SOMMAIRE

3.1. Serveur DS1

J’installe le paquetage i**sc-dhcp-server** avec la commande **apt-get install**

```
root@DS1: #apt-get install isc-dhcp-server
Lecture des listes de paquets... Fait
Construction de l'arbre des dépendances... Fait
Lecture des informations d'état... Fait
isc-dhcp-server est déjà la version la plus récente (4.4.3-P1-8).
0 mis à jour, 0 nouvellement installés, 0 à enlever et 52 non mis à jour.
root@DS1: ~#
```

Je sauvegarde le fichier de configuration **dhcpd.conf**

```
root@DS1: ~#cp /etc/dhcp/dhcpd.conf /etc/dhcp/dhcpd.conf.sauv
root@DS1: ~#_
```

à l’aide de la commande **nano**, je modifie le fichier **dhcpd.conf**

```
 GNU nano 8.4                                          /etc/dhcp/dhcpd.conf *
# dhcpd.conf
#
# Sample configuration file for ISC dhcpd
#

# option definitions common to all supported networks...
option domain-name "sio-exupery.local";
option domain-name-servers 192.168.4.254;

default-lease-time 86400;
max-lease-time 604800;

# 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.)
ddns-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;
```

```
# This declaration allows BOOTP clients to get dynamic addresses,
# which we don't really recommend.

subnet 192.168.4.0 netmask 255.255.255.0 {
#étendue de la plage DHCP
range 192.168.4.11 192.168.4.100
#passerelle
option routers 192.168.4.254
#masque de sous-réseau
option subnet-mask 255.255.255.0
}
```

Je modifie le fichier **isc-dhcp-server** avec la commande **nano**

```
 GNU nano 8.4                                          /etc/default/isc-dhcp-server *
# 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="enp0s8"
INTERFACESv6=""
```

Je lance le serveur DHCP

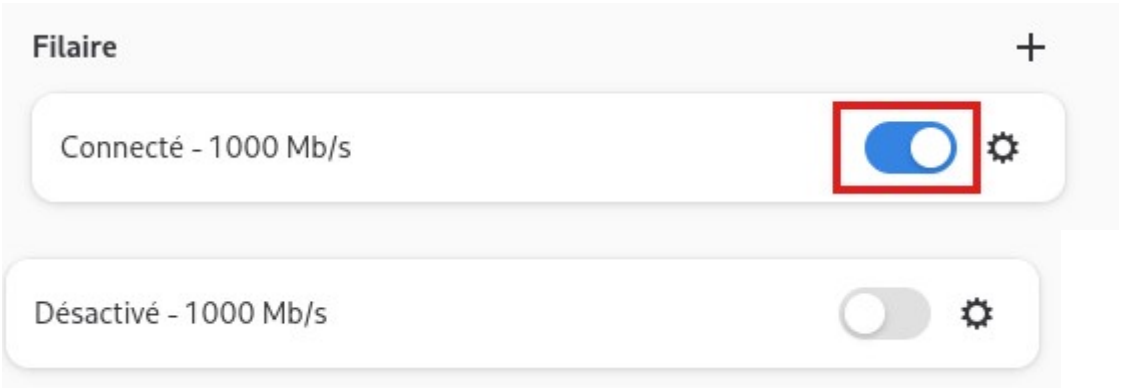
```
root@DS1: ~#systemctl start isc-dhcp-server
root@DS1: ~#
```

