

Rapport du TP2

Attaques actives



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Introduction :

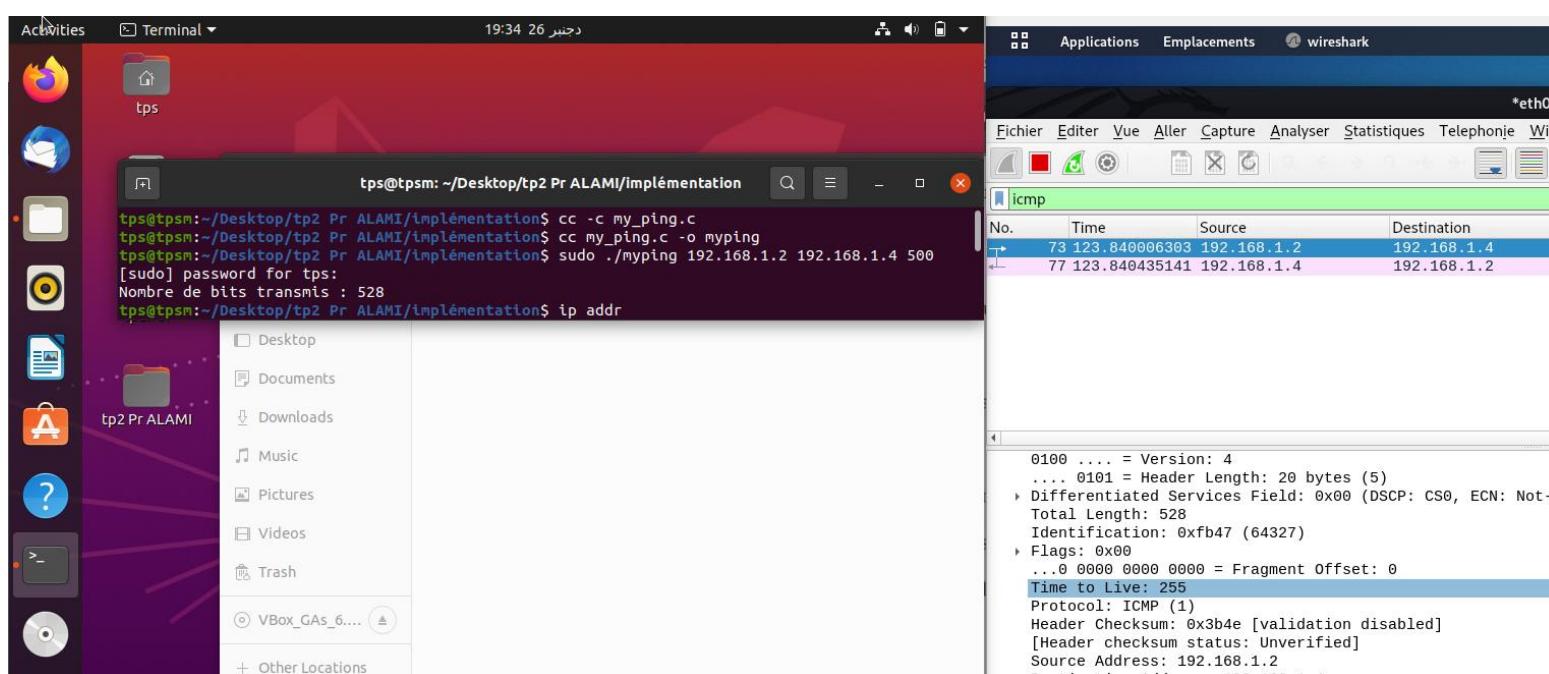
Les attaques actives sont mises en place par l'injection, la modification ou la suppression de paquets. L'attaquant peut ainsi laisser les traces des attaques qu'il lance. Ces traces peuvent être exploitées par l'administrateur réseau pour déceler l'existence d'attaques et identifier l'attaquant si possible.

❖ Objectifs de ce TP:

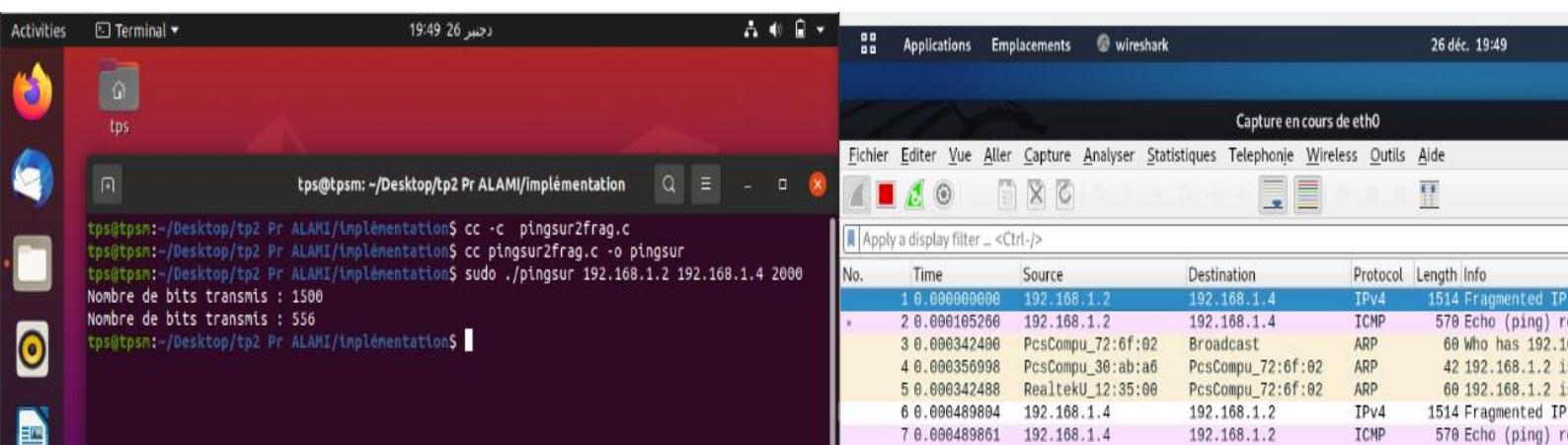
- Implémenter quelques attaques et les tester.
- Mise en place de quelques attaques en utilisant des outils d'attaques.

