

Docker Fundamentals

Docker is a popular platform for developing, shipping, and running applications using containerization. Docker is a set of platform as a service products that use OS-level virtualization to deliver software in packages called containers. The service has both free and premium tiers. The software that hosts the containers is called Docker Engine

Tech Stack To Be Covered



Docker Fundamentals

Module 1: Introduction to Docker

- Understanding containerization
- Overview of Docker and its ecosystem
- Use cases and benefits of Docker

Module 2: Getting Started with Docker

- Installing Docker on different platforms (Windows, macOS, Linux)

- Docker Engine architecture and components
- Running your first Docker container

Module 3: Working with Docker Images

- Understanding Docker images and layers
- Pulling and pushing Docker images from/to Docker Hub
- Creating Docker images using Dockerfiles

Module 4: Docker Containers

- Managing Docker containers: start, stop, restart, and remove
- Inspecting container logs and stats
- Networking in Docker: connecting containers and exposing ports

Module 5: Docker Volumes and Data Management

- Understanding Docker volumes
- Persisting data with Docker volumes and bind mounts
- Managing data in Docker containers

Module 6: Docker Compose

- Introduction to Docker Compose
- Defining multi-container applications using Compose files
- Running and managing multi-container applications with Docker Compose

Module 7: Docker Networking

- Overview of Docker networking modes
- Configuring custom networks in Docker
- Communication between Docker containers

Module 8: Docker Swarm

- Introduction to Docker Swarm mode
- Creating and managing Docker Swarm clusters
- Deploying and scaling services in Docker Swarm

Module 9: Docker Security

- Container isolation and security best practices
- Securing Docker daemon and containers
- Role-based access control (RBAC) in Docker

Module 10: Docker Best Practices and Tips

- Dockerfile best practices
- Container orchestration and scalability tips
- Monitoring and logging Docker containers

Module 11: Docker in Production

- Building a CI/CD pipeline with Docker
- Deployment strategies for Dockerized applications
- High availability and fault tolerance with Docker

Module 12: Docker and Cloud Services

- Integration of Docker with cloud platforms (AWS, Azure, Google Cloud)
- Docker on Kubernetes: using Kubernetes with Docker containers
- Serverless computing with Docker and AWS Lambda