Installing SonarQube with Docker and Sonar Scanner CLI

SonarQube On Docker:
Sonar is a popular open-source platform for continuous inspection of code quality. One of the easiest ways to install and use Sonar is to use Docker, a containerization platform that makes it easy to deploy and manage applications. In this article, we will walk you through the process of installing Sonar with Docker and explain the benefits of using this approach.

Prerequisites
Before getting started, you will need to have Docker installed on your machine. If you do not have Docker installed, you can download and install it from the Docker website https://docs.docker.com/get-docker/. We have it almost on all of our PC and in Lab VMs.

Step 1: Pull the Sonar Docker Image
The first step in installing Sonar with Docker is to pull the Sonar Docker image from the Docker Hub repository. To do this, open a terminal or command prompt and run the following command:

docker pull sonarqube

This will download the latest version of the Sonar Docker image to your machine.

Step 2: Create a Docker Network
Next, we need to create a Docker network that will allow the Sonar container to communicate with the database container. To create a Docker network, run the following command:

docker network create sonar-network

Step 3: Start a Database Container
Sonar requires a database to store its data. In this example, we will use a PostgreSQL database, but you can also use a MySQL or Microsoft SQL Server database if you prefer. To start a PostgreSQL database container, run the following command:

docker run -d --name sonar-db --network sonar-network -e POSTGRES_USER=sonar -e POSTGRES_PASSWORD=sonar -e POSTGRES_DB=sonar postgres:9.6

Step 4: Start the Sonar Container
Once the database container is running, we can start the Sonar container. To do this, run the following command:

docker run -d --name sonar -p 9000:9000 --network sonar-network -e SONARQUBE_JDBC_URL=jdbc:postgresql://sonar-db:5432/sonar -e SONAR_JDBC_USERNAME=sonar -e SONAR_JDBC_PASSWORD=sonar sonarqube

This command starts the Sonar container and maps port 9000 on the host to port 9000 in the container. It also sets the SONARQUBE_JDBC_URL environment variable to the URL of the PostgreSQL database.

Step 5: Access the Sonar Dashboard
Once the Sonar container is running, you can access the Sonar dashboard by opening a web browser and navigating to http://localhost:9000. The default username and password are admin and admin, respectively. You will be asked to change the password.

Sonar Scanner CLI:
To install and set the path of the SonarScanner CLI, follow these steps:

1. Download and Extract:
     - Download the SonarScanner CLI zip file from the official website
   https://docs.sonarsource.com/sonarqube/latest/analyzing-source-code/scanners/sonarscanner/ as per your OS and Architecture.
     - Extract the downloaded file into a directory of your choice. Let's refer to this directory as <install_directory>.
2. Set Path:
     - Add the <install_directory>/bin directory to your system's PATH environment variable.
     - For example, on Linux, you can add the following line to your ~/.bashrc or ~/.profile file and for macOS to ~/.zashrc: (sudo nano file-name)
        export PATH="<install_directory>/bin:$PATH"
3. Verify Installation:
     - Open a new terminal and run *sonar-scanner --version* to verify the installation.
     It will print something like this: INFO SonarScanner CLI 6.1.0.4477