Installing and Configuring SonarQube: A Step-by-Step Guide

Version 1.0

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1. Introduction

SonarQube is an open-source platform used for continuous inspection of code quality. This guide covers two installation methods: using Docker and using a ZIP file, along with setting up a PostgreSQL database to store SonarQube data.

2. Prerequisites

Before starting, ensure you have the following:

- Docker Installed (for Docker method): Install Docker from Docker's official website.
- Java Installed (for ZIP file method): SonarQube requires Java 11 or higher.
- Sufficient System Resources**:** Ensure your machine has at least 2 GB of RAM allocated to Docker, sufficient CPU, and disk space.

3. Setting Up PostgreSQL Database

Set up a PostgreSQL database using Docker, which SonarQube will use to store its data.

1. Pull the latest PostgreSQL Docker image from Docker Hub.

   docker pull postgres

2. Run the PostgreSQL container with a specified database name, user, and password.

   - “-d” - Run the container in detached mode.
   - “--name sonarqube-db” - Name the container as sonarqube-db
   - “-e POSTGRES_USER=sonar” - Set the PostgreSQL username to sonar.
   - “-e POSTGRES_PASSWORD=sonar” - Set the PostgreSQL Password to sonar.

- “-e POSTGRES_DB=sonarqube”- Set the PostgreSQL database name to sonarqube.
- “-p 5432:5432”- Map port 5432 on the host to port 5432 on the container.

4. Installing SonarQube Using Docker on LocalHost

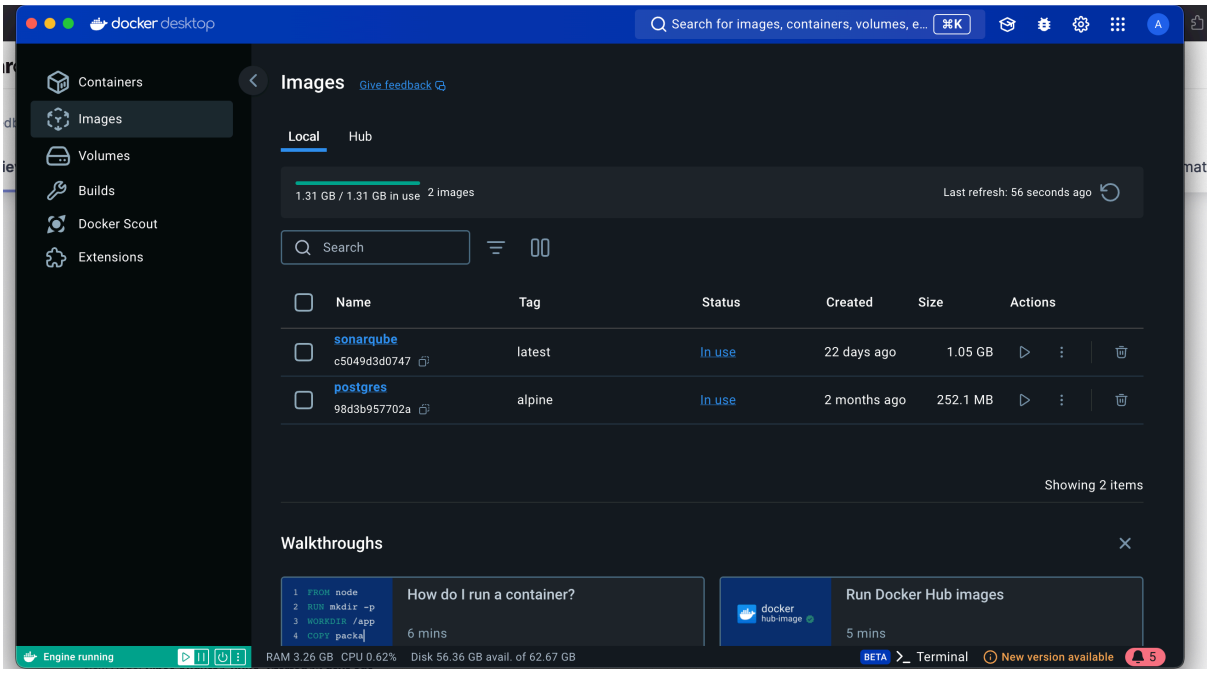
Pull the latest SonarQube image from Docker Hub.

