Setting Up a CI/CD Workspace with Docker, Gitea, Jenkins, and Allure

This tutorial guides you through setting up a complete CI/CD environment using Docker, Gitea (a self-hosted Git service), Jenkins (automation server), and Allure (test reporting tool). By the end of this tutorial, you will have a running workspace capable of building and testing Maven projects with automated reports.

Prerequisites

Ensure you have the following installed:

• Docker and Docker Compose (Installation depends on OS)

Step 1: Setting Up Docker Compose

Create a new directory for your workspace:

```bash
mkdir -p ~/Desktop/vvss/workspace && cd ~/Desktop/vvss/workspace
```

Create a `docker-compose.yml` file with the following content:

```yml
services:
  jenkins:
    build:
      context: .
      dockerfile_inline: |
        FROM jenkins/jenkins:lts
        USER root
        RUN apt-get update && apt-get install -y maven tree
        RUN jenkins-plugin-cli --plugins allure-jenkins-plugin:2.32.0 workflow-aggregator:600.vb_57cdd26fdd7 matrix-project:845.vffd7fa_f27555
git:5.7.0
        RUN mkdir -p /usr/share/jenkins/ref/init.groovy.d        && echo 'import jenkins.model.*' >
/usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo 'import hudson.tools.*' >>
/usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo 'import ru.yandex.qatools.allure.jenkins.tools.*' >>
/usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo 'def desc =
Jenkins.instance.getDescriptor(AllureCommandlineInstallation.class)' >> /usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo
'def installer = new AllureCommandlineInstaller("2.32.2")' >> /usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo 'def
installSourceProperty = new InstallSourceProperty([installer])' >> /usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo 'def
installation = new AllureCommandlineInstallation("allure", "", [installSourceProperty])' >>
/usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo 'desc.setInstallations(installation)' >>
/usr/share/jenkins/ref/init.groovy.d/allure_init.groovy        && echo 'desc.save()' >> /usr/share/jenkins/ref/init.groovy.d/allure_init.groovy
        USER jenkins
    container_name: jenkins
    restart: always
    ports:
      - "8080:8080"
      - "50000:50000"
    volumes:
      - './jenkins_data:/var/jenkins_home'

  gitea:
    image: gitea/gitea:latest
    container_name: gitea
    restart: always
    ports:
      - "3000:3000"
      - "2222:22"
    volumes:
      - './gitea_data:/data'
    environment:
      - USER_UID=1000
      - USER_GID=1000
      - GITEA__database__DB_TYPE=sqlite3
      - GITEA__server__DISABLE_REGISTRATION=true
      - GITEA__security__INSTALL_LOCK=true
      - GITEA__server__ROOT_URL=http://gitea:3000/
```

Step 2: Running Docker Compose

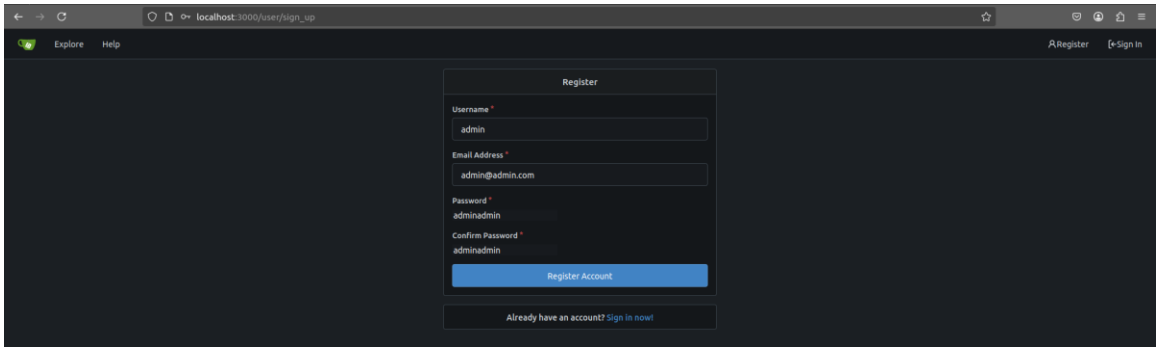
Open a terminal in the docker-compose.yml parent folder and start the services by running:

```bash
docker compose up
```

This will create Dockerized instances of Jenkins (pre-configured with java 17, Maven and Allure) and Gitea (our self-hosted github alternative)

