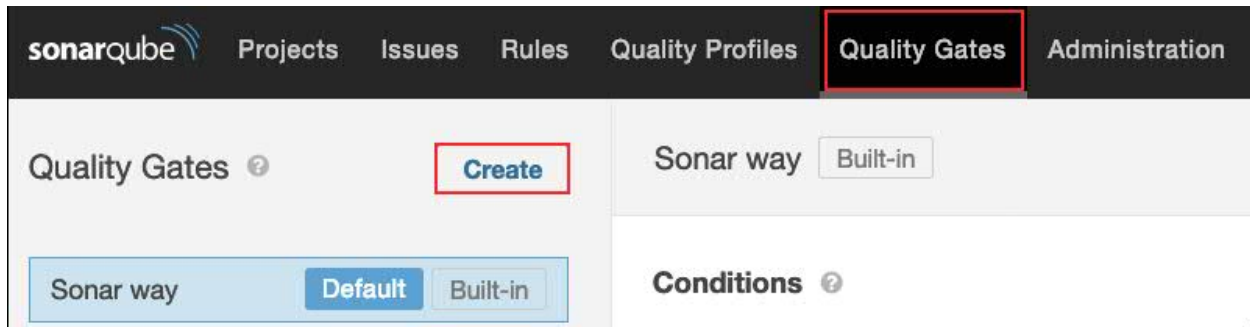
cert, cwe, suspi... Activate

## Creating the Custom Quality Gates

<b>Mithun Technologies</b> +91-9980923226	<b>SonarQube Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Mithun Reddy L</b>	<b>Web site</b> http://mithuntechnologies.com
--	--	--	--

Login into SonarQube with admin credentials (default credentials admin/admin).

As soon as login into SonarQube dashboard, click on Quality Gates, and click on Quality Gates, and click on Create.

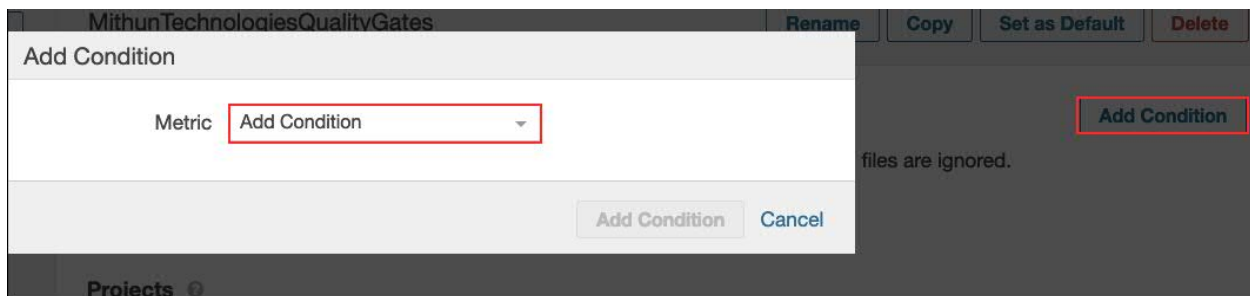


Give the Name and click on Save button.

**Create Quality Gate**

Name\*

Click on Add Condition and select the condition as follows.



Add Condition

Metric Condition Coverage

Over Leak Period ☐

Operator equals

Warning

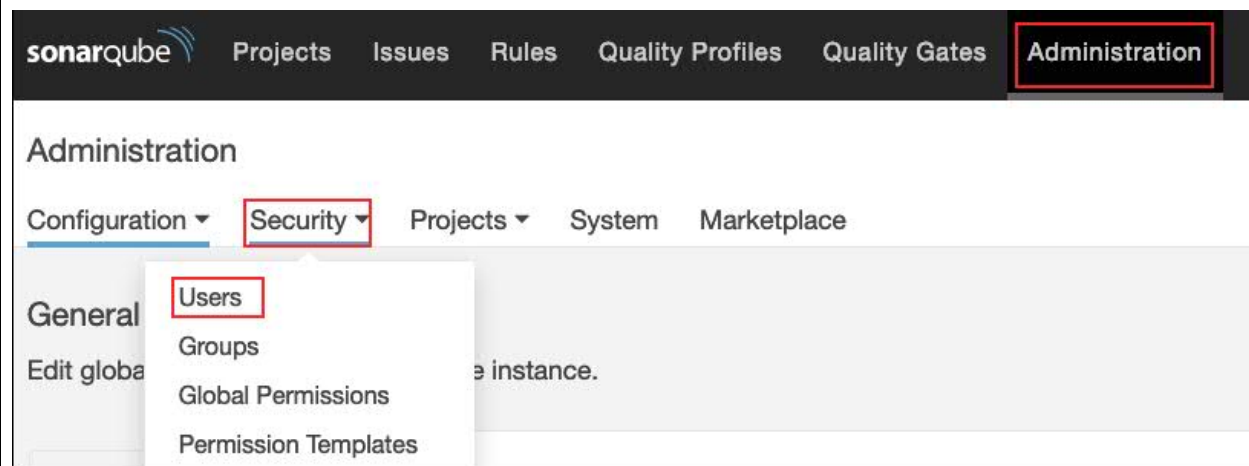
Error 80

Add Condition Cancel

## To Create the Users

Login into SonarQube with admin credentials (default credentials admin/admin).

As soon as login into SonarQube dashboard, click on Administration, and click on Security, and click on Users.



Click on Create User.



## Create User

Login\*

Minimum 3 characters

Name\*

Email







Password\*

SCM Accounts

Login and email are automatically considered as SCM accounts

## To Generate a Token

Login as a admin user and select to which user we need to generate the token and click on barcode symbol (📄) as follows.

