

## Linux

### 1. Getting started with Red Hat Enterprise Linux Enterprise Linux

- Introduction and History of UNIX & Linux
- Differences between centos, red hat enterprise linux & fedora
- Difference between UNIX & LINUX
- Describe and define open source, Linux distributions, and Red Hat Enterprise Linux

### 2. Downloading, Installing and Understanding Booting Process of OS - Redhat Linux

- download the virtual box and installing in your systems
- downloading and installing Redhat linux
- understanding and deep dive into
- POST, BIOS(UEFI), MBR, GRUB(GRUB2), SYSTEMD(initd), RUNLEVELS(TARGET)
- understanding and deep dive into Linux architecture, kernel, interpreter, shells, memory

### 3. Linux FSH (File System Hierarchy)

- understanding and deep dive into FSH

### 4. Access the command line

- Log into a Linux system and run simple commands using shells
- understanding the terminals (TTY's) using the shell
- identifying the shells and usage of shells

### 5. Manage files from the command line

- Copy, move, create, delete, and organize files while working from the bash shell
- understanding the commands to create, move, create, delete, sorting with commands by recursively and forcefully head, more, less, tail, cat commands
- Use input-output redirection

### **6. Get help in Red Hat Enterprise Linux**

- Resolve problems by using local help systems
- help , man commands understanding
- technical os support from enterprises linux

### **7. Create, view, and edit text files**

- Manage text files from command output or in a text editor.
- understanding the vi, vim, gedit, nano editors and their modes
- understanding the inode

### **8. Symbolic links or Backup Methods**

- understanding the hard link and soft links

### **9. Manage local users and groups Managment**

- Create, manage, and delete local users and groups, as well as administer local password policies
- understanding the commands useradd, userdel, usermod, groupadd, groupdel, groupmod, Passwd, gshadow commands and their policies implementation
- switching users and accessing the shells

### **10. Control access to files**

- Set Linux file system permissions on files and interpret the security effects of different permission settings
- understanding the commands chmod, chown, setfacl, getfacl, sticky bits

### **11. Monitor and manage Linux processes**

- Evaluate and control processes running on a Red Hat Enterprise Linux system.
- understanding the top, ps, lscpu commands

### 12. Control services and daemons

- Control and monitor network services and system daemons using systemd.
- understanding the systemctl, service commands (status, start, stop, restart, enable modes)

### 13. Configure and secure SSH

- Configure secure command line service on remote systems, using OpenSSH.
- SSH authentication by using asymmetric method by generating the public key and private key password less authentication modes
- SSH password authentication mode
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### 14. File and Folder Transfer and downloading from linux -linux, linux-windows, linux-mac (viceversa)

- understanding SFTP, SCP, Rsync commands
- understanding the winscp and filezilla
- understanding the wget and curl commands

### 15. Analyze and store logs

- Locate and accurately interpret logs of system events for troubleshooting purposes.
- understanding the system logs, user logs etc
- 16. Manage networking
- Configure network interfaces and settings on Red Hat Enterprise Linux servers.
- understanding iptables, netstat, telnet, ss, ifconfig, nslookup, dig commands

### 17 Archive and transfer files

- Archive and copy files from one system to another.
- understanding the zip, gunzip, bzip, archive(tar) commands

### 18. Searching the Contents in linux

- understanding the grep, locate, find commands

### **19 Install and update software packages**

- Download, install, update, and manage software packages from Red Hat and DNF package repositories.
- understanding the rpm, yum, wget commands

### **20. Access Linux files systems**

- Access, inspect, and use existing file systems on storage attached to a Linux server.
- Understanding the fstab, mtab, blkid commands

### **21. Analyse servers and get support**

- Investigate and resolve issues in the web-based management interface, getting support from Red Hat to help solve problems.

### **22. Comprehensive review**

- Review the content covered in this course by completing hands-on exercises.

### **1. Schedule future tasks**

- Understanding the cron jobs, crons, anacron, crontab,

### **3. Tune system performance**

- Understating the system, memory, IOstat, Network
- Understanding the /proc and top and ps
- Understanding the virtual memory, system activity reported , iostat,

### **4. Manage SELinux security**

- Understating the selinux importance in linux
- Implementing the selinux modes target, permissive, enabled, disabled, enforcing

### **5. Maintain and manage basic storage**

- Understanding the File system and file system types ext2,ext3,ext4 and

- xfs,btrfs,etc
- Hard disk storage partition and formatting
- Understanding the LVM, creating, resizing, extending, LVM

## AWS

### 1 : Introduction to AWS

- Navigate the AWS Management Console
- Recognise AWS Global Infrastructure
- Describe the security measures AWS provides
- Create an Amazon EC2 instance
- Remotely connecting to an EC2 instance
- Setting up Amazon Linux and Apache web server
- Browsing Amazon Machine Images (AMI)
- Specifying security groups and key pairs
- Creating new images off of running instances

### 2: AWS Storage

- Identify key AWS storage options
- Describe Amazon EBS
- Use Amazon EBS with Amazon EC2
- Working with Volumes and snapshots
- Transmitting data in/out of the Amazon cloud

### 3: Installing Software in your Amazon Instance

- Implementing a Web server in an Amazon Linux/Windows Instance
- Configure the firewall to access a Web server

### 4: Security in Public Cloud

- Security issues in Public Cloud
- Securing the Access : Creating a RSA Public/Private Key for VMs
- Creating a software firewall
- Configuring firewall rules
- Securing the access with an Elastic IPs
- Managing users with Identity Access Management (IAM)

### **5: Alternate access**

- Using EC2 Command Line APIs [from Windows/Linux machines]

