Name:

Red Hat Lab – Chapter 7

BC

Use **Red Hat Lab Environment** to complete the lab. Issue the following commands immediately before step 1:

```
history -c
history -w
```

These commands should be repeated for each user@machine prompt. See boxes below.

Paste a screenshot in the box below of the command output from the command below. Include the command itself in the screenshot:

`lab grade perms-review`

```
[student@workstation ~]$ lab grade perms-review

Grading lab.

 · Checking lab systems ..................................... SUCCESS
 · Verifying permissions on /home/techdocs ................. SUCCESS
 · Verifying that tech1 can edit /home/techdocs ............ SUCCESS
 · Verifying that database1 cannot edit /home/techdocs ..... SUCCESS
 · Verifying umask ......................................... SUCCESS

Overall lab grade: PASS
```

Issue the command `history` after the last step for each user@machine prompt. Paste a screenshot of each history in the proper box below. Include the command itself and the full history of commands. Paste in the boxes below:

root@serverb

```
[root@serverb ~]# history
    1  vim /etc/login.defs
    2  groupadd -g 35000 consultants
    3  vim /etc/sudoers.d/consultants
    4  useradd -G consultants consultant1
    5  useradd -G consultants consultant2
    6  useradd -G consultants consultant3
    7  passwd consultant1
    8  passwd consultant2
    9  passwd consultant3
   10  date -d "+90 days" +%F
   11  chage -E 2022-10-03 consultant1
   12  chage -E 2022-10-03 consultant2
   13  chage -E 2022-10-03 consultant3
   14  chage --help | less
   15  chage -M 15 consultant2
   16  chage --help | less
   17  chage -d 0 consultant1
   18  chage -d 0 consultant2
   19  chage -d 0 consultant3
   20  exit
   21  mkdir /home/techdocs
   22  chown :techdocs /home/techdocs
   23  su - tech1
   24  chmod 2770 /home/techdocs
   25  ls -ld /home/techdocs/
   26  su - tech1
   27  su - tech2
   28  su - database1
   29  su - student
   30  cat /etc/profile
   31  vim /etc/profile
   32  cat /etc/profile
   33  exit
   34  history
```

tech1@serverb

```
[tech1@serverb ~]$ history
    1  touch /home/techdocs/techdocs1.txt
    2  ls -ld /home/techdocs/
    3  exit
    4  touch /home/techdocs/techdoc1.txt
    5  ls -l /home/techdocs/techdoc1.txt
    6  exit
    7  history
```

tech2@serverb

```
[tech2@serverb ~]$ history
    1  cd /home/techdocs/
    2  echo "This is the first tech doc." > techdoc1.txt
    3  exit
    4  history
```

database1@serverb

```
[database1@serverb ~]$ history
    1  echo "This is the first tech doc." >> /home/techdocs/techdoc1.txt
    2  ls -l /home/techdocs/techdoc1.txt
    3  exit
    4  history
```

Red Hat Lab – Chapter 8

Use **Red Hat Lab Environment** to complete the lab. Issue the following commands immediately before step 1:

```
history -c
history -w
```

These commands should be repeated for each user@machine prompt. See boxes below.

Paste a screenshot in the box below of the command output from the command below. Include the command itself in the screenshot:

`lab grade prOceSSeS-review`

```
[student@workstation ~]$ lab grade processes-review

Grading lab.

 · Checking lab systems ..................................... SUCCESS
 · Verifying that process101 is not running ................. SUCCESS
 · Verifying that process102 is not running ................. SUCCESS
 · Verifying that process103 is not running ................. SUCCESS

Overall lab grade: PASS
```

