

SonarQube

SonarQube is an open-source platform developed by SonarSource for continuous inspection of code quality to perform automatic reviews with static analysis of code to detect bugs and code smells .

Bug: A coding mistake that can lead to an error or unexpected behavior at runtime.

Vulnerability: A point in your code that's open to attack.

Code Smell: A maintainability issue that makes your code confusing and difficult to maintain.

Procedure to Install SonarQube in local System

Before Installing first update and upgrad the system packages

Command :-

sudo apt-get update

sudo apt-get upgrade

Now Install wget and unzip package (optional if already installed)

Command :-

sudo apt-get install wget unzip -y

Now Install OpenJDK and JRE 11 using following command
(optional if already installed)

Command :-

sudo apt-get install openjdk-11-jdk -y

sudo apt-get install openjdk-11-jre -y

If there are multiple version of JDK and JRE install we can set default JDK or switch to particular JDK

Command :-

sudo update-alternatives --config java

Command to check java version or check if install or not :-

Command :-

java -version

Install and Setup PostgreSQL for Sonarqube

Command :-

```
sudo sh -c 'echo "deb  
http://apt.postgresql.org/pub/repos/apt/ `lsb_release -cs`-  
pgdg main" >> /etc/apt/sources.list.d/pgdg.list'
```

```
wget -q  
https://www.postgresql.org/media/keys/ACCC4CF8.asc -O - |  
sudo apt-key add -
```

Now Install the PostgreSQL database Server by using following command.

Command :-

```
sudo apt-get -y install postgresql postgresql-contrib
```

Now Start PostgreSQL Database server .

Command :-

```
sudo systemctl start postgresql
```

Now Change the password for the default PostgreSQL user.

Command :-

```
sudo passwd postgres
```

Now Switch to the postgres user.

Command :-

```
su – postgres
```

Now Create a new user by typing

Command :-

createuser sonar

Now Switch to the PostgreSQL shell.

Command :-

Psql

Now Set a password for the newly created user for SonarQube database.

Command :-

ALTER USER sonar WITH ENCRYPTED password 'sonar';

Now Create a new database for PostgreSQL database by running:

Command :-

CREATE DATABASE sonarqube OWNER sonar;

Now grant all privileges to sonar user on sonarqube Database.

Command :-

grant all privileges on DATABASE sonarqube to sonar;

Now Exit from the psql shell:

Command :-

\q

Now Switch back to the sudo user by running the exit command.

Command :-

Exit

SonarQube Installation :-

Command :-

Cd tmp

sudo wget

<https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-8.9.9.56886.zip>

Now Unzip the archive setup to /opt directory:

Command :-

sudo unzip sonarqube-8.9.9.56886.zip -d /opt

Now Move extracted setup to /opt/sonarqube directory

Command :-

sudo mv /opt/sonarqube-8.9.9.56886 /opt/sonarqube

Now Configure SonarQube

Create Group and User

Command :-

sudo groupadd sonar

Now add the user with directory access

Command :-

```
sudo useradd -c "user to run SonarQube" -d /opt/sonarqube -  
g sonar sonar
```

```
sudo chown sonar:sonar /opt/sonarqube -R
```

Now Open the SonarQube configuration file using your favorite text editor.

```
sudo nano /opt/sonarqube/conf/sonar.properties
```

```
sonar.jdbc.username=sonar
```

```
sonar.jdbc.password=sonar
```

```
sonar.jdbc.url=jdbc:postgresql://localhost:5432/sonarqube
```

Edit the sonar script file and set RUN_AS_USER

Command :-

```
sudo nano /opt/sonarqube/bin/linux-x86-64/sonar.sh
```

```
RUN_AS_USER=sonar
```

Now start sonarqube as sonar user

Now to start SonarQube we need to do following: Switch to sonar user

Command :-

```
sudo su sonar
```

Now Move to the script directory

Command :-

cd /opt/sonarqube/bin/linux-x86-64/

Now Run the script to start SonarQube

Command :-

./sonar.sh start

Command to check sonarqube Status :-

Command :-

./sonar.sh status

Check Sonarqube Logs

To check sonarqube logs, navigate to
/opt/sonarqube/logs/sonar.log directory

Command :-

tail /opt/sonarqube/logs/sonar.log

Access sonarqube

To access the SonarQube using browser type server IP followed by port 9000.

http://server_IP:9000 OR <http://localhost:9000>

By default id and password for sonarqube is admin .

