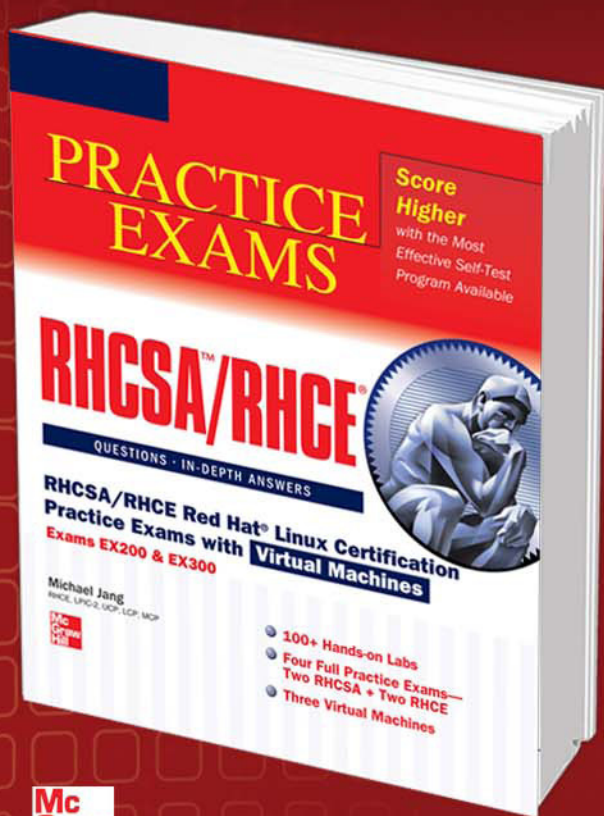


# **FREE Pre-Assessment Test** for the Red Hat Certified Systems Administrator™ (RHCSA™) and Red Hat Certified Engineer® (RHCE®) Exams

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**Turn the  
page to get  
started!**



# Self-Assessment Test

— by Michael Jang

## How Ready Are You?

This self-assessment test features a series of fill-in-the-blank questions designed to help you assess your readiness for the Red Hat Certified Systems Administrator (RHCSA) and Red Hat Certified Engineer (RHCE) exams. The results of this test will gauge your level of mastery of the exam objectives and provide recommended courses of study based on your performance.

## The Questions

The self-assessment questions are based on the outlines for the three Red Hat courses associated with the RHCSA and RHCE certifications: Red Hat System Administration I, II, and III (RH124, RH135, and RH255). For the latest outlines on these courses, see [www.redhat.com/training/courses/](http://www.redhat.com/training/courses/). The questions are also based on the latest RHCSA and RHCE exam objectives. For the latest version of the exam objectives, see [www.redhat.com/training/courses/ex200/examobjective](http://www.redhat.com/training/courses/ex200/examobjective) and [www.redhat.com/training/courses/ex300/examobjective](http://www.redhat.com/training/courses/ex300/examobjective).

As you will see, the questions are divided into three categories: basic, intermediate, and advanced administration. The questions included in the basic section provide one way to measure your knowledge of the information associated with Red Hat's introductory course (System Administration I). Many of the topics in this course are functional prerequisites for the Red Hat certifications. The questions included in the intermediate and advanced sections are associated with the RHCSA and RHCE exam objectives.

### Considerations for the Self-Assessment Test

The official Red Hat exams are hands-on exams. As these self-assessment questions are fill-in-the-blank questions they're subject to interpretation. You need to make your own judgment as to whether you've answered a question correctly and whether you feel that you've mastered the associated topics. There is nothing "scientific" about any of the questions that I've created. These are questions that I've created based on my experience authoring exam prep guides for the Red Hat exams for the last ten years.

Some of the answers may seem impossible; if you know how to look up the answer *quickly*, and I emphasize, *quickly* under time pressure, without access to books or the Internet, that is probably acceptable. For example, you may be able to look up commands with the help of the documentation available on a Red Hat system. All of the questions assume that you know how to log into a RHEL 6 system. In many cases, multiple answers are acceptable; if you know multiple answers to these questions that's an excellent indicator of your readiness.

Anyone can get lucky, even when answering fill-in-the-blank questions. Be honest with yourself. Know your strengths associated with each topic. It's up to you to determine what to study. Good luck!