Issue the command `history` after the last step for each user@machine prompt. Copy the command itself and the full history of commands. Paste in the boxes below:

student@serverb

```
16  mkdir /home/student/bin
17  vim /home/student/bin/process101
18  chmod +x /home/student/bin/process101
19  grep "model name" /proc/cpuinfo | wc -l
20  cd /home/student/bin
21  process101 &
22  ls -l /home/student/.config/procps/toprc
23  cp process101 process102
24  vim process102
25  top
26  mkdir /home/student/bin
27  vim /home/student/bin/process101
28  ls
29  chmod +x /home/student/bin/process101
30  grep "model name" /proc/cpuinfo | wc -l
31  cd /home/student/bin/
32  process101 &
33  ls -l /home/student/.config/procps/toprc
34  cp process101 process102
35  ls
36  vim process102
37  process102 &
38  jobs
39  cp process101 process103
40  vim process103
41  process103 &
42  jobs
43  su -
44  history
```

root@serverb

```
37  pkill -SIGSTOP process101
38  ps jT
39  pkill -SIGCONT process101
40  pkill process101
41  pkill process102
42  pkill process103
43  history
```

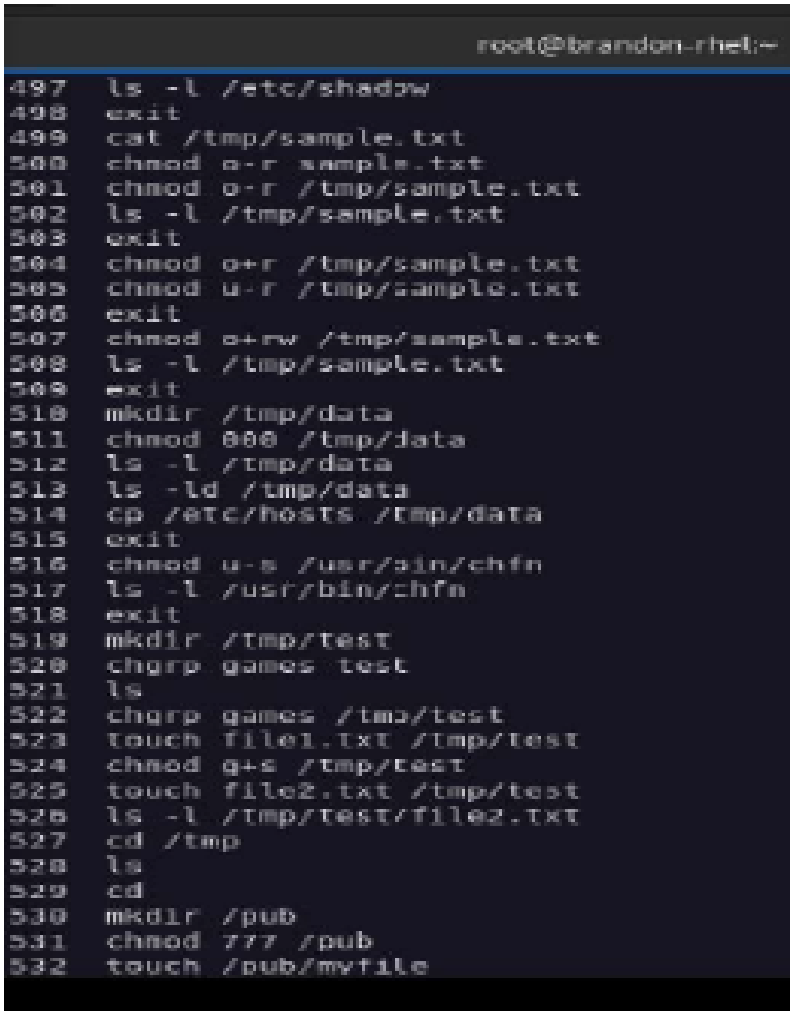
Lab Manual

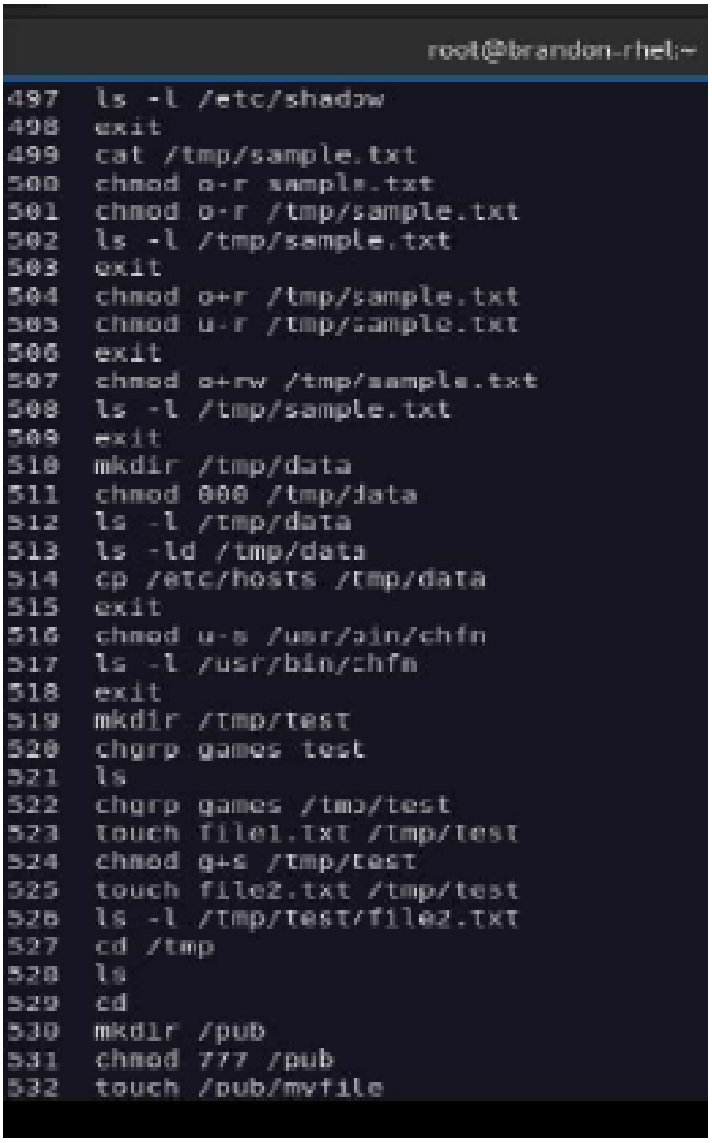
Use the VirtualBox RHELv9 virtual machine for this lab. Do not use the Red Hat Lab Environment. Issue the following commands in the Terminal window before starting the lab on the next page:

```
history -c
history -w
```

Repeat these commands for root@RHELv8 if necessary.

Paste the results of the history command in the box at the end of the lab.





Lab 11: File Permissions and Ownership

1. Switch to the root account and clear the command history.
2. List permissions assigned to the file /etc/shadow
3. Switch back to the normal user account.
4. Create a file called sample.txt in the /tmp directory that says “This is a sample.”
5. View the permissions of /tmp/sample.txt
6. Switch back to the root account.
7. Verify the sysadmin user (root) can view /tmp/sample.txt
