

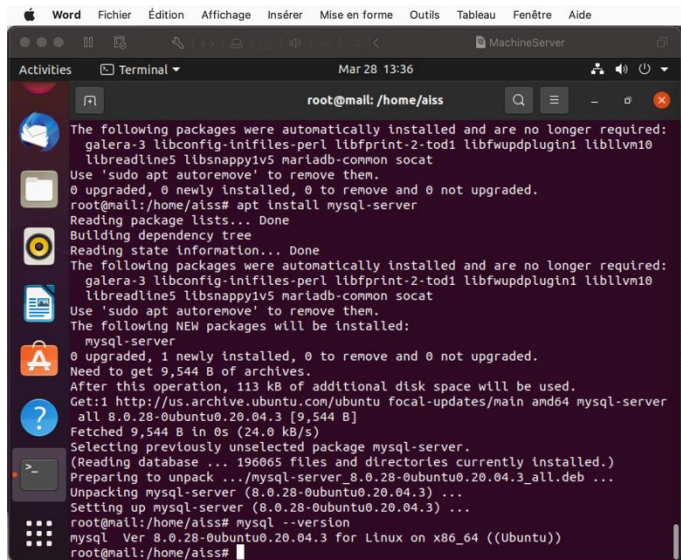
Projet Python/Réseau

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Aissatou Sanneh

I. Machine Serveur

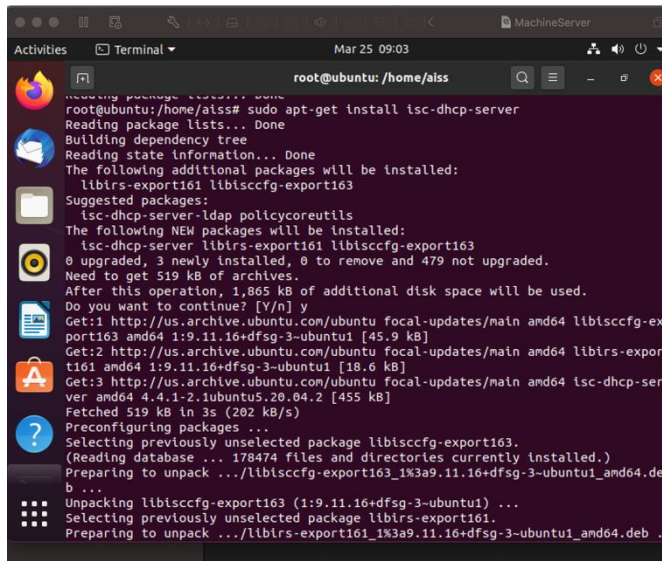
1) Mise en place de MySQL



```
root@mail:/home/aiss# apt install mysql-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
galera-3 libconfig-inifiles-perl libfprint-2-tod1 libfwupdplugin1 liblvm10
libreadline5 libsnappy1v5 mariadb-common socat
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@mail:/home/aiss# apt install mysql-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
galera-3 libconfig-inifiles-perl libfprint-2-tod1 libfwupdplugin1 liblvm10
libreadline5 libsnappy1v5 mariadb-common socat
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
mysql-server
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 9,544 B of archives.
After this operation, 113 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 mysql-server
all 8.0.28-0ubuntu0.20.04.3 [9,544 B]
Fetched 9,544 B in 0s (24.0 kB/s)
Selecting previously unselected package mysql-server.
(Reading database ... 196065 files and directories currently installed.)
Preparing to unpack .../mysql-server_8.0.28-0ubuntu0.20.04.3_all.deb ...
Unpacking mysql-server (8.0.28-0ubuntu0.20.04.3) ...
Setting up mysql-server (8.0.28-0ubuntu0.20.04.3) ...
root@mail:/home/aiss# mysql --version
mysql Ver 8.0.28-0ubuntu0.20.04.3 for Linux on x86_64 ((Ubuntu))
root@mail:/home/aiss#
```

