

RHCSA & RHCE in RHEL7

Red Hat System Administration I

Orientation to the Classroom Environment Internationalization

I. Accessing the Command Line:

- Accessing the Command Line Using the Local Console
- Practice: Local Console Access Terms
- Accessing the Command Line Using the Desktop
- Practice: The GNOME 3 Desktop Environment
- Executing Commands Using the Bash Shell
- Practice: Bash Commands and keyboard Shortcuts
- Lab: Accessing the Command Line

II. Managing File from the Command Line:

- The Linux file system Hierarchy
- Practice: Local Console Access Terms
- Accessing the Command Line using the Desktop
- Practice: Locating files and Directories
- Managing Files using Command-Line Tools
- Practice: Command-Line File Management
- Matching File Name Expansion
- Lab: Managing Files with shell Expansion

III. Getting help in Red Hat Enterprise Linux:

- Reading Documentation using man Command
- Practice: Using the man Command
- Reading Documentation using pinfo command
- Practice: using the pinfo command
- Reading Documentation in /usr/share/doc
- Practice: Viewing Package Documentation
- Get Help from Red Hat
- Practice: Creating and Viewing an SOS Report
- Lab: Viewing and Printing Help Documentation.

IV. Creating, Viewing, and Editing Text Files:

- Redirecting Output to file or program
- Practice: I/O Redirection and Pipelines
- Editing Text files from the shell prompt
- Practice: Editing files with Vim
- Editing Text Files with a Graphical Editor
- Practice: Copying text Between Windows
- Lab: Creating, Viewing and Editing Text Files

V. Managing local Linux Users & Groups:

- User & Groups
- Practice: User and Group Concepts
- Gaining Super user Access
- Practice: Running Commands as root
- Managing Local user Accounts
- Practice: Creating users using Command-line Tools
- Managing Local Group Accounts
- Practice: Managing Groups Using Command-line Tools
- Managing User Passwords
- Practice: Managing User Password Aging
- Lab: Managing Local User and Groups.

VI. Controlling Access to files with Linux File system Permissions:

- Linux File System Permissions
- Practice: Interpreting File and Directory Permission
- Managing File system permissions from the command line
- Practice: Managing File Security from the Command Line
- Managing Default permissions and file Access
- Practice: Controlling New File Permissions and ownership
- Lab: Controlling Access to files with Linux File System Permissions.

VII. Monitoring and Managing Linux Processes:

- Processes
- Practice: Processes
- Controlling Jobs
- Practice: Background and Foreground Processes
- Killing Processes
- Practice: Killing Processes
- Monitoring Process Activity
- Practice: Monitoring Process Activity
- Lab: Monitoring and Managing Linux processes.

VIII. Controlling Services and Daemons:

- Identifying Automatically Started System Processes
- Practice: Identify the status of systemd Units
- Controlling System Service
- Practice: Using systemctl to manage service
- Lab: Controlling Services and Daemons

IX. Configuring and Securing Open SSH Service:

- Accessing the Remote Command Line with SSH
- Practice: Accessing the Remote Command Line Configuring SSH Key-based Authentication
- Practice: Using SSH Key-based Authentication
- Customizing SSH Service Configuration
- Practice: Restricting SSH Logins
- Lab: Configuring and Securing Open SSH Service

X. Analyzing and Storing Logs:

- System Log Architecture
- Practice: System Logging Components
- Reviewing Syslog Files
- Practice: Finding Log Entries
- Reviewing systemd Journal Entries
- Practice: Finding Events with Journalctl
- Preserving the systemd Journal
- Practice: Configure a persistent systemd Journal
- Maintaining accurate time
- Practice: Adjusting system Time

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- o Lab: Analyzing and Storing Logs.

XI. Managing Red Hat Enterprise Linux Networking:

- o Networking Concepts
- o Practice: Networking Concepts
- o Validating Network Configuration
- o Configuring Networking with nmcli
- o Practice: Configuring Networking with nmcli
- o Editing Network Configuration Files
- o Practice: Editing Network Configuration Files
- o Configuring Host name and Name Resolution
- o Practice: Configuring Host name and Name Resolution
- o Lab: Managing Red Hat Enterprise Linux Networking

XII. Archiving and Copying Files between Systems:

- o Managing Compressed tar Archives
- o Practice: Backing Up and Restoring Files From a tar Archive
- o Copying Files between Systems Securely
- o Practice: Copying Files over the Network with scp
- o Synchronizing files Between Systems Securely
- o Practice: Synchronizing Two Directories securely with rsync
- o Lab: Archiving and Copying Files between Systems

