RHCSA EX200 Exam Prep 2026

Hands-On Practice Guide for Red Hat Enterprise Linux Certification

Preface

The Red Hat Certified System Administrator (RHCSA) certification has long stood as one of the most respected and sought-after credentials in the Linux and open-source ecosystem. Earning the RHCSA designation by passing the EX200 exam signals to employers, peers, and the broader IT community that you possess genuine, hands-on competence in administering Red Hat Enterprise Linux systems. It is not a test of memorization—it is a test of *doing*. And that distinction is precisely what makes this book necessary.

Why This Book Exists

RHCSA EX200 Exam Prep 2026 was written with a single, unwavering goal: to prepare you to pass the RHCSA exam by building real skills through deliberate, hands-on practice. Too many study resources treat the RHCSA as a written exam, burying candidates under theory while neglecting the practical muscle memory that the EX200 demands. This guide takes the opposite approach. Every chapter is designed around tasks you will perform—on a live system, under time pressure, with no notes and no internet access.

Whether you are a newcomer to Linux system administration, an experienced professional formalizing your skills with a certification, or someone retaking the exam after a previous attempt, this book meets you where you are and walks you methodically toward exam readiness.

What You Will Find Inside

The book is organized into a logical progression that mirrors both the RHCSA exam objectives and the natural learning path of a competent system administrator.

Chapters 1–2 orient you to the EX200 exam structure and guide you through building your own practice lab environment—because you cannot learn RHCSA skills without a system to break and rebuild.

Chapters 3–14 form the technical core of the book. Each chapter targets a critical RHCSA domain: command-line proficiency, user and group management, file permissions and ownership, SELinux policy enforcement, disk partitioning, Logical Volume Management (LVM), systemd service administration, boot process troubleshooting and recovery, network configuration, firewall management, task scheduling, and Bash scripting. Within each chapter, you will find clear explanations followed immediately by practical exercises that reinforce the concepts under exam-like conditions.

Chapters 15–16 bring everything together with full-length practice exam scenarios and a comprehensive final review, including strategies for managing your time and composure on exam day.

Appendices A–E serve as quick-reference companions for your study sessions and last-minute review, covering essential commands, SELinux contexts, LVM workflows, network configuration templates, and a structured RHCSA study roadmap to keep your preparation on track.

How to Use This Book

This is not a book meant to be read passively. *Type the commands. Break the configurations. Fix them.* The RHCSA exam rewards candidates who have trained their hands as much as their minds. I encourage you to work through every exercise, attempt each practice scenario without looking at the solution first, and repeat tasks until they feel automatic.

A Note of Gratitude

This book would not exist without the vibrant Red Hat and Linux community—the countless contributors to open-source documentation, the forum members who patiently answer questions, and the instructors and mentors who have dedicated their careers to making Linux accessible. I am also deeply grateful to the technical reviewers whose sharp eyes and honest feedback strengthened every chapter, and to the readers of earlier editions whose suggestions shaped this updated guide.

Most importantly, thank you—the reader—for investing your time and effort in pursuing the RHCSA certification. The path ahead requires discipline and practice, but the reward is a skillset that is portable, practical, and genuinely valued across the industry.

Your RHCSA journey starts now. Open a terminal, and let's get to work.

Miles Everhart

Table of Contents

Chapter 1: Understanding the EX200 Exam Structure

The Red Hat Certified System Administrator (RHCSA) certification, formally designated as exam EX200, stands as one of the most respected and widely recognized credentials in the Linux and open-source ecosystem. For system administrators, DevOps engineers, cloud professionals, and anyone seeking to validate their hands-on Linux skills, the RHCSA represents a critical milestone. Before you begin studying commands, configuring services, or troubleshooting boot issues, it is essential that you thoroughly understand what this exam demands, how it is structured, what Red Hat expects from candidates, and how to approach your preparation strategically. This chapter serves as your foundational guide to the EX200 exam, giving you the knowledge you need to plan your study journey with confidence and clarity.

