

# Linux Plus 5

Linux Plus 5 takeaways  
Training Clarusway  
Pear Deck - April 7, 2020 at 6:39PM

## Part 1 - Summary

Use this space to summarize your thoughts on the lesson

## Part 2 - Responses

Slide 1



Linux Plus for AWS  
and DevOps - 5



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Your Cloud Journey Starts Here

Use this space to take notes:

## Slide 2



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WAY TO IMPROVE YOURSELF

Link(s) on this slide:

- <https://create.kahoot.it/details/linux-plus-6-using-package-managers/6a84001c-0f50-4fdd-bbe1-3f110121b3c8>

Use this space to take notes:

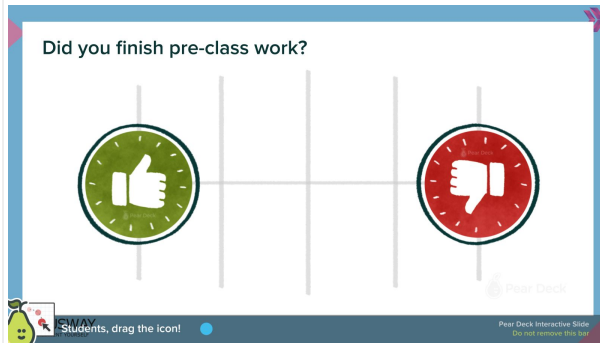
## Slide 3



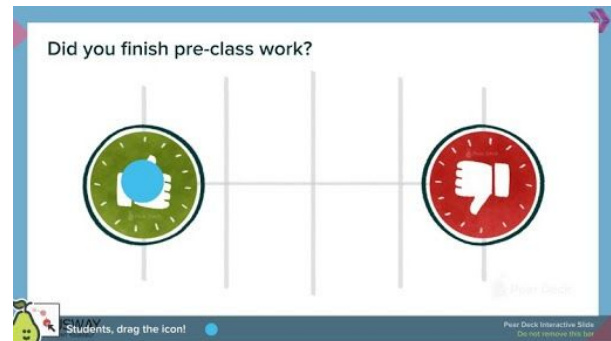
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## Your Response



## Slide 5

### Table of Contents »

- ▶ Filters
- ▶ cat, tee, grep, cut, tr, wc, sort, uniq, comm Commands

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## Slide 6

# 1 Filters



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### ► Filters



Commands that are created to be used with a pipe are often called filters.

These filters are very small programs that do one specific thing very efficiently. They can be used as building blocks.

- Pipes '|' send the output of one command as input of another command.
- The Filter takes input from one command, does some processing, and gives output.

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## Slide 8



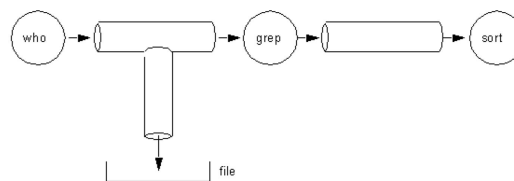
## 2 cat, tee, grep, cut, tr, wc,sort, uniq, comm Commands

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## ► Filters Commands



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## Filters Commands

cat

When between two pipes, the cat command does nothing (except putting stdin on stdout). Displays the text of the file line by line.

```
ubuntu@clarusway:~$ cat days.txt
sunday
monday
tuesday
wednesday
thursday
friday
saturday
ubuntu@clarusway:~$ cat days.txt | cat | cat | cat | cat
sunday
monday
tuesday
wednesday
thursday
friday
saturday
ubuntu@clarusway:~$
```

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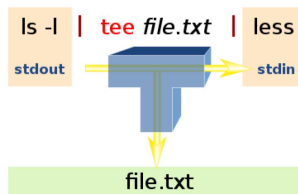
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## Slide 11

## Filters Commands

tee

tee is almost the same as cat, except that it has two identical outputs.



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## Filters Commands

grep

The most common use of grep is to filter lines of text containing (or not containing) a certain string.

```
ubuntu@clarusway:~$ cat tennis.txt
Amelie Mauresmo, Fra
Justine Henin, BEL
Serena Williams, USA
Venus Williams, USA
ubuntu@clarusway:~$ cat tennis.txt | grep Williams
Serena Williams, USA
Venus Williams, USA
ubuntu@clarusway:~$
```

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## Slide 13

## Filters Commands

cut

The cut filter can select columns from files, depending on a delimiter or a count of bytes.

