

TERASKILL ACADEMY

DevOps with AWS

Learn | Build | Deploy

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About the Course:

This course is designed to provide hands-on experience in DevOps practices using AWS. You will learn how to automate, deploy, and manage applications in real-time environments.

By the end of this course, you will:

- Understand DevOps lifecycle
- Work with AWS services
- Build CI/CD pipelines
- Deploy applications using Kubernetes

COURSE HIGHLIGHTS

- ✓ 100% Hands-on Training
- ✓ Task Based Learning
- ✓ CI/CD Pipeline Implementation
- ✓ AWS + Jenkins + Docker + Kubernetes + Terraform
- ✓ Interview Preparation Support
- ✓ Resume Building Guidance

About Trainer:

A passionate DevOps trainer with extensive real-world experience, dedicated to simplifying complex concepts and helping learners build practical skills. The training approach focuses on real-time scenarios, industry best practices, and making students job-ready with confidence.

- ✓ 14+ Years of Experience in DevOps, Cloud & IT Industry
- ✓ Expertise in AWS, Kubernetes, Terraform, CI/CD Pipelines
- ✓ Worked on Real-Time Production Environments
- ✓ Mentored 5000+ Students & IT Professionals
- ✓ Strong focus on Hands-on Training & Job Readiness

1. Introduction to DevOps & AWS Cloud
 - What is Cloud Computing
 - Why Cloud Computing
 - Types of Clouds & Service Models
 - What is DevOps
 - Why DevOps
 - What is SDLC Model?
 - Waterfall vs Agile vs DevOps
 - Big Picture of CI/CD DevOps Pipeline
2. Introduction to AWS
 - AWS Global Infrastructure
 - Regions, Availability Zones & Edge Locations
 - AWS Account Creation
 - Free-Tier Overview
 - Multi-Factor Authentication for root user
 - Password Policy
3. Identity & Access Management – IAM
 - What is IAM
 - Root account vs IAM user
 - Programmatic Access vs Console Access
 - IAM Policies – Customer Managed policies
 - Force MFA to users
 - Policy Generator
 - Auditing User activity
4. Operating System & Linux Fundamentals
 - Introduction to Operating System
 - Linux Directory Structure
 - DevOps Commands including files & Directory Management
 - Package manager YUM, DNF & APT
 - Install, update & uninstall packages (Nginx, apache...)
 - User management
 - Permission management
5. Elastic Compute Cloud - EC2
 - Storage management
 - Process management
 - What is EC2
 - Purchasing Models (On-demand, reserved, Spot & Savings plan)
 - Instance Families & Instance Types
 - Security Groups – Inbound & Outbound rules
 - Launch & Connect to Windows & Linux EC2 instances
 - Amazon Machine Image – AMI
6. Elastic Block Store – EBS
 - What is Block Based storage
 - Root vs EBS volume
 - Type of EBS Volumes (gp2, gp3, io1, io2, sc1 & st1)
 - EBS Volume Management
 - EBS Volume Encryption
7. Simple Storage Service - S3
 - What is Object based Storage
 - Block vs Object based storage
 - S3 Storage classes
 - General purpose vs Directory bucket
 - S3 static website hosting
 - Versioning
 - Replication & Life Cycle rules
 - S3 bucket Encryption
 - Bucket Policies
 - Pre-Signed URL
8. Elastic File System - EFS
 - What is Network file storage
 - What is EFS
 - EFS vs FSx

9. Elastic Load Balancer – ELB

- What is a Load Balancer
- Application vs Network Load balancers
- Target groups
- Listeners

10. Auto Scaling

- Importance of Scaling
- Horizontal vs Vertical scaling
- Launch Config vs Launch Template
- Auto Scaling Groups
- Manual vs Target Tracking vs Scheduled Scaling

11. Networking & IP Addressing (IPv4)

- What is Network & Networking
- What is Address (Physical vs logical)
- What is IP address & MAC address
- Classful vs Classless IP Addressing
- Public vs Private Ips
- Network vs Subnet
- Differentiate the Networks using Ips

12. Virtual Private Cloud – VPC

- What is a VPC network
- Custom VPC with Subnets
- Public vs Private Subnets
- Route tables & Routes
- Security group vs NACL
- Bastion Host/ JumpServer
- Internet Gateway vs NAT Gateway
- VPC Peering
- VPC endpoints & Transit Gateways
- VPC Flow Logs
- Site-to-Site VPN & Direct Connect

13. VPN Server

- What is VPN Server
- Setting up an Open VPN server
- VPN User management
- Connect to AWS resources using VPN Client

14. Route53

- Domain Naming System – DNS
- Domain Registrar
- Hosted Zones - Public vs Private
- DNS Records
- Routing Policies
 - i. Simple RP
 - ii. Weighted RP
 - iii. Failover RP
 - iv. Geo-Location RP
 - v. Latency based RP

15. Relational Database Service – RDS

- Understanding Different types of Databases
- SQL vs No-SQL
- Simple Database
- Multi-AZ Cluster/ Multi-AZ instance
- Read Replica
- Aurora
- DynamoDB
- Redshift and ElasticCache overview