TroubleShooting :-

Some time due to less storage got error to run sonarqube we can solve it by following command:-

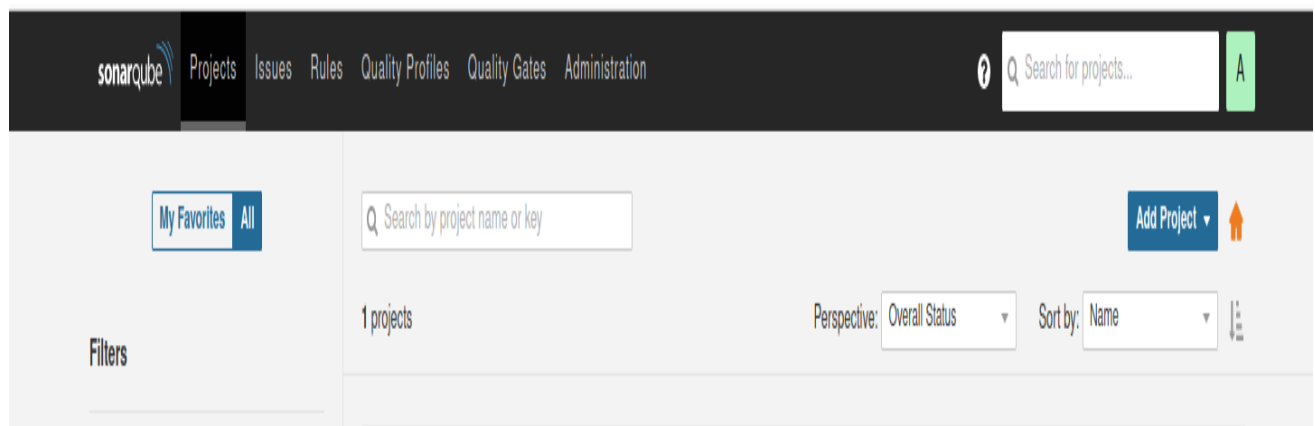
```
sudo sysctl -w vm.max_map_count=262144
```


SonarScanner

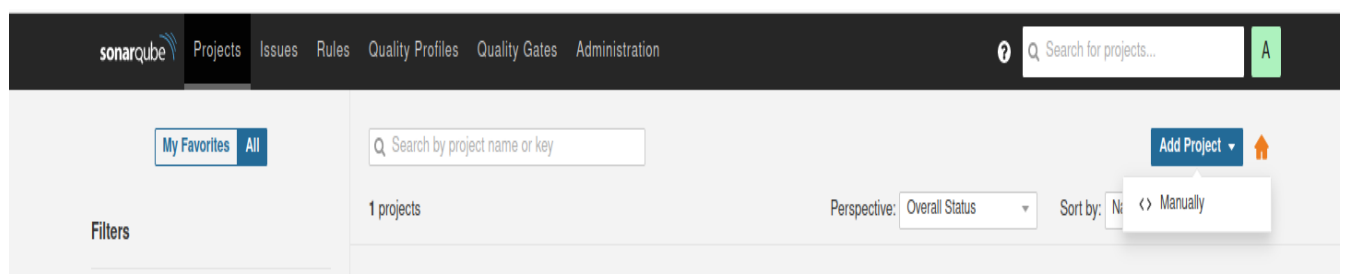
The SonarScanner is the scanner to use when there is no specific scanner for build system.

PROCEDURE TO Test the code in Sonarqube

- Click Add Project –Manually



- Create Project



- In project key write project name and it write automatically same name as project key in display name. If

we want to change the display name we can also able to give different display name as well.

sonarqube Projects Issues Rules Quality Profiles Quality Gates Administration ? Q Search for projects... A

Create a project

All fields marked with * are required

Project key * ⓘ

 ✓
Up to 400 characters. Allowed characters are alphanumeric, '-' (dash), '_' (underscore), '.' (period) and ':' (colon), with at least one non-digit.

