administration systeme linux

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November 2024

1 Introduction

L'administration syst`eme d´esigne l'ensemble des activit´es et responsabilit´es li´ees `a la gestion, au maintien et `a l'optimisation des syst`emes informatiques d'une organisation. Elle est essentielle pour garantir le bon fonctionnement, la disponibilit´e et la s´ecurit´e des infrastructures informatiques.

2 La configuration d'un serveur DHCP :

La configuration d'un serveur DHCP (Dynamic Host Configuration Protocol) sur Linux consiste `a permettre `a un serveur de distribuer automatiquement des adresses IP et d'autres param`etres r´eseau (comme la passerelle et le DNS) aux clients sur un r´eseau local. Cette automatisation simplifie la gestion des r´eseaux en ´evitant de configurer manuellement chaque appareil.

- *Installation du serveur DHCP et distribution des address pour deux machines:*

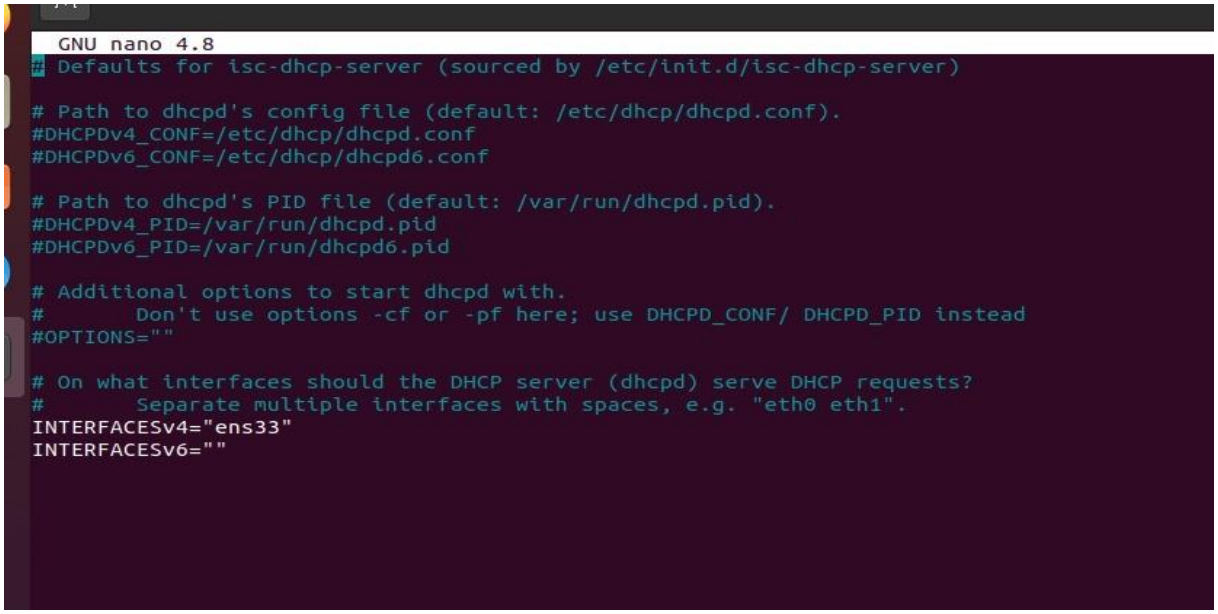
Pour installer DHCP sur Ubuntu, utilisez la commande : "sudo apt install iscdhcp-server":

