

**Intro to UNIX/Linux****Final Exam Review****Linux Utilities and Syntax**

The following utilities, symbols and concepts are found in the textbook (as well as in the course assignments). Focus on usage and syntax in bash.

**Utilities**

- alias
- bg
- cat
- cd
- chgrp
- chmod
- chown
- clear
- cp
- date
- echo
- fg
- gedit
- grep
- head
- history
- hostname
- jobs
- kill
- less
- ln
- ls
- man
- mkdir
- more
- mv
- passwd
- printenv
- ps
- pwd
- rm
- sort
- su
- sudo
- tail
- tee
- top
- touch
- tree
- umask
- unalias
- vi
- wc
- which
- who
- whoami
- xlogo

## Special Characters and Keys

- !
- !!
- \$
- .
- ..
- \
- /
- ~
- ` `
- " "
- <
- >
- >>
- |
- \*
- #
- #!
- \$( )
- CTRL-C
- CTRL-Z
- up arrow
- down arrow
- &

## Concepts

- argument
- child and parent directories
- child and parent processes
- command
- combining commands
- directory structure
- permissions (octal and symbolic)
- home
- option
- path
- process
- prompt
- root
- shell
- shell script
- special characters
- syntax
- token
- variables

## Review Questions.

- 1) What type of directory structure does Linux have? What is the name of the first directory in the file system, and what is its symbol? What are bin directories? What are some other important directories?
- 2) How are home directories organized? What is the home directory of the root user? What command gets you back to your home directory? What symbol refers to the user's home directory?
- 3) What is the difference between an absolute and a relative path? Give an example of each.
- 4) What is the shell? What command tells us which shell program is running? Which shell have we been working with, and what does the acronym stand for?
- 5) What information does the prompt (that we've been working with in class) give us? Which variable represents the prompt? How do we view it (its value)? How do we change it?
- 6) How do we access our command history? How can we rerun commands?

- 7) Why is less “more”? Explain. How else can we view file content?
- 8) What are links? What are the two kinds of links used in Linux? How do we set them up?  
How can we recognize them? What are inodes?
- 9) How can we rename commands? Give an example. What command shows us a list of renamed commands? How do we undo renaming a command? Why is it useful to use the type utility before renaming a command (name it “new”)?
- 10) How can we get additional information about a utility?
- 11) What is stdin? How can we redirect stdout to a file? How can we redirect stderr to a file?  
How can we redirect the output of one command as the input for the next command?  
How do we output to both the screen and a file? Give an example of each redirection.  
Why must we be careful using these?
- 12) Why is rm -rf a dangerous command? What should Linux users be aware of regarding file and directory removal and overwriting?

- 13) How do we view directory contents? How do we view only: a) files, b) only directories?  
c) executables? d) links?
- 14) How do we view/change/set default permissions in Linux? How do we view permissions  
for individual files/directories?
- 15) Given these example permissions: -rwxrw-r-x
- a) What type of file is it?
  - b) Who has what permissions?
  - c) What is the permission mode in octal?
  - d) How can we set these permissions using symbolic notation? Assume no  
permissions are previously set.
- 16) How does a user edit a file? How strongly do some UNIX/Linux users feel about their  
editor, and why? What is special about the vi editor?

17)What are the steps involved in running a script? What is the significance of the PATH variable? How do we view it (its value)?

18)Write a basic shell script (a “hello world” program). Include all necessary lines and a comment.

19)What are variables? How do we view their individual values? How do we view a list? How do we view a variable name as plain text?

20)Name 2 Linux distros other than Ubuntu or Debian. In just a few words, explain what's unique about each one.

21)How do we view a snapshot of processes that Linux is running? How do we view processes dynamically? What is a daemon process? What are parent and child processes? What is a PID? How do we run a command in the background? How do we move it back to the foreground? What are the three most important signals, and what function do they each perform?

22)What are 3 ways to set up an empty file named *emptyfile*?

23)What is the benefit of setting up a bin directory in our home directory? Why and how do we adjust our PATH variable to include that directory? What are other good locations for scripts?

24)What is a here document and what is its syntax?

25)What is a shell function and what is its syntax?

26)What variable is associated with the command prompt, and how do we view its value?

What is the format of the default Ubuntu prompt?

27)What can we put into our `.bashrc` file as an alternative to using an alias?