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RHCSA / RHCE Review Documentation

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CONTENTS

THE WORKSHOP - DETAILS

- The goal of the workshop is to prepare for the Red Hat Certified System Administrator and Engineer exams.
- 7pm - 9pm Thursdays.
- Scheduled 8 weeks but we can extend it.

THE WORKSHOP - FACILITATOR

- Robb Hendershot
- ~10 years as Linux Sys Admin for Lockheed Martin
- RHCSA RHEL4/RHEL5
- RHCSA RHEL6
- Taking RHEL7 exams 2nd week of October

THE WORKSHOP - INTROS

- Name
- Linux/Unix background
- Why you are here

USEFUL RESOURCES

- Prereq test

Cert Depot Study Guide

- <http://www.certdepot.net/rhel7-rhce-exam-objectives/>

RHEL OVERVIEW

- Red Hat Enterprise Linux
- RHEL line started in 2003
- RHEL5 supported into 2020
- RHEL6 supported into 2023
- RHEL7 supported into 2027
- Many variants including Scientific Linux and Oracle Linux
- CentOS - Unsupported downstream version
- Fedora - Unsupported upstream version

RHCSA/RHCE DEFINED

- **Red Hat Certified System Administrator (RHCSA)** - An RHCSA certification is earned when an IT professional demonstrates the core system-administration skills required in Red Hat Enterprise Linux environments.
- **Red Hat Certified Engineer (RHCE)** - A Red Hat Certified Engineer (RHCE) is a Red Hat Certified System Administrator (RHCSA) who possesses the additional skills, knowledge, and abilities required of a senior system administrator responsible for Red Hat Enterprise Linux systems.

RHCSA INFO

Exam

- EX200 - Red Hat Certified System Administrator (RHCSA) exam (\$400)

Web Page

- <http://www.redhat.com/en/services/certification/rhcsa>

RHCSA PREP

Windows

- Red Hat System Administration I (RH124)
- Red Hat System Administration II (RH134)

Linux

- RHCSA Rapid Track Course (RH199)

RHCE INFO

Exam

- EX200 - Red Hat Certified System Administrator (RHCSA) exam (\$400)
- EX300 - Red Hat Certified Engineer (RHCE) exam (\$400)

Web Page

- <http://www.redhat.com/en/services/certification/rhce>

RHCE PREP

Windows

- Red Hat System Administration I (RH124)
- Red Hat System Administration II (RH134)
- Red Hat System Administration III (RH254)

Linux

- RHCSA Rapid Track Course (RH199)
- Red Hat System Administration III (RH254)
- RHCEs who wish to re-certify:
- RHCE Certification Lab

RHCSA REQUIREMENTS (EX200)

Requirements for the RHCSA exam can be found at- <http://www.redhat.com/en/services/training/ex200-red-hat-certified-system-administrator-rhcsa-exam>

11.1 RHCSA Reqs - Understand and use essential tools (1)

- Access a shell prompt and issue commands with correct syntax
- Use input-output redirection (>, >>, |, 2>, etc.)
- Use grep and regular expressions to analyze text
- Access remote systems using ssh
- Log in and switch users in multiuser targets

11.2 RHCSA Reqs - Understand and use essential tools (2)

- Archive, compress, unpack, and uncompress files using tar, star, gzip, and bzip2
- Create and edit text files
- Create, delete, copy, and move files and directories
- Create hard and soft links
- List, set, and change standard ugo/rwx permissions
- Locate, read, and use system documentation including man, info, and files in /usr/share/doc

11.3 RHCSA Reqs - Operate running systems (1)

- 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
- Identify CPU/memory intensive processes, adjust process priority with renice, and kill processes
- Locate and interpret system log files and journals

11.4 RHCSA Reqs - Operate running systems (2)

- Access a virtual machine's console
- Start and stop virtual machines
- Start, stop, and check the status of network services
- Securely transfer files between systems

