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DEPARTEMENT GENIE INFORMATIQUE

Master 1 : Génie logiciel

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SUJET :

Rapport 1 : Administration réseau

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Task 1: Logging with script

1) The command script -a

A Shell script automates a series of operations. It is in the form of a file containing one or more commandes that will be executed sequentially.

The script -a command creates a file named script type. Here is the result:

```
localhost login: root
Password:
Last failed login: Mon May  8 12:53:45 CEST 2017 on tty1
There was 1 failed login attempt since the last successful login.
[root@localhost ~]# script -a
Le script a débuté, le fichier est typescript
[root@localhost ~]# _
```

The -a option preserves as much as possible the structure and attributes of the original file when copying. That is to say if we remove the -a for each new addition we overwrite the given enclosures

If we leave the file typescript and on the terminal we type the date command, the result will be the current date.

2) View

```
Le script a débuté, le fichier est typescript
[root@localhost ~]# date
lun. mai  8 13:02:42 CEST 2017
[root@localhost ~]# _
```

When we want the username, just type the command id as in the capture below.

```
[root@localhost ~]# id
uid=0(root) gid=0(root) groupes=0(root) contexte=unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023
[root@localhost ~]# _
```

The `uname -a` statement shows us the operating system we are using as well as the version. Here is the illustration

```
[root@localhost ~]# uname -a
Linux localhost.localdomain 4.8.6-300.fc25.x86_64 #1 SMP Tue Nov 1 12:36:38 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux
[root@localhost ~]# _
```

Finally, the `uptime` command shows the time, the number of users, the average loading ...

```
[root@localhost ~]# uptime
13:05:41 up 12 min,  2 users,  load average: 0,01, 0,03, 0,03
[root@localhost ~]# _
```

3) Visualization

```
[root@localhost ~]# exit
Script terminé, le fichier est typescript
[root@localhost ~]# _
```

The `nano typescript` command allows us to view the result

```
nano 2.6.1                                Fichier : typescript

Le script a débuté sur lun. 08 mai 2017 12:56:31 CEST
[root@localhost ~]# ^G^Gdate
lun. mai  8 13:02:42 CEST 2017
[root@localhost ~]# id
uid=0(root) gid=0(root) groupes=0(root) contexte=unconfined_u:unconfined_r:unco$
[root@localhost ~]# uname -a
Linux localhost.localdomain 4.8.6-300.fc25.x86_64 #1 SMP Tue Nov 1 12:36:38 UTC$
[root@localhost ~]# uptime
13:05:41 up 12 min,  2 users,  load average: 0,01, 0,03, 0,03
[root@localhost ~]# exit

Script terminé sur lun. 08 mai 2017 13:06:31 CEST

[ Lecture de 12 lignes ]
^G Aide      ^O Écrire    ^W Chercher  ^K Couper    ^J Justifier  ^C Pos. cur.
^X Quitter   ^R Lire fich.^_ Remplacer  ^U Coller    ^T Orthograp.^_ Aller lig.
```

4) Proposals for automatic execution

Task2 : Using the Sudo command

1) User Creation Pierre

Type the adduser pierre command, and then fill in the requested form as shown in this figure below

```
[root@localhost ~]# useradd -c "pierre" pierre
[root@localhost ~]# _
```

Changing the password

To change the password of a user we use the command Passwd followed by the username whose password we want to change, we are asked to give the current password then the new password before finishing Confirming.

```
[root@localhost ~]# passwd pierre
Changement de mot de passe pour l'utilisateur pierre.
Nouveau mot de passe :
Retapez le nouveau mot de passe :
passwd : mise à jour réussie de tous les jetons d'authentification.
[root@localhost ~]# _
```

2. Changing the configuration and creating Titeuf by pierre

Since Peter is a simple user, he has no rights to create other users, only administrators can do so.

Our approach will grant Pierre super user rights:

We will configure the / etc / sudoers: describe file that can activate a command with sudo.

