

## **SECTION1: INTRODUCTION OF LINUX**

- What is Linux?
- Why Linux is better?
- Flavors of Linux
- Why RHEL?
- Linux in Cloud
- Linux Architecture
- user, shell and kernel

## **SECTION2: INSTALLING RHEL WITH MINIMAL AND GUI**

- File system hierarchy standards (FHS)
- Difference between root and normal user
- Downloading, Installing, Configuring VMware workstation or virtual Box on Windows
- Create a Red hat Virtual machine
- Installing RHEL

## **SECTION3: OPERATING RUNNING SYSTEMS**

- Basic Commands
- Managing files and directories
- File Compressions
- Filter Commands
- Advanced Filters: sed, grep, find, piping
- Links
- Vi / Vim Editor

## **SECTION4: PROCESS MANAGEMENT**

- What is a process?
- Process states
- Running processes with background and foreground
- Adjust process priority and kill process
- Process States and Zombies
- Monitoring the current system
- Automating System Tasks: at, batch, crontab

## **SECTION5: MANAGE USERS AND GROUPS**

- Managing Users
- User properties and where are they stored on the system.
- Understanding /etc/passwd, /etc/group, /etc/shadow and /etc/shadow
- Change password and Password aging policies
- Managing Groups
- User account Initializations
- User configuration file
- Sudo configurations for users and groups

## **SECTION6: FILE PERMISSIONS**

- What is a permission?
- Types of permissions
- Access Levels
- What is a umask?
- Changing permissions with chmod
- What is chgrp?
- What is chown?
- Group collaborations with SUID, SGID and STICKY BIT

## **SECTION7: PACKAGE MANAGEMENT PART-1**

- What is RPM
- Overview of RPM and YUM
- Installing, Erasing and Update a software with RPM
- RPM queries
- RPM verifications
- Major and Minor Patches
- Kernel Up gradation

## **SECTION8: PACKAGE MANAGEMENT PART-2**

- Yum packet manager
- Managing Repositories
- Configuring Local Repositories
- Configuring Local Repository: Configuring the GPG Key
- Difference between RPM and YUM
- Sudo configurations for users and groups
- Global repository

## **SECTION9: THE KERNEL**

- What is kernel
- Kernel overview
- Kernel module
- Configuring kernel parameters
- Kernel up gradation
- Update the kernel package Appropriately to ensure a bootable system

## **SECTION10: CONFIGURE LOCAL STORAGE (PARTITIONS)**

- Storage names in Linux
- Managing new disks
- List, Create and Delete Partitions on MBR and GPT Disks
- Building a file system on a new disk
- Mount, Unmount and use VFAT, EXT4 and XFS File systems
- Mounting local drives and pen drives
- Making file system persistent
- Virtual memory (swap) with file and partition

### **SECTION11: FILE SYSTEM SECURITY**

- What is ACL's?
- Create and Manage ACL's?
- Diagnose and Correct File permission Problems
- Encrypted File systems with LUKS
- What is quota?
- What are user and group quotas?

### **SECTION12: EXTENDING FILE SYSTEMS (LVM)**

- What is LVM?
- LVM Architecture overview
- LVM Components
- Extend existing Logical Volumes
- Extend volume group
- LVM Backups
- Managing LVM with GUI
- Troubleshooting LVM

### **SECTION13: SYSTEM INITIALIZATION**

- Boot sequence overview
- BIOS initialization
- Boot process steps
- Trouble shooting of grub boot loader
- Resetting root password
- Boot issues
- File system errors at boot
- MBR reset

### **SECTION14: DEPLOY, CONFIGURE AND MAINTAIN SYSTEMS**

- Configuring networking and hostname resolution Statically and Dynamically
- Configuring network Utilities
- Managing Networking with script files
- Start and Stop Services and configure services to start automatically at Boot
- Troubleshooting Network Connections
- Client DNS Troubleshooting
- Managing Firewalls

### **SECTION15: REMOTE CONNECTIONS**

- What is telnet?
- Configuring telnet and access remote server
- Telnet connection
- What is SSH?
- Establishing secure connection via SSH
- Installation and configuring SSH
- SSH password less Login
- SCP (Secure copying files between Hosts)
- WinSCP
- What is Putty?