16. AWS Systems Manager

- Run Command
- Session Manager
- AWS Secret Manager
- AWS Documents

17. Security Services

- Cloud Trial
- Key Management Service

- AWS Certificate Manager – ACM
- AWS Trusted Advisor
- AWS Shield & WAF

18. Cloud Front

- What is Content Delivery network
- Edge Locations
- Origin Access Identity
- Deploy a website using Cloudfront with S3 as Origin

19. Application Services

- Simple Notification Service – SNS
- Simple Queue Service – SQS
- API Gateway
- Lambda

20. DevOps Overview

- Software Development Life Cycle – SDLC
- Water Fall Model
- Agile Methodology
- DevOps Life Cycle

21. AWS DevOps Services

- Code Build
- Code Commit
- Code Pipeline
- Code Deploy

22. Version Controlling Systems - VCS

- What is Version Controlling System
- Local vs Central vs Distributed VCS
- Git & GitHub
- Repository – Public vs Private
- Git Architecture – Working vs Staging vs Commit
- Git Status, add, commit, revert, reset, push, pull, clone, merge
- Remote Repository

- Connect Git with GitHub Remote Repository
- Git Webhooks
- Branching & Merging
- Pull request - PR
- Branch Protection rules
- Forking a Repository

23. Maven

- What is a Maven
- Understanding Maven Lifecycle
- Maven Goals
- Understanding pom.xml file
- Building **.war** file using Maven
- Maven Plugins

24. Jenkins

- What is CI / CD
- Continuous Delivery vs Deployment
- Install Jenkins and Initial Setup
- Jenkins Plugins
- Freestyle vs Pipeline Jobs
- Create Freestyle Project
- Create CI/CD Pipeline
- Parameterized builds
- PollSCM vs WebHook
- Build Delivery Pipeline with Java Maven Project
- Master/Agent Architecture
- Build Deploy Pipeline and deploy the App to Tomcat server
- Pipeline as code in Jenkins **(Jenkinsfile)**

25. SonarQube

- What is Code Analysis
- Understand the Sonarqube
- Integrate Sonarqube with Jenkins
- Understand the Code Analysis results.

26. Nexus/Jfrog Artifactory

- What is Remote Artifactory
- Install the Nexus/ Jfrog Artifactory
- Connect with Jenkins
- Store the artifacts in Nexus/ Jfrog

27. Containerization – Docker

- What is Containerization
- Virtualization vs Containerization
- Docker Architecture – Client, Daemon, Images, containers & Registry (Docker Hub)
- Understanding Docker commands
- Docker registry & Push images to Docker Hub
- Understand & writing the Dockerfile
- Multistage Docker file
- Building Custom image from Dockerfile
- Volume Management
- Docker Compose
- Deploy applications using Docker Compose
- Docker Scout, Best practices for using Docker Scout

28. Elastic Container Registry – ECR

- Create a repo in ECR
- Push Image to ECR
- Create container on ECS
- Integrating Trivy for security

29. Containers on AWS – ECS

- What is Elastic Container Service – ECS
- ECS Tasks
- ECS Service

30. Kubernetes – Container Orchestration

- What is Kubernetes

- K8s Architecture – Control Plane, Worker nodes
- APIServer, Scheduler, Controller Manager, ETCD, kubelet, kubeproxy
- Minikube vs KIND vs Kubeadm
- Kubectl deep dive
- Pod vs Replicaset vs Deployments
- K8s Services – ClusterIp vs NodePort vs LoadBalancer
- Namespaces
- Multi Container Pods – Side Car vs Init Car
- DaemonSet
- CronJobs
- Manual Scheduling, Labels & Selectors
- Taints & Tolerances
- Node Affinity
- Ingress Controller
- Persistent Volumes
- Rolling Updates and Rollbacks
- Canary Deployment in Kubernetes
- Monitoring Kubernetes with Prometheus

31. Helm (Package Manager)

- What is Helm &
- Helm charts structure
- Install, Upgrade, rollback
- Deploying Kubernetes Dashboard with Helm

32. Kubernetes on AWS – EKS

- EKS Overview
- EKS vs Self-Managed Kubernetes
- IAM roles for EKS
- Create EKS Cluster
- Deploy Applications to EKS cluster from Jenkins
- Complete CI/CD pipeline on EKS cluster on AWS from ECR

33. Prometheus & Grafana

- Integrating with AWS services – ELB, CloudWatch etc..

34. ArgoCD

- What is ArgoCD
- Install & Configure ArgoCD
- Deployment with ArgoCD
- Argo Rollout
- Integrate ArgoCD with EKS

35. Infrastructure as Code – Terraform

- What is IaC
- Introduction to Terraform
- Install Terraform
- Terraform Lifecycle – init, validate plan, apply, destroy

- Terraform Providers, Resources, Data Sources, Variables, Output values, and Terraform Blocks
- State Management with StateFile
- Local vs Remote state
- Variables in terraform
- Terraform Modules
- Terraform Meta Arguments
- Drift detection
- Workspaces (Dev/ QA/ Prod)
- Integrate with GitHub
- Depends_on, create_before_destroy, prevent_destroy
- Create EC2 instance using Terraform
- Create VPC using Terraform

WHY AWS & DEVOPS MATTER

AWS and DevOps have become essential in modern IT, enabling faster, scalable, and reliable application delivery. AWS provides powerful cloud infrastructure, while DevOps ensures automation and continuous deployment. Together, they are highly in demand across industries. Mastering these skills opens up strong career opportunities in today's competitive job market.

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