Mugesh V||DevOps-Day 05:

Devops class guvi (DAY-5)

21 March 2025

Granting Jenkins Sudo Privileges – The jenkins ALL=(ALL) NOPASSWD: ALL entry in the sudoers file allows the Jenkins user to run any command without a password prompt.

Restarting SSH Services – Commands like sudo systemctl restart ssh.service and sudo systemctl restart sshd.service restart the SSH service, ensuring remote login functionality.

Installing OpenSSH Server – The commands sudo apt update and sudo apt install openssh-server update package lists and install the OpenSSH server for secure remote access.

Checking SSH Service Status – sudo systemctl status ssh checks if the SSH service is running and displays its current status.

Systemd Service File Lookup – ls /etc/systemd/system/sshd.service or ls /usr/lib/systemd/system/sshd.service helps locate the SSH daemon's systemd service file.

Reloading Systemd Daemon – sudo systemctl daemon-reload ensures that systemd picks up changes in service configurations without requiring a reboot.

Encoding Minikube Certificate – cat /home/david/.minikube/ca.crt | base64 -w 0; echo encodes the Minikube CA certificate in base64 format, likely for authentication.

Changing Docker Socket Permissions – sudo chmod 666 /var/run/docker.sock grants read and write access to all users for Docker's Unix socket, allowing non-root users to interact with Docker.

Deploying Kubernetes Resources – sh 'kubectl apply -f deployment.yml --validate=false' applies a Kubernetes deployment file, ignoring validation errors.

Accessing Minikube Service – minikube service my-service --url | xargs curl retrieves the Minikube service URL and sends an HTTP request to test its accessibility.

Commands:

jenkins ALL=(ALL) NOPASSWD: ALL

sudo systemctl restart ssh.service

sudo systemctl restart sshd.service

sudo apt update

sudo apt install openssh-server

sudo systemctl restart ssh

sudo systemctl status ssh

ls /etc/systemd/system/sshd.service or ls /usr/lib/systemd/system/sshd.service

sudo systemctl daemon-reload

sudo systemctl status ssh

sudo systemctl restart ssh.service

cat /home/david/.minikube/ca.crt | base64 -w 0; echo

sudo chmod 666 /var/run/docker.sock

https://192.168.39.226:8443

sh 'kubectl apply -f deployment.yml --validate=false'

minikube service my-service --url | xargs curl

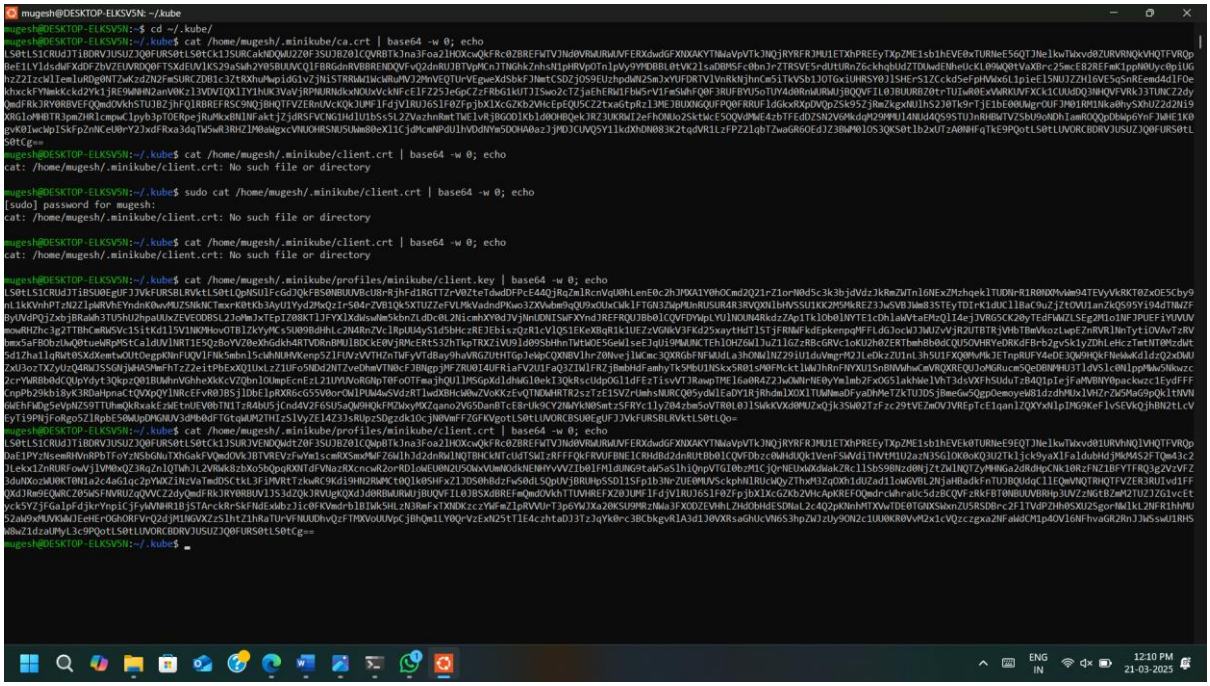
Pipeline codes:

```
pipeline {
agent any

environment {
  DOCKER_CREDENTIALS = credentials('docker-hub-cred')  // Docker Hub Credentials ID
}

stages {
  stage('SCM') {
    steps {
      git branch: 'main', url: '<https://github.com/MugeshS-04/guvidevopsday1.git>'
    }
  }

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

  stage('Build Docker Image') {
    steps {
      script {
        sh 'docker build -t mugeshs04/guvidevopsday1 .'
```