The RHCSA EX200 exam is not a traditional multiple-choice test. Unlike many vendor certifications that rely on theoretical questions and memorization of facts, the EX200 is a purely performance-based examination. This means that on exam day, you will be placed in front of one or more live Red Hat Enterprise Linux systems and given a series of tasks that you must complete within a fixed time window. There is no partial credit for explaining what you would do. There is no option to select answer "B" from a list. You either accomplish the task correctly on the live system, or you do not. The system is evaluated after the exam concludes, and your score is determined by whether the tasks have been completed successfully and persist after a reboot. This approach makes the RHCSA one of the most practical and honest certifications available in the information technology industry, because

it proves that a certified individual can actually perform the work, not merely describe it.

As of the 2026 exam objectives, the EX200 is based on Red Hat Enterprise Linux 9 (RHEL 9). This is an important detail because Red Hat periodically updates the exam to align with the latest major release of their enterprise operating system. RHEL 9 introduces several changes compared to previous versions, including updated default configurations, newer package versions, changes to security policies, and refinements to system management tools. Candidates preparing for the exam must ensure they are studying and practicing on RHEL 9 or a compatible derivative such as CentOS Stream 9, Rocky Linux 9, or AlmaLinux 9. Practicing on older versions such as RHEL 7 or RHEL 8 may leave you unprepared for differences in default behavior, available utilities, and configuration file locations.

The exam duration is two and a half hours, which translates to 150 minutes of working time. While this may sound generous, candidates consistently report that time management is one of the most challenging aspects of the exam. The tasks range from straightforward operations that an experienced administrator could complete in minutes to more complex multi-step configurations that require careful planning and execution. If you spend too long troubleshooting a single task, you risk running out of time for tasks that you could have completed easily. Developing a strategy for time allocation during your practice sessions is therefore just as important as learning the technical content itself.

The exam is scored on a scale of 0 to 300, and the passing score is 210, which represents 70 percent. Each task on the exam carries a certain number of points, though Red Hat does not publicly disclose the exact point value of individual tasks. What is known is that the scoring is binary for each task or sub-task: you either receive the full points for a correctly completed task, or you receive zero points. There is no partial credit. This scoring model reinforces the importance of thoroughness and accuracy. If a task asks you to configure a service to start automati-

cally at boot and you configure it correctly but forget to enable it, you may lose all points for that task even though you completed most of the work.

The exam objectives published by Red Hat provide a detailed outline of the skills and knowledge areas that candidates are expected to demonstrate. These objectives are organized into several broad categories, and understanding each category is essential for comprehensive preparation. The following table provides a complete overview of the major exam objective domains along with descriptions of what each domain covers.

Objective Domain	**Description**	**Key Skills Tested**
Understand and Use Essential Tools	Work with the shell, execute commands, locate and interpret documentation, create and manage files, use input/output redirection, and manage processes	grep, find, tar, file permissions, man pages, piping, redirection
Create Simple Shell Scripts	Write bash scripts that use loops, conditionals, and positional parameters to automate administrative tasks	bash scripting, for loops, if/else, exit codes, executable scripts
Operate Running Systems	Boot, reboot, and shut down systems normally, boot into different targets, interrupt the boot process to gain access, manage processes, locate and interpret log files	systemctl, journalctl, boot targets, reset root password
Configure Local Storage	Create and manage partitions, logical volumes, and file systems, including extending existing logical volumes	fdisk, parted, lvm, pvcreate, vgcreate, lvcreate, lvextend, mkfs

Create and Configure File Systems	Create, mount, and unmount file systems, configure autofs, extend logical volumes, create and manage set-GID directories, and configure network file systems	mount, fstab, autofs, NFS, Samba client, setgid
Deploy, Configure, and Maintain Systems	Schedule tasks, manage software packages, modify the system bootloader, configure networking, and manage system services	cron, at, dnf, yum, nmcli, systemctl, grub2
Manage Basic Networking	Configure IPv4 and IPv6 addresses, configure hostname resolution, and restrict network services using firewalld	nmcli, hostnamectl, firewall-cmd, /etc/hosts
Manage Users and Groups	Create, delete, and modify local user accounts and groups, configure password policies, and manage access with sudo	useradd, usermod, groupadd, passwd, chage, visudo, /etc/sudoers
Manage Security	Configure firewall settings, manage SELinux modes and policies, set file permissions and access control lists	firewall-cmd, semanage, restorecon, getenforce, setfacl, getfacl
Manage Containers	Find, retrieve, inspect, and manage container images, perform basic container management, and configure containers to start as systemd services	podman, skopeo, buildah, systemd user services for containers

