

# Oracle Cloud Infrastructure Operations Professional (2025): Hands-on Workshop

Oracle Cloud Infrastructure

DURATION

**3 Days**

MODULES

**15 Lectures**

COURSE CODE

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## Course Overview

The Oracle Cloud Infrastructure Operations Professional course caters to Administrators and Architects. It offers an in-depth technical introduction to essential OCI capabilities, covering various aspects such as using OCI CLI to create, discover, and terminate resources. Additionally, the course covers topics like creating shell scripts using OCI CLI, utilizing Oracle Resource Manager, provisioning a simple set of OCI resources with Ansible, managing custom images, and understanding Network Security Architecture, including Virtual Cloud Network (VCN), Load Balancer, and DNS. Throughout the course, participants will engage in practical exercises, including provisioning and managing OCI resources, describing scaling options, handling billing and account management in the OCI Console, and troubleshooting OCI resources. They will learn to optimize performance, ensure security, and efficiently manage operational tasks within OCI.

## What You Will Learn

### Module 01: Course Overview

- Oracle Cloud Infrastructure Cloud Operations Professional
- Day 0: Tenancy Administration
- Day 1: Environment Deployment
- Day 2: Scaling, Optimization, and Business Continuity

### Module 02: Identity and Access Management Overview

- Introduction to OCI IAM
- What is OCI IAM?
- Authentication (AuthN) & Authorization (AuthZ)
- OCI IAM Components
- OCI IAM Identity Domains
- What are Identity Domains?
- Identity Domains: Use Cases & Lifecycle Management
- Identity Domain Types

## Module 03: Identity and Access Management Basics

- Managing OCI IAM Identity Domains
- Default Identity Domain & Administrator Users Guidelines
- Creating Identity Domains
- Demo: Creating Identity Domains
- Creating and Managing Groups
- Demo: Creating Groups
- Creating and Managing Users
- Demo: Creating Users
- Stages of the IAM User Life Cycle
- Administrator Roles: Key Points, Types, and Assignment
- Policies Overview
- Subjects Clause, Actions Clause, Placement
- Compartments
- Resource Compartments, Access, Movement, Nested Compartments, Quotas
- Demo: Policies
- Demo: Understanding Administrator Role

## Module 04: Identity and Access Management - Advanced

- Policy Inheritance and Attachment
- Demo: Policy Inheritance and Attachment
- Conditional Policies & Permissions
- Examples & Demo: Creating Users
- Enforcing Least Privilege with Advanced Policies
- Tag-Based Access Control & Network Sources
- Demo: Tag-Based Access Control
- Demo: Network Sources
- Dynamic Groups

Terms, Resource Principals Patterns, Infrastructure Principals, Stacked & Ephemeral Principals

- Demo: Dynamic Groups
- Policies for Dynamic Groups

## Module 05: Security Posture

- Cloud Security Posture Management (CSPM) Overview
- Challenges, Capabilities, Benefits, and DevSecOps Integration
- Cloud Guard
- Concepts: Targets, Detectors, Detector Rules, Recipes, Problems, Responders
- Demo: Public Bucket Scenario
- Managing Detector Rules and Recipes
- Compartment Inheritance
- Cloud Guard Notifications & Integration with Events and Notification Services
- Security Zones and Security Advisor

## Module 06: Billing and Licensing

- Manage Costs with Budgets and Budget Alerts
- Cost Analysis
- Compute Pricing & Optimization (Scaling, Autoscaling)
- Block Storage Costs & VPU
- File Storage Costs
- Object Storage Costs, Tiers, Auto-Tiering, Lifecycle Management
- Networking Costs: Ingress/Egress, VPN vs FastConnect Pricing
- Software Licensing on OCI
- Licensing Models & Mobility through Software Assurance

## Module 07: Service Limits and Compartment Quotas

- Governance & Administration
- View and Manage Service Limits
- Request a Service Limit Increase (Demo)
- Set Resource Caps with Quotas
- Types of Quota Policy Statements
- Demo: Create a Quota Policy
- Cloud Advisor
- Overview, Benefits, Recommendation Categories, Calculations
- Recommendation Profiles for Load Balancers and Compute Instances
- Organization Management
- Multitenancy Approach & Cost Reporting Integration

## Module 08: OCI Command Line Interface (CLI) and Software Development Kit (SDK)

- Interacting with OCI: REST API, Cloud Console, CLI, SDK
- OCI CLI Authentication
- API Key, Security Token, Instance and Resource Principals, Cloud Shell
- OCI CLI Syntax
- Syntax, Options, Examples, Advanced Examples

