

AWS IoT: Developing and Deploying an Internet of Things

Course Duration: 8 Hours

Course Code: AWS-IOT-101

1. Course Overview

This course provides a comprehensive guide to developing and deploying IoT (Internet of Things) solutions using AWS services. You will gain hands-on experience in connecting devices, collecting and analyzing data, and creating scalable IoT applications. The course covers AWS IoT Core, device management, security, and integration with other AWS services to help you design robust IoT solutions.

2. What You'll Learn?

- Understand IoT concepts and architecture on AWS.
- Connect and manage IoT devices securely.
- Collect, process, and analyze IoT data using AWS services.
- Implement device messaging and communication patterns.
- Deploy IoT solutions with monitoring and troubleshooting capabilities.
- Integrate IoT solutions with AWS analytics, storage, and machine learning services.

3. Target Audience

- IoT developers and engineers.
- Cloud architects and solution designers.
- IT professionals looking to expand into IoT solutions.
- Anyone interested in building scalable, secure, and data-driven IoT applications.

4. Pre-Requisites

- Basic knowledge of cloud computing and AWS services.
- Familiarity with programming languages such as Python, Java, or Node.js.
- Understanding of networking and IoT fundamentals is advantageous.

5. Course Content

Module 1: Introduction to IoT and AWS IoT

- IoT overview and use cases
- AWS IoT Core architecture
- Device types and connectivity

Module 2: Connecting Devices

- Device registration and authentication
- MQTT protocol and communication patterns
- Securing device connections

Module 3: Device Management

- IoT device lifecycle
- Over-the-air updates and monitoring
- AWS IoT Device Management

Module 4: Data Collection and Processing

- IoT message routing
- Using AWS IoT Analytics and AWS Lambda
- Data storage with Amazon S3 and DynamoDB

Module 5: Implementing IoT Solutions

- Building rules and actions
- Integrating with AWS services (SNS, SQS, Kinesis)
- Event-driven IoT applications

Module 6: Security and Best Practices

- IoT security fundamentals
- Policy management and role-based access
- Best practices for scaling and monitoring IoT deployments

Module 7: Hands-on Labs and Case Studies

- Device simulation and real-time data collection
- End-to-end IoT application development
- Deployment strategies and troubleshooting