One of the most significant additions to the RHCSA exam in recent years is the container management domain. Candidates are now expected to demonstrate proficiency with Podman, which is the default container runtime on RHEL 9. Unlike

Docker, Podman runs containers without a daemon process and supports rootless containers, making it a natural fit for the Red Hat ecosystem. You must be able to pull images from registries, run containers with specific configurations, attach persistent storage, and configure containers to run as systemd services so they start automatically when the system boots or when a specific user logs in. This is a topic that many candidates underestimate, and it deserves dedicated study time.

When approaching your preparation, it is critical to understand that the RHCSA exam tests practical ability under pressure. Reading documentation and watching video tutorials will build your understanding, but they will not prepare you for the experience of sitting in front of a terminal with a countdown timer. The single most effective preparation strategy is repeated hands-on practice in an environment that closely mirrors the exam conditions. You should set up virtual machines running RHEL 9 or a compatible distribution and practice every objective until you can complete the tasks from memory, without referring to external notes. During the actual exam, you will have access to the man pages and built-in system documentation, but you will not have access to the internet, personal notes, or any external resources. Learning to use man pages effectively is itself an important exam skill.

A recommended practice approach is to create a study lab using virtualization software such as KVM/libvirt (which is the native virtualization technology on RHEL), VirtualBox, or VMware Workstation. Your lab should include at least two virtual machines so that you can practice tasks that involve network connectivity, NFS mounts, and other multi-system configurations. Each practice session should simulate exam conditions as closely as possible. Set a timer for 150 minutes, give yourself a list of tasks, and attempt to complete them all within the time limit. After each session, review what you accomplished, identify areas where you struggled, and focus your next study session on those weak areas.

The following table outlines a suggested study plan that maps each week of preparation to specific exam objective domains. This plan assumes approximately

eight weeks of dedicated study, though you should adjust the timeline based on your existing experience level.

Week	Focus Area	Practice Activities
Week 1	Essential Tools	Practice file management, text processing with grep and sed, using find with complex expressions, managing archives with tar, and navigating man pages
Week 2	Users, Groups, and Permissions	Create users with specific UIDs, configure password aging policies, set up sudo access, apply standard and special permissions, configure ACLs
Week 3	Storage Management	Create partitions with fdisk and parted, configure LVM from scratch, extend logical volumes and their file systems, configure swap space
Week 4	File Systems and Mounting	Create various file system types, configure persistent mounts in fstab, set up autofs for NFS home directories, configure set-GID directories
Week 5	Networking and Firewall	Configure static IP addresses with nmcli, manage hostname resolution, add firewall rules and services with firewall-cmd, make rules persistent
Week 6	System Services and Boot Process	Manage services with systemctl, configure targets, reset the root password by interrupting boot, schedule tasks with cron and at, manage software with dnf

Week 7	SELinux and Security	Set SELinux modes, troubleshoot SELinux denials using audit logs, manage file contexts with semanage and restorecon, configure boolean values
Week 8	Containers and Full Practice Exams	Pull and run containers with Podman, configure persistent storage, create systemd unit files for containers, complete timed full-length practice exams

Note: Throughout your preparation, always verify that your configurations survive a system reboot. One of the most common mistakes candidates make during the exam is completing a task correctly in the running system but failing to make it persistent. For example, mounting a file system manually without adding the entry to `/etc/fstab`, or adding a firewall rule without using the `--permanent` flag and then running `firewall-cmd --reload`. After completing each task during practice, reboot your virtual machine and verify that everything is still in place.