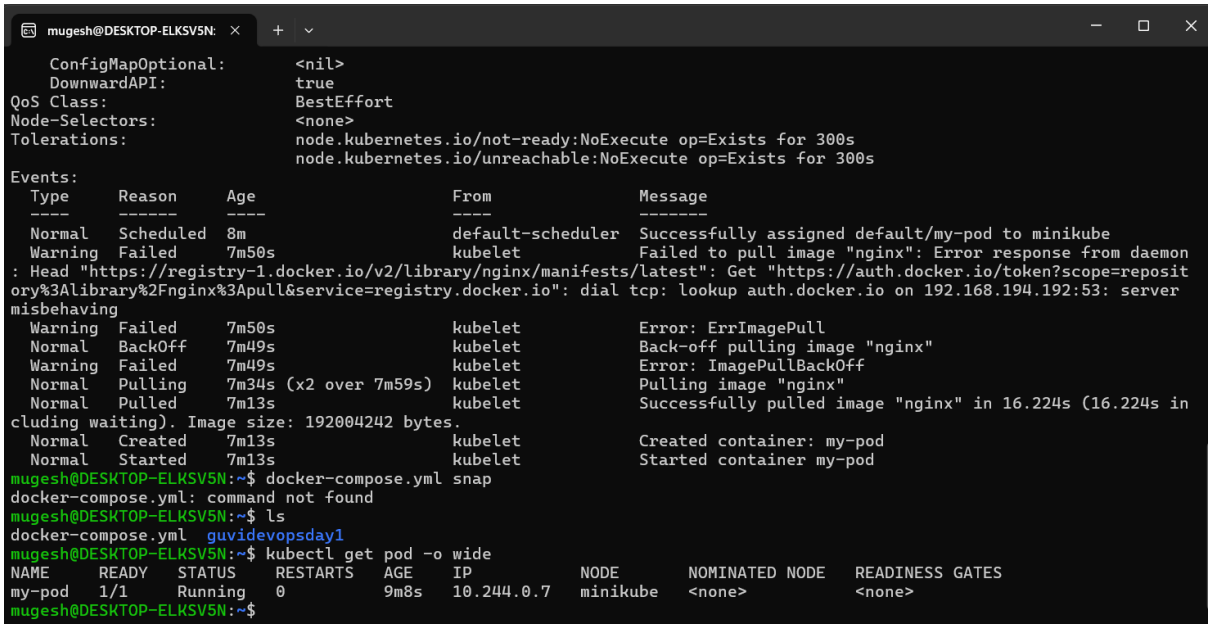
```
        }
      }
    }

    stage('Push to Docker Hub') {
      steps {
        script {
          docker.withRegistry('<https://index.docker.io/v1/>', 'docker-hub-cred') {
            sh 'docker push mugeshs04/guvidevopsday1'
          }
        }
      }
    }
}

}

pipeline {
agent any

stages {
  stage('SCM') {
    steps {
      git branch: 'main', url: '<https://github.com/PraneshC2005/DevOps_simple-web-app.git>'
    }
  }
  stage('Build-clean') {
```

