Red Hat Certified System Administrator (RHCSA)

Length: 5 days
Format: Live Remote
Time: Day

About This Course

The Red Hat Certified System Administrator (RHCSA) relates to Red Hat Enterprise Linux and is designed for students who already have significant experience with Linux administration. The course reviews the tasks covered in Red Hat System Administration I and II at an accelerated pace.

This course is designed to provide students with the knowledge and skills required to manage users and groups, files, and file permissions. Update software packages with yum. Manage and troubleshoot systemd services during the boot process. Manage local storage and creating and using file systems. Firewall management with firewalld. Manage kernel‐based virtual machines (KVMs). Automate installation of Red Hat Enterprise Linux using Kickstart

The primary goal of this course is to help each student pass the exam required to earn the Red Hat Certified System Administrator (RHCSA) certification. To do this, your knowledgeable instructor will blend hands‐on labs with lecture and practice exams to prepare you to pass each exam. The practice exams identify knowledge gaps that the instructor will fill with customized, hands‐on labs and tailored lectures.

Required Exams

Candidates earn their Red Hat Certified System Administrator Certification by successfully completing following exam:

Exam: EX200 – Red Hat Certified System Administrator (RHCSA) exam

Audience Profile

Course Objectives

After completing this boot camp, students will have the knowledge to:

* Managing users and groups, files, and file permissions
* Updating software packages with yum
* Managing and troubleshooting system services during the boot process
* Network configuration and basic troubleshooting
* Managing local storage and creating and using file systems
* Firewall management with firewalld
* Managing kernel‐based virtual machines (KVMs)
* Automating installation of Red Hat Enterprise Linux using Kickstart

Outline

1. Accessing the command line
    * 1. Components of a Distribution
    * 2. Red Hat Linux Products
    * 3. Logging In
    * 4. Running Programs
    * 5. Interacting with Command Line
    * 6. Desktop Environments
    * 7. GNOME
    * 8. got root?
    * 9. Switching User Contexts
    * 10. sudo

Lab Tasks

* 11. Login and Discovery
* 12. Switching Users With su

2. Managing files from the command line
    * 1. Managing Files Graphically
    * 2. Drag and drop with Nautilus
    * 3. Physical Unix File Structure
    * 4. Unix/Linux Filesystem Features
    * 5. Navigating the Filesystem
    * 6. Displaying Directory Contents
    * 7. Directory Manipulation
    * 8. File Manipulation
    * 9. Deleting and Creating Files
    * 10. Filesystem Links

Lab Tasks

* 11. Navigating Directories and Listing Files

* 12. Manipulating Files and Directories

3. Configure and secure OpenSSH service * 1. Secure Shell
* 2. OpenSSH Client & Server Configuration
* 3. Accessing Remote Shells
* 4. Transferring Files
* 5. Alternative sftp Clients
* 6. SSH Key Management

Lab Tasks

* 7. Introduction to ssh and scp

4. Managing local Linux users and groups * 1. User and Group Concepts
* 2. User Administration
* 3. Modifying Accounts
* 4. Password Aging
* 5. Group Administration
* 6. RHEL DS Client Configuration
* 7. System Security Services Daemon (SSSD)

Lab Tasks

* 8. User and Group Administration
* 9. Using LDAP for Centralized User Accounts

5. Controlling access to files with Linux file system permissions * 1. File Ownership
* 2. File and Directory Permissions
* 3. SUID and SGID on files
* 4. SGID and Sticky Bit on Directories
* 5. Changing File Permissions

Lab Tasks

* 6. File and Directory Ownership and Permissions

6. Control access to files with FACLs * 1. User Private Group Scheme
* 2. Alternatives to UPG
* 3. File Access Control Lists
* 4. Manipulating FACLs
* 5. Viewing FACLs
* 6. Backing Up FACLs