`cut -d(delimiter) -f(columnNumber) <fileName>`

```
user@clarusway-linux:~$ ls *.html -l
-rw-r--r-- 1 user user 16 Mar 2 21:56 classes.html
-rw-r--r-- 1 user user 8980 Mar 2 21:53 examples.desktop
-rw-r--r-- 1 user user 24 Mar 2 23:22 html.txt
-rw-r--r-- 1 user user 17 Mar 2 22:42 lesson.txt
-rw-r--r-- 1 user user 13 Mar 2 23:22 linux.txt
-rw-r--r-- 1 user user 0 Mar 4 21:42 xhtml.txt
user@clarusway-linux:~$ ls *.html -l | cut -d' ' -f3
user
user
user
user
user
user
user@clarusway-linux:~$
```

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## Filters Commands

tr

The command 'tr' stands for 'translate'.  
It is used to translate, like from lowercase to uppercase and vice versa or new lines into spaces.

```
ubuntu@clarusway:~$ cat clarusway.txt
Way to Reinvent Yourself
ubuntu@clarusway:~$ cat clarusway.txt | tr 'a-z' 'A-Z'
WAY TO REINVENT YOURSELF
ubuntu@clarusway:~$ cat count.txt
one
two
three
four
five
ubuntu@clarusway:~$ cat count.txt | tr '\n' ' '
one two three four five ubuntu@clarusway:~$
```

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## Filters Commands

wc

Counting words, lines and characters is easy with wc.

- **wc <fileName>** (Counts words, lines and characters)
- **wc -l <fileName>** (Counts only lines)
- **wc -w <fileName>** (Counts only words)
- **wc -c <fileName>** (Counts only characters)

```
ubuntu@clarusway:~$ cat count.txt
one
two
three
four
five
ubuntu@clarusway:~$ wc count.txt
 5  5 24 count.txt
ubuntu@clarusway:~$ wc -l count.txt
5 count.txt
ubuntu@clarusway:~$ wc -w count.txt
5 count.txt
ubuntu@clarusway:~$ wc -c count.txt
24 count.txt
ubuntu@clarusway:~$
```

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## ► Filters Commands

sort

The sort filter will default to an alphabetical sort.

```
buntu@clarusway:~$ cat marks.txt
John-10
James-9
Aaron-8
Oliver-7
Walter-6
buntu@clarusway:~$ sort marks.txt
Aaron-8
James-9
John-10
Oliver-7
Walter-6
buntu@clarusway:~$
```

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## ► Filters Commands

uniq

With the help of uniq command you can form a sorted list in which every word will occur only once.

```
buntu@clarusway:~$ cat marks.txt
John
James
Aaron
Oliver
Walter
Aaron
John
James
John
John
buntu@clarusway:~$ sort marks.txt | uniq
Aaron
James
John
Oliver
Walter
buntu@clarusway:~$
```

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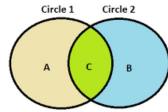
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## Filters Commands

comm

The 'comm' command compares two files or streams. By default, 'comm' will always display three columns. First column indicates non-matching items of first file, second column indicates non-matching items of second file, and third column indicates matching items of both files. Both the files has to be in sorted order for 'comm' command to be executed.



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```

aaron@clarusway:~$ cat file1
Aaron
James
John
Oliver
Walter
aaron@clarusway:~$ cat file2
Guile
James
John
Raymond
aaron@clarusway:~$ comm file1 file2
Aaron      Guile      James
Oliver     Raymond
Walter
aaron@clarusway:~$
    
```

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### Your Response

#### Exercise 1

1. Create a file named countries.csv with the following content

```

Country,Capital,Continent
USA,Washington,North America
France,Paris,Europe
Canada,Ottawa,North America
Germany,Berlin,Europe
    
```

- a. Cut only "Continent" column
  - b. Remove header
  - c. Sort the output
  - d. List distinct values
  - e. Save final output to "continents.txt" file and display on the screen
3. Display content of continents.txt file



Students, write your response!

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#### Answer 1:

```

cat > countries.csv Country, Capital,
Continent USA, Washington, North America
France, Paris, Europe Canada, Ottawa,
North America Germany, Berlin, Europe cut
-d',' -f3 countries.csv | tail -4 | sort | uniq >
continets.txt cat continets.txt
    