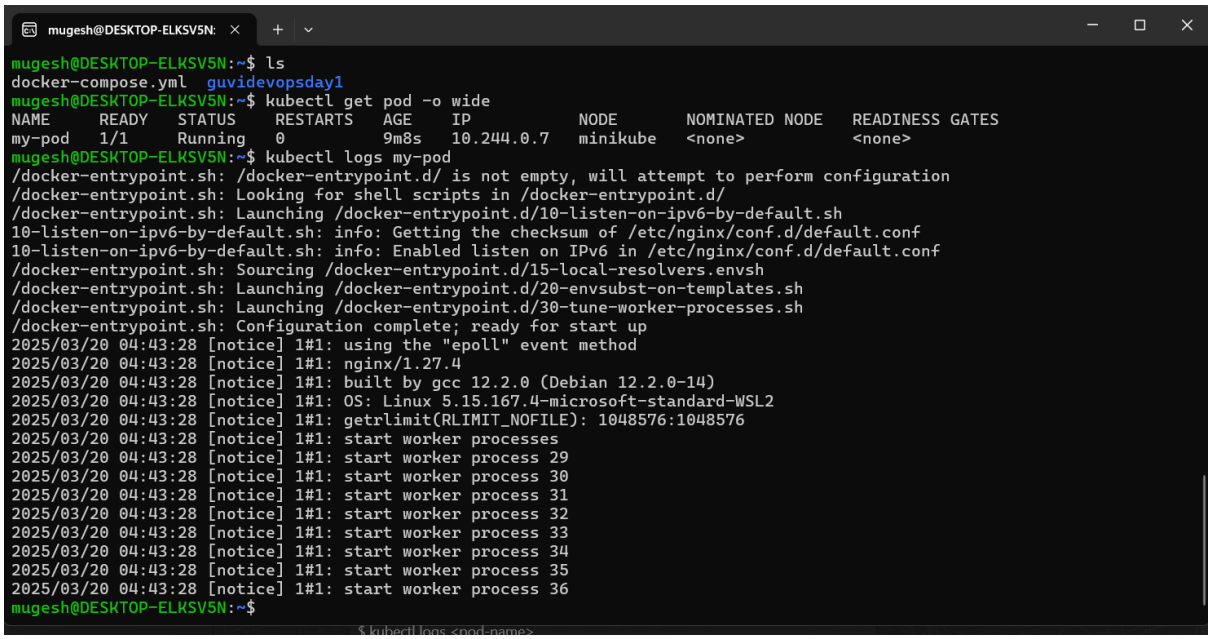
```
        steps{
            sh 'mvn clean'
        }
    }
stage('Build-validate') {
        steps{
            sh 'mvn validate'
        }
    }
stage('Build-compile') {
        steps{
            sh 'mvn compile'
        }
    }
stage('Build-test') {
        steps{
            sh 'mvn test'
        }
    }
stage('Build-package') {
        steps{
            sh 'mvn package'
        }
    }
    stage('build to images') {
        steps {
        script{
            sh "docker build -t praneshc/webapplication ."
```

