

# Install SonarQube on Ubuntu

## Prerequisites

- Deploy a fully updated Ubuntu 20.04 LTS server with at least 2GB of RAM and 1 vCPU cores.
- Create a non-root user with sudo access.

## 1. Install OpenJDK 11

1. SSH to your Ubuntu server as a non-root user with sudo access.
2. Install OpenJDK 11.

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

## 2. Install and Configure PostgreSQL

1. Add the PostgreSQL repository.

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

2. Add the PostgreSQL signing key.

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

### 3. Install PostgreSQL.

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

### 4. Enable the database server to start automatically on reboot.

```
$ sudo systemctl enable postgresql
```

### 5. Start the database server.

```
$ sudo systemctl start postgresql
```

### 6. Change the default PostgreSQL password.

```
$ sudo passwd postgres
```

### 7. Switch to the postgres user.

```
$ su - postgres
```

### 8. Create a user named sonar.

```
$ createuser sonar
```

9. Log in to PostgreSQL.

```
$ psql
```

10. Set a password for the sonar user. Use a strong password in place of password.

```
ALTER USER sonar WITH ENCRYPTED password 'password';
```

11. Create a sonarqube database and set the owner to sonar.

```
CREATE DATABASE sonarqube OWNER sonar;
```

12. Grant all the privileges on the sonarqube database to the sonar user.

```
GRANT ALL PRIVILEGES ON DATABASE sonarqube to sonar;
```

13. Exit PostgreSQL.

```
\q
```

14. Return to your non-root sudo user account.

```
$ exit
```

### 3. Download and Install SonarQube

1. Install the zip utility, which is needed to unzip the SonarQube files.

```
$ sudo apt-get install zip -y
```

2. Locate the latest download URL from the [SonarQube official download page](#).

3. Download the SonarQube distribution files.

```
$ sudo wget  
https://binaries.sonarsource.com/Distribution/sonarqube/sonarq  
ube-9.7.1.62043.zip
```

4. Unzip the downloaded file.

```
sudo unzip sonarqube-9.7.1.62043.zip
```

5. Move the unzipped files to /opt/sonarqube directory

```
sudo mv sonarqube-9.7.1.62043 /opt/sonarqube
```

### 4. Add SonarQube Group and User

Create a dedicated user and group for SonarQube, which cannot run as the root user.

1. Create a sonar group.

```
$ sudo groupadd sonar
```

2. Create a sonar user and set /opt/sonarqube as the home directory.

```
$ sudo useradd -d /opt/sonarqube -g sonar sonar
```

3. Grant the sonar user access to the /opt/sonarqube directory.

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

## 5. Configure SonarQube

1. Edit the SonarQube configuration file.

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

2. Find the following lines:

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

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

3. Uncomment the lines, and add the database user and password you created in Step 2.

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

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

4. Below those two lines, add the sonar.jdbc.url.

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

5. Save and exit the file.

6. Edit the sonar script file **(Optional if you don't see the RUN\_AS\_USER=)**.

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

7. Locate this line:

```
#RUN_AS_USER=
```

8. Uncomment the line and change it to:

```
RUN_AS_USER=sonar
```

9. Save and exit the file.

## 6. Setup Systemd service

1. Create a systemd service file to start SonarQube at system boot.

```
$ sudo nano /etc/systemd/system/sonar.service
```

2. Paste the following lines to the file.

```
[Unit]
```

```
Description=SonarQube service
```

```
After=syslog.target network.target
```

```
[Service]
```

```
Type=forking
```

```
ExecStart=/opt/sonarqube/bin/linux-x86-64/sonar.sh start
```

```
ExecStop=/opt/sonarqube/bin/linux-x86-64/sonar.sh stop
```

```
User=sonar
```

```
Group=sonar
```

```
Restart=always
```

```
LimitNOFILE=65536
```

```
LimitNPROC=4096
```

```
[Install]
```

```
WantedBy=multi-user.target
```

3. Save and exit the file.

4. Enable the SonarQube service to run at system startup.

```
$ sudo systemctl enable sonar
```

5. Start the SonarQube service.

```
$ sudo systemctl start sonar
```

6. Check the service status.

```
$ sudo systemctl status sonar
```

## 7. Modify Kernel System Limits

SonarQube uses Elasticsearch to store its indices in an MMap FS directory. It requires some changes to the system defaults.

