The performance-based Red Hat Certified Engineer exam (EX300) tests to determine if your knowledge, skill, and ability meet those required of a senior system administrator responsible for Red Hat Enterprise Linux (RHEL) systems. Red Hat Certified System Administrator (RHCSA) certification is required to earn RHCE certification.

An RHCE certification is earned by a Red Hat Certified System Administrator (RHCSA) who has demonstrated the knowledge, skill, and ability required of a senior system administrator responsible for Red Hat Enterprise Linux systems.

RHCSA

1) Understand and use essential tools

- 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
- 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

2) Operate running systems

- 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
- 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

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3) 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

4) 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

5) Deploy, configure, and maintain systems

- 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
- 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

6) 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

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7) 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

1) System configuration and management

- 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
- 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

2) 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

HTTP/HTTPS

- Configure a virtual host
- Configure private directories
- Deploy a basic CGI application

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- Configure group-managed content
- Configure TLS security

DNS

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

NFS

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

SMB

- Provide network shares to specific clients
- Provide network shares suitable for group collaboration

SMTP

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

SSH

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

NTP

- Synchronize time using other NTP peers

3) Database services

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

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