



*Training Course:
OpenStack Essentials: Daily Operations and
Administration*

*4 - 8 January 2027
Madrid (Spain)*

Training Course: OpenStack Essentials: Daily Operations and Administration

Training Course code: SC235698 From: 4 - 8 January 2027 Venue: Madrid (Spain) - Training Course Fees: 6300 € Euro

Introduction

Red Hat OpenStack has become a cornerstone for cloud infrastructure, offering flexibility, scalability, and robust tools for managing cloud environments. This training program is designed to provide participants with a comprehensive understanding of OpenStack's daily operations and administration. Through hands-on learning and theoretical insights, this program aims to empower participants to efficiently deploy, manage, and optimize OpenStack environments.

OpenStack's ability to integrate with diverse systems makes it a powerful tool for organizations transitioning to cloud solutions. By mastering its components and operations, participants will be well-equipped to address real-world challenges, enhance performance, and ensure cloud continuity.

Objectives

By the end of this program, participants will:

- Understand the fundamentals and architecture of OpenStack.
- Gain proficiency in managing core OpenStack components such as Nova, Neutron, Cinder, and Keystone.
- Learn advanced networking and storage management techniques.
- Implement robust user and security management practices.
- Master monitoring, troubleshooting, and performance optimization.
- Plan and execute maintenance and upgrade strategies.
- Address practical challenges through real-world case studies and best practices.

Target Audience

This program is designed for IT professionals who:

- Are system administrators or cloud engineers transitioning to OpenStack environments.
- Work in IT operations and require knowledge of cloud infrastructure.
- Want to gain expertise in OpenStack for career growth.
- Are responsible for managing cloud environments in medium to large organizations.

Outlines:

Day 1:

Introduction and Core OpenStack Architecture

- Introduction to OpenStack:
 - Overview and history of OpenStack.
 - Use cases and its significance in cloud environments.
 - Comparison between OpenStack and traditional cloud management systems.
- Core OpenStack Components:
 - Nova Compute, Neutron Networking, Cinder Block Storage, Keystone Identity.
 - Interconnection and interactions between components.
- Cloud Infrastructure Basics:
 - Distributed systems and how clouds operate in OpenStack.
- Operations Overview:
 - Definition and importance for cloud continuity.
 - Examples of day-to-day operations.

Day 2:

Advanced Networking and Storage Management

- Networking with Neutron:
 - Network types VLAN, VXLAN, Flat.
 - Configuring virtual networks and interconnections.
 - Managing static and dynamic IP addresses.
- Routing and Gateways:
 - Configuring virtual routers.
 - Connecting public and private networks.
- Storage Management with Cinder and Swift:
 - Differences between Block and Object Storage.

- Creating and attaching volumes to instances.
- Advanced Networking and Storage Options:
 - Load Balancer as a Service LBaaS.
 - Security Group configurations and management.

Day 3:

User and Security Management

- Identity Management with Keystone:
 - Creating and managing users, projects, and roles.
- Role-Based Access Control RBAC:
 - Designing and implementing access control policies.
 - Best practices for permissions management.
- Enhancing OpenStack Security:
 - Implementing TLS/SSL certificates.
 - Securing communications between components.
 - Mitigating common attacks like brute force.
- Governance Policies:
 - Defining and enforcing policies.
 - Log monitoring and compliance tracking.

Day 4:

Monitoring, Troubleshooting, and Performance Optimization

- Performance Monitoring:
 - Telemetry Ceilometer overview.
 - Using visualization tools like Grafana.
 - Creating alerts for performance issues.
- Log Analysis and Troubleshooting:

- Reading and interpreting OpenStack logs.
- Identifying common errors in Nova, Neutron, and Cinder.
- **Failure Management:**
 - Addressing critical failures in networks and storage.
- **Performance Tuning:**
 - Optimizing Compute and Storage performance.
 - Resource consumption reduction strategies.

Day 5:

Maintenance, Upgrades, and Practical Challenges

- **Preventative Maintenance:**
 - Scheduling periodic maintenance.
 - Verifying component integrity.
- **Updates and Upgrades:**
 - Planning upgrades to minimize downtime.
 - Safely upgrading individual components.
- **Daily Operational Challenges:**
 - Examples of challenges in large-scale OpenStack environments.
 - Rapid response strategies for incidents.
- **Case Studies and Discussions:**
 - Real-world OpenStack challenges and solutions.
 - Sharing best practices and practical advice.

Registration form on the Training Course: OpenStack Essentials: Daily Operations and Administration

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