Je vérifie le bon démarrage du service avec la commande systemctl status

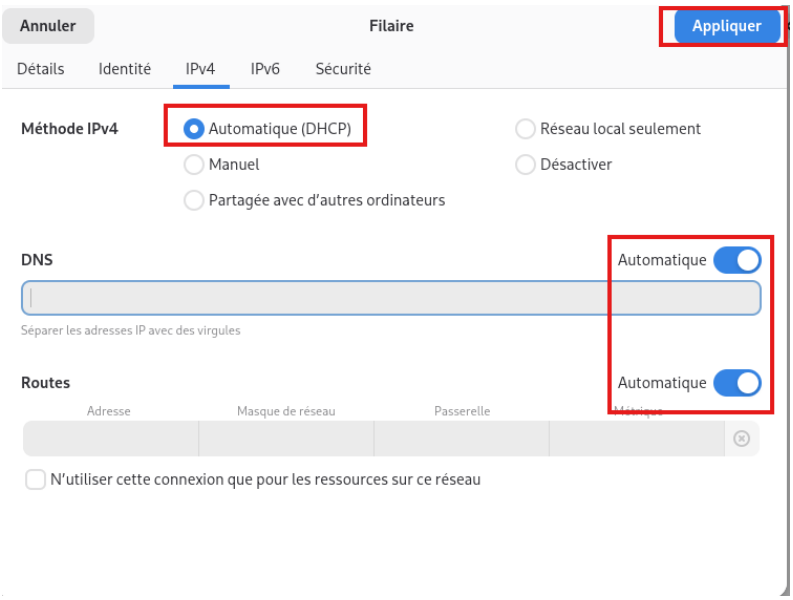
```
root@DS1: ~#systemctl status isc-dhcp-server
● isc-dhcp-server.service - LSB: DHCP server
     Loaded: loaded (/etc/init.d/isc-dhcp-server; generated)
     Active: active (running) since Thu 2026-01-29 15:47:18 CET; 2min 9s ago
 Invocation: d0dcc95d8fdf40e4a1ffec487c481e90
       Docs: man:systemd-sysv-generator(8)
    Process: 1398 ExecStart=/etc/init.d/isc-dhcp-server start (code=exited, status=0/SUCCESS)
      Tasks: 1 (limit: 2303)
     Memory: 3.9M (peak: 5.8M)
        CPU: 37ms
     CGroup: /system.slice/isc-dhcp-server.service
             └─1410 /usr/sbin/dhcpd -4 -q -cf /etc/dhcp/dhcpd.conf enp0s8

janv. 29 15:47:16 DS1 dhcpd[1407]: All rights reserved.
janv. 29 15:47:16 DS1 dhcpd[1407]: For info, please visit https://www.isc.org/software/dhcp/
janv. 29 15:47:16 DS1 dhcpd[1410]: Internet Systems Consortium DHCP Server 4.4.3-P1
janv. 29 15:47:16 DS1 dhcpd[1410]: Copyright 2004-2022 Internet Systems Consortium.
janv. 29 15:47:16 DS1 dhcpd[1410]: All rights reserved.
janv. 29 15:47:16 DS1 dhcpd[1410]: For info, please visit https://www.isc.org/software/dhcp/
janv. 29 15:47:16 DS1 dhcpd[1410]: Wrote 0 leases to leases file.
janv. 29 15:47:16 DS1 dhcpd[1410]: Server starting service.
janv. 29 15:47:18 DS1 isc-dhcp-server[1398]: Starting ISC DHCPv4 server: dhcpd.
janv. 29 15:47:18 DS1 systemd[1]: Started isc-dhcp-server.service - LSB: DHCP server.
root@DS1: ~#
```

