

Red Hat Certified System Administrator (RHCSA):

(Red Hat System Administration I | RH124 + Red Hat System Administration II | RH134)

Duration: 4 weeks @ 1.5 hr./day (Mon - Sat)

Learn essential Red Hat Enterprise Linux configuration, administration, and maintenance in a condensed format designed for experienced Linux system administrators.

The RHCSA course features Red Hat® Enterprise Linux® 10 combining essential content from Red Hat System Administration I (RH124) and Red Hat System Administration II (RH134) to help students operate, manage, and maintain a Red Hat Enterprise Linux system. The Red Hat Certified System Administrator (RHCSA) exam (EX200)

Audience

- ❖ System administrators, platform engineers, developers, and other IT professionals who have **limited Red Hat Enterprise Linux experience** but need to perform **essential Linux administration tasks** on a single server, including basic competency with use of the Bash command-line shell, user and file management, software administration, management of local storage devices, and other key single-server duties

Red Hat System Administration I (RH124)

Red Hat System Administration I (RH124) is designed for IT professionals without previous Linux system administration experience.

These concepts are further developed in the follow-on course, *Red Hat System Administration II* (RH134).

Chapter 1. Introduction to Red Hat Enterprise Linux

Goal: By the end of this topic, learners will be able to understand the principles of **open-source software**, explain the **role of Linux** as an operating system, identify different **Linux distributions**, and describe the purpose and enterprise importance of Red Hat Enterprise Linux (**RHEL**).

- Getting Started with Red Hat Enterprise Linux

Chapter 2. Accessing the Command Line

Goal: Log in to a Linux system and run simple commands by using the shell.

- Accessing the Command Line in a Text Interface
- Accessing the Command Line with the Desktop Environment
- Guided Exercise: Access the Command Line with the Desktop Environment
- Executing Commands with the Bash Shell
- ❖ Lab: Access the Command Line

Chapter 3. Getting Help from Local Documentation

Goal: Resolve problems by using information in local help systems and documentation.

- Getting Help from Manual Pages
- Guided Exercise: Get Help from Manual Pages
- ❖ Lab: Get Help from Local Documentation

Chapter 4. Registering Systems for Red Hat Support

Goal: Register a system by using your Red Hat account to get support services and software that Red Hat provides.

- Registering Systems for Red Hat Support

Chapter 5. Getting AI-assisted Help with Red Hat Enterprise Linux Lightspeed

Goal: Get AI-driven guidance to efficiently manage a RHEL server by using Red Hat Enterprise Linux Lightspeed.

- Asking Questions and Evaluating Answers from the Command-line Assistant
- Guided Exercise: Ask Questions and Evaluate Answers from the Command-line Assistant

Chapter 6. Navigating the File-system Hierarchy

Goal: Describe the organization of files in the Linux file-system hierarchy and specify files by name, by using relative paths or absolute paths.

- The Linux File-system Hierarchy
- Specifying Files by Name

Chapter 7. Managing Files from the Command Line

Goal: Copy, move, create, delete, and organize files from the command line.

- Managing Files with Command-line Tools
- Guided Exercise: Manage Files with Command-line Tools
- Creating Links Between Files
- Guided Exercise: Create Links Between Files
- Matching File Names with Shell Expansions
- ❖ Lab: Manage Files from the Command Line

Chapter 8. Editing Text Files

Goal: Create, view, and edit text files from the command line.

- Editing Text Files from the Command Line
- Guided Exercise: Edit Text Files from the Command Line

Chapter 9. Redirecting Shell Input and Output

Goal: Redirect the output of commands and input to commands, by using Bash.

- Redirecting Output to Files and Programs
- Guided Exercise: Redirect Output to Files and Programs

Chapter 10. Managing Local Users and Groups

Goal: Obtain superuser access to a system; create, manage, and delete local users and groups; and administer local password policies.

- Linux Users and Groups
- Gaining Superuser Access
- Guided Exercise: Gain Superuser Access
- Managing Local User Accounts
- Guided Exercise: Manage Local User Accounts
- Managing Local Group Accounts
- Guided Exercise: Manage Local Group Accounts
- Managing User Passwords
- Guided Exercise: Manage User Passwords
- ❖ Lab: Manage Local Users and Groups

Chapter 11. Controlling Access to Files

Goal: Set standard permissions on files and interpret the security effects of different permission settings.