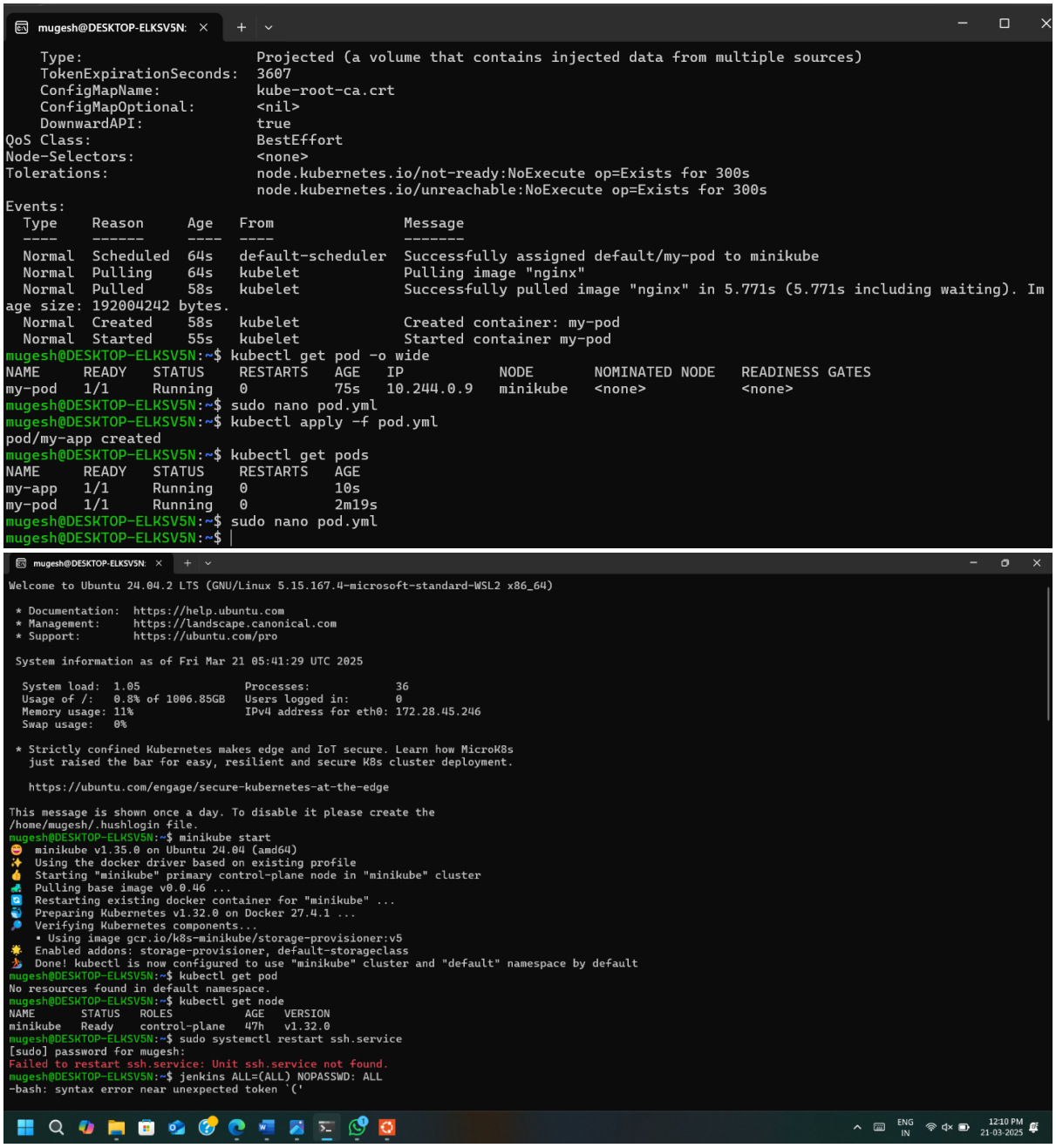
```
        }
        }
    }
    stage('docker push hub') {
        steps {
        script{
          withDockerRegistry(credentialsId: 'cred-2', url: '<https://index.docker.io/v1/>') {
           sh 'docker push praneshc/webapplication'
        }
        }
        }
    }
}}
```



