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SonarQube Server

SonarQube Material

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Document History

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

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

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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 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/>

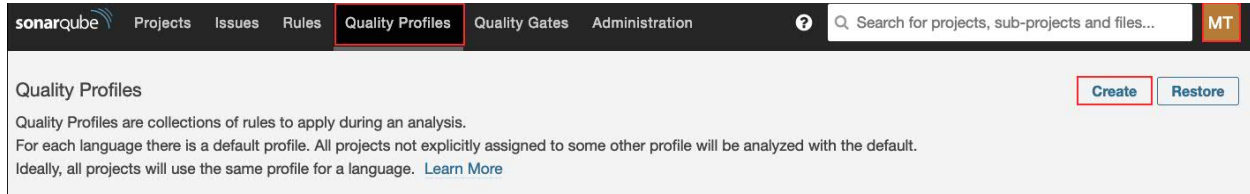
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SonarQube Server Administration

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**

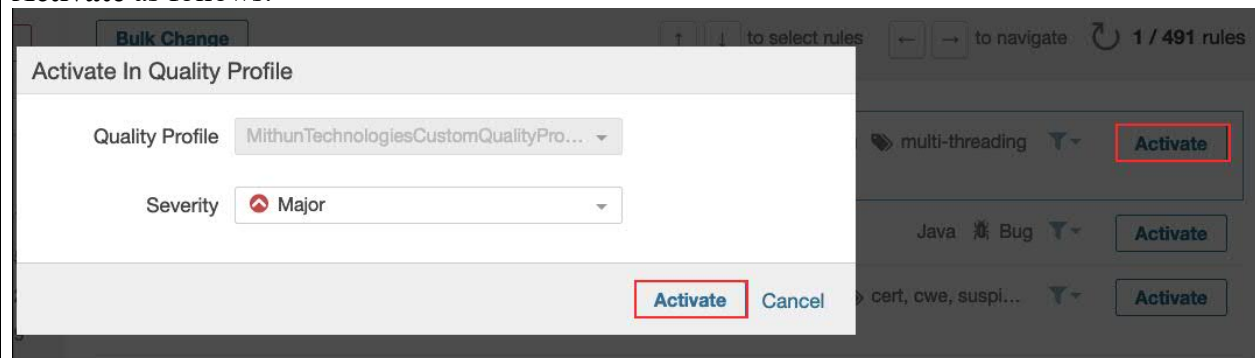
Quality Profiles / Java

MithunTechnologiesCustomQualityProfile

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

[Activate More](#)

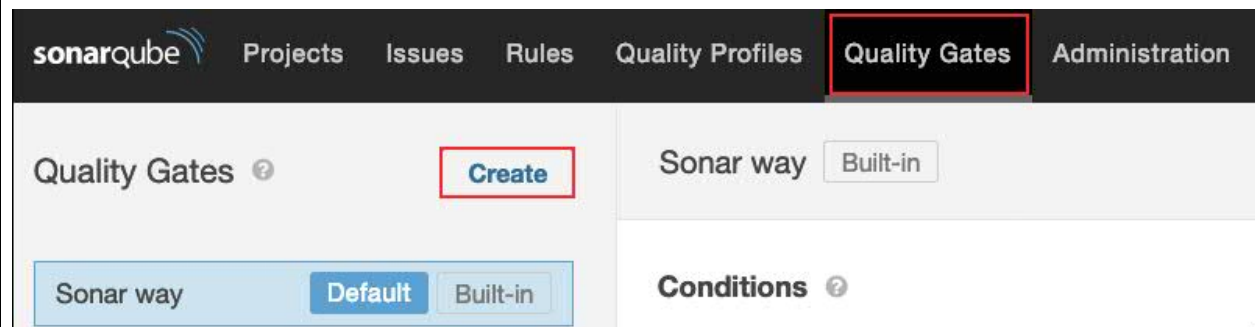
Select the rule and click on **Active**, you will get the one popup and again you can click on **Activate** as follows.



Creating the Custom Quality Gates

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.



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Give the Name and click on Save button.

Create Quality Gate

Name*

Click on Add Condition and select the condition as follows.

MithunTechnologiesQualityGates
Rename
Copy
Set as Default
Delete

Add Condition

Metric

files are ignored.