8. Remove the ability of the normal user account to view /tmp/sample.txt by using relative permissions.
9. Display the permission you applied.
10. Switch back to the normal user.
11. Verify the normal user account can no longer view /tmp/sample.txt
12. Switch back to the root account.
13. Set world permissions using relative permissions to provide the ability to both view and modify the /tmp/sample.txt file.
14. Display the permission applied.
15. Switch back to a normal user.
16. Verify the normal user can modify the contents of /tmp/sample.txt by appending “Well done!” to the file.
17. Verify the normal user cannot view the file contents.
18. Switch back to the root account.
19. Create a directory /tmp/data
20. Change permissions using absolute mode on the directory so that others do not have access to the directory.
21. Display the changed permissions.
22. Copy /etc/hosts into /tmp/data to verify the root user can create files in the directory.
23. Switch back to a normal user.
24. See if the current user can access the /tmp/data using the ls command.
25. View the permissions of /usr/bin/chfn
26. Change your account information using chfn
27. Switch to the root account.
28. Change the /usr/bin/chfn file so it is no longer setuid.
29. Verify the change.
30. Switch back to a normal user.
31. Try to change to change your account information again using chfn
32. Switch to the root account.
33. Make the /tmp/test directory.
34. Change the group ownership of this directory to the games group.
35. Create the new file file1.txt in the /tmp/test directory.
36. Set the setgid permission using relative mode on /tmp/test
37. Verify it works by creating file2.txt in /tmp/test
38. Display the permissions for file2.txt
39. Create the /pub directory.
40. Change permissions on the /pub directory using absolute mode to rwx rwx rwx.
41. Create myfile in /pub
42. Switch back to a normal account.

