

## Oracle Linux 7: System Administration Ed 1

**Duration:** 5 Days

### What you will learn

The Oracle Linux 7: System Administration training helps you develop a range of skills, including installation, using the Unbreakable Enterprise Kernel, configuring Linux services, preparing the system for the Oracle Database, monitoring and troubleshooting. Work with expert Oracle University instructors to develop expertise using this solution to benefit your business.

Learn To:

Enable kernel features.

Set up users and groups.

Configure system logging, the boot process, the network and storage.

Install additional software packages.

Keep the kernel up to date by using Ksplice.

Understand how implementing Ksplice gives you zero down time kernel updates.

Configure services such as NTP, NFS, FTP, OpenSSH, firewalls and iptables.

### Benefits to You

By taking this course, you'll walk away with the knowledge and skills to handle typical issues faced by administrators, while understanding the kernel development model and Linux distributions. Become more familiar with how Oracle Linux brings you the latest Linux innovations, delivering extreme performance, advanced scalability and reliability for enterprise applications and systems.

### Audience

Database Administrators

Support Engineer

System Administrator

Technical Consultant

### Related Training

#### *Required Prerequisites*

Archiving and compressing files in Unix & Performing remote connections and file transfers

Text editing using vi & Unix process control

Types of user accounts & Working with files and directories in Unix

Unix shell command line features & Basic shell scripting

UNIX and Linux Essentials

### **Course Objectives**

Install Oracle Linux 7

Load and configure the Unbreakable Enterprise Kernel

Install software packages from Unbreakable Linux Network and other repositories

Use Ksplice to update the kernel on a running system

Configure system logging

Load kernel modules and configure kernel module parameters

Perform User and Group administration

Create Ext, XFS, and Btrfs file systems

Maintain swap space

Use Logical Volume Manager (LVM)

Configure RAID devices

Configure File Sharing services (NFS, FTP, OpenSSH)

Perform Security Administration (firewalld, iptables, chroot, TCP wrappers)

Prepare Oracle Linux system for Oracle database

Troubleshoot problems and perform corrective action

### **Course Topics**

#### **Course Introduction**

Virtualization

Elements of course environment

Course structure

#### **Introduction to Oracle Linux**

Development of Linux Kernel

Linux kernel development model

Linux distributions

Oracle's commitment to the success of Linux

Oracle's technical contributions to the Linux community

Oracle's Unbreakable Enterprise Kernel (UEK)

## **Installing Oracle Linux 7**

- Obtaining Oracle Linux 7
- Oracle Software Delivery Cloud
- Anaconda installer
- Installation steps
- Firstboot tool

## **Oracle Linux 7 Boot Process**

- Oracle Linux 7 boot process
- GRUB 2 bootloader
- kernel boot parameters
- systemd system and service manager
- systemd service units
- The systemctl utility
- systemd target units

## **System Configuration**

- Configuring system date time
- Using Network Time Protocol (NTP)
- Configuring NTP by using Chrony
- System configuration files
- The proc filesystem
- The sysfs filesystem
- The sysctl utility

## **Package Management**

- Introduction to Oracle Linux package management
- The rpm utility
- Oracle Public Yum server
- Yum configuration
- The yum utility
- Oracle Unbreakable Linux Network (ULN)
- ULN channels
- Switching from RHN to ULN

## **Ksplice**

- Introduction to Ksplice
- How Ksplice works
- Ksplice implementation
- Ksplice packages on ULN
- Using Ksplice Uptrack
- Ksplice Uptrack command summary
- Ksplice Offline Client

## **Automate Tasks**

- Automating system tasks
- Configuring cron jobs
- Other cron directories and files
- The crontab utility
- Configuring anacron jobs

The at and batch utilities

## **Kernel Module Configuration**

Loadable Kernel Modules (LKM)

Using the lsmod utility

Using the modinfo utility

Loading and unloading kernel modules

Using the modprobe utility

The insmod, depmod, and rmmod utilities

ASM Cluster File System (ACFS) and ASM Dynamic Volume Manager (ADVM) drivers

Kernel module parameters

## **User and Group Administration**

User and group configuration files

Adding a user account

Modifying and deleting user accounts

Group account administration

User Private Groups (UPG)

Password configuration

User Manager Tools

su and sudo commands

## **Partitions, File Systems, and Swap**

Disk Partitions

Partition Table Manipulation Utilities

File System Types

Making Ext File Systems

Mounting File Systems

The /etc/fstab File

Swap Space

## **Implementing the XFS File System**

XFS: Introduction

Creating an XFS File System

The xfs\_growfs utility

The xfs\_admin utility

Enabling disk quotas

The xfs\_quota utility

Backing up and restoring XFS File Systems

XFS File Systems Maintenance

## **Implementing the Btrfs File System**

Btrfs: Introduction

Creating a Btrfs File System

The btrfs utility

Btrfs Subvolumes and Snapshots

Mounting a Subvolume or Snapshot

Btrfs File Systems Maintenance

Converting Ext File Systems to Btrfs

## **Storage Administration**

Logical Volume Manager

- Physical Volume Utilities
- Volume Group Utilities
- Logical Volume Utilities
- Backing up and restoring volume group metadata
- LVM Thin Provisioning
- The snapper utility
- Configuring RAID devices

### **Network Configuration**

- Network interface file naming
- Network configuration files
- Starting the Network Service
- The ethtool utility
- NetworkManager
- The nmcli utility
- The ip utility

### **File Sharing**

- NFS server configuration
- The /etc/exports file
- Starting the NFS services
- The exportfs utility
- NFS client configuration
- Automounting filesystems
- vsftpd configuration options

### **OpenSSH Service**

- OpenSSH configuration
- Using OpenSSH utilities
- The ssh, scp, and sftp utilities
- Using the ssh-keygen utility
- Connecting to a remote system without supplying a password
- Using ssh-agent
- Using ssh-add

### **Security Administration**

- The chroot utility
- Implementing a chroot jail
- Packet-filtering firewalls
- The firewalld service
- The firewall-config utility
- The firewall-cmd utility
- The iptables service
- TCP wrappers

### **Oracle on Oracle**

- Oracle software user and group accounts
- System resource tuning and network tuning
- Linux shared memory kernel parameters
- Semaphores kernel parameter
- File handles and Asynchronous IO (AIO) kernel parameter
- Oracle-related shell limits

Configuring HugePages  
Oracle ASM

## **System Monitoring**

The sosreport utility

The iostat, mpstat, vmstat, sar, top, iotop, strace, netstat, and tcpdump utilities

Wireshark GUI and tshark CLI

OSWatcher Black Box (OSWbb)

OSWatcher Analyzer (OSWbba)

Enterprise Manager Ops Center

Spacewalk

## **System Logging**

System Logging: Introduction

rsyslog configuration

Facility/Priority-based filters

rsyslog Actions and Templates

Configuring logrotate

Use logwatch

Introduction to journald

The journalctl utility

## **Troubleshooting**

Two-phased approach to troubleshooting

Operating system logs

The dmesg utility

Troubleshooting resources

Problem causes

Boot problems

NFS problems