



Royal University of Bhutan

# LESSON – 9

## WORKING WITH TEXT FILE

## Learning Outcomes

- Use essential tools / commands with text file content
- List file contents with different commands
- Manage files and Analyze Text with grep command

## USING COMMON TEXT FILES –RELATED TOOLS

- Essential tools for Managing Text File contents:

Command	Explanation
<b>less</b>	Opens the text file in a pager
<b>cat</b>	Dumps the contents of the text file on the screen
<b>head</b>	Shows the first 10 lines (by default)
<b>tail</b>	Shows the last 10 lines
<b>cut</b>	Filter specific columns or characters from a text file
<b>sort</b>	Sorts contents of a text file
<b>wc</b>	Counts the number of lines, words, and characters in a file
<b>grep</b>	To search input text of matching pattern

## USING COMMON TEXT FILES –RELATED TOOLS

- Doing more with **less** command:
  - Example:
    - cst@cst:~\$ less /etc/passwd

Compare **cat /etc/passwd**

One more example: **ps aux | less**

Applying Basic Less skills: **G** to go to last line, **/<text>** to look for the text, **q** to quit less, Press **<space bar>** to display next page content, Arrows keys to move up and down.

cst@cst:~\$ more /etc/passwd

## USING COMMON TEXT FILES –RELATED TOOLS

- Showing File Content with cat:

- **Usage:**

- cst@cst:~\$ cat /etc/passwd

The cat command can also create a file:

- cst@cst:~\$ cat > output

This is a file created using a cat command

<Ctrl+D>

- cst@cst:~\$ cat output

This is a file created using a cat command

## Showing First line or Last Lines of a file with head and tail:

- Default display 10 lines

- **Example:**

```
cst@cst:~$ head /etc/passwd
```

- root:x:0:0:root:/root:/bin/bash
- daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
- bin:x:2:2:bin:/bin:/usr/sbin/nologin
- sys:x:3:3:sys:/dev:/usr/sbin/nologin
- sync:x:4:65534:sync:/bin:/bin/sync
- games:x:5:60:games:/usr/games:/usr/sbin/nologin
- man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
- lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
- mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
- news:x:9:9:news:/var/spool/news:/usr/sbin/nologin

```
cst@cst:~$ tail /etc/passwd
```

- sshd:x:106:65534::/run/sshd:/usr/sbin/nologin
- syslog:x:107:113::/home/syslog:/usr/sbin/nologin
- uuidd:x:108:114::/run/uuidd:/usr/sbin/nologin
- tcpdump:x:109:115::/nonexistent:/usr/sbin/nologin
- tss:x:110:116:TPM software stack,,,,:/var/lib/tpm:/bin/false
- landscape:x:111:117::/var/lib/landscape:/usr/sbin/nologin
- fwupd-refresh:x:112:118:fwupd-refresh  
user,,,,:/run/systemd:/usr/sbin/nologin
- usbmux:x:113:46:usbmux  
daemon,,,,:/var/lib/usbmux:/usr/sbin/nologin
- cst:x:1000:1000:cst:/home/cst:/bin/bash
- lxd:x:999:100::/var/snap/lxd/common/lxd:/bin/false

## commands:

### head & tail

#### Showing file content:

- head/tail to display 'N' lines

#### Example:

```
#head -n 3 /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
```

```
#head -3 /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
```

```
#tail -3 /etc/passwd
u1:x:1002:1002::/home/u1:/bin/bash
u2:x:1003:1003::/home/u2:/bin/bash
rpcuser:x:29:29:RPC Service
User:/var/lib/nfs:/sbin/nologin
```

## commands:

### head & tail

Showing file content:

- cat/head/tail to display custom lines

## Learn Specific command:

<https://explainshell.com/>

### Example:

```
#cat /etc/passwd | tail -n +2  
bin:x:1:1:bin:/bin:/sbin/nologin  
daemon:x:2:2:daemon:/sbin:/sbin/nologin ...  
u1:x:1002:1002::/home/u1:/bin/bash  
u2:x:1003:1003::/home/u2:/bin/bash  
rpcuser:x:29:29:RPC Service  
User:/var/lib/nfs:/sbin/nologin
```

```
#cat /etc/passwd | wc -l
```

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```
#cat /etc/passwd | tail -n +2 | wc -l
```

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## ACTIVITY I

### Using basic head and tail operation

1. Display last lines of the file /var/log/messages using tail -f command
2. Show first 3 lines of /etc/passwd file
3. Show last 3 lines of /etc/passwd file
4. Show only line number 5 of the /etc/passwd

## USING COMMON TEXT FILES –RELATED TOOLS

- cut to remove section from each line of file:
  - **Usage:**
  - Create a text file with dzongkhag names:
    - cst@cst:~\$ cut -c 2,5,7 dzongkhag.txt
    - cst@cst:~\$ cut -c -5, dzongkhag.txt
    - cst@cst:~\$ cut -d " " -f 1 dzongkhag.txt
    - cst@cst:~\$ cat dzongkhag | cut -d ' ' -f 1 | sort -r

## USING COMMON TEXT FILES –RELATED TOOLS

- Sorting file content with sort:

- **Usage:**

- cst@cst:~\$ sort /etc/passwd
    - cst@cst:~\$ cut -f1 -d: /etc/passwd | sort
    - cst@cst:~\$ cut -f3 -d : /etc/passwd | sort -n
    - cst@cst:~\$ cut -f3 -d : /etc/passwd | sort -r
    - cst@cst:~\$ cut -f3 -d : /etc/passwd | sort -u

The sort options –r (is to reverse), -n (numeric), -k(column), -t (field separator)

## USING COMMON TEXT FILES –RELATED TOOLS

- Use of uniq:
  - The uniq command is similar to sort –u command:
    - cst@cst:~\$ cut –f 1 dzongkhag
    - cst@cst:~\$ cut –f 1 dzongkhag | uniq
    - cst@cst:~\$ cut –f 1 dzongkhag | sort | uniq

## USING COMMON TEXT FILES –RELATED TOOLS

- Counting lines, words, and character with **wc**:

- Usage:

- cst@cst:~\$ ps aux | wc
    - cst@cst:~\$ #ps aux | wc -l
    - cst@cst:~\$ ps aux | wc -w
    - cst@cst:~\$ #ps aux | wc -c
    - l - Prints the number of lines,
    - w – prints the number of words,
    - c – Displays the count of bytes

## ACTIVITY II

Using cut, sort and wc

1. Print the sorted order of UID and GID from the /etc/passwd file
2. Count to total and actual number of files in /etc/
3. Print only IP address from /etc/hosts file and assign line number
4. Make directory Data in user home directory and create subdirectory as vowelfiles in Data directory.
5. Copy all files start with letter a,e,i,o,u from /etc/ directory to vowelfiles
6. Display and count the files in /etc/ directory which has the number in the filename.

## USING COMMON TEXT FILES –RELATED TOOLS

- Using grep to Analyze Text:

- The grep searches its input text and prints the lines that match the pattern
- **Options:** -c (count matching lines), -v (to print nonmatching), -l(lowercase), -i( ignore case), -w(perfect search)

- cst@cst:~\$ cat /etc/passwd | grep "root"

- --List all line containing word “root” - -

- cst@cst:~\$ # cat /etc/passwd | grep -E "root|jiwan"

- cst@cst:~\$ cat /etc/passwd | grep “^u”

- cst@cst:~\$ # cat /etc/passwd | grep “h\$”

- Note: ^u - for starting line with character ‘u’, h\$ - ending lines with character ‘h’

## Summary

- A good administrator use filtering commands a lot.
- Commands such as cat, head, tail, less, grep, and so on