43. Delete the previously created myfile.
44. Switch back to root.
45. Add the sticky bit permission using relative permissions to the /pub directory.
46. Create /pub/myfile again in the directory.
47. Switch back to a normal user.
48. Try to delete /pub/myfile
49. Create a new file called sample.txt in your home directory.
50. Display the default umask value.
51. Change default permissions to rw- r- - - - -
52. Create a new file called test.txt
53. Display the permissions of test.txt.
54. Create a directory named mydir1.
55. Display the permissions of the new directory.
56. Change the umask value so that all new directories have this permission set rwx rwx r-x

(Note: provide a screenshot of both the student's history and root's history)

Student:

```
brandon@brandon-rhel: ~$ history
    1  history -w
    2  su -
    3  touch /tmp/sample.txt
    4  echo "This is a sample" >> /tmp/sample.txt
    5  ls -l /tmp/sample.txt
    6  su -
    7  cat /tmp/sample.txt
    8  su -
    9  cat /tmp/sample.txt
   10  su -
   11  echo "well done!" >> /tmp/sample.txt
   12  cat /tmp/sample.txt
   13  su -
   14  ls /tmp/data
   15  ls -l /usr/bin/chfn
   16  chfn
   17  su -
   18  chfn
   19  su -
   20  rm /pub/myfile
   21  su -
   22  rm /pub/myfile
   23  touch sample.txt
   24  umask
   25  touch test.txt
   26  ls -l test.txt
   27  mkdir mydir1
   28  ls -ld mydir1
   29  history
   30  su -
   31  history
```

Root:

```
brandon@brandon-rhel: ~$ history
  495  ls -l /etc/shadow
  496  exit
  497  ls -l /etc/shadow
  498  exit
  499  cat /tmp/sample.txt
  500  chmod o-r sample.txt
  501  chmod o-r /tmp/sample.txt
  502  ls -l /tmp/sample.txt
  503  exit
  504  chmod o+r /tmp/sample.txt
  505  chmod u-r /tmp/sample.txt
  506  exit
  507  chmod o+rw /tmp/sample.txt
  508  ls -l /tmp/sample.txt
  509  exit
  510  mkdir /tmp/data
  511  chmod 000 /tmp/data
  512  ls -l /tmp/data
  513  ls -ld /tmp/data
  514  cp /etc/hosts /tmp/data
  515  exit
  516  chmod u-s /usr/bin/chfn
  517  ls -l /usr/bin/chfn
  518  exit
  519  mkdir /tmp/test
  520  chgrp games test
  521  ls
  522  chgrp games /tmp/test
  523  touch file1.txt /tmp/test
  524  chmod g+s /tmp/test
  525  touch file2.txt /tmp/test
  526  ls -l /tmp/test/file2.txt
```

Lab 12: File Ownership & Permissions

Begin by creating a directory named practice under your home directory (unless it is already present).

