basic Linux commands part 2

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Contents

I. Working with text file.

1. Search and filter.
2. Input/output redirection.

II. Some other commands

3. Download file.
4. File permission.
5. Compress and decompress.

1. Search and filter

Search and filter

find command: search for files or directories in a directory

Search for files and directories named "vui", with -name option:

```
khainguyen@khai:~$ find -name vui
./Documents/new/vui
./Documents/vui
khainguyen@khai:~$ _
```

Search for directories named "vui", with -type option, d means directory:

```
khainguyen@khai:~$ find -type d -name vui
./Documents/vui
khainguyen@khai:~$ _
```

Search for files named "vui", with -type option, f means file:

```
khainguyen@khai:~$ find -type f -name vui
./Documents/new/vui
khainguyen@khai:~$ _
```

don't remember the file name clearly, but there is "vu" at the beginning of the name:

```
khainguyen@khai:~$ find -type f -name vu*
./.var/app/com.usebottles.bottles/data/bottles/templates/ea3c7b87-f330-4eca-88df-29652
1338473/drive_c/windows/system32/vulkan-1.dll
./.var/app/com.usebottles.bottles/data/bottles/templates/ea3c7b87-f330-4eca-88df-29652
1338473/drive_c/windows/syswow64/vulkan-1.dll
./.var/app/com.usebottles.bottles/data/bottles/bottles/Chat/drive_c/users/khainguyen/A
ppData/Local/Programs/Zalo/Zalo-23.10.1/vulkan-1.dll
```

* means zero or any characters

Search and filter

head command: prints the first few lines in the file

Default: prints the first 10 lines in the file:

```
khainguyen@khai:~$ cat view.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
khainguyen@khai:~$ head view.txt
1
2
3
4
5
6
7
8
9
10
khainguyen@khai:~$ _
```

print the first #number lines instead of the first 10

```
khainguyen@khai:~$ cat view.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
khainguyen@khai:~$ head -3 view.txt
1
2
3
khainguyen@khai:~$ _
```

Search and filter

tail command: prints the last few lines in the file

Default: prints the last 10 lines in the file:

```
khainguyen@khai:~$ cat view.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
khainguyen@khai:~$ tail view.txt
4
5
6
7
8
9
10
11
12
13
khainguyen@khai:~$ _
```

print the last #number lines instead of the last 10

```
khainguyen@khai:~$ cat view.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
khainguyen@khai:~$ tail -5 view.txt
9
10
11
12
13
khainguyen@khai:~$ _
```

Search and filter

wc command: print newline, word, and byte counts for each given file

Default:

```
khainguyen@khai:~$ cat view.txt
1 a
2
3
4
5
6
7
8
9
10
11
12
13
khainguyen@khai:~$ wc view.txt
13 14 32 view.txt
khainguyen@khai:~$ _
```

13 lines, 14 words, 32 bytes

select which counts are printed:

```
khainguyen@khai:~$ wc --lines view.txt
13 view.txt
khainguyen@khai:~$ _
```

```
khainguyen@khai:~$ wc --words view.txt
14 view.txt
khainguyen@khai:~$ _
```

```
khainguyen@khai:~$ wc --bytes view.txt
32 view.txt
khainguyen@khai:~$ _
```

wc --help: A word is a non-zero-length sequence of characters delimited by white space.

Search and filter

cut command: Print selected parts of lines from each FILE

```
khainguyen@khai:~$ cat state.txt
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chhattisgarh
khainguyen@khai:~$ _
```

Specify fields separated by a space, printing the 2nd field:

```
khainguyen@khai:~$ cut --delimiter " " --fields 2 state.txt
Pradesh
Pradesh
Assam
Bihar
Chhattisgarh
khainguyen@khai:~$ _
```

