

Server Workshop

February 9, 2019



Overview

- 1 IER Servers
- 2 What is Linux?
- 3 Filesystem
- 4 Basic commands
 - commands syntax
 - Navigational commands
 - File manipulating commands
- 5 Wildcards, pipes, redirection and shortcuts
- 6 Basic Server operations



Servers details

We need:

- Download *putty* [click here](#)
 - used for connecting with server
- Download *winSCP* [click here](#)
 - used for accessing the file system from/to server.



What is Linux?!!



	Windows	Linux
Top directory	My Computer	/
Drives	C,D,E...	-
Separators		/
Case Sensitivity	No	Yes
Delete/Modify open files?	No	Yes
Software/Programs	Search, download and install	Direct install from repository
Games	Game on!	Limited :(

Basic Linux commands

Before we dive in

Home directory

Home directory is the location where you are login. Every user has their own home directory.

Users

users are user accounts on a linux system.

Relative and absolute path

Relative path is relative to the current directory where you are present. Absolute path is from the top of the filesystem.

man page

man command leads to the manual page of the command.



Basic Linux commands

- ① ls
- ② cd
- ③ find, locate
- ④ pwd
- ⑤ wget
- ⑥ top, htop

- ① mkdir
- ② touch
- ③ cat
- ④ grep
- ⑤ cp
- ⑥ mv



Basic Linux commands

Navigational and other commands

1 ls



Basic Linux commands

Navigational and other commands

- 1 ls - lists all files and directories
- 2 cd



Navigational and other commands

- ① ls - lists all files and directories
- ② cd - changes directory
- ③ find



Navigational and other commands

- ① ls - lists all files and directories
- ② cd - changes directory
- ③ find - finds file/directory
- ④ pwd



Navigational and other commands

- ❶ ls - lists all files and directories
- ❷ cd - changes directory
- ❸ find - finds file/directory
- ❹ pwd - present working directory
- ❺ grep

Navigational and other commands

- ① ls - lists all files and directories
- ② cd - changes directory
- ③ find - finds file/directory
- ④ pwd - present working directory
- ⑤ grep - search in a file
- ⑥ wget



Navigational and other commands

- ① ls - lists all files and directories
- ② cd - changes directory
- ③ find - finds file/directory
- ④ pwd - present working directory
- ⑤ grep - search in a file
- ⑥ wget - download a file
- ⑦ top



Navigational and other commands

- 1 ls - lists all files and directories
- 2 cd - changes directory
- 3 find - finds file/directory
- 4 pwd - present working directory
- 5 grep - search in a file
- 6 wget - download a file
- 7 top - display active processes

File manipulating commands

- 1 mkdir



Basic Linux commands

Navigational and other commands

- 1 ls - lists all files and directories
- 2 cd - changes directory
- 3 find - finds file/directory
- 4 pwd - present working directory
- 5 grep - search in a file
- 6 wget - download a file
- 7 top - display active processes

File manipulating commands

- 1 mkdir - make directory/ies
- 2 touch



Basic Linux commands

Navigational and other commands

- 1 ls - lists all files and directories
- 2 cd - changes directory
- 3 find - finds file/directory
- 4 pwd - present working directory
- 5 grep - search in a file
- 6 wget - download a file
- 7 top - display active processes

File manipulating commands

- 1 mkdir - make directory/ies
- 2 touch - create new file/s
- 3 cat



Navigational and other commands

- 1 ls - lists all files and directories
- 2 cd - changes directory
- 3 find - finds file/directory
- 4 pwd - present working directory
- 5 grep - search in a file
- 6 wget - download a file
- 7 top - display active processes

File manipulating commands

- 1 mkdir - make directory/ies
- 2 touch - create new file/s
- 3 cat - create/view file/s
- 4 cp



Navigational and other commands

- 1 ls - lists all files and directories
- 2 cd - changes directory
- 3 find - finds file/directory
- 4 pwd - present working directory
- 5 grep - search in a file
- 6 wget - download a file
- 7 top - display active processes

File manipulating commands

- 1 mkdir - make directory/ies
- 2 touch - create new file/s
- 3 cat - create/view file/s
- 4 cp - copy file(s)
/directory(ies)
- 5 mv



Navigational and other commands

- 1 ls - lists all files and directories
- 2 cd - changes directory
- 3 find - finds file/directory
- 4 pwd - present working directory
- 5 grep - search in a file
- 6 wget - download a file
- 7 top - display active processes

File manipulating commands

- 1 mkdir - make directory/ies
- 2 touch - create new file/s
- 3 cat - create/view file/s
- 4 cp - copy file(s) /directory(ies)
- 5 mv - move (rename) file(s) /directory(ies)



Linux command syntax

\$ command [-argument] [-argument] [-argument] [file]



Linux command syntax

\$ command [-argument] [-argument] [-argument] [file]

Variations exist, but essence is same

Example :

Which commands have you used so far?