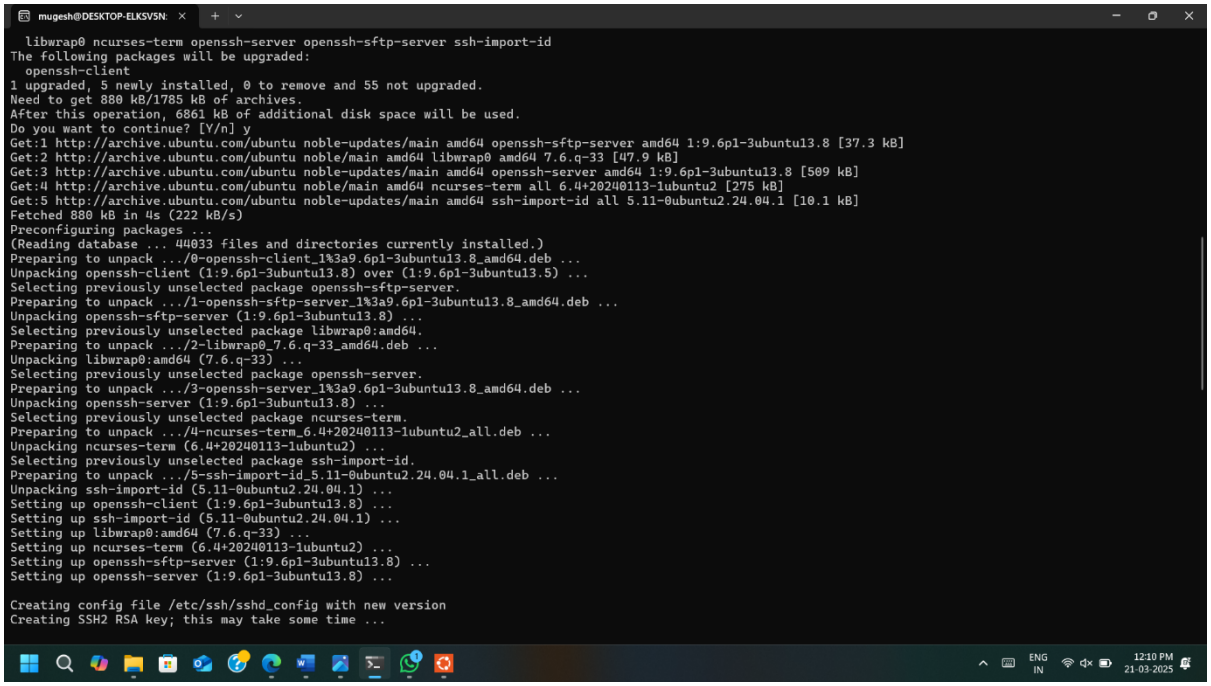

```
mugesh@DESKTOP-ELKSV5N:~$ minikube start
😄  minikube v1.35.0 on Ubuntu 24.04 (amd64)
✨  Using the docker driver based on existing profile
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.46 ...
🔄  Restarting existing docker container for "minikube" ...
🐳  Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
🔎  Verifying Kubernetes components...
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟  Enabled addons: default-storageclass, storage-provisioner
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
mugesh@DESKTOP-ELKSV5N:~$ kubectl run my-pod --image=nginx --port=80
pod/my-pod created
mugesh@DESKTOP-ELKSV5N:~$ kubectl get pod
NAME     READY   STATUS              RESTARTS   AGE
my-pod   0/1     ContainerCreating   0          9s
mugesh@DESKTOP-ELKSV5N:~$ kubectl delete all -all
error: unknown shorthand flag: 'a' in -all
See 'kubectl delete --help' for usage.
mugesh@DESKTOP-ELKSV5N:~$ kubectl delete all --all
pod "my-pod" deleted
service "kubernetes" deleted
mugesh@DESKTOP-ELKSV5N:~$ kubectl run my-pod --image=nginx --port=7070
pod/my-pod created
mugesh@DESKTOP-ELKSV5N:~$ kubectl get pod
NAME     READY   STATUS    RESTARTS   AGE
my-pod   1/1     Running   0          56s
mugesh@DESKTOP-ELKSV5N:~$
```

