

Lab Manual: Jenkins deployment Using Docker

Overview

This lab teaches, how to use **Jenkins running in Docker** to generate and publish a simple static website (Karunya University example) using a pipeline. Learn how to:

- Run Jenkins with Docker Compose.
- Write a `Jenkinsfile` to create a static website.
- Use the **HTML Publisher plugin** to display the site inside Jenkins.
- Archive build artifacts.

Prerequisites

- Laptop or VM with **Docker** and **Docker Compose** installed.
- Internet access to pull Docker images.
- Jenkins running inside Docker (`jenkins/jenkins:lts`).
- Basic knowledge of Git and command line.

Step 1: Set up Jenkins with Docker Compose

1. Create a folder for the lab:

```
mkdir ~/jenkins-static-site && cd ~/jenkins-static-site
```

1. Create a `docker-compose.yml` file:

```
version: '3.8'

services:
  jenkins:
    image: jenkins/jenkins:lts
    container_name: jenkins
    restart: unless-stopped
    ports:
      - "8080:8080"
      - "50000:50000"
    volumes:
      - jenkins_home:/var/jenkins_home
      - /var/run/docker.sock:/var/run/docker.sock
```

```
volumes:
  jenkins_home:
    driver: local
```

1. Start Jenkins:

```
docker compose up -d
```

1. Get the initial admin password:

```
docker exec jenkins cat /var/jenkins_home/secrets/initialAdminPassword
```

1. Open Jenkins in the browser: `http://localhost:8080`

2. Complete setup → install suggested plugins → create admin user.

Step 2: Install HTML Publisher Plugin

1. In Jenkins: **Manage Jenkins** → **Plugins** → **Available Plugins**.
2. Search for **HTML Publisher** and install it.
3. Restart Jenkins if prompted.

Step 3: Create the Pipeline Job

1. In Jenkins, click **New Item** → select **Pipeline** → name it `karunya-site-pipeline`.
2. Scroll to **Pipeline** → **Definition** and select **Pipeline script**.
3. Paste the following script:

```
pipeline {
  agent any

  stages {
    stage('Generate site') {
      steps {
        script {
          sh 'rm -rf site || true'
          sh 'mkdir -p site/assets'

          writeFile file: 'site/index.html', text: """
            <!doctype html>
            <html lang="en">
            <head>
```

```

        <meta charset=\\"utf-8\\"/>
        <meta name=\\"viewport\\" content=\\"width=device-width, initial-
scale=1\\"/>
        <title>Karunya University – Simple Site</title>
        <link rel=\\"stylesheet\\" href=\\"assets/style.css\\"/>
    </head>
    <body>
        <header class=\\"site-header\\">
            <div class=\\"container\\">
                <h1>Karunya University</h1>
                <p class=\\"tagline\\">Values – Knowledge – Service</p>
            </div>
        </header>

        <main class=\\"container\\">
            <section class=\\"card\\">
                <h2>About Karunya University</h2>
                <p>Karunya Institute of Technology and Sciences is a leading
centre for higher education in India.</p>
            </section>
        </main>

        <footer class=\\"site-footer container\\">
            <p>&copy; ${new Date().format('yyyy')} Karunya University –
Generated by Jenkins</p>
        </footer>
    </body>
</html>
"""

writeFile file: 'site/assets/style.css', text: """
body { font-family: Arial, sans-serif; margin:0; }
.container { max-width:800px; margin:0 auto; padding:20px; }
.site-header { background:#0b3d91; color:#fff; padding:20px; }
.tagline { font-size:14px; opacity:0.8; }
.card { background:#fff; border:1px solid #ddd; padding:15px; margin:
15px 0; border-radius:6px; }
.site-footer { text-align:center; font-size:12px; color:#555; margin-
top:20px; }
"""

    }
}
}

stage('Publish site') {
    steps {
        publishHTML ([
            allowMissing: false,

```

```
        alwaysLinkToLastBuild: true,
        keepAll: true,
        reportDir: 'site',
        reportFiles: 'index.html',
        reportName: 'Karunya University - Simple Site'
    })
}
}
}

post {
    always {
        archiveArtifacts artifacts: 'site/**', fingerprint: true
    }
}
}
```

1. Save the pipeline.

Step 4: Run and View the Website

1. Click **Build Now**.
2. After success, go to the build page.
3. On the left menu, click **Karunya University - Simple Site**.
4. You should see the static site rendered inside Jenkins.
5. Alternatively, download the **archived artifact** (the `site/` folder) and open `index.html` locally.