Understanding the exam environment itself is also valuable. The EX200 is delivered through a web-based interface that provides access to one or more virtual machines. You interact with these systems through a terminal or console provided within the exam interface. The keyboard layout, screen resolution, and available tools are standardized, but you should familiarize yourself with working in a console environment without the comfort of your customized personal terminal setup. You will not have access to graphical desktop environments for completing tasks, so all your work must be done from the command line.

Red Hat offers the exam in two formats. The first is the traditional classroom-based format, delivered at a Red Hat or Pearson VUE testing center. The second is the remote exam format, called Red Hat Remote Exams, which allows you to take the exam from a quiet, private location using your own computer with a compatible operating system and a stable internet connection. Both formats deliver the same exam content and are scored identically. If you choose the remote option, be

aware that there are strict requirements for your testing environment, including a clean desk policy, a working webcam, and a reliable network connection. Any technical disruption during a remote exam can be stressful, so ensure your setup meets all requirements well in advance.

The cost of the EX200 exam varies by region but generally falls in the range of 400 to 500 US dollars. Red Hat also offers training courses such as RH124 (Red Hat System Administration I) and RH134 (Red Hat System Administration II) that are specifically designed to prepare candidates for the RHCSA exam. While these courses are not required to sit for the exam, they provide structured learning paths that cover all exam objectives. If self-study is your preferred approach, ensure that you are using up-to-date materials that align with the RHEL 9 exam objectives.

Let us also address a common concern among candidates: what happens if you do not pass on your first attempt. Red Hat allows you to retake the exam, though there is a waiting period and you must pay the full exam fee again. There is no penalty for failing, and your previous attempt does not appear on any public record. Many successful RHCSA holders did not pass on their first try, and the experience of taking the exam, even unsuccessfully, provides invaluable insight into the format, pacing, and difficulty level. If you do not pass, review your score report carefully. Red Hat provides a breakdown of your performance by objective domain, which allows you to identify exactly which areas need additional study.

To summarize the key points of this chapter, the EX200 RHCSA exam is a hands-on, performance-based test that requires you to complete real administrative tasks on live RHEL 9 systems within 150 minutes. The passing score is 210 out of 300, and there is no partial credit. The exam covers a broad range of system administration topics including essential tools, storage management, networking, security, user management, and container management with Podman. Your most effective preparation strategy is consistent, repeated hands-on practice in a lab environment that mirrors the exam conditions, with a focus on making all configura-

tions persistent across reboots. Understanding the exam structure, scoring methodology, and objective domains before you begin your technical studies allows you to approach your preparation with purpose and direction, ensuring that every hour you invest in studying brings you closer to certification.

The chapters that follow will take each objective domain and break it down into detailed, practical lessons with step-by-step exercises, command explanations, and professional examples. By the time you reach the final practice exams in this book, you should be able to sit down in front of a RHEL 9 system and confidently complete any task that the EX200 exam might present. The journey to RHCSA certification is demanding but deeply rewarding, and it begins with the understanding you have gained in this chapter.

Chapter 2: Setting Up Your Practice Lab

The journey toward earning the Red Hat Certified System Administrator (RHCSA) certification begins not with memorizing commands or reading theory, but with building a reliable, functional practice environment where you can experiment, break things, fix them, and ultimately develop the muscle memory that will carry you through the EX200 exam. This chapter walks you through every step of creating that environment, from understanding your hardware requirements to installing Red Hat Enterprise Linux and configuring your virtual machines for hands-on practice. By the end of this chapter, you will have a fully operational lab that mirrors the conditions you will face on exam day.

The RHCSA EX200 exam is entirely performance-based. There are no multiple-choice questions, no true-or-false items, and no shortcuts. You sit in front of a live system and perform real tasks. This reality makes your practice lab the single most important investment in your certification journey. Every minute you spend configuring, troubleshooting, and administering your lab environment is a minute spent preparing for the actual exam. Treat your lab with the seriousness it deserves, and it will reward you with confidence and competence when you sit for the test.

Understanding the Lab Requirements

Before you install anything, you need to understand what resources are necessary to build a meaningful RHCSA practice lab. The EX200 exam typically presents you with one or two virtual machines running Red Hat Enterprise Linux 9. Your practice environment should replicate this setup as closely as possible. At a mini-

mum, you will want to run two virtual machines simultaneously, which means your host system needs sufficient resources to handle the load.