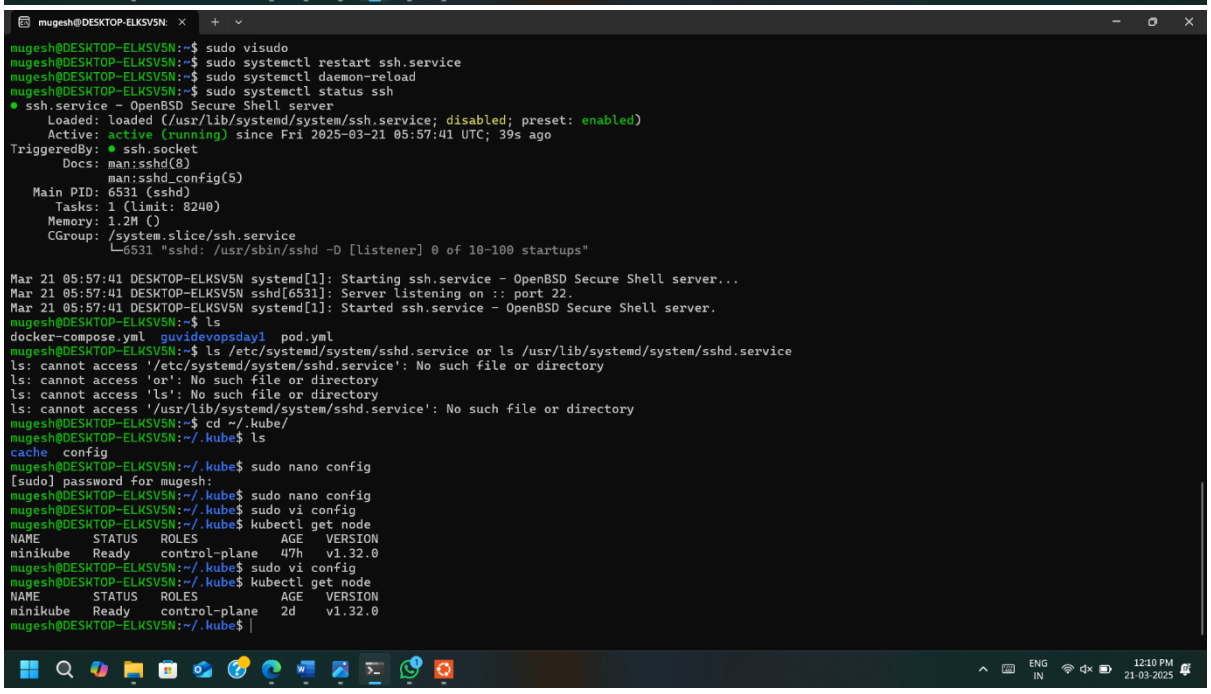

mugesh@DESKTOP-ELKSV5N:
ConfigMapOptional: <nil>
DownwardAPI: true
QoS Class: BestEffort
Node-Selectors: <none>
Tolerations: node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
Type Reason Age From Message
Normal Scheduled 8m default-scheduler Successfully assigned default/my-pod to minikube
Warning Failed 7m50s kubelet Failed to pull image "nginx": Error response from daemon: Head "https://registry-1.docker.io/v2/library/nginx/manifests/latest": Get "https://auth.docker.io/token?scope=repository%3Alibrary%2Fnginx%3Apull&service=registry.docker.io": dial tcp: lookup auth.docker.io on 192.168.194.192:53: server misbehaving
Warning Failed 7m50s kubelet Error: ErrImagePull
Normal BackOff 7m49s kubelet Back-off pulling image "nginx"
Warning Failed 7m49s kubelet Error: ImagePullBackOff
Normal Pulling 7m34s (x2 over 7m59s) kubelet Pulling image "nginx"
Normal Pulled 7m13s kubelet Successfully pulled image "nginx" in 16.224s (16.224s including waiting). Image size: 192004242 bytes.
Normal Created 7m13s kubelet Created container: my-pod
Normal Started 7m13s kubelet Started container my-pod
mugesh@DESKTOP-ELKSV5N:~$ docker-compose.yml snap
docker-compose.yml: command not found
mugesh@DESKTOP-ELKSV5N:~$ ls
docker-compose.yml guvidevopsday1
mugesh@DESKTOP-ELKSV5N:~$ kubectl get pod -o wide
NAME READY STATUS RESTARTS AGE IP NODE NOMINATED NODE READINESS GATES
my-pod 1/1 Running 0 9m8s 10.244.0.7 minikube <none> <none>
mugesh@DESKTOP-ELKSV5N:~$