### Questions

The questions have been split into three sections. They're loosely associated with the published outline for the three Red Hat courses noted, RH124, RH135, and RH255, respectively.

#### Basic Administration

1. What dedicated text editor can you use from the graphical interface?  
\_\_\_\_\_
2. What is the name of the RHEL 6 graphical file browser?  
\_\_\_\_\_
3. Name three different types of help systems in Linux.  
\_\_\_\_\_

4. What tool can you use to configure a system to synchronize its time with a Network Time Protocol Server?  
\_\_\_\_\_
5. What tool can you use to configure a printer?  
\_\_\_\_\_
6. Name three different Linux partition types that you can configure.  
\_\_\_\_\_
7. Name a utility that can measure the current load on the CPU and RAM memory.  
\_\_\_\_\_
8. What command or utility can be used to update the current software on the system?  
\_\_\_\_\_
9. List the commands that you can use to copy, move, delete, and create files.  
\_\_\_\_\_
10. Name two different commands associated with command manuals.  
\_\_\_\_\_
11. What file normally governs the configuration of the first Ethernet card on a system?  
\_\_\_\_\_
12. Name two commands associated with testing network connectivity.  
\_\_\_\_\_
13. What four files are associated with the configuration of users and groups?  
\_\_\_\_\_
14. Based on the typical output from the `ls -l` command, such as the following, name the user and group owner, and describe the permissions given to the user owner, the group owner, and all other users:  

```
-rw-r---x. 1 jbl23 am456 2395 Apr 23 23:11 def
```

  
\_\_\_\_\_

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15. Enter the secure shell command that would connect to user jim's account on the remote system named testing in a way that supports access to remote graphical applications.

---

16. What directory includes most of the scripts that control Linux services? Name three commands that you can use with most of those scripts.

---

17. If you've configured a /dev/sda5 partition as swap space, what command would you use to format it? What entry would work for that swap space in /etc/fstab?

---

---

18. What is the GUI tool that can help manage virtual machines?

---

19. What command can you use to create an encrypted password for GRUB?

---

20. What command compresses the /home directory into an archive in bzip2 format, in a file named homearch.tar.bz2?

---

21. Enter a command that lists all users who use bash as their default shells.

---

22. For a default RHEL 6 installation, what runlevel is associated with the GUI?

---

23. Enter a command that creates a /home/testuser/smb.conf file soft-linked to the /etc/samba/smb.conf file.

---

24. What console is associated with the GUI in a default installation of RHEL 6?

---

## Intermediate Administration

25. What utility can you use to allow access to standard services through the firewall?
- 
26. What package is associated with the RHEL FTP server, and where are data files for that server normally stored?
- 
27. What command lists the SELinux contexts of the files in the current directory?
- 
28. Where is the Kickstart configuration file template for a system? Several directives are typically commented out in that file. What kind of directives are these?
- 
29. What command displays the current numeric network routing table?
- 
30. What command would prepare a partition for encryption? What command would actually encrypt that partition, prompting for a passphrase?
- 
31. Based on a logical volume configured in `/dev/mapper/vg00-lv00`, formatted to `ext4`, what would you enter in `/etc/fstab` to configure the `/abc` directory on that volume?
- 
32. What command would you use to mount a directory named `/home2`, shared via NFSv4, from a server named `whitehat`, and on a local directory named `/remote`?
- 
33. What command would list the current password-aging parameters associated with user `mike`?
-

34. For an LDAP client, what would be the Distinguished Name associated with the example.org network?
- 
35. What command adds the set-GID bit on the /home/shared directory?
- 
36. What command would give user elizabeth (and only that user) read and write permissions on the file named secret.txt, owned by user mike and group mike, and in the /home/mike directory?
- 
37. What command would set the same SELinux file contexts on the /ftpserver directory as those on the /var/ftp directory?
- 
38. What command would activate the **ftp\_home\_dir** SELinux boolean in a way that would survive a reboot?
- 
39. What **yum** command lists all available package groups?
- 
40. What command configures the **httpd** service to start in runlevels 2, 3, 4, and 5?
- 
41. What configuration file includes help on how to set up a cron job?
- 
42. What command lists the runlevel status of all services controlled by scripts in the /etc/init.d directory?
- 
43. Explain the relationship among Physical Volumes, Volume Groups, and Logical Volumes.
- 
- 
-

