

# **Instructor-led Quickstart for Developers Course Contents**

## **00 Introductions**

- Instructor Introduction
- Class Introduction
- Overview of this Week's Class
- MuleSoft Introduction
  - (Information as also presented in the [MuleLearning.com](https://mulelearning.com) class "Executive Summary")
  - Company History and Overview
  - Product Capabilities
  - Gartner's Assessment of MuleSoft
  - MuleSoft's Competition, an overview
  - MuleSoft's Revenue History
  - MuleSoft's Value Proposition

## **01 MuleSoft: An Architectural Introduction**

- Data Integration Patterns Supported by MuleSoft
- MuleSoft as an Enterprise Service Bus Solution
- MuleSoft ESB Competitive Advantages
- MuleSoft Microservices Discussion
- Deployment Options: "On-prem" and "Cloud"
- Data Integration Problems: The Problem MuleSoft Solves
- Creating APIs with MuleSoft: An Overview of Anypoint Platform Tools
- API-Led Connectivity Explained
  - Experience APIs
  - Process APIs
  - System APIs
- MuleSoft Connectors: Ease of Development
- The MuleSoft IDE – Anypoint Studio
- Anypoint Platform Exchange: An Overview
- API Development Cycle vs. Traditional SDLC
- MuleSoft Security Options, Including Enterprise Security
- API Gateway Explained
- Continuous Integration Introduction
- Open Source vs Hardened Code / Community vs. Enterprise Editions

## 02 Installing Anypoint Studio

Every topic below includes lecture slides and instructor-led, hands-on activities in Mule 3 and Mule 4.

- Installing the JDK
- How to Install Anypoint Studio
  - Anypoint Studio version 6 for Mule Runtime version 3.9
  - Anypoint Studio version 7 for Mule Runtime version 4
- Troubleshooting the Installation

## 03 Create a MuleSoft Application in Anypoint Studio

Every topic below includes lecture slides and instructor-led, hands-on activities in Mule 3 and Mule 4.

- Create a Simple Mule 3 Application
- Create a Simple Mule 4 Application
- Create a Simple Application in the Anypoint Platform Design Center Flow Designer
- The HTTP Connector Explained
  - Inbound Listener, Outbound Requester
- HTTP Methods Explained
- Mule 3 Message Object Explained
- Connector vs Endpoint: What's the difference?
- Dataweave Introduction
- Logger Introduction
- Mule 4 Event Objects Explained

## 04 Request Transform Debug

Every topic below includes lecture slides and instructor-led, hands-on activities in Mule 3 and Mule 4.

- HTTP Parameters Explained
  - Query Parameters
  - URI Parameters
- An Overview of Debugging in Anypoint Studio
  - Perspectives
  - Debugger Port
  - Debugging Controls
  - Breakpoints
- An Introduction to Mule Expression Language (MEL)
- MEL vs. Dataweave
- Using HTTP as an Outbound Endpoint, Consuming a RESTful Web Service
- Dataweave Details
  - Transforming JSON to JSON
  - Message Preview
  - Creating Additional Targets (Variables and Properties) with Dataweave
- Design Center Flow Designer Demo

## **05 Overview of Anypoint Studio IDE**

Every topic below includes lecture slides and instructor-led, hands-on activities in Mule 3 and Mule 4.

- Anypoint Studio Views
- Changing Fonts
- Installing Proxy Info
- Menu Options
- Shortcuts
- Anypointstudio.ini file
- Managing the Workspace
- Perspectives
- Saving, Restarting, Redeploying
- Installing Software Updates (with Cautions)

## **06 Deploying MuleSoft Applications**

Every topic below includes lecture slides and instructor-led, hands-on activities in Mule 3 and Mule 4.

- Environment Configuration Management
  - Properties Files
  - Encrypting Properties for Security

- Working with HTTPS
- Deploy to Cloudhub
- Overview of the Runtime Manager
- Deploying to a Customer Hosted Mule Runtime
  - Working with YAML Files instead of Properties Files
  - Starting the Mule Runtime with Parameters
  - Folder Structure Explained
  - Hot-Deploying Mule Applications
- Runtime Manager Further Explained
  - Managing Applications
  - Settings
  - Applications Properties
  - Overriding Properties Explained
  - Application Logs