Implémentation d'attaques actives

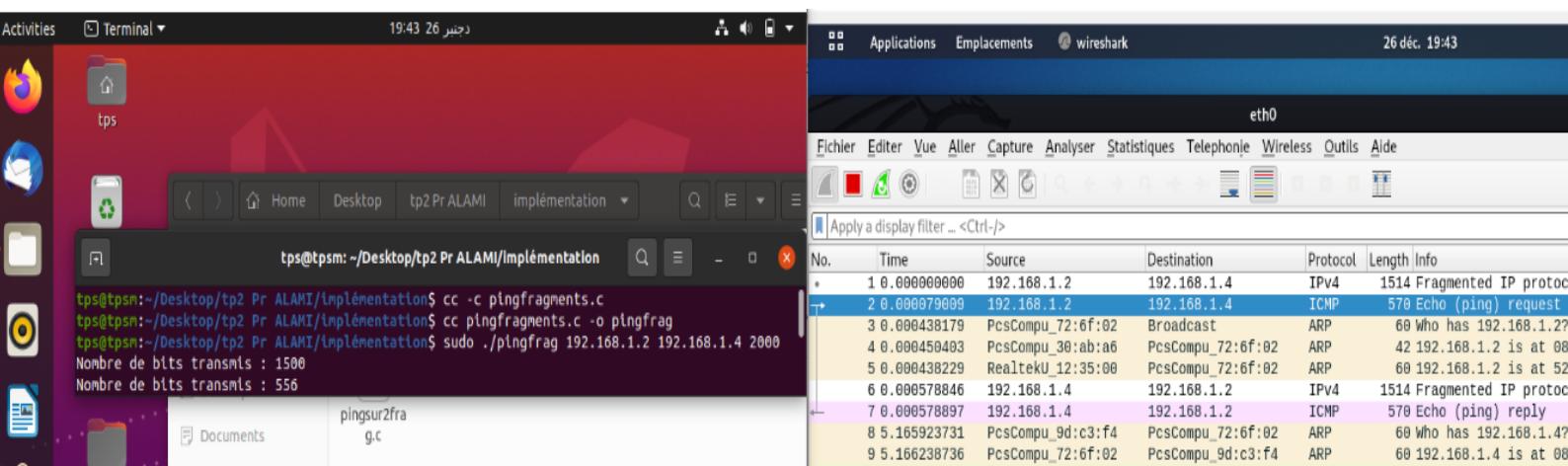
Exercice 1 : my_ping.c



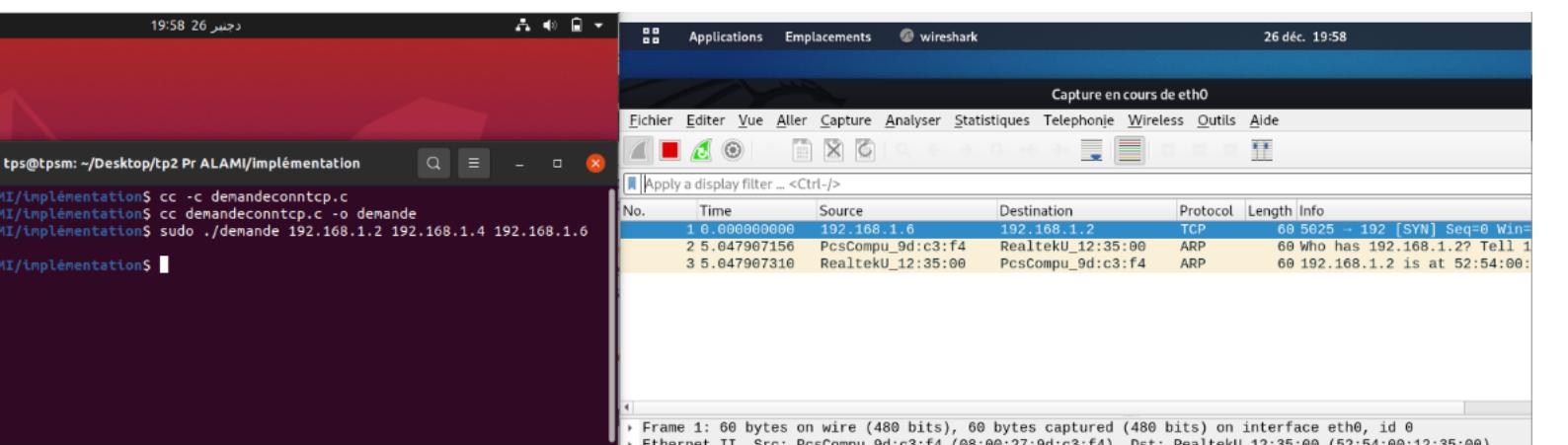
Exercice 2 : pingsur2frag.c

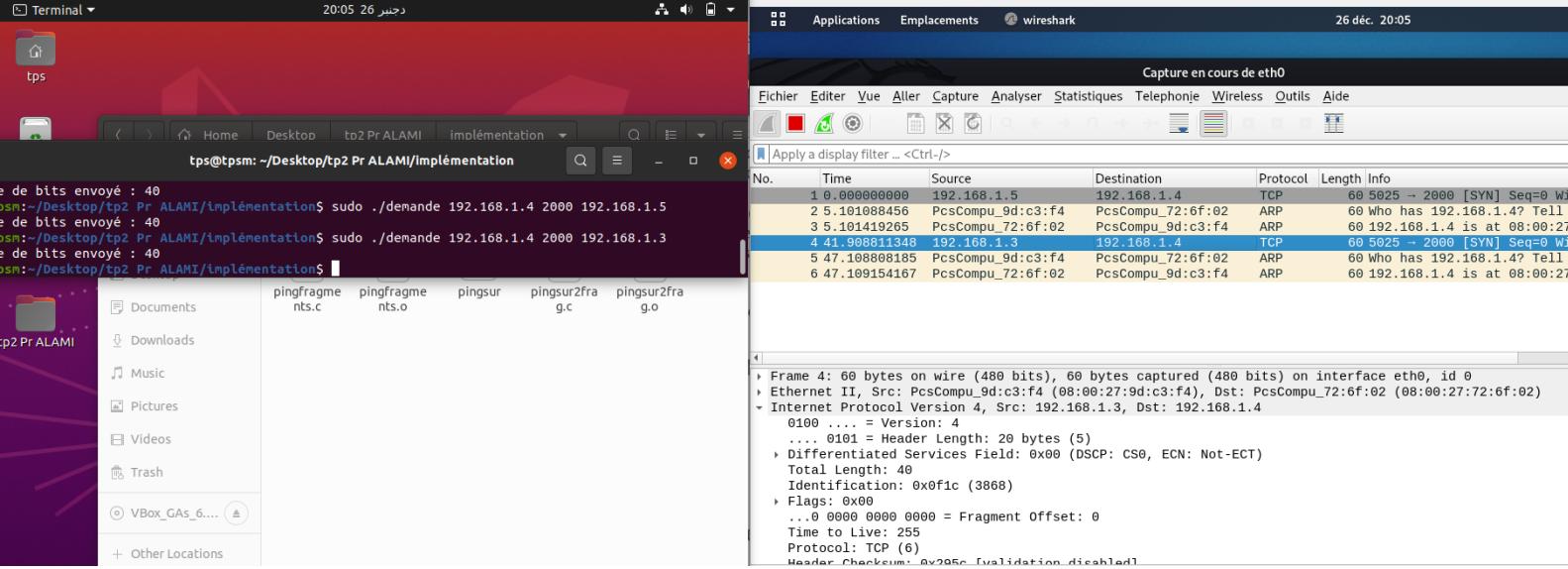


Exercice 3 : pingfragments.c



Exercice 4 : demandeconntcp.c





Test de quelques outils d'attaques

A. Attaque DHCP starvation

DHCP starvation : L'attaquant inonde le serveur DHCP avec des messages DHCPREQUEST afin de réserver toutes les adresses IP disponibles sur le serveur DHCP. L'attaquant doit utiliser une nouvelle adresse MAC pour chaque requête.

- installer des utilitaires pour dhcpstary (Install utils for dhcpstary).

```
tpsm@tpsm:~/Desktop$ sudo apt install make
Reading package lists... Done
Building dependency tree
Reading state information... Done
make is already the newest version (4.2.1-1.2).
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi
  libgstreamer-plugins-bad1.0-0 libva-wayland2 linux-headers-5.11.0-27-generic
  linux-hwe-5.11-headers-5.11.0-27 linux-image-5.11.0-27-generic
  linux-modules-5.11.0-27-generic linux-modules-extra-5.11.0-27-generic
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
tpsm@tpsm:~/Desktop$ sudo apt install autoconf
Reading package lists... Done
Building dependency tree
Reading state information... Done
autoconf is already the newest version (2.69-11.1).
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi
  libgstreamer-plugins-bad1.0-0 libva-wayland2 linux-headers-5.11.0-27-generic
  linux-hwe-5.11-headers-5.11.0-27 linux-image-5.11.0-27-generic
  linux-modules-5.11.0-27-generic linux-modules-extra-5.11.0-27-generic
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

```
tpsm@tpsm:~/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2.1$ ./configure
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
/bin/bash: /home/tpsm/Desktop/tp2: No such file or directory
configure: WARNING: `missing' script is too old or missing
checking for gawk... no
checking for mawk... mawk
checking whether make sets $(MAKE)... yes
checking for gcc... gcc
checking for C compiler default output file name... a.out
checking whether the C compiler works... yes
checking whether we are cross compiling... no
checking for suffix of executables...
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking for style of include used by make... GNU
checking dependency style of gcc... gcc3
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for ANSI C header files... yes
checking for sys/types.h... yes
```

- Install dhcpstarv

```

tps@tpsm:~/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2.1$ make
cd . && autoheader
/bin/bash: autoheader: command not found
make: *** [Makefile:204: config.h.in] Error 127
tps@tpsm:~/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2.1$ autoheader
W Command 'autoheader' not found, but can be installed with:
sudo apt install autoconf

tps@tpsm:~/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2.1$ make
cd . && autoheader
rm -f stamp-h1
touch config.h.in
cd . && /bin/bash ./config.status config.h
config.status: creating config.h
make all-recursive
make[1]: Entering directory '/home/tps/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2
.1'
Making all in src
make[2]: Entering directory '/home/tps/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2
.1/src'

```

