

RH302

Red Hat Certified Engineer (RHCE) Exam

The Red Hat Certified Engineer (RHCE) and Red Hat Certified Technician (RHCT) exams are performance-based evaluations of Red Hat Enterprise Linux system administration skills and knowledge. Candidates perform a number of routine system administration tasks and are evaluated on whether they have met specific objective criteria. Performance-based testing means that candidates must perform tasks similar to what they must perform on the job.

Official scores for the RHCE and RHCT exams come exclusively from Red Hat Certification Central. Red Hat does not authorize examiners or training partners to report results to candidates directly. Scores on the exam are usually reported within three (3) US business days.

Exam results are reported as section scores. Red Hat does not report performance on individual items, nor will it provide additional information upon request.

Components of the RHCE and RHCT Exams

The RHCT exam is a subset of the RHCE exam, and is organized as follows:

- Troubleshooting and System Maintenance — 1 hour
- Installation and Configuration — 2 hours

In order to earn RHCT, one must successfully complete all the requirements in Troubleshooting and System Maintenance, and must achieve a score of 70 or higher on Installation and Configuration.

For RHCE exams given on Red Hat Enterprise Linux 3 and higher, the exam is organized as follows:

- **Troubleshooting and System Maintenance — 2.5 hours**
- **Installation and Configuration — 3.0 hours**

In order to earn RHCE, one must successfully **complete all the RHCT-level Troubleshooting and System Maintenance requirements**, and successfully complete enough additional RHCE items to **earn a score of 80 or higher** overall on the section.

In addition, one must **score 70 or higher on the RHCT items of Installation and Configuration, and 70 or higher on the RHCE components** of that section.

Prerequisite skills for RHCT and RHCE

Candidates should possess the following skills, as they may be necessary in order to fulfill requirements of the RHCT and RHCE exams:

- use standard command line tools (e.g., ls, cp, mv, rm, tail, cat, etc.) to create, remove, view, and investigate files and directories
- use grep, sed, and awk to process text streams and files
- use a terminal-based text editor, such as vim or nano, to modify text files
- use input/output redirection
- understand basic principles of TCP/IP networking, including IP addresses, netmasks, and gateways for IPv4 and IPv6
- use su to switch user accounts
- use passwd to set passwords
- use tar, gzip, and bzip2
- configure an email client on Red Hat Enterprise Linux
- use text and/or graphical browser to access HTTP/HTTPS URLs
- use lftp to access FTP URLs

RHCT skills

Troubleshooting and System Maintenance

RHCTs should be able to:

- boot systems into different run levels for troubleshooting and system maintenance
- diagnose and correct misconfigured networking
- diagnose and correct hostname resolution problems
- configure the X Window System and a desktop environment
- add new partitions, filesystems, and swap to existing systems
- use standard command-line tools to analyze problems and configure system

Installation and Configuration

RHCTs must be able to:

- perform network OS installation
- implement a custom partitioning scheme
- configure printing
- configure the scheduling of tasks using cron and at
- attach system to a network directory service, such as NIS or LDAP
- configure autofs
- add and manage users, groups, quotas, and File Access Control Lists
- configure filesystem permissions for collaboration
- install and update packages using rpm
- properly update the kernel package
- configure the system to update/install packages from remote repositories using yum or pup
- modify the system bootloader
- implement software RAID at install-time and run-time
- use /proc/sys and sysctl to modify and set kernel run-time parameters
- use scripting to automate system maintenance tasks
- configure NTP for time synchronization with a higher-stratum server

RHCE skills

Troubleshooting and System Maintenance

RHCEs must demonstrate the RHCT skills listed above, and should be able to:

- use the rescue environment provided by first installation CD
- diagnose and correct boot failures arising from bootloader, module, and filesystem errors
- diagnose and correct problems with network services (see *Installation and Configuration* below for a list of these services)
- add, remove, and resize logical volumes
- diagnose and correct networking services problems where SELinux contexts are interfering with proper operation.

Installation and Configuration

RHCEs must demonstrate the RHCT-level skills listed above, and they must be capable of configuring the following network services:

- HTTP/HTTPS
- SMB
- NFS
- FTP
- Web proxy
- SMTP
- IMAP, IMAPS, and POP3
- SSH
- DNS (caching name server, slave name server)
- NTP

For each of these services, RHCEs must be able to:

- install the packages needed to provide the service
- configure SELinux to support the service
- 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

RHCEs must also be able to:

- configure hands-free installation using Kickstart
- implement logical volumes at install-time
- use iptables to implement packet filtering and/or NAT
- use PAM to implement user-level restrictions