However, we will add the line -> ALL stone = (root) / usr / bin / useradd, The user Peter can activate useradd commands with root privileges.

```
##
## The COMMANDS section may have other options added to it.
##
## Allow root to run any commands anywhere
root    ALL=(ALL)        ALL
pierre  ALL=(root)/usr/sbin/useradd

## Allows members of the 'sys' group to run networking, software,
## service management apps and more.
# %sys ALL = NETWORKING, SOFTWARE, SERVICES, STORAGE, DELEGATING, PROCESSES, L

## Allows people in group wheel to run all commands
%wheel  ALL=(ALL)        ALL

## Same thing without a password
[ XOFF ignoré, humm humm ]
^G Aide      ^O Écrire    ^W Chercher  ^K Couper    ^J Justifier  ^C Pos. cur.
^X Quitter   ^R Lire fich.^_ Remplacer  ^U Coller    ^T Orthograp.^_ Aller lig.
< >
```

3. Connect to pierre and creat titeuf

From now on Pierre having become a superuser will create Titeuf, a new user

```
[pierre@localhost ~]$ sudo useradd titeuf
[sudo] Mot de passe de pierre :
[pierre@localhost ~]$ _
```

```
[pierre@localhost ~]$ sudo useradd titeuf

Nous espérons que vous avez reçu de votre administrateur système local les consi
ignes traditionnelles. Généralement, elles se concentrent sur ces trois éléments
:

#1) Respectez la vie privée des autres.
#2) Réfléchissez avant d'utiliser le clavier.
#3) De grands pouvoirs confèrent de grandes responsabilités.

[sudo] Mot de passe de pierre : _
```

4. The identity of Titeuf

Enter the id command here, the information provided is the user group number, the user number and the name

```
localhost login: titeuf
Password:
[titeuf@localhost ~]$ id
uid=1001(titeuf) gid=1001(titeuf) groupes=1001(titeuf) contexte=unconfined_u:unc
onfined_r:unconfined_t:s0-s0:c0.c1023
[titeuf@localhost ~]$ _
```

5. Propose a more efficient configuration

6. Creating a user Group

To create a user group with the name of admins, type the following command

Sudo addgroup admins.

```
[root@localhost ~]# groupadd admins
[root@localhost ~]# _
```

Now we decide to add the Titeuf user to this already created group

```
[root@localhost ~]# usermod -aG admins titeuf
[root@localhost ~]# _
```

To verify that titeuf has been added to the admin group, type the following command

```
[root@localhost etc]# less group_
```

Result

```
utmp:x:22:
utempter:x:35:
input:x:999:
systemd-journal:x:190:
systemd-timesync:x:998:
systemd-network:x:192:
systemd-resolve:x:193:
dbus:x:81:
polkitd:x:997:
ssh_keys:x:996:
sshd:x:74:
dip:x:40:
rpc:x:32:
abrt:x:173:
cockpit-ws:x:995:
rpcuser:x:29:
nfsnobody:x:65534:
chrony:x:994:
slocate:x:21:
tcpdump:x:72:
systemd-coredump:x:993:
pierre:x:1000:
titeuf:x:1001:
admins:x:1002:titeuf
END
```

Task 3 : Compilation of the kernel

- 1) Let's show the current version of the kernel, to be done here the demonstration.

```
[root@localhost ~]# uname -r
4.8.6-300.fc25.x86_64
[root@localhost ~]# _
```

- 2) Donwloading the kernel

```
[root@localhost etc]# wget https://www.kernel.org/pub/linux/kernel/v4.x/linux-4.11.tar.xz
```

```
Connexion à www.kernel.org (www.kernel.org)|147.75.205.195|:443... connecté.  
requête HTTP transmise, en attente de la réponse... 200 OK  
Taille : 95447768 (91M) [application/x-xz]  
Sauvegarde en : « linux-4.11.tar.xz.1 »  
  
linux-4.11.tar.xz.1 100%[=====>] 91,03M 15,0KB/s in 88m 28s  
2017-05-23 09:45:38 (17,6 KB/s) - « linux-4.11.tar.xz.1 » sauvegardé [95447768/95447768]
```

3) Download patches

```
[root@localhost etc]# wget https://www.kernel.org/pub/linux/kernel/v4.x/patch-4.11.xz  
--2017-05-23 09:46:45-- https://www.kernel.org/pub/linux/kernel/v4.x/patch-4.11.xz  
Résolution de www.kernel.org (www.kernel.org)... 147.75.205.195, 2604:1380:2000:f000::7  
Connexion à www.kernel.org (www.kernel.org)|147.75.205.195|:443... connecté.  
requête HTTP transmise, en attente de la réponse... 200 OK  
Taille : 6516716 (6,2M) [application/x-xz]  
Sauvegarde en : « patch-4.11.xz »  
  
patch-4.11.xz 100%[=====>] 6,21M 16,9KB/s in 6m 12s  
2017-05-23 09:52:59 (17,1 KB/s) - « patch-4.11.xz » sauvegardé [6516716/6516716]  
[root@localhost etc]# _
```

