



RedHat Certified System Administrator (RHCSA) Training

Lecture and Lab

5 Day Course

Course Overview

Our RHCSA course is designed to teach students everything they need to know to pass the RHCSA exam. This rigorous course will teach to the test, combining direct instruction with labs and exercises all designed to emulate the RHCSA exam. Students will be taught important Linux skills that match each exam objective and will be provided an environment and resources to practice them in. Previous Red Hat experience is useful but not required, so long as one goal is kept in mind- if you learn everything in this course, you will pass that test!

1. Learn Basic Linux Tools

- Access a shell prompt and issue commands with correct syntax
- Archive, compress, unpack, and uncompress files using tar, star, gzip, and bzip2
- Create and edit text files
- Locate, read, and use system documentation including man, info, and files in /usr/share/doc
- Access remote systems using SSH
- Intro to the Vim editor

2. Handling Files and File Permissions

- Create, delete, copy, and move files and directories
- Create hard and soft links
- List, set, and change standard ugo/rwx permissions
- Create and configure set-GID directories for collaboration.
- Diagnose and correct file permission problems
- Modify ownership and group membership

3. Using SSH and TCP Wrappers to Secure Access

- Access remote systems using SSH
- Securely transfer files between systems
- Configure key-based authentication for SSH

4. User and Group Management

- Log in and switch users in multiuser targets
- Create, delete, and modify local user accounts
- Change passwords and adjust password aging for local user accounts
- Create, delete, and modify local groups and group memberships
- Use su and sudo commands
- Managing authentication files

5. Using Processes, Bash Shell, and Scheduling

- Use input-output redirection (>, >>, |, 2>, etc.)
- Use grep and regular expressions to analyze text
- Identify CPU/memory intensive processes, adjust process priority with renice, and kill processes
- Schedule tasks using at and cron
- Understand and display system and user executed processes
- Signals and their use
- Overview of job scheduling and access control

6. Setting up RHEL7, Network, and Server Virtualization

- Access a virtual machine's console
- Start and stop virtual machines
- Install Red Hat Enterprise Linux automatically using Kickstart
- Using KickStart
- Configure a physical machine to host virtual guests
- Install Red Hat Enterprise Linux systems as virtual guests
- Configure systems to launch virtual machines at boot
- Using an FTP installation server
- Manage virtual networks, virtual storage, and hypervisor with GUI and commands

7. Handling Software Packages

- Install and update software packages from Red Hat Network, a remote repository, or from the local file system
- Overview of yum repository and how to create one
- Add, view, update, and remove packages with PackageKit

8. Logging Messages, Updating Kernels, Booting RHEL7

- Boot, reboot, and shut down a system normally
- Boot systems into different targets manually
- Interrupt the boot process in order to gain access to a system
- Locate and interpret system log files and journals
- Start, stop, and check the status of network services
- Start and stop services and configure services to start automatically at boot
- Configure systems to boot into a specific target automatically
- Configure network services to start automatically at boot
- Update the kernel package appropriately to ensure a bootable system
- Modify the system bootloader

9. Managing and Partitioning Disk Storage

- List, create, and delete partitions on MBR and GPT disks
- Create and remove physical volumes, assign physical volumes to volume groups, and create and delete logical volumes
- Add new partitions and logical volumes, and swap to a system non-destructively
- Extend existing logical volumes
- Understand LVM concepts, components, and structure

10. Utilizing Network Interfaces and Clients

- Basic networking concepts
- Configure networking and hostname resolution statically or dynamically
- Configure a system to use time services
- Configure a system to use an existing authentication service for user and group information

11. Build and Use File Systems

- Configure systems to mount file systems at boot by UUID or label
- Add new partitions and logical volumes and swap to a system non-destructively
- Create, mount, unmount, and use vfat, ext4, and xfs file systems
- Create and manage access control lists (ACLs)
- Mount and unmount CIFS and NFS file systems
- Understanding file systems

12. Using Firewall and SELinux to Control Access

- Configure firewall settings using firewall-config, firewall-cmd, or iptables
- Set enforcing and permissive modes for SELinux
- List and identify SELinux file and process context
- Restore default file contexts
- Use Boolean settings to modify system SELinux settings
- Diagnose and address routine SELinux policy violations

LABS

1. Installing RHEL

- Installation options
- Installing RHEL

2. Basic Linux Tools

- list directory contents
- navigating directories
- inspecting system users
- user and group info
- viewing user logins
- host name displaying and setting
- system time and date
- command path
- counting
- PCI USB CPU device info

- compression tools
- archiving
- using vim editor
- regex
- using man pages

3. Files and Permissions

- process filesystem
- basic file types
- creating files directories
- displaying file content
- copying file and directories
- removing files directories
- control attributes
- finding files
- creating soft and hard links
- access permissions
- umask
- file owners group members
- assigning bits to executable files
- set gid on shared directories
- sticky bit

4. Bash Shell

- variables
- substituting commands and variables
- input output error redirection
- command history
- quoting
- processes
- project niceness
- signals control processes
- cron status check
- cron timing
- managing cron config
- anacron
- creating a cron task
- configuring at

5. Software Packages

- creating repos
- find software with yum
- package info with yum
- install and remove packages
- package lists
- upgrading packages
- reinstalling packages
- package groups

- extract from package
- package queries

6. Server Virtualization

- compatibility checks
- libvirtd
- preparing fork vm
- virtual machine manager
- manage VM with GUI
- command line management
- top for VM activity
- Setting up installation server

7. Logging Messages and Updating Kernel

- system logging
- common logs
- log file content
- insider syslog config
- changing rsyslog.conf rules
- rotating log files
- journald
- saving journald journal
- kernel intro
- tainted kernels
- kernel modules
- managing modules
- driver availability
- module parameters
- upgrading kernel

8. User and Group Management

- user types
- root
- switching user accounts
- account management terms
- user defaults
- password property management
- user environment
- create user accounts
- managing groups
- group management exercise
- LDAP basics
- LDAP authentication
- external LDAP connection

9. Managing Disk Space

- MBR GPT partitions
- fdisk
- creating logical partition
- gdisk
- filesystem types
- creating formatting XFS filesystem
- tune2fs
- XFS property management
- add swap partitions
- add swap file
- mounting filesystems
- UUID mounting
- automated mounting info
- automount partition

10. Volumes ACL and Network Filesystems

- ACLs
- default ACLS
- advanced permissions ACL
- LVM basics
- creating LVM physical volumes
- creating LVM volume group
- creating LVM logical volume
- resizing volume groups
- resizing exercise

11. Firewall and SELinux

- SELinux basics
- SELinux modes
- context labels
- setting context_type
- finding context
- default contexts
- boolean modifier
- SELinux policy violations
- firewalld zones services
- firewall-cmd
- firewall-config

12. Network Interfaces and Clients

- networking terms
- validating network access
- validating routing
- port availability
- network verify exercise
- nmcli
- nmtui
- hostnames
- resolving DNS
- how time works
- time
- time zones

13. SSH and TCP

- SSH remote server
- graphical applications ssh
- secure transfer
- keybased SSH authentication
- boot reboot shutdown