PROJECTS FROM WEEK 1 TO WEEK 12

Review concept:

1- can we bring a new centos server in our virtualbox anytime?

2- connect remotely to the server?

3- can we inventory a whole linux machine

4- manipulate files and directories in the system?

5- can we create and delete usrs on a linux machine?

6- Know how to configure a webserver on centos/redhat7 ?

7- Open and close ports on centos/redhat 7

command review:

system inventory:

\*\*memory:

free -m

top

cat /proc/meminfo

\*\*cpu:

cat /proc/cpuinfo

lscpu

nproc

iostat

sar -u

top

\*\*kernel:

iostat

uname -a

uname -r

\*\*Har drive:

lsblk

fdisk -l

\*\*System bits

arch

getconf LONG\_BIT

uname -m

\*\*Os version:

cat /etc/os-release

cat /etc/centos-release

cat /etc/\*release

\*\*System slow:

cpu ?

memory ?

hardrive I/O ?

when was the last reboot?

\*\* Break the root password on centos/redhat7

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Sudo Access:

it is a tool used to give access to regular user to run administrative commands.

to do that, we need to add the user to the sudoers file or to the sudo group.

in this case, they run each administrative command with sudo.

ex: $sudo useradd ( this will prompt the user to enter his/her password) and the command useradd will execute.

sodoers file: /etc/sudoers

to access it, we can type visudo

process managenment

a process is any program running on our system

each has PID ( process id ) and a PPID ( parent process id)

each id is unique for each process.

to list all processes, we can type

ps -ef

for a specific one we can do

ps -ef |grep <process name>

exple: to see the process id of yum command ,

ps -ef |grep yum

to kill a process we can do:

kill PID

exple

kill 2345

NB kill and kill -15 will gracefully kill the process and kill -9 will forcefully stop the process imediately.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

project

1- Create a group on you system called developer

2- A new employe ( Ellys) started in your team and need access to that server go ahead and Create a user for Ellys Kamgang with ut2082021 as username and he should have developer as subgroup and prod as primary group.

3- In his task everyday, he needs to run root command how can you give him access to run those commands without having root password?

4- Go ahead and give him sudo access.

5- in one of his project, he needs to reset the password of 6 centos7 machines. he say during the team meeting that he has no clue how to do that. and you propose to help, describe to him what he needs to do.

6- Ellys builds a webserver on one of the machine because it is needed but he is not able to access that webserver from the browser. list some few things you will want to check with him in troubleshooting.

7- there is a server, 40.117.181.67 that is reported to be slow and about to crashed. please login as root , password school1 and check what process is causing the bottle neck and which user is running it.

8- How can we stop that process?

File/directory permission

read ==> r ==> 4

write==> w ==> 2

execute=> x ==> 1

permission holders

owner ==> u

group ==> g

others==> o

getfacl filename

or

ls -l

to change permission on a file/direct, we use

chmod

example:

chmod u+x filename

chmod u-r filename

permission can be also given using the bits number

chmod 700 filename

6 4 0

rw r 0

0 0 0

711

rw-r--r

644

chmod 755 mic

owner should have read write execute, the group should have read and write and others should not have any permission

chmod 760 mic

Special permissions

SUID

chmod u+s filename

or

chmod 4755 filename

SET GID

when set GID is configure on a directory, anything created under that directory inherit the group that directory belongs to.

it is used for collaborative directories.

chmod g+s dirname

or

chmod 2755 dirname

STICKY BIT

example: /tmp

chmod 1755 dir

or

chmod o+t dirname

execute permission is used for scripting ( automation )

echo "Welcome here please insert your card"

echo "Please enter your pin

Intro to scripting.

a script is a file that contains commands to accomplish a specific task.

to execute the script we need excute permission.

How to write a script?

1- create the file

touch filename.sh ( .sh is not required but by convention it shows that the file is a script)

2- give it execute permission

chmod +x filename.sh

3- vi filename.sh and organise commands

4-execute the script

./filename.sh

Example: write a script that will display "Hello World"

solution:

1- touch first.sh

2- chmod +x first.sh

3- vi first.sh

echo "Hello World"

:wq

4- ./first.sh

project1: write a script that will display 3 lines:

My name is Serge

I live in Sugar Land

I am learning Linux

solution:

touch cabral.sh

chmod +x cabral.sh

vi cabral.sh

echo "My name is Serge"

echo "I live in Sugar Land"

echo "I am learning Linux"