```

tps@tpsm:~/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2.1$ sudo make install
[sudo] password for tps:
W Making install in src
make[1]: Entering directory '/home/tps/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2
.1/src'
W make[2]: Entering directory '/home/tps/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2
.1/src'
V test -z "/usr/local/bin" || mkdir -p -- "/usr/local/bin"
 /usr/bin/install -c 'dhcostarv' '/usr/local/bin/dhcostarv'

```

● Configuration DHCP

The screenshot shows a Linux desktop environment with several windows open:

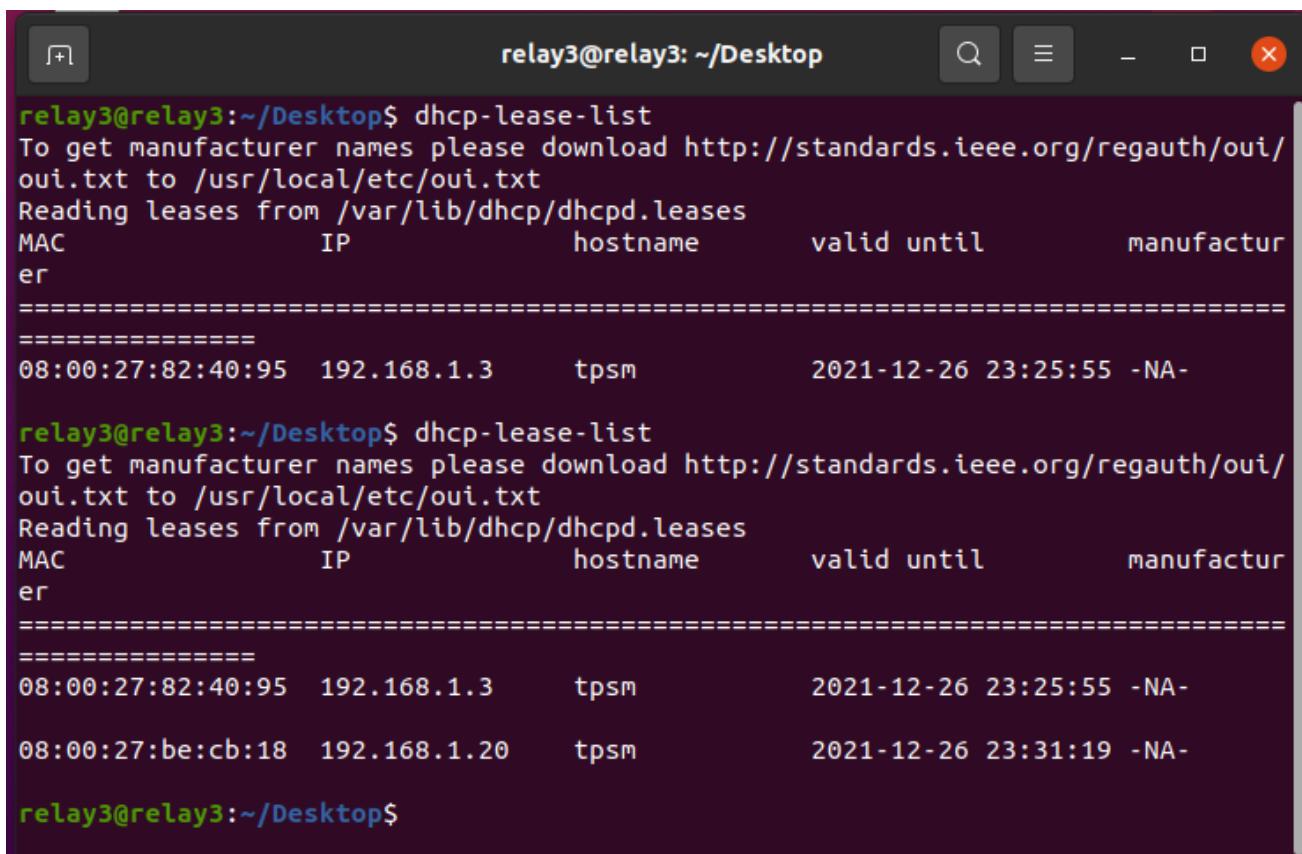
- Terminal 1 (Top):** Shows the compilation and installation of the dhcostarv tool. It includes steps for installing autoconf, running autoheader, and performing a make install.
- Terminal 2 (Bottom):** Shows the configuration of the isc-dhcp-server. It includes setting up the configuration file (dhcpd.conf) and listing the interfaces (INTERFACESV4 and INTERFACESV6).
- File Manager:** Shows a file tree with various files and folders related to the DHCP server configuration.
- Terminal 3 (Bottom):** Shows the configuration of the network interfaces (lo and enp0s3) using ip addr and the editing of the /etc/default/isc-dhcp-server and /etc/dhcp/dhcpd.conf files.

● Status DHCP

```
relay3@relay3:~/Desktop$ service isc-dhcp-server restart
relay3@relay3:~/Desktop$ service isc-dhcp-server status
● isc-dhcp-server.service - ISC DHCP IPv4 server
  Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor>
  Active: active (running) since Mon 2021-12-27 00:01:22 +01; 6s ago
    Docs: man:dhcpd(8)
   Main PID: 1950 (dhcpd)
     Tasks: 4 (limit: 1092)
    Memory: 7.5M
      CGroup: /system.slice/isc-dhcp-server.service
              └─1950 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/d>

00:01:22 27 دجنبر relay3 sh[1950]: lease 192.168.20.5: no subnet.
00:01:22 27 دجنبر relay3 dhcpd[1950]: Wrote 0 leases to leases file.
00:01:22 27 دجنبر relay3 sh[1950]: Wrote 0 leases to leases file.
00:01:22 27 دجنبر relay3 dhcpd[1950]: Listening on LPF/enp0s3/08:00:27:97:a7:dc>
00:01:22 27 دجنبر relay3 sh[1950]: Listening on LPF/enp0s3/08:00:27:97:a7:dc/19>
00:01:22 27 دجنبر relay3 sh[1950]: Sending on  LPF/enp0s3/08:00:27:97:a7:dc/19>
00:01:22 27 دجنبر relay3 sh[1950]: Sending on  Socket/fallback/fallback-net
00:01:22 27 دجنبر relay3 dhcpd[1950]: Sending on  LPF/enp0s3/08:00:27:97:a7:dc>
00:01:22 27 دجنبر relay3 dhcpd[1950]: Sending on  Socket/fallback/fallback-net
00:01:22 27 دجنبر relay3 dhcpd[1950]: Server starting service.
lines 1-20/20 (END)
```

● Test DHCP



```
relay3@relay3:~/Desktop$ dhcp-lease-list
To get manufacturer names please download http://standards.ieee.org/regauth/oui/
oui.txt to /usr/local/etc/oui.txt
Reading leases from /var/lib/dhcp/dhcpd.leases
MAC           IP           hostname       valid until     manufacturer
er
=====
08:00:27:82:40:95  192.168.1.3      tpsm          2021-12-26 23:25:55 -NA-

relay3@relay3:~/Desktop$ dhcp-lease-list
To get manufacturer names please download http://standards.ieee.org/regauth/oui/
oui.txt to /usr/local/etc/oui.txt
Reading leases from /var/lib/dhcp/dhcpd.leases
MAC           IP           hostname       valid until     manufacturer
er
=====
08:00:27:82:40:95  192.168.1.3      tpsm          2021-12-26 23:25:55 -NA-
08:00:27:be:cb:18  192.168.1.20    tpsm          2021-12-26 23:31:19 -NA-
```

- Lance l'attaque

```
tpsm@tpsm:~/Desktop/tp2 Pr ALAMI/outils/dhcpstarv-0.2.1$ sudo dhcpstarv -i enp0s3
[sudo] password for tpsm:
```

- dossier de bail avant l'attaque (lease file)

```
*dhcpd.leases [Read-Only]
/var/lib/dhcp

1 # The format of this file is documented in the dhcpcd.leases(5) manual page.
2 # This lease file was written by isc-dhcp-4.4.1
3
4 # authoring-byte-order entry is generated, DO NOT DELETE
5 authoring-byte-order little-endian;
6
7 server-duid "\000\001\000\001[\260\302\010\000'\227\247\334";
8
9 lease 192.168.1.1 {
10    starts 0 2021/12/26 23:15:41;
11    ends 1 2021/12/27 23:15:41;
12    cltt 0 2021/12/26 23:15:41;
13    binding state abandoned;
14    next binding state free;
15    rewind binding state free;
16    client-hostname "tpsm";
17 }
18 lease 192.168.1.2 {
19    starts 0 2021/12/26 23:15:43;
20    ends 1 2021/12/27 23:15:43;
21    cltt 0 2021/12/26 23:15:43;
22    binding state abandoned;
23    next binding state free;
24    rewind binding state free;
25    client-hostname "tpsm";
26 }
27 lease 192.168.1.3 {
28    starts 0 2021/12/26 23:15:55;
29    ends 0 2021/12/26 23:25:55;|
30    cltt 0 2021/12/26 23:15:55;
31    binding state active;
32    next binding state free;
33    rewind binding state free;
34    hardware ethernet 08:00:27:82:40:95;
35    uid "\001\010\000'\202@\225";
36    client-hostname "tpsm";
37 }
```

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before the attack)

- dossier de bail avant l'attaque (lease file before the attack)

```
799  rewind binding state free;
800 }
801 lease 192.168.1.5 {
802   starts 0 2021/12/26 23:37:37;
803   ends 1 2021/12/27 23:37:37;
804   cltt 0 2021/12/26 23:37:37;
805   binding state abandoned;
806   next binding state free;
807   rewind binding state free;
808 }
809 lease 192.168.1.1 {
810   starts 0 2021/12/26 23:37:39;
811   ends 1 2021/12/27 23:37:39;
812   cltt 0 2021/12/26 23:37:39;
813   binding state abandoned;
814   next binding state free;
815   rewind binding state free;
816 }
817 lease 192.168.1.2 {
818   starts 0 2021/12/26 23:37:41;
819   ends 1 2021/12/27 23:37:41;
820   cltt 0 2021/12/26 23:37:41;
821   binding state abandoned;
822   next binding state free;
823   rewind binding state free;
824 }
825 lease 192.168.1.5 {
826   starts 0 2021/12/26 23:37:43;
827   ends 1 2021/12/27 23:37:43;
828   cltt 0 2021/12/26 23:37:43;
829   binding state abandoned;
830   next binding state free;
831   rewind binding state free;
832 }
833 lease 192.168.1.1 {
834   starts 0 2021/12/26 23:37:45;
835   ends 1 2021/12/27 23:37:45;
836   cltt 0 2021/12/26 23:37:45;
837   binding state abandoned;
838   next binding state free;
839   rewind binding state free;
840 }
841 lease 192.168.1.2 {
842   starts 0 2021/12/26 23:37:47;
843   ends 1 2021/12/27 23:37:47;
844   cltt 0 2021/12/26 23:37:47;
845   binding state abandoned;
```

- Result