Step 3: Setting Up Gitea

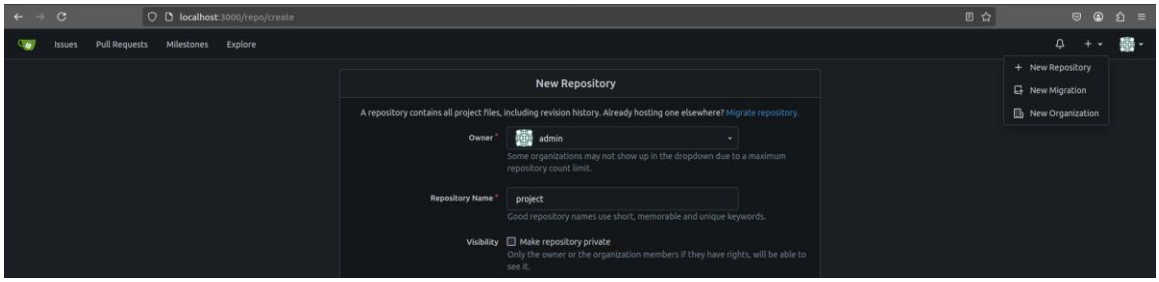
Access Gitea by navigating to `http://localhost:3000`.



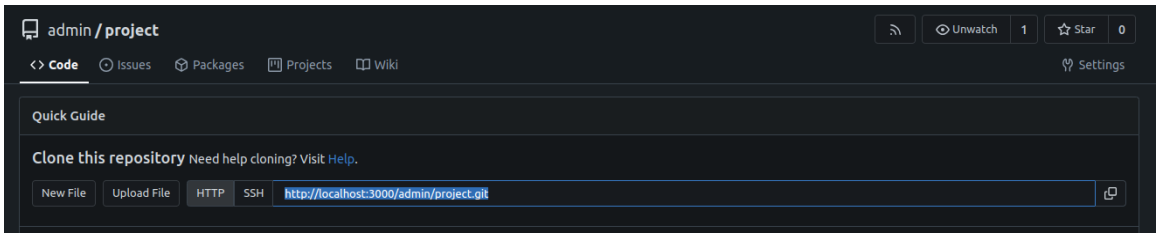
Register an account with:

• Username: admin

• Password: adminadmin



Create a new public repository named ‘project’



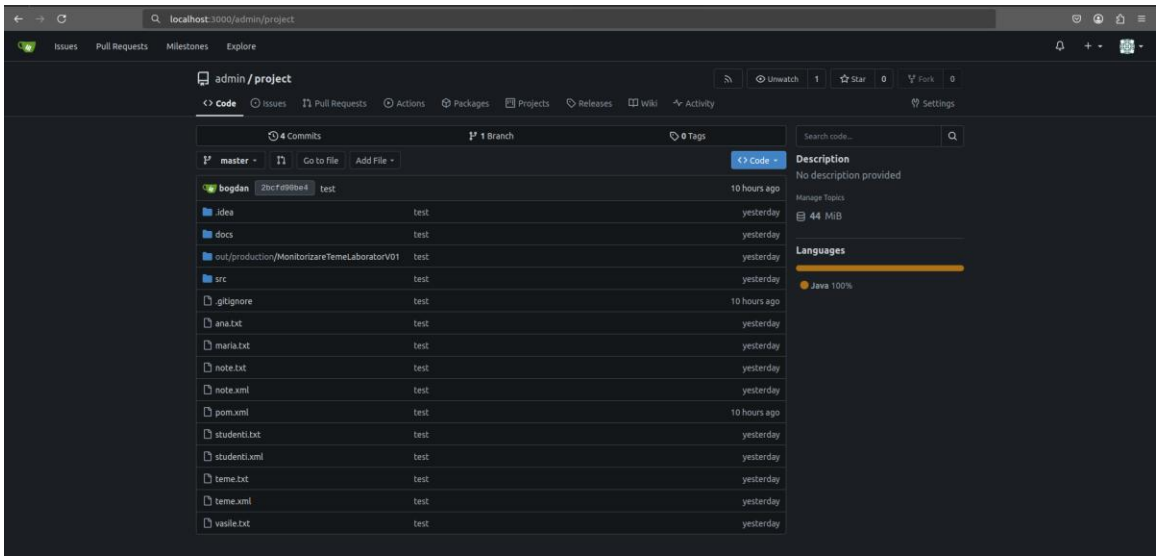
Clone the repository locally:

```bash
git clone http://localhost:3000/admin/project.git
```

