

Shell Worksheet

In this exercise, you will learn and explore the command line. First start the shell. For this open the Dash (press on icon in upper left corner) and type Terminal. Click the resulting Icon. This is the Terminal, running the **bash** shell. A shell can execute and combine the commands you enter.

First, familiarize yourself with the following commands. For this have a look at the following resources and write a short explanation of what each command does:

- Manual pages (manpages): For example: type **man ls** into the shell (the command line) to see the description for **ls**
- Google: You can just google 'shell ls' or 'man ls' (or other keywords)
- Or see the following comprehensive links:
 - <http://linuxcommand.org>
 - <http://community.linuxmint.com/tutorial/view/100>
 - http://arachnoid.com/linux/shell_programming.html
 - <http://www.youtube.com/watch?v=QGvvJO5UIs4>
 - <http://www.freeos.com/guides/lsst>

1. `sudo` and `sudo apt-get install`
2. `whoami`
3. `man`
4. `echo`
5. `pwd`
6. `cd`
7. `ls`
8. `cp`
9. `rm`
10. `mv`
11. `mkdir`
12. `history`
13. `cat`
14. `grep`
15. `cut`
16. `sort`
17. `wc`
18. `sleep`
19. `nano`
20. `gedit`
21. `vi`
22. `date`
23. `ps`
24. `kill`, `killall`, `xkill`
25. `ifconfig` (type `/sbin/ifconfig`)
26. `ping`
27. `ln` and `ln -s`
28. `ssh`

Next, try to do the following tasks. Record the shell command/commands that you used to do them.

1. What is the shell command to show the message “Hello world”?
2. How do you print out the following:
Hello world!
Not too cold today.
3. How do you write the lines from #2 into a file called **output01.txt**?
4. How do you show the contents of **output01.txt**?
5. Add the current time and date to the **output01.txt**.
6. Add your name to the end of **output01.txt**.
7. Sort **output01.txt** into **output02.txt**.
8. How do you show only the lines from **output01.txt** which have the string “lo” in them?
9. Count the number of lines and words in **output01.txt**. Verify that this is the same in **output02.txt**.
10. Create a folder called **mywork** and move your 2 output files into it.
11. *Link* the file **output01.txt** to **output01-01.txt**.
12. Delete **output01.txt**
13. Look at **output01.txt**, what is strange?
14. Copy **output02.txt** to **output02-01.txt**.
15. Link *symbolically* **output02-01.txt** to **output-link.txt**.
16. Delete **output02-01.txt**.
17. Look at **output-link.txt** – what happened?
18. Write a line of shell code which counts (prints the numbers) from 1 to 3 and makes a 5 seconds break between each number.
19. Start the counter (from 18) in the background and then issue a command to print “Hello world” directly afterwards.
20. Do the previous task but write the outputs of both commands to **output03.txt**.
21. Open **gedit** in the background. Kill it by looking its ID up with **ps** and then issuing the **kill** command.
22. Repeat last step but try using **killall** and **xkill** instead.
23. Look up the IP addresses of your and your neighbor’s computers, and **ping** one another (interrupt **ping** with ctrl-C).
24. Let the output of 10 pings to your neighbor be written in the file **output04.txt**.
25. Write the history of all your commands to **myhistory.txt**.