

## OIT-L7-AA: Oracle Linux 7: Advanced Administration

Course Code: OIT-L7-AA

Duration: 5 days

Instructor-led Training (ILT) | Virtual Instructor-led Training (VILT)

### OVERVIEW

This course is best suited for experienced administrators who are required to understand and learn more about advanced features of Oracle Linux. After completing this course, students will be able to learn how to set up network and authentication services, execute virtualization technologies to more efficiently administer system resources, and deploy new types of file systems to enhance performance and improve data integrity, while creating troubleshooting and advanced storage administration skills.

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.

### SKILLS COVERED

- 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.

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.

### WHO SHOULD ATTEND?

This course is best suited for Data Center Managers, Network Administrators, Support Engineers, System Administrators, and System Integrators.

### PREREQUISITES

- Oracle Linux System Administration.

### MODULES

#### Module 1: Course Introduction

- Virtualization

- Elements of course environment
- Course structure

- Sendmail SMTP Server
- Configuring Sendmail on a Client

### **Module 2: 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

### **Module 3: 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

### **Module 4: Pluggable Authentication Modules (PAM)**

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

### **Module 5: Web and Email Services**

- Introduction to the Apache HTTP server
- Configuring Apache
- Email Program Classifications
- Email Protocols
- Postfix SMTP Server

### **Module 6: 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

### **Module 7: Samba Services**

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

### **Module 8: 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

### **Module 9: Advanced Storage Administration**

- Creating Access Control Lists (ACLs)
- Enabling Disk Quotas
- Configuring Encrypted Block Devices
- Using kpartx
- Introduction to udev
- Creating udev rules

**Module 10: Advanced Networking**

- Introduction to Network Bonding
- Configuring Network Bonding
- Introduction to VLANs
- Configuring VLANs
- Introduction to VPNs
- Configuring a Site-to-Site VPN

**Module 11: OCFS2 and Oracle Clusterware**

- Introduction to OCFS2
- Configuring OCFS2
- OCFS2 Tuning and Debugging
- Introduction to Oracle Clusterware

**Module 12: iSCSI and Multipathing**

- Introduction to iSCSI
- Configuring iSCSI Targets
- Configuring iSCSI Initiators
- Introduction to Device Mapper Multipathing
- Configuring iSCSI Multipathing

**Module 13: Managing Resources with Control Groups (cgroups)**

- Introduction to Control Groups
- Control Group Implementation in Oracle Linux 7
- Systemd slice units and 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

**Module 14: 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

**Module 15: 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

**Module 16: Docker**

- Introduction to Docker
- The Docker Hub Registry
- Installing and Configuring Docker
- Working with Docker Images and Docker Containers

**Module 17: Security Enhanced Linux (SELinux)**

- Introduction to SELinux
- SELinux Modes
- SELinux Policies
- SELinux Booleans
- SELinux File Labeling
- SELinux Context
- SELinux Users

**Module 18: Core Dump Analysis**

- System Core Collection: Kexec and Kdump
- Kernel Tuning Parameters
- Magic SysRq Keys
- Using the crash Utility

**Module 19: Dynamic Tracking with DTrace**

- Introduction to DTrace
- DTrace-Enabled Applications

- DTrace Probes
- DTrace Providers
- DTrace Actions
- Built-in D Variables
- D Scripts

### **Module 20: 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

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