Move all your project files in the empty repository

Push all the project files to the repository

```bash
git add . && git commit -m “base” && git push
```

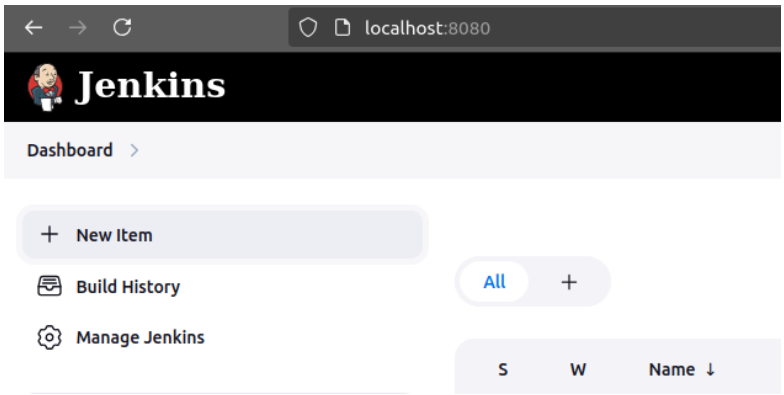


Step 4: Setting Up Jenkins

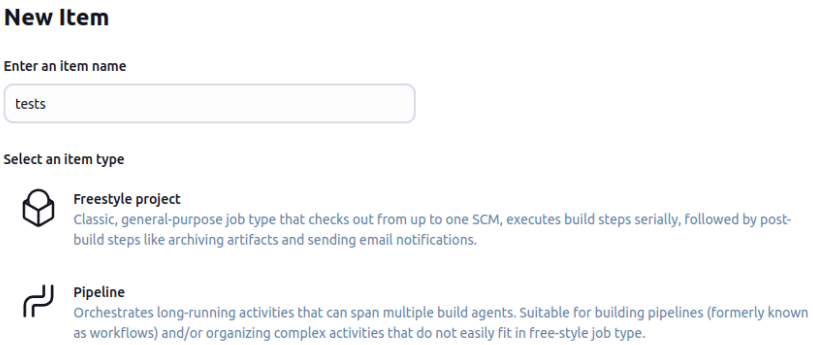
Access Jenkins at `http://localhost:8080`. No username required, default is `admin`.

Step 5: Creating a Pipeline Job

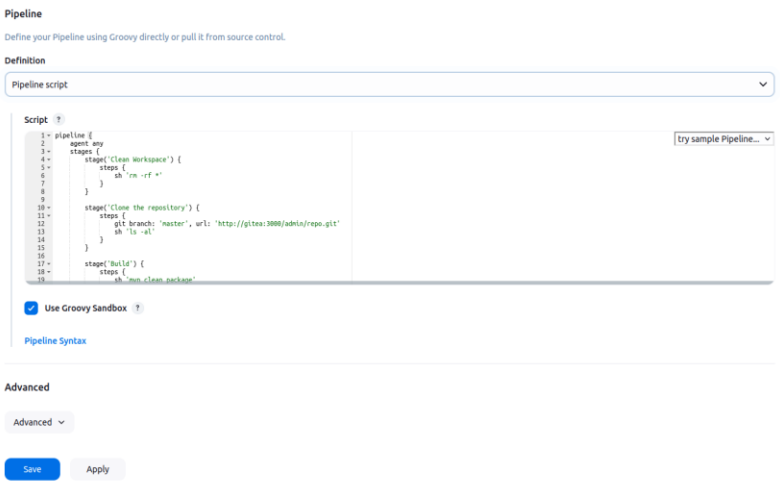
Create a new Jenkins Item (job)



Name: tests & Item Type: Pipeline



Configure the pipeline definition as: Pipeline Script



and use the following script:

```
pipeline {
  agent any
  stages {
    stage('Clean Workspace') {
      steps {
        sh 'rm -rf *'
      }
    }

    stage('Clone the repository') {
      steps {
        git branch: 'main', url: 'http://gitea:3000/admin/RepoDemoL02TestingBBT.git'
        sh 'tree'
      }
    }

    stage('Build') {
      steps {
        sh 'mvn clean install -DskipTests'
      }
    }
    stage('Run a Test')
    {
      steps{
        sh 'mvn -Dtest=AppTest,AppTestWBT verify'
      }
    }

    stage('Publish Allure Report') {
      steps {
        allure includeProperties: false, jdk: '', results: [[path: 'target/allure-results']]
      }
    }
  }
}
```

Take some time to inspect the steps of the pipeline.