```
dhclient [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal 00:36 27 حسـر
relay3@relay3: /var/lib/dhcp$ dhcp-lease-list
To get manufacturer names please download http://standards.ieee.org/regauth/oui/oui.txt to /usr/local/etc/oui.txt
Reading leases from /var/lib/dhcp/dhcpd.leases
MAC IP hostname valid until manufacturer
=====
00:16:36:07:99:b4 192.168.1.3 -NA- 2021-12-26 23:42:26 -NA-
00:16:36:09:be:5d 192.168.1.12 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:0a:c0:d4 192.168.1.18 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:11:95:9c 192.168.1.23 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:14:b0:de 192.168.1.11 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:15:05:16 192.168.1.49 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:1e:04:b4 192.168.1.16 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:1f:4b:37 192.168.1.48 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:24:ba:2c 192.168.1.45 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:26:f1:86 192.168.1.13 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:29:ad:b6 192.168.1.46 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:2f:65:9f 192.168.1.59 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:3a:79:a1 192.168.1.44 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:46:6e:eb 192.168.1.22 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:48:26:49 192.168.1.21 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:55:88:01 192.168.1.31 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:58:5c:74 192.168.1.26 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:58:b1:8a 192.168.1.27 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:5f:41:94 192.168.1.38 -NA- 2021-12-26 23:42:18 -NA-
00:16:36:68:24:57 192.168.1.32 -NA- 2021-12-26 23:42:18 -NA-
relay3@relay3: /var/lib/dhcp
```

The screenshot shows a Linux desktop environment with a terminal window open in the foreground. The terminal window title is "tp2@tpsm: ~/Desktop/tp2 Pr ALAMI/utils/dhcpcstarv-0.2.1". The terminal displays several lines of log output related to a DHCP lease process:

```
00:35:46 12/27/21: got address 192.168.1.43 for 00:16:36:79:04:5a from 192.168.1
.5
00:35:47 12/27/21: no renewal time option in DHCPOFFER
00:35:47 12/27/21: got address 192.168.1.44 for 00:16:36:3a:78:a1 from 192.168.1
.5
00:35:48 12/27/21: no renewal time option in DHCPOFFER
00:35:48 12/27/21: got address 192.168.1.45 for 00:16:36:24:ba:2c from 192.168.1
.5
00:35:49 12/27/21: no renewal time option in DHCPOFFER
00:35:49 12/27/21: got address 192.168.1.46 for 00:16:36:29:ad:b0 from 192.168.1
.5
```

Below the terminal window, a network interface status bar shows "rec. 00:35" and "tx. 00:35" for the "eth0" interface. The desktop interface includes icons for Home, Applications, and Help.

b. Attaque “Man In The Middle” basée sur l’attaque “ARP spoofing” .

- Etape 1

