

Technical Talk on CLI and Shell

Introduction

Mehedi Imam Shafi

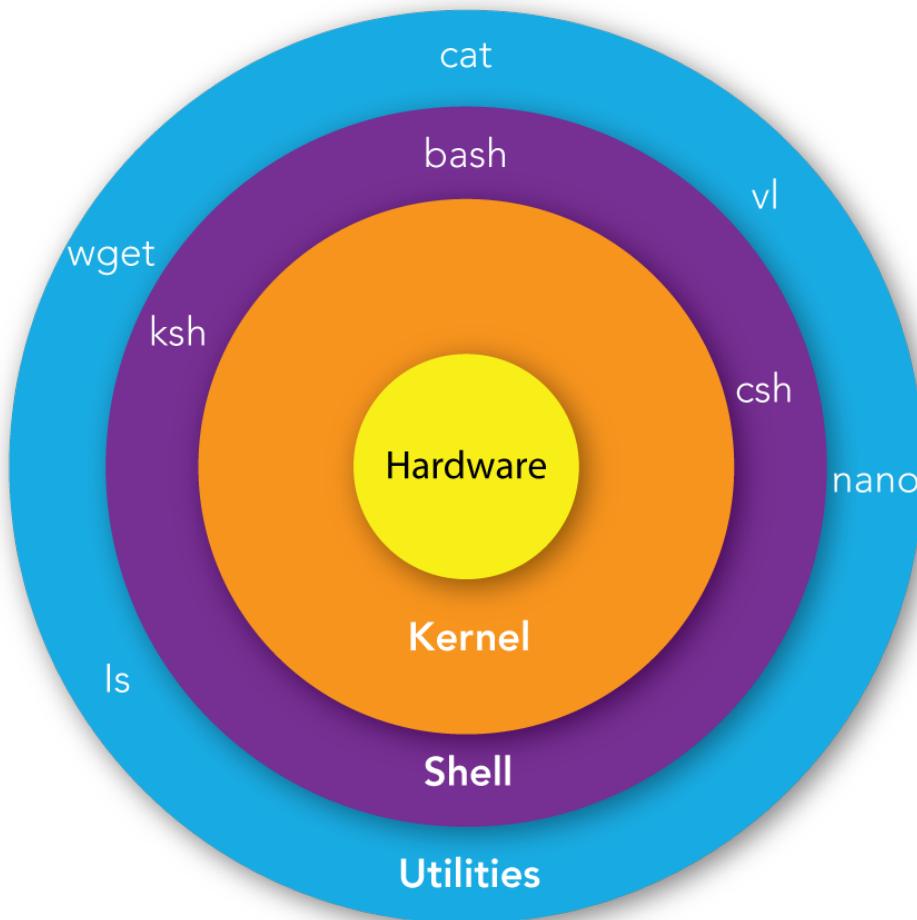
Research and Development Engineer



Contents

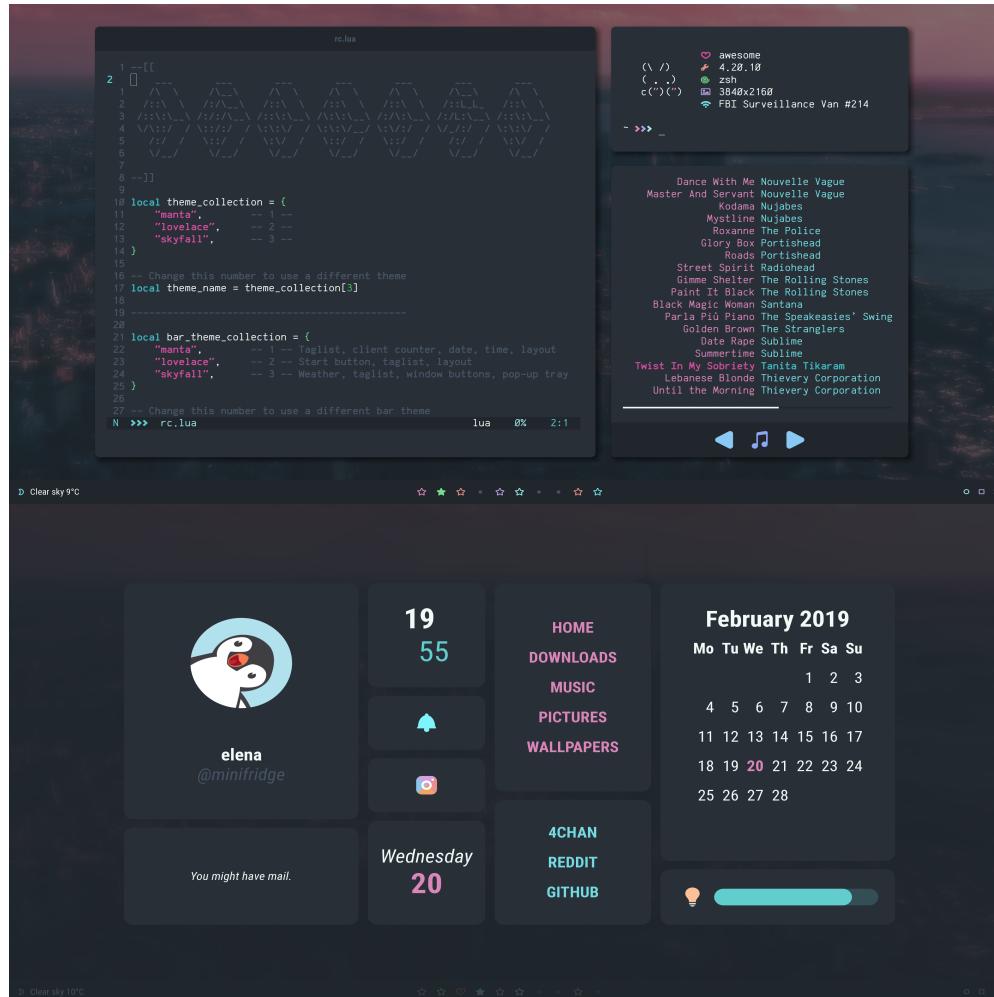
- Introduction
- Shell
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- How and where to get help