11.5 RHCSA Reqs - Configure local storage

- List, create, delete partitions on MBR and GPT disks
- Create and remove physical volumes, assign physical volumes to volume groups, and create and delete logical volumes
- Configure systems to mount file systems at boot by Universally Unique ID (UUID) or label
- Add new partitions and logical volumes, and swap to a system non-destructively

11.6 RHCSA Reqs - Create and configure file systems

- Create, mount, unmount, and use vfat, ext4, and xfs file systems
- Mount and unmount CIFS and NFS network file systems
- Extend existing logical volumes
- Create and configure set-GID directories for collaboration
- Create and manage Access Control Lists (ACLs)
- Diagnose and correct file permission problems

11.7 RHCSA Reqs - Deploy, configure, and maintain systems (1)

- Configure networking and hostname resolution statically or dynamically
- Schedule tasks using at and cron
- Start and stop services and configure services to start automatically at boot
- Configure systems to boot into a specific target automatically
- Install Red Hat Enterprise Linux automatically using Kickstart
- Configure a physical machine to host virtual guests
- Install Red Hat Enterprise Linux systems as virtual guests

11.8 RHCSA Reqs - Deploy, configure, and maintain systems (2)

- Configure systems to launch virtual machines at boot
- Configure network services to start automatically at boot
- Configure a system to use time services
- Install and update software packages from Red Hat Network, a remote repository, or from the local file system
- Update the kernel package appropriately to ensure a bootable system
- Modify the system bootloader

11.9 RHCSA Reqs - Manage users and groups

- 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
- Configure a system to use an existing authentication service for user and group information

11.10 RHCSA Reqs - Manage security

- Configure firewall settings using firewall-config, firewall-cmd, or iptables
- Configure key-based authentication for SSH
- 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

RHCE REQUIREMENTS (EX300)

Requirements for the RHCE exam can be found at - <http://www.redhat.com/en/services/training/ex300-red-hat-certified-engineer-rhce-exam>

12.1 RHCE Reqs - System configuration and management (1)

- Use network teaming or bonding to configure aggregated network links between two Red Hat Enterprise Linux systems
- Configure IPv6 addresses and perform basic IPv6 troubleshooting
- Route IP traffic and create static routes
- Use firewalld and associated mechanisms such as rich rules, zones and custom rules, to implement packet filtering and configure network address translation (NAT)
- Use /proc/sys and sysctl to modify and set kernel runtime parameters

12.2 RHCE Reqs - System configuration and management (2)

- Configure a system to authenticate using Kerberos
- Configure a system as either an iSCSI target or initiator that persistently mounts an iSCSI target
- Produce and deliver reports on system utilization (processor, memory, disk, and network)
- Use shell scripting to automate system maintenance tasks

12.3 RHCE Reqs - Network services

- Install the packages needed to provide the service
- Configure SELinux to support the service
- Use SELinux port labeling to allow services to use non-standard ports
- Configure the service to start when the system is booted
- Configure the service for basic operation
- Configure host-based and user-based security for the service

12.4 RHCE Reqs - HTTP/HTTPS

- Configure a virtual host
- Configure private directories
- Deploy a basic CGI application
- Configure group-managed content
- Configure TLS security

12.5 RHCE Reqs - DNS

- Configure a caching-only name server
- Troubleshoot DNS client issues

12.6 RHCE Reqs - NFS

- Provide network shares to specific clients
- Provide network shares suitable for group collaboration
- Use Kerberos to control access to NFS network shares

12.7 RHCE Reqs - SMB

- Provide network shares to specific clients
- Provide network shares suitable for group collaboration
- Use Kerberos to authenticate access to shared directories

12.8 RHCE Reqs - SMTP

- Configure a system to forward all email to a central mail server

12.9 RHCE Reqs - SSH

- Configure key-based authentication
- Configure additional options described in documentation

12.10 RHCE Reqs - NTP

- Synchronize time using other NTP peers

12.11 RHCE Reqs - Database services

- Install and configure MariaDB
- Backup and restore a database
- Create a simple database schema
- Perform simple SQL queries against a database

WORKSHOP PREP

- Install RHEL on VM