- Interpreting Linux File Permissions
- Managing File Permissions from the Command Line
- Guided Exercise: Manage File Permissions from the Command Line
- Managing Default Permissions and Special Permissions
- Guided Exercise: Manage Default Permissions and Special Permissions
- ❖ Lab: Control Access to Files

Chapter 12. Installing and Updating Software with RPM

Goal: Download, install, update, and manage software packages from Red Hat and DNF package repositories.

- Investigating RPM Software Packages
- Guided Exercise: Investigate an RPM Software Package
- Guided Exercise: Install and Update Packages with DNF
- Enabling DNF Software Repositories
- Guided Exercise: Enable a DNF Software Repository
- ❖ Lab: Install and Update Software with RPM

Chapter 13. Installing and Updating Applications by Using Flatpak

Goal: Install, upgrade, and use desktop software from the Red Hat Ecosystem Catalog by using Flatpak

- Configuring Flatpak for Application Installation
- Guided Exercise: Configure Flatpak for Application Installation
- Managing Applications from Flatpak
- Guided Exercise: Manage Applications from Flatpak
- Quiz: Install and Update Applications by Using Flatpak

Chapter 14. Accessing Removable Media

Goal: Access file systems on removable media devices by mounting them on a directory in the file-system hierarchy

- Identifying File Systems and Block Devices
- Mounting and Unmounting File Systems
- Guided Exercise: Mount and Unmount a File System
- Locating Files on a File System
- Guided Exercise: Locate Files on a File System
- ❖ Lab: Access Removable Media

Chapter 15. Monitoring and Managing Linux Processes

Goal: Investigate, control, and terminate processes that run on a Red Hat Enterprise Linux system.

- Processes and the Process Lifecycle
- Managing Processes with Job Control
- Guided Exercise: Manage Processes with Job Control
- Sending Signals to Processes
- Guided Exercise: Send Signals to Processes
- Monitoring Process Activity
- Guided Exercise: Monitor Process Activity
- ❖ Lab: Monitor and Manage Linux Processes

Chapter 16. Controlling Services and Daemons

Goal: Control and monitor the system services and daemons that system starts.

- Identifying System Processes that Start Automatically
- Guided Exercise: Identify System Processes that Start Automatically
- Controlling System Services
- Guided Exercise: Control System Services
- ❖ Lab: Control Services and Daemons

Chapter 17. Introduction to Networking

Goal: Describe basic TCP/IP networking concepts and investigate the current network configuration and functionality on a server.

- Networking Concepts
- Validating Network Configuration
- Guided Exercise: Validate Network Configuration

Chapter 18. Managing Network Configuration

Goal: Configure network interfaces and settings on Red Hat Enterprise Linux servers.

- Configuring Networking from the Command Line
- Guided Exercise: Configure Networking from the Command Line
- Editing Network Configuration Files
- Guided Exercise: Edit Network Configuration Files
- Configuring Hostnames and Name Resolution
- Guided Exercise: Configure Hostnames and Name Resolution
- ❖ Lab: Manage Network Configuration

Chapter 19. Configuring and Securing SSH

Goal: Protect SSH communication by managing host keys and by implementing key-based authentication for users

- Managing SSH Host Keys
- Guided Exercise: Manage SSH Host Keys
- Configuring SSH Key-based Authentication
- Guided Exercise: Configure SSH Key-based Authentication
- ❖ Lab: Configure and Secure SSH

Chapter 20. Comprehensive Review - Self Test

Goal: This lesson tests the knowledge that you acquired by completing the Red Hat System Administration I (RH124) course and validates the knowledge that you acquired after completing the *Red Hat System Administration I (RH124)* course.