The following table outlines the recommended hardware specifications for your host machine:

Resource	Minimum Requirement	Recommended Specification
Processor	Dual-core CPU with virtualization support (Intel VT-x or AMD-V)	Quad-core or higher CPU with virtualization extensions enabled in BIOS
RAM	8 GB	16 GB or more
Storage	80 GB free disk space	200 GB or more free disk space (SSD preferred)
Network	One network interface	One or more network interfaces
Operating System (Host)	Windows 10/11, macOS, or any Linux distribution	Fedora, CentOS Stream, or RHEL as host for native KVM support

A note on virtualization support: You must ensure that hardware virtualization is enabled in your system BIOS or UEFI firmware. Without this feature turned on, your hypervisor will either refuse to run virtual machines or will run them at severely degraded performance. To check whether virtualization is enabled on a Linux host, run the following command:

```
grep -E '(vmx|svm)' /proc/cpuinfo
```

If this command produces output containing "vmx" (for Intel processors) or "svm" (for AMD processors), virtualization support is active. If there is no output, you need to reboot your machine, enter the BIOS/UEFI settings, and enable the virtualization technology option. The exact menu location varies by motherboard manufacturer,

but it is typically found under "Advanced," "CPU Configuration," or "Security" settings.

Choosing Your Hypervisor

A hypervisor is the software layer that allows you to create and manage virtual machines on your physical host. For RHCSA preparation, you have several excellent options, and your choice will depend on your host operating system and personal preference.

Hypervisor	Host OS Support	Cost	Notes
KVM with virt-manager	Linux	Free	Native Linux virtualization. This is what Red Hat uses internally and is the closest match to the exam environment. Highly recommended.
VirtualBox	Windows, macOS, Linux	Free	Cross-platform, easy to use, excellent for beginners. Works well for RHCSA practice.
VMware Workstation Pro	Windows, Linux	Free for personal use (as of recent licensing changes)	Professional-grade hypervisor with excellent performance and snapshot features.

VMware Fusion	macOS (Intel)	Free for personal use	macOS equivalent of VMware Workstation. Not available for Apple Silicon without additional considerations.
Hyper-V	Windows 10/11 Pro or Enterprise	Free (built into Windows)	Microsoft's native hypervisor. Works adequately for RHCSA practice but less commonly used in this context.

For the most authentic RHCSA preparation experience, KVM with virt-manager on a Linux host is the gold standard. The EX200 exam environment uses KVM-based virtual machines, so familiarity with this hypervisor gives you an additional edge. However, if you are running Windows or macOS as your primary operating system, VirtualBox or VMware Workstation will serve you perfectly well.

Installing KVM and virt-manager on a Linux Host

If you are running Fedora, CentOS Stream, or RHEL as your host operating system, installing KVM and the graphical virtual machine manager is straightforward. Execute the following commands as root or with sudo privileges:

```
sudo dnf groupinstall "Virtualization Host" -y
sudo dnf install virt-manager virt-viewer -y
```

After installation, start and enable the libvirtd service, which is the daemon that manages virtual machines:

```
sudo systemctl start libvirtd
sudo systemctl enable libvirtd
```

Verify that the service is running:

```
sudo systemctl status libvirtd
```

You should see output indicating that the service is active and running. Next, add your regular user account to the libvirt group so that you can manage virtual machines without constantly switching to root:

```
sudo usermod -aG libvirt $(whoami)
```

Log out and log back in for the group membership to take effect. You can verify your group membership with:

```
id $(whoami)
```

The output should include "libvirt" among the listed groups.

Installing VirtualBox on Windows or macOS

If you are using Windows or macOS, download VirtualBox from the official Oracle VirtualBox website. The installation process follows the standard pattern for each operating system: download the installer, run it, accept the defaults, and finish. On Windows, you may be prompted to install network drivers during the process. Accept these prompts, as the virtual network adapters are essential for your lab's network connectivity.