Display name * ⓘ

 ✓
Up to 255 characters

[Set Up](#)

- Project key is unique to identify the project for Maven Project the format is “GroupID:artifactID”.

Now Token is Generation process :-

- For token generation we have to write our project key name and click on generate we can also use existing token key as well. Token is generated for security purpose . If such a token were to leak, an attacker would only gain access to analyze a single project or to interact with the related web services requiring Execute Analysis permissions.

The screenshot shows the SonarQube interface for project setup. The top navigation bar includes 'sonarqube', 'Projects', 'Issues', 'Rules', 'Quality Profiles', 'Quality Gates', and 'Administration'. A search bar on the right says 'Search for projects...' with a green 'A' button. Below the navigation bar, the project name 'mihir-html' is displayed with a star icon and a 'master' branch indicator. The 'Overview' tab is selected, with other tabs like 'Issues', 'Security Hotspots', 'Measures', 'Code', and 'Activity'. On the right, there are links for 'Project Settings' and 'Project Information'. The main content area is titled 'Analyze your project' and includes the message 'We initialized your project on SonarQube, now it's up to you to launch analyses!'. A progress indicator shows two steps: '1 Provide a token' (active) and '2 Run analysis on your project'. Under step 1, there are two radio buttons: 'Generate a token' (selected) and 'Use existing token'. A text input field contains 'mihir-html' and a 'Generate' button is next to it. A note below the buttons states: 'The token is used to identify you when an analysis is performed. If it has been compromised, you can revoke it at any point of time in your [user account](#).'

- Now after token generation next part is Run analysis on the project for that we have to select what the type of technology we have used and the type of operating system we have .

This screenshot shows the same SonarQube interface as the previous one, but at a later stage. The '1 Provide a token' step is now complete, and the text input field displays a long alphanumeric token: 'mihir-html: 8c208bd248b9a5a4eadcabf01e0582abee5afa16'. A red trash icon is visible next to the token. The 'Continue' button is now enabled. The '2 Run analysis on your project' step remains in the background, indicating the next step in the process.

- After selecting appropriate things we have to download and unzip the scanner and after that we have to navigate the project folder to the CLI and paste the code given in the folder after that it will start the scanning and show the result in the portal .

The screenshot shows the SonarQube web portal interface. At the top, there is a navigation bar with links for Projects, Issues, Rules, Quality Profiles, Quality Gates, and Administration. A search bar and a user profile icon are also present. Below the navigation bar, the breadcrumb trail shows 'mihir-html' and 'master'. The main content area is titled 'Analyze your project' and includes a sub-header 'We initialized your project on SonarQube, now it's up to you to launch analyses!'. The setup process is divided into two steps: 1. Provide a token, which is completed with a green checkmark and a token value. 2. Run analysis on your project, which includes selecting build options (Maven, Gradle, .NET, Other) and OS (Linux, Windows, macOS). Below this, there are instructions for downloading and unzipping the scanner for Linux, and a section for executing the scanner from the computer with a code block containing the necessary command-line arguments. A 'Copy' button is next to the code block. At the bottom, there is a note about visiting the official documentation and a message that the page will refresh once the analysis is completed.

sonarqube Projects Issues Rules Quality Profiles Quality Gates Administration ? Search for projects... A

mihir-html master

Overview Issues Security Hotspots Measures Code Activity Project Settings Project Information

Analyze your project

We initialized your project on SonarQube, now it's up to you to launch analyses!

1 Provide a token mihir-html:8c208bd248b9a5a4eadcabf01e0582abee5afa16

2 Run analysis on your project

What option best describes your build?

Maven Gradle .NET Other (for JS, TS, Go, Python, PHP, ...)

What is your OS?