Lab Tasks

* 7. User Private Groups
* 8. Using Filesystem ACLs

7. Manage SELinux security * 1. SELinux Security Framework
* 2. SELinux Modes
* 3. SELinux Commands
* 4. Choosing an SELinux Policy
* 5. SELinux Booleans
* 6. Permissive Domains
* 7. SELinux Policy Tools
* 8. SELinux Troubleshooting
* 9. SELinux Troubleshooting Continued

Lab Tasks

* 10. Exploring SELinux Modes
* 11. SELinux File Contexts

8. Monitor and manage Linux processes * 1. What is a Process?
* 2. Process States
* 3. Viewing Processes
* 4. Managing Processes
* 5. Tuning Process Scheduling
* 6. System Status “ CPU
* 7. System Status “ I/O
* 8. System Status “ Memory

Lab Tasks

* 9. Process Management Basics

9. Installing and updating software packages * 1. Managing Software
* 2. RPM Features
* 3. RPM Architecture
* 4. RPM Package Files
* 5. Working With RPMs
* 6. Querying and Verifying with RPM
* 7. Managing Software Dependencies
* 8. Using the Yum command
* 9. YUM package groups

* 10. Updating the Kernel RPM
* 11. Dealing With RPM & Yum Digest Changes
* 12. YUM Repositories
* 13. YUM Repository Groups
* 14. Yum Plugins & RHN Subscription Manager

Lab Tasks

* 15. Managing Software with RPM
* 16. Querying the RPM Database
* 17. Using Yum

10. Controlling services and daemons * 1. systemd System and Service Manager
* 2. Modifying systemd services
* 3. Systemd Service Sandboxing Features
* 4. systemd Targets
* 5. Using systemd
* 6. Legacy Support for SysV init
* 7. Booting Linux on PCs
* 8. GRUB 2
* 9. GRUB 2 Configuration
* 10. GRUB 2 Security
* 11. Boot Parameters
* 12. Initial RAM Filesystem
* 13. init
* 14. Linux Runlevels Aliases
* 15. Systemd local-fs.target and sysinit.target
* 16. Systemd basic.target and multi-user.target
* 17. Legacy local bootup script support
* 18. System Configuration Files
* 19. RHEL7 Configuration Utilities
* 20. Shutdown and Reboot

Lab Tasks

* 21. Boot Process
* 22. GRUB Command Line
* 23. Basic GRUB Security
* 24. Managing Services With Systemd's systemctl
* 25. Creating a systemd unit file
* 26. Troubleshooting Practice: Boot Process

11. Managing Red Hat Enterprise Linux networking * 1. IPv4 Fundamentals
* 2. TCP/UDP Fundamentals
* 3. Linux Network Interfaces

* 4. Ethernet Hardware Tools
* 5. Network Configuration with ip Command
* 6. Starting and Stopping Interfaces
* 7. Configuring Routing Tables
* 8. IP to MAC Address Mapping with ARP
* 9. DNS Clients
* 10. DHCP Clients
* 11. Network Diagnostics
* 12. NetworkManager

Lab Tasks

* 13. Network Discovery
* 14. Basic Client Networking
* 15. Introduction to Troubleshooting Labs
* 16. Troubleshooting Practice: Networking

12. Analyzing and Storing Logs * 1. System Logging
* 2. systemd Journal
* 3. systemd Journal's journalctl
* 4. Secure Logging with Journal's Log Sealing
* 5. gnome-system-log
* 6. Rsyslog
* 7. /etc/rsyslog.conf
* 8. Log Management
* 9. Log Anomaly Detector

Lab Tasks

* 10. Using the systemd Journal
* 11. Setting up a Full Debug Logfile
* 12. Remote Syslog Configuration
* 13. Remote Rsyslog TLS Configuration

13. Managing storage and file systems * 1. Partitioning Disks with fdisk & gdisk
* 2. Resizing a GPT Partition with gdisk
* 3. Partitioning Disks with parted
* 4. Non-Interactive Disk Partitioning with sfdisk
* 5. Mounting Filesystems
* 6. Mounting Filesystems
* 7. Persistent Block Devices
* 8. Managing an XFS Filesystem
* 9. Filesystem Table (/etc/fstab)
* 10. Filesystem Creation
* 11. Filesystem Maintenance