””

```
0 upgraded, 0 newly installed, 0 to remove and 301 not upgraded.
youssef@ubuntu:~/Desktop$ sudo apt install isc-dhcp-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
isc-dhcp-server is already the newest version (4.4.1-2.1ubuntu5.20.04.5).
0 upgraded, 0 newly installed, 0 to remove and 301 not upgraded.
youssef@ubuntu:~/Desktop$ sudo su
root@ubuntu:/home/youssef/Desktop# nano /etc/default/isc-dhcp-server
root@ubuntu:/home/youssef/Desktop# nano /etc/default/isc-dhcp-server
root@ubuntu:/home/youssef/Desktop# if config
>
>
>
> ^C
root@ubuntu:/home/youssef/Desktop# ^C
root@ubuntu:/home/youssef/Desktop# ^C
root@ubuntu:/home/youssef/Desktop# ^C
root@ubuntu:/home/youssef/Desktop# ifconfig

Command 'ifconfig' not found, but can be installed with:

apt install net-tools

root@ubuntu:/home/youssef/Desktop#
root@ubuntu:/home/youssef/Desktop# apt install net-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 301 not upgraded.
Need to get 196 kB of archives.
After this operation, 864 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64 1.60+git20180626.aebd88e-1ubuntu1 [196 kB]
Fetched 196 kB in 10s (19.1 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 157268 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20180626.aebd88e-1ubuntu1_amd64.deb ...
Unpacking net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Setting up net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Processing triggers for man-db (2.9.1-1) ...
root@ubuntu:/home/youssef/Desktop# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.74.134  netmask 255.255.255.0  broadcast 192.168.74.255
        inet6 fe80::6f93:9e98:a31b:f01a  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:15:ff:71  txqueuelen 1000  (Ethernet)
        RX packets 372264  bytes 545952664 (545.9 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 73800  bytes 4498357 (4.4 MB)
        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)
        RX packets 237  bytes 22958 (22.9 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 237  bytes 22958 (22.9 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@ubuntu:/home/youssef/Desktop# nano /etc/default/isc-dhcp-server
root@ubuntu:/home/youssef/Desktop# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.74.134  netmask 255.255.255.0  broadcast 192.168.74.255
        inet6 fe80::6f93:9e98:a31b:f01a  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:15:ff:71  txqueuelen 1000  (Ethernet)
        RX packets 376051  bytes 551528278 (551.5 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 74451  bytes 4537417 (4.5 MB)
        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)
        RX packets 237  bytes 22958 (22.9 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 237  bytes 22958 (22.9 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@ubuntu:/home/youssef/Desktop# nano /etc/default/isc-dhcp-server
root@ubuntu:/home/youssef/Desktop# nano /etc/dhcp/dhcpd.conf
root@ubuntu:/home/youssef/Desktop# systemclt status isc-dhcp-server

Command 'systemclt' not found, did you mean:

  command 'systemctl' from deb systemd (245.4-4ubuntu3.24)
  command 'systemctl' from deb systemctl (1.4.3424-2)

Try: apt install <deb name>
```

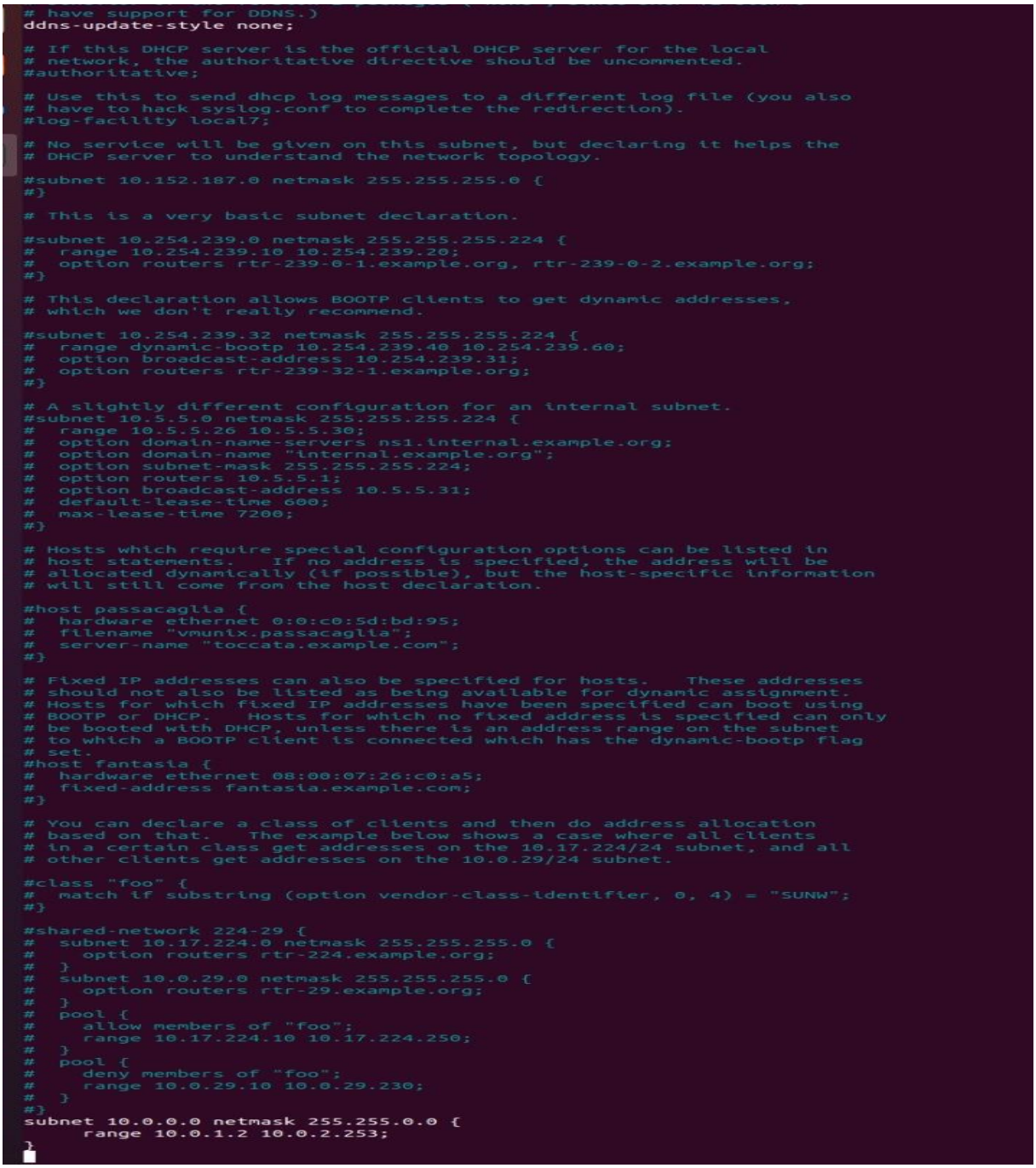
- Configurer l’interface d’´ecoute:

Premi`ere chose `a param´etrer est l’interface d’´ecoute du serveur DHCP. Pour cela, ´editez le fichier /etc/default/isc-dhcp-server puis modifiez la valeur de INTERFACESv4 pour y ajouter le nom de l’interface r´eseau sur laquelle le serveur DHCP doit op´erer. INTERFACESv4=”ens33”
””



- Configuration basique d’attribution automatique d’adresse IP (subnet)/

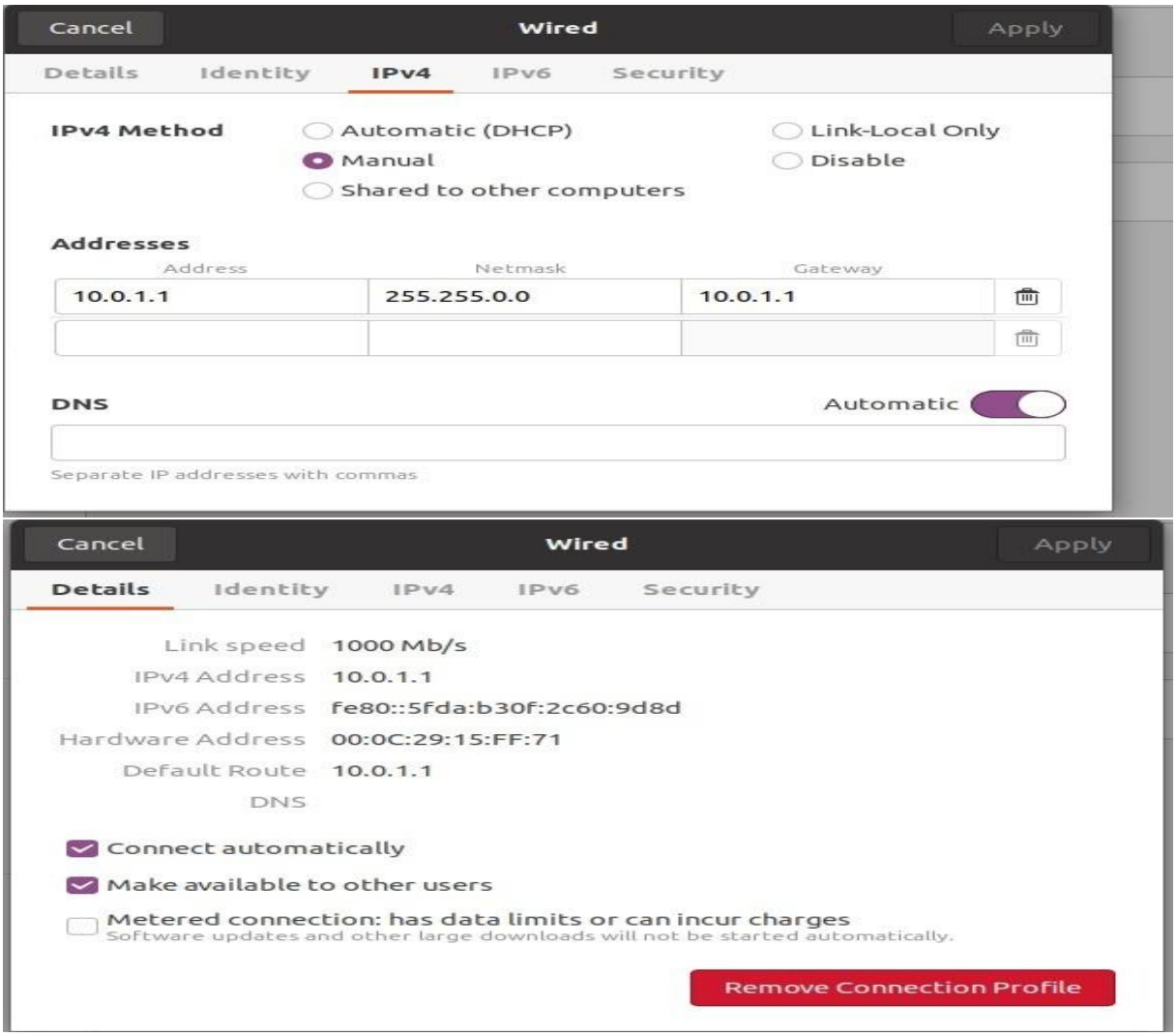
Par d´efaut, la configuration du serveur DHCP n’inclut aucun sous-r´eseau sur lequel le serveur DHCP doit louer des adresses IP. Par cons´equent, en fonction de votre syst`eme Linux, vous pouvez obtenir le message d’erreur suivant lorsque vous tentez de d´emarrer le DHCP avec le fichier de configuration par d´efaut /etc/dhcp/dhcpd.conf.
” subnet 10.0.0.0 netmask 255.255.0.0 range 10.0.1.2 10.0.2.253; ”



```
# 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;

# 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 10.254.239.0 netmask 255.255.255.224 {
#   range 10.254.239.10 10.254.239.20;
#   option routers rtr-239-0-1.example.org, rtr-239-0-2.example.org;
#}

# 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 10.5.5.0 netmask 255.255.255.224 {
#   range 10.5.5.26 10.5.5.30;
#   option domain-name-servers ns1.internal.example.org;
#   option domain-name "internal.example.org";
#   option subnet-mask 255.255.255.224;
#   option routers 10.5.5.1;
#   option broadcast-address 10.5.5.31;
#   default-lease-time 600;
#   max-lease-time 7200;
#}

