

AWS Certified DevOps Engineer – Professional (DevOps Engineering on AWS)

Course Duration: 24 Hours (3 Days)

Overview

The AWS Certified DevOps Engineer – Professional course is designed for individuals aiming to enhance their skills in DevOps and cloud computing on the AWS platform. This comprehensive course targets system administrators and software developers who want to master the art of using AWS services and tools for automating software development, deployment, and infrastructure management tasks. By engaging in this course, participants will learn to apply the core principles of the DevOps methodology to improve the software development lifecycle, ensuring faster delivery and higher quality. They will gain hands-on experience with AWS CloudFormation, AWS Ropeworks, AWS Code Commit, AWS CodeBuild, AWS Code Pipeline, and AWS Code Star. Learners will also explore various deployment strategies, including blue/green and A/B testing, and understand how to implement configuration management and Automated testing to ensure robust and efficient CI/CD pipelines. The course includes practical exercises that give participants the opportunity to apply what they've learned in real-world scenarios, solidifying their knowledge and preparing them for the challenges of a DevOps engineering role in an AWS environment.

Audience Profile

The AWS Certified DevOps Engineer – Professional course is designed for IT professionals seeking to leverage DevOps practices on AWS. Target Audience:

- system Administrators experienced with AWS
- Experienced Software Developers
- DevOps Engineers
- IT Professionals with knowledge of programming (C#, Java, PHP, Ruby, Python)
- Cloud Solutions Architects
- Operations Support Staff
- Technical Project Managers
- Professionals interested in automating AWS infrastructure
- Individuals with experience in administering Linux or Windows systems
- AWS Cloud Practitioners looking to specialize in DevOps
- Quality Assurance Engineers
- Security Professionals interested in Descopes
- Professionals who have completed Systems Operations on AWS or Developing on AWS courses

Course Syllabus

Day 1

Module 0: Course overview

- Course objective
- Suggested prerequisites
- Course overview breakdown

Module 1: Introduction to DevOps

- What is DevOps?
- The Amazon journey to DevOps
- Foundations for DevOps

Module 2: Infrastructure Automation

- Introduction to Infrastructure Automation
- Diving into the AWS CloudFormation template
- Modifying an AWS CloudFormation template
- Demonstration: AWS CloudFormation template structure, parameters, stacks, updates, importing resources, and drift detection

Module 3: AWS Toolkits

- Configuring the AWS CLI
- AWS Software Development Kits (AWS SDKs)
- AWS SAM CLI
- AWS Cloud Development Kit (AWS CDK)
- AWS Cloud9
- Demonstration: AWS CLI and AWS CDK
- Hands-on lab: Using AWS CloudFormation to provision and manage a basic infrastructure

Module 4: Continuous integration and continuous delivery (CI/CD) with development tools

- CI/CD Pipeline and Dev Tools
- Demonstration: CI/CD pipeline displaying some actions from AWS Code Commit, AWS CodeBuild, AWS Code Deploy and AWS Code Pipeline
- Hands-on lab: Deploying an application to an EC2 fleet using AWS Code Deploy

Day 2

Module 4: Continuous integration and continuous delivery (CI/CD) with development tools

- AWS Code Pipeline
- Demonstration: AWS integration with Jenkins
- Hands-on lab: Automating code deployments using AWS Code Pipeline
- Module 5: Introduction to Microservices
- Introduction to Microservices

Module 6: DevOps and containers

- Deploying applications with Docker
- Amazon Elastic Container Service and AWS Fargate
- Amazon Elastic Container Registry and Amazon Elastic Kubernetes service
- Demonstration: CI/CD pipeline deployment in a containerized application

Module 7: DevOps and serverless computing

- AWS Lambda and AWS Fargate
- AWS Serverless Application Repository and AWS SAM
- AWS Step Functions
- Demonstration: AWS Lambda and characteristics
- Demonstration: AWS SAM quick start in AWS Cloud9
- Hands-on lab: Deploying a serverless application using AWS Serverless Application Model (AWS SAM) and a CI/CD Pipeline

Module 8: Deployment strategies

- Continuous Deployment
- Deployments with AWS Services

Module 9: Automated testing

- Introduction to testing
- Tests: Unit, integration, fault tolerance, load, and synthetic
- Product and service integrations

Day 3

Module 10: Security automation

- Introduction to Descope
- Security of the Pipeline
- Security in the Pipeline
- Threat Detection Tools
- Demonstration: AWS Security Hub, Amazon Guard Duty, AWS Config, and Amazon Inspector

Module 11: Configuration management

- Introduction to the configuration management process
- AWS services and tooling for configuration management
- Hands-on lab: Performing blue/green deployments with CI/CD pipelines and Amazon Elastic
- Container Service (Amazon ECS)

Module 12: Observability

- Introduction to observability
- AWS tools to assist with observability
- Hands-on lab: Using AWS DevOps tools for CI/CD pipeline automations

Module 13: Reference architecture (Optional module)

- Reference architectures

Module 14: Course summary

- Components of DevOps practice
- CI/CD pipeline review
- AWS Certification