

Redhat

Industrial Advance Linux

Linux Contents:

Linux is an open source and community-developed operating system for computers, servers, mainframes, mobile devices and embedded devices. It is supported on almost every major computer platform including x86, ARM and SPARC, making it one of the most widely supported operating systems. Linux Certification is world no. 1 certification in open source family. It has two

- 1- RHCSA (Red hat Certified system Administrator)
- 2- RHCE (Red hat certified Engineer)

PART-1

RHCSA:

RHCSA is an entry-level certification that focuses on actual competencies at system administration, including installation and configuration of a Red Hat Enterprise Linux system and attach it to a live network running network services. An IT professional who has earned the Red Hat Certified System Administrator (RHCSA) is able to perform the core system administration skills required in Red Hat Enterprise Linux environments.

SECTION-1

Introduction to Linux:

- What is Linux
- Linux History
- Linux use in global world
- Difference between Windows, Linux and Unix
- Linux Distributions
- File System and Swap

Selection of Hardware:

- Ram
- Hard disk
- CPU
- Motherboard



Database Management:

- Hard disk size
- Hard disk Type

Linux Installation:

- Installation with Bootable Device / DVD
- Installation by Kikstart Method

Linux Installation:

- Installation with Bootable Device / DVD
- Installation by Kikstart Method

Section 2:-

Linux Structure:

- Linux directory structure
- Linux Partition Name
- Boot loader
- Kernel
- File Systems
- Shell
- Difference between Redhat 6 and Redhat 7/8

Linux Commands:

- Basic Commands
- Linux Shells
- Administrative commands
- Boot, reboot, and shut down the system normally

Input / Output Redirectors:

- >
- >>
- 2>
- &>
- 2>



Getting Help in Red Hat Enterprise Linux

- Learn “man” Terminology
- Learn Find Syntax and how to use Find
- Become Aware of The importance of less-noticed man section

User Management:

- Create, Delete and Modify Users
- Policies Implement on users
- Password Implement
- Password Aging, User login shell, User Home Directory, User Expiry

Group Management:

- Create, Delete and Modify Groups
- Put the Users on Primary and Secondary Groups
- Policies implement on Groups

Permissions:

- Local Permissions
- Admin Permissions
- Sudo
- Special Permission
- Ownership
- Attributes
- Permission on Groups
- List, Interpret, Change ugo / rwx

Backup Management:

- System Backup
- Backup compression and decompression
- Backup with date and time
- Backup and Restore

Network Configuration:

- Types of Interfaces
- NIC Management
- Old Naming Scheme of Interfaces
- Diagnose and correct misconfigured networking settings
- Diagnose and correct hostname resolution problems
- Use SSH and VNC to access remote systems



Software Management:

- Install and Remove the Software with RPM
- Management with the YUM Technology
- Repositories Concepts
- Repositories Management
- Create Local YUM Repository

Cron Job Management:

- Automation
- Scheduling the Programs and tasks
- Backdoor Jobs execute and modify

- **Security Management:**

- Linux Process Management
- ACL
- Boot Process
- Grub Password
- Run Levels
- Password Break and Grub Password
- Use single-user mode to gain access to a system if Root Password Forgot
- Boot systems into different run levels for troubleshooting
- Trouble Shoot of Linux with Linux Rescue
- Selinux Introduction
- Modes of Selinux
- Selinux Bolions
- Selinux Context
- Selinux Errors
- Firewall-d Configuration
- Firewall-d Services addition
- Securely Transfer Files Between Machines

Virtualization:

- Types of Hypervisors
- Add Module of Virtualization in Linux
- Installation of KVM
- Access KVM from GUI as well as from CMD

Shortcuts:

- Difference between Soft and Hard Link
- Soft Link
- Hard Link



Process Management:

Usable commands
Configure and Understand Netdata
Configure and Understand Monit
Process Priority
Logs

Disk Management:

Partition Tables
Standard Partition
LVM
Create and Resize PV, VG, LV
Disk Quota
Partition Table
Install bootloader and modify the system bootloader
Understand MBR-Style Partitions (Primary, Extended, Logical) list/create/delete partitions

LDAP Authentication:

Understand LDAP Authentication
Understand and Installation of Free IPA
Configure Client for Free IPA

PART-2

RHCSA:

The Red Hat Certified Engineer (RHCE) is a certification you can become a Red Hat Certified System Administrator (RHCSA). The RHCE certification shows that you have demonstrated the knowledge, skill and ability required of senior system administrator responsible for Red Hat Enterprise Linux systems. It has include more advanced topics such as security and installing common enterprise networking (IP) services.

VIM Editor:

- Explain the three main modes of “vim”
- Vim Editing and Modification Options



Network services:

- Network Bonding (NIC Teaming)
- Install the packages needed to provide the service
- Configure Selinux
- Configure the service to start when the system is booted
- Configure the service for basic operation
- Configure host-based and user-based security for the service

System Management:

- Alias
- Data Searching
- Disk Quota for Multiple File System
- Routing

Database Management:

- iSCSI Terminology
- Management of iSCSI on Linux with Linux and Windows Client

NTP (Network Time Protocol):

Network Time Protocol (NTP) is a protocol used to synchronize computer clock times in a network. It belongs to and is one of the oldest parts of the TCP/IP protocol suite. The term NTP applies to both the protocol and the client-server programs that run on computers.

- Install and Configuration of NTP Server
- Synchronize time using other NTP Peers
- Configure Windows and Linux Client as NTP Peer

NFS (Network File Service):

The Network File System (NFS) is client/server application that lets a computer user view and optionally store and update files on a remote computer as though they were on the user's own computer.