mugesh@DESKTOP-ELKSV5N:
mugesh@DESKTOP-ELKSV5N:~$ ls
docker-compose.yml guvidevopsday1
mugesh@DESKTOP-ELKSV5N:~$ kubectl get pod -o wide
NAME READY STATUS RESTARTS AGE IP NODE NOMINATED NODE READINESS GATES
my-pod 1/1 Running 0 9m8s 10.244.0.7 minikube <none> <none>
mugesh@DESKTOP-ELKSV5N:~$ kubectl logs my-pod
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2025/03/20 04:43:28 [notice] 1#1: using the "epoll" event method
2025/03/20 04:43:28 [notice] 1#1: nginx/1.27.4
2025/03/20 04:43:28 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2025/03/20 04:43:28 [notice] 1#1: OS: Linux 5.15.167.4-microsoft-standard-WSL2
2025/03/20 04:43:28 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2025/03/20 04:43:28 [notice] 1#1: start worker processes
2025/03/20 04:43:28 [notice] 1#1: start worker process 29
2025/03/20 04:43:28 [notice] 1#1: start worker process 30
2025/03/20 04:43:28 [notice] 1#1: start worker process 31
2025/03/20 04:43:28 [notice] 1#1: start worker process 32
2025/03/20 04:43:28 [notice] 1#1: start worker process 33
2025/03/20 04:43:28 [notice] 1#1: start worker process 34
2025/03/20 04:43:28 [notice] 1#1: start worker process 35
2025/03/20 04:43:28 [notice] 1#1: start worker process 36
mugesh@DESKTOP-ELKSV5N:~$
$ kubectl logs <pod-name>


mugesh@DESKTOP-ELKSV5N:
Type: Projected (a volume that contains injected data from multiple sources)
TokenExpirationSeconds: 3607
ConfigMapName: kube-root-ca.crt
ConfigMapOptional: <nil>
DownwardAPI: true
QoS Class: BestEffort
Node-Selectors: <none>
Tolerations: node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
Type Reason Age From Message
Normal Scheduled 64s default-scheduler Successfully assigned default/my-pod to minikube
Normal Pulling 64s kubelet Pulling image "nginx"
Normal Pulled 58s kubelet Successfully pulled image "nginx" in 5.771s (5.771s including waiting). Image size: 192004242 bytes.
Normal Created 58s kubelet Created container: my-pod
Normal Started 55s kubelet Started container my-pod
mugesh@DESKTOP-ELKSV5N:~$ kubectl get pod -o wide
NAME READY STATUS RESTARTS AGE IP NODE NOMINATED NODE READINESS GATES
my-pod 1/1 Running 0 75s 10.244.0.9 minikube <none> <none>
mugesh@DESKTOP-ELKSV5N:~$ sudo nano pod.yml
mugesh@DESKTOP-ELKSV5N:~$ kubectl apply -f pod.yml
pod/my-app created
mugesh@DESKTOP-ELKSV5N:~$ kubectl get pods
NAME READY STATUS RESTARTS AGE
my-app 1/1 Running 0 10s
my-pod 1/1 Running 0 2m19s
mugesh@DESKTOP-ELKSV5N:~$ sudo nano pod.yml
mugesh@DESKTOP-ELKSV5N:~$

mugesh@DESKTOP-ELKSV5N:
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 5.15.167.4-microsoft-standard-WSL2 x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro
System information as of Fri Mar 21 05:41:29 UTC 2025
System load: 1.05 Processes: 36
Usage of /: 0.8% of 1006.85GB Users logged in: 0
Memory usage: 11% IPv4 address for eth0: 172.28.45.246
Swap usage: 0%
* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s just raised the bar for easy, resilient and secure K8s cluster deployment.
https://ubuntu.com/engage/secure-kubernetes-at-the-edge
This message is shown once a day. To disable it please create the /home/mugesh/.hushlogin file.
mugesh@DESKTOP-ELKSV5N:~$ 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 ...
Restarting existing docker container for "minikube" ...
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
mugesh@DESKTOP-ELKSV5N:~$ kubectl get pod
No resources found in default namespace.
mugesh@DESKTOP-ELKSV5N:~$ kubectl get node
NAME STATUS ROLES AGE VERSION
minikube Ready control-plane 47h v1.32.0
mugesh@DESKTOP-ELKSV5N:~$ sudo systemctl restart ssh.service
[sudo] password for mugesh:
Failed to restart ssh.service: Unit ssh.service not found.
mugesh@DESKTOP-ELKSV5N:~$ jenkins ALL=(ALL) NOPASSWD: ALL
-bash: syntax error near unexpected token `('
ENG IN
12:10 PM 21-03-2025


