SonarQube and Jenkins CI/CD Pipeline Setup Guide

Objective

Install and configure SonarQube on your local machine and create a Jenkins CI/CD pipeline that integrates SonarQube to perform static code analysis.

Step 1: Install SonarQube

Requirements:

- Java 17+ required.

- Docker Desktop or direct installation.

- Minimum 2GB RAM free.

Option 1: Docker (Recommended):

docker run -d --name sonarqube -p 9000:9000 sonarqube:lts

Option 2: Direct Install:

- Download from https://www.sonarsource.com/products/sonarqube/downloads/

- Start SonarQube from bin/ directory.

Access SonarQube at http://localhost:9000 (admin/admin).

Step 2: Install Jenkins

Option 1: Docker:

docker run -d --name jenkins -p 8080:8080 -p 50000:50000 -v jenkins_home:/var/jenkins_home jenkins/jenkins:lts

Option 2: Windows Installer:

Download from https://www.jenkins.io/download/ and install.

Access Jenkins at http://localhost:8080.

Step 3: Jenkins Configuration

Install Plugins:

- SonarQube Scanner

- Pipeline

- Git

- Maven/Gradle if needed

Configure SonarQube in Jenkins:

- Manage Jenkins > Configure System > SonarQube Servers

- Add Server URL http://localhost:9000 and Token

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Configure Global Tools:

- SonarQube Scanner

- Maven (if needed)

Step 4: Jenkins Pipeline Example

Sample Jenkinsfile for Maven Project:

```
pipeline {
    agent any
    tools {
        maven 'Maven-3.9'
        sonarScanner 'SonarScanner'
    }
    environment {
        SONAR_SERVER = 'LocalSonar'
    }
    stages {
        stage('Checkout') {
            steps {
                git 'https://github.com/your-repo.git'
            }
        }
        stage('Build') {
            steps {
                sh 'mvn clean install'
            }
        }
        stage('SonarQube Analysis') {
            steps {
                withSonarQubeEnv("${SONAR_SERVER}") {
                    sh 'mvn sonar:sonar'
                }
            }
        }
    }
}
```

Step 5: Build Execution

- Create a new Pipeline Job in Jenkins

- Paste the Jenkinsfile

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- Click Build Now
- View SonarQube Dashboard for static analysis results

Summary

Component	Purpose	Access URL
SonarQube	Static Code Analysis	http://localhost:9000
Jenkins	CI/CD Pipeline	http://localhost:8080