# Hosts which require special configuration options can be listed in
# host statements.    If no address is specified, the address will be
# allocated dynamically (if possible), but the host-specific information
# will still come from the host declaration.

#host passacaglia {
#   hardware ethernet 0:0:c0:5d:bd:95;
#   filename "vmunix.passacaglia";
#   server-name "toccata.example.com";
#}

# Fixed IP addresses can also be specified for hosts.    These addresses
# should not also be listed as being available for dynamic assignment.
# Hosts for which fixed IP addresses have been specified can boot using
# BOOTP or DHCP.    Hosts for which no fixed address is specified can only
# be booted with DHCP, unless there is an address range on the subnet
# to which a BOOTP client is connected which has the dynamic-bootp flag
# 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;
}
```

””

Ensuite:


Cancel
Wired
Apply
Details
Identity
IPv4
IPv6
Security
IPv4 Method
Automatic (DHCP)
Manual
Shared to other computers
Link-Local Only
Disable
Addresses
Address
Netmask
Gateway
10.0.1.1
255.255.0.0
10.0.1.1
DNS
Automatic
Separate IP addresses with commas
Cancel
Wired
Apply
Details
Identity
IPv4
IPv6
Security
Link speed
1000 Mb/s
IPv4 Address
10.0.1.1
IPv6 Address
fe80::5fda:b30f:2c60:9d8d
Hardware Address
00:0C:29:15:FF:71
Default Route
10.0.1.1
DNS
Connect automatically
Make available to other users
Metered connection: has data limits or can incur charges
Software updates and other large downloads will not be started automatically.
Remove Connection Profile