* 12. Swap
* 13. Logical Volume Management
* 14. Implementing LVM
* 15. Creating Logical Volumes
* 16. Activating LVM VGs
* 17. Exporting and Importing a VG
* 18. Examining LVM Components
* 19. Changing LVM Components
* 20. Advanced LVM Overview
* 21. Advanced LVM: Components & Object Tags
* 22. Advanced LVM: Automated Storage Tiering
* 23. Advanced LVM: Thin Provisioning
* 24. Advanced LVM: Striping & Mirroring
* 25. Advanced LVM: RAID Volumes

Lab Tasks

* 26. Creating and Managing Filesystems
* 27. Hot Adding Swap
* 28. Creating and Managing LVM Volumes

14. Scheduling system tasks * 1. Automating Tasks
* 2. at/batch
* 3. cron
* 4. The crontab Command
* 5. crontab Format
* 6. /etc/cron.*/ Directories
* 7. Anacron

Lab Tasks

* 8. Creating and Managing User Cron Jobs
* 9. Adding System cron Jobs

15. Mounting network file systems * 1. File Sharing via NFS
* 2. NFSv4+
* 3. NFS Clients
* 4. NFS
* 5. NFS Server Configuration
* 6. Accessing Windows/Samba Shares from Linux
* 7. AutoFS
* 8. AutoFS Configuration

Lab Tasks

* 9. Using autofs
* 10. NFS Server Configuration

16. Limiting network communication with firewalld * 1. Netfilter: Stateful Packet Filter Firewall
* 2. Netfilter Concepts
* 3. Using the iptables Command
* 4. Netfilter Rule Syntax
* 5. Targets
* 6. Common match_specs
* 7. Extended Packet Matching Modules
* 8. Connection Tracking
* 9. FirewallD

Lab Tasks

* 10. Securing Services with Netfilter
* 11. FirewallD

17. Virtualization and Kickstart * 1. Introducing libvirt
* 2. libvirt: Basic Concepts
* 3. libvirt: Storage Architecture
* 4. libvirt: Network Architecture
* 5. libvirt: Graphical Tools
* 6. libvirt: Command Line Tools
* 7. virsh: Basics
* 8. virsh: Common Tasks
* 9. virt-install
* 10. Virtual Machine Guest Tools & Drivers
* 11. libguestfs and guestfish
* 12. Kickstart
* 13. Anaconda: An Overview
* 14. Anaconda: Booting the System
* 15. Anaconda: Common Boot Options
* 16. Anaconda: Loading Anaconda and Packages
* 17. Anaconda: Storage Options
* 18. Anaconda: Troubleshooting

Lab Tasks

* 19. Installing a Virtual Machine

1. Understand and Use Essential Tools * 1. Use of Appendix
* 2. Red Hat Online Documentation

* 3. Getting Help Within the Graphical Desktop
* 4. Gathering System Info
* 5. Help from Commands and Documentation
* 6. Getting Help with man & info
* 7. Communication Channels
* 8. File Redirection
* 9. Piping Commands Together
* 10. The gedit Text Editor
* 11. Archives with tar
* 12. Archives with cpio
* 13. The gzip Compression Utility
* 14. The bzip2 Compression Utility
* 15. The XZ Compression Utility
* 16. The PKZIP Archiving/Compression format
* 17. Searching Inside Files
* 18. The Streaming Editor
* 19. Regular Expression Overview
* 20. Regular Expressions
* 21. RE Character Classes
* 22. Regex Quantifiers
* 23. RE Parenthesis
* 24. Text Editing
* 25. Learning Vim
* 26. Basic vi
* 27. Intermediate vi

Lab Tasks

* 28. Help with Commands
* 29. Archiving and Compression
* 30. Pattern Matching with Regular Expressions
* 31. Extended Regular Expressions
* 32. Using Regular Expressions With sed
* 33. Text Editing with Vim

2. Create, view, and edit