Linux Windows macOS

Download and unzip the Scanner for Linux

Visit the [official documentation of the Scanner](#) to download the latest version, and add the `bin` directory to the `PATH` environment variable

Execute the Scanner from your computer

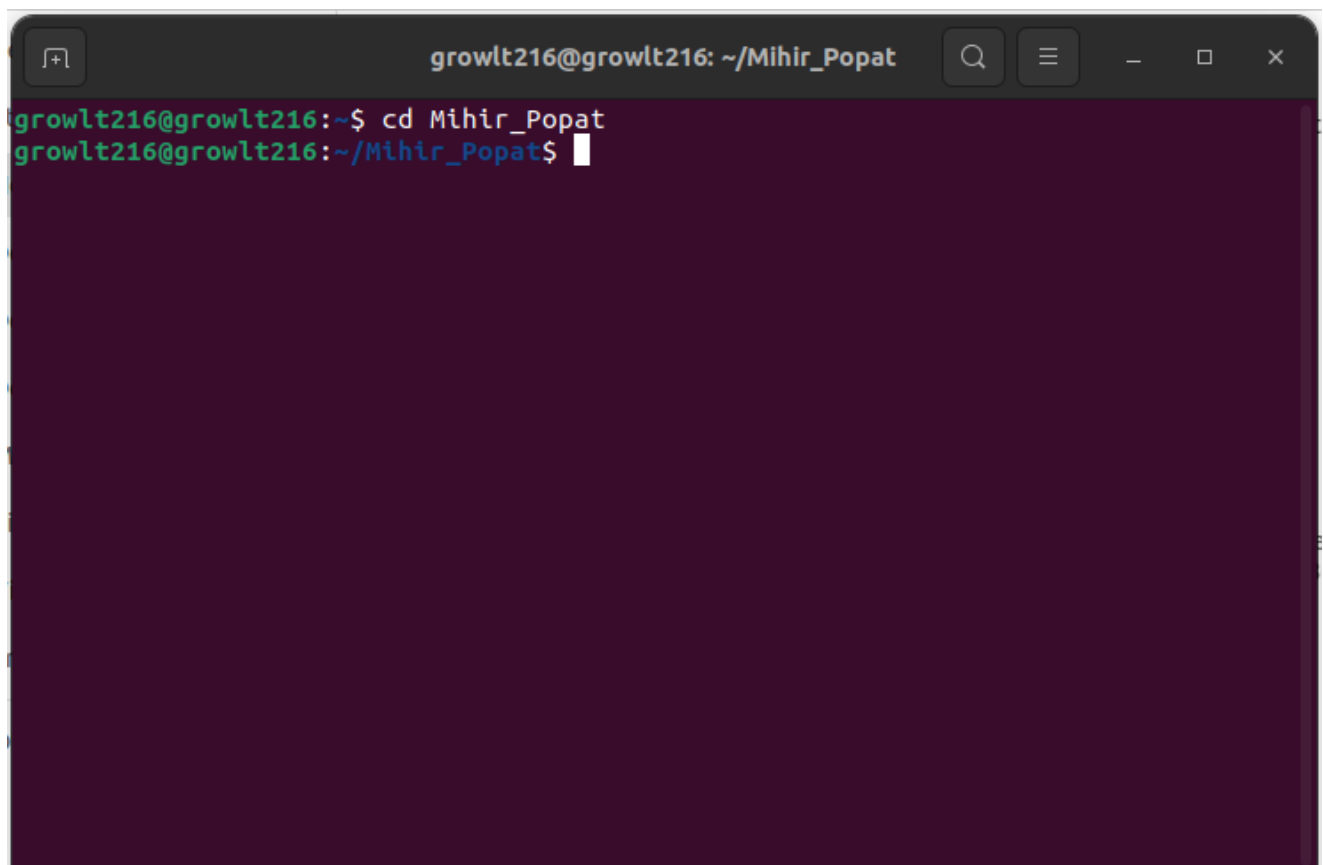
Running a SonarQube analysis is straightforward. You just need to execute the following commands in your project's folder.

```
sonar-scanner \  
-Dsonar.projectKey=mihir-html \  
-Dsonar.sources=. \  
-Dsonar.host.url=http://localhost:9090 \  
-Dsonar.login=8c208bd248b9a5a4eadcabf01e0582abee5afa16
```

Copy

Please visit the [official documentation of the Scanner](#) for more details.