””

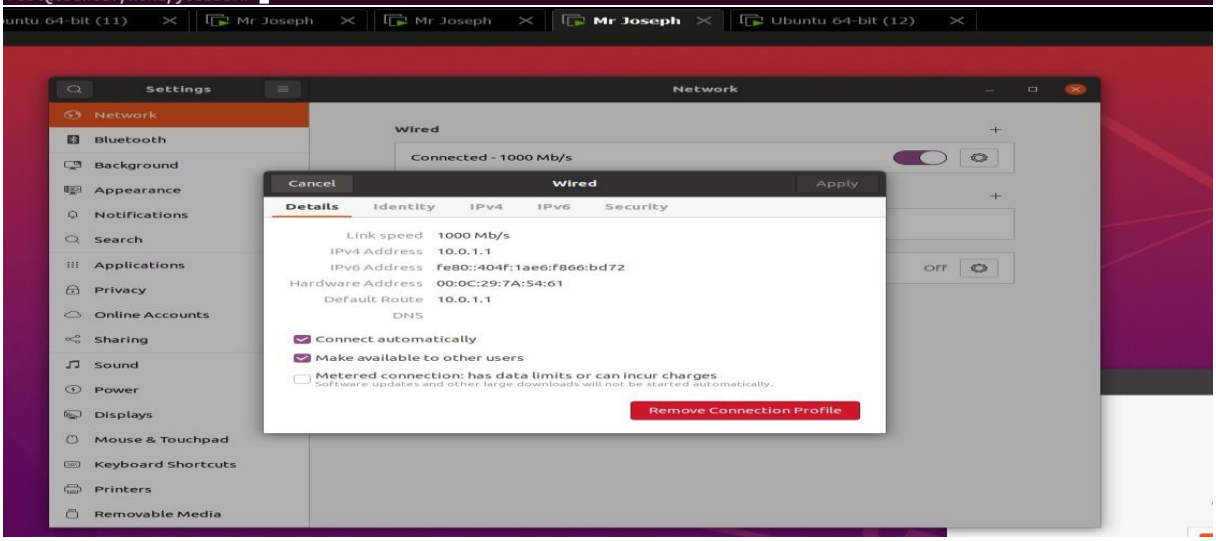
””

