

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 to take a new MuleSoft Certified Developer exam for Mule 4 to be released later this year.

Duration

2 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 Studio 7.
- Use the new Mule 4 event model to get and set data.
- Use DataWeave 2 for inline expressions and data transformations.
- Use the Mule 4 error handling framework to throw and catch Mule 4 errors.
- Write defensive code using MUnit 2 and Mule 4 Validators.
- Use new operation-based Mule 4 connectors with automatic watermarking, repeatable and concurrent streams, the ability to read and write data anywhere in a flow, and more.
- Use the new Batch scope inline in flows.
- Secure connections using the new OAuth module and custom policies packaged with Studio 7.

Audience

Mule 3 users with at least 6 months Mule development experience who are currently actively developing Mule applications

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 and ideally the *Anypoint Platform Development: Advanced* course
- Passing of the *MCD - Integration Professional* exam

Setup requirements

- A computer with at least 4GB available RAM, 2GHz CPU, and 10GB 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 7 with embedded Mule 4.1 runtime
<https://www.mulesoft.com/lp/dl/studio>
- Advanced REST Client (or some other REST client application)
<http://install.advancedrestclient.com>

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

Outline

Module 1: Building Mule 4 Applications

- Use new features of Studio 7 including the new Mule Palette, externalized connectors, and more
- Explore the structure of new Mule 4 projects and deployable archives
- Use the new Mule 4 event model to get and set data
- Enrich Mule messages directly in a connector instead of using the Mule 3 Message Enricher scope
- Write inline expressions using DataWeave 2 instead of MEL
- Configure flow performance by configuring max concurrency instead of thread pools in Mule 4

Module 2: Configuring Mule 4 Applications

- Scale always-synchronous Mule 4 flows
- Configure the new thread pools shared by all event processors
- Create and use YAML configuration files to organize properties into hierarchical namespaces
- Create Mule 4 domains using Maven coordinates and use them to inherit all dependencies

Module 3: Integrating with External Services using Mule 4

- Use one common, unified operations syntax to configure and use all Mule connectors
- Apply both read and write operations for JMS, Database, File, and FTP connectors anywhere in a flow
- Use dynamic and parameterized values in a single database query
- Use repeatable and concurrent streams with File and FTP connectors
- Import and integrate with other Java applications using Maven

Module 4: Writing Defensive Code with Mule 4

- Build unit test suites for the new Mule 4 event model using MUnit 2
- Build simpler MUnit test conditions with MUnitTools
- Filter messages using Choice routers and private flows instead of Mule 3 Filters
- Use Validators to throw Mule 4 errors instead of Java exceptions
- Throw custom error types built from standard Mule 4 errors

Module 5: Handling Errors and Debugging in Mule 4

- Catch Mule 4 errors using the new Mule error handling framework
- Use the new Try scope to handle errors for one or more event processors instead of at the flow level
- Use new Mule 4 logging categories

Module 6: Transforming Data in Mule 4

- Use new syntax and features of DataWeave 2 to write expressions and scripts
- Simplify and abstract DataWeave 2 code into reusable functions and modules
- Call static Java methods from DataWeave 2 expressions
- Call Java methods using the new Java module
- Pass custom input parameters to Groovy, JavaScript, and Python scripts

Module 7: Synchronizing State between Systems with Mule 4

- Avoid duplicate record processing using new watermarking functionality of Database and File listeners
- Use Object Store v2 to persistently store objects as values without having to serialize
- Include batch jobs inline inside other Mule flows
- Process chunks of records in a batch step using the new Batch Aggregator scope

Module 8: Securing and Governing Connections with Mule 4

- Retrieve access tokens and state with the new OAuth module
- Mavenize and upload custom policies to Anypoint Exchange for use in API Manager