3.2. Client DD1

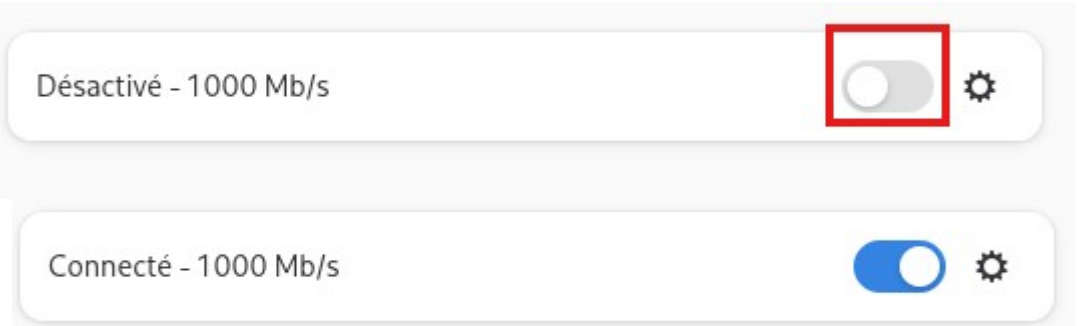
Je désactive la carte réseau



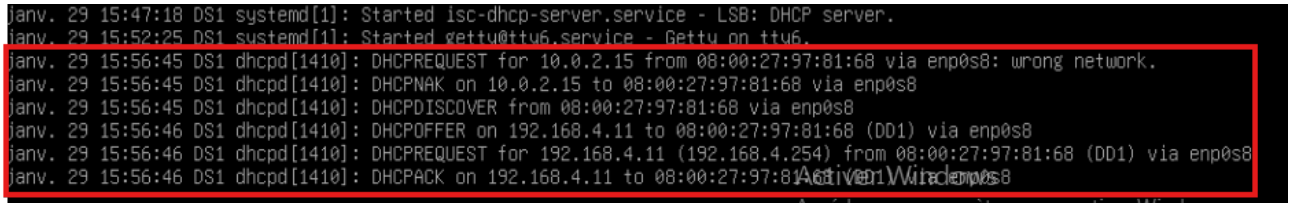
Puis je vais dans les paramètres



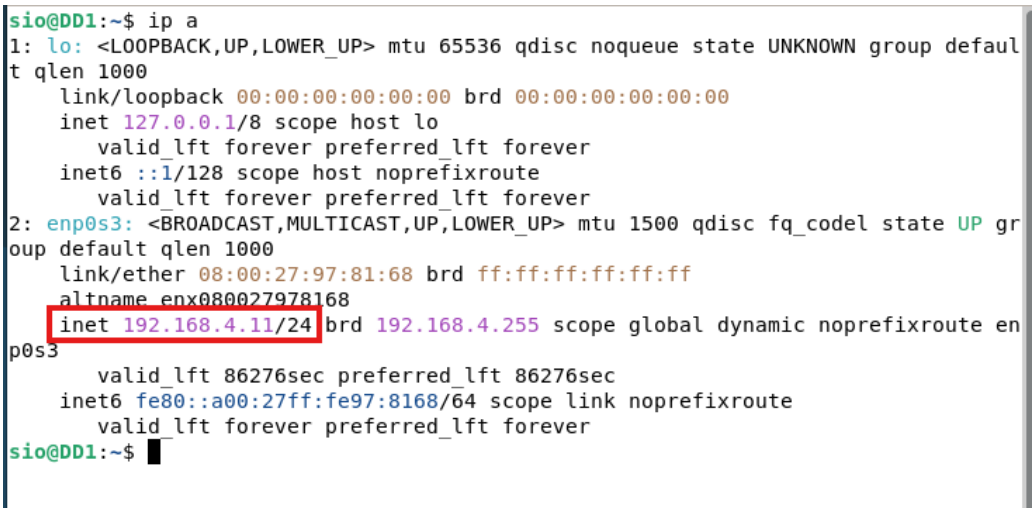
Puis je réactive la carte réseau



Sur DS1 je regarde l'échange des trames DHCP



Sur DD1 je tape la commande **ip a** pour voir l'attribution de l'adresse IP



Avec la commande **ip r** je regarde l'attribution de la passerelle par défaut

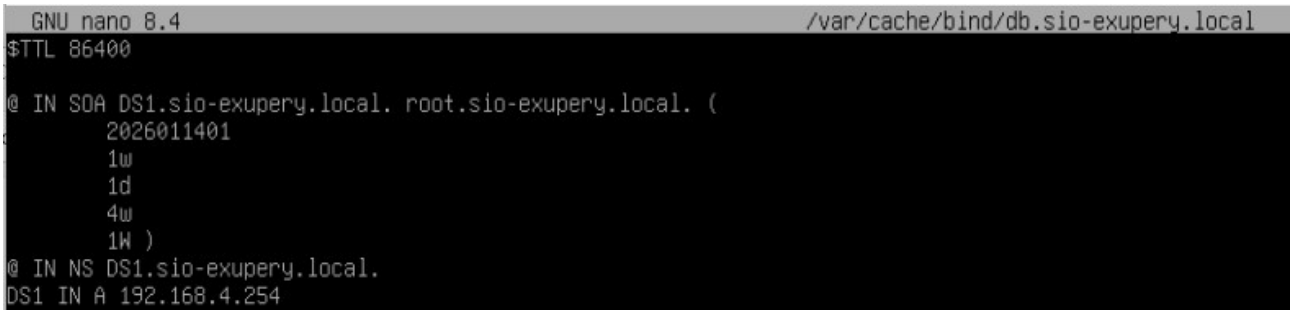
```
sio@DD1:~$ ip r
default via 192.168.4.254 dev enp0s3 proto dhcp src 192.168.4.11 metric 100
192.168.4.0/24 dev enp0s3 proto kernel scope link src 192.168.4.11 metric 100
sio@DD1:~$
```

A l'aide de la commande cat je vérifie le contenu du fichier resolv,conf pour voir l'attribution du nom de la zone DNS

```
sio@DD1:~$ cat /etc/resolv.conf
# Generated by NetworkManager
search sio-exupery.local
nameserver 192.168.4.254
sio@DD1:~$
```

3.3. DNS dynamique (DDNS)

Dans les fichiers de zone DNS je supprime la ligne qui correspond à l'enregistrement de DNS pour DD1



```
 GNU nano 8.4                                          /var/cache/bind/rev.sio-exupery.local
$TTL 84600

@ IN SOA DS1.sio-exupery.local. root.sio-exupery.local. (
        2026011401
        1w
        1d
        4w
        1w )
@ IN NS DS1.sio-exupery.local.
254 in PTR DS1.sio-exupery.local.
```

Je relance le service DNS

```
root@DS1: ~#systemctl restart bind9
root@DS1: ~#
```

A l'aide de la commande cd je me déplace dans le répertoire bind

