

AWS API Gateway Mastery: Build, Secure & Scale APIs

A Complete Course on REST, WebSocket, and HTTP APIs with AWS API Gateway

Course Overview

This course teaches **AWS API Gateway** from fundamentals to advanced integrations, covering **REST APIs, WebSocket APIs, security, caching, and real-world deployments**.

Module 1: API Gateway Fundamentals

1.1 Introduction to API Gateway

- ✓ What is AWS API Gateway?
- ✓ REST vs. HTTP vs. WebSocket APIs
- ✓ Key features: **Caching, Throttling, Authentication**

1.2 Creating Your First API

- 📌 **REST API** (Console & OpenAPI/Swagger)
- 📌 **HTTP API** (Low-latency, cost-effective)
- 📌 **WebSocket API** (Real-time apps)

Hands-on Lab:

- ♦ Deploy a **REST API with Mock Integration**
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Module 2: API Integrations & Backends

2.1 Lambda Integration

- ⚡ Proxy vs. Non-Proxy Lambda Integration
- ⚡ Request/Response Mapping Templates (Velocity Templates)

2.2 Other AWS Service Integrations

- 📌 DynamoDB (CRUD via API Gateway)
- 📌 SQS (Send messages to a queue)
- 📌 Step Functions (Orchestrate workflows)

Hands-on Lab:

- ♦ Build a **Serverless CRUD API** (API Gateway + Lambda + DynamoDB)
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Module 3: Security & Authorization

3.1 Authentication & Access Control

- 🔑 IAM Roles & Policies
- 🔑 Cognito User Pools (OAuth2/JWT)
- 🔑 Lambda Authorizers (Custom Auth)

3.2 Protecting Your API

- 🛡️ AWS WAF (DDoS protection)
- 🛡️ Rate Limiting & Usage Plans
- 🛡️ Private APIs (VPC Endpoints)

Hands-on Lab:



- ♦ Secure an API with **Cognito User Pools**

Module 4: Advanced API Gateway Features



4.1 Performance Optimization

- ⚡ Caching (Reduce Lambda Calls)
- ⚡ Edge-Optimized vs. Regional Endpoints
- ⚡ Custom Domain Names (HTTPS with ACM)

4.2 Monitoring & Logging

-  CloudWatch Metrics & Logs
-  X-Ray Tracing for API Latency

4.3 Canary Deployments & Versioning



-  A/B Testing with Stage Variables
-  Blue/Green Deployments

Hands-on Lab:

- ◆ Enable **Caching & Custom Domains**

Module 5: Real-World Projects

5.1 Project 1: Serverless Microservices

-  API Gateway + Lambda + DynamoDB
-  JWT Validation & Multi-Tenancy

5.2 Project 2: Real-Time Chat App

-  WebSocket API + DynamoDB Streams





5.3 Project 3: Enterprise API Management

 Usage Plans, API Keys, and Throttling

Bonus: API Gateway vs. Alternatives

- ✓ When to use API Gateway vs. ALB
 - ✓ API Gateway + CloudFront (Global Low-Latency APIs)
 - ✓ Migrating from REST to HTTP API
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Course Format

-  Video Demos
 -  Interactive Labs
 -  Downloadable OpenAPI Templates
 -  Final Project: Deploy a Scalable Production API
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Who Should Take This Course?

- ✓ **Backend Developers** building APIs
 - ✓ **DevOps Engineers** managing API deployments
 - ✓ **Solutions Architects** designing serverless apps
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Prerequisites

- ✓ Basic AWS knowledge (Lambda, IAM)
- ✓ Familiarity with REST/HTTP concepts

Want More Depth?

I can expand on:

- ♦ **Advanced Velocity Template Mapping**
- ♦ **gRPC & GraphQL with API Gateway**
- ♦ **CI/CD for API Gateway (SAM/CDK)**

Let me know what you'd like to explore! 🚀