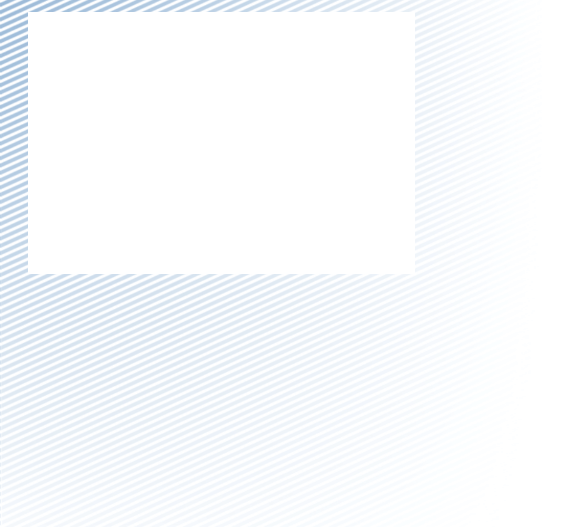
**About this course**



**IBM Cloud Manager with OpenStack 4.3**

**and IBM Cloud Orchestrator 2.5:**

**Cloud Administration and Orchestration Workshop**

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In this 4.5 day workshop, you learn how to administer and use the major functions of IBM® Cloud Manager with OpenStack and IBM Cloud Orchestrator. You learn how to perform common administrative tasks like restarting the software stack and creating users and groups. You create OpenStack Heat orchestration templates (HOTs) to model groups of virtual machines so that they can be deployed as a single entity. You use OpenStack Neutron to create a software-defined network, with options for a firewall and load balancer. This workshop focuses on taking full advantage of the workflow and orchestration capabilities that are provided to IBM Cloud Orchestrator through Business Process Manager. You also explore self-service offerings and orchestration with Business Process Manager.

The lab environment for this course uses the Red Hat Enterprise Linux and Windows platforms.

**Details**

**Delivery method** Classroom

**Course level** ERC 1.0

This course is a new course.

**Product and version** IBM Cloud Manager with OpenStack 4.3 IBM Cloud Orchestrator 2.5

**Recommended duration** 4.5 days

**Skill level** Intermediate

Other variations (subsets) of this course are available:

* CQ010 Cloud Administration with IBM Cloud Manager with OpenStack 4.3 (2.5 days), instructor-led training
* ZQ010 Cloud Administration with IBM Cloud Manager with OpenStack 4.3 (2.5 days), Web-based training
* CQ011 Cloud Orchestration with IBM Cloud Orchestrator 2.5 (2.0 days), instructor-led training

*Course objectives*



**Course objectives**

* Manage the IBM Cloud Manager with OpenStack and IBM Cloud Orchestrator components and environment
* Access the IBM Cloud Manager with OpenStack Horizon Dashboard and explore the key features
* Use the Horizon Dashboard to create, deploy, and manage Heat orchestration templates
* Access the IBM Cloud Orchestrator user interface and explore the key features
* Create and manage domains, projects, users, and Neutron network components in a multitenant environment
* Use Business Process Manager artifacts to customize and extend IBM Cloud Orchestrator:
  + Build process workflows for use with IBM Cloud Orchestrator using product-provided toolkits and custom content
  + Build custom user interfaces for self-service offerings
  + Build custom user actions
* Troubleshoot problems when creating workflows and deploying Heat orchestration templates

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*Course objectives*

# Audience

This course is designed for IBM employees, business partners, and customers who need to demonstrate IBM Cloud Orchestrator, contribute to an IBM Cloud Orchestrator Proof of Concept, or create content to customize IBM Cloud Orchestrator to address use cases not provided with the product. The course is also recommended for IBM employees, business partners, and customers who create and customize workflows for IBM Cloud Orchestrator users.

# Prerequisites

Before taking this course, you should have the following skills:

* Basic understanding of cloud and virtualization technologies
* Basic VMware skills
* Basic Linux skills
* Basic understanding of OpenStack Kilo is beneficial
* Basic understanding of IBM Cloud Manager with OpenStack 4.3 and IBM Cloud Orchestrator, including what is new in each product (recorded video)
* Experience with Business Process Manager orchestration and workflows is beneficial.

# Course description

The course contains the following units:

1. Administering the cloud

The focus of this unit is administration of the cloud through the Horizon (dashboard) user interface. An understanding of OpenStack components is beneficial to understand the functions that are provided by each component.

1. Image management with OpenStack Glance

The focus of this unit is on image creation and management using the OpenStack Glance component.

1. Networking with OpenStack Neutron

The focus of this unit is on software defined networking using the OpenStack Neutron component. Topics discussed include basic layer 2 and layer 3 networking concepts, using Neutron, creating a Load Balancer as a Service, and more.

1. Volume management with OpenStack Cinder

This unit discusses the creation and management of storage volumes using the OpenStack Cinder component. The required Cinder configuration is also discussed.

1. Orchestration with OpenStack Heat

Heat is the main project in the OpenStack Orchestration program. It implements an orchestration engine to launch multiple composite cloud applications based on templates in the form of text files that can be treated like code. A native Heat template format is evolving, but Heat also endeavors to provide compatibility with the AWS CloudFormation template format, so that many existing CloudFormation templates can be launched on OpenStack. Heat provides both an OpenStack-native REST API and a CloudFormation-compatible Query API.

1. Introduction to IBM Cloud Orchestrator

This unit introduces IBM Cloud Orchestrator. The focus is as follows:

* Additional capabilities for the Horizon Dashboard (administrator) user interface
* Running IBM Cloud Orchestrator with a non-IBM distribution of OpenStack
* Support for Microsoft Azure
* Rebranding the IBM Cloud Orchestrator user interface
* Operating the IBM Cloud Orchestrator environment

1. IBM Cloud Orchestrator user interface

This unit describes the IBM Cloud Orchestrator (self-service) user interface: how to access it, how to use self-service offerings, how the self-service offerings are defined, how to define and deploy heat templates, and more.

1. Orchestration with Business Process Manager

This unit discusses IBM Business Process Manager and related artifacts used by IBM Cloud Orchestrator. At the end of the exercise, you will customize an existing workflow provided by IBM Cloud Orchestrator. IBM Cloud Orchestrator 2.5 includes Business Process Manager 8.5.6.

1. IBM Cloud Orchestrator as an integration layer

This unit shows how you can use IBM Cloud Orchestrator with an external front-end and back-end, using REST API calls.

1. Troubleshooting

This unit focuses on aspects of troubleshooting self-service requests and the most common errors that might occur.