4) Installing sources in kernels

View that we already install the sources in etc we unzip them via the following commands

```
[root@localhost etc]# tar xvf linux-4.11.tar.xz_
```

```
[root@localhost etc]# xz -d patch-4.11.xz  
[root@localhost etc]# _
```

After unzipping we just have to copy the sources in the tree to indicate. The catch allows us to do this

.

```
[root@localhost etc]# cp -r linux-4.11 /usr/src/kernels_
```

Cd z

```
[root@localhost etc]# cp -r patch-4.11 /usr/src/kernels  
[root@localhost etc]# _
```

5) Patche the kernel

Move to the location and patch


```
[root@localhost linux-4.11]# cd /usr/src/kernels/linux-4.11_
```

```
[root@localhost linux-4.11]# patch -p1 < ../patch-4.11_
```

6) Configuration of kernel

a) Activation of the configuration tool

```
[root@localhost linux-4.11]# yum -q -y install ncurses-devel  
Redirecting to '/usr/bin/dnf -q -y install ncurses-devel' (see 'man yum2dnf')
```

```
.config - Linux/x86 4.9.0 Kernel Configuration
```

```
Linux/x86 4.9.0 Kernel Configuration  
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty  
submenus ----). Highlighted letters are hotkeys. Pressing <Y>  
includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to  
exit, <?> for Help, </> for Search. Legend: [*] built-in [ ]
```

```
(-)  
-- Enable the block layer --->  
  Processor type and features --->  
  Power management and ACPI options --->  
  Bus options (PCI etc.) --->  
  Executable file formats / Emulations --->  
[*] Networking support --->  
  Device Drivers --->  
  Firmware Drivers --->  
_ File systems --->  
  Kernel hacking --->  
  Security options --->
```

```
(+)
```

```
<Select>    <Exit>    <Help>    <Save>    <Load>
```

b)

```
.config - Linux/x86 4.9.0 Kernel Configuration  
+ File systems
```

```
File systems  
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty  
submenus ----). Highlighted letters are hotkeys. Pressing <Y>  
includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to  
exit, <?> for Help, </> for Search. Legend: [*] built-in [ ]
```

```
(-)  
<M> FUSE (Filesystem in Userspace) support  
<M> Character device in Userspace support  
<M> Overlay filesystem support  
  Caches --->  
  CD-ROM/DVD Filesystems --->  
_ DOS/FAT/NT Filesystems --->  
  Pseudo filesystems --->  
-- Miscellaneous filesystems --->  
[*] Network File Systems --->  
-- Native language support --->  
<M> Distributed Lock Manager (DLM) --->
```

```
<Select>    <Exit>    <Help>    <Save>    <Load>
```

c)

```
.config - Linux/x86 4.9.0 Kernel Configuration
+ File systems + DOS/FAT/NT Filesystems
DOS/FAT/NT Filesystems
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty
submenus ----). Highlighted letters are hotkeys. Pressing <Y>
includes, <N> excludes, <M> modularizes features. Press <Esc><Esc> to
exit, <?> for Help, </> for Search. Legend: [*] built-in [ ]

<M> MSDOS fs support
<M> VFAT (Windows-95) fs support
(437) Default codepage for FAT
(ascii) Default iocharset for FAT
[ ] Enable FAT UTF-8 option by default
<M> NTFS file system support
[*] NTFS debugging support
[*] NTFS write support

<Select> <Exit> <Help> <Save> <Load>
```

d) Vérification that the choices are taken in account

```
[root@localhost linux-4.9]# grep -i NTFS .config
CONFIG_NTFS_FS=m
CONFIG_NTFS_DEBUG=y
CONFIG_NTFS_RW=y
[root@localhost linux-4.9]# _
```

7) Démarrage de la compilation du noyau et des modules

8) Installation des Modules

9) Installation

10) Copie de la configuration de noyau dans /boot

11)