:wq

./cabral.sh

Project: write a script that will do a complete system inventory

cpu

memory

hard drive

the kernel

the os version

system bits

sol:

touch inventory.sh

chmod +x inventory.sh

vi inventory.sh

lscpu

lsblk

cat /etc/\*release

free -m

uname -r

NB: you can still run your script without execute permission using the bash command

exple:

bash inventory.sh

sh inventory.sh

The shebang

the first line of a script is called the shebang it represent the environment or the sheel in which the script should run.

for bash we will have

#!/bin/bash this is for bash env

#!/bin/ksh this is for korn shell env

if statement in bash shell script

the if statement is used to check conditions and make decision base on those conditions.

syntax:

if

[ condition ]

then

action 1

action 2

else

action 3

action 4

action 5

fi

in an if statement the actions under then are considered if the condition is true

and if the condition is false then the actions under else will run.

Example1:

if

[ 4 -eq 2 ]

then

action 1

action 2

else ===> action 3 4 5 will be triggered

action 3

action 4

action 5

fi

example2:

if

[ yes = yes ]

then

action 1

action 2

else ===> action 1 2 will be trigered

action 3

action 4

action 5

fi

man test to check some bash built in conditions

if [ -d /etc/passwd ]

then

project: write a script to create a user romuald , and check the exit code if it is 0 then the script should display "account created successfully"

if the exit code is not 0 then the script should display "the account creation failed"

sol:

touch account.sh

chmod +x account.sh

vi account.sh

#!/bin/bash

useradd romuald

if [ $? -eq 0 ]

then

echo "Account created successfuly"

else

echo "account creation failed"

fi

**January 2021**

Bottom of Form

Entreprise Type Troubleshooting

[**January 2021**](https://utrains.org/courses/january-2021/)  [**Week 10**](https://utrains.org/lessons/january-2021-week-10/)  **[Entreprise Type Troubleshooting](https://utrains.org/topic/entreprise-type-troubleshooting-2/)**

**IN PROGRESS**

At work, we usually run into issues while deploying or running applications. In this exercise, we will look at some of the very frequent ones.

Click [here](https://www.dropbox.com/s/cnm0wdcwnduhmfa/Troubleshoot_centos7.ova?dl=1) to download the prebuild server called ***Troubleshoot\_centos7.ova*** and import it in your virtualbox.

1. the server is reported to be slow. please troubleshoot and identify what can be the bottle neck.
2. What user is responsible for the bottleneck in question ?
3. Go ahead and solve the issue ( consider you have root access).
4. After the maintenance on the system ( patching) , the web server’s httpd daemon is refusing to start throwing an error. Therefore the application running on that server is down.
   * (a) Troubleshoot and explain why the httpd daemon won’t start.
   * (b) How can you solve that?
   * (c) Solve the issue, make sure the service starts and check on the browser to see if the application is finally working.
5. A different deployment on the server is failing and the error message is:  **file /opt/deployment/dev/deploy.cfg busy**, so the file**deploy.cfg** is busy
   * (a) Please investigate and tell who or what is keeping the file busy.
   * (b) Propose a solution on this.
6. The Port 8080 is opened on the server and no one knows what program is using it. investigate the server and tell what program is using port 8080.
7. The server is still slow at this moment.
   * (a) Please check and tell which program is using more that 15% of your cpu?
   * (b) Who is running that program?
   * (c) Go ahead and supress  it

[**Previous Lesson**](https://utrains.org/lessons/january-2021-week-9/)

Top of Form



Bottom of Form

Back to Lesson

 At work I was faced with issues related to building docker images a lot. and this calls for troubleshooting ( forgot to expose port, forgot to add CMD instruction for a daemon , copy data to wrong path and so on...) all the time. So I decided to write a script that will be used to create docker images. Basically the script is asking a couple questions from the user and based on those questions, a dockerfile is created, a docker image is then built from it.  
The script needs to check at then end to make sure that the image was created then it should delete the dockerfile used.

2- one time I was staffed with a company and they wanted me to help write a script that can be used for a full server inventory. ( maybe server needs to be decommissioned, maybe server is out of lice , or server needs to be replaced)  
the script I put together was checking:  
-Os running and version  
- Size of memory  
-Size of harddrive  
-Cpu speed  
-Kernel version  
- system bits ( 32 or 64 )  
- the hostname  
- the ip address  
- all opened ports  
- dns  
- the manufacturer  
- is the system virtual or physical  
- the mac address