- More files and directory actions
- Command Stacking
- System processes and managing them
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SHELL

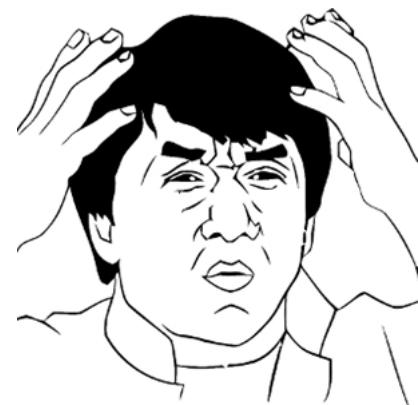
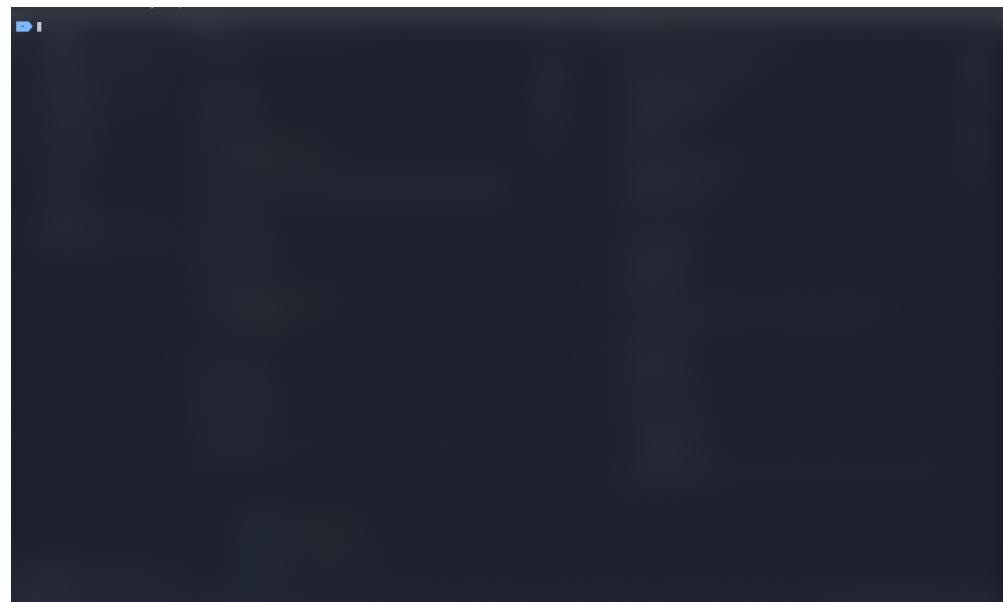


