

SECTION 1 Manage Directories and Files

In this section of the workbook, you learn how to do the following:

- [“Explore the SUSE Linux File System Hierarchy” on 1-3](#)

In this exercise, you explore the SUSE File System Hierarchy. You find out the mountpoint of the DVD and mount the DVD manually at another position (/mnt) in the file system.

- [“Change Directories and List Directory Contents” on 1-5](#)

In this exercise, you learn how to use the commands `cd`, `pwd` and `ls`.

- [“Create and View Files” on 1-7](#)

In this exercise, you create an empty file and view the content of a file. You use the commands `touch`, `cat`, `less`, `head` and `tail`.

- [“Copy and Move Files and Directories” on 1-9](#)

In this exercise, you copy and move files with the `cp` and `mv` commands.

- [“Create Directories” on 1-11](#)

In this exercise, you create the new directories with the `mkdir` command.

- [“Delete Files and Directories” on 1-12](#)

In this exercise, you learn how to delete files and directories with the `rmdir` and `rm` command.

- [“Link Files” on 1-14](#)

In this exercise, you create a symbolic link and a hardlink with the `ln` command.

- [“Find Files on Linux” on 1-15](#)

In this exercise, you learn how to find files with the commands `whereis`, `which`, `find`, and the GNOME search tool.

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■ “Search File Content” on 1-17

In this exercise, you learn how to find a special character combination in a file with the `grep` and `egrep` commands.

Exercise1-1 Explore the SUSE Linux File System Hierarchy

By default, a DVD is mounted at `/media/mountpoint`. In this exercise, you find out the mountpoint of the DVD and then you mount the DVD manually at another position (`/mnt`) in the file system.

To explore the File System Hierarchy Standard, do the following:

1. Describe what directories the following characters refer to:
 - `/:`
 - `~:`
2. From the GNOME desktop, open the main menu.
3. Select **More Applications**.
4. Enter **term** into the Filter text box.
5. Select the **Gnome Terminal** icon to start a terminal emulation.
6. Log in as root by entering **su -** with a password of **novell**.
7. Insert a *SUSE Linux Enterprise Server 10 DVD* in your DVD-ROM drive.

A Nautilus windows appears showing the content of the DVD.
Note the name of the directory used for mounting here:

8. Display the content of the directory `/media/mountpoint/` by entering
ls /media/mountpoint

The content of the DVD is listed.

9. Unmount the DVD by entering
umount /media/mountpoint

The icon of the DVD disappears from the desktop.

10. Mount the DVD manually by entering

mount /dev/mountpoint /mnt

Nautilus shows the content of the DVD under /mnt.

11. Close the Nautilus window.

12. Display the contents of the directory /mnt by entering

ls /mnt

The contents of the DVD are listed.

13. To unmount the DVD manually enter

umount /mnt

then push the eject button.

14. Remove the DVD from your DVD drive.

15. Display the content of the directory /mnt by entering

ls /mnt

The directory is now empty.

16. Log out as user root by entering

exit

17. Close the terminal window by entering

exit

(End of Exercise)

Exercise1-2 Change Directories and List Directory Contents

In this exercise, you learn how to use the commands `cd`, `pwd` and `ls`.

To change the active directory and list the directory contents, do the following:

1. Describe what directories the following characters refer to:
 - `..`
 - `...`
2. From the GNOME desktop, open the main menu.
3. Select **More Applications**.
4. Enter **term** into the Filter text box.
5. Select the **Gnome Terminal** icon to start a terminal emulation.
6. Change to the directory `/tmp` by entering
`cd /tmp`
7. Display the name of the active directory by entering
`pwd`
8. Change to the home directory by entering
`cd ~`
9. Display the name of the active directory by entering
`pwd`
10. Change to the directory `/usr/share/doc` by entering
`cd /usr/share/doc`.
11. Display the name of the active directory by entering
`pwd`
12. Change back to the last directory (home) by entering
`cd -`
13. Display the name of the active directory by entering
`pwd`

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14. Display the content of the current directory by entering
ls
15. Display the content of the current directory including the hidden files by entering
ls -a
16. View the permissions and the file size of all the files in the current directory by entering
ls -la
17. Close the terminal window by entering
exit

(End of Exercise)

Exercise1-3 Create and View Files

In this exercise, you create an empty file and view the content of a file. You use the commands touch, cat, less, head and tail.