44. What would you add to the `/etc/fstab` file to make sure a file system is mounted to support Access Control Lists the next time the system is booted?
- 
45. What command can be used to control and configure the operation of KVM-based virtual machines?
- 
46. Enter the command that restores the default SELinux file contexts on the `/var/ftp` directory.
- 
47. Name the directory where SELinux booleans are stored.
- 
48. Name a tool or a command that you can use to resize a logical volume, and how that relates to the size of the formatted file system.
- 

## Advanced Administration

49. What is the port number associated with remote system logging?
- 
50. What is the file used to configure administrative privileges for regular users? What command is used to access that file?
- 
51. What line(s) would you add to a simple script that lists the current nonhidden files in the `/etc` directory and writes those filenames to the `/tmp/config.txt` file.
- 
52. What command can you use to build existing source code into an RPM based on a properly configured spec file? While no switches are required, knowing the switches can help demonstrate your mastery of this topic.
-



53. What is the name of the main NTP configuration file? What directive can you add to that file to point to a different NTP server? It would be great if you know both answers.
- 
54. What command is used to discover available iSCSI targets for network storage?
- 
55. You know that IPv4 forwarding is configured in the `/proc/sys/net/ipv4/ip_forward` file. What directive would you add to the `/etc/sysctl.conf` file to implement IPv4 forwarding on a permanent basis?
- 
56. What directive in the SSH configuration file specifies the access port?
- 
57. What command creates a private/public keypair for SSH connections?
- 
58. For user rajiv, in what directory would you find SSH private and public keys?
- 
59. What command, when run in the `/etc/pki/tls/certs` directory, creates self-signed certificates for a web site named `success.example.org`?
- 
60. In the main Apache configuration file, what directive would you activate to enable name-based virtual hosting?
- 
61. What directive can you add to the Apache configuration file to support the execution of CGI scripts such as those written in Perl?
- 
62. What is the file that contains the default configuration for a secure HTTP web site?
-

63. In what directory can you find the configuration files for the default server associated with the Simple Mail Transfer Protocol (SMTP)?
- 
64. What configuration file is used to configure account aliases for both RHEL 6 SMTP services (Postfix and sendmail)?
- 
65. What command confirms the status of a DNS server when it's operational?
- 
66. What is the communication port number associated with DNS?
- 
67. What would you enter in an `/etc/exports` file when you want to share an `/admin` directory in read-only mode with systems on the `192.168.0.0/24` network, allowing root users who connect to have full privileges? (Yes, that's a highly insecure option.)
- 
68. What command actually implements exported NFS directories, without restarting the service?
- 
69. What command adds user meghan to the default Samba password database? Assume meghan also has a regular account on the Samba server system.
- 
70. What SELinux boolean do you need to activate before sharing user home directories via Samba?
- 
71. What directive in the Red Hat FTP configuration file would you disable to set up an anonymous-only FTP server?
- 
72. What is the name of the tool that can help you to configure a system as a Kerberos client?
-

# Answers

## Basic Administration

1. The standard “dedicated” text editor associated with the RHEL 6 graphical interface is gEdit. However, Linux includes many other text editors, including vi, emacs, nano, and so on. Any of these answers are acceptable. However, one answer that I would be concerned about is any standard graphical word processor such as OpenOffice.org Writer. Although you can save files from that application in text format, it is not known as a text editor.
2. The standard RHEL 6 graphical file browser is nautilus. However, there are other graphical (and console-based) file browsers available, such as Konqueror and midnight commander.
3. The question is intentionally vague and is intended to make you think about the help systems that are available with Linux. The standard help systems associated with RHEL 6 include man pages, info manuals, as well as the GNOME help browser available in the GUI from the System menu.
4. The name of the GUI tool that can help you configure a system to synchronize its time with an NTP server is the Date/Time Properties tool. You can start it with the **system-config-date** command. (It is no longer linked to the **system-config-time** command.) If you just want to synchronize a system from the command line, you could delete the `/etc/ntp.conf` file and configure remote servers in the `/etc/ntp/step-tickers` file. Of course, you can directly configure such servers in the `/etc/ntp.conf` file.
5. The standard RHEL 6 tool for configuring printers is the Printer Configuration tool, available with the **system-config-printer** command. Of course, you can use the web-based tool associated with the default RHEL 6 print service. When active, point a web browser to `http://localhost:631` to access that tool. Naturally, you can configure printers directly in the configuration files of the `/etc/cups` directory. But that is a complex process, not covered in either the RHCSA or RHCE objectives.
6. As shown in **fdisk** utility, there are at least six different partition types directly associated with Linux. The four that are most commonly used are Linux, Linux swap, Linux LVM, and Linux raid auto. These partition types

