

DevOps DAY -5

deployment.yml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: my-deploy
  namespace: my-bank
  labels:
    name: my-deploy
spec:
  replicas: 1
  selector:
    matchLabels:
      apptype: web-backend
  strategy:
    type: RollingUpdate
  template:
    metadata:
      labels:
        apptype: web-backend
    spec:
      containers:
        - name: my-web
          image: 22csl258/mysimplewebapplication:tagname
          ports:
            - containerPort: 9001
---
apiVersion: v1
kind: Service
metadata:
  name: my-service
  namespace: my-bank
  labels:
    app: my-service
spec:
  type: NodePort
  ports:
    - port: 9001
      targetPort: 8080
```

```
nodePort: 30007
selector:
  apptype: web-backend
```

Minikube

```
sanjai@sanjai: ~/prometheus-: x Ubuntu
sanjai@sanjai: $ minikube start
🌟 minikube v1.35.0 on Ubuntu 24.04 (amd64)
🔧 Using the docker driver based on existing profile
👉 Starting "minikube" primary control-plane node in "minikube" cluster
📡 Pulling base image v0.0.46 ...
🔄 Updating the running docker "minikube" container ...

🐳 Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
🔍 Verifying Kubernetes components...
  • Using image gcr.io/k8s-minikube/storage-provisioner:v5
  • Enabled addons: storage-provisioner, default-storageclass
👉 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
sanjai@sanjai: $
sanjai@sanjai: $
sanjai@sanjai: $ sudo systemctl restart ssh.service
[sudo] password for sanjai:
sudo: systemctl: command not found
sanjai@sanjai: $ sudo systemctl restart ssh.service
Failed to restart ssh.service: Unit ssh.service not found.
sanjai@sanjai: $ dpkg -l | grep openssh
ii  openssh-client  1:9.6p1-3ubuntu13.8      amd64      secure shell (SSH) client, for secure access to remote machines
sanjai@sanjai: $ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://security.ubuntu.com/ubuntu noble-security InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Fetched 126 kB in 2s (55.2 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
sanjai@sanjai: $ sudo apt install -y openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libwrap0 ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass ufw
```

```
Preparing to unpack .../openssh-sftp-server_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-sftp-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package libwrap0:amd64.
Preparing to unpack .../libwrap0_7.6.q-33_amd64.deb ...
Unpacking libwrap0:amd64 (7.6.q-33) ...
Selecting previously unselected package openssh-server.
Preparing to unpack .../openssh-server_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package ncurses-term.
Preparing to unpack .../ncurses-term_6.4+20240113-1ubuntu2_all.deb ...
Unpacking ncurses-term (6.4+20240113-1ubuntu2) ...
Selecting previously unselected package ssh-import-id.
Preparing to unpack .../ssh-import-id_5.11-0ubuntu2.24.04.1_all.deb ...
Unpacking ssh-import-id (5.11-0ubuntu2.24.04.1) ...
Setting up openssh-sftp-server (1:9.6p1-3ubuntu13.8) ...
Setting up ssh-import-id (5.11-0ubuntu2.24.04.1) ...
Setting up libwrap0:amd64 (7.6.q-33) ...
Setting up ncurses-term (6.4+20240113-1ubuntu2) ...
Setting up openssh-server (1:9.6p1-3ubuntu13.8) ...

Creating config file /etc/ssh/sshd_config with new version
Creating SSH2 RSA key; this may take some time ...
3072 SHA256:98uOpDDokzy3ZEHoctaGt0BIakVke8A0qk0o3VMLX6o root@sanjai (RSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:3zhzzl1bnq5ICMX5NXL0Svnu6d4pBxLbV80jl6KujKo root@sanjai (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:10hwCI01J7na73FLkWGvDp0ltJ5gENdbEIXziuc90s root@sanjai (ED25519)
Created symlink /etc/systemd/system/sockets.target.wants/ssh.socket → /usr/lib/systemd/system/ssh.socket.
Created symlink /etc/systemd/system/ssh.service.requires/ssh.socket → /usr/lib/systemd/system/ssh.socket.
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
sanjai@sanjai: ~$ sudo systemctl restart sshd
Failed to restart sshd.service: Unit sshd.service not found.
sanjai@sanjai: ~$ systemctl list-units --type=service | grep ssh
sanjai@sanjai: ~$ systemctl list-units --type=service | grep ssh
sanjai@sanjai: ~$ sudo systemctl restart ssh
sanjai@sanjai: ~$ sudo systemctl enable ssh
sanjai@sanjai: ~$ sudo systemctl start ssh
Synchronizing state of ssh.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable ssh
```