After installation, open VirtualBox and navigate to File then Preferences then Extensions. If you downloaded the VirtualBox Extension Pack, install it here. The Extension Pack provides USB 2.0/3.0 support, disk encryption, and PXE boot capabilities, though for basic RHCSA practice, the base installation is sufficient.

Obtaining Red Hat Enterprise Linux 9

Red Hat provides a free Developer Subscription that gives you access to RHEL 9 installation media and entitles you to use RHEL on up to 16 systems for development purposes. This is the ideal way to practice for the RHCSA exam because you will be working with the exact same operating system you will encounter on exam day.

To obtain your Developer Subscription, follow these steps:

1. Visit the Red Hat Developer website at developers.redhat.com.
2. Create a free Red Hat account if you do not already have one.
3. Navigate to the Products section and select Red Hat Enterprise Linux.
4. Download the RHEL 9 Boot ISO or the full DVD ISO. The DVD ISO is approximately 9 GB and contains all packages needed for offline installation. The Boot ISO is much smaller but requires network access during installation to download packages.

A note on alternatives: If for any reason you cannot use the Red Hat Developer Subscription, CentOS Stream 9 is a close alternative. CentOS Stream is the upstream development platform for RHEL and shares the vast majority of its packages, commands, and configuration. While it is not identical to RHEL, practicing on CentOS Stream 9 will prepare you adequately for the exam. AlmaLinux 9 and Rocky Linux 9 are also binary-compatible rebuilds of RHEL and serve as excellent practice platforms.

Distribution	**Relationship to RHEL**	**Suitability for RHCSA Practice**
RHEL 9 (Developer Subscription)	The actual product	Best possible choice. Identical to exam environment.
CentOS Stream 9	Upstream of RHEL 9	Excellent. Very close to RHEL with minor differences.
AlmaLinux 9	Binary-compatible rebuild of RHEL 9	Excellent. Nearly identical to RHEL.

Rocky Linux 9	Binary-compatible rebuild of RHEL 9	Excellent. Nearly identical to RHEL.
Fedora (latest)	Far upstream of RHEL	Acceptable for general Linux skills but includes newer packages and different defaults. Not ideal for focused RHCSA prep.

Creating Your First Virtual Machine

With your hypervisor installed and your RHEL 9 ISO downloaded, you are ready to create your first virtual machine. The following instructions use virt-manager on a Linux host, but the general principles apply to VirtualBox and VMware as well.

Launch virt-manager from your applications menu or by running the following command:

```
virt-manager
```

Click on "Create a new virtual machine" and select "Local install media (ISO image or CDROM)." Browse to the location where you saved your RHEL 9 ISO file and select it. The virt-manager application should automatically detect the operating system as Red Hat Enterprise Linux 9. If it does not, manually search for and select "Red Hat Enterprise Linux 9" from the operating system list.

Configure the virtual machine resources according to the following specifications:

Setting	Value for Server 1 (Primary)	Value for Server 2 (Secondary)
Name	rhcsa-server1	rhcsa-server2
RAM	2048 MB (2 GB)	2048 MB (2 GB)
CPUs	2	2
Disk Size	20 GB	20 GB

Additional Disk	Add a second 5 GB disk after creation	Add a second 5 GB disk after creation
Network	Default NAT network (virbr0)	Default NAT network (virbr0)

The second disk on each virtual machine is critical for practicing storage management tasks such as partitioning, creating logical volumes, and building file systems. These are heavily tested topics on the RHCSA exam.

Before clicking "Finish," check the box that says "Customize configuration before install." This allows you to review and adjust hardware settings. In the customization window, verify that the boot order includes the CDROM device and that the disk bus type is set to VirtIO for optimal performance.

Installing Red Hat Enterprise Linux 9

When you start the virtual machine, it will boot from the RHEL 9 ISO and present you with the Anaconda installer. Select "Install Red Hat Enterprise Linux 9" from the boot menu and wait for the graphical installer to load.

The Anaconda installer presents a hub-and-spoke interface where you configure various aspects of the installation. Here is a detailed walkthrough of each section:

Localization Settings: Set your language and keyboard layout. For the exam, English is the standard, but configure whatever is appropriate for your situation. Set the time zone to your local time zone.