To create and view files, do the following:

1. Open a terminal window from the main menu.
2. Create a new, empty file by entering
touch new_file
3. Open another terminal window, log in as root (**su -**) with a password of **novell**.
4. Display the content of the file /var/log/messages by entering
cat /var/log/messages
5. Display the content of /var/log/messages page by page by entering
less /var/log/messages
6. Find the first occurrence of the word “root” by entering
/root
7. Find the next occurrence of the word “root” by typing **n**.
8. Navigate through the output by using the cursor keys and the **Page Up** and the **Page Down** keys.
9. Quit the display and return to the command line by typing **q**.
10. Display the first 5 lines of the file /var/log/messages by entering
head -n 5 /var/log/messages
11. View a continuously-updated display of the last lines of the file /var/log/messages by entering
tail -f /var/log/messages
12. Arrange the terminal windows on the desktop so that you can see the content of both.
13. In the first terminal window, log in as root (**su -**); then enter an invalid password (such as **suse**).

Notice that the second login attempt is logged in the first terminal window.

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14. In the first terminal window, log in as root (**su -**) with a password of **novell**.

The login is logged in the first terminal window.

15. Log out as root in the first terminal window by entering

exit

16. Close the first terminal window by entering

exit

17. Stop the tail process in the second terminal window by pressing

Ctrl+C.

18. Log out as root by entering

exit

19. Close the terminal window.

(End of Exercise)

Exercise1-4**Copy and Move Files and Directories**

In this exercise, you copy and move files with the cp and mv commands.

To copy and move files and directories, do the following:

1. Open a terminal window.
2. Rename new_file to my_file by entering
mv new_file my_file
3. Verify that the file was renamed by entering
ls -l
4. Copy my_file by entering
cp my_file my_file1
5. Verify that my_file1 was created by entering
ls -l my*
6. Copy the files /usr/bin/rename and /usr/bin/tac to the directory /tmp/ by entering the following
cp /usr/bin/rename /usr/bin/tac /tmp
7. Verify that the files were copied by entering
ls -l /tmp
8. Move the file /tmp/mcopy to the home directory by entering
mv /tmp/tac ~
9. Verify the move by entering
ls -l
10. Move and rename the file /tmp/rename to ~/my_file2 by entering
mv /tmp/rename ~/my_file2
11. Verify that the file my_file2 exists by entering
ls -l
12. Copy the complete directory /bin/ to the home directory with the new directory named my_dir by entering the following
cp -r /bin ~/my_dir
13. Verify that the files were copied by entering
ls -l ~/my_dir

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14. Close the terminal window.

(End of Exercise)

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Exercise1-5 Create Directories

In this exercise, you create the new directories ~/my_dir/new_dir and ~/geeko_dir/empty_dir/ with the mkdir command.

To create directories, do the following:

1. Open a terminal window.
2. Create a directory named new_dir inside the directory my_dir by entering
mkdir ~/my_dir/new_dir
3. Verify that the directory was created by entering the following
ls ~/my_dir
4. Create a directory geeko_dir including a new directory empty_dir by entering
mkdir -p ~/geeko_dir/empty_dir
5. Verify that new_dir was created by entering
ls
6. Verify that empty_dir was created by entering
ls new_dir
7. Close the terminal window.

(End of Exercise)

Exercise1-6 Delete Files and Directories

In this exercise, you learn how to delete files and directories with the `rmdir` and `rm` command.

To delete files and directories, do the following:

1. Open a terminal window.
2. Try to remove the directory `~/geeko_dir` by entering
`rmdir geeko_dir`
A message is displayed indicating that the directory cannot be removed. This is because the directory is not empty.
3. Remove the directory `~/geeko_dir/empty_dir` by entering
`rmdir geeko_dir/empty_dir`
4. Verify that the directory `/empty_dir` has been removed by entering
`ls geeko_dir`
5. Remove the directory `~/geeko_dir` by entering
`rmdir geeko_dir`
6. Verify that the directory was removed by entering **`ls`**.
7. Remove the file `~/my_dir/login` by entering the following
`rm ~/my_dir/login`
8. The file is write-protected. Confirm the warning by entering **`y`**.
9. Verify that the file has been removed by entering the following
`ls ~/my_dir/login`
10. Remove all files with names that begin with “a” in the directory `/home/my_dir/` by entering
`rm -i ~/my_dir/a*`
11. Confirm every warning by entering **`y`**.
12. Remove the directory `/home/my_dir/` including its content by entering
`rm -r ~/my_dir`
13. Confirm every warning by entering **`y`**.