Note down in your own words what you think it's doing.

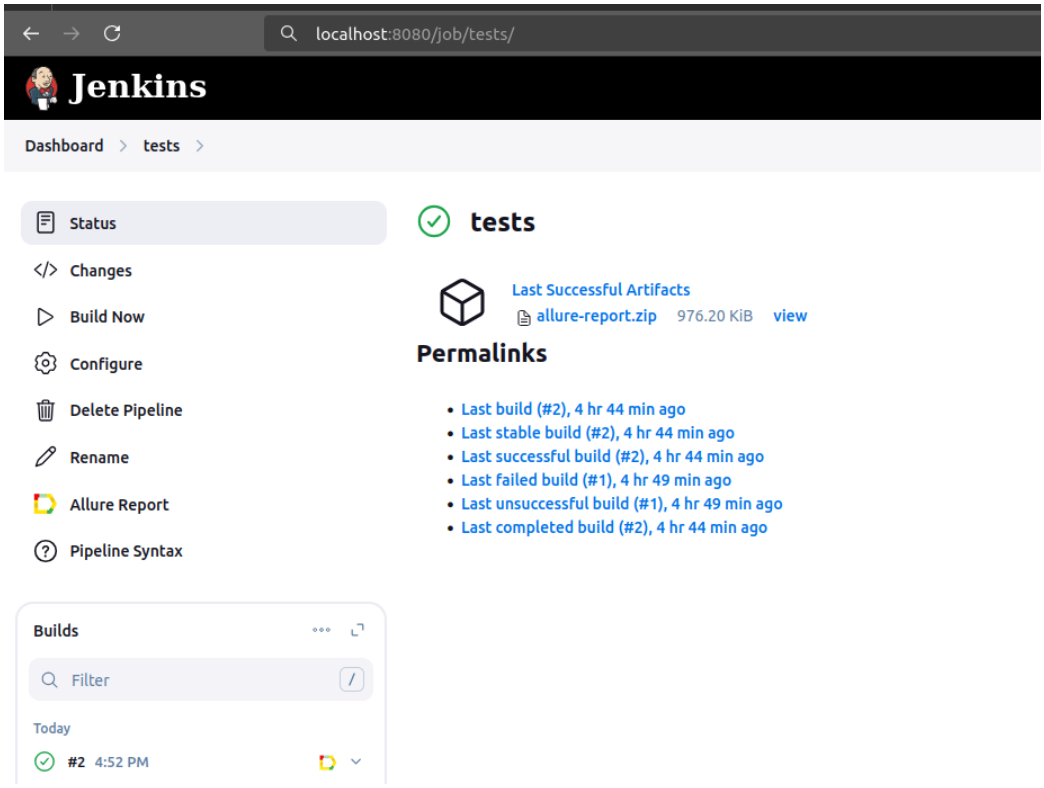
Apply & Save

Remark: Create a Jenkinsfile with the same content and reconfigure the execution pipeline with "Pipeline script from SCM" and specify:

- Repository URL:
  - http://gitea:3000/admin/RepoDemoL02TestingBBT.git
- Branch Specifier (blank for 'any')?
  - */main
- Script Path
  - Jenkinsfile

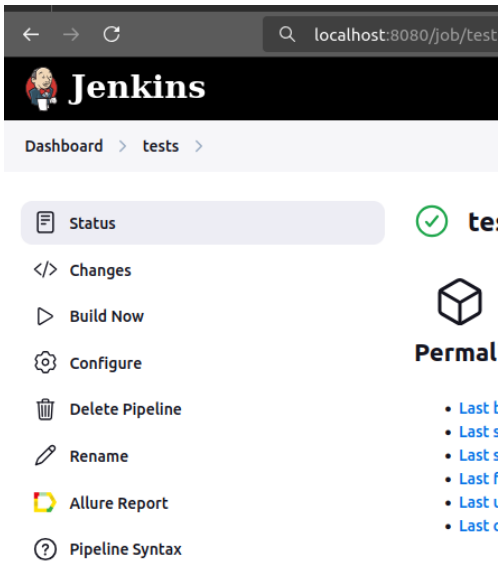
Step 6: Running the Pipeline

Click on 'Build Now' in Jenkins to run the pipeline.



Fingers crossed for the execution to be ‘green’ (successful)

Step 7: Viewing Allure Reports



Once the pipeline completes, navigate to the Allure Reports to view detailed test results grouped by tags.