1. From the student's home directory, create a new directory under the *practice* directory called **docs** using a relative pathname.
2. Change to the docs directory.
3. Create a new file called symfile.
4. Issue the command to determine the permissions for the new symfile file.
5. The student decides that other users, other than the student and members of the student's group, should not to be able to see the contents of symfile or copy it. Use the chmod command, in symbolic mode, to remove the r (read) permission.
6. List the permissions of the file again.
7. Issue the command that the student would use if the student wanted to remove the read permission for both the group and others with a single command?
8. Change back to the *practice* directory.
9. The student does not want other users to be able to copy files from the docs directory. Use the chmod command in symbolic mode to remove the read permission and the execute permission for the others category of users from the directory docs.
10. Use the chmod command in symbolic mode to add the write permission for the student's primary group for the directory docs.
11. Change the permission back to the default permissions using symbolic mode.
12. Change to the docs directory.
13. Create a new file called octfile.
14. Issue the command to determine the permissions for the new octfile file. These are the default permissions for a file.
15. Use the chmod command in octal mode to remove the r (read) permission for other users for the file octfile.
16. List the permissions of the file again.
17. Remove all permissions for both the group and others with a single command.
18. Change to the *practice* directory.
19. From the *practice* directory, list the permissions for the docs directory. These are the default permissions for a directory.
20. Use the **chmod** command in octal mode to remove the read and the execute permission for the others category of users from the directory docs.
21. List the permissions of the directory again.
22. Use the chmod command in octal mode to add the write permission for the student's primary group for the directory docs. The user should have rwx, the group should have rw, and others should have no permissions to the directory.
23. Change the permissions back to the default permissions (rwxr-xr-x) using octal mode.

```
brandon@brandon-rhel: ~/practice$ history
    1  history -w
    2  mkdir practice/docs
    3  ls
    4  cd practice/docs/
    5  touch symfile
    6  ls -l symfile
    7  chmod o-r symfile
    8  ls -l symfile
    9  chmod go-r symfile
   10  cd ..
   11  chmod -R o-rx /home/brandon/practice/docs
   12  chmod -R g+w /home/brandon/practice/docs
   13  ls -ld docs/
   14  chmod $((0777 - $(umask))) docs/
   15  chmod -R ug+rw docs/
   16  chmod -R o+r docs/
   17  ls -ld docs/
   18  cd docs/
   19  touch octfile
   20  ls -l octfile
   21  chmod 660 octfile
   22  ls -l octfile
   23  chmod 600 octfile
   24  ls -l octfile
   25  cd ..
   26  ls -ld docs/
   27  chmod 662 docs/
   28  ls -ld docs/
   29  chmod 760 docs/
   30  ls -ld docs/
   31  chmod 755 docs/
   32  ls -ld docs/
   33  history
```

Lab 13: Managing Processes

1. Display the commands that are running your current shell.
2. View all running processes on the system.
3. Create a simple shell script by executing the following commands:

```
echo ‘echo hello’ > test.sh
echo ‘sleep 100’ >> test.sh
echo ‘echo goodbye’ >> test.sh
chmod a+x test.sh
```

4. Execute the script by typing `./test.sh`
5. To cancel the script, hold down Ctrl-C.
6. Execute the script in the background.
7. View background processes.
8. Stop `test.sh` running in the background.
9. Start five sleep processes in the background (use the sleep command). Then stop them all with a single command.
10. Start the sleep command with a lower priority of 10.
11. Confirm the sleep command is running in a lower priority of 10.
12. Change the priority of the sleep command to 15.
13. Display how long the system has been up along with the average load of the system.
14. Display basic system memory statistics.
15. Display a real time view of running processes.

```
brandon@brandon-rhel: ~$ history
    1  history -w
    2  ps
    3  ps -aux | less
    4  echo 'echo hello' > test.sh
    5  echo 'sleep 100' >> test.sh
    6  echo 'echo goodbye' >> test.sh
    7  chmod a+x test.sh
    8  ./test.sh
    9  ./test.sh &
   10  test.sh &
   11  jobs
   12  sleep 10 & ; sleep 11 & ; sleep 12 ; sleep 13 & ; sleep 14 &
   13  sleep 10 & ; sleep 11 & ; sleep 12 ; sleep 13 & ; sleep 14 & ;
   14  sleep 10 & &; sleep 2 &; sleep 3 &; sleep 4 &; Sleep 5 &
   15  jobs
   16  sleep 10
   17  sleep 15
   18  top
   19  ps aux | less
   20  history
```