

WSO2 API Manager 4.7 Developer Advanced

OEM: WSO2 • Code: APIM47DA

COURSE DESCRIPTION

WSO2 API Manager Developer Advanced is a course aimed at training software engineers on extending the WSO2 API Manager as well as complex deployment strategies. Training Type: WSO2 product training and hands-on session. Complexity: Intermediate/Advanced.

AUDIENCE PROFILE

- Software Engineers

PREREQUISITES

Open Standards such as OAuth 2.0, JWT, OAS and JMS

- WSO2 API Manager Developer Fundamentals
- Java Programming Skills

COURSE OBJECTIVES

By the end of this course, participants will be able to:

- This section doesn't contain any content.

COURSE OUTLINE

Module 1: Session 1

Architecture

- API Manager Architecture overview

API Runtime

- API Runtime Overview
- API Gateway
- API Gateway Architecture
- API Gateway Features

- API Gateway Request Flow
- API Gateway Response Flow

Key Management

- Key Manager Overview
 - Token Generation Flow
 - Validating Token Request
 - Revoking Tokens
 - OAuth Authentication in Gateway
 - Validating the Token at Key Manager
 - Configuring a Third-Party Key Manager
 - Key Validation
 - Scope Validation
- Practical Exercise: WSO2 Identity Server as the Key Manager

Module 2: Session 2

Rate Limiting

- Introduction to Rate Limiting
- Traffic Manager
- Rate-Limiting Policies
- Deployment Architecture Active-Active

Deployment Patterns

- Deployment Patterns
 - Deploying API Manager in Single Node Instance
 - Distributed Deployment
- Practical Exercise: Deploy WSO2 API Manager Pattern #1

Module 3: Session 3

Deploying API Manager in Docker

- Containers vs VMs
- Docker - Introduction
- Docker Images
- Run API Manager in Docker

Deploying API Manager in Kubernetes

- Why Kubernetes?
 - Deployment Architecture
 - Ingress
 - Production Deployment
- Practical Exercise: Deploying API Manager on Kubernetes

Module 4: Session 4

API Security

- Authentication
 - Authorization
 - Self Contained JSON Web Tokens
 - JSON Schema Validation
 - Threat Protection
 - Validating API Definitions Against Custom Linter Rules
 - Obtaining User Profile Information with OIDC
- Practical Exercise: Fine-Grained Policy Decisions using XACML

Extending WSO2 API Manager

- Mediation Extensions
 - Custom Handlers
 - Workflow Extensions
 - Custom Grant Types
 - Customizing JWT Generation
 - Extending Scope Validation
 - Extending API Lifecycles
 - Adding Reverse Proxy Server
- Practical Exercise: Adding Workflow Extension
 - Practical Exercise: Writing a Custom Handler
 - Practical Exercise: Creating a Custom Policy
 - Self Paced Practical Exercise: Configuring Authenticators for Service Providers

Module 5: Session 5

Branding Extensions

- Overriding Developer Portal Theme
 - Categorizing and Grouping APIs
 - Configure UI Components
 - Advanced Customizations
- Practical Exercise: Customizing the Developer Portal

Debugging and Error Handling

- API Manager Components and Features
 - Debugging Runtime Issues via Logging
 - Observability
 - Error Handling
- Practical Exercise: Enabling and Observing Gateway Wirelogs

Scalability

- Vertical Scaling
- Horizontal Scaling

Module 6: Session 6

Building a CI/CD Pipeline for APIs

- Building CI/CD Strategy
- API Controller
- CI/CD for APIs - Using the CLI
- Building a CI/CD Pipeline for APIs using Jenkins
- Practical Exercise: Validating the WSO2 API Manager Environment
- Practical Exercise: Building a CI/CD pipeline with GIT using API Controller
- Self Paced Practical Exercises: Building a Jenkins CI/CD pipeline with API Controller

Tuning and Performance

- OS Level Settings
- JVM Level Settings
- Platform Level Settings
- Registry Indexing
- Other Advanced Exercises:
- Practical Exercise: Onboarding APK as a gateway in API Manager
- Practical Exercise: Integrating Platform Gateway with API Manager
- Practical Exercise: Publishing Integrations to the API Manager

DELIVERY NOTE

- Hardware Requirement: During the lab session attendees are required to deploy the created samples in multiple middleware products. Participants are required to have a workstation with at least 16GB of memory to run the samples smoothly.
- Software Requirement: If you are using the product installer to install the product, by default, WSO2 APIM is installed with OpenJDK, which allows you to run the product as soon as it is installed. If you are running the server in a VM make sure to install JDK 21 or JDK 25.
- WSO2 Product: Installation Prerequisites
- WSO2 Product: WSO2 API Manager 4.7.0
- WSO2 Product: WSO2 Identity Server 7.2.0 Pack
- Other Products Used: MYSQL
- Other Products Used: JDBC driver for MySQL
- Other Products Used: Rancher Desktop for K8s Cluster
- Other Products Used: MySQL Workbench
- Other Products Used: NGINX