	SCM Accounts	Groups	Tokens
 Administrator admin		sonar-administrators sonar-users	0  
 Mithun Technologies mithuntechnologies info@mithuntechnologies.com	devopstrainingblr@gmail.com	sonar-administrators sonar-users	0  

Give the name of Token and click on **Generate** button as follows.

Tokens

Generate Tokens

Name	Created
No tokens	

Done

Once it is generated, copy and save the key in one file for future use as follows.

Tokens

Generate Tokens

New token "SonarQubeToken" has been created. Make sure you copy it now, you won't be able to see it again!

8fb9505f221f5eeb7e6e677d8b2a6dd560a3ece9

Name	Created
SonarQubeToken	March 24, 2019

Revoke

Done

### Configure Email settings

Login as admin user

<b>Mithun Technologies</b> +91-9980923226	<b>SonarQube Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Mithun Reddy L</b>	<b>Web site</b> http://mithuntechnologies.com
--	--	--	--

Go to the Administration button ---> Configuration ---> General Settings

---

## Errors and Solution

```
[INFO] -----
[INFO] BUILD FAILURE
[INFO] -----
[INFO] Total time: 4.159 s
[INFO] Finished at: 2018-06-08T10:21:15+05:30
[INFO] Final Memory: 13M/128M
[INFO] -----
[ERROR] Failed to execute goal org.sonarsource.scanner.maven:sonar-maven-plugin:3.4.0.905:sonar (default-cli) on project maven-web-project: Not authorized. Analyzing this project requires to be authenticated. Please provide the values of the properties sonar.login and sonar.password. -> [Help 1]
```

If you see above error,

**For maven Project:** Need to update the settings.xml add below lines in <profiles> element.

```
<profile>
  <id>sonar</id>
  <activation>
    <activeByDefault>true</activeByDefault>
  </activation>
  <properties>
    <sonar.host.url>http://localhost:9000</sonar.host.url>
    <sonar-maven-plugin.version>3.3.0.603</sonar-maven-plugin.version>
    <sonar.login>admin</sonar.login>
    <sonar.password>admin</sonar.password>
  </properties>
  <build>
    <plugins>
      <plugin>
        <groupId>org.sonarsource.scanner.maven</groupId>
        <artifactId>sonar-maven-plugin</artifactId>
        <version>${sonar-maven-plugin.version}</version>
      </plugin>
    </plugins>
  </build>
</profile>
```

**For Ant Project:**

add below line in sonar-project.propertiesfiles

```
sonar.login=admin
sonar.password=admin
```

---

<b>Mithun Technologies</b> +91-9980923226	<b>SonarQube Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Mithun Reddy L</b>	<b>Web site</b> http://mithuntechnologies.com
--	--	--	--

## Error

```
[ec2-user@ip-172-31-19-113 logs]$ cat sonar.log
--> Wrapper Started as Daemon
Launching a JVM...
Unable to start JVM: No such file or directory (2)
JVM exited while loading the application.
JVM Restarts disabled. Shutting down.
<-- Wrapper Stopped
```

## Solution

Install the Java.

## Error

```
2019.02.28 02:23:27 INFO app[[o.s.a.p.ProcessLauncherImpl] Launch process[[key='web', ipcIndex=2, logFilenamePrefix=web]] from [/home/ec2-user/sonarqube/sonarqube-7.6]: /usr/java/jdk1.8.0_201-amd64/jre/bin/java -Djava.awt.headless=true -Dfile.encoding=UTF-8 -Djava.io.tmpdir=/home/ec2-user/sonarqube/sonarqube-7.6/temp -Xmx512m -Xms128m -XX:+HeapDumpOnOutOfMemoryError -cp ./lib/common/*:/home/ec2-user/sonarqube/sonarqube-7.6/lib/jdbc/h2/h2-1.3.176.jar org.sonar.server.app.WebServer /home/ec2-user/sonarqube/sonarqube-7.6/temp/sq-process2425106126874713867properties
Java HotSpot(TM) 64-Bit Server VM warning: INFO: os::commit_memory(0x00000000e0000000, 44695552, 0) failed; error='Cannot allocate memory' (errno=12)
#
# There is insufficient memory for the Java Runtime Environment to continue.
# Native memory allocation (mmap) failed to map 44695552 bytes for committing reserved memory.
# An error report file with more information is saved as:
# /home/ec2-user/sonarqube/sonarqube-7.6/hs_err_pid1943.log
2019.02.28 02:23:27 WARN app[[o.s.a.p.AbstractProcessMonitor] Process exited with exit value [web]: 1
2019.02.28 02:23:27 INFO app[[o.s.a.SchedulerImpl] Process [web] is stopped
2019.02.28 02:23:27 INFO app[[o.s.a.SchedulerImpl] Process [es] is stopped
2019.02.28 02:23:27 INFO app[[o.s.a.SchedulerImpl] SonarQube is stopped
2019.02.28 02:23:27 WARN app[[o.s.a.p.AbstractProcessMonitor] Process exited with exit value [es]: 143
<-- Wrapper Stopped
```

## Solution:

Increase the RAM size. After increasing RAM size, check the ram size using free -h command in the Linux OS.

<b>Mithun Technologies</b> +91-9980923226	<b>SonarQube Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Mithun Reddy L</b>	<b>Web site</b> http://mithuntechnologies.com
--	--	--	--

### **References :**

<http://www.base36.com/2012/11/what-is-java-sonar/>

<http://blogs.sourceallies.com/2010/02/sonar-code-quality-analysis-tool/>

<http://www.sonarsource.com/>

<http://docs.sonarqube.org/display/SONARQUBE45/Installing+and+Configuring+SonarQube+Runner>

<https://docs.sonarqube.org/display/SONAR/Analysis+Parameters>