

## 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.

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.

### 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

Data Center Manager  
Network Administrator

Support Engineer  
System 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 firewall

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

## Course Objectives

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

Explore your system using Dynamic Tracing (DTrace)

Configure and use SELinux

Perform advanced software package management

## 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