

**Red Hat Enterprise Linux 9 (RHEL 9) System Administration II**

**Course Number:** LNX-140  
**Duration:** 5 days

**Overview**

This Red Hat Enterprise Linux 9 (RHEL 9) System Administration II training course teaches attendees the commands and methods needed to set up and manage a RHEL 9 system using a problem-solving approach with advanced topics for long-term management.

This course is comparable to [Red Hat course 134.](https://www.redhat.com/en/services/training/rh124-red-hat-system-administration-i) Along with Accelebrate's [Red Hat Enterprise Linux 9 (RHEL 9) System Administration I](file:////training/rhel-9-administration-i) class, this course is preparation for the [RHCSA 9 certification examination](https://www.redhat.com/en/services/training/ex200-red-hat-certified-system-administrator-rhcsa-exam).

**Prerequisites**

Students should have taken [Accelebrate's RHEL 9 System Administration I](file:////training/rhel-9-administration-i) course, or have the equivalent experience.

**Materials**

All Red Hat Linux training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Install, update, and boot the RHEL 9 operating system
* Set up user accounts and directories
* Perform backups for integrity and performance
* Monitor the system for performance and do basic setup of network software and capabilities

**Outline**

* Introduction
* Improve Command Line Productivity
  + Vim editor
  + Invoking vim
  + .vimrc file
  + Key vim features
  + Advanced vim features
  + Gvim
  + Using command aliases and shell scripts
* Using Regular Expressions with grep
  + Regular expressions
* Schedule Future Tasks
  + Submitting a batch job with at
  + Batch job logging with at
  + Submitting a batch job with crontab
  + Crontab file entry layout
  + Uses of crontab entries
  + System level periodic processing via crond
  + Periodic processing via a systemd timer
* Control Access to Files with ACLs
  + Special file attributes (SUID, SGID, STICKY)
  + Special directory attributes (SGID, STICKY)
  + Access Control Lists (ACLs)
  + Default directory access control lists (dACLs)
* Install Red Hat Enterprise Linux 9 (with kickstart)
  + Building a kickstart File
  + Initiating Installation via a kickstart File
  + Upgrading Red Hat Enterprise Linux 9
  + KVM virtual machine requirements
  + KVM virtual machine creation
* Control the Boot Process
  + RHEL 9 system initialization sequence
  + Grand Unified Boot Loader (GRUB 2)
  + Grand Unified Boot Loader (GRUB 2) - components
  + Grand Unified Boot Loader (GRUB 2) - variables
  + Grand Unified Boot Loader (GRUB 2) - menuentries
  + RHEL 9 server single user mode
  + RHEL reset forgotten root password
  + kernel boot parameters
  + shutdown
  + install rescue mode
* Maintain Basic Storage
  + Disk device and partition operations
  + Disk device information
  + MBR partition table concepts
  + GPT partition table concepts
  + Red Hat Enterprise Linux 9 system (boot) disk
  + MBR partition operations
  + GPT partition operations
  + File system operations
  + Red Hat Enterprise Linux 9 ext\* file system layout
  + Ext4 filesystem
  + Superblock backup areas
  + Red Hat Enterprise Linux 9 xfs file system layout
  + Xfs filesystem
  + Unmounting filesystems
  + Swapping and paging spaces
  + Encrypted filesystems
  + Changes to /tmp
* Manage Logical Volumes
  + Logical volume management concepts
  + Logical volume management utilities
  + Using the logical volume manager
  + Physical volumes
  + Volume groups
  + Logical volumes
  + Logical volume mirroring
  + Logical volume backup
  + Using logical volumes as swap space
* Implement Advanced Storage Features
  + Stratis volume management concepts
  + Using Stratis as a volume managing filesystem
  + Stratis volume management commands
  + Using Stratis
  + VDO volume management concepts
  + Using VDO for volume compression
  + VDO volume management commands
  + Using VDO
* Manage Network Security
  + Service-specific access control
  + Firewalld components
  + Firewall interface - firewall-cmd
  + Firewall interface - cockpit
  + Iptables firewall
* Access Network-Attached Storage
  + Network File System concepts
  + Network File System configuration
  + Setting up the Network File System
  + Starting up the Network File System
  + Using the Network File System
  + Automounter - direct / indirect maps
* Manage SELinux Security
  + SELinux concepts
  + SELinux files and utilities
* Tune System Performance
  + Overview of performance management
  + Utilities for performance monitoring
  + Changing system and kernel parameters
  + Using tuned to define performance profiles
* Running Containers
  + Download an existing container
  + Start, run and stop a container using podman
  + Run a service inside a container
  + Attach persistent storage to a container
* Conclusion