go by slightly different names in the **parted** utility. If you can recognize those names, that's a good sign.

7. The **top** utility is the standard way to measure the current load on CPU and RAM. The **free** command can measure the load on RAM.
8. The **yum update** command may be the most straightforward way to update the current software on an RHEL system. The GUI Software Update tool, which you can start with the **gpk-update-viewer** command, can also be used to update current software. Those of you who know the Red Hat Network know that can also be used to push updated software onto clients that may need it.
9. The straightforward answer to this question is that the copy command is **cp**; the move command is **mv**; the delete command is **rm**; and the **touch** command can be used to create files.
10. This question is different from question 3, in that it relates to the command manual system. The **man -k searchterm** command is equivalent to **apropos searchterm**, which searches the command manual database for the specified *searchterm*.
11. The standard configuration file associated with the first Ethernet adapter is **ifcfg-eth0**, normally stored in the **/etc/sysconfig/network-scripts** directory.
12. Two commands associated with testing network connectivity are **ping** and **traceroute**. Although they go beyond testing network connectivity, the **nmap** and **telnet** commands can be used to test connectivity in different ways.
13. The files associated with the configuration of the users and groups is known as the Shadow Password Suite; those files are **/etc/passwd**, **/etc/group**, **/etc/shadow**, and **/etc/gshadow**.
14. The file is **def**, with a user owner of **jb123** with read-write permissions and a group owner of **am456** with read-only permissions. All other users have execute-only permissions.
15. The **ssh -l jim testing** command connects to user **jim**'s account on the system named **testing**. The **ssh jim@testing** command is functionally equivalent.
16. The **/etc/rc.d/init.d** directory includes most of the scripts that control Linux services. It is linked to the **/etc/init.d** directory, which is, therefore, also an acceptable answer. These scripts normally work with at least the **stop**, **start**, and **restart** commands. Many also work with commands like **reload** and **status**, which are also acceptable answers. Other commands like **condrestart**

and **configtest** are more rare for scripts in the noted directory. And yes, the **service** command works as a front-end to scripts in the noted directory.

17. The **mkswap /dev/sda5** command formats the noted partition as swap space. You could add the following line to `/etc/fstab` to set up that swap space in `/etc/fstab`:

```
/dev/sda5  swap  swap  defaults  0 0
```

18. The Virtual Machine Manager is the Red Hat tool for managing virtual machines, something you can start with the **virt-manager** command.
19. To set up an encrypted password suitable for inclusion in the GRUB configuration file, you can run the **grub-md5-crypt** command.
20. The command that sets up the compressed archived `/home` directory in the noted file is

```
tar cjf homearch.tar.bz2 /home
```

Variations on this command, such as including the **v** option, are acceptable. The **v** option, in fact, is encouraged, as verbose mode can provide important information in case of a mistake.

21. One way to list all users who have bash as their default shell is with the following command:

```
grep bash /etc/passwd
```

It is true, however, that this command is not precise; for example, a user with the word **bash** in his name would be shown even if his account is configured with a different default shell. But more complex constructs are beyond the skills of someone who is skilled in basic Linux administration.

22. The GUI in RHEL 6 is associated with runlevel 5. Despite the move from SysVinit to Upstart, the default runlevel is still configured in the `/etc/inittab` file. However, the association of the GUI with runlevel 5 is defined in the `/etc/init/prefdm.conf` file.
23. The following command creates the specified soft link:

```
ln -s /boot/grub/grub.conf /home/testuser/grub.conf
```

The following command is functionally equivalent:

```
ln -s /boot/grub/grub.conf /home/testuser/
```

24. In a default installation of RHEL 6, the GUI is associated with the first virtual console. This is new; it was previously associated with the seventh virtual console. It's defined in the `/etc/init/start-ttys.conf` file.

