Publication date : 11/15/2024

# Course : Developing Serverless Solutions on AWS

**Official course, developing serverless solutions on AWS**

*Practical course - 3d - 21h00 - Ref. AWT*
*Price : 2570 € E.T.*

With this course, you'll learn as a developer the best practices for creating serverless applications using AWS Lambda and other AWS serverless platform services. You'll use AWS frameworks to deploy a serverless application in hands-on workshops, moving from simple to more complex projects. You'll draw on AWS documentation throughout the course to extend your learning and solve problems beyond classroom training.

## Teaching objectives

**At the end of the training, the participant will be able to:**

- Apply event-driven best practices to serverless application design
- Identify challenges and trade-offs in the transition to serverless development and make recommendations
- Create serverless applications using templates that connect AWS managed services together
- Compare and contrast the options available for writing infrastructure as code
- Best practices for writing Lambda functions
- Apply best practices to enhance observability and monitoring in your serverless application
- Applying security best practices to serverless applications
- Identify the main scaling considerations in a serverless application
- Use AWS SAM, AWS CDK and AWS development tools to set up a CI/CD workflow
- Automate serverless application deployment
- Create and actively maintain a serverless resource list
- Take into account service features, including service quotas, available integrations...
- Compare options: AWS CloudFormation, AWS Amplify, AWS SAM and AWS CDK

**PARTICIPANTS**

Developers with some familiarity with serverless and experience of developing in the AWS Cloud.

**PREREQUISITES**

Knowledge of the basics of AWS Cloud architecture and completion of the Developing on AWS training course (Ref. AWP).

**TRAINER QUALIFICATIONS**

The experts who lead the training courses are specialists in the subjects covered. They are approved by the publisher and certified for the course. They have also been validated by our teaching teams in terms of both professional knowledge and teaching skills for each course they teach. They have at least three to ten years of experience in their field and hold or have held positions of responsibility in companies.

**ASSESSMENT TERMS**

Assessment of targeted skills prior to training.
Assessment by the participant, at the end of the training course, of the skills acquired during the training course.
Validation by the trainer of the participant's learning outcomes, specifying the tools used: multiple-choice questions, role-playing exercises, etc.
At the end of each training course, ITTCERT provides participants with a course evaluation questionnaire, which is then analysed by our teaching teams. Participants also complete an official evaluation of the publisher.
An attendance sheet for each half-day of attendance is provided at the end of the training course, along with a certificate of completion if the participant has attended the entire session.

## Intended audience

Developers with some familiarity with serverless and experience of developing in the AWS Cloud.

## Prerequisites

Knowledge of the basics of AWS Cloud architecture and completion of the Developing on AWS training course (Ref. AWP).

## Certification

Courses without certification.
Comment passer votre examen ?

## Practical details

**Teaching methods**

Training in French. Official course material in English and digital format. Good understanding of written English.

**TEACHING AIDS AND TECHNICAL RESOURCES**

The teaching resources used are the publisher's official materials and practical exercises.

**TERMS AND DEADLINES**

Registration must be completed 24 hours before the start of the training course.

**ACCESSIBILITY FOR PEOPLE WITH DISABILITIES**

Do you have specific accessibility requirements? Contact Ms FOSSE, disability advisor, at the following address: psh-accueil@orsys.fr so that we can assess your request and its feasibility.

## Course schedule

### 1 Think serverless

- Best practices for building modern serverless applications.
- Event-driven design.
- AWS services supporting event-driven serverless applications.

### 2 API-oriented development and synchronous event sources

- Features of standard Web applications based on request/response APIs.
- How Amazon API Gateway integrates with serverless applications.
- High-level comparison of API types (REST/HTTP, WebSocket, GraphQL).

**Hands-on work**

Configuring an HTTP API endpoint embedded in a Lambda function

### 3 Introduction to authentication, authorization and access control

- Authentication and authorization.
- API authentication options using API Gateway.
- Amazon Cognito in serverless applications.
- Amazon Cognito user pools vs. federated identities.

### 4 Serverless deployment framework

- Overview of imperative vs. declarative programming for infrastructure as code.
- Comparison of the CloudFormation, AWS CDK, Amplify and AWS SAM frameworks.
- AWS SAM and AWS SAM CLI features for emulation and local testing.

## 5 Using Amazon EventBridge and Amazon SNS

- Development considerations when using asynchronous event sources.
- Amazon EventBridge features and use cases.
- Comparison of use cases for Amazon Simple Notification Service (Amazon SNS) versus EventBridge.

**Hands-on work**
Practice using Amazon EventBridge and Amazon SNS to decouple components: Create a custom EventBridge bus and rule, then configure an Amazon SNS topic with filtering.

## 6 Event-driven development using queues and flows

- Use query event sources to trigger Lambda functions.
- Distinctions between queues and streams as event sources for Lambda.
- Selection of appropriate configurations when using Amazon Simple Queue Service (Amazon SQS).
- Selection of appropriate configurations when using Amazon Kinesis Data Streams.

**Hands-on work**
Configurer une file d'attente Amazon SQS avec une lettre morte comme source d'événements pour Lambda. Déployer une application sans serveur simple. Message Fan-Out avec Amazon EventBridge

## 7 Best practices for writing Lambda functions

- How the Lambda lifecycle influences your function code.
- Best practices for your Lambda functions.
- Function configuration.
- Function code, versions and aliases.
- Lambda error handling.
- Partial failure management with queues and flows.

**Hands-on work**
Configure and test a Lambda function.

## 8 Step functions for orchestration

- AWS Step Functions in serverless architectures.
- The callback model.
- Standard or express workflow.
- Direct integrations of Step Functions.

**Hands-on work**
Step function states. Troubleshooting a standard step function workflow

## 9 Observability and Monitoring

- The three pillars of observability.
- Amazon CloudWatch Logs and log information.
- Writing effective logs.
- Use of AWS X-Ray for observability.
- CloudWatch metrics and integrated metrics format.

**Hands-on work**
Interpreting logs. Activate X-rays and interpret X-ray traces. Metrics and alarms. ServiceLens hands-on labs. Workflow orchestration using AWS Step Functions. Observability and monitoring.

## 10 Serverless application security

- Best security practices for serverless applications.
- Safety at every level.
- API Gateway and application security.
- Lambda and application security.
- Data protection in your serverless data stores.
- Audit and traceability.

## 11 Managing the scaling of serverless applications

- Scaling considerations for serverless applications.
- Use API Gateway to manage scaling.
- Lambda simultaneity scaling.
- How different event sources evolve with Lambda.

## 12 Automating the deployment pipeline

- The importance of CI/CD in serverless applications.
- Tools in a serverless pipeline.
- AWS SAM features for serverless deployments.
- Best practices for automation.

**Hands-on work**
Securing serverless applications. Serverless CI/CD on AWS.

## Dates and locations

**REMOTE CLASS**
2026 : 23 June, 6 Oct., 15 Dec.

**PARIS LA DÉFENSE**
2026 : 23 June, 6 Oct., 15 Dec.