```
[root@kali]# sysctl net.ipv4.ip_forward  
net.ipv4.ip_forward = 0  
  
[root@kali]# sysctl -w net.ipv4.ip_forward=1  
net.ipv4.ip_forward = 1
```

- Etape2.1

• Etape2.2

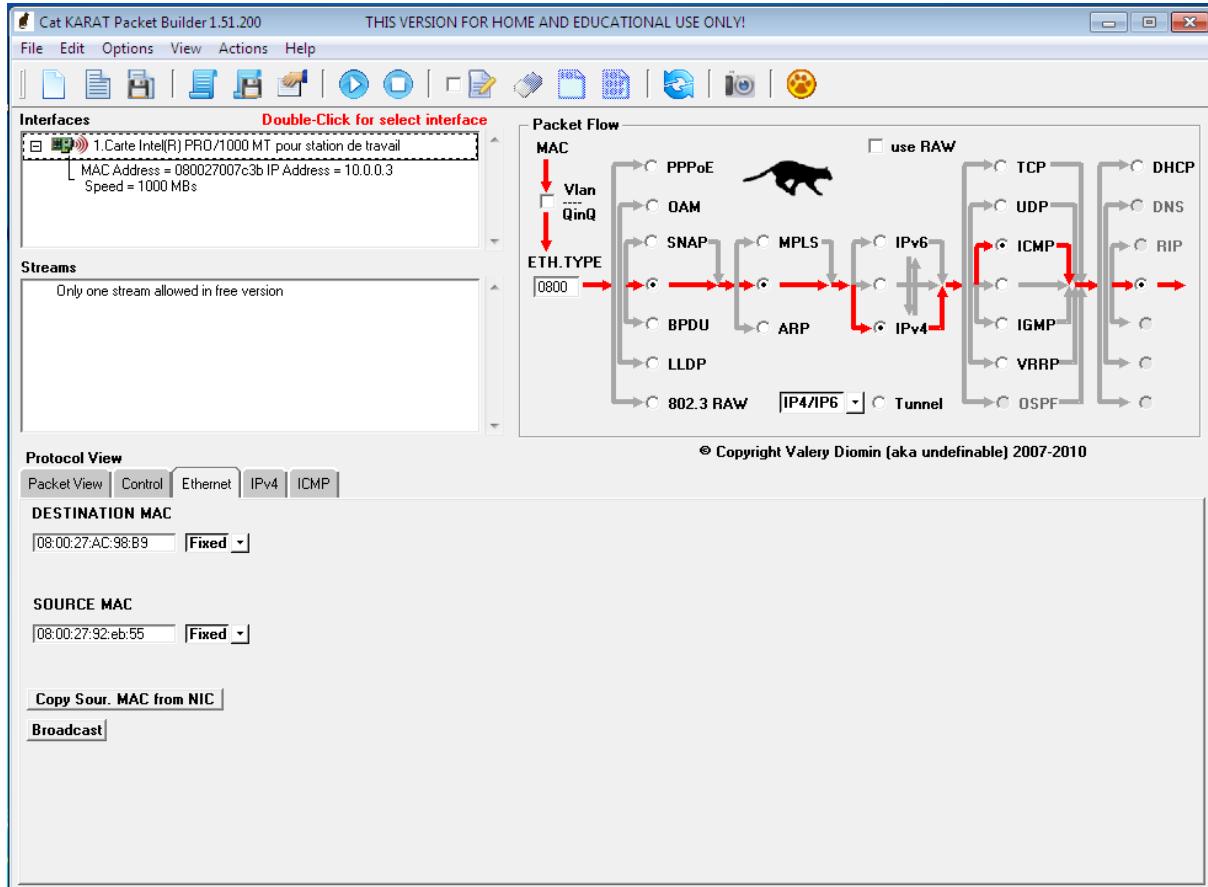
The screenshot shows a Kali Linux desktop environment with several open windows:

- Wireshark**: Capturing from interface eth0, showing a list of network frames. The first few frames are ARP requests and responses between 192.168.1.2 and 192.168.1.3.
- qterminal**: A terminal window showing a root shell on the kali machine. It displays log messages about QStandardPaths and runtime-root settings.
- tp2 Pr ALAMI**: Another terminal window showing a root shell on the kali machine. It runs a command to spoof ARP on interface eth0, targeting 192.168.1.2.
- Capturing from eth0**: A terminal window showing the raw captured data for frame 1, which is an ICMP echo request (ping).
- File Manager**: Shows the file system structure of /home/kali/Desktop.

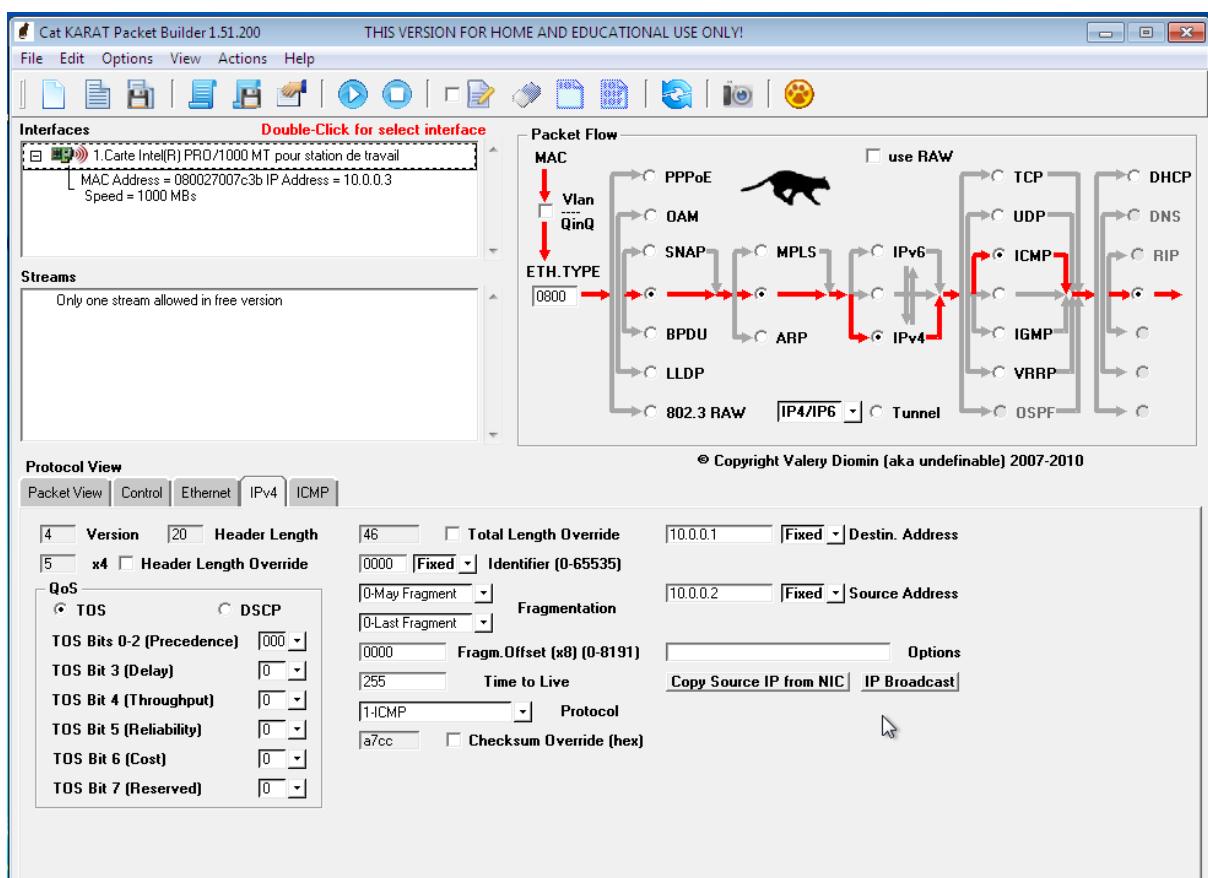
- Etape3

c. Attaque “usurpation d’identité”

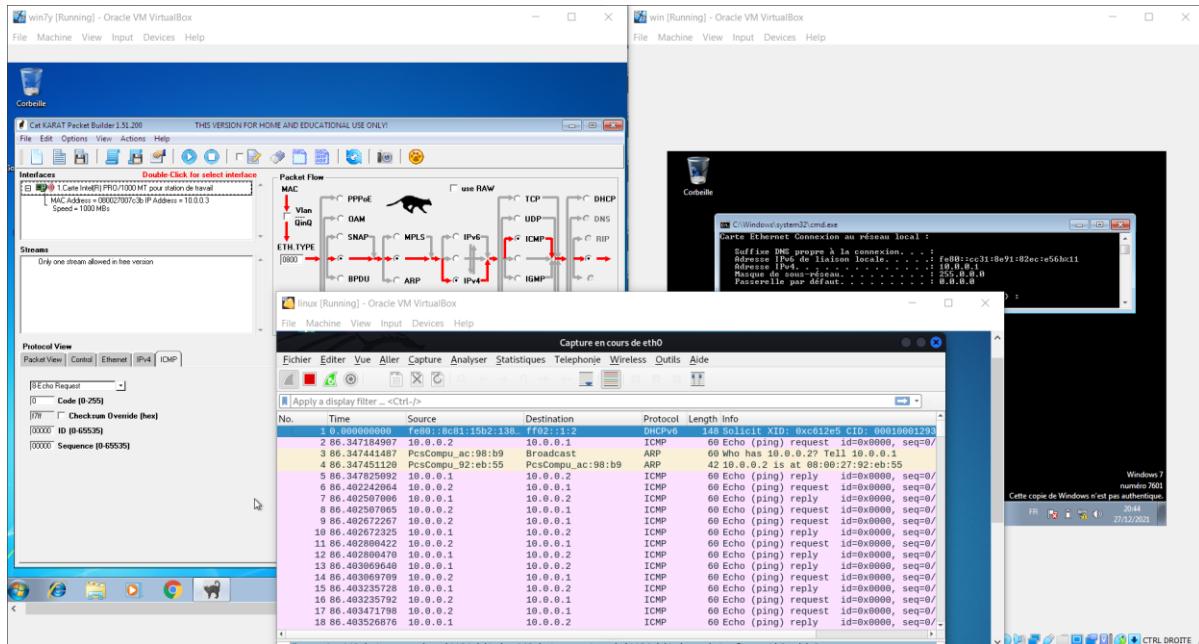
- Etape1 : configurer mac adresse



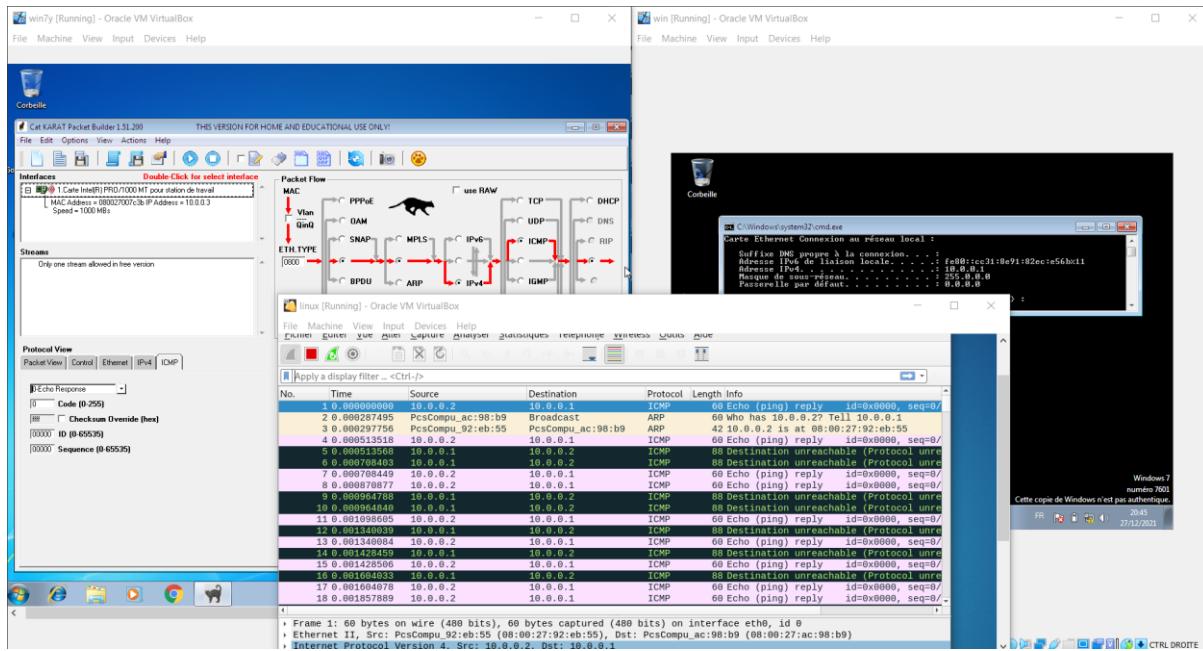
- etape2 : configurer adresse IP



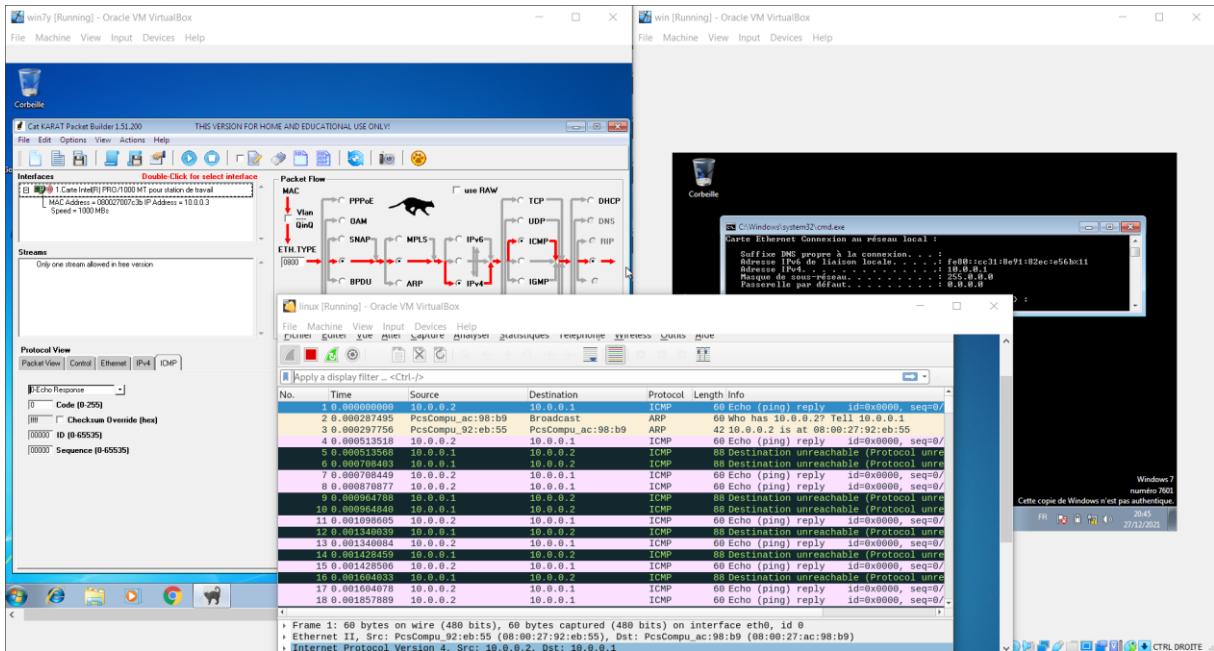
● Etape3 : send echo request



● Etape4 : send echo reply



● Etape 5 : Echo reply last package



d. Attaque “ARP cache poisoning”

- etape1 :Vérifier la connectivite