2) Mise en place du service DHCP

- Installation



```
root@ubuntu:/home/aiss# sudo apt-get install isc-dhcp-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
liblrs-export161 libiscfg-export163
Suggested packages:
isc-dhcp-server-ldap policycoreutils
The following NEW packages will be installed:
isc-dhcp-server liblrs-export161 libiscfg-export163
0 upgraded, 3 newly installed, 0 to remove and 479 not upgraded.
Need to get 519 kB of archives.
After this operation, 1,865 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libiscfg-ex
port163 amd64 1:9.11.16+dfsg-3-ubuntu1 [45.9 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 liblrs-expor
t161 amd64 1:9.11.16+dfsg-3-ubuntu1 [18.6 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 isc-dhcp-ser
ver amd64 4.4.1-2.1ubuntu5.20.04.2 [455 kB]
Fetched 519 kB in 3s (202 kB/s)
Preconfiguring packages ...
Selecting previously unselected package libiscfg-export163.
(Reading database ... 178474 files and directories currently installed.)
Preparing to unpack .../libiscfg-export163_1%3a9.11.16+dfsg-3-ubuntu1_amd64.de
b ...
Unpacking libiscfg-export163 (1:9.11.16+dfsg-3-ubuntu1) ...
Selecting previously unselected package liblrs-export161.
Preparing to unpack .../liblrs-export161_1%3a9.11.16+dfsg-3-ubuntu1_amd64.deb .
Unpacking liblrs-export161 (1:9.11.16+dfsg-3-ubuntu1) ...
Setting up libiscfg-export163 (1:9.11.16+dfsg-3-ubuntu1) ...
Setting up liblrs-export161 (1:9.11.16+dfsg-3-ubuntu1) ...
Setting up isc-dhcp-server (4.4.1-2.1ubuntu5.20.04.2) ...
root@ubuntu:/home/aiss# isc-dhcp-server --version
isc-dhcp-server 4.4.1-2.1ubuntu5.20.04.2
root@ubuntu:/home/aiss#
```

- Configuration

```

root@ubuntu: /etc/dhcp
root@ubuntu: /etc/dhcp
GNU nano 4.8 /etc/dhcp/dhcpd.conf Modified
# This declaration allows BOOTP clients to get dynamic addresses,
# which we don't really recommend.

#subnet 10.254.239.32 netmask 255.255.255.224 {
# range dynamic-bootp 10.254.239.40 10.254.239.60;
# option broadcast-address 10.254.239.31;
# option routers rtr-239-32-1.example.org;
#}

# A slightly different configuration for an internal subnet.
subnet 192.168.10.0 netmask 255.255.255.0 {
 range 192.168.10.1 192.168.10.10;
#option domain-name-servers 192.168.10.1;
#option domain-name "internal.example.org";
option subnet-mask 255.255.255.0;
option routers 192.168.10.255;
option broadcast-address 192.168.10.255;
default-lease-time 600;
max-lease-time 7200;
}

# Hosts which require special configuration options can be listed in
#
# Get Help  Write Out  Where Is  Cut Text  Justify
# Exit      Read File  Replace  Paste Text  To Spell

```

- Test DHCP

```

root@ubuntu: /etc/dhcp
root@ubuntu: /etc/dhcp
TX packets 448 bytes 39464 (39.4 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@ubuntu: /etc/dhcp# sudo nano /etc/dhcp/dhcpd.conf
root@ubuntu: /etc/dhcp# sudo systemctl start isc-dhcp-server
root@ubuntu: /etc/dhcp# sudo systemctl status isc-dhcp-server
● isc-dhcp-server.service - ISC DHCP IPv4 server
   Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2022-03-25 09:25:12 PDT; 10s ago
     Docs: man:dhcpd(8)
    Main PID: 9057 (dhcpd)
      Tasks: 4 (limit: 4590)
     Memory: 4.3M
    CGroup: /system.slice/isc-dhcp-server.service
            └─9057 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/

Mar 25 09:25:12 ubuntu dhcpd[9057]: PID file: /run/dhcp-server/dhcpd.pid
Mar 25 09:25:12 ubuntu sh[9057]: Wrote 0 leases to leases file.
Mar 25 09:25:12 ubuntu dhcpd[9057]: Wrote 0 leases to leases file.
Mar 25 09:25:12 ubuntu dhcpd[9057]: Listening on LPF/ens33/00:0c:29:04:cf:c7/1
Mar 25 09:25:12 ubuntu sh[9057]: Listening on LPF/ens33/00:0c:29:04:cf:c7/192.168.10.1
Mar 25 09:25:12 ubuntu sh[9057]: Sending on LPF/ens33/00:0c:29:04:cf:c7/192.168.10.1
Mar 25 09:25:12 ubuntu sh[9057]: Sending on Socket/fallback/fallback-net
Mar 25 09:25:12 ubuntu dhcpd[9057]: Sending on LPF/ens33/00:0c:29:04:cf:c7/192.168.10.1
Mar 25 09:25:12 ubuntu dhcpd[9057]: Sending on Socket/fallback/fallback-net
Mar 25 09:25:12 ubuntu dhcpd[9057]: Server starting service.
Lines 1-20/20 (END)

```

- Attribuer adresse ip au client

```

root@client: /home/aiss
root@client: /home/aiss# dhclient
Internet Systems Consortium DHCP client 4.4.1
Copyright 2004-2018 Internet Systems Consortium.
All rights reserved.
For info, please visit https://www.isc.org/software/dhcp/

Listening on LPF/ens33/00:0c:29:fb:dd:a9
Sending on LPF/ens33/00:0c:29:fb:dd:a9
Sending on Socket/fallback
DHCPREQUEST for 192.168.10.2 on ens33 to 255.255.255.255 port 67 (xid=0x2e36e727)
DHCPACK of 192.168.10.2 from 192.168.10.1 (xid=0x27e7362e)
RINELINK answers: File exists
bound to 192.168.10.2 -- renewal in 268 seconds.
root@client: /home/aiss# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.10.2 netmask 255.255.255.0 broadcast 192.168.10.255
    inet6 fe80::20c:29ff:fefb:dda9 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:fb:dd:a9 txqueuelen 1000 (Ethernet)
    RX packets 290 bytes 102153 (102.1 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 215 bytes 37757 (37.7 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)

```

3) Mise en place du service DNS

- Installation

```
root@ubuntu:/etc/dhcp# sudo apt-get install bind9
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  bind9-dnsutils bind9-ltbs bind9-utils python3-ply
Suggested packages:
  bind-doc resolvconf python-ply-doc
The following NEW packages will be installed:
  bind9 bind9-utils python3-ply
The following packages will be upgraded:
  bind9-dnsutils bind9-ltbs
2 upgraded, 3 newly installed, 0 to remove and 477 not upgraded.
Need to get 451 kB/1,694 kB of archives.
After this operation, 1,898 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Inn:1 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-ply
a Show Applications 0.1
67% [Working]
```

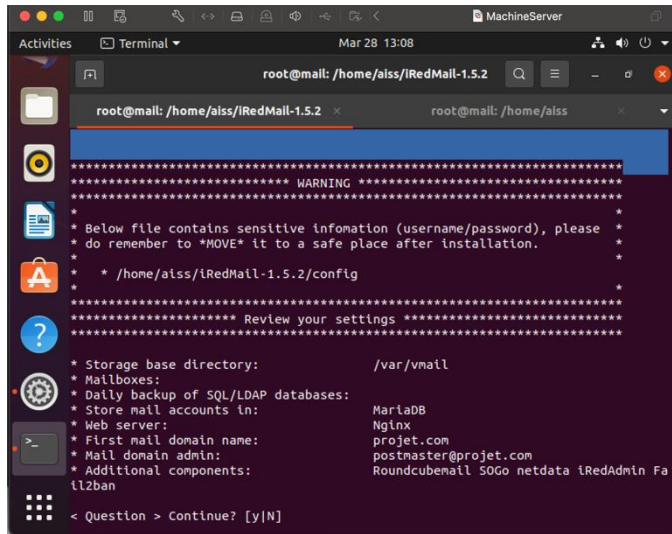
```
root@ubuntu:/home/aiss#
Preparing to unpack .../bind9-utils_1:9.16.1-0ubuntu2.10_amd64.deb ...
Unpacking bind9-utils (1:9.16.1-0ubuntu2.10) ...
Selecting previously unselected package bind9.
Preparing to unpack .../bind9_1:9.16.1-0ubuntu2.10_amd64.deb ...
Unpacking bind9 (1:9.16.1-0ubuntu2.10) ...
Setting up bind9-ltbs:amd64 (1:9.16.1-0ubuntu2.10) ...
Setting up python3-ply (3.11-3ubuntu0.1) ...
Setting up bind9-utils (1:9.16.1-0ubuntu2.10) ...
Setting up bind9 (1:9.16.1-0ubuntu2.10) ...
Adding group 'bind' (GID 133) ...
Done.
Adding system user 'bind' (UID 126) ...
Adding new user 'bind' (UID 126) with group 'bind' ...
Not creating home directory '/var/cache/bind'.
wrote key file "/etc/bind/rndc.key"
named-resolvconf.service is a disabled or a static unit, not starting it.
Created symlink /etc/systemd/system/bind9.service → /lib/systemd/system/named.s
ervice.
Created symlink /etc/systemd/system/multi-user.target.wants/named.service → /li
b/systemd/system/named.service.
Setting up bind9-dnsutils (1:9.16.1-0ubuntu2.10) ...
Processing triggers for ufw (0.36-6) ...
Processing triggers for systemd (245.4-4ubuntu3.2) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9) ...
root@ubuntu:/home/aiss# #
root@ubuntu:/home/aiss# #
root@ubuntu:/home/aiss# #
(arg: 3)
```

- Test après configuration

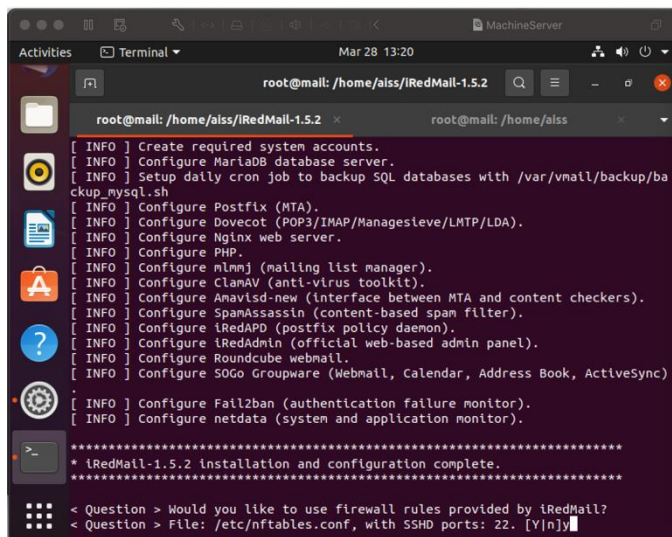
```
root@aiss:/etc/bind# ifconfig ens33 192.168.10.1/24 up
root@aiss:/etc/bind# service bind9 restart
root@aiss:/etc/bind# nslookup
> 192.168.10.1
1.10.168.192.in-addr.arpa      name = aiss.projet.ma.
> aiss
Server:      192.168.10.1
Address:     192.168.10.1#53
Name:  aiss.projet.ma
Address: 192.168.10.1
> www
Server:      192.168.10.1
Address:     192.168.10.1#53
www.projet.ma canonical name = aiss.projet.ma.
Name:  aiss.projet.ma
Address: 192.168.10.1
> client
Server:      192.168.10.1
Address:     192.168.10.1#53
Name:  client.projet.ma
Address: 192.168.10.6
```


4) Mise en place de iRedMail

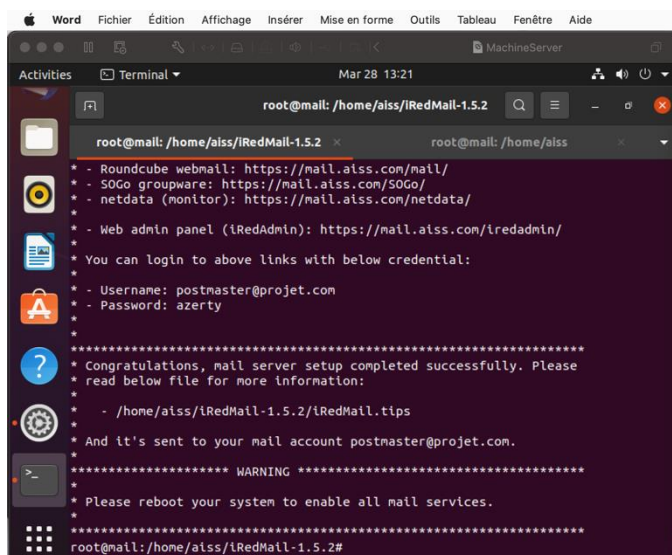
• Installation



```
root@mail: /home/aiss/iRedMail-1.5.2
***** WARNING *****
* Below file contains sensitive information (username/password), please
* do remember to "MOVE" it to a safe place after installation.
*
* /home/aiss/iRedMail-1.5.2/config
*
***** Review your settings *****
*
* Storage base directory:      /var/vmail
* Mailboxes:
* Daily backup of SQL/LDAP databases:
* Store mail accounts in:      MariaDB
* Web server:                  Nginx
* First mail domain name:      projet.com
* Mail domain admin:           postmaster@projet.com
* Additional components:       Roundcubemail SOGo netdata iRedAdmin Fa
l2ban
< Question > Continue? [y/N]
```

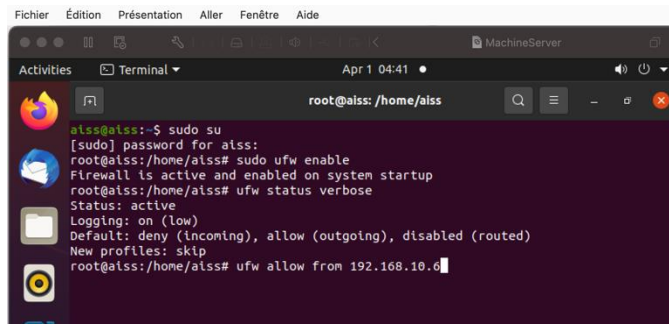


```
root@mail: /home/aiss/iRedMail-1.5.2
[ INFO ] Create required system accounts.
[ INFO ] Configure MariaDB database server.
[ INFO ] Setup daily cron job to backup SQL databases with /var/vmail/backup/ba
ckup_mysql.sh
[ INFO ] Configure Postfix (MTA).
[ INFO ] Configure Dovecot (POP3/IMAP/Managesieve/LMTP/LDA).
[ INFO ] Configure Nginx web server.
[ INFO ] Configure PHP.
[ INFO ] Configure mlmmj (mailing list manager).
[ INFO ] Configure ClamAV (anti-virus toolkit).
[ INFO ] Configure Amavisd-new (interface between MTA and content checkers).
[ INFO ] Configure SpamAssassin (content-based spam filter).
[ INFO ] Configure iRedAPD (postfix policy daemon).
[ INFO ] Configure iRedAdmin (official web-based admin panel).
[ INFO ] Configure Roundcube webmail.
[ INFO ] Configure SOGo Groupware (Webmail, Calendar, Address Book, ActiveSync)
[ INFO ] Configure Fail2ban (authentication failure monitor).
[ INFO ] Configure netdata (system and application monitor).
*****
* iRedMail-1.5.2 Installation and configuration complete.
*****
< Question > Would you like to use firewall rules provided by iRedMail?
< Question > File: /etc/nftables.conf, with SSHD ports: 22. [Y/n]y
```



```
root@mail: /home/aiss/iRedMail-1.5.2
* - Roundcube webmail: https://mail.aiss.com/mail/
* - SOGo groupware: https://mail.aiss.com/SOGo/
* - netdata (monitor): https://mail.aiss.com/netdata/
*
* - Web admin panel (iRedAdmin): https://mail.aiss.com/iredadmin/
*
* You can login to above links with below credential:
*
* - Username: postmaster@projet.com
* - Password: azerty
*
*****
* Congratulations, mail server setup completed successfully. Please
* read below file for more information:
*
* - /home/aiss/iRedMail-1.5.2/iRedMail.tips
*
* And it's sent to your mail account postmaster@projet.com.
*****
***** WARNING *****
* Please reboot your system to enable all mail services.
*****
root@mail: /home/aiss/iRedMail-1.5.2#
```

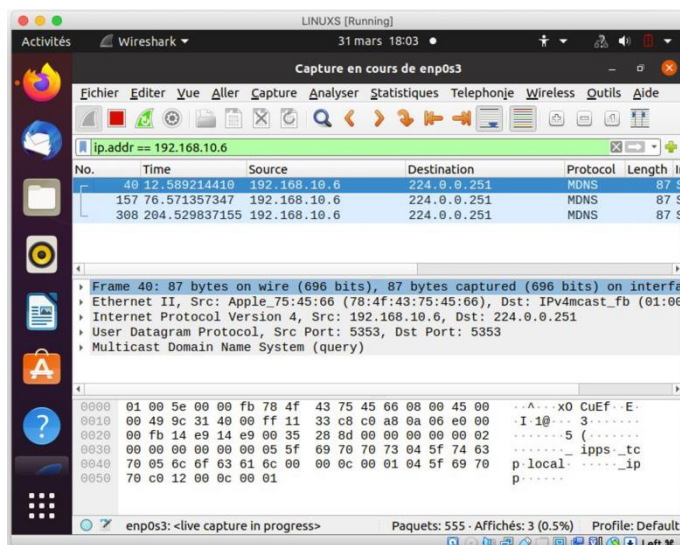
5) Mise en place d'un pare-feu avec ufw



A terminal window on a Linux system. The user 'a1ss' is logged in at the prompt 'a1ss@a1ss:~\$'. They run 'sudo su' to become root. Then they run 'sudo ufw enable', which outputs 'Firewall is active and enabled on system startup'. Next, they run 'sudo ufw status verbose', which shows the firewall is active with logging on (low), default deny for incoming and outgoing traffic, and no profiles. Finally, they run 'ufw allow from 192.168.10.6'.

```
a1ss@a1ss:~$ sudo su
[sudo] password for a1ss:
root@a1ss:/home/a1ss# sudo ufw enable
Firewall is active and enabled on system startup
root@a1ss:/home/a1ss# ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip
root@a1ss:/home/a1ss# ufw allow from 192.168.10.6
```

II. Machine client: Man in the middle



Ip.addr==192.168.10.6 il s'agit de l'adresse ip du client

Nous avons le time, l'adresse source et destination, le protocole et le contenu du paquet réseau.

- Le time : permet de savoir combien de temps après le lancement de la capture le paquet a été capturé.
- L'adresse source : indique l'adresse qui a émis le paquet.
- L'adresse destination : l'adresse de la destination du paquet.
- Le protocole : ici MDNS(multicast DNS)
- Length : pour la longueur du paquet qui est en octets.

III. Machine client

Édition Présentation Aller Fenêtre Aide

MachineClient

Activities Terminal Apr 1 04:06

```
root@client: /home/aiss
```

```
aiss@client:~$ sudo su
[sudo] password for aiss:
root@client:/home/aiss# python3 --version
Python 3.8.10
root@client:/home/aiss#
```