## **SECTION16: DYNAMIC HOST CONFIGURATION PROTOCOL**

- Overview of DHCP
- Installing dhcp
- Configuring DHCP server
- Configuring DHCP Client in heterogeneous platform
- Configure fixed ip address

## **SECTION17: NETWORK TIME PROTOCOL**

- What is NTP?
- Introduction to CHRONY SUITE
- chrony Installation and Configuration
- Synchronize Time Using Other NTP Peers –Setup Local Time Server
- Synchronize Time Using Other NTP Peers –New Time Server
- Client time synchronization

## **SECTION18: NFS FILE SHARING**

- Types of File shares?
- NFSV4 Features
- NFS Server and Client
- NFS Server Installation and Configuration
- Mounting NFS share with Auto mounter
- SELinux Settings
- Provide Network Shares Suitable for Group Collaboration

## **SECTION19: SMB FILE SHARING**

- SAMBA Server Overview
- Difference between NFS & SMB?
- SAMBA Server and Client
- Network Shares to Specific clients
- SMB For Group Collaboration
- Mounting shares with fstab
- Access windows Users

## **SECTION20: FILE TRANSFER PROTOCOL**

- What is vsftpd?
- FTP Server Overview
- Types of FTP
- Installation and Configuration
- FTP Security
- FTP client commands

## **SECTION21: DOMAIN NAME SYSTEM**

- What is DNS?
- Understanding DNS Server
- Configuring caching only DNS Server
- Troubleshoot DNS Client Issues
- nslookup and dig commands

## **SECTION22: APACHE WEB SERVER (HTTP/HTTPS)**

- What are web servers?
- Understanding Apache Web Server
- Install and Configure Apache
- What is Virtual Hosting
- Different types of virtual hostings
- Configuring Private Directory
- Deploy CGI Application
- Web user authentication

## **SECTION23: PROXY SERVER WITH SQUID**

- Overview of squid proxy
- How to share internet
- What is web cache
- Configuring SQUID services
- Configuring ACL's in SQUID
- Restricting web sites

## **SECTION24: AUTOMATING INSTALLATION OF KICKSTART**

- Overview of Kickstart server
- Configure dhcp server
- Configure tftp, pxe boot server
- Configure httpd, kickstart configuration file
- Boot the client from the network

## **SECTION25: SHELL PROGRAMMING**

- What is a Shell?
- Types of shells
- Shell types
- When to use shell script?
- Script format Steps
- The first shell script
- Interactive shell script
- Shell keywords

## **SECTION26: SHELL VARIABLES**

- What is a variable?
- Variable types
- System defined variables
- Paths
- User defined variables
- Null variables
- Operators
- Types of operators
- Scripts examples

## **SECTION27: TAKING DECISIONS**

- If-then-fi statement
- If-then-else-fi statement
- Nested if-elses
- Use of logical operators
- The Test commands

## **SECTION28: LOOP CONTROL STRUCTURE**

- What is a loop?
- While loop
- Until loop
- The for loop
- The break statements
- The continue statement

## **SECTION29: POSITIONAL PARAMETERS**

- Command line arguments
- Positional parameter values
- Set keyword
- Setting values of positional parameters
- Shift on positional parameters
- Displaying date on desired format

## **SECTION30: FUNCTIONS**

- What is a function?
- Simple introduction to functions
- Scope of the variable.
- Returning a variable value
- Passing parameters to a function
- Positional parameters in functions

## **SECTION31: DEBUGGING SHELL SCRIPTS**

- What is Debugging?
- Fix bugs (errors)
- Built in debugging help

## **SECTION32: RESUME PREPARATION**

- Resume Overview
- Roles & Responsibilities
- Imp Concepts Overview

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