# Install OpenJDK 11

## SSH to your Ubuntu server as a non-root user with sudo access.

## Install OpenJDK 11

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| --- |
| $ sudo apt-get install openjdk-11-jdk –y |

# Install and Configure PostgreSQL

## Add the PostgreSQL repository.

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

## Add the PostgreSQL signing key.

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

## Install PostgreSQL.

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| --- |
| $ sudo apt install postgresql postgresql-contrib –y |

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

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| --- |
| $ sudo systemctl enable postgresql |

## Start the database server.

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| --- |
| $ sudo systemctl start postgresql |

## Change the default PostgreSQL password

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| --- |
| $ sudo passwd postgres |
|  |

## Switch to the postgres user.

## $ su - postgres

## Create a user named sonar.

## $ createuser sonar

## Log in to PostgreSQL.

## $ psql

## Set a password for the sonar user. Use a strong password in place of my\_strong\_password.

ALTER USER sonar WITH ENCRYPTED password 'password';

Note-- we will use this password in jdbc.passwor🡪**(password )and jdbc.username🡪sonar)**

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

CREATE DATABASE sonarqube OWNER sonar;

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

GRANT ALL PRIVILEGES ON DATABASE sonarqube to sonar;

## Exit PostgreSQL.

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

$ exit3.

# Download and Install SonarQube

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

$ sudo apt-get install zip -y

## Locate the latest download URL from the SonarQube official download page. Download the SonarQube distribution files.

$ sudo wget https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-<VERSION\_NUMBER>.zip

## Unzip the downloaded file.

sudo unzip sonarqube-<VERSION\_NUMBER>.zip

## Move the unzipped files to /opt/sonarqube directory

sudo mv sonarqube-<VERSION\_NUMBER> /opt/sonarqube

# Add SonarQube Group and User

**Create a dedicated user and group for SonarQube, which can not run as the root user.**

## Create a sonar group.

$ sudo groupadd sonar

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

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

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

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

# Configure SonarQube

## Edit the SonarQube configuration file.

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

**Find the following lines:**

#sonar.jdbc.username=

#sonar.jdbc.password=

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

**sonar.jdbc.username=sonar**

**sonar.jdbc.password=password**

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

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

**Save and exit the file.**

## Edit the sonar script file.

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

**About 50 lines down, locate this line:**

**#RUN\_AS\_USER=**

**Uncomment the line and change it to:**

**RUN\_AS\_USER=sonar**

## Save and exit the file.

# Setup Systemd service

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

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

**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

## Save and exit the file.

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

$ sudo systemctl enable sonar

## Start the SonarQube service.

$ sudo systemctl start sonar

## Check the service status

$ sudo systemctl status sonar

# Modify Kernel System Limits

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

## Edit the sysctl configuration file.

$ sudo nano /etc/sysctl.conf

**Add the following lines.**

vm.max\_map\_count=262144

fs.file-max=65536

ulimit -n 65536

ulimit -u 4096

## Save and exit the file.

## Reboot the system to apply the changes.

$ sudo reboot

# Access SonarQube Web Interface

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

http://192.0.2.123:9000

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