Print the 3rd character, 5th to 7th characters of the file:

```
khainguyen@khai:~$ cut --characters 3,5-7 state.txt
dra
uach
sm
hr
htti
khainguyen@khai:~$ _
```

use --only-delimited option: do not print lines not containing delimiters

```
khainguyen@khai:~$ cut --delimiter " " --fields 2 --only-delimited state.txt
Pradesh
Pradesh
khainguyen@khai:~$ _
```

cut --help:

```
N      N'th byte, character or field, counted from 1
N-     from N'th byte, character or field, to end of line
N-M    from N'th to M'th (included) byte, character or field
-M     from first to M'th (included) byte, character or field
```

Search and filter

grep command: print lines that match patterns

Default: case-sensitive

```
khainguyen@khai:~$ cat state.txt
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chhattisgarh
khainguyen@khai:~$ grep "pra" state.txt
khainguyen@khai:~$ grep "Pra" state.txt
Andhra Pradesh
Arunachal Pradesh
khainguyen@khai:~$ _
```

--ignore-case option: case-insensitive

```
khainguyen@khai:~$ grep --ignore-case "pra" state.txt
Andhra Pradesh
Arunachal Pradesh
khainguyen@khai:~$ _
```

--line-number option: Display the matched lines and their line numbers.

```
khainguyen@khai:~$ grep --line-number --ignore-case "pra" state.txt
1:Andhra Pradesh
2:Arunachal Pradesh
khainguyen@khai:~$ _
```

--count option: print a count of matching lines

```
khainguyen@khai:~$ grep --count --ignore-case "pra" state.txt
2
khainguyen@khai:~$ _
```

--invert-match option: print non-matching lines

```
khainguyen@khai:~$ grep --count --invert-match --ignore-case "pra" state.txt
3
khainguyen@khai:~$
```

case-sensitive
abc ≠ ABC

case-insensitive
abc = ABC

2. input/output redirection

input/output redirection

Piping

Pipe is formed using the vertical dash |

A | B | output of command A will be input of B command.

A | B | C output of command A will be input of B command, output of command B will be input of C command.

The pipe is used to combine two or more commands.

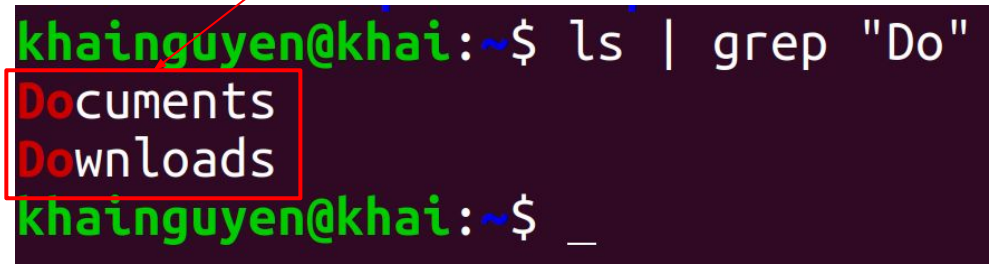
Example:

ls | grep “Do"

ls's output

grep's input

grep's output



input/output redirection

Output redirection: The ">" character

To redirect output to a file

```
khainguyen@khai:~$ ls | grep "Do" > view.txt
khainguyen@khai:~$ cat view.txt
Documents
Downloads
khainguyen@khai:~$ _
```

If the view.txt file already exists, its content will be overwritten

```
khainguyen@khai:~$ cat view.txt
Picture
Videos
khainguyen@khai:~$ ls | grep "Do" > view.txt
khainguyen@khai:~$ cat view.txt
Documents
Downloads
khainguyen@khai:~$ _
```

input/output redirection

If you do not want the content to be overwritten, use the ">>" character

```
khainguyen@khai:~$ cat view.txt
Picture
Videos
khainguyen@khai:~$ ls | grep "Do" >> view.txt
khainguyen@khai:~$ cat view.txt
Picture
Videos
Documents
Downloads
khainguyen@khai:~$ _
```

Input redirection: The "<" character

```
khainguyen@khai:~$ grep -n "8" < view.txt
8:8
```

```
khainguyen@khai:~$ cat view.txt
1 a
2
3
4
5
6
7
8
9
10
11
12
13
```