```

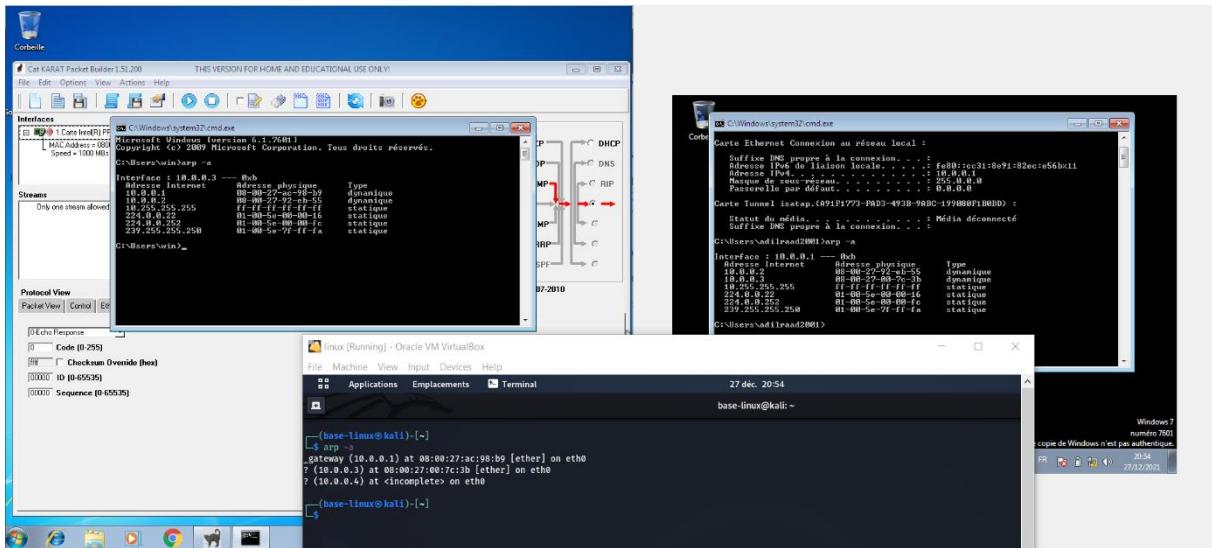
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
  link/ether 08:00:27:92:eb:55 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.2/8 brd 10.255.255.255 scope global noprefixroute eth0
      valid_lft forever preferred_lft forever
    inet6 fe80::8053:803f%eth0/64 scope link noprefixroute
      valid_lft forever preferred_lft forever

  (base-linux@kali)-[~]
  $ ping 10.0.0.3
PING 10.0.0.3 (10.0.0.3) 56(84) bytes of data.
64 bytes from 10.0.0.3: icmp_seq=1 ttl=128 time=0.778 ms
64 bytes from 10.0.0.3: icmp_seq=2 ttl=128 time=1.00 ms
^C
--- 10.0.0.3 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1026ms
rtt min/avg/max/mdev = 0.778/0.890/1.003/0.112 ms