docker pull sonarqube

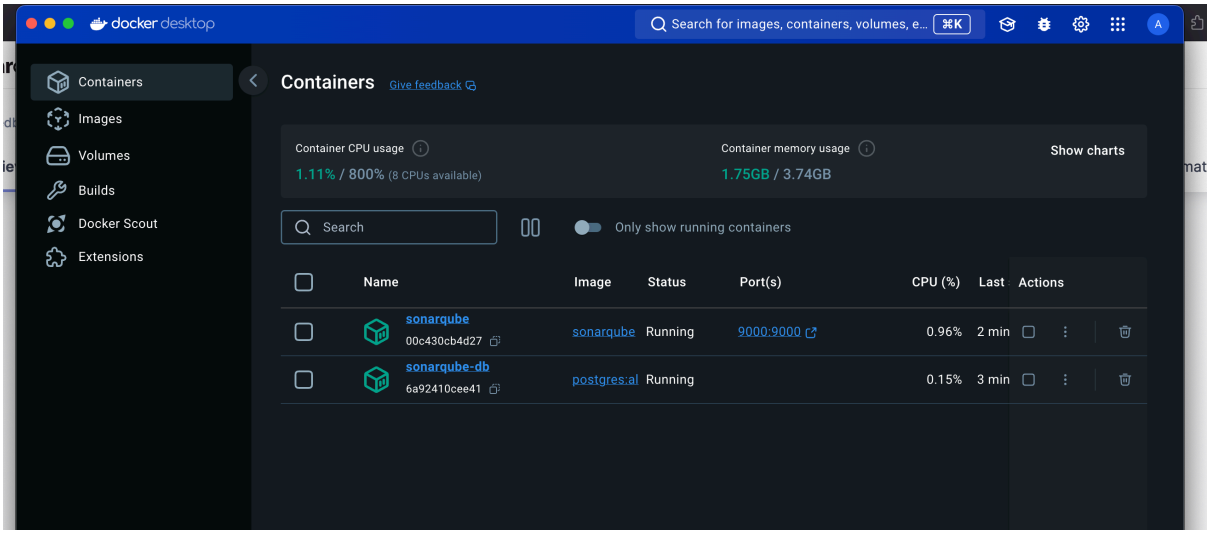
Run the SonarQube container and link it to the PostgreSQL database.

docker run -d --name sonarqube -p 9000:9000 --link sonarqube-db:db -e SONARQUBE_JDBC_URL=jdbc:postgresql://db:5432/sonarqube -e SONARQUBE_JDBC_USERNAME=sonar -e SONARQUBE_JDBC_PASSWORD=sonar sonarqube

- **“**docker run” - This command is used to create and start a new container from a specified image.
- “-d” - This flag runs the container in detached mode, meaning it runs in the background.
- “--name sonarqube” - This option assigns a name (sonarqube) to the container, making it easier to reference later.
- **“-**p 9000:9000” - This option maps port 9000 of your host machine to port 9000 of the container. It allows you to access the SonarQube web interface via http://localhost:9000.
- “--link sonarqube-db:db” - This creates a link to another container named sonarqube-db, allowing the SonarQube container to communicate with it. The alias db is used inside the SonarQube container to refer to this linked container.
- “-e SONARQUBE_JDBC_URL=jdbc:postgresql://db:5432/sonarqube” - This sets the JDBC URL for connecting to the PostgreSQL database. It specifies that the database server is reachable at the alias db on port 5432, and it’s looking for a database named sonarqube.
- “-e SONARQUBE_JDBC_USERNAME=sonar” - This sets the username to connect to the PostgreSQL database.
- “-e SONARQUBE_JDBC_PASSWORD=sonar” - This sets the password for the specified username.
- “Sonarqube” - This is the name of the Docker image that will be used to create the container. In this case, it's the official SonarQube image from Docker Hub.