XIII. Installing and Updating Software Packages:

- o Attaching Systems to Subscription for Software Updates
- o Practice: Red Hat Subscription Management
- o Practice RPM Software Packages
- o Managing Software Update with yum
- o Practice: Installing and Updating Software with Yum
- o Enabling Yum software Repositories
- o Practice: Enabling software Repositories
- o Examining RPM Package files
- o Practice: Working with RPM package Files
- o Lab: Installing and Updating Software Packages

XIV. Accessing Linux File Systems:

- o Identifying file systems and Devices
- o Practice: Identifying file systems and Devices
- o Mounting and Unmounting File Systems
- o Making Links between Files
- o Practice: Making Links between Files
- o Locating Files on the System
- o Practice: Locating Files on the System
- o Lab: Accessing Linux File Systems

XV. Using Virtualized Systems:

- o Managing a Local Virtualization Host
- o Practice: Managing a Local Virtualization Host
- o Installing a new Virtual Machine
- o Practice: Installing a new Virtual Machine
- o Chapter Test: Using Virtualized Systems

XVI. Comprehensive Review:

- o Red Hat System Administration I Comprehensive Review
- o Lab: Comprehensive Review

Red Hat System Administration II

I. Accessing the Command Line:

- o Defining the Anaconda Kickstart System
- o Practice: Kickstart File Syntax and Modification
- o Deploying a New Virtual System with Kickstart
- o Practice: Installing a System Using Kickstart
- o Chapter Test: Automating Installation with Kickstart

II. Using Regular Expression with grep

- o Regular Expressions Fundamentals
- o Practice: Match the Regular Expression
- o Matching Test with grep
- o Practice: Using grep with Logs
- o Lab: Using Regular Expression with grep

III. Creating and Editing Text Files with vim

- o The vim Text Editor Practice: vim Modes Basic vim Workflow
- o Practice: Basic vim Workflow
- o Editing with vim
- o Practice: Edit a File with vim
- o Lab: Edit a System File with vim

IV. Scheduling Future Linux Tasks

- o Scheduling One-Time Tasks with at
- o Practice: Scheduling One-Time Tasks with at
- o Scheduling Recurring Jobs with cron
- o Practice: Scheduling Recurring Jobs with cron
- o Scheduling System cron jobs
- o Managing Temporary Files
- o Practice: Managing Temporary Files

V. Managing Priority of Linux Processes

- o Process Priority and "nice" Concepts
- o Practice: Process Priority and "nice" Concepts
- o Using nice and renice to Influence Process Priority
- o Practice: Discovering Process Priorities
- o Lab: Managing Priority of Linux Processes

VI. Controlling Access to Files with Access Control Lists (ACLs)

- o POSIX Access Control Lists (ACLs)
- o Practice: Interpret ACLs
- o Securing Files with ACLs
- o Practice: Using ACLs to Grant and Limit Access
- o Lab: Controlling Access to Files with Access Control Lists (ACLs)

VII. Managing SELinux Security

- o Enabling and Monitoring Security Enhanced Linux (SELinux)

VIII. Connecting to Networks-defined Users and Groups

- o Using Identity Management Services

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- Practice: SELinux Concepts
- Changing SELinux Modes
- Practice: Changing SELinux Modes
- Changing SELinux Contexts
- Practice: Changing SELinux Contexts
- Changing SELinux Booleans
- Practice: Changing SELinux Booleans
- Troubleshooting SELinux
- Practice: Troubleshooting SELinux
- Lab: Managing SELinux Security

- Practice: Connecting to Central LDAP and Kerberos Server
- Lab: Connecting to Network-defined Users and Groups

IX. Adding Disks, Partitions and Files Systems to a Linux System

- Adding Disks, Partitions and Persistent Mounts
- Practice: Adding Disks, Partitions and Persistent Mounts
- Managing Swap Space
- Practice: Adding and Enabling Swap Space
- Lab: Adding Disks, Partitions and Files Systems to a Linux System

X. Managing Logical Volume Management (LVM) Storage

- Logical Volume Management Concept
- Practice: Logical Volume Management Concept
- Managing Logical Volume
- Practice: Adding a Logical Volume
- Extending a Logical Volume
- Practice: Extending a Logical Volume
- Lab: Managing Logical Volume Management (LVM) Storage

XI. Accessing Network Storage with Network File System (NFS)

- Mounting Network Storage with NFS
- Practice: Mounting and Un-mounting NFS Auto mounting Network Storage with NFS Practice: Auto mounting NFS
- Lab: Accessing Network Storage with Network File System (NFS)

XII. Accessing Network Storage with SMB

- Accessing Network Storage with SMB
- Practice: Mounting a SMB File Sstem
- Lab: Accessing Network Storage with SMB