## Intermediate Administration

25. The Firewall Configuration tool, which you can start with the **system-config-firewall** command, makes it easy to support access to standard services through an iptables-based firewall. Changes that you make with this tool, in the Trusted Services section, make it easy to set up access to most major network services. Changes made here are implemented in the `/etc/sysconfig/iptables` file, which is normally fed to the **iptables** service during the boot process. For more information, see Chapter 4 of the *Study Guide*.
26. The vsftpd package is associated with the RHEL 6 FTP server, and (most of) its configuration files are stored in the `/etc/vsftpd` directory. For more information on the FTP server at an RHCSA level, see Chapter 1 of the *Study Guide*.
27. The **ls -Z** command lists the SELinux file contexts of the contents of the current directory. For more information on SELinux at the RHCSA level, see Chapter 4 of the *Study Guide*.
28. Every RHEL 6 installation stores a template Kickstart file in a file named `anaconda-ks.cfg`, in the `/root` directory. Most directives that are normally commented out in this file relate to the configuration of partitions and storage volumes. For more information on the use of Kickstart to install a system, see Chapter 2 of the *Study Guide*.
29. There are two different commands that can display the current numeric network routing table: **route -n** and **netstat -nr**. For more information on these network commands, see Chapter 3 of the *Study Guide*.
30. There are two commands that you might use to randomize a partition or volume before encrypting it: **badblocks** and **dd if=/dev/urandom**. (Yes, this isn't the full command, but is it fair to expect you to memorize those commands before reading the subject books?) To encrypt a volume, you apply the **cryptsetup luksFormat** command to it. For more information on the configuration of encrypted storage volumes, see Chapter 6 of the *Study Guide*.

31. Based on the given parameters, you could enter the following line in `/etc/fstab`:

```
/dev/mapper/vg00-lv00 /abc ext4 defaults 0 0
```

Other options are possible if you configure a LABEL or read the UUID for the `/dev/mapper/vg00-lv00` device file. For more information on Logical Volume Management, see Chapter 6 of the *Study Guide*.

32. The following command mounts a directory named `/home2`, shared via NFSv4 from a server named `whitehat` on a local directory named `/remote`:

```
mount.nfs4 whitehat:/home2 /remote
```

You could substitute the `mount -t nfs4` command for `mount.nfs4` and the IP address (if known) for the server named `whitehat`. Although this topic is related to one from the RH135 outline, this should be a basic skill that you're already familiar with prior to studying for the RHCSA exam. As such, it's a command that you should find in a more basic Linux guide.

33. The `chage -l mike` command lists current password aging parameters for that user. Alternatively, you could decipher that information from various entries for user `mike` in the `/etc/shadow` file. For more information on password parameters as they relate to users, see Chapter 8 of the *Study Guide*.
34. The distinguished name associated with the `example.org` network is `dc=example,dc=org`. For more information on the associated Lightweight Directory Access Protocol (LDAP), see Chapter 8 of the *Study Guide*.
35. The `chmod g+s /home/shared` command adds the set-GID bit on the `/home/shared` directory. To get more information on special permission bits, see Chapter 8 of the *Study Guide*.
36. This command has an implicit requirement for ACLs and will work only with a file system where ACLs are in force. The following command grants the noted permissions to user `elizabeth`:

```
setfacl -m u:elizabeth:rw /home/mike/secret.txt
```

To examine ACLs in more detail, see Chapter 4 of the *Study Guide*.

37. The following command sets the SELinux contexts on the `/ftpserver` directory and all subdirectories, recursively, with the `-R` and with `--reference` to the existing contexts in the `/var/ftp/pub` directory.

```
chcon -R --reference /var/ftp/pub /ftpserver
```

Of course, to implement this change on a permanent basis, you need to know the **semanage fcontext** command. SELinux at the RHCSA level is covered in more detail in Chapter 4 of the *Study Guide*.

