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Projet de DHCP et DHCP-RELAY :

1)installer DHCP sur Ubuntu, utilisant la commande :

"sudo apt install isc-dhcp-server"

```
serveur@ubuntu:~$ sudo su
[sudo] password for serveur:
root@ubuntu:/home/serveur# sudo apt install isc-dhcp-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libirs-export161 libisccfg-export163
Suggested packages:
  isc-dhcp-server-ldap policycoreutils
The following NEW packages will be installed:
  isc-dhcp-server libirs-export161 libisccfg-export163
0 upgraded, 3 newly installed, 0 to remove and 302 not upgraded.
Need to get 455 kB/520 kB of archives.
After this operation, 1,866 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 isc-dhcp-server amd64 4.4.1-2.1ubuntu5.20.04.5 [455 kB]
Fetched 455 kB in 1s (416 kB/s)
Preconfiguring packages ...
Selecting previously unselected package libisccfg-export163.
(Reading database ... 157232 files and directories currently installed.)
Preparing to unpack .../libisccfg-export163_1%3a9.11.16+dfsg-3~ubuntu1_amd64.deb ...
Unpacking libisccfg-export163 (1:9.11.16+dfsg-3~ubuntu1) ...
Selecting previously unselected package libirs-export161.
Preparing to unpack .../libirs-export161_1%3a9.11.16+dfsg-3~ubuntu1_amd64.deb ...
Unpacking libirs-export161 (1:9.11.16+dfsg-3~ubuntu1) ...
Selecting previously unselected package isc-dhcp-server.
Preparing to unpack .../isc-dhcp-server_4.4.1-2.1ubuntu5.20.04.5_amd64.deb ...
Unpacking isc-dhcp-server (4.4.1-2.1ubuntu5.20.04.5) ...
Setting up libisccfg-export163 (1:9.11.16+dfsg-3~ubuntu1) ...
Setting up libirs-export161 (1:9.11.16+dfsg-3~ubuntu1) ...
Setting up isc-dhcp-server (4.4.1-2.1ubuntu5.20.04.5) ...
Generating /etc/default/isc-dhcp-server...
Created symlink /etc/systemd/system/multi-user.target.wants/isc-dhcp-server.service → /lib/systemd/system/isc-dhcp-server.service.
Created symlink /etc/systemd/system/multi-user.target.wants/isc-dhcp-server6.service → /lib/systemd/system/isc-dhcp-server6.service.
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.9) ...
Processing triggers for systemd (245.4-4ubuntu3.20) ...
root@ubuntu:/home/serveur#
```

1) **Configurer l'interface d'écoute :**

```
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
#       Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
#       Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="ens33"
INTERFACESv6=""
```

2) **fichier de configuration par défaut de DHCP est :**
/etc/dhcp/dhcpd.conf.

```
root@ubuntu:/home/serveur# nano /etc/default/isc-dhcp-server
```

4)Configuration basique d'attribution automatique d'adresse IP (subnet) :

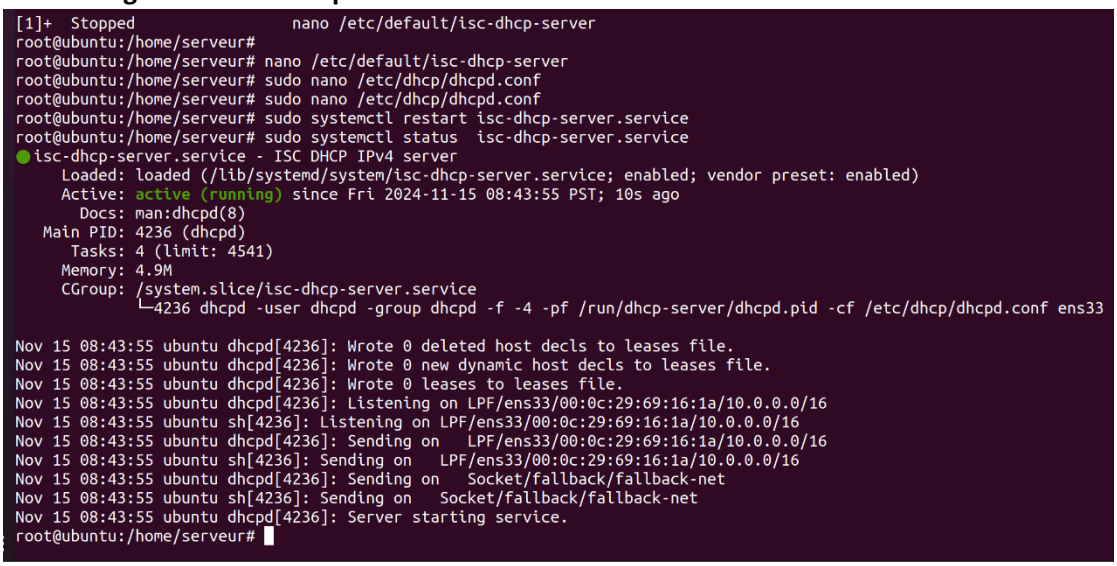
```
  GNU nano 4.8                                                    /etc/dhcp/dhcpd.conf
# set.
#host fantasia {
#  hardware ethernet 08:00:07:26:c0:a5;
#  fixed-address fantasia.example.com;
#}

# You can declare a class of clients and then do address allocation
# based on that.   The example below shows a case where all clients
# in a certain class get addresses on the 10.17.224/24 subnet, and all
# other clients get addresses on the 10.0.29/24 subnet.

#class "foo" {
#  match if substring (option vendor-class-identifier, 0, 4) = "SUNW";
#}

#shared-network 224-29 {
#  subnet 10.17.224.0 netmask 255.255.255.0 {
#    option routers rtr-224.example.org;
#  }
#  subnet 10.0.29.0 netmask 255.255.255.0 {
#    option routers rtr-29.example.org;
#  }
#  pool {
#    allow members of "foo";
#    range 10.17.224.10 10.17.224.250;
#  }
#  pool {
#    deny members of "foo";
#    range 10.0.29.10 10.0.29.230;
#  }
#}
subnet 10.0.0.0 netmask 255.255.0.0  {
range 10.0.1.2 10.0.2.253;
option domain-name-servers  10.0.2.253;
option routers  10.0.2.254;
# reservation DHCP
host client1 {
hardware ethernet 00:0C:29:CA:85:79;
fixed-address 10.0.2.100;
}
host banni {
hardware ethernet 00:0C:29:FB:91:D8;
deny booting;
```

3) Demmarage du service dhcp :



4) installer DHCP relay sur Ubuntu, utilisant la commande :

"sudo apt install isc-dhcp-relay"

```
dhcprelay@ubuntu:~$ sudo apt update
[sudo] password for dhcprelay:
Hit:1 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:2 http://us.archive.ubuntu.com/ubuntu focal InRelease
Hit:3 http://us.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
302 packages can be upgraded. Run 'apt list --upgradable' to see them.
dhcprelay@ubuntu:~$ sudo apt install isc-dhcp-relay
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libirs-export161 libisccfg-export163
The following NEW packages will be installed:
  isc-dhcp-relay libirs-export161 libisccfg-export163
0 upgraded, 3 newly installed, 0 to remove and 302 not upgraded.
Need to get 257 kB of archives.
After this operation, 954 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 libisccfg-export163 amd64 1:9.11.16+dfsg-3~ubuntu1 [45.9 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libirs-export161 amd64 1:9.11.16+dfsg-3~ubuntu1 [18.6 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal-updates/universe amd64 isc-dhcp-relay amd64 4.4.1-2.1ubuntu5.20.04.5 [193 kB]
```

5) Ouvrez le fichier de configuration :

```
hcprelay@ubuntu:~$ sudo nano /etc/default/isc-dhcp-relay
```

6) Configurez les paramètres suivants :

```
  GNU nano 4.8                                  /etc/default/isc-dhcp-relay
# Defaults for isc-dhcp-relay initscript
# sourced by /etc/init.d/isc-dhcp-relay
# installed at /etc/default/isc-dhcp-relay by the maintainer scripts

#
# This is a POSIX shell fragment
#

# What servers should the DHCP relay forward requests to?
SERVERS="10.0.1.1"

# On what interfaces should the DHCP relay (dhrelay) serve DHCP requests?
INTERFACES="ens33"

# Additional options that are passed to the DHCP relay daemon?
OPTIONS=""
```

7) Redémarrer le service et vérifier l'état du service :

```
dhcprelay@ubuntu:~$
dhcprelay@ubuntu:~$ sudo systemctl restart isc-dhcp-relay
dhcprelay@ubuntu:~$ sudo systemctl status  isc-dhcp-relay
● isc-dhcp-relay.service - ISC DHCP IPv4 relay
     Loaded: loaded (/lib/systemd/system/isc-dhcp-relay.service; enabled; vendor preset: enabled)
     Active: active (running) since Fri 2024-11-15 09:09:17 PST; 15s ago
       Docs: man:dhcrelay(8)
   Main PID: 5635 (dhcrelay)
      Tasks: 4 (limit: 4541)
     Memory: 1.5M
     CGroup: /system.slice/isc-dhcp-relay.service
             └─5635 /usr/sbin/dhcrelay -d -4 -i ens33 10.0.1.1

Nov 15 09:09:17 ubuntu dhcrelay[5635]: Internet Systems Consortium DHCP Relay Agent 4.4.1
Nov 15 09:09:17 ubuntu dhcrelay[5635]: Copyright 2004-2018 Internet Systems Consortium.
Nov 15 09:09:17 ubuntu dhcrelay[5635]: All rights reserved.
Nov 15 09:09:17 ubuntu dhcrelay[5635]: For info, please visit https://www.isc.org/software/dhcp/
Nov 15 09:09:17 ubuntu dhcrelay[5635]: Listening on LPF/ens33/00:0c:29:2e:59:53
Nov 15 09:09:17 ubuntu sh[5635]: Listening on LPF/ens33/00:0c:29:2e:59:53
Nov 15 09:09:17 ubuntu sh[5635]: Sending on   LPF/ens33/00:0c:29:2e:59:53
Nov 15 09:09:17 ubuntu sh[5635]: Sending on   Socket/fallback
Nov 15 09:09:17 ubuntu dhcrelay[5635]: Sending on   LPF/ens33/00:0c:29:2e:59:53
Nov 15 09:09:17 ubuntu dhcrelay[5635]: Sending on   Socket/fallback
dhcprelay@ubuntu:~$
```