XIII. Controlling and Troubleshooting the Red Ta Enterprise Linux Boot Process

- The Red Hat Enterprise Linux Boot Process
- Practice: Selecting a Boot Target
- Repairing Common Boot Issues
- Practice: Resetting a Lost root Password
- File System Issues at Boot
- Practice: Repairing Boot Problem
- \ Practice: Repairing a Boot Loader Problems
- Lab: Controlling and Troubleshooting the Red Hat Enterprise Linux Boot Process

XIV. Limiting Network Communication with firewalled

- Limiting Network Communication
- Practice: Limiting Network Communication
- Lab: Limiting Network Communication

XV. Comprehensive Review of System Administration 2

- Red Hat System Administration 2 Comprehensive Review
- Lab: Comprehensive Review of System Administration 2
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Red Hat System Administration III

I. Controlling Services and Daemons

- Controlling Services with systemctl
- Practice: Using Systemctl to Manage Services
- Controlling: the Boot Process
- Practice: Selecting a Boot Target
- Lab: Controlling Services and Daemons

II. Managing IPv6 Networking

- Review of IPv4 Networking Configuration
- Practice: Configuration IPv4 Networking
- IPv6 Networking Concepts
- Practice: Interpreting IPv6 Addresses
- IPv6 Networking Configuration
- Practice: Configuring IPv6 Networking
- Lab: Managing IPv6 Networking

III. Configuring Link Aggregation and Bridging

- Configuring Network Teaming
- Practice: Configuring Network Teaming

IV. Network Port Security

- Managing Firewallled
- Practice: Configuring a Firewall
- Managing Rich Rules

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- Managing Network Teaming
- Practice: Managing Network Teaming
- Configuring Software Bridges
- Practice: Configuring Software Bridges
- Lab: Configuring Link Aggregation and Bridging
- Practice: Writing Custom Rules
- Masquerading and Port Forwarding
- Practice: Forwarding a Port
- Managing SELinux Port Labeling
- Lab: Network Port Security

V. Managing DNS for Servers

- DNS Concepts
- Practice: DNS Resource Record
- Configuring a Caching Nameserver
- Practice: Configuring unbound as Caching Nameserver
- DNS Troubleshooting
- Practice: Troubleshooting
- Lab: Managing DNS Servers

VI. Configuring Email Transmission

- Configuring Send-only Email Service
- Practice: Configuring Send-only Email Service

VII. Providing Remote Block Storage

- iSCSI Concepts
- Practice: iSCSI Concepts
- Providing iSCSI Targets
- Practice: Providing iSCSI Targets
- Accessing iSCSI Storage
- Practice: Accessing iSCSI Storage
- Lab: Providing Block-based Storage

VIII. Providing File-based Storage

- Exporting NFS File Systems
- Practice: Exporting NFS File Systems
- Protecting NFS Exports
- Practice: Protecting NFS Exports
- Providing SMB File Shares
- Practice: Providing SMB File Shares
- Performing a Multiuser SMB Mount
- Practice: Performing a Multiuser SMB Mount
- Lab: Providing File-based Storage

IX. Configuring MariaDB Databases

- Installing MariaDB
- Practice: Installing MariaDB
- Working with MariaDB Databases
- Practice: MariaDB Commands
- Managing Database Users and Access Rights
- Practice: Managing Users
- Creating and Restoring MariaDB Backups
- Practice: Restoring a MariaDB Database from Backup
- Lab: Configuring MariaDB Databases

X. Providing Apache HTTPD Web Service

- Configuring Apache HTTPD
- Practice: Configuring Web Server
- Configuring and Troubleshooting Virtual Hosts
- Practice: Configuring Virtual Hosts
- Configuring HTTPS
- Practice: Configuring a TLS-enabled Virtual Host
- Interpreting Dynamic Web Content
- Practice: Configuring a Web Application
- Lab: Providing Apache HTTPD Web Service

XI. Writing Bash Scripts

- Bash Shell Scripting Basics
- Practice: Writing Bash Scripts
- Lab: Writing Bash Scripts

XII. Bash Conditionals and Control Structures

- Enhancing Bash Shell Scripts with Conditional and Control Structures
- Practice: Enhancing Bash Shell Scripts with Conditional and Control Structures
- Lab: Bash Conditionals and Control Structures

XIII. Configuring the Shell Environment

- Changing the Shell Environment
- Practice: Working with Login and Non-Login Shells
- Lab: Configuring the Shell Environment

XIV. Linux Containers and Docker

- Introduction to Linux Containers
- Using Docker

XV. Comprehensive Review

- Red Hat System Administration 3 Comprehensive Review
- Lab: Comprehensive Review of System Administration 3