

Ubuntu

- hub.docker.com

docker run ubuntu

Interactive

docker run -it ubuntu

root@275fe99: /#
↓ ↓ ↓
User ContainerId Privileges
↓
root chatty

echo

prints message.

echo \$0

/bin/bash.

limux

Care sensitive

history

!2

lists all recent command

executes command item
no in history.

Managing packages

Ubuntu
Package
manager.

apt Command

- apt install nano
- apt update
- apt list

nano
Command?

It is a text editor

Linux File Systems

1

- | | |
|---------|---------------|
| - bin | binaries |
| - boot | boot files |
| - dev | devices |
| - etc | Config files |
| - home* | home direct |
| - root | root home |
| - lib | Software lib |
| - var | log files |
| - proc | process files |

Navigating linux file systems

pwd

Print working directory

ls

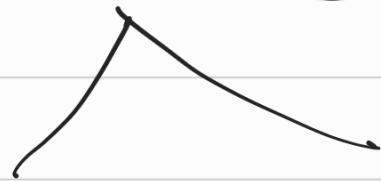
list files

ls -l
ls -l

- one item per line
- long listing -

cd

change directory



relative path	absolute path
cd etc/a	cd /etc/a
cd etc/apt	cd /etc/apt

Go to root
directory

cd ~

Manipulating files and directories:

Creates a directory

`mkdir test`

rename directory

`mv test docker`

Create new file

~~`touch hello.txt`~~

Create multiple files

~~`touch file1.txt file2.txt`~~

rename file

`mv hello.txt docker.txt`

Remove files

`?rm file*`

Remove
directory

$\text{rm} -r$ folder.

$-r$ means recursive.

Editing and Viewing files

name

name file1.txt

See contents
of a file

cat Command
cat file1.txt

more

When opening big file
opens page by page
on clicking space.
- Cannot scroll up.

less

apt install less
less /etc/adduser.conf
- Using up & down
arrow
- q to exit.

head

- first few n lines
- head -n 5 /etc/adduser.conf
- last few lines

tail

Redirection .

Standard
input &
Output

Keyboard
&
Screen

>

redirection operator
`cat file1.txt > file2.txt`

Combine
files

`cat file1.txt file2.txt`

Exercise

Get long listing of etc
directory & write to file.
`ls -l /etc > file1.txt`

Searching for text

Grep
Command

Global Regular Expression
Print
- Used to search

grep hello file1.txt

To make
search case
insensitive

grep -i hello file1.txt

grep -i root /etc/passwd

grep -i hello fib1.txt fib2.txt

Search in
multiple files

Search in
directory

grep -ir hello /etc
r is recursive

Finding files and directories

Find files
and directory

find

hidden files
and directory

filter
results

find Command

every directory in the
directory and their files

ls -a

find etc

↳ finds in etc directory

find -type d

↳ to filter only directory

find -type f

↳ to filter only files

filter by
name

find -type f -name "f*"

find -type f -iname "F*"
→ Case insensitive.

Exercise

[find all
files in image
which are python
files and write
to a file

find / -type f -name "*py"
→ python.txt

Chaining Commands

to execute
Commands
one after
another

; Command.

mkdir test ; cd test ; echo a

This above command
executes all steps even if
one command fails.

& Command

mkdir test && cd test

↳ If first command
fails, then no more
execution.

|| Command

mkdir test

|| echo "directory exists"

I Command

- Called piping

Passes the output of a command to next command.

ls /bin | less

break command to diff lines

mkdir hello; \
cd hello; \
echo done

Environment Variables

Option 1

printenv

- Prints all environment variables

printenv PATH

- Prints specific variable .

Option 2

echo \$PATH .

Setting an environment variable

export DB-USER = ragz
↳ This variable will be stored only for current terminal session .

To make an env variable permanent .

Then we need to write to .bashrc file
→ This file is a user's personal startu file .

nano .bashrc
echo DB_USER=root >> .bashrc

>> operator appends to end of file, > will just overwrite.

To note

When written to .bashrc, won't be available immediately. Instead it is available on terminal start up.

↳ To overcome we can execute

source .bashrc
source ~/.bashrc

.bashrc is available in root directory.

Managing processes

List all
running
processes

ps

Sleep
Command

sleep 10

Sleep
Command
in background

sleep 100 &

Kill a
process

kill {pid}.

Managing Chars

To add a new user

usermod -m john
↳ stored in /etc/passwd.

→ cat /etc/passwd

john:x:1000:1001::/home/john:
: /bin/sh.

Replace sh with bash

usermod -s /bin/bash john

Where password saved

cat /etc/shadow

→ stored in encrypted form

→ only root can see.

Execute bash session as john

docker exec -it 247 -u
john bash

john@2f7... : /\$
\$ - ran root user.

cat /etc/shadow
: Permission denied.

cd ~
pwd
/home/john.

Advanced
command to
add user .

adduser flagz
→ Uses useradd undelopt.
→ does few more things
→ Gives option to set password
→ We will use useradd only

Managing groups

Group Command

groupadd developers

- cat /etc/group

Groups are for giving permission for set of user.

Set group for user.

→ Primary - 1
→ Supplementary - 0 today

Primary group of user is the user name itself.

Set Supplementary groups

vismod -G developers john.

cat /etc/passwd | grep john

grep john /etc/passwd

groups john.
↳ Shows all groups assigned to john.

File Permissions

cd /home

deploy.sh

echo hello > deploy.sh
ls -l

- r w - r - - r - -

↳ d means directly on it is file

r - read

w - write

x - execute

1st group - root user permission

2nd group - group permission

3rd group - everyone else.

Add
Permission

chmod u+x - to add
execute permis.

chmod u+x deploy.sh

• ./deploy.sh
→ hello