1. Edit the sysctl configuration file.

```
$ sudo nano /etc/sysctl.conf
```

2. Add the following lines.

```
vm.max_map_count=262144 fs.file-max=65536 ulimit -n 65536  
ulimit -u 4096
```



3. Save and exit the file.

4. Reboot the system to apply the changes.

```
$ sudo reboot
```

## 8. Open inbound 9000 port on VM instance

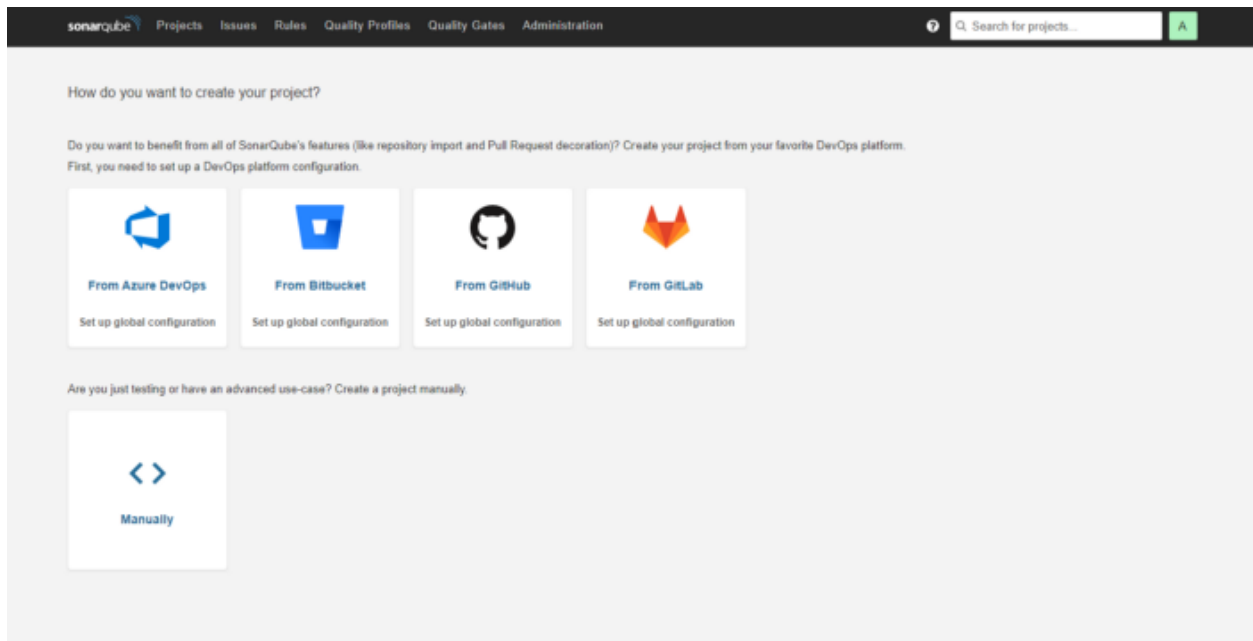
## 9. Access SonarQube Web Interface

Access SonarQube in a web browser at your server's IP address on port 9000. For example:

```
http://<PUBLIC\_IP\_OF\_YOUR\_INSTANCE>:9000
```

Log in with username `admin` and password `admin`. SonarQube will prompt you to change your password.

Following page will be visible:



Now you have a powerful tool that can help you create clean and analyse code.

For more details you can read Sonarqube Official docs [here](#).