



# E

## Sample Exam 4: RHCE Sample Exam 2

**T**he following questions will help measure your understanding of the material presented in this book. As discussed in the introduction, you should be prepared to complete the RHCE exam in 2.0 hours.

Like the RHCSA, the RHCE exam is “closed book.” However, you are allowed to use any documentation that can be found on the Red Hat Enterprise Linux computer. While test facilities allow you to make notes, you won’t be allowed to take these notes from the testing room.

While the RHCE exam is entirely separate from the RHCSA, you need to pass both exams to receive the RHCE certificate. Nevertheless, you can take the RHCE exam first. While both exams cover some of the same services, the objectives for those services are different.

In most cases, there is no one solution, no single method to solve a problem or install a service. There are a nearly infinite number of options with Linux, so I can’t cover all possible scenarios.

Even for these exercises, *do not use a production computer*. A small error in some or all of these exercises may make Linux unbootable. If you’re unable to recover from the steps documented in these exercises, you may need to reinstall Red Hat Enterprise Linux. Saving any data that you have on the local system may then not be possible.

Red Hat presents its exams electronically. For that reason, the exams in this book are available from the companion CD, in the Exams/ subdirectory. This exam is in the file named RHCEsampleexam2, and is available in .txt, .doc, and .html formats. For details on how to set up RHEL 6 as a system suitable for a practice exam, refer to Appendix A.

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Don’t turn the page until you’re finished with the sample exam!

## RHCE Sample Exam 2 Discussion

In this discussion, I'll describe one way to check your work to meet the requirements listed for the Sample 2 RHCE exam. Since there is no one way to set up a Red Hat Enterprise Linux configuration, there is no one right answer for the listed requirements. But there are some general things to remember. You need to make sure your changes work after a reboot. For the RHCE, you'll need to make sure that the services that you set up are active at the appropriate runlevels. For example, if you're configuring Apache, it should be active for at least runlevels 3 and 5.

1. System logging servers require access through either the TCP or UDP protocols. For our purposes, either is acceptable. In general, if the logging data is mission critical, use TCP. Otherwise, UDP is faster. Options for both are shown in comments in the default `/etc/rsyslog.conf` file.

As for the logging client, the last commented directive provides a template. To review, the following directive sends all log messages over TCP port 514, to the logging server named `server1.example.com`.

```
*.* @server1.example.com:514
```

2. Since there is no exam requirement to create a Kerberos server, you may not be able to verify the Kerberos client directly. So to verify, review the Kerberos client. For example, based on the question, it should include the following directives in `/etc/krb5.conf`:

```
default_realm = EXAMPLE.COM
```

In addition, the `kdc` and `admin_server` directives in the `/etc/krb5.conf` file should be set to the FQDN of the physical host system. When complete, the `/etc/nsswitch.conf` file should include

```
passwd:    files sss
shadow:   files sss
group:    files sss
```

In addition, the `sssd` service should be running—now and upon reboot. That can be verified with the `chkconfig --list sssd` command.

3. If successful, you should see the contents of the noted `index.html` files for each web site.

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The `httpd.conf` file in the `/etc/httpd/conf` directory includes a commented sample virtual host stanza. You can use it as a template for both virtual hosts. You should also use the SELinux contexts of the `/var/www/html` directory as a template as well for the `/web` subdirectory.

4. If you are successful, users `elizabeth` and `fred`, and no others, will have access to the `cubs` subdirectory of the main directory. Both users will have access only from systems on the local network. In the Apache `httpd.conf` file, there is a template for single home directories. It can be modified to accommodate a group of users.
5. The CGI application should be accessible from the following URL: `http://test1.example.com/cgi-bin/good.pl`. When you navigate to that URL, the browser should tell you “Good Job!”
6. Given the presumed change to the SELinux `ftp_home_dir` boolean, you need to pay attention to the `vsftpd.conf` configuration file in the `/etc/vsftpd` directory. And in that directory, you’ll see that logins by regular users are enabled by default.
7. The default `named.conf` configuration file is itself sufficient for a caching-only DNS server. To that file, you’ll need to add a **forwarders** directive, with the IP address of the remote DNS server.
8. In principle, it should not matter whether you configure Postfix or `sendmail` as the SMTP server. You should be able to check access with commands like `telnet server1.example.com 25`, only from systems within the local network. The response should reveal the name of the SMTP server. Of course, you can go further with an e-mail client like `mutt`.
9. When user `mike` attempts to connect from a given client, the system should prompt for and accept the passphrase defined in the exam question. (“Linux rocks, Windows does not.” with the comma and period, but without the quote marks.)
10. When masquerading is configured, connections from internal systems such as `server1.example.com` appear as if they come from the physical host system. That can be confirmed in log messages associated with user connections. In an **iptables**-based configuration, it adds forwarding rules.
11. Users with an account on the Samba server should be able to connect to their home directories on that server. But the files on that directory won’t be accessible unless the `samba_enable_home_dirs` boolean is enabled.

12. Peers on an NTP server can be enabled in the `/etc/ntp.conf` file, in place of the **server** directive. Just remember, NTP communicates over UDP port 123. Accordingly, you can't use the **telnet** command to verify the open connection. One way to check if UDP port 123 is open is with the following command: **`nmap -sU server1 -p 123`**.
13. To avoid responding to the **ping** command, which works over IPv4, the `icmp_echo_ignore_all` option must be active. You can set that up permanently in the `/etc/sysctl.conf` file with the **`net.ipv4.icmp_echo_ignore_all = 1`** directive.