

Docker with Kubernetes Certification Course

Introduction to Docker

1. About Docker
2. Installation
3. Running Containers
4. Images
5. Volumes
6. Swarm
7. Service
8. Stack

Introduction to Kubernetes

1. What is Kubernetes & why
2. Kubernetes Terminology
3. Kick start Kubernetes
4. Comparison with Docker Swarm

Kubernetes cluster Architecture

1. Kubernetes Master&Minions
2. Kube Apiserver
3. etcd key-value store

4. kube Scheduler
5. kube Controller-manager
6. Introduction to Minions / Nodes
7. kubelet
8. kube-proxy
9. kubectl Client

Installation, Configuration & Validation

1. Installation
2. Initialize the cluster
3. Setup the POD network
4. Build high availability cluster
5. Validate the cluster

Introduction to Kubernetes Concepts

1. Introduction to Pods
2. What is a Pod?
3. Pod Lifecycle & Comparison with Docker
4. Create Pods & Manage multiple containers
5. Replication Controller
6. Replication sets
7. Deployments
8. Scaling out pods using replicas

- 9. What is a Service?
- 10. Types of Services in k8s
- 11. Multi Container PODs
- 12. Namespaces
- 13. Labels
- 14. Kubernetes dashboard

Deploying Applications in the Kubernetes Cluster

- 1. Deploying an Application, Rolling Updates, and Rollbacks
- 2. Configuring an Application for High Availability and Scale
- 3. Configuring ConfigMaps in Applications
- 4. Creating a Self-Healing Application

Managing Data in the Kubernetes Cluster

- 1. Persistent Volumes
- 2. Volume Access Modes
- 3. Persistent Volume Claims
- 4. Storage Objects
- 5. Applications with Persistent Storage

Networking & Cluster Communication

- 1.** Pod and Node Networking
- 2.** Container Network Interface (CNI)
- 3.** Service Networking

4. Load Balancers

5. Cluster DNS

Managing the Kubernetes Cluster

1. Upgrading the Kubernetes Cluster

2. Operating System Upgrades within a Kubernetes Cluster

3. Backing Up and Restoring a Kubernetes Cluster

Logging, monitoring & troubleshooting

1. Monitoring the Cluster Components

2. Monitoring the Applications Running within a Cluster

3. Managing Cluster Component Logs

4. Managing Application Logs