- *Distribution des address pour 6 machines :*

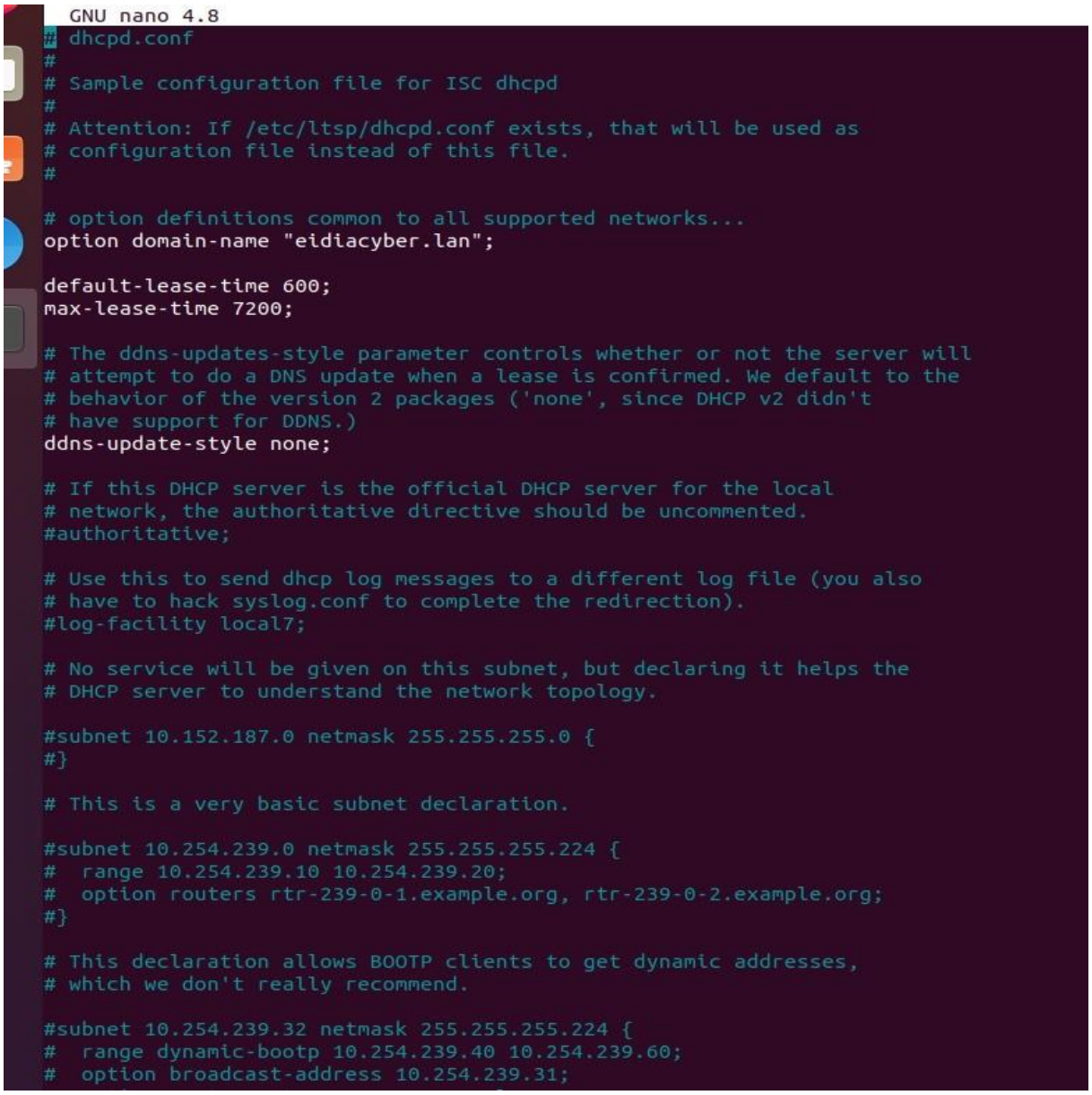
```
option domain-name ”eidiacyber.lan”;
subnet 10.0.0.0 netmask 255.255.0.0
range 10.0.1.2 10.0.2.253; option
domain-name-servers 10.0.2.253; option
routers 10.0.2.254; R´eservations DHCP
host client1 hardware ethernet @mac-
de-la-machine; fixed-address 10.0.2.100;

host banni hardware ethernet @mac-de-
la-machine; deny booting;
```

- *Les addresses IP pour les 6 machines*

```
root@ubuntu:/home/youssef# nano /etc/dhcp/dhcpd.conf
root@ubuntu:/home/youssef# systemctl restart isc-dhcp-server
root@ubuntu:/home/youssef# 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 Thu 2024-11-14 03:10:39 PST; 2s ago
       Docs: man:dhcpd(8)
   Main PID: 3005 (dhcpd)
      Tasks: 4 (limit: 4541)
     Memory: 5.0M
     CGroup: /system.slice/isc-dhcp-server.service
             └─3005 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/dhcpd.pid -cf /etc/dhcp/dhcpd.conf ens33

Nov 14 03:10:39 ubuntu dhcpd[3005]: Wrote 256 leases to leases file.
Nov 14 03:10:39 ubuntu sh[3005]: Wrote 256 leases to leases file.
Nov 14 03:10:39 ubuntu dhcpd[3005]: Listening on LPF/ens33/00:0c:29:15:ff:71/10.0.0.0/16
Nov 14 03:10:39 ubuntu sh[3005]: Listening on LPF/ens33/00:0c:29:15:ff:71/10.0.0.0/16
Nov 14 03:10:39 ubuntu sh[3005]: Sending on   LPF/ens33/00:0c:29:15:ff:71/10.0.0.0/16
Nov 14 03:10:39 ubuntu sh[3005]: Sending on   Socket/fallback/fallback-net
Nov 14 03:10:39 ubuntu dhcpd[3005]: Sending on   LPF/ens33/00:0c:29:15:ff:71/10.0.0.0/16
Nov 14 03:10:39 ubuntu dhcpd[3005]: Sending on   Socket/fallback/fallback-net
Nov 14 03:10:39 ubuntu dhcpd[3005]: Server starting service.
Nov 14 03:10:40 ubuntu dhcpd[3005]: DHCPDISCOVER from 00:0c:29:c5:95:2f via ens33
root@ubuntu:/home/youssef#
```

