Day 3:

MINIKUBE:

Minikube is an open-source tool that allows you to run a single-node Kubernetes cluster locally on your machine. It's a great option for developers and learners who want to experiment with Kubernetes without needing a full-fledged cloud environment.

Purpose: Minikube is primarily used for learning Kubernetes concepts, testing applications locally, and developing on Kubernetes.

Ease of Setup: Minikube simplifies running Kubernetes by creating a lightweight virtual machine or container that contains the Kubernetes environment.

Features:

Supports Kubernetes add-ons (e.g., ingress, metrics-server, and dashboard).

Offers multi-cluster support for testing multiple Kubernetes clusters simultaneously.

Provides a built-in Docker daemon, eliminating the need for separate Docker installations.

Allows configuration of resource limits like CPU and memory.

Cross-Platform: It works on various operating systems, including Windows, macOS, and Linux.

Use Cases:

Learning Kubernetes basics in a local environment.

Testing CI/CD pipelines and Kubernetes deployments.

Debugging Kubernetes-related issues.

Integration: Minikube integrates well with Kubernetes CLI tools like kubectl

MINIKUBE INSTALLATION:

Download Minikubecurl -LO
https://github.com/kubernetes/minikube/releases/latest/download/minikube-linux-amd64

Install Minikube

sudo install minikube-linux-amd64 /usr/local/bin/minikube && rm minikube-linux-amd64

Start Minikube

minikube start

Check Minikube status

minikube status

Get running pods

kubectl get pod

Get deployments

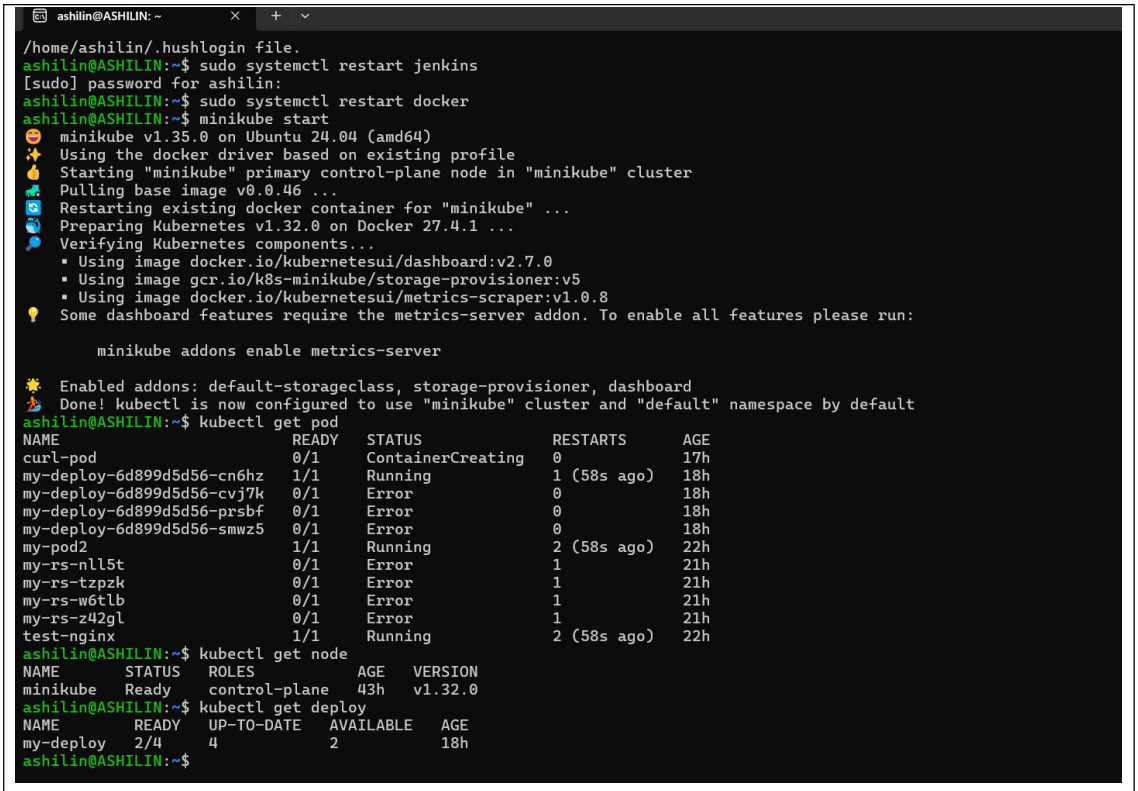
kubectl get deploy

Get replicas

kubectl get replica

Get detailed pod information

kubectl get pod -o wide


ashilin@ASHILIN: ~
/home/ashilin/.hushlogin file.
ashilin@ASHILIN:~$ sudo systemctl restart jenkins
[sudo] password for ashilin:
ashilin@ASHILIN:~$ sudo systemctl restart docker
ashilin@ASHILIN:~$ 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 docker.io/kubernetesui/dashboard:v2.7.0
▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
▪ Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
Some dashboard features require the metrics-server addon. To enable all features please run:
minikube addons enable metrics-server
Enabled addons: default-storageclass, storage-provisioner, dashboard
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
ashilin@ASHILIN:~$ kubectl get pod
NAME READY STATUS RESTARTS AGE
curl-pod 0/1 ContainerCreating 0 17h
my-deploy-6d899d5d56-cn6hz 1/1 Running 1 (58s ago) 18h
my-deploy-6d899d5d56-cvj7k 0/1 Error 0 18h
my-deploy-6d899d5d56-prsbf 0/1 Error 0 18h
my-deploy-6d899d5d56-smwz5 0/1 Error 0 18h
my-pod2 1/1 Running 2 (58s ago) 22h
my-rs-nll5t 0/1 Error 1 21h
my-rs-tzpzk 0/1 Error 1 21h
my-rs-w6tlb 0/1 Error 1 21h
my-rs-z42gl 0/1 Error 1 21h
test-nginx 1/1 Running 2 (58s ago) 22h
ashilin@ASHILIN:~$ kubectl get node
NAME STATUS ROLES AGE VERSION
minikube Ready control-plane 43h v1.32.0
ashilin@ASHILIN:~$ kubectl get deploy
NAME READY UP-TO-DATE AVAILABLE AGE
my-deploy 2/4 4 2 18h
ashilin@ASHILIN:~$