

# Anypoint Platform Development: Mule 4 for Mule 3 Users

## Summary

This instructor-led course is for experienced Mule 3 developers who want to quickly uplevel their skills to Mule 4. The course is hands-on and focuses on what's new and/or different in Mule 4 and Studio 7.

This course includes a voucher for two attempts for the *MuleSoft Certified Developer – Level 1 (Mule 4) DELTA* exam or the *MuleSoft Certified Developer – Level 1 (Mule 4)* exam.

## Duration

3 days in-person or online

## Objectives

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

- Build, configure, and debug Mule 4 applications using Anypoint Studio 7.
- Use and apply the new Mule 4 event model with the new reactive, self-tuning, streaming, and non-blocking Mule 4 runtime.
- Apply new Mule 4 connector operations and features anywhere in a flow and configure new Mule 4 connector listeners as flow triggers.
- Apply new DataWeave 2.0 code everywhere as the new Mule 4 expression language.
- Transform complex data schema using DataWeave 2.0.
- Use the new Mule 4 error handling framework and the new Try scope.
- Use the new Batch Job and Batch Aggregator scopes inline in flows.

## Audience

Mule 3 users who have mastery of the content covered in the *Anypoint Platform Development: Fundamentals (Mule 3)* course

## Prerequisites

Experience developing Mule 3 applications as demonstrated by one of the following:

- Passing of the *MCD - Integration and API Associate (Mule 3)* exam
- Completion of the instructor-led *Anypoint Platform Development: Fundamentals (Mule 3)* course or the self-study *MuleSoft.U Development Fundamentals (Mule 3)* course
- Passing of the *MCD - Integration Professional (Mule 3)* exam

## Setup requirements

- A computer with 8-16 GB available RAM (16 highly recommended), 2GHz CPU, and 10GB available storage and a minimum screen resolution of 1024x768
- Internet access to ports 80 and 3306 (with > 5Mbps download and > 2Mbps upload)

- The latest version of Chrome
- An Anypoint Platform account  
<http://anypoint.mulesoft.com>
- OpenJDK 8 (NOT 11 or a later version)  
<https://adoptopenjdk.net>
- Anypoint Studio 7 with embedded Mule 4.2 runtime  
<https://www.mulesoft.com/lp/dl/studio>
- Advanced REST Client (or some other REST client application)  
<http://install.advancedrestclient.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

### Module 1: Accessing and Modifying Mule 4 Events

- Log event data
- Debug Mule applications
- Read and write event properties
- Write expressions with the DataWeave expression language
- Create variables

### Module 2: Structuring Mule 4 Applications

- Create applications composed of multiple flows and subflows
- Pass events between flows using asynchronous queues
- Encapsulate global elements in separate configuration files
- Specify application properties in a separate properties file and use them in the application
- Describe the purpose of each file and folder in a Mule project
- Define and manage application metadata

### Module 3: Consuming Web Services in Mule 4

- Consume web services that have an API (and connector) in Anypoint Exchange
- Consume RESTful web services
- Consume SOAP web services
- Pass parameters to SOAP web services using the Transform Message component
- Transform data from multiple services to a canonical format

#### **Module 4: Controlling Event Flow in Mule 4**

- Multicast events
- Route events based on conditions
- Validate events

#### **Module 5: Handling Errors in Mule 4**

- Handle messaging errors at the application, flow, and processor level
- Handle different types of errors, including custom errors
- Use different error scopes to either handle an error and continue execution of the parent flow or propagate an error to the parent flow
- Set the success and error response settings for an HTTP Listener
- Set reconnection strategies for system errors

#### **Module 6: Writing DataWeave 2.0 Transformations**

- Write DataWeave expressions for basic XML, JSON, and Java transformations
- Write DataWeave transformations for complex data structures with repeated elements
- Define and use global and local variables and functions
- Use DataWeave functions
- Coerce and format strings, numbers, and dates
- Define and use custom data types
- Call Mule flows from DataWeave expressions
- Store DataWeave scripts in external files

#### **Module 7: Triggering Flows in Mule 4**

- Read and write files
- Trigger flows when files are added, created, or updated
- Trigger flows when new records are added to a database table
- Schedule flows to run at a certain time or frequency
- Persist and share data in flows using the Object Store
- Publish and consume JMS messages

#### **Module 8: Processing Records in Mule 4**

- Process items in a collection using the For Each scope
- Process records using the Batch Job scope
- Use filtering and aggregation in a batch step