# TP DHCP & Failover
## Partie I : DHCP Master

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## 1) Installation des paquets nécessaires :

```
# apt update
# apt install isc-dhcp-server
```

## 2) Trouver l'ip

```
# ip a
```

## 3) Editer le fichier : etc/default/isc-dhcp-server

```
# nano /etc/default/isc-dhcp-server
```

Dedans il faut :
a) Dé commenter :DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
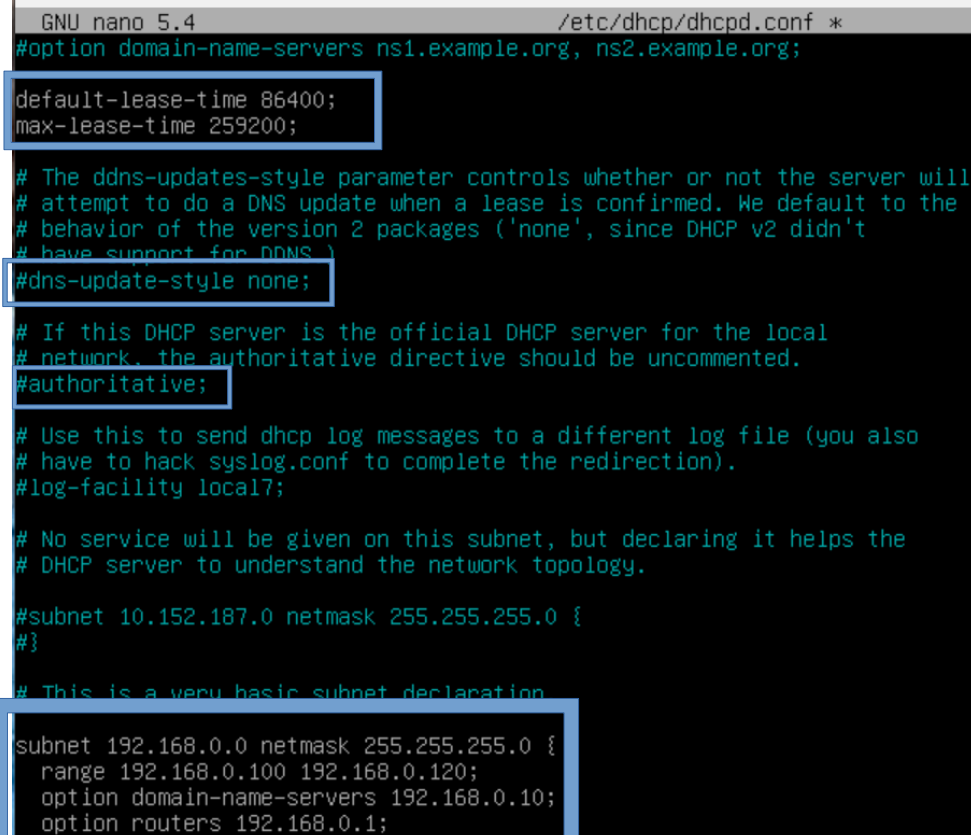b) Renter le nom de notre carte réseau (en ipv4)

Par exemple :

## 4) Éditer fichier : etc/dhcp/dhcpd;conf

```
# nano /etc/dhcp/dhcpd.conf
```

Dedans, il faut :
a) Dé commenter les zones encadrées.
b) Définir les bails
c) définir l'adresse réseau, son masque, la tranche d'adresse, le dns et un routeur

par exemple :

```
  GNU nano 5.4                        /etc/dhcp/dhcpd.conf *
#option domain-name-servers ns1.example.org, ns2.example.org;

default-lease-time 86400;
max-lease-time 259200;

# The ddns-updates-style parameter controls whether or not the server will
# attempt to do a DNS update when a lease is confirmed. We default to the
# behavior of the version 2 packages ('none', since DHCP v2 didn't
# have support for DDNS.)
#dns-update-style none;

# If this DHCP server is the official DHCP server for the local
# network, the authoritative directive should be uncommented.
#authoritative;

# Use this to send dhcp log messages to a different log file (you also
# have to hack syslog.conf to complete the redirection).
#log-facility local7;

# No service will be given on this subnet, but declaring it helps the
# DHCP server to understand the network topology.

#subnet 10.152.187.0 netmask 255.255.255.0 {
#}

# This is a very basic subnet declaration.

subnet 192.168.0.0 netmask 255.255.255.0 {
  range 192.168.0.100 192.168.0.120;
  option domain-name-servers 192.168.0.10;
  option routers 192.168.0.1;
```

Nous avons terminé la configuration du serveur dhcp master.
Par la suite, si une erreur a été commise, vous aurez sûrement besoin de certaine commandes telles que :
- systemctl status isc-dhcp-server : analyser le bon fonctionnement du serveur
- journalctl -xe : trouver les erreurs de configurations.

## 5) Activer le service

```
# systemctl enable isc-dhcp-server
# systemctl start isc-dhcp-server
```
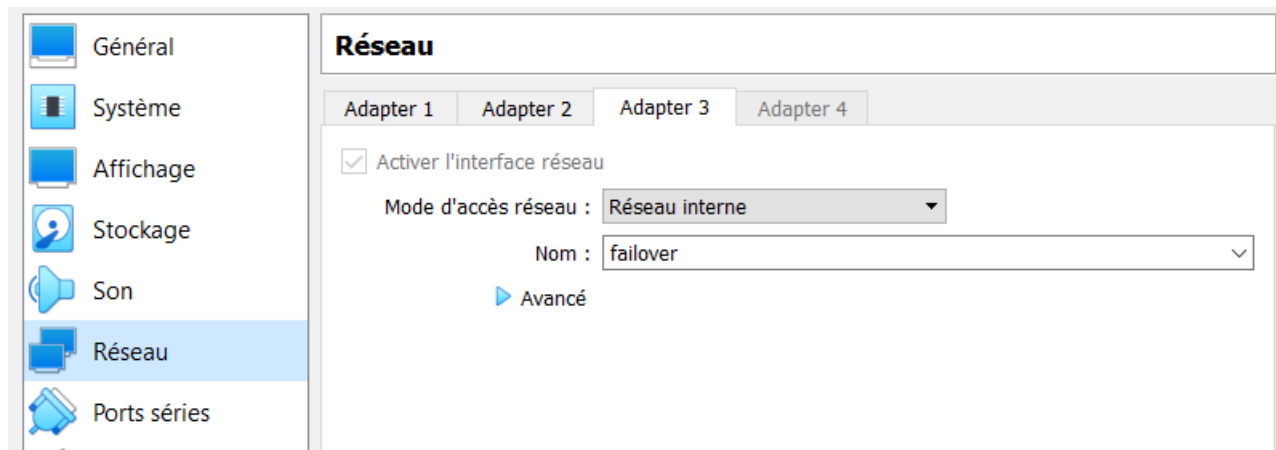
Résultat :

```
root@debian:~# systemctl status isc-dhcp-server
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Thu 2022-02-17 17:13:28 CET; 28s ago
       Docs: man:systemd-sysv-generator(8)
    Process: 554 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 4 (limit: 1133)
     Memory: 8.0M
        CPU: 62ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─615 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8
```

## Partie II : Failover

### 1) Ajouter une carte réseau (Qu'on renommera « failover » pour exemple):

**Réseau**

| Adapter 1 | Adapter 2 | Adapter 3 | Adapter 4 |

☑ Activer l'interface réseau

Mode d'accès réseau : Réseau interne ▼

Nom : failover ∨

▶ Avancé

### 2) Trouver l'ip ajoutée :

```
# ip a
```

```
4: enp0s9: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN group default qlen 1000
    link/ether 08:00:27:25:90:f5 brd ff:ff:ff:ff:ff:ff
```

### 3) Editer fichier : /etc/network/interfaces

```
# nano /etc/network/interfaces
```

```
allow-hotplug enp0s9
auto enp0s9
iface enp0s9 inet static

address 192.168.0.15
netmask 255.255.255.0
network 192.168.0.0
gateaway 192.168.0.1
broadcast 192.168.0.255
```

**4) Redémarrer les cartes réseau :**

```
# /etc/init.d/networking restart
```

**5) Editer le fichier : /etc/dhcp/dhcpd.conf**

```
failover peer "dhcpfailover"
{
                primary;
                address 192.168.0.15;
                peer address 192.168.0.10;
                max-response-delay 60;
                max-unracked-updates 10;
                mclt 3600;
                load balance max seconds 3;
                split 255;_
```

Pour la suite, on aura besoin d'un clone de notre machine :

**6) Editer fichiers : /etc/network/interfaces**

```
# nano /etc/network/interfaces
```

Dedans on va :
- adresser l'adresse de la carte enp0s8 => 192.168.0.20
- adresser l'adresse de la carte enp0s9 => 192.168.0.10

**7) On redémarre les cartes réseaux :**

```
# /etc/init.d/networking restart
```

**8) On apporte les modifications sur le fichier : /etc/dhcp/dhcpd.conf**

**9) On test à partir d'une autre machine :**

```
# ping 192.168.0.15
# ping 192.168.0.11
```

```
root@debian:~# ping 192.168.0.15
PING 192.168.0.15 (192.168.0.15) 56(84) bytes of data.
64 bytes from 192.168.0.15: icmp_seq=1 ttl=64 time=0.018 ms
64 bytes from 192.168.0.15: icmp_seq=2 ttl=64 time=0.205 ms
64 bytes from 192.168.0.15: icmp_seq=3 ttl=64 time=0.050 ms
64 bytes from 192.168.0.15: icmp_seq=4 ttl=64 time=0.042 ms
^C
--- 192.168.0.15 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3013ms
rtt min/avg/max/mdev = 0.018/0.078/0.205/0.073 ms
root@debian:~# ping 192.168.0.11
PING 192.168.0.11 (192.168.0.11) 56(84) bytes of data.
64 bytes from 192.168.0.11: icmp_seq=1 ttl=64 time=0.023 ms
64 bytes from 192.168.0.11: icmp_seq=2 ttl=64 time=0.029 ms
64 bytes from 192.168.0.11: icmp_seq=3 ttl=64 time=0.028 ms
64 bytes from 192.168.0.11: icmp_seq=4 ttl=64 time=0.028 ms
64 bytes from 192.168.0.11: icmp_seq=5 ttl=64 time=0.029 ms
64 bytes from 192.168.0.11: icmp_seq=6 ttl=64 time=0.033 ms
```