Credit: <https://mindmajix.com/shell-scripting-tutorial>

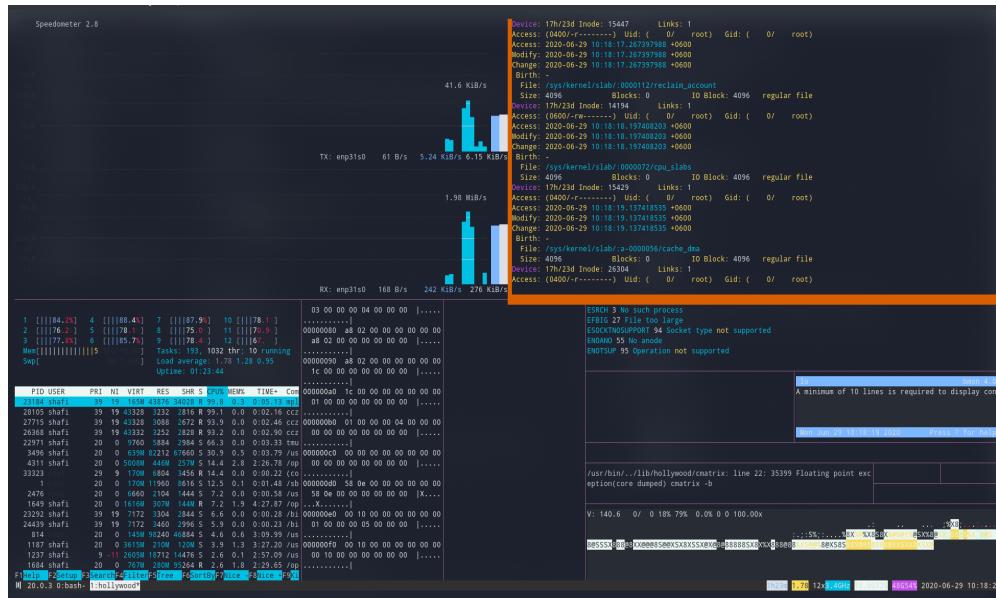
GUI Based Shell



CLI Based Shell



CLI Based Shell



So what is CLI?

Advantages

- Faster development

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- Easier to test

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Advantages

- Faster development
- Easier to test
- Can be very precise
- Can later be easily integrated with GUI
- Easier to get help
- Never ugly

Basic files and directories operations

Commands

```
$ ls # to know the contents of current directory  
$ pwd # to know where in the file system you are now  
$ whoami # who are you logged in as  
$ cd # change directory  
$ pushd # push current directory to stack  
$ popd # pop last pushed directory from stack  
$ file # find the type of file  
$ find # find a specific file in the system  
$ cp # copy a file  
$ mv # move a file (rename as well)  
$ rm # remove a file (or directory)  
$ du # check consumed file size  
$ tree # get the directory tree nicely printed
```

How do I get help?

How to know which option to use?



Get help

man

```
$ man
What manual page do you want?
For example, try 'man man'.
$ man ls
LS(1)           User Commands           LS(1)

NAME
ls - list directory contents

SYNOPSIS
ls [OPTION]... [FILE]...

DESCRIPTION
List information about the FILEs (the current
directory by default). Sort entries alphabetically
if none of -cftuvSUX nor --sort is specified.
.....
```

Get help

argopos

```
$ argopos argopos
argopos (1) - search the manual page names and descriptions
```

Get help

whatis

```
$ whatis cat
cat (1) - concatenate files and print on the standard output
cat (1p) - concatenate and print files
```

Get help

which

```
$ which python  
/usr/bin/python
```

Questions from chat?

Some more files and directory stuffs.

Commands

```
$ cat # print file content to terminal and ...
$ touch # create file and ...
$ nano # edit files in terminal
$ vim # edit files in terminal but..
$ head # print first few lines of a file
$ tail # print last few lines of a file
$ more
$ less
$ chmod # change permission mode of a file or directory
$ chown # change owner of a file
```

Command Stacking

Commands

```
$ mkdir junk && cd junk && touch test.txt  
$ cat test.txt | wc -l
```

System processes and managing them

Commands

```
$ ps # get list of processes  
$ pidof  
$ ps aux | grep -i google  
$ kill <pid>  
$ htop
```

Questions from chat?