Once the analysis is completed, this page will automatically refresh and you will be able to browse the analysis results.



A terminal window with a dark background and light-colored text. The window title bar at the top reads "growlt216@growlt216: ~/Mihir_Popat" and includes standard window control buttons (minimize, maximize, close) on the right. The terminal content shows two lines of text: the first line is "growlt216@growlt216:~\$ cd Mihir_Popat" and the second line is "growlt216@growlt216:~/Mihir_Popat\$ " followed by a white cursor block.

```
growlt216@growlt216:~$ cd Mihir_Popat
growlt216@growlt216:~/Mihir_Popat$ 
```

```
growlt216@growlt216: ~/Mihir_Popat
growlt216@growlt216:~$ cd Mihir_Popat
growlt216@growlt216:~/Mihir_Popat$ sonar-scanner \
-Dsonar.projectKey=mihir-html \
-Dsonar.sources=. \
-Dsonar.host.url=http://localhost:9000 \
-Dsonar.login=8c208bd248b9a5a4eadcabf01e0582abee5afa16
```

```
growlt216@growlt216:~/Mihir_Popat
INFO: Load active rules
INFO: Load active rules (done) | time=792ms
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=12ms
INFO: 16 files indexed
INFO: Quality profile for css: Sonar way
INFO: Quality profile for web: Sonar way
INFO: ----- Run sensors on module mihir-html
INFO: Load metrics repository
INFO: Load metrics repository (done) | time=22ms
INFO: Sensor CSS Metrics [cssfamily]
INFO: Sensor CSS Metrics [cssfamily] (done) | time=50ms
INFO: Sensor CSS Rules [cssfamily]
INFO: 2 source files to be analyzed
INFO: 2/2 source files have been analyzed
INFO: Sensor CSS Rules [cssfamily] (done) | time=752ms
INFO: Sensor JaCoCo XML Report Importer [jacoco]
INFO: sonar.coverage.jacoco.xmlReportPaths is not defined. Using default locations: target/site/jacoco/jacoco.xml,target/site/jacoco-it/jacoco.xml,build/reports/jacoco/test/jacocoTestReport.xml
INFO: No report imported, no coverage information will be imported by JaCoCo XML Report Importer
INFO: Sensor JaCoCo XML Report Importer [jacoco] (done) | time=2ms
INFO: Sensor C# Project Type Information [csharp]
INFO: Sensor C# Project Type Information [csharp] (done) | time=0ms
INFO: Sensor C# Properties [csharp]
INFO: Sensor C# Properties [csharp] (done) | time=1ms
INFO: Sensor JavaXmlSensor [java]
INFO: Sensor JavaXmlSensor [java] (done) | time=0ms
INFO: Sensor HTML [web]
INFO: Sensor HTML [web] (done) | time=42ms
INFO: Sensor VB.NET Project Type Information [vbnet]
INFO: Sensor VB.NET Project Type Information [vbnet] (done) | time=1ms
INFO: Sensor VB.NET Properties [vbnet]
INFO: Sensor VB.NET Properties [vbnet] (done) | time=1ms
INFO: ----- Run sensors on project
INFO: Sensor Zero Coverage Sensor
INFO: Sensor Zero Coverage Sensor (done) | time=1ms
INFO: SCM Publisher No SCM system was detected. You can use the 'sonar.scm.provider' property to explicitly specify it.
INFO: CPD Executor Calculating CPD for 1 file
INFO: CPD Executor CPD calculation finished (done) | time=8ms
INFO: Analysis report generated in 5ms, dir size=111 KB
INFO: Analysis report compressed in 9ms, zip size=18 KB
INFO: Analysis report uploaded in 70ms
INFO: ANALYSIS SUCCESSFUL, you can browse http://localhost:9000/dashboard?id=mihir-html
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=AYaB_0Z14gLN2Ba0pN0d
INFO: Analysis total time: 7.819 s
INFO: -----
INFO: EXECUTION SUCCESS
INFO: -----
INFO: Total time: 8.369s
INFO: Final Memory: 12M/47M
INFO: -----
growlt216@growlt216:~/Mihir_Popat$
```

localhost:9000/dashboard?id=mihir-html

sonarcube Projects Issues Rules Quality Profiles Quality Gates Administration

mihir-html master

Overview Issues Security Hotspots Measures Code Activity

Project Settings Project Information

QUALITY GATE STATUS

Passed

All conditions passed.

