

SonarQube Installation on Ubuntu 20.04 LTS server

1. Run Ubuntu system update

The first thing we should do before installing any software on Linux using a command terminal is run of update command, thus run:

```
sudo apt update
```

2. Install Java OpenJDK

Java is one of the requirements to install and set up SonarQube on Ubuntu 20.04 or 18.04 and its based operating systems.

```
sudo apt install openjdk-11-jdk
```

Increase the Virtual memory

```
sudo sysctl -w vm.max_map_count=524288
```

```
sudo sysctl -w fs.file-max=131072
```

```
ulimit -n 131072
```

```
ulimit -u 8192
```

Reboot your system once...

```
reboot
```

3. Create a Dedicated user for Sonarqube

The latest version of Sonar cannot run under the root user, thus we will create a new user to access only Sonarqube installation.

Add user

```
sudo adduser --system --no-create-home --group --disabled-login sonarh2s
```

Note: you can change **sonarh2s** with whatever **username** and **password** you want to set.

3. Install PostgreSQL Database

Ubuntu's base repository doesn't have the latest version of PostgreSQL thus to get the latest one, we have to add its repo manually. Here is the command to do that.

Add GPG key:

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

Add repo:

```
echo "deb [arch=amd64] http://apt.postgresql.org/pub/repos/apt/ focal-pgdg main" | sudo tee /etc/apt/sources.list.d/postgresql.list
```

Run system update

```
sudo apt update
```

Install PostgreSQL 13

```
sudo apt install postgresql-13
```

You can check the status of its service using

```
sudo systemctl status postgresql
```

4. Create a database for Sonar

1. Once the installation is completed, let's create a PostgreSQL database for Sonarqube but before that set password:

```
sudo passwd postgres
```

2. Switch to **postgres** the user. Use the password you have set above.

```
su - postgres
```

3. Now, create a new user that will access the database for Sonarqube.

```
createuser sonaruser
```

Note: Change **sonaruser** in the above command with whatever you want to use.

4. Switch to the PostgreSQL shell.

```
psql
```

5. To secure a newly created user, set a password for the same using the below syntax:

```
ALTER USER sonaruser WITH ENCRYPTED password 'yourpassword';
```

Note: change the bold items with whatever you want to use.

6. Create a new database on PostgreSQL by running:

```
CREATE DATABASE sonardb OWNER sonaruser;
```

Note: You can use the DB name as per your choice and also don't forget to replace the user in the above command with the one you have created.

7. Exit from the **psql** shell:

```
\q
```

8. Get back to your system user

```
exit
```

5. Download and Setup SonarQube on Ubuntu 20.04/18.04

While writing this article the latest version of the Sonarqube was v-9.7.1 available to download. However, you can directly visit the [official website](#) to get the latest version. You can also visit the download page and copy the link to download with **wget** command, as we have done here:

```
wget https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-9.7.1.62943.zip
```

Extract and move to **/opt** directory:

```
sudo apt -y install unzip
```

```
sudo unzip sonarqube-*.zip -d /opt
```

```
sudo mv /opt/sonarqube-* /opt/sonarqube
```

Note: If you have downloaded the file using the browser then you have to first switch to the **Downloads** directory before running the above commands.

Set user permission: We have created a dedicated user for SonarQube, hence, give the extracted permission to that user.

```
sudo chown -R sonarh2s:sonarh2s /opt/sonarqube
```

Configure Database for Sonar

1. Open the configuration file:

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

2. Now, add the following lines:

As shown in the screenshot, copy-paste the following lines. After that change the bold values:

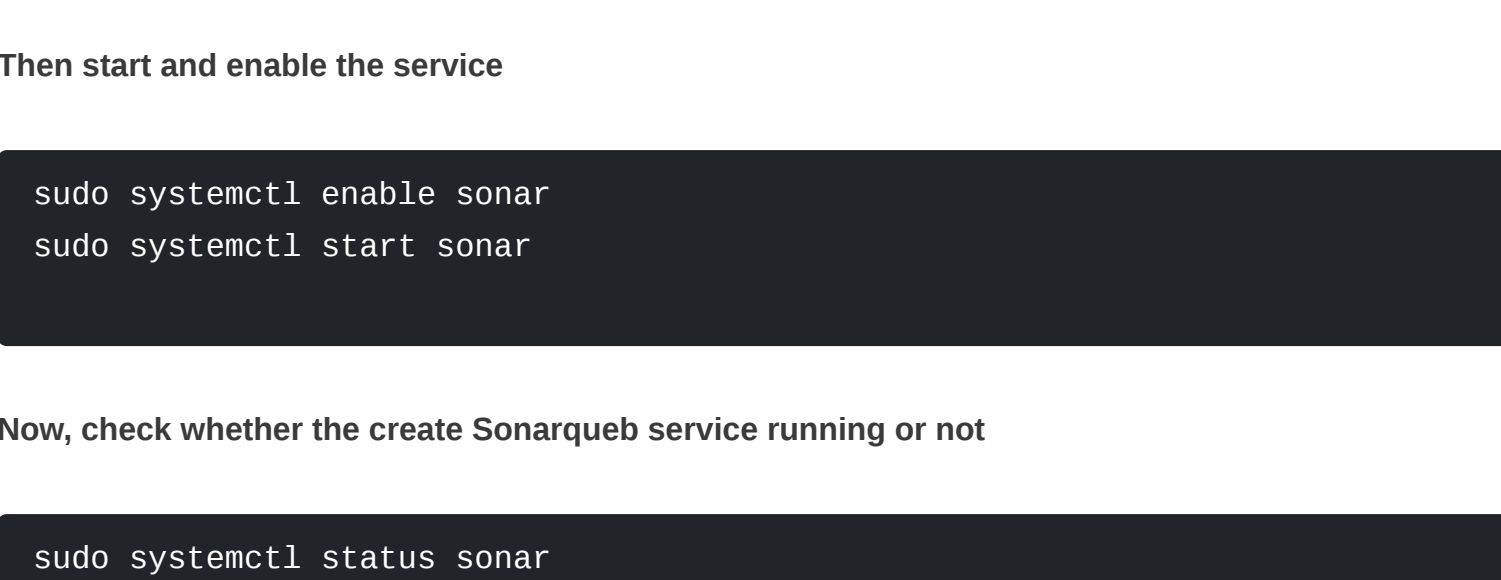
```
sonar.jdbc.username=sonaruser
sonar.jdbc.password=yourpassword
sonar.jdbc.url=jdbc:postgresql://localhost/sonardb
sonar.web.javaAdditionalOpts=-server
```

Just replace the given values with what you have used while creating a database on PostgreSQL for Sonarqube.

Replace **sonaruser** – is a database username

Replace **yourpassword** – is the database password

Replace **sonar**db****– is the database name we have created



6. Create a SonarQube Systemd service file

By default, there will be no service file for Sonarqube to start it in the background and with system boot. Hence, we have to create one manually. Here is the way:

```
sudo vim /etc/systemd/system/sonar.service
```

Copy-paste the following lines:

```
[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
LimitNOFILE=65536
LimitNPROC=4096
User=sonarh2s
Group=sonarh2s
Restart=on-failure

[Install]
WantedBy=multi-user.target
```

Note: Replace the value of **User** and **Group** with the **username** that you have created at the beginning of the article for Sonarqube.

Reload the daemon:

```
sudo systemctl daemon-reload
```

Then start and enable the service

```
sudo systemctl enable sonar
sudo systemctl start sonar
```

Now, check whether the create Sonarqueb service running or not

```
sudo systemctl status sonar
```

```
h2s@h2s-virtual-machine:~$ sudo systemctl status sonarqube
[sudo] password for h2s:
● sonarqube.service - SonarQube service
   Loaded: loaded (/etc/systemd/system/sonarqube.service; disabled; vendor preset: enabled)
   Active: active (running) since Wed 2022-08-24 17:15:01 IST; 36min ago
   Process: 47290 ExecStart=/opt/sonarqube/bin/linux-x86-64/sonar.sh start (code=exited, status=0/SUCCESS)
  Main PID: 47313 (java)
    Tasks: 151 (limit: 4588)
   Memory: 1.7G
      CPU: 2min 15.692s
  CGroup: /system.slice/sonarqube.service
          └─47313 java -Xms8m -Xmx32m --add-exports=java.base/jdk.internal.ref=ALL-UNNAMED -->
          └─47429 /usr/lib/jvm/java-11-openjdk-amd64/bin/java -XX:UseG1GC -Djava.to.temptir=
          └─47522 /usr/lib/jvm/java-11-openjdk-amd64/bin/java -Djava.awt.headless=true -Dfile>
```

[optional] Alternatively, you can also use the below commands to start, stop, and check the status:

```
sudo -Hu sonarh2s /opt/sonarqube/bin/linux-x86-64/sonar.sh status
```

```
sudo -Hu sonarh2s /opt/sonarqube/bin/linux-x86-64/sonar.sh start
sudo -Hu sonarh2s /opt/sonarqube/bin/linux-x86-64/sonar.sh stop
```

To get the **console** output to know what is happening while starting the Sonarqube server you can use:

```
sudo -Hu sonarh2s /opt/sonarqube/bin/linux-x86-64/sonar.sh console
```

This will help in resolving some errors.

7. Allow Sonarqube port in Ubuntu 20.04 firewall

To access the web interface of Sonarqube you have to open its default **9000** port in your Ubuntu system's firewall:

```
sudo ufw allow 9000/tcp
```

8. Access the Sonarqube Web interface

Finally, open any browser that can access the IP address or domain of the server where you have installed Sonarqube. And point it to-

```
http://server-ip-address:9000
or
http://you-somain.com:9000
```

Note: Replace **server-ip-address** with your server/desktop IP address or domain name.

Log in with the default admin username

Once you see the login screen, use the **default Sonarqube username and password** that is **admin**

when it asks you to change the old password, do that.