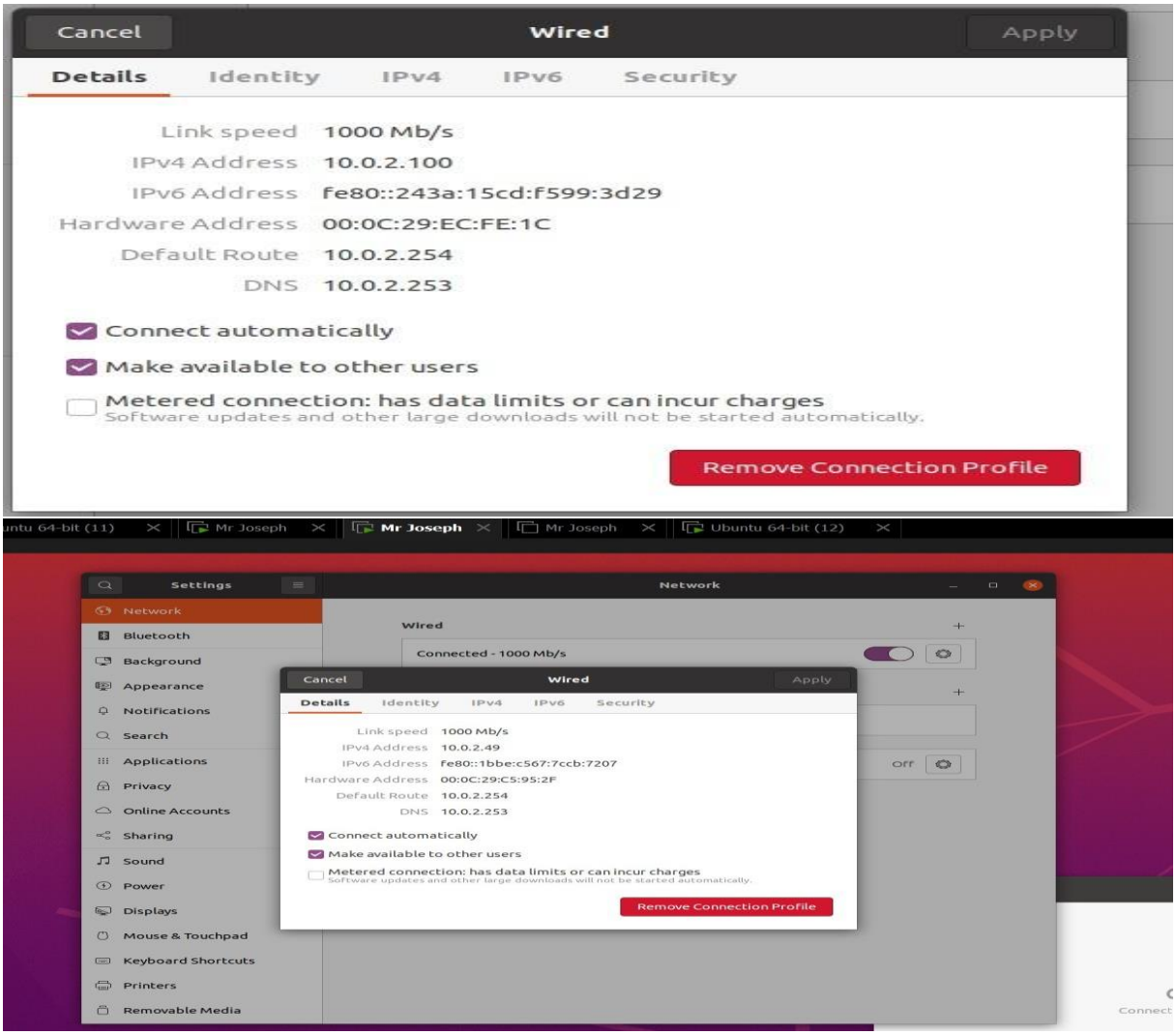


”


GNU nano 4.8
dhcpd.conf
#
Sample configuration file for ISC dhcpd
#
Attention: If /etc/ltsp/dhcpd.conf exists, that will be used as
configuration file instead of this file.
#
option definitions common to all supported networks...
option domain-name "eidiacyber.lan";
default-lease-time 600;
max-lease-time 7200;
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;
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 10.254.239.0 netmask 255.255.255.224 {
range 10.254.239.10 10.254.239.20;
option routers rtr-239-0-1.example.org, rtr-239-0-2.example.org;
#}
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;
””

