

Anypoint Platform Development: Fundamentals (Mule 3)

Summary

This instructor-led course is for developers and architects who want to get hands-on experience using Anypoint Platform to build APIs and integrations. In the first part, students use Anypoint Platform discover, consume, design, build, deploy, manage, and govern APIs. In the second part, students focus on using Mule and Anypoint Studio to build applications for use as API implementations and/or integrations.

The course includes a voucher for two attempts for the *MuleSoft Certified Developer – Integration and API Associate (Mule 3)* exam.

Duration

5 days in-person or online

Objectives

At the end of this course, students should be able to:

- Build an application network using API-led connectivity and Anypoint Platform.
- Use Anypoint Exchange as a central repository for the discovery and reuse of assets.
- Use flow designer to build apps that consume assets and connect systems.
- Use API designer to define APIs with RAML, the RESTful API Modeling Language.
- Use Anypoint Studio to build and debug integrations and API implementations and integrations.
- Connect to databases, files, web services, SaaS applications, JMS queues, and more.
- Transform data using DataWeave, the powerful transformation language.
- Add application logic and handle errors.
- Structure applications to facilitate development and deployment.
- Handle batch data processing.
- Deploy API implementations and integrations to CloudHub.
- Use API Manager to create and deploy API proxies that govern access to APIs.

Prerequisites

- Experience with Java (preferred) or another object-oriented language
- A basic understanding of data formats such as XML, CSV, and JSON
- A basic understanding of typical integration technologies such as HTTP, JMS, JDBC, REST, and SOAP

Setup requirements

- A computer with at least 4GB available RAM, 2GHz CPU, and 4GB available storage and a minimum screen resolution of 1024x768
- Internet access to ports 80, 3306, and 61616 (with > 5Mbps download and > 2Mbps upload)
- The latest version of Firefox or Chrome or Internet Explorer 10 or newer
- An Anypoint Platform account
<http://anypoint.mulesoft.com>
- JDK 1.8
<http://www.oracle.com/technetwork/java/javase/downloads/index.html>
- Anypoint Studio 6 with embedded Mule 3.9 runtime
<https://www.mulesoft.com/lp/dl/studio/previous>
- Postman REST client app (or some other REST client application)
<https://www.getpostman.com>
- A Salesforce Developer account (NOT a standard account) and API Access token
<https://developer.salesforce.com/en/signup>

A detailed setup document can be downloaded from here: <https://training.mulesoft.com/downloads>.

Outline

PART 1: Building Application Networks with Anypoint Platform

Module 1: Introducing Application Networks and API-Led Connectivity

- Identify the problems faced by IT today
- Explain what an application network is and its benefits
- Describe how to build an application network using API-led connectivity
- Explain what web services and APIs are
- Explore API directories and portals
- Make calls to secure and unsecured APIs

Module 2: Introducing Anypoint Platform

- Identify all the components of Anypoint Platform
- Describe the role of each component in building application networks
- Navigate Anypoint Platform
- Locate APIs and other assets needed to build integrations and APIs in Anypoint Exchange
- Build basic integrations to connect systems using flow designer

Module 3: Designing APIs

- Define APIs with RAML, the Restful API Modeling Language
- Mock APIs to test their design before they are built

- Make APIs discoverable by adding them to Anypoint Exchange
- Create API portals for developers to learn how to use APIs

Module 4: Building APIs

- Define Mule applications, flows, messages, and message processors
- Use Anypoint Studio to create flows graphically
- Build, run, and test Mule applications
- Use a connector to connect to databases
- Use the graphical DataWeave editor to transform data
- Create RESTful interfaces for applications from a RAML file
- Connect API interfaces to API implementations

Module 5: Deploying and Managing APIs

- Describe the options for deploying Mule applications
- Use properties in Mule applications so they can be easily moved between environments
- Deploy Mule applications to CloudHub
- Use API Manager to create and deploy API proxies to CloudHub
- Restrict access to API proxies

PART 2: Building Applications with Anypoint Studio

Module 6: Accessing and Modifying Mule Messages

- Log message data
- Debug Mule applications
- Read and write message properties
- Write expressions with Mule Expression Language (MEL)
- Create variables

Module 7: Structuring Mule Applications

- Create and reference flows and subflows
- Pass messages between flows using the Java Virtual Machine (VM) transport
- Investigate variable persistence through subflows and flows and across transport barriers
- Encapsulate global elements in separate configuration files
- Explore the files and folder structure of Mule projects

Module 8: Consuming Web Services

- Consume RESTful web services with and without parameters
- Consume RESTful web services that have RAML definitions

- Consume SOAP web services
- Use DataWeave to pass parameters to SOAP web services

Module 9: Handling Errors

- Describe the different types of exception strategies
- Handle messaging exceptions in flows
- Create and use global exception handlers
- Specify a global default exception strategy

Module 10: Controlling Message Flow

- Route messages based on conditions
- Multicast messages
- Filter messages
- Validate messages

Module 11: Writing DataWeave Transformations

- Write DataWeave expressions for basic and complex XML, JSON, and Java transformations
- Store DataWeave transformations in external files
- Coerce and format strings, numbers, and dates
- Use DataWeave operators
- Define and use custom data types
- Call MEL functions and Mule flows from DataWeave transformations

Module 12: Connecting to Additional Resources

- Connect to SaaS applications
- Connect to files
- Poll resources
- Connect to JMS queues
- Discover and install connectors not bundled with Anypoint Studio

Module 13: Processing Records

- Use the For Each scope to process items in a collection individually
- Use the batch job element (EE) to process individual records
- Trigger batch jobs using polls
- Use batch jobs to synchronize data from legacy databases to SaaS applications