

# Anypoint Platform Operations: Customer-Hosted Runtimes

## Summary

This instructor-led course is for all operations and administration personnel, developers, and architects who want to get hands-on experience managing and monitoring customer-hosted Mule runtimes and applications (on-prem or in a private cloud) with Anypoint Runtime Manager (whether Runtime Manager is MuleSoft-hosted in the cloud or customer-hosted using Anypoint Platform Private Cloud Edition).

*Note: This course is for both Mule 3 and Mule 4.*

## Duration

2 days in-person or online

## Objectives

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

- Describe the Mule runtime architecture.
- Install, configure, run, tune, and scale Mule runtimes.
- Deploy Mule applications to Mule runtimes.
- Use Anypoint Runtime Manager to manage, monitor, and analyze Mule runtimes and Mule applications.
- Scale and tune Mule runtimes and Mule applications.
- Automate administration tasks.

## Prerequisites

- A knowledge of system administration and server commands
- 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
- Unrestricted internet access to port 80 (with > 5Mbps download and > 2Mbps upload)
- Unrestricted WebSocket access (ws:// and wss://) to ports 80 and 433
- The latest version of Firefox or Chrome or Internet Explorer 10 or newer

- JRE or JDK 1.8  
<http://www.oracle.com/technetwork/java/javase/downloads/index.html>
- Mule 4.1 or 3.9 runtime  
<https://www.mulesoft.com/lp/dl/mule-esb-enterprise> or  
<https://www.mulesoft.com/lp/dl/studio/previous>
- Anypoint Platform CLI tool  
<https://docs.mulesoft.com/runtime-manager/anypoint-platform-cli>
- Advanced REST Client (or some other REST client application)  
<http://install.advancedrestclient.com>
- (Optional) Cygwin utilities for Windows  
<http://cygwin.com>
- (Optional) Microsoft Process Explorer for Windows  
<https://technet.microsoft.com/enus/sysinternals/processexplorer.aspx>

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

## Outline

### **PART 1: Administering Mule Runtimes and Mule Applications**

#### **Module 1: Introducing Customer-Hosted Mule Runtimes**

- Describe typical Mule deployment architectures and solutions
- Identify infrastructure options to host Mule runtimes
- Install and start Mule runtimes
- Deploy Mule applications to Mule runtimes

#### **Module 2: Managing Mule Applications and Mule Domain Projects**

- Inspect and manage deployed Mule applications
- Deploy Mule domain projects to Mule runtimes
- Deploy and manage multiple Mule applications in the same shared Mule domain

#### **Module 3: Managing and Monitoring Mule Runtimes**

- Configure and manage Mule runtimes and licenses
- Locate and interpret Mule runtime log files
- Monitor Mule runtimes with JMX
- Create secure Mule runtime administration connections

#### **Module 4: Tuning and Troubleshooting Mule Runtimes**

- Debug Mule applications
- Tune the JVM for Mule runtimes
- Dump a Mule runtime's heap memory and threads

## **PART 2: Administering with Anypoint Runtime Manager**

### **Module 5: Managing Users and Resources**

- Organize users and resources with business groups and environments
- Administer Anypoint Platform users
- Create and manage Anypoint Platform roles

### **Module 6: Managing Mule Runtimes and Mule Applications**

- Register customer-hosted Mule runtimes with Anypoint Runtime Manager using Runtime Manager Agent
- Deploy Mule applications to customer-hosted Mule runtimes using Runtime Manager
- Manage Mule applications with Runtime Manager
- Align servers and server groups with SDLC environments

### **Module 7: Configuring Mule Applications**

- Configure a Mule application for deployment
- Configure a Mule runtime to use external properties files
- Use properties files with encrypted values
- Configure environment specific properties files

### **Module 8: Monitoring and Analyzing Mule Runtimes and Mule Applications**

- View Mule runtime and Mule application dashboards
- Configure alerts for Mule runtimes and Mule applications
- Control Mule application flows
- Monitor and analyze Mule application generated business events
- Configure 3rd party monitoring and analysis plugins

### **Module 9: Meeting Performance and Reliability Goals**

- Distinguish between Mule application performance tuning and scaling goals, options, and solution architectures
- Create and manage Mule runtime clusters
- Deploy Mule applications to Mule runtime clusters
- Test load balancing and failover behavior of applications deployed to Mule runtime clusters

### **Module 10: Automating Administration Tasks**

- Automate admin tasks with the Anypoint CLI tool
- Automate admin tasks with Anypoint Platform REST APIs