- ❖ Lab: Manage Files from the Command Line
- ❖ Lab: Manage Users and Groups, Permissions, and Processes
- ❖ Lab: Configure and Manage a Server
- ❖ Lab: Manage Networks
- ❖ Lab: Mount File Systems and Find Files

Red Hat System Administration II (RH134)

Chapter 1. Shell Scripting and the Command Line

Goal: Write and run simple shell scripts, and use shell scripting features to efficiently run commands at the shell prompt

- Changing the Shell Environment
- Guided Exercise: Change the Shell Environment
- Writing Simple Bash Scripts
- Guided Exercise: Write Simple Bash Scripts
- Running Loops and Conditional Commands
- Guided Exercise: Run Loops and Conditional Commands
- ❖ Lab: Shell Scripting and the Command Line

Chapter 2. Using Regular Expressions for Practical Applications

Goal: Efficiently complete system administration tasks by using regular expressions to match text.

- Matching Text with Regular Expressions
- Guided Exercise: Match Text with Regular Expressions

Chapter 3. Scheduling User Tasks

Goal: Schedule programs to run in the future, either at a specific time and date or on a recurring basis, as a regular user.

- Scheduling a Future User Job
- Guided Exercise: Schedule a Future User Job
- Scheduling Recurring User Jobs
- Guided Exercise: Schedule Recurring User Jobs

Chapter 4. Scheduling System Tasks

Goal: Schedule system programs that must run on a recurring basis to support daemons or operating system functions.

- Managing Repeating Jobs by Using System Timer Units
- Guided Exercise: Manage Repeating Jobs by Using System Timer Units
- Managing Temporary Files
- Guided Exercise: Manage Temporary Files
- Scheduling Recurring System Tasks with Cron
- Guided Exercise: Schedule a Recurring System Task with Cron

Chapter 5. Analyzing and Storing Logs

Goal: Locate and interpret system logs for troubleshooting purposes, and ensure accurate timestamps for log events.

- The System Log Architecture
- Interpreting and Managing Syslog Events
- Guided Exercise: Interpret and Manage Syslog Events
- Finding and Interpreting System Journal Log Entries
- Guided Exercise: Find and Interpret System Journal Log Entries
- Configuring a Persistent System Journal
- Guided Exercise: Configure a Persistent System Journal
- Maintaining Synchronized Time
- Guided Exercise: Maintain Synchronized Time
- ❖ Lab: Analyze and Store Logs

Chapter 6. Managing Security with SELinux

Goal: Protect systems and manage security by using SELinux.

- Operating SELinux
- Guided Exercise: Operate SELinux
- Controlling SELinux File Contexts
- Guided Exercise: Control SELinux File Contexts
- Tuning the SELinux Policy by Adjusting Booleans
- Guided Exercise: Tune the SELinux Policy by Adjusting Booleans
- Investigating and Resolving SELinux Issues
- Guided Exercise: Investigate and Resolve SELinux Issues
- ❖ Lab: Manage Security with SELinux

Chapter 7. Archiving Files

Goal: Create compressed archives of files so that they can be backed up and transferred to other systems.

- Managing Compressed Tar Archives
- Guided Exercise: Manage Compressed Tar Archives

Chapter 8. Transferring Files

Goal: Securely transfer files from one system to another.

- Transferring Files Between Systems
- Guided Exercise: Transfer Files Between Systems
- Synchronizing Content Between Systems
- Guided Exercise: Synchronize Content Between Systems
- ❖ Lab: Transfer Files

Chapter 9. Tuning System Performance

Goal: Improve system performance by setting a tuning profile and by adjusting the scheduling priority of specific processes

- Setting a Tuning Profile
- Guided Exercise: Set a Tuning Profile
- Influencing Process Scheduling
- Guided Exercise: Influence Process Scheduling
- ❖ Lab: Tune System Performance

Chapter 10. Managing Basic Storage

Goal: Manage storage devices by creating partitions, file systems, and swap spaces from the command line.

- Creating and Managing File Systems on Standard Partitions
- Guided Exercise: Create and Manage File Systems on Standard Partitions
- Managing Swap Space
- Guided Exercise: Manage Swap Space
- ❖ Lab: Manage Basic Storage

Chapter 11. Managing Storage with Logical Volume Manager

Goal: Use Logical Volume Manager (LVM) to manage logical volumes that can contain file systems and swap spaces.

