

## Oracle Linux Advanced Administration

**Duration:** 5 Days

### What you will learn

This Oracle Linux Advanced Administration training is ideal for experienced administrators who need to learn more about advanced features of Oracle Linux. You'll learn to configure network and authentication services, implement virtualization technologies to more effectively manage system resources, and deploy new types of file systems to improve performance and increase data integrity, while developing troubleshooting and advanced storage administration skills.

### Learn To:

Automate installation using Kickstart.

Recover from boot errors.

Address today's large storage requirements.

Manage resources to deliver consistent response times and performance.

Allocate system resources to specific Linux processes.

Use DTrace to identify performance bottlenecks.

Configure the Oracle Cluster File System.

Use new technologies, including Linux Containers.

### Benefits To You

After taking this course, you will be equipped to use the advanced features of Oracle Linux to get the most out of your systems and applications. Discover how to take advantage of XFS, which improves file system performance, and Btrfs, with its data integrity, copy-on-write, and snapshotting functionality. You'll also learn how to use Control Groups and Linux Containers to increase your resource utilization by creating secure, isolated environments on a single host.

### Gain Hands-On Experience

Extensive hands-on practices will guide you through each concept. You will install different types of file systems, including OCFS2, XFS, and Btrfs. You will also experience how to share storage devices across multiple systems, allocate system resources such as CPU, memory, network and I/O bandwidth to critical processes.

### Audience

Data Center Manager

Network Administrator

Support Engineer

System Administrator

System Integrator

### Related Training

*Required Prerequisites*

## Course Objectives

Configure network addressing and authentication services

Configure Apache web services

Automate installation using Kickstart

Create and use Btrfs file systems

Create and use XFS file systems

Configure resource management using Control Groups (cgroups)

Configure operating system-level virtualization with Linux Containers (LXC)

Configure server virtualization with KVM

Configure iSCSI shared storage

Configure Device Mapper Multipathing

Create Udev rules for persistent device naming

Configure a shared disk cluster file system using Oracle Cluster File System Version 2 (OCFS2)

Collect and analyze core dumps

Explore your system using Dynamic Tracing (DTrace)

Configure and use SELinux

Perform advanced software package management

## Course Topics

### Course Introduction

Course Goals

Schedule

Virtualization with Oracle VM Server for x86

Classroom System Configuration

Local Yum Repository

### Network Addressing and Name Services

Introduction to DHCP

Configuring a DHCP server

Configuring a DHCP client

Introduction to DNS  
BIND  
Zone Files  
Reverse Name Resolution  
The host and dig utilities

### **Authentication and Directory Services**

Authentication configuration tool  
NIS Authentication  
Introduction to LDAP  
OpenLDAP  
Configuring LDAP Authentication  
Configuring Winbind authentication  
Configuring Kerberos Authentication  
System Security Services Daemon (SSSD)

### **Web and Email Services**

Apache HTTP server  
Configuring Apache  
Apache Containers  
Apache Virtual Hosts  
Email Program Classifications  
Email Protocols  
Postfix SMTP Server  
Sendmail SMTP Server

### **Installing Oracle Linux using Kickstart**

Kickstart Installation Method  
Kickstart File  
Kickstart Configurator  
Beginning a Kickstart Installation  
Rescue Mode

### **Samba Services**

Introduction to Samba  
Samba Daemons and Services  
Samba Server Configuration  
Accessing Linux Shares from Windows  
Accessing Windows Shares from Linux  
Samba Utilities

### **Advanced Software Package Management**

Software Management with RPM and Yum  
The Binary RPM Build Process  
Managing RPM-Based Software with Yum  
Yum Cache  
Yum History  
Extending Yum Functionality with Plug-Ins  
PackageKit Software Package Manager GUI

### **Advanced Storage Administration**

Access Control Lists (ACLs)

The getfacl and setfacl Utilities

Enabling Disk Quotas

Encrypted Block Devices

The cryptsetup command

The kpartx Utility

Udev: Introduction

The udevadm Utility

## **OCFS2 and Oracle Clusterware**

OCFS2: Introduction

OCFS2 Features

Using OCFS2

The o2cb Utility

OCFS2 Heartbeat

The o2cb Initialization Script

OCFS2 Tuning and Debugging

Introduction to Oracle Clusterware

## **iSCSI and Multipathing**

Introduction to iSCSI

iSCSI Target

iSCSI Initiators

iSCSI Discovery

iSCSI Initiator Sessions

iSCSI Block Devices

Device Mapper Multipathing

iSCSI Multipathing

## **Implementing the XFS File System**

Introduction to XFS File System

Creating an XFS File System

The xfs\_growfs and xfs\_admin Utilities

Enabling Disk Quotas on an XFS File System

The xfs\_quota Utility

Backing up and Restoring XFS File Systems

The xfsdump and xfsrestore Utilities

XFS File System Maintenance

## **Implementing the Btrfs File System**

Btrfs: Introduction

Creating a Btrfs File System

Btrfs Subvolumes and Snapshots

Btrfs filesystem Utilities

Btrfs device Utilities

Btrfs scrub Utilities

Converting Ext File Systems to Btrfs

UEK Boot ISO

## **Managing Resources with Control Groups (cgroups)**

Control Groups: Introduction

Cgroup Subsystems (Resource Controllers)

Cgroup Subsystem Parameters

## Cgroup Configuration Rules and Constraints

Assigning Processes to a Cgroup

Cgroup Rules Configuration File

Enabling PAM to Use Cgroup Rules

Getting Information About Cgroups

## **Virtualization with Linux**

Virtualization Concepts

Virtualization Modes

Linux and Xen Integration

KVM

libvirt

Virtual Networks

Creating Virtual Machines

Managing the Life Cycle of a Virtual Machine

## **Virtualization with Linux Containers**

Linux Containers: Introduction

Linux Container Resource Isolation

Linux Container Configuration File

Linux Container Template Scripts

Ixc-oracle Container Template

Starting and Stopping a Container

Linux Container Utilities

Creating a Linux Container from an Existing root file system

## **Security Enhanced Linux (SELinux)**

Introduction to SELinux

SELinux Administration GUI

SELinux Modes

SELinux Policies

SELinux Booleans

SELinux File Labeling

SELinux Context

SELinux Users

## **Core Dump Analysis**

System Core Collection: Kexec and Kdump

Kdump Setup Configuration GUI

netdump Utility

Kernel Tuning Parameters

Magic SysRq Keys

crash Utility

kernel-debuginfo RPM Packages

General Guidelines for Using crash

## **Dynamic Tracking with DTrace**

DTrace: Introduction

Reasons to Use DTrace on Linux

DTrace-Enabled Applications

DTrace Probes

DTrace Providers

DTrace Actions  
Built-in D Variables  
D Scripts