```

Use this space to take notes:

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## Using Control Operators



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## Table of Contents

- ▶ Control Operators
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- ▶ Combining && and ||
- ▶ Pound Sign (#)
- ▶ Escaping Special Characters (\)
- ▶ End of line Backslash

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## Control Operators



We put more than one command on the command line using control operators.

Control Operator	Usage
; semicolon	More than one command can be used in a single line.
& ampersand	Command ends with & and doesn't wait for the command to finish.
\$? dollar question mark	Used to store exit code of the previous command.
&& double ampersand	Used as logical AND.
double vertical bar	Used as logical OR.
Combining && and	Used to write if then else structure in the command line.
# pound sign	Anything was written after # will be ignored.

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### Semicolon (;)



You can put two or more commands on the same line separated by a semicolon (;)

```
root@kali:~# cat days.txt
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
root@kali:~# cat count.txt
one
two
three
four
five
root@kali:~# cat days.txt ; cat count.txt
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
one
two
three
four
five
root@kali:~#
```

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## Slide 24



```
ubuntu@clarusway:~$ sleep 20 &
[1] 3396
ubuntu@clarusway:~$
[1]+  Done                  sleep 20
ubuntu@clarusway:~$
```

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Use this space to take notes:

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[illegible]

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## ► Double Ampersand (&&)

The command shell interprets the && as the logical AND. When using this command, the second command will be executed only when the first one has been successfully executed.

```
ubuntu@clarusway:~$ cat days.txt && cat count.txt
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
one
two
three
four
five
ubuntu@clarusway:~$ cd Repo && ls
a
ubuntu@clarusway:~/Repo$
```

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## ► Double Vertical Bar (||)

The command shell interprets the (||) as the logical OR. This is opposite of logical AND. Means second command will execute only when first command will be a failure.

```
ubuntu@clarusway:~$ cat days.txt || echo "clarusway" ; echo one
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
one
ubuntu@clarusway:~$ echo days.txt || echo "clarusway" ; echo one
days.txt
Command 'echo' not found, did you mean:
  Command 'echo' from deb netatalk
  Command 'echo' from deb coreutils
Try: sudo apt install <deb name>
clarusway
one
ubuntu@clarusway:~$
```

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## ► Combining && and ||

You can use this logical AND and logical OR to write an if-then-else structure on the command line. This example uses echo to display whether the rm command was successful.

```
ubuntu@clarusway:~$ cat file1
Aaron
James
John
Oliver
Walter
ubuntu@clarusway:~$ rm file1 && echo It worked! || echo It failed!
It worked!
ubuntu@clarusway:~$ rm file1 && echo It worked! || echo It failed!
rm: cannot remove 'file1': No such file or directory
It failed!
ubuntu@clarusway:~$
```

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## ► Pound Sign (#)

Everything written after a pound sign (#) is ignored by the shell. This is useful to write a shell comment but has no influence on the command execution or shell expansion.

```
ubuntu@clarusway:~$ mkdir test           # We create a directory
ubuntu@clarusway:~$ cd test              # We enter the directory
ubuntu@clarusway:~/test$ ls              # Is it empty?
ubuntu@clarusway:~/test$
```

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## ▶ Escaping Special Characters (\) »

Escaping characters are used to enable the use of control characters in the shell expansion but without interpreting it by the shell.

```
ubuntu@clarusway:~$ echo this is \* symbol.  
this is * symbol.  
ubuntu@clarusway:~$ echo this \ \ \ \is \ \ \ \clarusway.  
this \ \ \ \clarusway.  
ubuntu@clarusway:~$ echo escaping \ \ \ \#\ \&\ \\"/>  
escaping \ # & " ' '  
ubuntu@clarusway:~$
```

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### Slide 32

### Your Response

**Answer 1:**  
find . -name "clarusway.txt" && cat  
clarusway.txt || echo too early echo  
Congratulations > clarusway.txt find . -name



## ▶ Exercise 2



1. a. Search for "clarusway.txt" in the current directory  
b. If it exists display its content  
c. If it does not exist print message "Too early!"
2. Create a file named "clarusway.txt" that contains "Congratulations"
3. Repeat Step 1

```
"clarusway.txt" && cat clarusway.txt || echo too early
```



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Interactive Presentations, write your response!

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## Slide 33



# THANKS!

## Any questions?

You can find me at:

- ▶ @Raymond
- ▶ raymond@clarusway.com

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