

OpenStack Certification Training

Understanding Cloud & OpenStack

Learning Objectives - In this module, you will learn the concepts of virtualization and how it's used on the cloud. Once you understand the relationship between virtualization and the cloud, you will learn more about the cloud and OpenStack along with its ecology and components.

Topics - Basics of virtualization, Relationship : Virtualization & cloud, Introduction to cloud and cloud models, Introduction to OpenStack, OpenStack ecology and OpenStack services, Preparing your environment for lab sessions.

Keystone (OpenStack authentication system)

Learning Objectives - In this module, you will learn about the concept of authentication and identity system for the Keystone service.

Topics - OpenStack Identity, Users, Credentials, Tokens, Identity Management, Service Catalog, Role Based Access Control (RBAC), Keystone Internal Architecture, Token Validation - API, Setting up Keystone as a part of the Controller node.

Nova (OpenStack Compute Service)

Learning Objectives - In this module, you will understand the OpenStack compute service and how we utilize virtualization to successfully run Nova.

Topics - OpenStack Compute Service Architecture, Nova internals, KVM based Architecture, Instances, Images and Nova-Network usage, Setting up the Nova node.

Cinder (OpenStack Block service)

Learning Objectives - In this module, you will learn about the OpenStack block service and utilize it along with Nova.

Topics - A deep dive into OpenStack, Cinder Internals, Cinder backends, Industry implementations, Installation of Cinder, Manage\troubleshoot Cinder.

Glance (OpenStack Image Service)

Learning Objectives - In this module, you will learn about the OpenStack Image service and how to leverage it for image uploads and downloads.

Topics - OpenStack Glance Architecture, Glance internals, Image conversions to qcow2, Installation of Glance, Best practices on Glance store backend, Image uploads and downloads.

Neutron (OpenStack Neutron Service)

Learning Objectives - This is the most critical but slightly complex topic. Here, we learn about Neutron and successfully implementing it.

Topics - Deep-dive on the OpenStack Neutron Architecture, ML2, ML3 plugins, Installation of Neutron, Network creation, bridging, router creation, Core Neutron plugins and network configuration.

Horizon (OpenStack Dashboard service)

Learning Objectives - In this module, we will install GUI for OpenStack.

Topics - Introduction to Horizon, Installation of Horizon, Django, GUI walkthrough.

Heat (OpenStack Orchestration service)

Learning Objectives - In this module, we will learn about heat orchestration.

Topics - Deep-dive on OpenStack Heat Architecture Heat agents, Write Heat templates, Installation of Heat service, Integrate heat templates to automate instance launches.

Ceilometer (OpenStack Billing service)

Learning Objectives - In this module, we will learn about the billing and alerting service.

Topics - A deep-dive into OpenStack Ceilometer, Data polling, retrieval and setting up alarms Installation of Ceilometer, Integrate Heat + Ceilometer for automation of instance\networks\storage launches, Create Meters.

Trove (OpenStack Database as a service)

Learning Objectives - In this module, we will install OpenStacks database as a service module.

Topics - An OpenStack Trove architectural deep-dive Installation of Trove, Launching database from CLI or the dashboard.

Swift (OpenStacks Object Storage)

Learning Objectives - In this module, we will cover the OpenStacks Block Storage service called Swift.

Topics - Installation of Swift, Swift rings, image locations, component based uploads, Replication, Account Reaping, Ring-building, Integrate Swift with Glance to use as an image store.

Installation & troubleshooting

Learning Objectives - In this module, we will install a 3 Node Architecture of OpenStack.

Topics - Environment Setup, Building a controller node, Building a network node, Building a compute node, Adding additional compute nodes to the existing OpenStack implementation.

OpenStack Operators Guide (*Very Important for day-to-day Openstack operations)**

Learning Objectives - In this module, we will be performing break & fix operations to the OpenStack environment.

Topics - Real-time problem resolutions, Real-time operations of OpenStack environment, Bug/Issue trackings, Troubleshooting scenarios and resolutions.

Central Logging

Learning Objectives - In this module, we will be installing relevant tools to collect OpenStack logs and push them to a central logging server.

Topics - Installation of ELK STACK, Configuration of ELK Stack for OpenStack, Rotation of logs.