Projects

Add Condition

Metric

Over Leak Period ☐

Operator

Warning

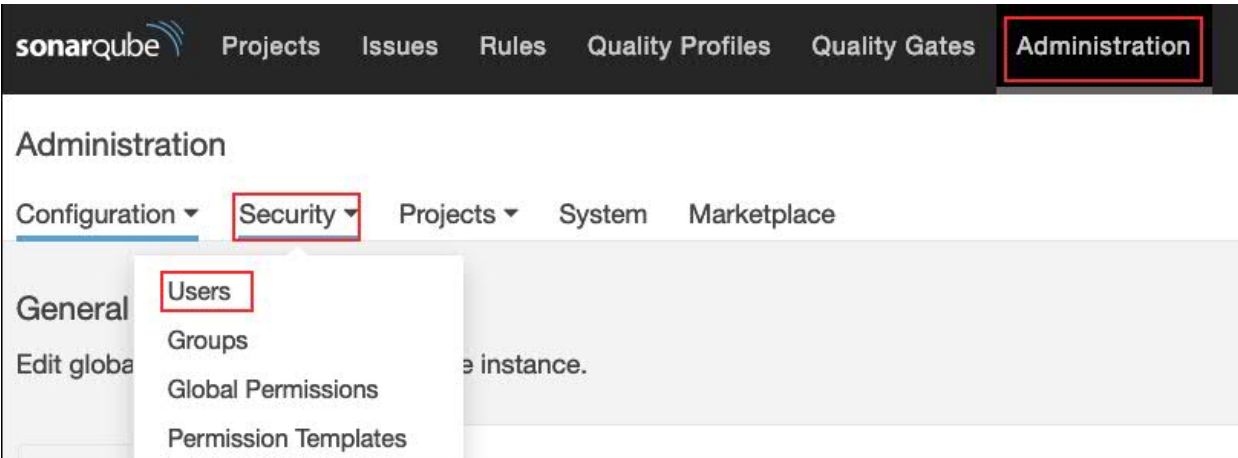
Error

To Generate a Token

To Create the Users

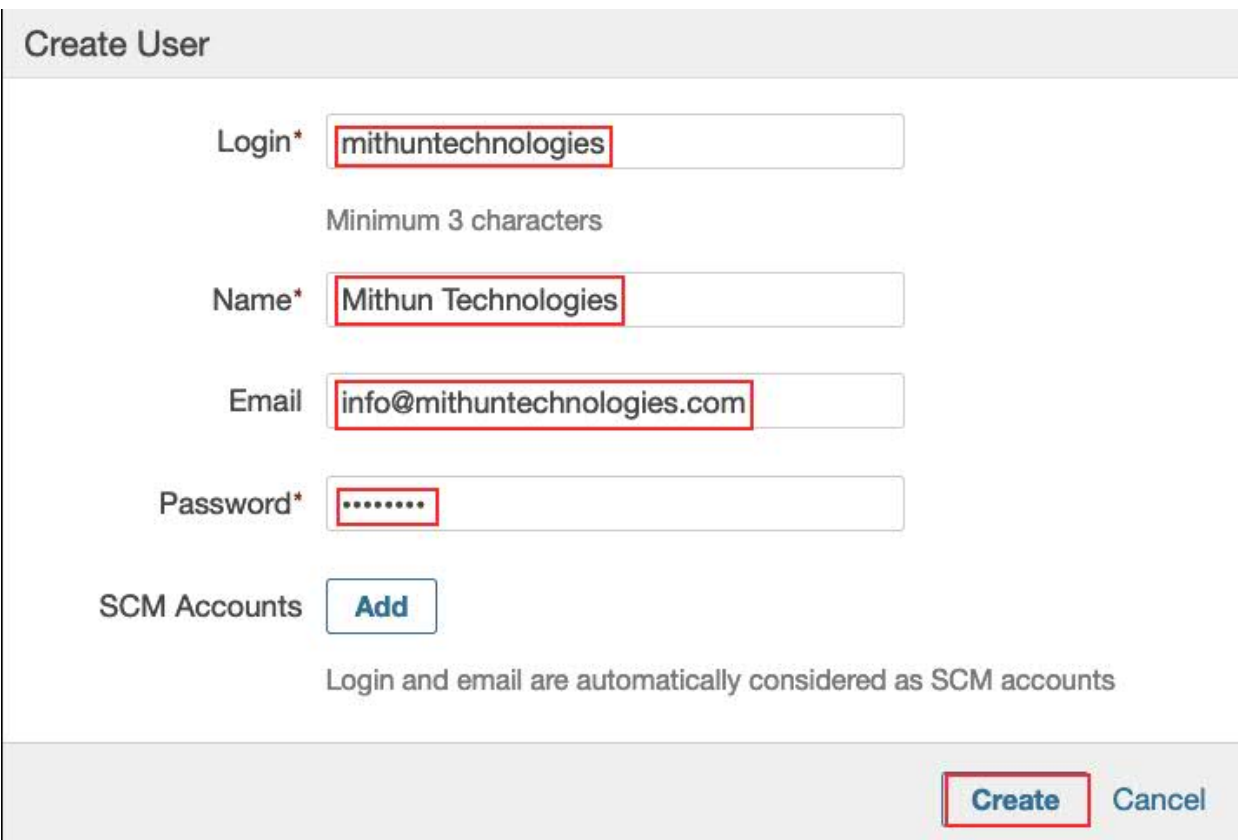
Login into SonarQube with admin credentials (default credentials admin/admin).

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



The screenshot shows the SonarQube Administration interface. The top navigation bar includes 'sonarqube' logo and links for 'Projects', 'Issues', 'Rules', 'Quality Profiles', 'Quality Gates', and 'Administration' (highlighted with a red box). Below the navigation bar, the 'Administration' section is active, showing a dropdown menu for 'Security' (highlighted with a red box). The 'Security' dropdown menu is open, showing options: 'Users' (highlighted with a red box), 'Groups', 'Global Permissions', and 'Permission Templates'. The 'General' section is also visible, with 'Edit global' and 'e instance.' text.

Click on Create User.



The screenshot shows the 'Create User' form. The form has the following fields and buttons:

- Login***: Text input field containing 'mithuntechnologies' (highlighted with a red box). Below the field, it says 'Minimum 3 characters'.
- Name***: Text input field containing 'Mithun Technologies' (highlighted with a red box).
- Email**: Text input field containing 'info@mithuntechnologies.com' (highlighted with a red box).
- Password***: Password input field containing '.....' (highlighted with a red box).
- SCM Accounts**: A button labeled 'Add' (highlighted with a red box).
- Below the 'SCM Accounts' button, it says 'Login and email are automatically considered as SCM accounts'.
- At the bottom right, there are two buttons: 'Create' (highlighted with a red box) and 'Cancel'.

Configure Email settings

Login as admin user

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

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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 maven Project: add below line in sonar-project.propertiesfiles
sonar.login=admin
sonar.password=admin

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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.

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>

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