

## Oracle Linux 7: Advanced Administration Ed 1

**Duration:** 5 Days

### What you will learn

This Oracle Linux 7: Advanced Administration training is ideal for experienced administrators who need to learn more about Oracle Linux 7. You'll learn how to configure networking services and authentication services, implement virtualization technologies to more effectively manage system resources, perform advanced storage administration tasks, implement shared storage technologies, and develop advanced troubleshooting skills. In this course, you will be introduced to the Oracle IaaS Cloud Solution.

### Learn To:

- Configure DNS, DHCP, HTTP, Samba, and other network services.
- Configure LDAP, PAM, and other authentication services.
- Automate installation using Kickstart.
- Recover from boot errors.
- Use advanced package management features.
- Configure network bonding, VLANs, and VPNs.
- Implement Linux Containers, Docker, KVM and other virtualization services.
- Allocate system resources to specific Linux processes.
- Use DTrace to identify performance bottlenecks.
- Configure iSCSI, device multipathing, and OCFS2.
- Gain an understanding of the Oracle IaaS Cloud Solution.

### Benefits to You

After taking this course, you will be equipped to use the advanced features of Oracle Linux 7 to get the most out of your systems and applications. You'll learn how to automate Oracle Linux installations and implement networking and authentication services to facilitate the management of a large number of systems. You'll also learn how to use Control Groups, Linux Containers, Docker, and KVM to increase your resource utilization by creating secure, isolated environments on a single host. Become familiar with advanced storage features, including encrypted file systems, disk quotas, iSCSI, device multipathing, and the OCFS2 file system to better use your storage resources.

### Gain Hands-On Experience

Extensive hands-on practices will guide you through each concept. You will configure network services and authentication services, configure network storage, shared file system types, and device multipathing. You will also configure different virtualization technologies to better utilize system resources such as CPU, memory, network and I/O bandwidth, and to allocate these system resources to critical processes.

### Audience

Administrator  
System Integrator

## Related Training

### *Required Prerequisites*

Student should be able to Install Oracle Linux 7

Students should be knowledgeable with Disk partitioning and creation and maintenance of Linux file systems & Software package installation

Students should be knowledgeable with User and Group administration & Security administration using firewalld

Students should be knowledgeable with the systemd system & service manager and Network interface configuration files and network configuration

Oracle Linux 7: System Administration Ed 1

### *Suggested Prerequisites*

Oracle Linux 5 & 6 Advanced Administration

Oracle Linux 5 & 6 System Administration

Oracle Linux 5 & 6 System Administration Ed 3

## Course Objectives

Explore your system using Dynamic Tracing (DTrace)

Configure server virtualization with KVM

Configure network addressing and authentication services

Configure Apache web services

Automate installation using Kickstart

Configure resource management using Control Groups (cgroups)

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

Configure application containers with Docker

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

Configure and use SELinux

Perform advanced software package management

Gain an understanding of the Oracle IaaS Cloud Solution

## Course Topics

### Course Introduction

Virtualization

Elements of course environment

Course structure

### Network Addressing and Name Services

Introduction to DHCP

Configuring a DHCP server

Configuring a DHCP client

Introduction to DNS

DNS Nameserver types

Configuring a DNS Cache-Only Nameserver

Configuring an Authoritative Nameserver  
Querying a DNS Nameserver

### **Authentication and Directory Services**

Introduction to authentication and directory services  
Configuring LDAP authentication  
Configuring Winbind authentication  
Configuring Kerberos authentication  
Configuring IPA Identity Management and Authentication Services  
Configuring SSSD services and domains

### **Pluggable Authentication Modules (PAM)**

Introduction to PAM  
PAM Configuration Files  
PAM Authentication Modules  
PAM Module Types  
PAM Control Flags  
PAM implementation examples

### **Web and Email Services**

Introduction to the Apache HTTP server  
Configuring Apache  
Email Program Classifications  
Email Protocols  
Postfix SMTP Server  
Sendmail SMTP Server  
Configuring Sendmail on a Client

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

Introduction to the Kickstart installation method  
Creating the the Kickstart file  
Starting a Kickstart installation  
Booting into Rescue mode to correct boot problems

### **Samba Services**

Introduction to Samba  
Samba Server Configuration  
Samba Server Types  
Accessing Linux Shares from Windows  
Accessing Windows Shares from Linux

### **Advanced Software Package Management**

Software Management with RPM and Yum  
Performing a binary RPM build  
Performing package maintenance with Yum  
Managing the Yum cache and Yum history  
Installing and use Yum plug-ins  
Using the PackageKit GUI

### **Advanced Storage Administration**

Creating Access Control Lists (ACLs)  
Enabling Disk Quotas

Configuring Encrypted Block Devices

Using kpartx

Introduction to udev

Creating udev rules

### **Advanced Networking**

Introduction to Network Bonding

Configuring Network Bonding

Introduction to VLANs

Configuring VLANs

Introduction to VPNs

Configuring a Site-to-Site VPN

### **OCFS2 and Oracle Clusterware**

Introduction to OCFS2

Configuring OCFS2

OCFS2 Tuning and Debugging

Introduction to Oracle Clusterware

### **iSCSI and Multipathing**

Introduction to iSCSI

Configuring iSCSI Targets

Configuring iSCSI Initiators

Introduction to Device Mapper Multipathing

Configuring iSCSI Multipathing

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

Introduction to Control Groups

Control Group Implementation in Oracle Linux 7

systemd slice units

systemd scope units

Displaying the Cgroup Tree of Specific Services and Scopes

Viewing cgroup Resource Control Settings

Controlling Access to System Resources

Modifying Unit Configuration Files

### **Virtualization with Linux**

Virtualization Concepts

Virtualization Modes

Linux and Xen Integration

Running Linux in a Virtual Machine

Linux as a Virtualization Provider

Introduction to KVM

Creating a KVM Virtual Machine

Managing the Life Cycle of a Virtual Machine

### **Virtualization with Linux Containers**

Introduction to Linux Containers

Linux Container template scripts

Creating a Linux Container by using the Oracle template script

Working with Linux Containers

## **Docker**

Introduction to Docker

The Docker Hub Registry

Installing and Configuring Docker

Working with Docker Images and Docker Containers

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

Introduction to SELinux

SELinux Modes

SELinux Policies

SELinux Booleans

SELinux File Labeling

SELinux Context

SELinux Users

## **Core Dump Analysis**

System Core Collection: Kexec and Kdump

Kernel Tuning Parameters

Magic SysRq Keys

Using the crash Utility

## **Dynamic Tracking with DTrace**

Introduction to DTrace

DTrace-Enabled Applications

DTrace Probes

DTrace Providers

DTrace Actions

Built-in D Variables

D Scripts

## **Oracle Cloud Computing**

Overview of the different Oracle Cloud Solutions

Oracle-Provided Linux Images on the Cloud

Workflow to Create Your First Oracle Linux Instance on the Cloud

Create an Entire Virtualized Topology Using Orchestrations JSONs