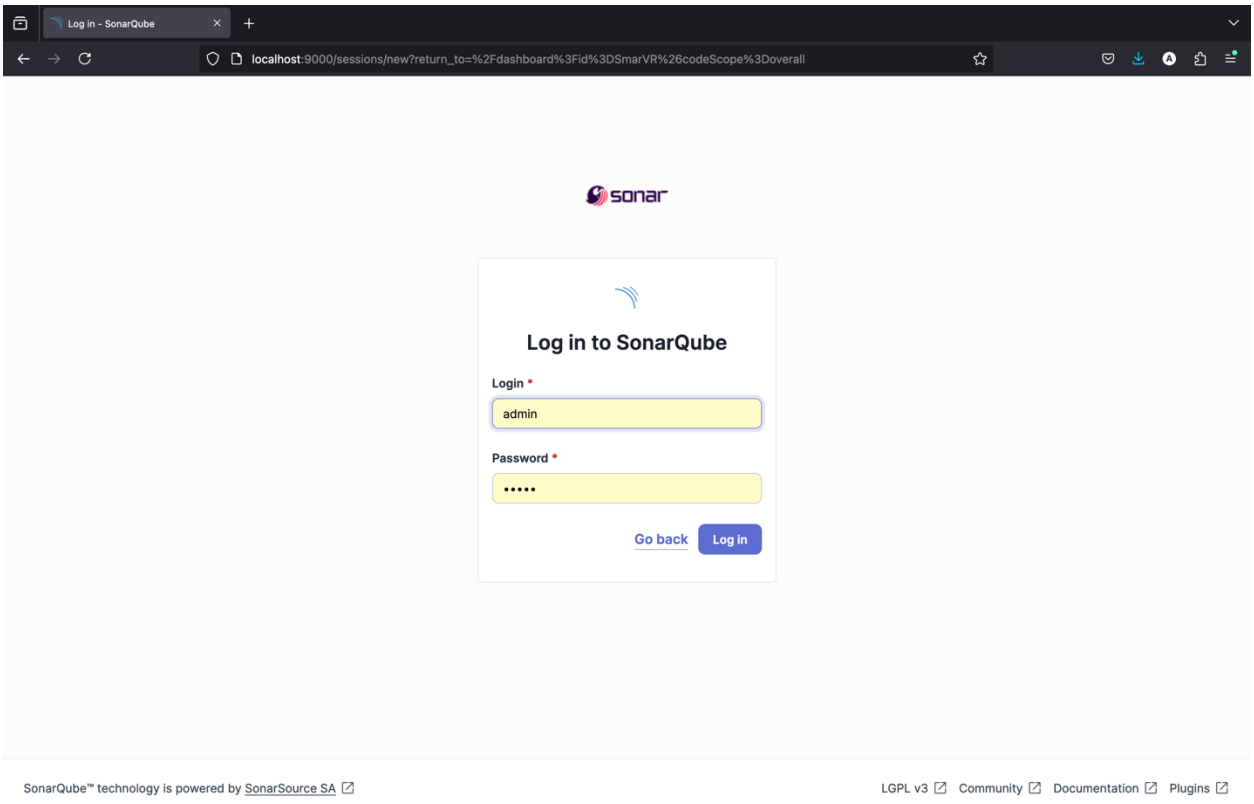


Postgres and SonarQube Images

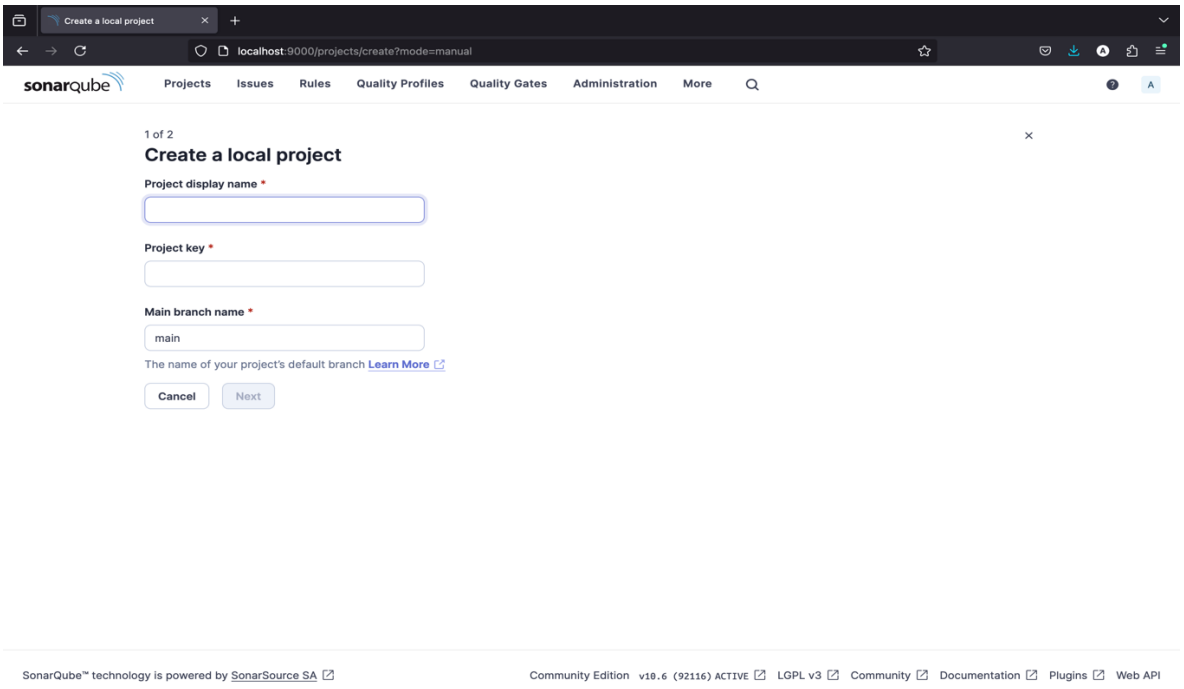


Running as Containers

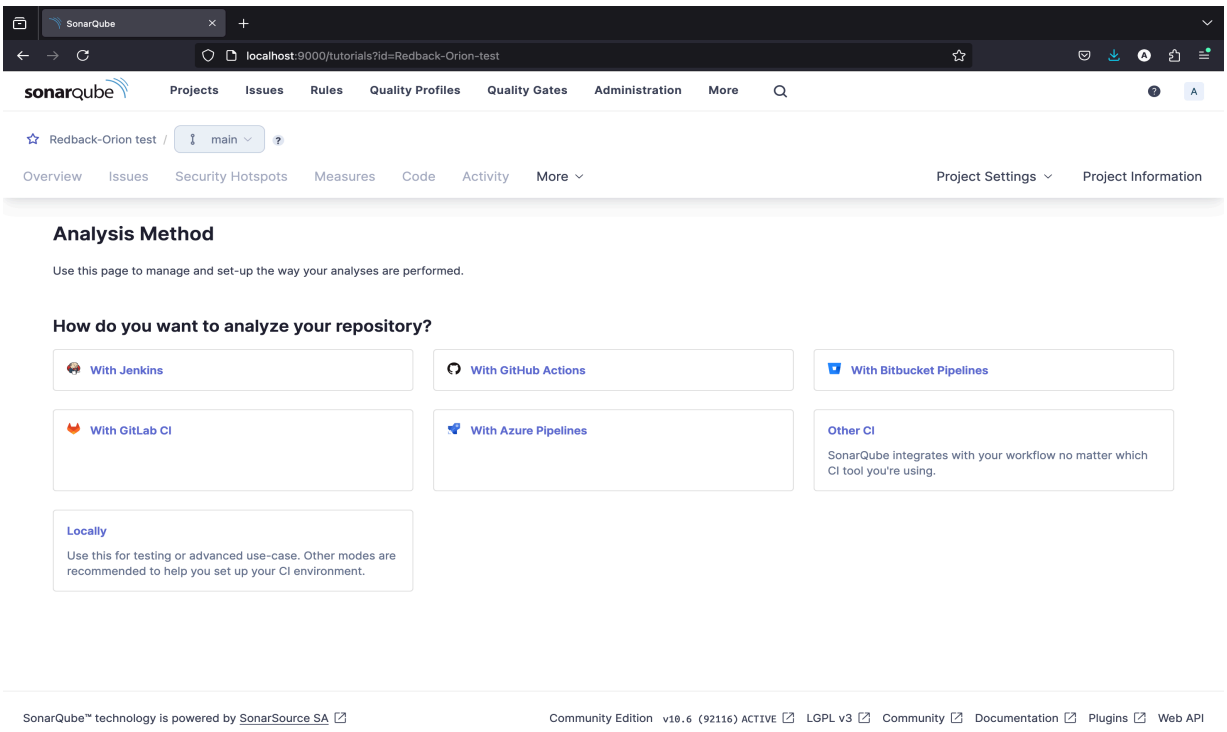
5. Setting up First SonarQube project



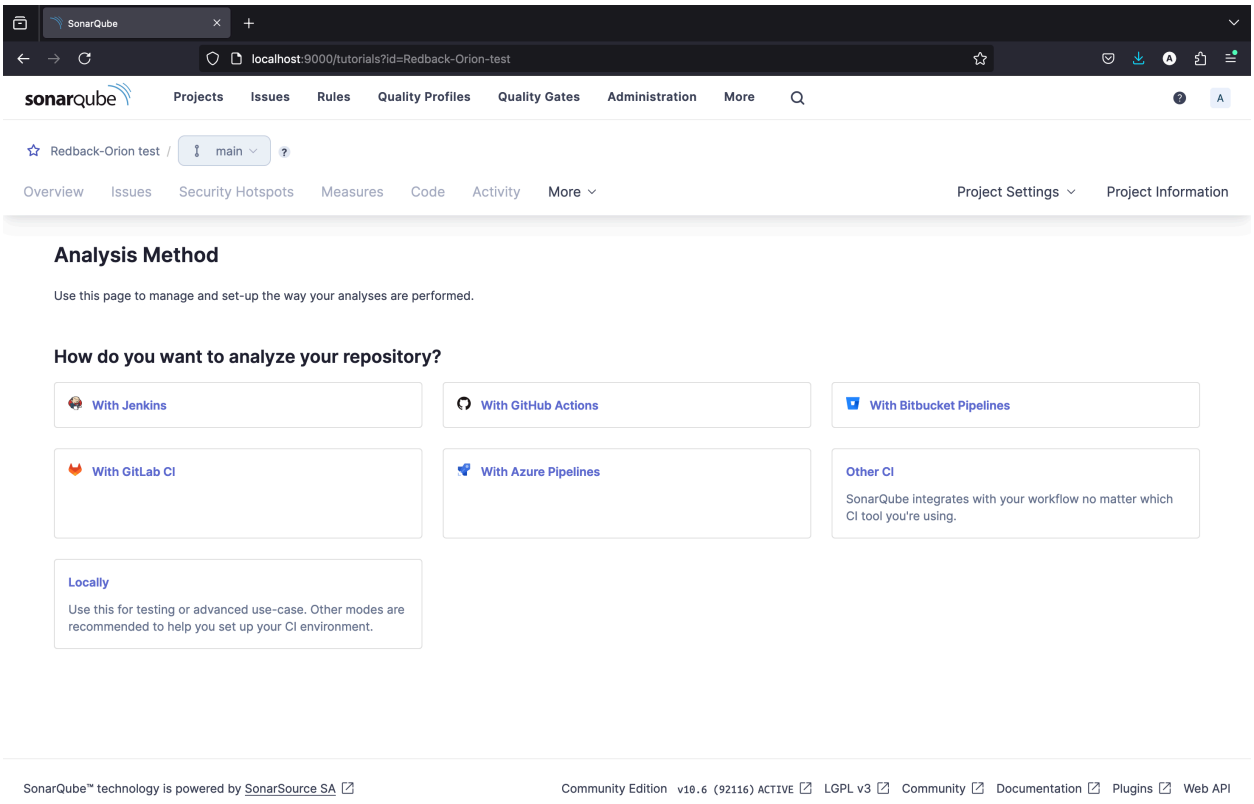
Type username=admin and password=admin



Project Initialization dashboard



Project Analysis – Choose appropriate method where code based



1. Build Your Analysis
   - SonarQube will provide you instructions on how to evaluate your project after you've created it. Generally, you will have options for various build tools (e.g., Gradle, Ant, Maven, etc.).
   - Depending on the build system for your project, select the appropriate option.

2. Create a Token
   - Tokens are used by SonarQube to authenticate users during analysis. For your project, click the "Generate" button to create a token. This token will be utilized in your local analysis or CI/CD workflow, so keep it safe.

6. Analyze code

1. Install the SonarScanner

   You need to install the SonarScanner, which is used to perform the analysis. You can download it from the SonarScanner download page.

2. Configure the SonarScanner

   Create a configuration file named sonar-project.properties in your project directory. Here's a basic template

   sonar.projectKey=my-first-project

   sonar.projectName=My First Project

   sonar.projectVersion=1.0

   sonar.sources=.

   sonar.language=java # Change this based on your project's language

   sonar.host.url=http://localhost:9000

   sonar.login="YOUR_GENERATED_TOKEN"

3. Run code analysis

   - Open a terminal and navigate to your project directory.
   - Run the following command

     sonar-scanner

   - This command will start the analysis process, sending the results to SonarQube server.