

Final Project

Day - 6

Java Application Deployment in Minikube

PAGALAVAN KS | 22CAR140

Pipeline Script:

```
pipeline {
  agent any

  tools { maven "maven" }

  environment {
    DOCKER_CREDENTIALS = credentials('docker_cred')
  }

  stages {
    stage('SCM') {
      steps {
        git branch: 'main', url: 'https://github.com/PAGALAVANKS/web-app.git'
      }
    }

    stage('Build-clean') {
      steps {
        sh "mvn clean"
      }
    }

    stage('Build-validate') {
      steps {
        sh "mvn validate"
      }
    }
  }
}
```

```
}
```

```
stage('Build-compile') {
```

```
  steps {
```

```
    sh "mvn compile"
```

```
  }
```

```
}
```

```
stage('Build-test') {
```

```
  steps {
```

```
    sh "mvn test"
```

```
  }
```

```
}
```

```
stage('Build-install') {
```

```
  steps {
```

```
    sh "mvn install"
```

```
  }
```

```
}
```

```
stage('Build Docker Image') {
```

```
  steps {
```

```
    script {
```

```
      sh 'docker build -t pagalavanks/web-app .'
```

```
    }
```

```
  }
```

```
}
```

```
stage('Push to Docker Hub') {
```

```

steps {
  script {
    docker.withRegistry('https://index.docker.io/v1/', 'docker_cred') {
      sh 'docker push pagalavanks/web-app'
    }
  }
}

stage('Deploy App') {
  steps {
    withKubeConfig(
      caCertificate: "",
      clusterName: 'minikube',
      contextName: 'minikube',
      credentialsId: 'kube-cred',
      namespace: 'default',
      restrictKubeConfigAccess: false,
      serverUrl: 'https://192.168.49.2:8443'
    ){
      sh 'kubectl apply -f Deployment.yml --validate=false'
    }
  }
}
}

```

Dashboard > java-application > Configuration

Configure

- General
- Triggers
- Pipeline
- Advanced

Pipeline script

Script ?

```
63 stage('Deploy App') {
64   steps {
65     withKubeConfig(
66       caCertificate: '',
67       clusterName: 'minikube',
68       contextName: 'minikube',
69       credentialsId: 'kube-cred',
70       namespace: 'default',
71       restrictKubeConfigAccess: false,
72       serverUrl: 'https://192.168.49.2:8443'
73     ) {
74       sh 'kubectl apply -f Deployment.yml --validate=false'
75     }
76   }
77 }
78 }
```

☒ Use Groovy Sandbox ?

[Pipeline Syntax](#)

Advanced

Advanced ▾

[Save](#) [Apply](#)

Dashboard > java-application > Configuration

Configure

- General
- Triggers
- Pipeline
- Advanced

Pipeline script

Script ?

```
1 pipeline {
2   agent any
3   tools { maven "maven" }
4   environment {
5     DOCKER_CREDENTIALS = credentials('docker_cred')
6   }
7   stages {
8     stage('SCM') {
9       steps {
10        git branch: 'main', url: 'https://github.com/NITHESH-WP/web-app.git'
11      }
12    }
13    stage('Build-clean') {
14      steps {
15        sh "mvn clean"
16      }
17    }
18  }
19 }
```

☒ Use Groovy Sandbox ?

[Pipeline Syntax](#)

Advanced

Advanced ▾

[Save](#) [Apply](#)

Deployment File:

apiVersion: apps/v1

kind: Deployment

metadata:

name: my-deploy

labels:

name: my-deploy

spec:

replicas: 1

selector:

matchLabels:

apptype: web-backend

strategy:

type: RollingUpdate

template:

metadata:

labels:

apptype: web-backend

spec:

containers:

- name: web-app

image: pagalavanks/web-

app ports:

- containerPort: 9000

apiVersion: v1

kind: Service

metadata:

name: my-service

labels:

app: my-service

spec:

type: NodePort

ports:

- port: 9000

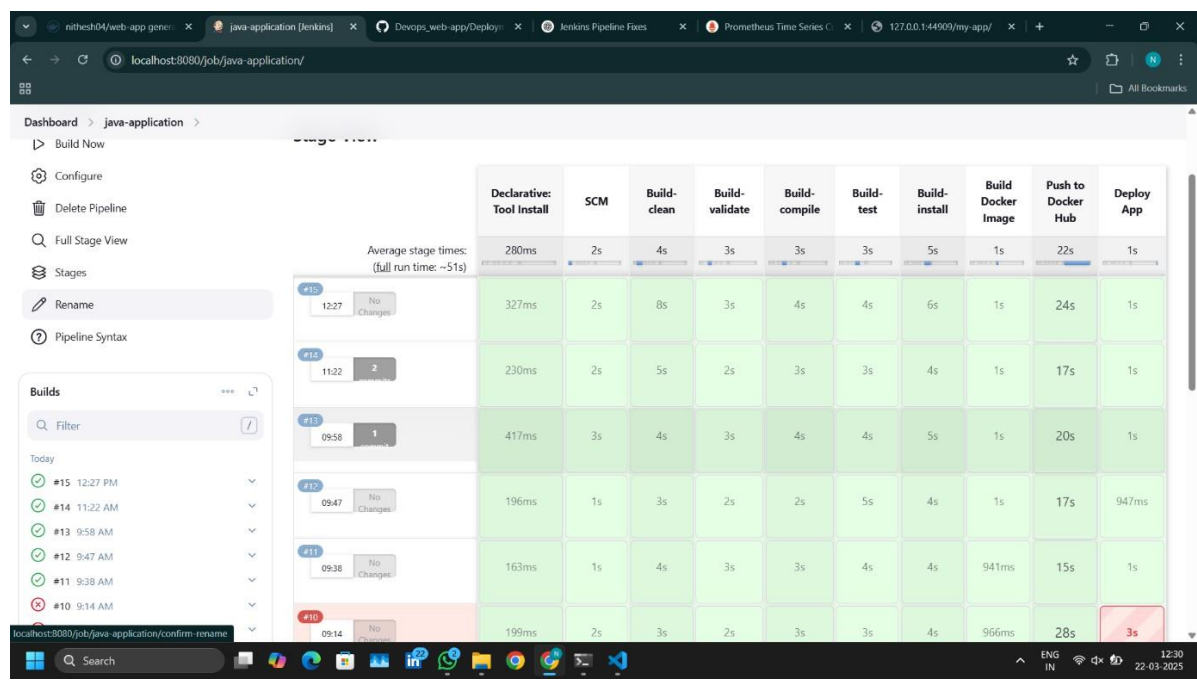
targetPort: 8080

nodePort: 30002

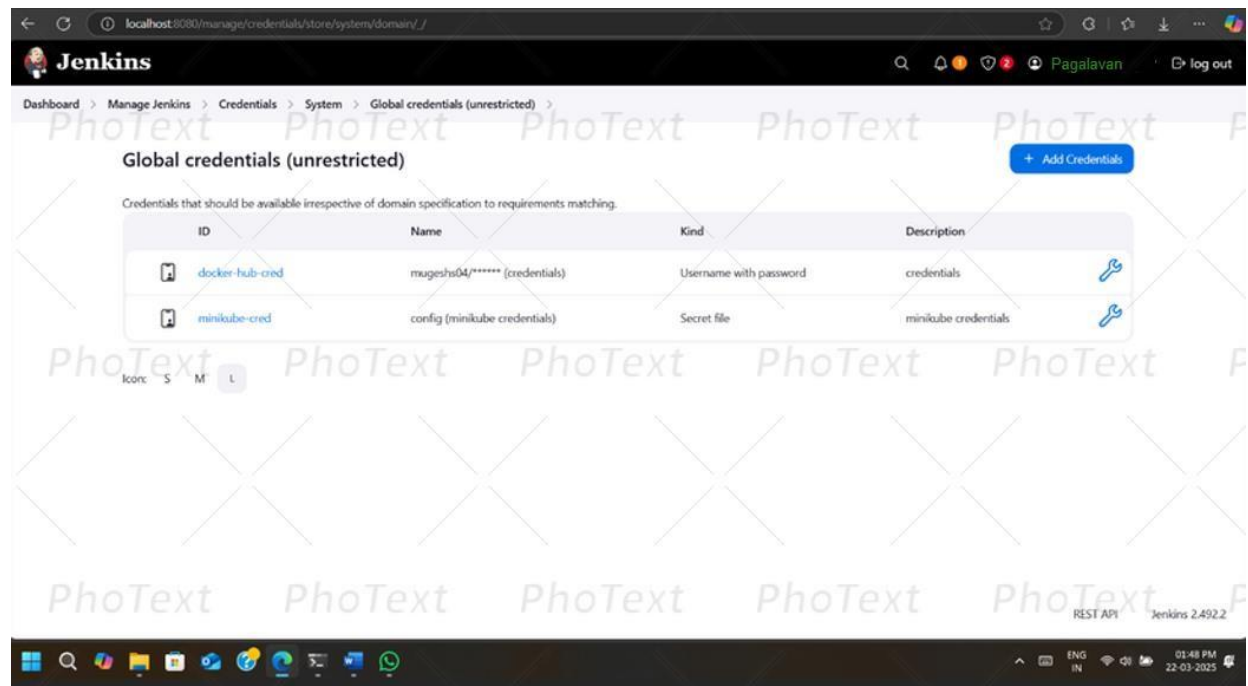
selector:

apptype: web-backend

Stage view:



Status



Console Output:

The screenshot shows the Jenkins web interface in a browser. The address bar indicates the URL is `localhost:8080/job/java-application/15/console`. The left sidebar contains navigation links: Changes, Console Output (selected), Edit Build Information, Delete build '#15', Timings, Git Build Data, Pipeline Overview, Pipeline Console, Restart from Stage, Replay, Pipeline Steps, Workspaces, and Previous Build. The main area displays the console output for build #15, which was started by user NITESH M P. The output shows the pipeline starting, running on Jenkins in the workspace `/var/lib/jenkins/workspace/java-application`, and executing a stage named `hide`. The stage uses a declarative tool installation for `git`. The output also shows that the recommended git tool is NONE and no credentials were specified.

```
started by user NITESH M P
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/java-application
[Pipeline] {
[Pipeline] withCredentials
Masking supported pattern matches of $DOCKER_CREDENTIALS or $DOCKER_CREDENTIALS_PSM
[Pipeline] {
[Pipeline] stage (hide)
[Pipeline] { (Declarative: Tool Install)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (SCM)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] git
selected Git installation does not exist. Using Default
The recommended git tool is: NONE
No credentials specified
```



```
Dashboard > java-application > #15

[Pipeline] }
[Pipeline] // stage
[Pipeline] Stage
[Pipeline] { (Build clean)
[Pipeline] tool
[Pipeline] envVarsFromInt
[Pipeline] withEnv
[Pipeline] {
[Pipeline] sh
+ mvn clean
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.mycompany.app:my-web >-----
[INFO] Building my-web Maven Webapp 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO]
[INFO] --- clean:3.4.0:clean (default-clean) @ my-web ---
[INFO] Deleting /var/lib/jenkins/workspace/java-application/target
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 0.675 s
[INFO] Finished at: 2025-03-27T12:37:45+05:30
[INFO]
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
```

```
Dashboard > java-application > #15

+ mvn install
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.mycompany.app:my-web >-----
[INFO] Building my-web Maven Webapp 1.0-SNAPSHOT
[INFO] from pom.xml
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ my-web ---
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/java-application/src/main/resources
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ my-web ---
[INFO] No sources to compile
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ my-web ---
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/java-application/src/test/resources
[INFO]
[INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ my-web ---
[INFO] No sources to compile
[INFO]
[INFO] --- surefire:3.3.0:test (default-test) @ my-web ---
[INFO] No tests to run.
[INFO]
[INFO] --- war:3.4.0:war (default-war) @ my-web ---
[INFO] Packaging webapp
[INFO] Assembling webapp [my-web] in [/var/lib/jenkins/workspace/java-application/target/my-web]
[INFO] Processing war project
[INFO] Copying webapp resources [/var/lib/jenkins/workspace/java-application/src/main/webapp]
```

```
Dashboard > java-application > #15

[Pipeline] }
[Pipeline] // withEnv
[Pipeline] {
[Pipeline] withKubeConfig
[Pipeline] {
[Pipeline] sh
+ kubectl apply -f Deployment.yml --validate=false
service/my-service unchanged
[Pipeline] }
[kubernetes-cli] kubectl configuration cleaned up
[Pipeline] // withKubeConfig
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] // withCredentials
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS

REST API Jenkins 2.492.2
```

Minikube Service:

```
service/my-service created
ubuntu@DESKTOP-MJGHIPO:~$ minikube service my-service

```

NAMESPACE	NAME	TARGET PORT	URL
default	my-service	9000	http://192.168.49.2:30002

```

🌟 Starting tunnel for service my-service.
docker@127.0.0.1's password: |-----|-----|-----|-----|

```

NAMESPACE	NAME	TARGET PORT	URL
default	my-service		http://127.0.0.1:37003

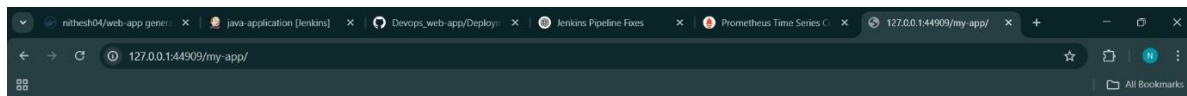
```

🌐 Opening service default/my-service in default browser...
👉 http://127.0.0.1:37003
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.

👋 Stopping tunnel for service my-service.
ubuntu@DESKTOP-MJGHIPO:~$ kubectl port-forward svc/my-service 9000:9000
Forwarding from 127.0.0.1:9000 -> 8080
Forwarding from [::1]:9000 -> 8080
Handling connection for 9000
Handling connection for 9000
Handling connection for 9000
Handling connection for 9000

```

Output:



Hello World!