## 07 API Design with RAML

- Introducing the Anypoint Platform Design Center
  - Design Center IDE Features
  - File Browser
  - Editor
  - API Console
  - Shelf
- The Visual Designer Introduced
- The API Console Explained
- Importing Swagger Projects In To The Design Center
- RAML vs. Swagger: The Differences Explained
- Creating an API Specification with RAML
  - Using Auto-Completed
  - Resources (Nouns) and Nested Resources
  - Methods (Verbs)
  - Defining Parameters
    - Query Parameters
    - URI Parameters
    - Headers
  - HTTP Status Codes
  - Use Example Data
  - Documenting the API Spec with Descriptions and Display Names
  - Modularity / Code Reuse
    - Datatypes
    - Resource Types
    - Traits
    - The Confusing Differences Made Simple

- Code Comments
- Using the Mocking Service
- Code Reuse Continued: RAML Fragments
- The RAML Spec at [RAML.org](http://RAML.org)

## 08 API-Led Connectivity and Application Networks

In this section, students will get a clear understanding of the API-Led Connectivity design pattern.

- Class Discussion: Experience APIs, Process APIs and System APIs
- Maximize Reusability
- Process APIs Explained
- When Systems Both Consume and Provide Data (Experience APIs vs System APIs)

## 09 Anypoint Platform Exchange

- Class Discussion: Maximize Reuse by Making APIs Discoverable
- Exchange Walk-through
  - Library of Assets
  - API Fragments
  - Discoverability
  - View the Public Portal (Discussion of the Risks)
  - MuleSoft's Assets vs. Company's Assets
  - The Developer's Portal, Developer's Applications Explained

## 10 The API Kit

- Differences: Implementations, Interfaces, Proxies
- The API Kit Explained
- Create an API Interface with the API Kit
- The API Kit Router
- Private Flows
- Sample Data
- Folder src/main/api Explained
- Update an API Spec
  - Update RAML
  - Use API Kit to Update Interface
- Use Flow References to Connect Interfaces to Implementations

## **11 Proxies**

- Setup and Deploy a Proxy for an API
- API Security
- API Analytics
- Usage Policies
- SLAs
- Manage an API not developed in MuleSoft

## **12 Flows and Subflows**

Every topic below includes lecture slides and instructor-led, hands-on activities in Mule 3 and Mule 4.

- Flows Explained
  - Public Flows
  - Private Flows
  - Subflows
- Flow Reuse Best Practices Discussion
- Processing Strategies
- Mule 3 Messages and Mule 4 Events Explained
- Variables Scope

## **13 Database Connector**

- Set up and Use a Database Connector
- Install .jar file
- Supported Operations Discussion
- Metadata Explorer Explained

## **14 File Connector**

- Inbound vs. Outbound Endpoints
- Path
- Move to Directory

- Polling Frequency
- File Age
- File Name Regex Filter
- Adding Metadata to a File Endpoint
- Using a File Endpoint as a Requester (This is a popular request. Optional activity: teach class to have a file endpoint read a file from the process section of a flow.)

## 15 Dataweave

- An Overview of Transformers
- Dataweave Advantages
  - Don't Use Java!
  - Streaming Support
  - Data Transformation Language
- The Dataweave UI
  - Input, Output, Code, Preview, Targets
- Metadata
- Transforming an Object
- Transforming an Array
- Transforming
  - To JSON
  - To XML
- String Interpolation
- Operators
  - Formatting
  - Math
  - Filters
  - Grouping
  - Ordering

## 16 Consuming SOAP Web Services

- Use Web Service Consumer Connector (outbound endpoint)
- Viewing Exposed Metadata
- Using Dataweave to Prepare a SOAP Request

## 17 Error Handling

- Flow-level Error Handling for Mule 3 and Mule 4
  - Catch Exception Strategies
  - Choice Exception Strategies
- Reusing Exception Strategies
- Global Default Exception Strategies

## **18 Flow Control**

- Choice Router
- Scatter-Gather
- Dataweave Flatten Payload

## **19 Poll Scope and Batch Processing**

- Poll Scope Setup
- Using Watermarks
- Batch Processing Initiation
  - Poll Scopes
  - Polling Connectors
  - Batch Execute
- Input
- Process Records and Asynchronous Processing of Batch Jobs with Batch Steps
- Filtering with Batch Steps
- On Complete Statistics Reporting

## **20 Salesforce**

- An Introduction to the Salesforce Connector
- Get Account Data Sample

## **22 Class Conclusion**

- Class Survey