- Creating Logical Volumes
- Guided Exercise: Create Logical Volumes
- Extending a Logical Volume
- Guided Exercise: Extend a Logical Volume
- Replacing Physical Volumes and Managing LVM
- ❖ Lab: Manage Storage with Logical Volume Manager

Chapter 12. Controlling and Troubleshooting the Boot Process

Goal: Manage how the system boots to control which services start and to troubleshoot and repair boot-time problems

- Managing the Boot Loader and Kernel Command Line
- Guided Exercise: Manage the Boot Loader and Kernel Command Line
- Exploring the Boot Process and Selecting a Boot Target
- Guided Exercise: Explore the Boot Process and Select a Boot Target
- Repairing Damaged File Systems at Boot Time
- Guided Exercise: Repair a Damaged File System at Boot Time
- ❖ Lab: Control and Troubleshoot the Boot Process

Chapter 13. Recovering Superuser Access

Goal: Gain administrative access to a system when the superuser password is unknown or is locked.

- Regaining Superuser Access and Resetting the Root Password
- Guided Exercise: Regain Superuser Access and Reset the Root Password

Chapter 14. Managing Network Security

Goal: Control network connections to services by using the system firewall, and network services that can bind to particular ports by using SELinux

- Managing Server Firewalls
- Guided Exercise: Manage a Server Firewall
- SELinux Port Labeling
- Guided Exercise: SELinux Port Labeling
- ❖ Lab: Manage Network Security

Chapter 15. Accessing Network-attached Storage

Goal: Access network-attached storage that the Network File System (NFS) protocol provides, either manually or by using the automounter.

- Mounting NFS File Systems
- Guided Exercise: Mount NFS File Systems
- Automounting Storage Devices
- Guided Exercise: Automount Storage Devices
- ❖ Lab: Access Network-attached Storage

Chapter 16. Installing Red Hat Enterprise Linux

Goal: Install Red Hat Enterprise Linux in package mode, either interactively or by using Kickstart.

- Installing Red Hat Enterprise Linux Interactively
- Guided Exercise: Install Red Hat Enterprise Linux Interactively
- Automating Red Hat Enterprise Linux Installation with Kickstart
- Guided Exercise: Automate Red Hat Enterprise Linux Installation with Kickstart

Chapter 17. Managing Containers with Podman

Goal: Manage containers and container images with the latest version of container management tools.

- Introduction to Containers
- Running Containers with Podman
- Guided Exercise: Run Containers with Podman
- Creating and Managing Container Images
- Guided Exercise: Create and Manage Container Images
- ❖ Lab: Manage Containers with Podman

Chapter 18. Working with Image-based Red Hat Enterprise Linux

Goal: Create, use, install, and upgrade containers and servers that use image-based installation management.

- Image Mode for Red Hat Enterprise Linux
- Creating Installable Images for Image Mode
- Guided Exercise: Create Installable Images for Image Mode
- Installing Red Hat Enterprise Linux by Using Image Mode
- Guided Exercise: Install Red Hat Enterprise Linux by Using Image Mode
- Managing Image Mode-based Systems
- Guided Exercise: Manage Image Mode-based Systems

Chapter 19. Comprehensive Review

Goal: Review tasks from Red Hat System Administration II.

- ❖ Lab: Fix Boot Issues and Maintain Servers
- ❖ Lab: Configure and Manage File Systems and Storage
- ❖ Lab: Configure and Manage Server Security
- ❖ Lab: Run Containers

Additional Concepts will be covered @ Entersoft Labs in RHCSA Course:

- ✚ Installing and Configuring Telnet Server and Telnet Client
- ✚ Installing and Configuring VSFTPD Server and FTP Client
- ✚ Installing and Configuring Web Server (HTTPD)
- ✚ Installing and Configuring Database Server (MariaDB)
- ✚ Installation and Configuration of YUM/DNF Server

Recommended next exam or course

Red Hat Certified System Administrator exam (EX200) @ 3 hrs. Exam Red Hat Enterprise Linux Automation with Ansible (AU294) to become RHCE