38. The **setsebool -P ftp\_home\_dir 1** command activates the noted boolean on a permanent basis. SELinux at the RHCSA level is covered in more detail in Chapter 4 of the *Study Guide*.
39. The **yum grouplist** command lists all available package groups. To go into more depth on package management, see Chapter 7 of the *Study Guide*.
40. The **chkconfig httpd on** command is the simplest way to configure the service to start in the noted runlevels. Basic information associated with service management is covered in Chapter 1 of the *Study Guide*.
41. The default version of the `/etc/crontab` file includes help on all of the columns associated with a cron job. Functionally, one of the crontab man pages, accessible with the **man 5 crontab** command, provides the same kind of information. For more information on job management, see Chapter 9 of the *Study Guide*.
42. The **chkconfig** command is sufficient; it lists all services in the `/etc/init.d` directory, along with whether it's set to start in runlevels 0 through 6. For detailed information on the **chkconfig** command and runlevels, see Chapter 6 of the *Study Guide*.
43. A physical volume is created from a partition, labeled to the Linux LVM partition type. A volume group is created from one or more physical volumes. A logical volume is created from a portion of a volume group. The logical volume is what gets formatted and mounted onto a directory. For more information on Logical Volume Management, see Chapter 6 of the *Study Guide*.
44. Some file systems are already configured with ACL as a default mount option. For example, to confirm this on the `/dev/vda1` partition, run the **dumpe2fs /dev/vda1 | grep acl** command. To make sure, you can include **acl** in the `/etc/fstab` file in the fourth column, with an entry such as **defaults,acl**. To examine filesystem management, see Chapter 6 of the *Study Guide*.
45. Several commands are associated with virtual machine management on RHEL 6, including **virsh** and 11 different **virt-\*** commands. The **virsh** command, with options, is the command that can be used to configure and control the operation of KVM-based virtual machines. To explore more about virtualization, see Chapter 2 of the *Study Guide*.



46. The **restorecon /var/ftp** command restores file contexts on the `/var/ftp` directory. You may want to use the **restorecon -R /var/ftp** command to restore file contexts recursively in subdirectories. For more information on the SELinux at an RHCSA level, see Chapter 4 of the *Study Guide*.
47. SELinux booleans are stored in the `/selinux/booleans` directory. For more information on the SELinux at an RHCSA level, see Chapter 4 of the *Study Guide*.
48. At the command line, the **lvextend** command increases the size of a logical volume; the **lvreduce** command reduces it. As a master of logical volumes, you should realize that once you increase the size of a volume, you need to apply the **resize2fs** command to take advantage of that additional space. For more information on Logical Volume Management, see Chapter 6 of the *Study Guide*.

## Advanced Administration

49. The port number normally associated with remote system logging is 514. That can be either a TCP or a UDP port, depending on how the logging clients and server are configured in the `/etc/rsyslog.conf` file. To study more about logging over a network, see Chapter 17 of the *Study Guide*.
50. The file used to configure administrative privileges for regular users is `/etc/sudoers`. The standard way to access the file is as the root user with the **visudo** command. Some editors like gEdit complain when you try to save changes to this file and even refuse to save them. For more information on administrative privileges, see Chapter 8 of the *Study Guide*.
51. Scripts aren't always quite as simple as one might first think. Unless there's a `PATH` directive within the script, you have to cite the full path to any commands that are used. To list the files in the current `/etc` directory, run the **/bin/ls /etc** command. Of course, to write that output to the noted file, set up the following line in the "simple" script:

```
/bin/ls /etc > /tmp/config.txt
```

For more information on scripts to automate system maintenance tasks, see Chapter 12 of the *Study Guide*.

52. The base command to build existing source code is **rpmbuild**. The two major switches for this purpose are **-ba** and **-bb**; the **-ba** option builds both binary

and source RPM packages, whereas the **-bb** option builds just a binary RPM package. To learn how to set up RPMs from source code, see Chapter 12 of the *Study Guide*.

53. The main NTP configuration file is `ntp.conf`, and there are two directives that could conceivably point it to a different server: **server** and **peer**. To get more information about time service configuration, see Chapter 17 of the *Study Guide*.
54. The **iscsiadm** command is used to discover available targets for network storage. The full command is available in the associated man page; the first example works if you know the name or IP address of the target system. For example, the following command identifies any shared target that is communicating over port 3260:

```
iscsiadm --mode discoverydb --type sendtargets \
--portal 192.168.1.10 --discover
```

To study more about logging over a network, see Chapter 17 of the *Study Guide*.