```
oot@DS1: #cd /etc/bind
oot@DS1: /etc/bind#ls
named.conf  named.conf.local  named.conf.local.sauv  named.conf.options  named.conf.options.sauv  named.conf.root-hints  named.conf.sauv  rndc.key
oot@DS1: /etc/bind#cat rndc.key
ey "rndc-key" {
        algorithm hmac-sha256;
        secret "NI7GwCtpFb9kE1a7KYtFgorlAqfl40iCytqzOCLa7+8=";
;
oot@DS1: /etc/bind#
```

Dans le fichier named.conf j'intègre le fichier rndc.key

```
 GNU nano 8.4                                                  /etc/bind/named.conf *
// This is the primary configuration file for the BIND DNS server named.
//
// Please read /usr/share/doc/bind9/README.Debian for information on the
// structure of BIND configuration files in Debian, *BEFORE* you customize
// this configuration file.
//
// If you are just adding zones, please do that in /etc/bind/named.conf.local

include "/etc/bind/named.conf.options";
include "/etc/bind/named.conf.local";
include "/etc/bind/named.conf.root-hints";
include "/etc/bind/rndc.key";
```

Dans le fichier named.conf.local je modifie les deux zones de recherche

```
 GNU nano 8.4                                        /etc/bind/named.conf.local *
//
// Do any local configuration here
//
zone "sio-exupery.local" IN {
        type master;
        file "db.sio-exupery.local";
        allow-update { key "rndc-key"; };
};

zone "4.168.192.in-addr.arpa" IN {
        type master;
        file "rev.sio-exupery.local";
        allow-update { key "rndc-key"; };
};
```