MEASURES

New Code Overall Code

14 Bugs Reliability C

0 Vulnerabilities Security A

0 Security Hotspots Reviewed Security Review A

2min Debt 2 Code Smells Maintainability A

0.0% Duplications on 349 Lines 0 Duplicated Blocks

ACTIVITY

Issues

February 24, 2023 at 11:23 AM

not provided

localhost:9000/project/issues?id=mihir-html&resolved=false

sonarcube Projects Issues Rules Quality Profiles Quality Gates Administration

mihir-html master

Overview Issues Security Hotspots Measures Code Activity

Project Settings Project Information

1 / 16 issues 16min effort

Filters

Type

- Bug 14
- Vulnerability 0
- Code Smell 2

Severity

- Blocker 0
- Critical 0
- Major 16
- Minor 0
- Info 0

Scope

Resolution

Status

Security Category

Creation Date

Language

Rule

Tag

Directory

File

Assignee

Author

css/style.css

Unexpected missing generic font family Why is this an issue? 45 seconds ago L13 No tags

Unexpected missing generic font family Why is this an issue? 45 seconds ago L67 No tags

Unexpected missing generic font family Why is this an issue? 45 seconds ago L119 No tags

Unexpected missing generic font family Why is this an issue? 45 seconds ago L134 No tags

Unexpected duplicate "font-size" Why is this an issue? 45 seconds ago L140 No tags

Unexpected duplicate "font-weight" Why is this an issue? 45 seconds ago L141 No tags

Unexpected duplicate "line-height" Why is this an issue? 45 seconds ago L142 No tags

Unexpected duplicate "letter-spacing" Why is this an issue? 45 seconds ago L143 No tags

Unexpected duplicate "left" Why is this an issue? 45 seconds ago L144 No tags

Unexpected missing generic font family Why is this an issue? 45 seconds ago L159 No tags

Unexpected duplicate "font-size" Why is this an issue? 45 seconds ago L165 No tags

Unexpected duplicate "font-weight" Why is this an issue? 45 seconds ago L166 No tags

←

→

↻

localhost:9000/project/issues?id=mihir-html&resolved=false&types=CODE_SMELL

☆

🔒

☰

sonarqube

ProjectsIssuesRulesQuality ProfilesQuality GatesAdministration

?

Search for projects...

A

mihir-html

☆

master

0

Last analysis had 1 warning

January 24, 2023 at 11:23 AM

Version not provided

🏠

OverviewIssuesSecurity HotspotsMeasuresCodeActivity

Project SettingsProject Information

My IssuesAll

Filters

Clear All Filters

▼ TypeCODE SMELL

Clear

🐛 Bug

14

🛡️ Vulnerability

0

🔍 Code Smell

2

Ctrl + click to add to selection

▼ Severity

🔴 Blocker

0

🟢 Minor

0

🔴 Critical

0

🔵 Info

0

🔴 Major

2

› Scope

› Resolution

› Status

› Security Category

› Creation Date

› Language

› Rule

› Tag

› Directory

› File

› Assignee

› Author

📄

Bulk Change

1 / 2 issues

2min effort

css/style.css

❑

Unexpected duplicate selector ".footer-btn", first used at line 184

Why is this an issue?

1 minute ago

L241

🔗

🔍

📄

🔍

Code Smell

🔴 Major

🔵 Open

Not assigned

1min effort

Comment

🔗

No tags

❑

Unexpected duplicate selector "#navbar.logo", first used at line 189

Why is this an issue?

1 minute ago

L279

🔗

🔍

📄

🔍

Code Smell

🔴 Major

🔵 Open

Not assigned

1min effort

Comment

🔗

No tags

2 of 2 shown

SonarQube™ technology is powered by SonarSource SA

Community Edition - Version 8.9.9 (build 56886) - LGPL v3 - Community - Documentation - Plugins - Web API - About