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14. Verify that the directory has been removed by entering
ls ~/my_dir
15. Close the terminal window.

(End of Exercise)

Exercise1-7 Link Files

In this exercise, you create a symbolic link to the file ~/my_file and a hardlink to the file ~/my_file1 with the ln command.

To link a file, do the following:

1. Open a terminal window.
2. Enter the following to create a symbolic link to the file my_file in your home directory
ln -s ~/my_file softlink
3. Enter the following to create a hard link to the file my_file1 in your home directory
ln ~/my_file1 hardlink
4. Display the links by entering
ls -l

Notice that the symbolic link identifies the file it is linked to.

5. Close the terminal window.

(End of Exercise)

Exercise1-8 Find Files on Linux

In this exercise, you learn how to find files with the commands `whereis`, `which`, `find`, and the GNOME search tool.

To find files and directories, do the following:

- [Part I: Use the Commands `whereis` and `which`](#)
- [Part II: Use the GNOME Search Tool](#)
- [Part III: Use the Command `find`](#)

Part I: Use the Commands `whereis` and `which`

To use the commands `whereis` and `which`, do the following:

1. Open a terminal window.
2. Find the type of the command **ll** by entering **type ll**
3. Find the manual pages of the command **find** by entering **whereis -m find**.
4. Find the path of the program Firefox by entering **which firefox**

Part II: Use the GNOME Search Tool

To use the GNOME search tool, do the following:

1. Start the GNOME search tool (application group **System**) from the main menu.
2. Find all files in the home directory whose names start with “my” by entering **my*** in the **Name contains** field and select **Find**.
3. Find all files in the directory `/bin/` whose names consist of two characters, do the following:
 - a. Enter **??** in the **Name contains** field.

- b. To search only in the /bin directory, open the **Look in folder** menu. Select **Other** from the menu.
 - c. Select **bin** from the dialog and **Open**.
 - d. Select **Find** to start the search.
4. Find all files in the directory /tmp/ that were changed or created in the last 24 hours by doing the following:
 - a. Enter ***** in the **Name contains** field.
 - b. To search only in the /tmp directory, open the **Look in folder** menu. Select **Other** from the menu.
 - c. Select **tmp** from the dialog and **Open**.
 - d. Select the **Select more options**.
 - e. Select **Date modified less than** from the **Available options** menu and select **Add**.
 - f. Enter **1** in the **Date modified less than** text box.
 - g. Select **Find**.
5. Close the Search dialog.

Part III: Use the Command find

To use the command find, do the following:

1. From the terminal window command line, find all files in the home directory whose names start with “my” by entering the following
find ~ -name “my*”
2. Find all files in the directory /tmp/ that were changed or created in the last 24 hours by entering the following
find /tmp -ctime -1
3. Close the terminal window by entering
exit

(End of Exercise)

Exercise1-9 Search File Content

In this exercise, you learn how to find a special character combination in a file with the grep and egrep commands.

To search file content, do the following:

1. Open a terminal window.
2. Find all HTML headings of hierarchy 2 in the file /usr/share/doc/packages/yast2-users/users.html by entering the following (on one line)
grep "<h2>" /usr/share/doc/packages/yast2-users/users.html
3. Find all locations in the HTML files of the directory /usr/share/doc/packages/yast2-users/ that include the word “configuration” by entering the following
**grep configuration
/usr/share/doc/packages/yast2-users/*.html**
4. Find all locations in the HTML files of all “yast2” directories /usr/share/doc/packages/yast2-*/ that include lines beginning with a number by entering the following
egrep “[0-9]” /usr/share/doc/packages/yast2-*/*.html
5. Find all locations in the HTML files of all directories /usr/share/doc/packages/yast2-*/ that include lines beginning with three numbers by entering the following
egrep “[0-9]{3}” /usr/share/doc/packages/yast2-*/*.html
6. Close the terminal window.

(End of Exercise)