Je redémarre le service DNS

```
root@DS1: ~#systemctl restart bind9
root@DS1: ~#
```

Je copie le fichier **ndc.key** dans le répertoire **/etc/dhcp/** avec la commande **cp**

```
root@DS1: ~#systemctl restart bind9
root@DS1: ~#cp /etc/bind/rndc.key /etc/dhcp/rndc.key
root@DS1: ~#cd /etc/dhcp
root@DS1: /etc/dhcp#ls -l
total 24
drwxr-xr-x 2 root root 4096  7 janv. 09:05 dhclient-enter-hooks.d
drwxr-xr-x 2 root root 4096 18 oct.  00:28 dhclient-exit-hooks.d
-rw-r--r-- 1 root root 3331  3 mai    2025 dhcpd6.conf
-rw-r--r-- 1 root root 3496 29 janv. 15:47 dhcpd.conf
-rw-r--r-- 1 root root 3496 29 janv. 15:16 dhcpd.conf.sauv
-rw-r----- 1 root root  100 29 janv. 16:12 rndc.key
root@DS1: /etc/dhcp#
```

Je modifie le fichier dhcp.conf pour activer le DDNS

```
# have support for DDNS.)
#méthode dynamique pour la mise à jour
ddns-update-style interim;
#autorisation de la mise à jour
ddns-updates on;
#la mise à jour est faite par le serveur DHCP
ignore client-updates;
#mise à jour même en cas d'IP statiques
update-static-leases on;
#admettre aussi les clients inconnus au niveau de l'adresse MAC
allow-unknown-clients;

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

```
subnet 192.168.4.0 netmask 255.255.255.0 {
  range 192.168.4.11 192.168.4.100;
  option routers 192.168.4.254;
  option subnet-mask 255.255.255.0;
ddns-domainname "sio-exupery.local";
ddns-rev-domainname "in-addr.arpa";
}
```

J’ajoute à la fin du fichier les lignes suivantes :

```
include "/etc/dhcp/rndc.key";
# Zones DNS à mettre à jour
zone sio-exupery.local. {
                primary 127.0.0.1;
                key rndc-key;
}
zone 4.168.192.in-addr.arpa. {
                primary 127.0.0.1;
                key rndc-key;
}
```

Je relance service DHCP

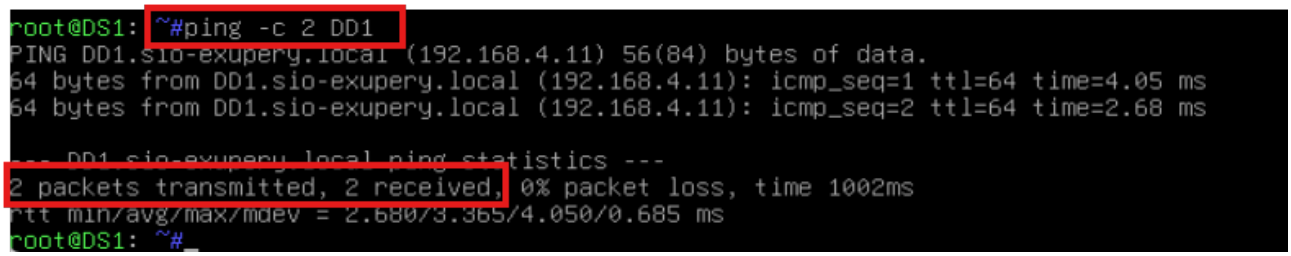
```
root@DS1: ~#systemctl restart isc-dhcp-server
root@DS1: ~#
```

```
janv. 29 16:28:06 DS1 dhcpd[1625]: All rights reserved.
janv. 29 16:28:06 DS1 dhcpd[1625]: For info, please visit https://www.isc.org/software/dhcp/
janv. 29 16:28:06 DS1 dhcpd[1625]: Wrote 1 leases to leases file.
janv. 29 16:28:06 DS1 dhcpd[1625]: Server starting service.
janv. 29 16:28:08 DS1 isc-dhcp-server[1613]: Starting ISC DHCPv4 server: dhcpd.
janv. 29 16:28:08 DS1 systemd[1]: Started isc-dhcp-server.service - LSB: DHCP server.
janv. 29 16:29:10 DS1 dhcpd[1625]: DHCPREQUEST for 192.168.4.11 from 08:00:27:97:81:68 (DD1) via enp0s8
janv. 29 16:29:10 DS1 dhcpd[1625]: DHCPACK on 192.168.4.11 to 08:00:27:97:81:68 (DD1) via enp0s8
janv. 29 16:29:10 DS1 named[1529]: client @0x7f93ec61a800 127.0.0.1#7885/key rndc-key: signer "rndc-key" approved
janv. 29 16:29:10 DS1 named[1529]: client @0x7f93ec61a800 127.0.0.1#7885/key rndc-key: updating zone 'sio-exupery.local/IN': adding an RR at 'DD1.sio-exupery.lo
cal' A 192.168.4.11
janv. 29 16:29:10 DS1 named[1529]: client @0x7f93ec61a800 127.0.0.1#7885/key rndc-key: updating zone 'sio-exupery.local/IN': adding an RR at 'DD1.sio-exupery.lo
cal' TXT "31172ba538e7aa474dc7a12fb5ea643c57"
janv. 29 16:29:10 DS1 dhcpd[1625]: Added new forward map from DD1.sio-exupery.local to 192.168.4.11
janv. 29 16:29:10 DS1 named[1529]: client @0x7f93ec61a800 127.0.0.1#7885/key rndc-key: signer "rndc-key" approved
janv. 29 16:29:10 DS1 named[1529]: client @0x7f93ec61a800 127.0.0.1#7885/key rndc-key: updating zone '4.168.192.in-addr.arpa/IN': deleting rrset at '11.4.168.19
2.in-addr.arpa' PTR
janv. 29 16:29:10 DS1 named[1529]: client @0x7f93ec61a800 127.0.0.1#7885/key rndc-key: updating zone '4.168.192.in-addr.arpa/IN': adding an RR at '11.4.168.192.
in-addr.arpa' PTR DD1.sio-exupery.local.
janv. 29 16:29:10 DS1 dhcpd[1625]: Added reverse map from 11.4.168.192.in-addr.arpa to DD1.sio-exupery.local
```

Je vérifie l’existence des fichiers .jnl

```
root@DS1: ~#cd /var/cache/bind
root@DS1: /var/cache/bind#ls -l
total 36
-rw-rw-r-- 1 bind bind  157 29 janv. 16:03 db.sio-exupery.local
-rw-r--r-- 1 bind bind  841 29 janv. 16:29 db.sio-exupery.local.jnl
-rw-r--r-- 1 bind bind 1411 15 janv. 16:08 managed-keys.bind
-rw-r--r-- 1 bind bind 3020 15 janv. 16:08 managed-keys.bind.jnl
-rw-rw-r-- 1 bind bind  167 29 janv. 16:04 rev.sio-exupery.local
-rw-r--r-- 1 bind bind  802 29 janv. 16:29 rev.sio-exupery.local.jnl
-rw-r--r-- 1 bind bind 1411 15 janv. 14:59 tmp-3g8AlLnTqQ
-rw-r--r-- 1 bind bind    0 15 janv. 15:09 tmp-BUBw2d5iRj
-rw-r--r-- 1 bind bind 1411 15 janv. 15:54 tmp-glfMEmbKbf
-rw-r--r-- 1 bind bind 1411 14 janv. 23:13 tmp-qjp8FEuqXl
root@DS1: /var/cache/bind#
```

J’effectue un ping sur DD1



Je vérifie l’inscription du client DNS DD1 dans les fichier db.sio et rev.sio