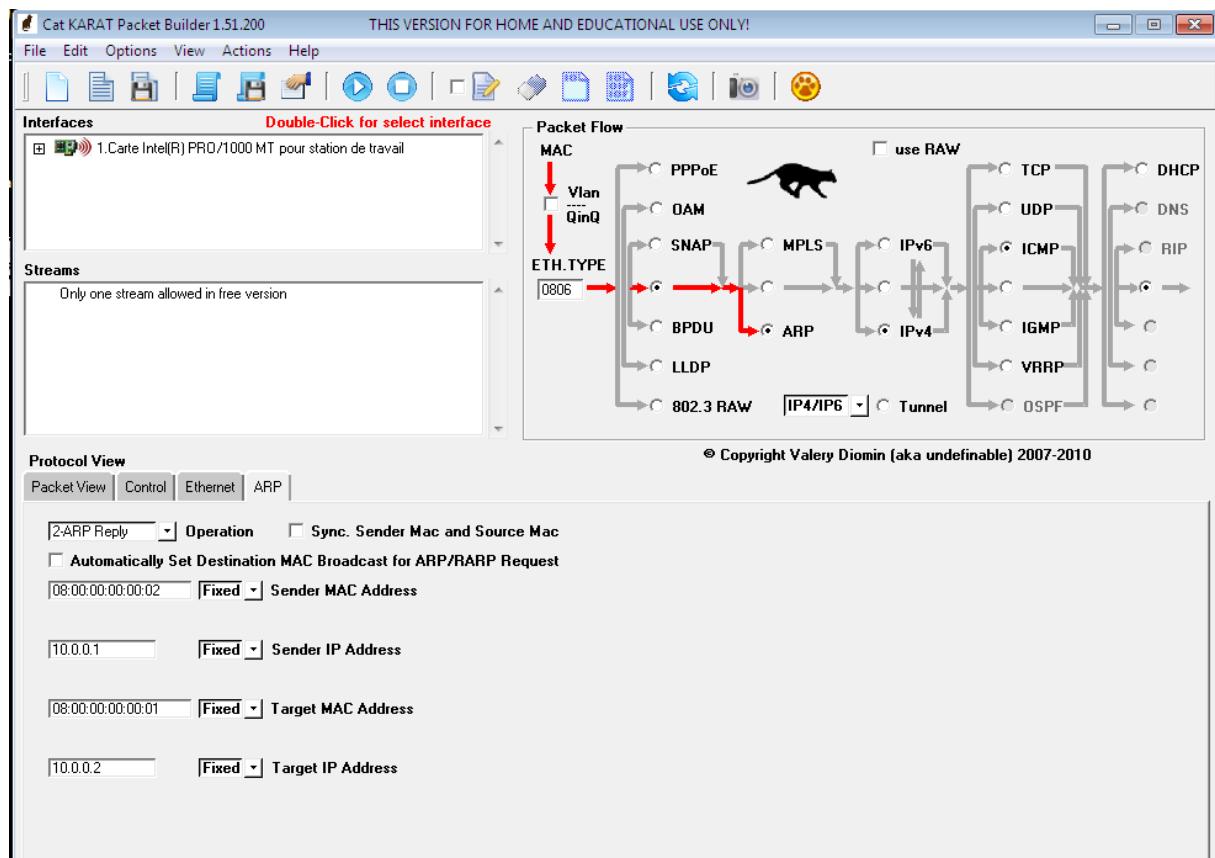
  (base-linux@kali)-[~]
  $ ping 10.0.0.1
PING 10.0.0.1 (10.0.0.1) 56(84) bytes of data.
64 bytes from 10.0.0.1: icmp_seq=1 ttl=128 time=0.869 ms
64 bytes from 10.0.0.1: icmp_seq=2 ttl=128 time=0.977 ms
^C

```

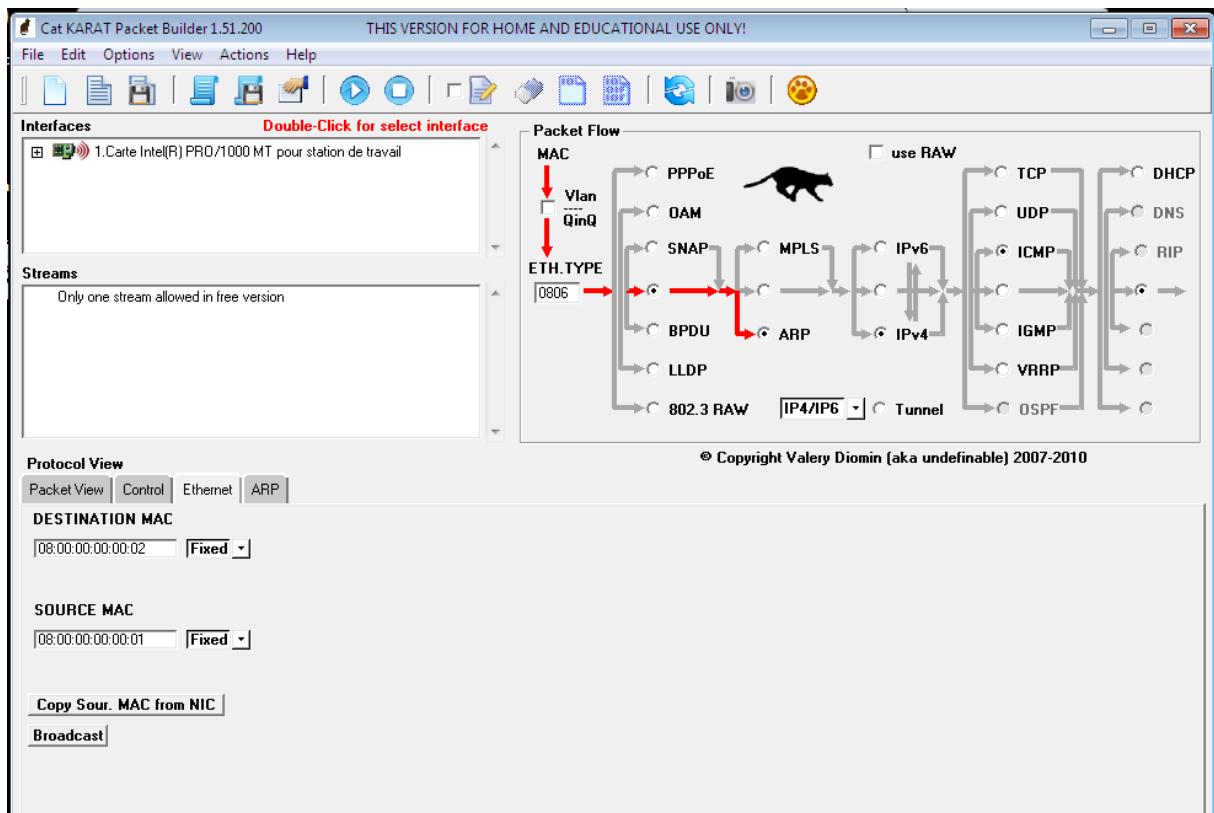
- Etape2 :Arp



• Etape 3



• Etape 4



• Etape 5

Capture en cours de eth0

Fichier Editer Vue Aller Capture Analyser Statistiques Telephone Wireless Outils Aide

Apply a display filter ... <Ctrl-/>

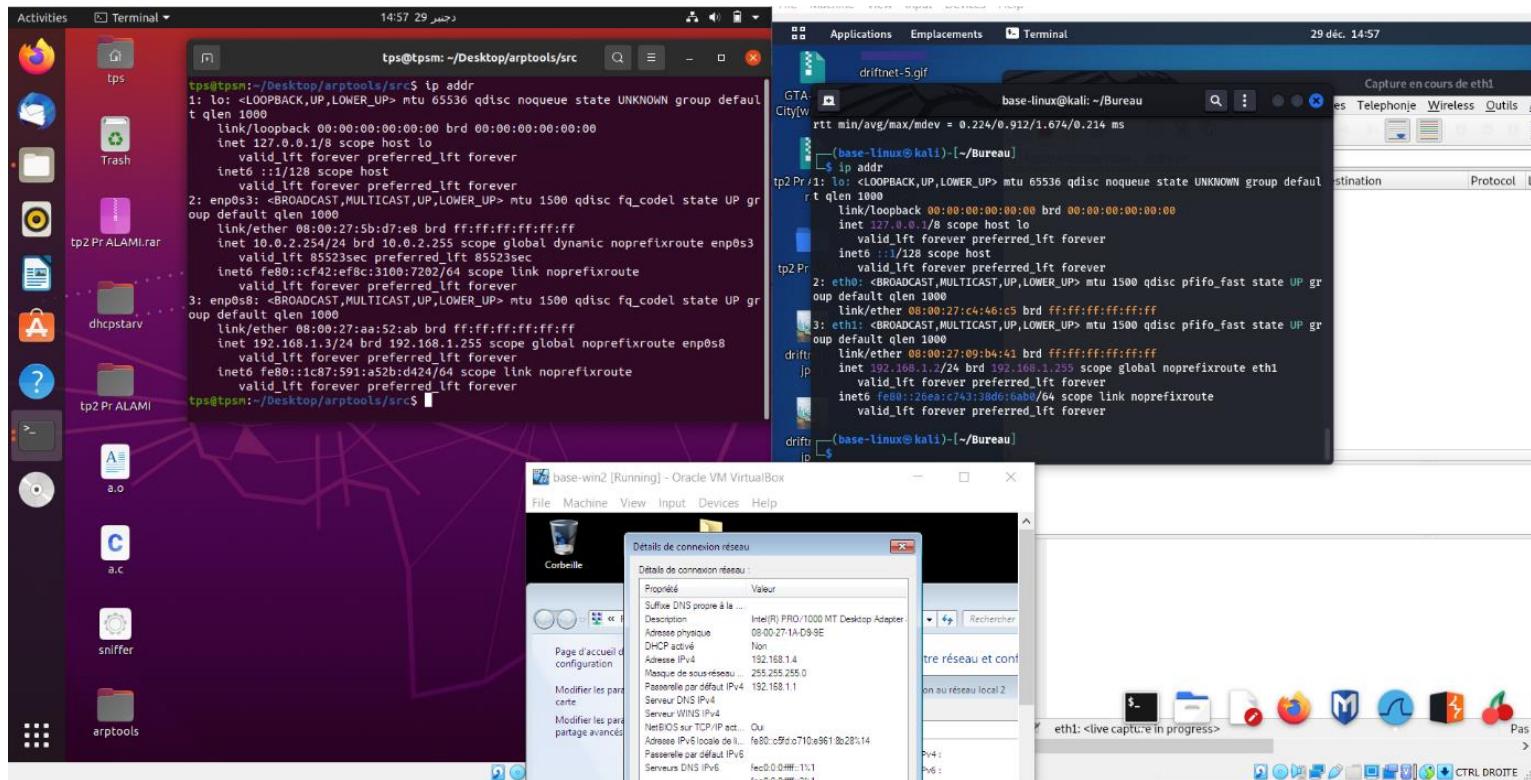
No.	Time	Source	Destination	Protocol	Length	Info
15573	2.588556371	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15574	2.588632813	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15575	2.588711503	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15576	2.588782895	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15577	2.588863781	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15578	2.588937795	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15579	2.589015968	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15580	2.589172824	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15581	2.589250158	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15582	2.589324079	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15583	2.589410087	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15584	2.589501801	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15585	2.589587035	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15586	2.589670061	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15587	2.589764485	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15588	2.589858969	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15589	2.589928824	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02
15590	2.590010460	08:00:00:00:00:01	08:00:00:00:00:02	ARP	60	10.0.0.1 is at 08:00:00:00:00:02

▶ Frame 15585: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface eth0, id 0
 ▶ Ethernet II, Src: 08:00:00:00:00:01 (08:00:00:00:00:01), Dst: 08:00:00:00:00:02 (08:00:00:00:00:02)
 ▶ Address Resolution Protocol (reply)

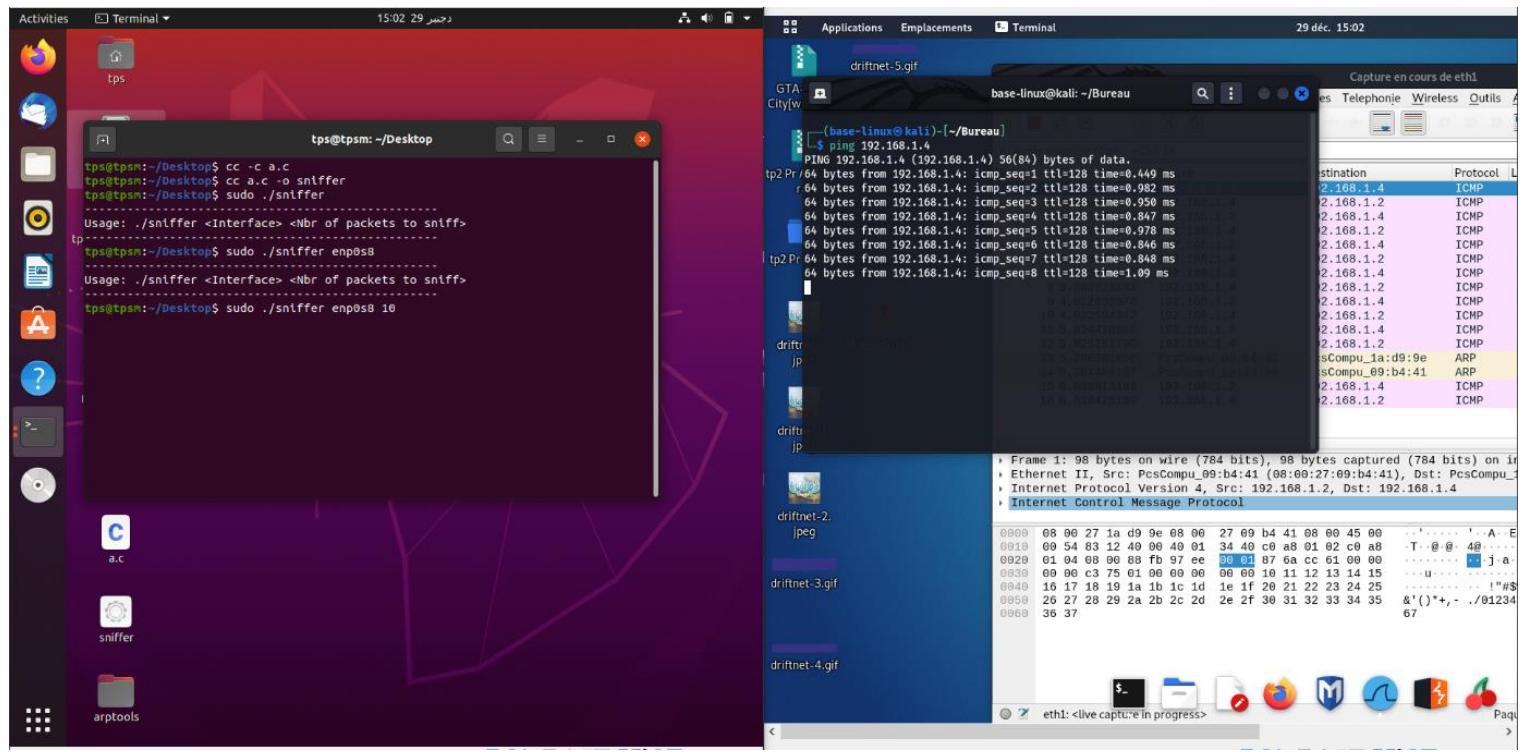
0000	08 00 00 00 00 02	08 00 00 00 00 01	08 08 06 00 00 01
0010	08 00 06 04 00 02	08 00 00 00 00 02	0a 00 00 00 00 01
0020	08 00 00 00 00 01	0a 00 00 00 00 00	00 02 00 00 00 00
0030	00 00 00 00 00 00	00 00 00 00 00 00	00 00 00 00 00 00

e. Attaque « Inondation de la table de commutation »

- Etape1 : adresse IP



● Etape1.2 : test ping



● 2.1 install arpflood