Purpose:
lists directory contents

Purpose:

lists directory contents

Common usages:

- ❶ ls : List all files in the current directory
- ❷ ls -l : List line in long format; one per line with details
- ❸ ls -la : List as previous, but also hidden files
- ❹ ls path/to/directory : Lists files on the specified directory



cd

Purpose:
change directory



Purpose:
change directory

Common usages:

- ① cd and cd ~ : change to home directory
- ② cd path/to/directory : change directory to specified one
- ③ cd .. : change to the parent directory
- ④ cd - : return to previous directory



find

Purpose:

find files by name



Purpose:

find files by name

Common usages:

- ❶ `find /path/to/directory -name filename` : search for files in a directory hierarchy
- ❷ `find /path/to/directory/ -mtime 7` : finds all files modified in last 7 days in given directory
- ❸ `find /path/to/directory/ -iname ".py"` : finds .py files in given directory



Purpose:
displays current working directory

Purpose:

displays current working directory

Common usages:

- 1 pwd : prints the current working directory on the screen



Purpose:

search for a specific string in a specific file



Purpose:

search for a specific string in a specific file

Common usages:

- 1 `grep "string" filename` : search for "string" in the file
- 2 `grep -i "string" filename` : case insensitive search for "string" in the file
- 3 `grep -A N "string" FILENAME` : prints the specified N lines after the match.



Purpose:
download a file from a link

Purpose:

download a file from a link

Common usages:

- 1 wget url : search for "string" in the file

Purpose:
displays all active processes

Purpose:

displays all active processes

Common usages:

- ❶ top : displays all active processes
- ❷ top -u username : displays all active processes run by username



Purpose:

Creates a directory

Purpose:

Creates a directory

Common usages:

- 1 mkdir : Creates a directory

Purpose:
Creates file/s

Purpose:

Creates file/s

Common usages:

- 1 touch filename: Creates an empty file called filename



Purpose:

1. Creates an empty file/s if file does not exist
2. view contain of file if file exist



Purpose:

1. Creates an empty file/s if file does not exist
2. view contain of file if file exist

Common usages:

- ① cat filename: displays content of file
- ② cat >filename : creates file and takes input until Ctrl+d
- ③ cat -n filename: displays content of file with line number



Purpose:

copies file/s from source directory to destination directory



Purpose:

copies file/s from source directory to destination directory

Common usages:

- 1 cp source destination: copy file/s from source directory to destination directory
- 2 cp -R source destination : copy file/s recursively from source directory to destination directory



Purpose:

moves file/s from source directory to destination directory



Purpose:

moves file/s from source directory to destination directory

Common usages:

- 1 mv source destination: move file/s from source directory to destination directory



Wildcards

A wildcard is a character that can be used as a substitute for any of a class of characters in a search, thereby greatly increasing the flexibility and efficiency of searches.

It can be used with mv, cp, rm, ls and other commands.

Common wildcards

- 1 * : represents any combination of characters.



Wildcards

A wildcard is a character that can be used as a substitute for any of a class of characters in a search, thereby greatly increasing the flexibility and efficiency of searches.

It can be used with mv, cp, rm, ls and other commands.

Common wildcards

- ❶ * : represents any combination of characters.
- ❷ ? : represents a single character.



Wildcards

A wildcard is a character that can be used as a substitute for any of a class of characters in a search, thereby greatly increasing the flexibility and efficiency of searches.

It can be used with mv, cp, rm, ls and other commands.

Common wildcards

- ❶ * : represents any combination of characters.
- ❷ ? : represents a single character.
- ❸ [] : range of characters mentioned inside the square bracket.



A pipe command (|) sends output of first command as input of second command.

Common usages

- ❶ `ls -l | less`
- ❷ `man command | grep "string"`
- ❸ `cat filename | head -20`



A redirection operator sends the output of a command to a file

redirection operators

- ① `>`: redirects the output to a file, clears contents if file exists
- ② `>>`: redirects the output to a new file, appends to file if it exists.
- ③ `<`: sends data from a file as an input to command



Shortcuts

- 1 Tab : for auto completion
- 2 Ctrl+I : Clear screen
- 3 Ctrl+c : kill a process
- 4 Ctrl+d : logout/exit
- 5 Select text and Ctrl+Shift+c : copy text
- 6 Ctrl+Shift+v : paste text
- 7 Ctrl+r : reverse search



ssh or secure shell is command used to login onto a remote server and executing commands.

Common usages:

- 1 `ssh username@ipaddress` : logs onto username on the system having ipaddress
- 2 `ssh -X username@ipaddress` : logs onto username on the system having ipaddress and uses graphics.



scp or secure copy command copies files from origin to destination

Common usages:

- 1 `scp username@ipaddress:/path/to/file /path/on/your/laptop :`
copies file from username on the system having ipaddress to your laptop.
- 2 `scp /path/on/your/laptop username@ipaddress:/path/to/file :`
copies file from your laptop to username on the system having ipaddress.



opens a new tab for terminal

Common usages:

- 1 screen : opens a new screen
- 2 screen -list : lists active minimized screen
- 3 screen -r screenid : reopens the minimized screen
- 4 Ctrl+d : minimizes the screen and detach screen (return back to terminal)



Binding key

- default: *ctrl+b*
- commonly used config: *ctrl+a*

hit binding key followed by shortcut. (like, **ctrl+a d** to detach rather than *ctrl+a+d*)

Common Usages

- **binding ** for vertical split
- **binding -** for horizontal split
- **binding w** list all windows
- **binding d** detach tmux session
- **tmux a** to attach the detached session



Thank you!!
Suggestions are welcome!