Secure Shell (SSH)

SSH

- What is ssh?

SSH

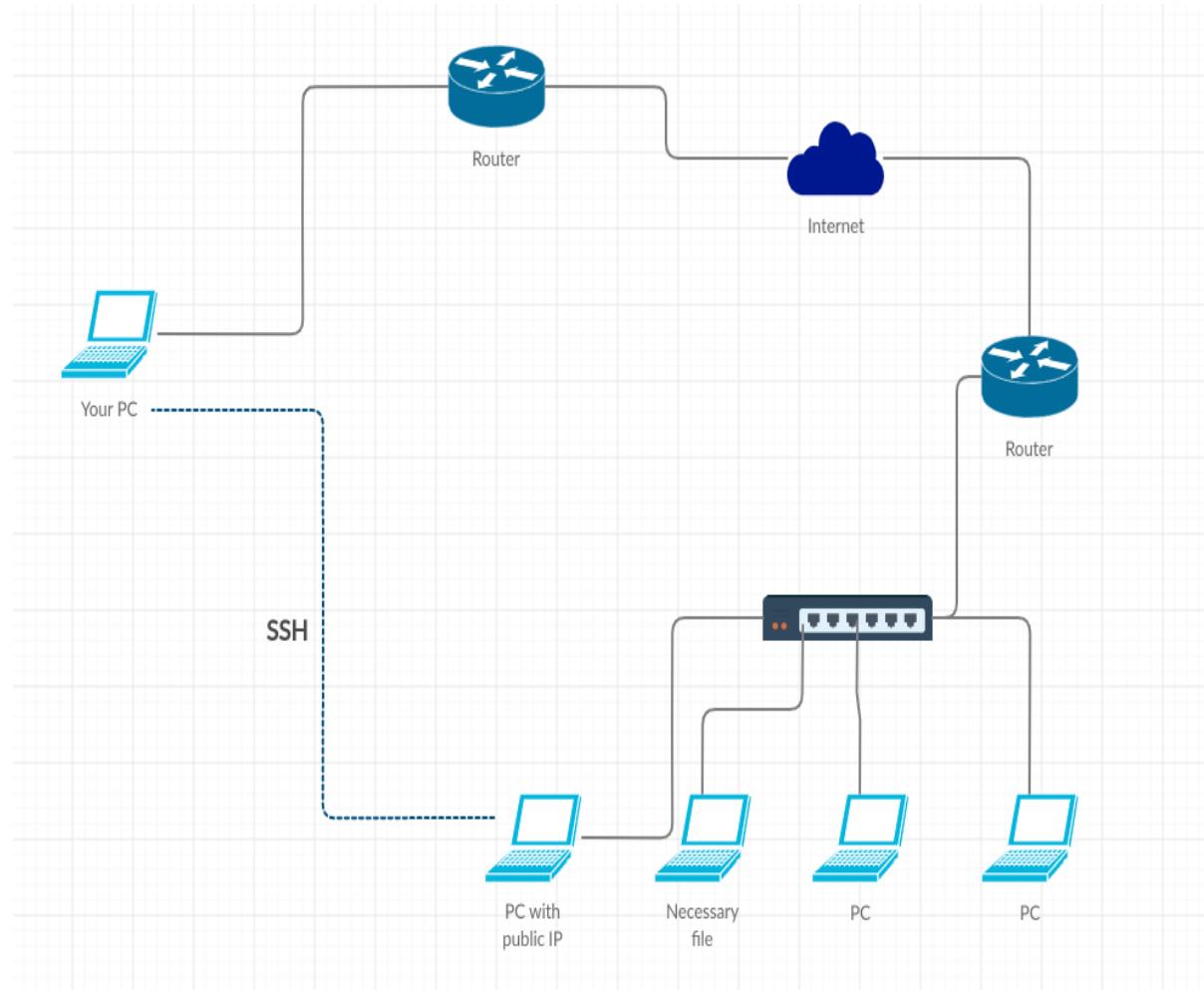
- What is ssh?
- What is it used for?

SSH

- What is ssh?
- What is it used for?
- SSH Key
 - What are they?
 - Where are they used?

Let's connect to a server.

SSH



Session

Session

- Terminal vs Terminal Emulator
- History

```
$ history | tail -n 50
```

Session

Persistent programs

- Server
- Long scripts
- Downloads

Tools

- screen
- tmux

Questions from chat?

Workflow and CLI

Workflow

- tmux
- multi-panned session
- vim workflow
- git
- git commit
- pre-commit-hooks
- lint

Scripting the CLI

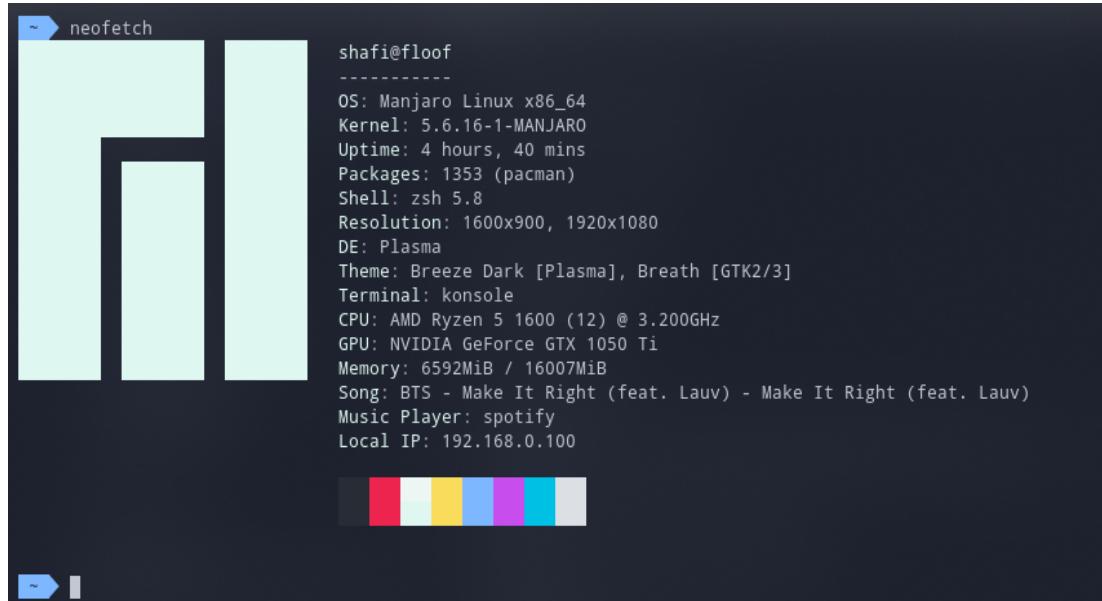
Scripting

- variables
- configuration files
- ssh keys
- alias
- simple everyday functions
- complex everyday functions

Some CLI Utilities

Utilities

- neofetch



Utilities

- ping

```
 ➔ ping google.com
PING google.com (216.58.197.46) 56(84) bytes of data.
64 bytes from maa03s20-in-f46.1e100.net (216.58.197.46): icmp_seq=1 ttl=113 time=54.9 ms
64 bytes from maa03s20-in-f46.1e100.net (216.58.197.46): icmp_seq=2 ttl=113 time=54.7 ms
64 bytes from maa03s20-in-f46.1e100.net (216.58.197.46): icmp_seq=3 ttl=113 time=55.0 ms
64 bytes from maa03s20-in-f46.1e100.net (216.58.197.46): icmp_seq=4 ttl=113 time=61.0 ms
64 bytes from maa03s20-in-f46.1e100.net (216.58.197.46): icmp_seq=5 ttl=113 time=55.1 ms
^C
--- google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4004ms
rtt min/avg/max/mdev = 54.708/56.149/61.005/2.431 ms
 ➔ █
```

Utilities

- wget
- curl

Utilities

- howdoi

```
~ ➔ howdoi install nvidia driver
$ sudo apt-get remove nvidia*
$ sudo add-apt-repository ppa:xorg-edgers/ppa
$ sudo apt-get update
$ sudo apt-get install nvidia-346 nvidia-settings
~ ➔ █
```

How did I do?

mehedishafi@hotmail.com

<https://github.com/mehedi-shafi>

Resources

<https://github.com/mehedi-shafi/cli-talk/>