```
39090 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 22 06:54:16 sanjai systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Mar 22 06:54:16 sanjai sshd[39090]: Server listening on :: port 22.
Mar 22 06:54:16 sanjai systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
sanjai@sanjai: ~$ journalctl -xe | grep ssh
Mar 22 06:51:33 sanjai sudo[37891]: sanjai : TTY=pts/5 ; PWD=/home/sanjai ; USER=root ; COMMAND=/usr/bin/systemctl restart ssh.service
Mar 22 06:52:27 sanjai sudo[38329]: sanjai : TTY=pts/5 ; PWD=/home/sanjai ; USER=root ; COMMAND=/usr/bin/apt install -y openssh-server
Mar 22 06:52:33 sanjai adduser[38588]: The home dir /run/sshd you specified can't be accessed: No such file or directory
Mar 22 06:52:33 sanjai adduser[38588]: Adding system user 'sshd' (UID 105) ...
Mar 22 06:52:33 sanjai adduser[38588]: Adding new user 'sshd' (UID 105) with group 'nogroup' ...
Mar 22 06:52:33 sanjai useradd[38593]: new user: name=sshd, UID=105, GID=65534, home=/run/sshd, shell=/usr/sbin/nologin, from=none
Mar 22 06:52:33 sanjai adduser[38588]: Not creating home directory: /run/sshd.
Mar 22 06:52:34 sanjai systemd[1]: Listening on ssh.socket - OpenBSD Secure Shell server socket.
Subject: A start job for unit ssh.socket has finished successfully
A start job for unit ssh.socket has finished successfully.
Mar 22 06:52:39 sanjai sudo[38741]: sanjai : TTY=pts/5 ; PWD=/home/sanjai ; USER=root ; COMMAND=/usr/bin/systemctl restart sshd
Mar 22 06:54:16 sanjai sudo[39084]: sanjai : TTY=pts/5 ; PWD=/home/sanjai ; USER=root ; COMMAND=/usr/bin/systemctl restart ssh
Mar 22 06:54:16 sanjai systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Subject: A start job for unit ssh.service has begun execution
A start job for unit ssh.service has begun execution.
Mar 22 06:54:16 sanjai sshd[39090]: Server listening on :: port 22.
Mar 22 06:54:16 sanjai systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
Subject: A start job for unit ssh.service has finished successfully
A start job for unit ssh.service has finished successfully.
Mar 22 06:54:23 sanjai sudo[39125]: sanjai : TTY=pts/5 ; PWD=/home/sanjai ; USER=root ; COMMAND=/usr/bin/systemctl enable ssh
Mar 22 06:54:24 sanjai sudo[39245]: sanjai : TTY=pts/5 ; PWD=/home/sanjai ; USER=root ; COMMAND=/usr/bin/systemctl start ssh
Mar 22 06:54:30 sanjai sudo[39267]: sanjai : TTY=pts/5 ; PWD=/home/sanjai ; USER=root ; COMMAND=/usr/bin/systemctl status ssh
sanjai@sanjai: ~$ sudo systemctl daemon-reload
Unknown command verb 'daemon-reload', did you mean 'daemon-reload'?
sanjai@sanjai: ~$ sudo systemctl daemon-reload
sanjai@sanjai: ~$ minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

sanjai@sanjai: ~$
```

Pipeline script - jenkins

JAVA Application pipeline

```
{
    agent any

    stages { stag
        ('scm'){
            steps {
                git branch: "
            }
        }
        stage('builb-clean') {
            steps {
                sh "mvn clean"
            }
        }
        stage('build-validate') {
            steps {
                sh "mvn validate"
            }
        }
        stage('build-com') {
            steps {
                sh "mvn compile"
            }
        }
    }
}
```

```
stage('build-test'){
    steps {
        sh "mvn test"
    }
}

stage('build-install'){
    steps {
        sh "mvn package"
    }
}

stage('build to images'){
    steps {
        script{
            sh 'docker build -t .'
        }
    }
}

stage('push to hub'){
    steps {
        script{
            withDockerRegistry(credentialsId: 'Docker_cred', url: 'https://index.docker.io/v1/') {
                sh 'docker push '
            }
        }
    }
}
```