Software Selection: For your primary practice server, select "Server with GUI" as the base environment. This gives you both a graphical desktop and a full set of server packages. For your secondary server, select "Minimal Install" to practice working in a purely command-line environment. The RHCSA exam may present you with either scenario.

Installation Destination: This is where you configure disk partitioning. For your first installation, select the 20 GB primary disk and choose "Custom" partitioning. Create the following layout:

Mount Point	Size	File System Type	Device Type
/boot	1024 MiB	xfs	Standard Partition
swap	2048 MiB	swap	LVM
/ (root)	Remaining space	xfs	LVM

This layout uses LVM (Logical Volume Manager) for the root and swap volumes, which is the standard configuration for RHEL and is directly relevant to RHCSA exam objectives. Do not partition the second 5 GB disk during installation. Leave it untouched so you can practice partitioning and LVM tasks later.

Network and Hostname: Turn on the network interface and set the hostname. For server1, use "rhcsa-server1.example.com" and for server2, use "rhcsa-server2.example.com." Ensure that the network connection is active so the system can obtain an IP address via DHCP.

Root Password: Set a strong root password that you will remember. For a practice lab, something like "RedHat123!" works fine, but never use simple passwords on production systems.

User Creation: Create a regular user account. Use your name or a practice username such as "student" with a password you will remember. Check the box to make this user an administrator, which adds the account to the wheel group and grants sudo privileges.

Click "Begin Installation" and wait for the process to complete. Depending on your host system's speed and the installation source, this typically takes between 10 and 30 minutes.

Post-Installation Configuration

After installation completes and you reboot into your new RHEL 9 system, there are several immediate tasks to perform that will prepare your lab for effective practice.

First, register your system with Red Hat Subscription Manager to enable package repositories:

```
sudo subscription-manager register --username your-redhat-
username --password your-redhat-password
sudo subscription-manager attach --auto
```

Verify that repositories are available:

```
sudo dnf repolist
```

You should see at least the BaseOS and AppStream repositories listed. These two repositories contain all the packages you will need for RHCSA practice.

Update your system to ensure you have the latest packages and security patches:

```
sudo dnf update -y
```

Install additional useful packages for your practice environment:

```
sudo dnf install vim bash-completion net-tools bind-utils wget
curl -y
```

The bash-completion package is particularly valuable because it enables tab completion for many commands and their options, which speeds up your work both in practice and on the exam.

Configuring Networking Between Virtual Machines

For many RHCSA tasks, you will need your two virtual machines to communicate with each other. If both machines are on the same default NAT network, they should already be able to reach each other. Verify this by finding the IP address of each machine:

```
ip addr show
```

Then ping one machine from the other:

```
ping -c 4 192.168.122.x
```

Replace the IP address with the actual address of the other virtual machine. If the ping succeeds, your network is configured correctly.

For a more stable lab environment, consider setting static IP addresses on both machines. Use the nmcli command to configure a static address:

```
sudo nmcli con mod "enp1s0" ipv4.addresses 192.168.122.10/24
sudo nmcli con mod "enp1s0" ipv4.gateway 192.168.122.1
sudo nmcli con mod "enp1s0" ipv4.dns 192.168.122.1
sudo nmcli con mod "enp1s0" ipv4.method manual
sudo nmcli con up "enp1s0"
```

Replace "enp1s0" with the actual name of your network connection, which you can find with:

```
nmcli con show
```

Taking Snapshots

One of the most powerful features of virtualization is the ability to take snapshots of your virtual machines. A snapshot captures the entire state of the machine at a specific point in time, allowing you to revert to that state if something goes wrong. This is invaluable for RHCSA practice because you can take a snapshot of a clean, working system, attempt a complex task, and roll back if you make a mistake.

In virt-manager, you can take a snapshot by opening the virtual machine window, clicking on the "Manage VM Snapshots" button (it looks like a small camera or monitor icon), and clicking the plus sign to create a new snapshot. Name it something descriptive like "clean-install-base" so you can identify it later.

From the command line, you can manage snapshots with the virsh command: