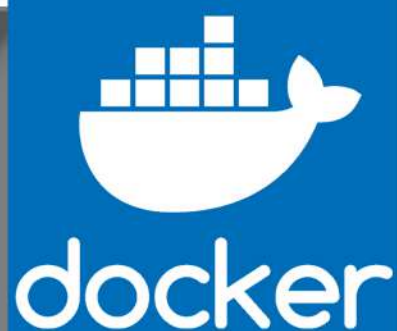


# Docker



Zetlan Technologies

## e-Learning Course

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# COURSE MODULES

## Module 1: Introduction to Docker

- What is Docker?
- Why use Docker?
- Virtual Machines vs. Containers
- Docker Architecture
- Installing Docker on Windows, macOS, and Linux
- Running Your First Docker Container

## Module 2: Docker Basics

- Understanding Images and Containers
- Docker CLI commands (run, ps, stop, rm, logs, etc.)
- Pulling images from Docker Hub
- Creating and managing containers
- Working with interactive and detached modes
- Understanding container networking

## Module 3: Docker Images & Dockerfile

- Introduction to Docker Images
- Dockerfile structure and syntax
- Building custom images using Dockerfile
- Using .dockerignore to optimize image builds
- Image tagging and versioning
- Best practices for writing Dockerfiles

## Module 4: Docker Volumes & Storage

- Understanding Docker storage
- Managing data persistence in containers
- Working with bind mounts, named volumes, and tmpfs
- Backing up and restoring volumes

## **Module 5: Docker Networking**

- Basics of container networking
- Bridge, Host, and Overlay networks
- Configuring custom networks
- Linking containers and exposing ports
- Communicating between multiple containers

## **Module 6: Docker Compose**

- Introduction to Docker Compose
- Writing docker-compose.yml files
- Running multi-container applications
- Managing services with docker-compose up/down
- Environment variables and .env files

## **Module 7: Docker Swarm (Container Orchestration)**

- Introduction to Swarm Mode
- Creating and managing Swarm clusters
- Deploying services in Swarm
- Scaling services up and down
- Rolling updates and service discovery

## **Module 8: Kubernetes Basics (Optional Advanced Section)**

- Introduction to Kubernetes vs. Docker Swarm
- Understanding Pods, Deployments, and Services
- Running containers in Kubernetes
- Using kubectl for container management

## **Module 9: Docker Security Best Practices**

- Container security fundamentals
- Running containers with least privilege
- Scanning images for vulnerabilities
- Using Docker Content Trust (DCT)
- Managing secrets in Docker

docker

## **Module 10: CI/CD with Docker**

- Docker in DevOps pipelines
- Building and pushing images with GitHub Actions/GitLab CI
- Automated deployments using Docker

## **Module 11: Deploying Docker Containers in the Cloud**

- Running Docker on AWS, Azure, or GCP
- Using AWS ECS, Azure Container Instances, and Google Cloud Run
- Deploying with Docker and Terraform

