

OpenStack Accelerated Bootcamp with Exam OS250

The OpenStack Accelerated Bootcamp (OS250) combines our [OpenStack Bootcamp I \(OS110\)](#) and [OpenStack Bootcamp II \(OS200\)](#) at a rapid pace. The total duration is four and a half days. The first four days will be spent in bootcamp, with the exam on the 5th day.

This course is designed for students who are already familiar with OpenStack supporting technologies such as Linux, Networking, and Storage. Prior to taking this course, students should be able to execute common commands from the command line, work with common command line options, access main pages for help, and edit configuration files with vi. Students lacking this knowledge are strongly encouraged to take OS110 and then OS200 instead.

This course is meant for advanced students. The curriculum will skip over some of the lectures included in our OS110 and OS200 courses and the material will be covered at a faster pace.

It does NOT cover everything in the OS110 and OS200 curriculums.

Course Details

- Duration: 4.5 Days
- Hours: 9:00 a.m. - 5:00 p.m.
- Exam Day: 9:00 a.m. - 5:00 p.m.

Target Audience

- Systems Administrators
- Deployment Engineers
- Technical IT Professionals

Prerequisites

- Strong experience using Linux command line
- Experience editing conf files with vi
- Proficient with Linux, Networking, and Storage

Lab Requirements

- Laptop with Wifi Card
- Firefox or Chrome
- SSH and SCP Software

Objectives

The OpenStack Accelerated Bootcamp (OS250) covers the critical skills needed to operate an OpenStack cluster and troubleshoot and install an OpenStack environment. Upon completion of the course, students will have gained an extensive understanding of the objective below and should be prepared for the [OCM100 OpenStack certification exam](#).

- Describe the architecture of an OpenStack Cloud Environment
- Define the key features of OpenStack
- Identify suitable use-cases for OpenStack
- Implement and use Image, Identity, and Dashboard services
- Create and manage compute, storage, network, and image resources
- Use Orchestration and Telemetry services
- Create and manage users, roles, projects and access control
- Use graphical and command line clients
- Create and manage roles, permissions, and ACLs
- Manually Installing and Configuring OpenStack from scratch
- Troubleshooting OpenStack Environments
- Preparation for the OCM100 Exam

Outline

- Course Introduction
- OpenStack Overview and Architecture
- OpenStack Networking deep dive
- OpenStack Swift Architecture
- Ceilometer Overview and Architecture
- Heat Overview and Architecture
- Installing, configuring, mysql, and message queue
- Installing, configuring, and verifying Keystone
- Installing, configuring, and verifying Glance
- Installing, configuring, and verifying Nova
- Installing, configuring, and verifying Cinder
- Installing, configuring, and verifying Neutron
- Installing, configuring, and verifying Heat
- OpenStack Troubleshooting
- Four days of accelerated training with the OCM100 certification on the Fifth day

MODULE 1

OPENSTACK
OVERVIEW

Theory

- Overview of project history and releases
- Core projects overview
- Nova architecture overview
- VM provisioning walkthrough

Workshops

- Understanding the classroom environment
- Create, manage, and access Virtual Machine
- Create and manage images
- Create and manage volumes

MODULE 2

OPENSTACK
NETWORKING

Theory

- KVM networking with Linux bridges
- Single-host vs multi-host networking
- The role of Network Manager in nova-network
- Accessing VM using floating IP
- Traffic Flows
- Neutron Architecture and plug-ins
- OpenVSwitch concepts
- Neutron L3 and DHCP Agents
- Load Balancer as a Service

Workshops

- Configuring a software load balancer
- OpenStack Networking and Admin operations
- Create and manage networks
- Security groups and Floating IPs
- Create Users, Projects, and Quotas
- Administering Tenants and User permissions

MODULE 3

SWIFT

Theory

- Project overview
- Usage and use cases
- The Ring, RingBuilder, partitioning
- Account, container, and object servers
- Replication
- Security/ACLs
- Deployment and Operations

Workshops

- Swift Operations
- CRUD on Containers and Objects
- Uploading in segments
- Adding metadata to Objects
- Swift maintenance with swift-recon

MODULE 4

CEILOMETER

Theory

- Ceilometer background and use cases
- Ceilometer architecture
- Ceilometer meters and pipelines
- Ceilometer Deployment

Workshops

- Metering and Monitoring with Ceilometer
- Ceilometer Meters
- Statistics and Pipelines
- Working with Ceilometer Alarms

MODULE 5

HEAT

Theory

- Heat background and use-cases
- Heat architecture
- Heat Orchestration Template (HOT) format
- Heat Autoscaling

Workshops

- Orchestration with Heat
- Understanding HOT
- Launching Stack

MODULE 6

REVIEW

Workshops

- Re-enforcing practical skills with comprehensive exercises
- OpenStack To Go: Devstack Installation Instruction

MODULE 7

OPENSTACK MANUAL
DEPLOYMENT

Workshops

- Configuring the operating system (Ubuntu 14.04 LTS) and networking
- Installing and configuring database (MySQL) and messaging (RabbitMQ) servers
- Installing and configuring the OpenStack Identity (keystone)
- Installing and configuring the OpenStack Image Service (glance)

MODULE 8

OPENSTACK MANUAL
DEPLOYMENT

Workshops

- Installing the OpenStack Networking (neutron) services
- Configuring the Networking (neutron) to use the ML2 plug-in with the Open vSwitch driver
- Installing and configuring the OpenStack Compute (nova)
- Configuring the OpenStack Compute (nova) with KVM hypervisor

MODULE 9

OPENSTACK MANUAL
DEPLOYMENT

Workshops

- Installing and configuring the OpenStack dashboard (horizon)
- Installing and configuring the OpenStack Block Storage (cinder)
- Configuring the OpenStack Block Storage (cinder) to use two back ends (LVM)
- Installing and configuring the OpenStack Orchestration (heat)

MODULE 10

OCM100 EXAM

OpenStack Administrator Certification Exam - Professional level

- The OCM100 is a performance based hands-on exam, measuring an individual's proficiency in creating, configuring, and managing OpenStack environments.