- Installation and configuration of NFS Server
- Creating Share for Linux and Unix Machines
- Access the share on Client Machine
- Access , Mount and unmount NFS Shares



NTP (Network Time Protocol):

LAMP is an open source Web development platform that uses Linux as the operating system, Apache as the Web server, MySQL as the relational database management system and PHP as the object-oriented scripting language. (Sometimes Perl or Python is used instead of PHP.)

- Installation and configuration
- Installation of Apache Server
- Installation of MariaDB
- Installation of PHP
- Install and Configure PHP My Admin
-

FTP (File Transfer Protocol):

An FTP Server is a piece of software that is running on a computer and uses the File Transfer Protocol to store and share files. Remote computers can connect anonymously, if allowed, or with a user name and password in order to download files from this server using a piece of software called a FTP Client.

- Installing and Configuration
- Anonymous User
- Real User
- Access with Browser and Client Software
- Create FTP Repository
-

SAMBA:

An open source implementation of the SMB file sharing protocol that provides file and print services to SMB/CIFS clients. Samba allows a non-Windows server to communicate with the same networking protocol as the Windows products.

- Installation and Configuration Samba Server & Client to share
- Creating samba Share
- Access Samba Share with win98 & WinNT, 2000, Windows 7,8,8.1,10
- Access Samba Share with Linux Client
- Windows As SMB Share Servers
- Policies Implementation on samba share
- Sharing printer through samba
- SWAT (Samba Web Administration tool)
- Permissions Implementation
- Provide network shares to specific clients
- Provide network shares suitable for group collaboration
- Install Antivirus for Samba Share Scanning
- Create Auto Script / Command for Samba Share Scanning By Antivirus
- FTP And SAMBA Integration
-



DNS (Domain Name Server):

The Internet's system for converting alphabetic names into numeric IP addresses. The main function of DNS is to translate domain names into IP Addresses, which computers can understand.

- How DNS Works and Learn DNS Route
- Installation and configuration
- DNS Record Types
- DNS Types
- Ayana Major 13 Root Servers
- Forwarder DNS
- Caching Only DNS
- Create Forward and Reverse Zones
- Slave DNS Concept
- Configure a caching-only name server
- Configure a caching-only name server to forward DNS queries
-

DHCP (Dynamic Host Configuration Protocol):

DHCP (Dynamic Host Configuration Protocol) is a protocol used to provide quick, automatic, and central management for the distribution of IP addresses within a network. DHCP is also used to configure the proper subnet mask, default gateway, and DNS server information on the device.

- Understand DHCP DORA Process
- How DHCP Works
- Installation and configuration
- Create Scoop
- DHCP Relay Agent

Proxy Server Squid:

Squid is a full-featured web proxy cache server application which provides proxy and cache services for Hyper Text Transport Protocol (HTTP), File Transfer Protocol (FTP), and other popular network protocols. Squid can implement caching and Proxying of Secure Sockets Layer (SSL) requests and caching of Domain Name Server (DNS) lookups, and perform transparent caching. Squid also supports a wide variety of caching protocols, such as Internet Cache Protocol (ICP), the Hyper Text Caching Protocol (HTCP), the Cache Array Routing Protocol (CARP), and the Web Cache Coordination Protocol (WCCP).

- Installation and configuration
- ACL (Access Control List)
- Transparent Proxy
- Blocking URL's
- Viewing of Logs



Web Server Apache:

Apache is the most popular Web server software. It enables a computer to host one or more websites that can be accessed over the Internet using a Web browser. Apache Web Server is an open-source web server creation, deployment and management software. Initially developed by a group of software programmers, it is now maintained by the Apache Software Foundation.

- Installation and configuration
- Configure a virtual host
- Configure private directories
- Discuss windows and Linux Web Server Flavors
- Discuss the steps to host a web site on the web server
- Password on Website
- Multiple Websites Hosting / Virtual Hosting
- Enterprise solution of Web hosting
-

Mail Server:

An email server, or simply mail server, is an application or computer in a network whose sole purpose is to act as a virtual post office. The server stores incoming mail for distribution to local users and sends out outgoing messages. This uses a client-server application model to send and receive messages using Simple Mail Transfer Protocol (SMTP). An email server may also be known as a mail or message transfer agent.

- Installation and configuration
- Route
- Configure a mail transfer agent (MTA) to accept inbound email from other systems
- Configure an MTA to forward (relay) email through a smart host
- Basic Sendmail Configuration
- POP, SMTP, IMAP
- Install Web mailer
- Mail Forwarding
- Postfix
-

Security:

- Xinetd
- PAM
- TCP Wrappers
- Firewall-d
- Create Own Services Files against Firewall-d
- Firewall-d Direct Rules
- Firewall-d Rich Rules
- Configure NAT using Firewall-d
- Configure Port-Forwarding using Firewall-d
-



Industrial Advance Linux Topics

- IWell Knowledge about Regular Expressions, User Management, Software
- Management with RPM and YUM, Permissions, Crontabs, Attributes, Service
- Management, Process Management.
- Good Knowledge about Network Bonding.
- Linux Security System Xinetd, PAM, Tcp-wrapper, Selinux, Firewall.
- Maintain Audit Report.
- LAMP Server Installation and Configuration.
- WPAD (Web proxy auto discovery protocol).
- Route IP traffic and create static routes.
- Firewall-D in Depth
- Produce and deliver reports on system utilization (processor, memory, disk, and network).
- Cockpit Installation
- Linux Monitoring tools
- iSCSI Management and Installation
- ACL's
- Attributes
- Crontab in depth
-