55. To implement IPv4 forwarding on a permanent basis, add the **net.ipv4.ip\_forward = 1** directive to the `/etc/sysctl.conf` file. If you didn't already realize it, note the relationship between the file in the `/proc/sys` subdirectory and the directive that's highlighted in bold. The management of kernel runtime parameters is covered in Chapter 12 of the *Study Guide*.
56. The **Port** directive, in the SSH server configuration file, specifies the access port. That SSH configuration file is `/etc/ssh/sshd_config`. To learn how to configure SSH as a server, see Chapter 11 of the *Study Guide*.
57. The **ssh-keygen** command creates a private-public keypair that can be used to set up a key-based connection to a remote system. As no password would be transmitted over the network, such a connection would be inherently more secure. When properly configured, you could use a command like **ssh-copy-id** to copy the public key to the target remote system. To discover the secret of securing SSH connections, see Chapter 11 of the *Study Guide*.
58. The directory with public and private SSH keys created by the **ssh-keygen** command is the `.ssh/` subdirectory of the target user. If successful, that public key is added to the `authorized_keys` file in the target user's home directory. In this case, all files would be found in the `/home/rajiv/.ssh` directory. Yes, SSH is an important service and covered in Chapter 11 of the *Study Guide*.

59. The **genkey success.example.org** command generates the noted certificates. It may be most convenient to run the command in the `/etc/pki/tls/certs` directory; otherwise, you can copy the certificate file to that same directory and the certificate key file to the `/etc/pki/tls/private` directory. Web security depends on certificates, as discussed in Chapter 14 of the *Study Guide*.
60. To activate name-based virtual hosting, open the `httpd.conf` file in the `/etc/httpd/conf` directory and activate the **NameVirtualHost \*:80** directive for regular web sites. (You could also add the directive to a `*.conf` file in the `/etc/httpd/conf.d` directory with a similar effect.) To learn how to set up virtual web hosts, see Chapter 14 of the *Study Guide*.
61. The Apache web service won't run scripts in a directory unless it's configured with an **ExecCGI** directive. That directive enables the execution of scripts, such as those written in Perl, in the configured directory. As you may know, it also requires a directory with an **httpd\_sys\_script\_exec\_t** SELinux file type. To learn how to set up scripts on web hosts, see Chapter 14 of the *Study Guide*.
62. Assuming that you've installed the `mod_ssl` package, you can find the default configuration file for secure web sites, `ssl.conf`, in the `/etc/httpd/conf.d` directory. To learn how to set up secure web hosts, see Chapter 14 of the *Study Guide*.
63. The default SMTP server is Postfix, which uses configuration files in the `/etc/postfix` directory. For more information on e-mail services, see Chapter 13 of the *Study Guide*.
64. Account aliases for both SMTP services can be found in the `/etc/aliases` file. To learn how to set up e-mail services in more detail, see Chapter 14 of the *Study Guide*.
65. The preferred way to control DNS services is with the `nameserver` control utility: the **rndc** command. To confirm the status of an operational DNS server, run the **rndc status** command. As the `/etc/init.d/named` script is, in part, a front-end to the **rndc** command, the **/etc/init.d/named status** (and the **service named status**) command is functionally equivalent and is, therefore, also an acceptable answer. To study more about the control of DNS services, see Chapter 17 of the *Study Guide*.

- 66. For standard DNS services, communication proceeds over port 53. To find more details about the configuration of DNS services, see Chapter 17 of the *Study Guide*.
- 67. To share the noted directory via NFS in read-only mode, supporting full root privileges, include the following entry in the `/etc/exports` file. (Additional options such as **sync** or **async** are also acceptable.)

```
/admin 192.168.0.0/24(ro,no_root_squash)
```

To learn more about the configuration of NFS, see Chapter 16 of the *Study Guide*.