### **6: Simple Notification Services [to be seen along with Auto Scaling]**

- Using SNS to send Notifications

### **7: Amazon S3 Basics**

- Creating Buckets
- Creating Folders
- Uploading Objects
- Making Objects Public
- Creating Buckets
- Securing Bucket/Object access
- Configuring a Bucket as Static Web Page
- Controlling Life Cycle of a Bucket
- Accessing Amazon Buckets from Windows/Linux desktops/Servers

### **8: AWS-RDS**

- Overview of AWS RDS
- Launching a MySQL Database in RDS
- Creating Backups/Snapshots and Read Only DBs
- Connecting to RDS-DB using local DB-Clients
- Terminating a DB instance

### **9: AWS-IAM**

- Creating Groups and Defining access policy
- Creating Users
- Login to AWS account using new users

### **10: Installing Software in your Amazon Instance**

- Implementing a Web server in an Amazon Linux/Windows Instance
- Configure the firewall to access a Web server

### **11: Load-balancing with EC2 and Auto Scaling**

- Creating and using Load Balancers
- Distributing incoming traffic with elastic load balancing
- Dynamically adding and removing instances with Auto Scaling

### **12: Cloud Watch to be seen along with Auto Scaling**

- Overview of Monitoring and Setting Alarms
- Visualizing utilization metrics with Cloud Watch
- Setting alarms to send and receive notifications

### **13: Virtual Private Cloud**

- Create a VPC [VPC with a Single Public Subnet]
- Create and attach an Internet gateway
- Create an Amazon VPC subnet
- Set up routing in the VPC
- Set up a security group to control the inbound and outbound traffic
- Launch an instance into the subnet
- VPC console to allocate an Elastic IP address and assign it to the instance
- Amazon EC2 console to terminate your instance and the Amazon VPC console to
- delete your VPC

### **14: AWS-CloudFront**

- Concepts of AWS-CloudFront
- Host a Website with CloudFront

### **15: AWS-Route53**

- Creating a Failover setup for Load Balancers running in different AWS regions
- [users need to have a registered Domain]
- Health Check a private website

### **16 : AWS-Cloud Trial**

- Using Cloud Trial to trail the API Calls

### **17: AWS System Manager**

- Run command
- Compliance
- Patch Manager

### **18: AWS Cost Management**

- AWS Cost Explorer
- AWS Budgets
- AWS Marketplace Subscriptions

## **DEVOPS**

**1: Devops Lab Setup tools for Linux and windows Environment**

**2: Introduction to Devops and Dev sec ops**

**3: Introduction to SDLC , Software testing , Agile : Software testing lifecycle**

**4: Agile Methodologies:**

**5: LINUX Administration**

**6: Installation and Initialization:**

**7: Boot and Package Management:**

**8: User Administration:**

**9: Run levels:**

### **Version Control/ SCM(Git)**

- 1: Introduction to Git

### **Ansible Modules.**

- 1: Introduction to Ansible
- 2: Ansible Building blocks and Process flow
- 3: Ansible Playbook Modules and directory structure
- 4: Variable, Facts and jinja2 templates
- 5: Play and Playbooks



### Docker Modules

- 1: Getting Started with Docker
- 2: Docker Installation
- 3: Docker Images
- 4: Docker Networking
- 5: Container Operations
- 6: Docker Compose

### Jenkins Modules

- 1: Introduction to Continuous Integration and Jenkins-CI/CD
- 2: Jenkins Installation
- 3: Configure Jenkins and User Management.
- 4: Jenkins jobs setup
- 5: Jenkins Integration
- 6: Jenkins User administration

### Maven Modules

- Build Tolls overview
- Customized Project and plugin setup
- Maven Repositories and GAV snapshots.

### Complete guide to Kubernetes

- Introduction to Kubernetes
- Key Concepts of Kubernetes
- Setting up Environment
- Building blocks of Pods
- Managing Application Configurations with ConfigMaps and Secrets
- Setting up Firewall with Network Policies

## Shell Scripting

### Introduction

- Kernel
- Shell
- How to use Shell
- Common Linux Command Introduction
- Linux commands related to the process
- Redirection of Standard output/input
- Redirectors
- Pipes & Filters
- How to Run Shell Scripts
- Quotes in Shell Scripts
- Shell Arithmetic
- Command Line Processing (Command Line Arguments)
- Exit Status
- Filename Shorthand or meta Characters (i.e. wild cards)

## Python Programming

### Introduction

- What is Python and history of Python
- Unique features of Python
- Python-2 and Python-3 differences
- Install Python and Environment Setup
- First Python Program
- Python Identifiers, Keywords and Indentation.
- Comments and document Command-line arguments
- Getting User Input
- Python Data Types
- What are variables?
- Python Core objects and Functions
- Number and Maths
- Assignments

### CONTROL STATEMENTS

- If-Else
- If-Else If-Else
- While Loop
- For Loop
- Break
- Continue
- Assert
- Pass
- Return

### LIST, RANGES & TUPLES IN PYTHON

- Introduction
- Lists in Python
- More about Lists
- Understanding Iterator's
- Generators, Comprehensions and Lambda Expressions
- Generators and Yield
- Next and Ranges
- Understanding and using Ranges
- More About Ranges
- Ordered Sets with tuples

### PYTHON DICTIONARIES AND SETS

- Introduction to the section
- Python Dictionaries
- More On Dictionaries
- Sets
- Python Sets Examples
- Input and Output in Python
- Reading and writing text files
- Writing Text Files
- Appending to Files and Challenge
- Writing Binary Files Manually
- Using Pickle to Write Binary Files

### PYTHON BUILT IN FUNCTION

- Python user defined functions
- Python packages functions
- Defining and calling Function
- The anonymous Functions
- Loops and statement in Python
- Python Modules & Packages

**\*Thank You\***