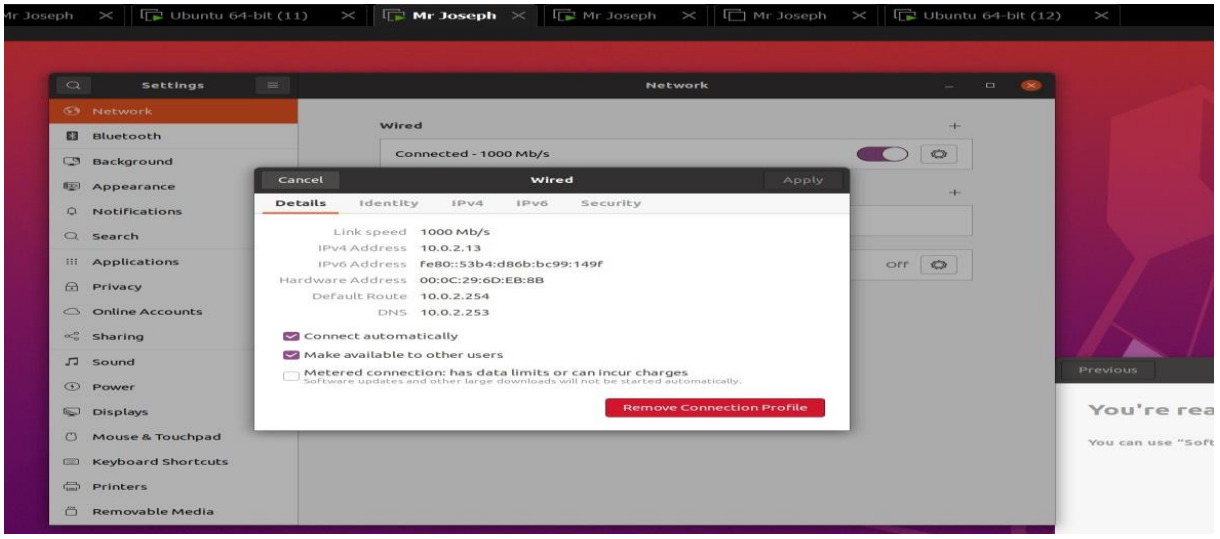
```
#host passacaglia {
#   hardware ethernet 0:0:c0:5d:bd:95;
#   filename "vmunix.passacaglia";
#   server-name "toccata.example.com";
#}

# Fixed IP addresses can also be specified for hosts.    These
# should not also be listed as being available for dynamic ass
# Hosts for which fixed IP addresses have been specified can b
# BOOTP or DHCP.    Hosts for which no fixed address is specifi
# be booted with DHCP, unless there is an address range on the
# to which a BOOTP client is connected which has the dynamic-b
# 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 alloc
# based on that.    The example below shows a case where all cl
# in a certain class get addresses on the 10.17.224/24 subnet,
# other clients get addresses on the 10.0.29/24 subnet.

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

#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;
        # Réservations DHCP
        host client1 {
                        hardware
ethernet 00:0C:29:EC:FE:1C;
                    fixed-address
10.0.2.100;
        }
        host banni {
                     hardware
ethernet 00:0C:29:2F:21:EE;
                deny booting;
}
}
```

””


Cancel
Wired
Apply
Details
Identity
IPv4
IPv6
Security
Link speed 1000 Mb/s
IPv4 Address 10.0.2.100
IPv6 Address fe80::243a:15cd:f599:3d29
Hardware Address 00:0C:29:EC:FE:1C
Default Route 10.0.2.254
DNS 10.0.2.253
Connect automatically
Make available to other users
Metered connection: has data limits or can incur charges
Software updates and other large downloads will not be started automatically.
Remove Connection Profile
Mr Joseph
Ubuntu 64-bit (12)
Settings
Network
Bluetooth
Background
Appearance
Notifications
Search
Applications
Privacy
Online Accounts
Sharing
Sound
Power
Displays
Mouse & Touchpad
Keyboard Shortcuts
Printers
Removable Media
Connected - 1000 Mb/s
IPv4 Address 10.0.2.49
IPv6 Address fe80::1bbe:c567:7ccb:7207
Hardware Address 00:0C:29:C5:95:2F

”” ””

”” ””



Pour la derni`ere machine, elle ne recevra pas d’adresse IP car nous allons la bloquer dans le code en utilisant l’instruction deny booting;

””