mugesh@DESKTOP-ELKSV5N:
libwrap0 ncurses-term openssh-sftp-server openssh-server ssh-import-id
The following packages will be upgraded:
openssh-client
1 upgraded, 5 newly installed, 0 to remove and 55 not upgraded.
Need to get 880 kB/1785 kB of archives.
After this operation, 6861 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-sftp-server amd64 1:9.6p1-3ubuntu13.8 [37.3 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 libwrap0 amd64 7.6.q-33 [47.9 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-server amd64 1:9.6p1-3ubuntu13.8 [509 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 ncurses-term all 6.4+20240113-1ubuntu2 [275 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 ssh-import-id all 5.11-0ubuntu2.24.04.1 [10.1 kB]
Fetched 880 kB in 4s (222 kB/s)
Preconfiguring packages ...
(Reading database ... 44033 files and directories currently installed.)
Preparing to unpack .../0-openssh-client_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-client (1:9.6p1-3ubuntu13.8) over (1:9.6p1-3ubuntu13.5) ...
Selecting previously unselected package openssh-sftp-server.
Preparing to unpack .../1-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 .../2-libwrap0_7.6.q-33_amd64.deb ...
Unpacking libwrap0:amd64 (7.6.q-33) ...
Selecting previously unselected package openssh-server.
Preparing to unpack .../3-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 .../4-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 .../5-ssh-import-id_5.11-0ubuntu2.24.04.1_all.deb ...
Unpacking ssh-import-id (5.11-0ubuntu2.24.04.1) ...
Setting up openssh-client (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-sftp-server (1:9.6p1-3ubuntu13.8) ...
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 ...
ENG
IN
12:10 PM
21-03-2025


mugesh@DESKTOP-ELKSV5N:
mugesh@DESKTOP-ELKSV5N:~$ sudo visudo
mugesh@DESKTOP-ELKSV5N:~$ sudo systemctl restart ssh.service
mugesh@DESKTOP-ELKSV5N:~$ sudo systemctl daemon-reload
mugesh@DESKTOP-ELKSV5N:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
Active: active (running) since Fri 2025-03-21 05:57:41 UTC; 39s ago
TriggeredBy: ● ssh.socket
Docs: man:sshd(8)
man:sshd_config(5)
Main PID: 6531 (sshd)
Tasks: 1 (limit: 8240)
Memory: 1.2M ()
CGroup: /system.slice/ssh.service
└─6531 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"
Mar 21 05:57:41 DESKTOP-ELKSV5N systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Mar 21 05:57:41 DESKTOP-ELKSV5N sshd[6531]: Server listening on :: port 22.
Mar 21 05:57:41 DESKTOP-ELKSV5N systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
mugesh@DESKTOP-ELKSV5N:~$ ls
docker-compose.yml guvidevopsday1 pod.yml
mugesh@DESKTOP-ELKSV5N:~$ ls /etc/systemd/system/sshd.service or ls /usr/lib/systemd/system/sshd.service
ls: cannot access '/etc/systemd/system/sshd.service': No such file or directory
ls: cannot access 'or': No such file or directory
ls: cannot access 'ls': No such file or directory
ls: cannot access '/usr/lib/systemd/system/sshd.service': No such file or directory
mugesh@DESKTOP-ELKSV5N:~$ cd ~/.kube/
mugesh@DESKTOP-ELKSV5N:~/.kube$ ls
cache config
mugesh@DESKTOP-ELKSV5N:~/.kube$ sudo nano config
[sudo] password for mugesh:
mugesh@DESKTOP-ELKSV5N:~/.kube$ sudo nano config
mugesh@DESKTOP-ELKSV5N:~/.kube$ sudo vi config
mugesh@DESKTOP-ELKSV5N:~/.kube$ kubectl get node
NAME STATUS ROLES AGE VERSION
minikube Ready control-plane 47h v1.32.0
mugesh@DESKTOP-ELKSV5N:~/.kube$ sudo vi config
mugesh@DESKTOP-ELKSV5N:~/.kube$ kubectl get node
NAME STATUS ROLES AGE VERSION
minikube Ready control-plane 2d v1.32.0
mugesh@DESKTOP-ELKSV5N:~/.kube$
ENG
IN
12:10 PM
21-03-2025