

Mastering AWS Cloud Development Kit (CDK) Course

Duration: 16 Hours (2 Days)

Overview

The Mastering AWS Cloud Development Kit (CDK) certification recognizes proficiency in developing and managing Infrastructure as code on the AWS platform using the AWS CDK. It validates an individual's skills to define Cloud resources using familiar programming languages. With AWS CDK, developers can leverage the expressive power of languages such as TypeScript, Python, Java, and C# to model and provision Cloud infrastructure. Industries use AWS CDK to streamline Development workflows, enforce Security standards, and reduce the potential for human error by Automating cloud resource creation, which is becoming increasingly essential for efficient Cloud-native development.

Audience Profile

Software developers and architects seeking infrastructure as code solutions

DevOps professionals aiming to manage AWS resources efficiently

Cloud engineers interested in deploying scalable, maintainable infrastructure

Technical leads or managers overseeing cloud-based projects

IT professionals looking to enhance their skills in modern cloud services

Course Syllabus

Course objectives:

- In this course, you will learn to:
- Define cloud infrastructure using a programming language with the AWS CDK.
- Understand the features and use cases of the AWS CDK Toolkit.
- Explore the AWS Construct Library.
- Explore the essentials of an AWS CDK project.
- How to synthesize and deploy AWS CloudFormation stacks using the AWS CDK.

Prerequisites:

- We recommend that attendees of this course have:
- Knowledge and experience with core AWS core services.
- Have at least 1 year of experience operating AWS workloads and programming language

Course outline:

Day 1

- Introduction to what is AWS CDK.
- Getting started with AWS CDK.
- Creating your first CDK stack and deploy it.
- Learn to customize stack resources.
- Version-control your infrastructure.
- Plan and visualize your deployments: Diff your changes.

- CDK Tokens: How to Export/Import stack values | cfn Intrinsic Functions.
- Stack Cleanup: Destroying the app's resources.
- CDK: Multi-environment deployment.
- Customize stack parameters: CDK context variables.
- Build Multi-AZ production ready custom VPC.
- Add tags to CDK resources on creation.
- Tagging at Scale: Easily add tags to all resources in the stack.

After Lunch

- Import Pre-existing external resources: S3, VPC.
- Launch EC2 using CDK.
- Customize EC2 instances by bootstrapping them with user-data.
- Launch EC2 with custom instant profile - SSM Agent Role - Login without SSH Keys.
- Launch EC2 with the latest AMI in any AWS region - Portable region independent stack.
- Improve EC2 performance with EBS provisioned IOPS SSD volumes.
- Highly available web servers with autoscaling and application load balancer.
- Create AWS SSM Parameter and AWS Secrets.
- Create IAM Users, Groups.
- Create IAM Role, inline, and managed policy.
- IAM resource policy: S3 bucket policy.
- Create RDS database.
- Import Pre-existing CloudFormation templates into CDK.
- Create SNS Topic and Subscriptions.
- SQS: Fully Managed Message Queues for Microservices.

Day 2

- Serverless: Create Lambda for Event-Driven Architecture.
- Create and manage lambda log groups.
- Serverless: Lambda source assets from S3.
- Schedule your lambda function: CRON in the cloud.
- DynamoDB: Key-value database.
- Grant least privileges to your lambda functions.
- API Gateway: An HTTP endpoint for your lambda function.
- CloudWatch Alarms: EC2, Lambda.
- CloudWatch Custom Metrics, Filter Patterns, and Alarms.
- CloudWatch Live Dashboards and Widgets.
- Reduce latency and protect your site with CloudFront.
- Containerized microservice architecture with ECS.
- Run containers without managing servers using fargate.

After Lunch

- Working with CDK Pipelines.
- CDK best practices -- Do and Don't.
- Construct Hub.
- CDK Patterns.