## Module 09: Terraform - Infrastructure as Code

- Infrastructure as Code (IaC) Overview
- What is IaC?
- Why Use IaC?
- Objectives, Benefits, and Overview
- Terraform Introduction
- Terraform Concepts
- Terraform Commands
- Variables and Configuration Files
- Variables & terraform.tfvars
- Provider Configuration
- Resources, Outputs, and Modules

- State Management
- Preparing the Environment
- Terraform Setup
- Parameter Evaluation Order
- Environment Variables (Linux & Windows)
- Security Token
- Terraform Workflow
- First Terraform Configuration
- File Structure (main.tf)
- Updating and Modifying Configuration Files
- Splitting Configuration and Incorporating Modules
- Creating Modules

## Module 10: OCI Resource Manager

- Introduction and Concepts
- Resource Manager Overview
- Configuration Source Providers
- Stacks, Actions, Jobs, Templates
- Creating Your First Stack
- Using Source Providers
- Importing Existing Infrastructure
- Drift Detection and Management
- Templates and Endpoints
- Creating Private Templates
- Resource Manager Endpoints
- Creating Endpoints with Terraform

## Module 11: Deploy a Monolithic Architecture

- Case Study Architecture: Mastodon
- Instance Architecture Overview
- VCN Deep Dive: Gateways, Routing, and Access Control
- Demo: VCN Setup, Stack Creation, and Terraform VCN Creation
- Securing a VCN with Stateful Rules
- Compute Deep Dive: Instance Life Cycle
- Demo: Provision Compute Instance with Terraform
- Provisioning and Sourcing Examples (Redis, PostgreSQL, Ruby on Rails)
- Bootstrapping with Cloud-init
- Fine-tuning with Ansible
- Storage Deep Dive
- File Storage
- Object Storage (Buckets, Versioning, Lifecycle Management)

## Module 12: Secrets and Encryption

- OCI Key Management Service (KMS)

- Encryption Options, Offerings, and Concepts
- Symmetric vs Asymmetric Encryption
- Vault Introduction and Keys
- Master/Data Encryption Keys, Wrapping, Rotation
- Vault Demos
- Demo: Vault Basics Part 1 & 2
- Importing and Exporting Keys
- Cryptographic and Management Endpoints
- OCI Services Integration with Vault
- Encryption Using Oracle-Managed and Customer-Managed Keys
- Object Storage Integration
- Backup, Restore, and Cross-Region Replication
- Secrets Management
- What's a Secret?
- Secrets Rules and Demo

## Module 13: Disaster Recovery

- High Availability Concepts
- Availability Domains, Fault Domains
- Avoiding Single Points of Failure
- Regional & AD-Specific Subnets
- Load Balancer, Compute Autoscaling, Storage (Object, Block, File)
- Connectivity Redundancy (IPSec VPN, FastConnect)
- Disaster Recovery Concepts
- Terminology, RTO, RPO
- DR Options: Backup/Restore, Standby, Active/Active
- DR for OCI, Multi-Region DR
- Database Strategies for DR
- Operational Challenges & Runbooks
- Full Stack DR (FSDR) Components and Sample Scenario
- DR Plans, DR Groups, Peer Associations
- DR Execution Demos
- Failover, Switchover, Start/Stop Drill
- Preparing MuShop for Full Stack DR

## Module 14: Troubleshooting

- OCI Troubleshooting Overview
- SSH and Instance Console Connections
- Performance Troubleshooting
- IPSec & FastConnect Connections
- Load Balancer Health Status and Health Checks
- Block Storage Troubleshooting
- Backup, Recovery, Multi-Attach, Volume Resize
- Local NVMe Device Failures, RAID Setup
- Handling Availability Domain Failures

- File Systems Troubleshooting
- Mount Target Issues and Recovery

## Module 15: Observability & Management

- Observability Overview
- What is Observability? Traditional Monitoring vs Observability
- Challenges, Definitions, and DevOps Use Case
- Monitoring Service
- OCI Monitoring: Capabilities, Workflow, Metrics, Intervals, Statistics, Alarms
- Metric Query Components & Demo
- Notifications Service Overview & Demo
- Access, IAM Policies, and Limits
- Building and Executing Metric Queries
- Logging Service
- OCI Logging Overview, Types of Logs, Log Groups
- Service Logs, Object Storage Logs, Load Balancer Logs, VCN Flow Logs
- Demo: Service Logs and Custom Logs
- Unified Monitoring Agent Configuration & Demo
- Log Search, Queries, Streams, Data Types, Operators
- Demo: Logging Queries
- Connector Hub
- Overview, Workflow, Use Case Demos