```

[+] tps@tpsm: ~/Desktop/new/arptools
tps@tpsm:~/Desktop/new$ sudo apt-get install libpcap-dev libnet-dev
[sudo] password for tps:
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'libnet1-dev' instead of 'libnet-dev'
libnet1-dev is already the newest version (1.1.6+dfsg-3.1build1).
libpcap-dev is already the newest version (1.9.1-3).
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi
  libgstreamer-plugins-bad1.0-0 libva-wayland2 linux-headers-5.11.0-27-generic
  linux-hwe-5.11-headers-5.11.0-27 linux-image-5.11.0-27-generic
  linux-modules-5.11.0-27-generic linux-modules-extra-5.11.0-27-generic
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
tps@tpsm:~/Desktop/new$ git clone https://github.com/burghardt/arptools.git
Cloning into 'arptools'...
remote: Enumerating objects: 142, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 142 (delta 0), reused 4 (delta 0), pack-reused 137
Receiving objects: 100% (142/142), 38.96 KiB | 229.00 KiB/s, done.
Resolving deltas: 100% (68/68), done.
tps@tpsm:~/Desktop/new$ sh autogen.sh
sh: 0: Can't open autogen.sh
tps@tpsm:~/Desktop/new$ ls
arptools
tps@tpsm:~/Desktop/new$ cd arptools
tps@tpsm:~/Desktop/new/arptools$ sh autogen.sh
configure.ac:8: installing 'build/compile'
configure.ac:5: installing 'build/install-sh'
configure.ac:5: installing 'build/missing'
Makefile.am: installing './INSTALL'
src/Makefile.am: installing 'build/depcomp'
tps@tpsm:~/Desktop/new/arptools$ sh configure
checking for a BSD-compatible install... /usr/bin/install -c

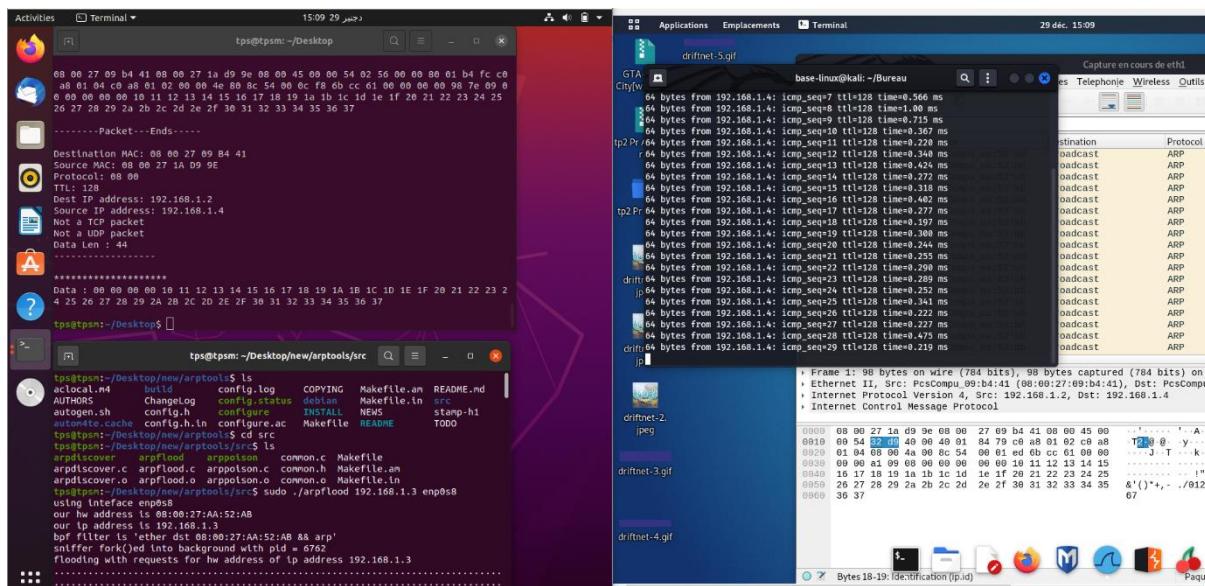
```

```

tps@tpsm:~/Desktop/new/arptools$ make
make all-recursive
make[1]: Entering directory '/home/tpsm/Desktop/new/arptools'
Making all in src
make[2]: Entering directory '/home/tpsm/Desktop/new/arptools/src'
gcc -DHAVE_CONFIG_H -I.. -I.. -g -O2 -D_BSD_SOURCE -D__BSD_SOURCE -D__FAVOR_BSD -DHAVE_NET_ET
HERNET_H -MT arpdiscover.o -MD -MP -MF .deps/arpdiscover.Tpo -c -o arpdiscover.o arpdiscover.c
In file included from /usr/include/x86_64-linux-gnu/bits/libc-header-start.h:33,
                 from /usr/include/stdio.h:27,
                 from arpdiscover.c:24:

```

• Test ping with arpflood



- Install vsftpd

```
(base-linux㉿kali)-[~/Bureau]
$ sudo apt install vsftpd
Lecture des listes de paquets... Fait
Construction de l'arbre des dépendances... Fait
Lecture des informations d'état... Fait
Les paquets suivants ont été installés automatiquement et ne sont plus nécessaires :


```

- Add user in vsftpd

```
(base-linux㉿kali)-[/etc]
$ sudo touch /etc/vsftpd.chroot_list

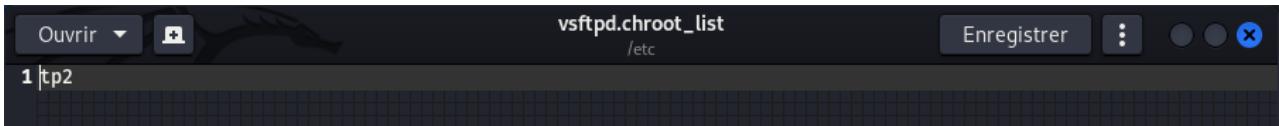
(base-linux㉿kali)-[/etc]
$ adduser tp2
adduser : Seul le superutilisateur est autorisé à ajouter un utilisateur ou un groupe au système.

(base-linux㉿kali)-[/etc]
$ sudo adduser tp2
Ajout de l'utilisateur « tp2 » ...
Ajout du nouveau groupe « tp2 » (1001) ...
Ajout du nouvel utilisateur « tp2 » (1001) avec le groupe « tp2 » ...
Création du répertoire personnel « /home/tp2 »...
Copie des fichiers depuis « /etc/skel »...
Nouveau mot de passe :
Retapez le nouveau mot de passe :
passwd: password updated successfully
Changing the user information for tp2
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
```

- Configuration vsftpd

```
Ouvrir + vsftpd.conf /etc Enregistrer : 
1 listen=NO
2 listen_ipv6=YES
3 anonymous_enable=NO
4 local_enable=YES
5 write_enable=YES
6 dirmessage_enable=YES
7 use_localtime=YES
8 xferlog_enable=YES
9 connect_from_port_20=YES
10 chroot_local_user=YES
11 chroot_list_enable=YES
12 chroot_list_file=/etc/vsftpd.chroot_list
13 secure_chroot_dir=/var/run/vsftpd/empty
14 pam_service_name=vsftpd
15 rsa_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
16 rsa_private_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
17 ssl_enable=NO
```

- configuration vsftpd-add user



- configuration vsftpd server

```
(base-linux@kali) [/etc]
$ sudo gedit vsftpd.conf

** (gedit:4635): WARNING **: 18:46:26.341: Set document metadata failed: La définition de l'attribut metadata::gedit-spell-language n'est pas prise en charge
** (gedit:4635): WARNING **: 18:46:26.343: Set document metadata failed: La définition de l'attribut metadata::gedit-encoding n'est pas prise en charge
** (gedit:4635): WARNING **: 18:46:38.841: Set document metadata failed: La définition de l'attribut metadata::gedit-position n'est pas prise en charge

(base-linux@kali) [/etc]
$ sudo touch /etc/vsftpd.chroot_list

(base-linux@kali) [/etc]
$ sudo gedit /etc/vsftpd.chroot_list

** (gedit:4692): WARNING **: 18:47:20.336: Set document metadata failed: La définition de l'attribut metadata::gedit-position n'est pas prise en charge

(base-linux@kali) [/etc]
$ sudo service vsftpd restart

(base-linux@kali) [/etc]
$ sudo service vsftpd status
● vsftpd.service - vsftpd FTP server
   Loaded: loaded (/lib/systemd/system/vsftpd.service; enabled; vendor preset: disabled)
     Active: active (running) since Wed 2021-12-29 18:48:02 CET; 6s ago
       Process: 4736 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
      Main PID: 4738 (vsftpd)
        Tasks: 1 (limit: 1071)
         Memory: 696.0K
            CPU: 5ms
           CGroup: /system.slice/vsftpd.service
                   └─4738 /usr/sbin/vsftpd /etc/vsftpd.conf

déc. 29 18:48:02 kali systemd[1]: Starting vsftpd FTP server...
déc. 29 18:48:02 kali systemd[1]: Started vsftpd FTP server.
```

- Retrouver sur la troisième machine les trames correspondant