```

}

stage('Deploy App'){
    steps {
        withKubeConfig(caCertificate: '', clusterName: 'minikube', contextName: 'minikube',
credentialsId: 'mukubeconfig_011', namespace: '', restrictKubeConfigAccess: false, serverUrl:
'https://192.168.49.2:8443') {
            sh 'kubectl apply -f deployment.yml --validate=false'
        }
    }
}

stage('Test'){
    steps {
        withKubeConfig(caCertificate: '', clusterName: 'minikube', contextName: 'minikube',
credentialsId: 'mukubeconfig_011', namespace: '', restrictKubeConfigAccess: false, serverUrl:
'https://192.168.49.2:8443') {

            sh 'minikube service my-service --url | xargs curl'
        }
    }
}
}

```

Jenkins

java application

Stage View

Average stage times: (full run time: ~20s)

	SCM	Build	Build Docker Image	Push Docker Image	test
#15 16:02 No Changes	878ms	2s	6s	8s	750ms
#14 16:00 No Changes	711ms	1s	310ms	14s	
#13 15:59 1 commit	746ms	1s	313ms	16s	392ms failed
#12 15:59	1s	1s	563ms	17s	1s failed
#11 15:32 No Changes	724ms	1s	299ms	14s	
#10 15:31 No	1s	1s	305ms	22s	

Builds

Filter

Today

- #15 10:32 AM
- #14 10:30 AM
- #13 10:29 AM
- #11 10:02 AM

35°C Mostly sunny

java application #11 Console

localhost:8080/job/java%20application/11/console

Dashboard > java application > #11

```

warning: Using -password via the CLI is insecure, use --password-file.
WARNING: Your password will be stored unencrypted in /var/lib/jenkins/workspace/java application@pip/9f4278c-12f6-4b77-Bu3-d5d2b31188/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
[Pipeline] {
[Pipeline] sh
+ docker push 22c1258/mysimplewebapplication
Using default tag: latest
The push refers to repository [docker.io/22c1258/mysimplewebapplication]
bbaad02280d4: Preparing
5f70b18a086: Preparing
43c9fa81d061: Preparing
5f70b18a086: Preparing
bc05267c13b: Preparing
4d5654b7345: Preparing
39c4ba89a5a: Preparing
f846dcf94898: Preparing
3359bc3d7ada: Preparing
4b7c81a09534: Preparing
f846dcf94898: Waiting
39c4ba89a5a: Waiting
4b7c81a09534: Waiting
3359bc3d7ada: Waiting
bc05267c13b: Layer already exists
5f70b18a086: Layer already exists
43c9fa81d061: Layer already exists
4d5654b7345: Layer already exists
39c4ba89a5a: Layer already exists
3359bc3d7ada: Layer already exists
f846dcf94898: Layer already exists
4b7c81a09534: Layer already exists
bbaad02280d4: Pushed
latest: digest: sha256:950e54781678521b2541dab177d1f62a762a61c8bdc180967180564387fa size: 2489
[Pipeline]
[Pipeline] // withDockerRegistry
[Pipeline]
[Pipeline] // script
[Pipeline]
[Pipeline]
[Pipeline] // stage
[Pipeline]
[Pipeline]
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
  
```

34°C Mostly sunny

Dashboard > project 1 > #1

- Status
- Changes
- Console Output
- Edit Build Information
- Delete build '#1'
- Timings
- Git Build Data
- Pipeline Overview
- Pipeline Console
- Replay
- Pipeline Steps
- Workspaces
- Next Build

Console Output

 Download  Copy  View as plain text

```
Started by user Sanjai s
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in C:\ProgramData\Jenkins\.jenkins\workspace\project 1
[Pipeline] {
[Pipeline] stage
[Pipeline] { (SCM)
[Pipeline] git
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/sanjaisathi/devops-task.git
> git.exe init C:\ProgramData\Jenkins\.jenkins\workspace\project 1 # timeout=10
Fetching upstream changes from https://github.com/sanjaisathi/devops-task.git
> git.exe --version # timeout=10
> git --version # 'git version 2.39.2.windows.1'
> git.exe fetch --tags --force --progress -- https://github.com/sanjaisathi/devops-task.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git.exe config remote.origin.url https://github.com/sanjaisathi/devops-task.git # timeout=10
> git.exe config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
> git.exe rev-parse "refs/remotes/origin/main^{commit}" # timeout=10
Checking out Revision dd657bbe4ce323a64a4b0570d618f21bffa91291 (refs/remotes/origin/main)
```