- 68. The **exportfs -r** command re-exports directories; it's an appropriate command when you've just changed the `/etc/exports` file and want to implement a change without kicking off anyone who is currently connected to a different NFS share from the same server. Options such as **exportfs -vr** for verbose mode is acceptable and encouraged. The `/etc/init.d/nfs reload` command also serves the same purpose. To learn more about the configuration of NFS, see Chapter 16 of the *Study Guide*.
- 69. The **smbpasswd -a meghan** command adds user meghan to the standard Samba password database, assuming the same entry is made when the command prompts for a password and for confirmation. To examine the configuration of Samba in more detail, see Chapter 15 of the *Study Guide*.
- 70. To share home directories via Samba, you need to enable the **samba\_enable\_home\_dirs** boolean. Yes, this is obscure, but not difficult if you know how to find information associated with SELinux booleans, in locations like the `samba_selinux` man page and the `/selinux/booleans` directory. To examine the configuration of Samba in more detail, see Chapter 16 of the *Study Guide*.
- 71. As the default FTP server supports remote user access to home directories, you want to know how to disable the **local\_enable=yes** directive. Sure that's obscure, but it's also well commented in the `vsftpd.conf` configuration file and confirmed with the associated man page. To examine the configuration of the FTP server in more detail, see Chapter 16 of the *Study Guide*.
- 72. Perhaps the simplest way to set up network-based authentication of a client is with the Authentication Configuration tool. You can start the GUI and console-based versions of this tool with the **system-config-authentication** and **authconfig-tui** commands, respectively. To learn how to set up network-based authentication, see Chapter 15 of the *Study Guide*.

## Analyzing Your Results

As mentioned previously, these questions are fill-in-the-blank questions and the answers are subject to interpretation. You need to make your own judgment as to whether you've answered a question correctly and whether you feel that you've mastered the topics associated with Red Hat's three courses.

Published reports suggest that the “passing grade” for the RHCSA and RHCE exams is 70 percent, so use that guideline here (in other words, answering 17 out of 24 questions correctly in each section). Do note that 70 percent is an arbitrary figure for these self-assessment tests. When you assess your answers, ask yourself: did you know all of the possible answers?

## Basic Administration

If you're not comfortable with the questions in the “Basic Administration” section, you may need an introductory guide to build a solid foundation in Linux. There are many excellent entry-level guides that can serve the purpose, as long as they're focused on the command-line interface, such as:

- *Linux Administration: A Beginner's Guide, Sixth Edition*, by Wade Soyinka (McGraw-Hill, 2012), gives you a detailed look at how you can secure your Linux system and networks in every possible way.

If you're comfortable with at least 70 percent of your answers in the “Basic Administration” section, but feel you would benefit from additional study, you may want to consider an exam-focused self-study guide:

- *RHCSA™/RHCE® Red Hat® Linux Certification Study Guide, Sixth Edition (Exams EX200 & EX300)*, by Michael Jang (McGraw-Hill, 2011), provides comprehensive coverage of each objective on the RHCSA and RHCE exams.

## Intermediate Administration

If you're comfortable with at least 70 percent of your answers in the “Intermediate Administration” section, you may also benefit from an exam-focused self-study guide. If you choose to study with the *RHCSA™/RHCE® Red Hat® Linux Certification Study Guide, Sixth Edition (Exams EX200 & EX300)*, you can skim

Chapter 1 (and a little of Chapter 2) to set up a lab and then focus on the RHCE half of the book: Chapters 10 through 17.

If you're not comfortable with at least 70 percent of your answers, you may also benefit from reading *RHCSA™/RHCE® Red Hat® Linux Certification Study Guide, Sixth Edition (Exams EX200 & EX300)*. You can start with Chapter 1 and work your way through the book as a full course for self-study.

## Advanced Administration

If you're comfortable with 70 percent or more of your answers in all three sections, you may want to consider a hands-on practice exam book:

- *RHCSA™/RHCE® Red Hat® Linux Certification Practice Exams with Virtual Machines (Exams EX200 & EX300)*, by Michael Jang (McGraw-Hill, 2013), includes compressed VMs on a DVD, brief explanations of each objective, along with another 100+ labs and four more sample exams (two for the RHCSA exam and two for the RHCE exam).

Whatever course of study you decide to take good luck! The Red Hat exams are an excellent way to validate your knowledge and skills as a Red Hat System Administrator and Engineer.