administration systeme linux

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1 Introduction

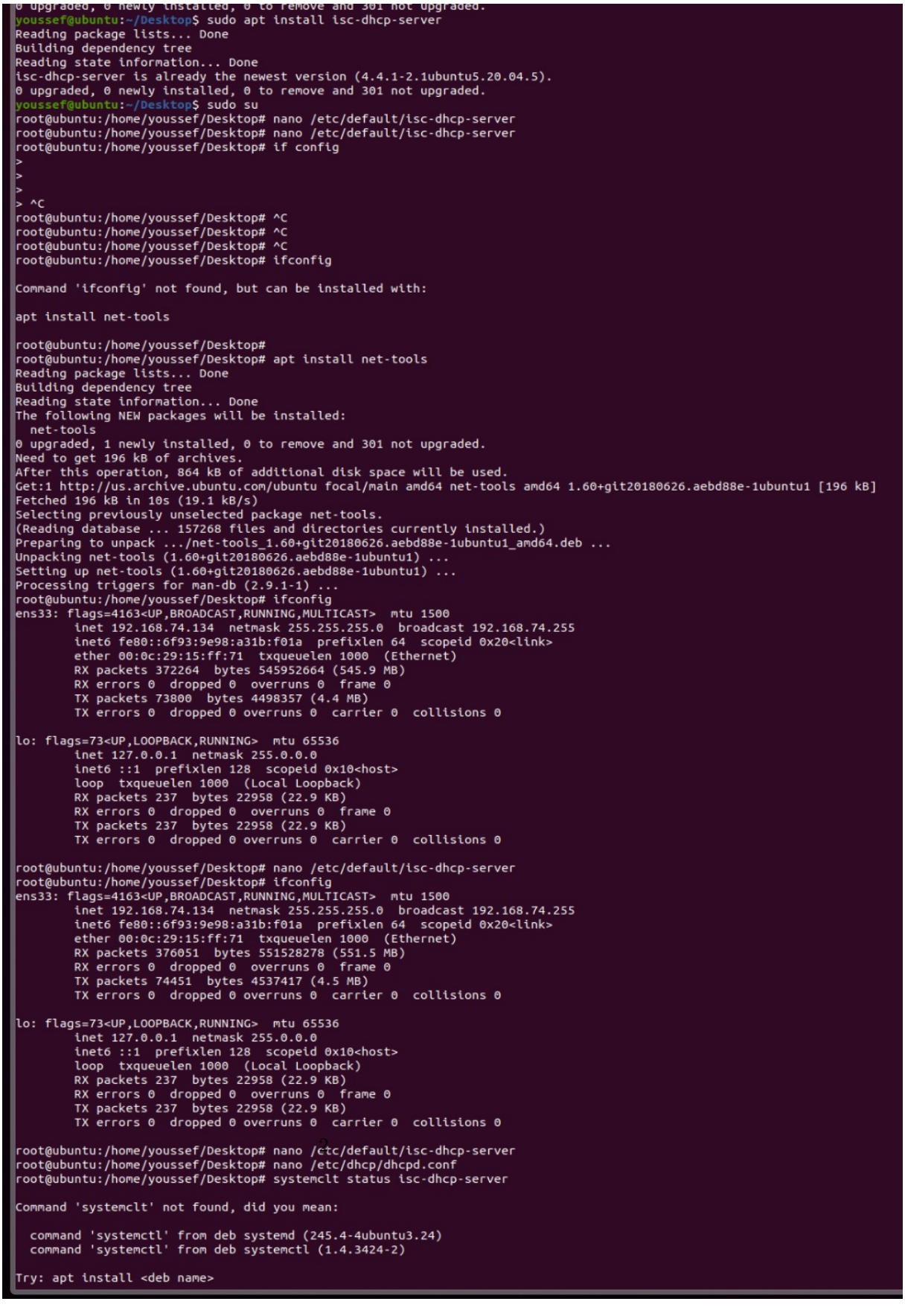
L'administration système désigne l'ensemble des activités et responsabilités liées à la gestion, au maintien et à l'optimisation des systèmes informatiques d'une organisation. Elle est essentielle pour garantir le bon fonctionnement, la disponibilité et la sécurité des infrastructures informatiques.

2 La configuration d'un serveur DHCP :

La configuration d'un serveur DHCP (Dynamic Host Configuration Protocol) sur Linux consiste à permettre à un serveur de distribuer automatiquement des adresses IP et d'autres paramètres réseau (comme la passerelle et le DNS) aux clients sur un réseau local. Cette automatisation simplifie la gestion des réseaux en évitant de configurer manuellement chaque appareil.

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

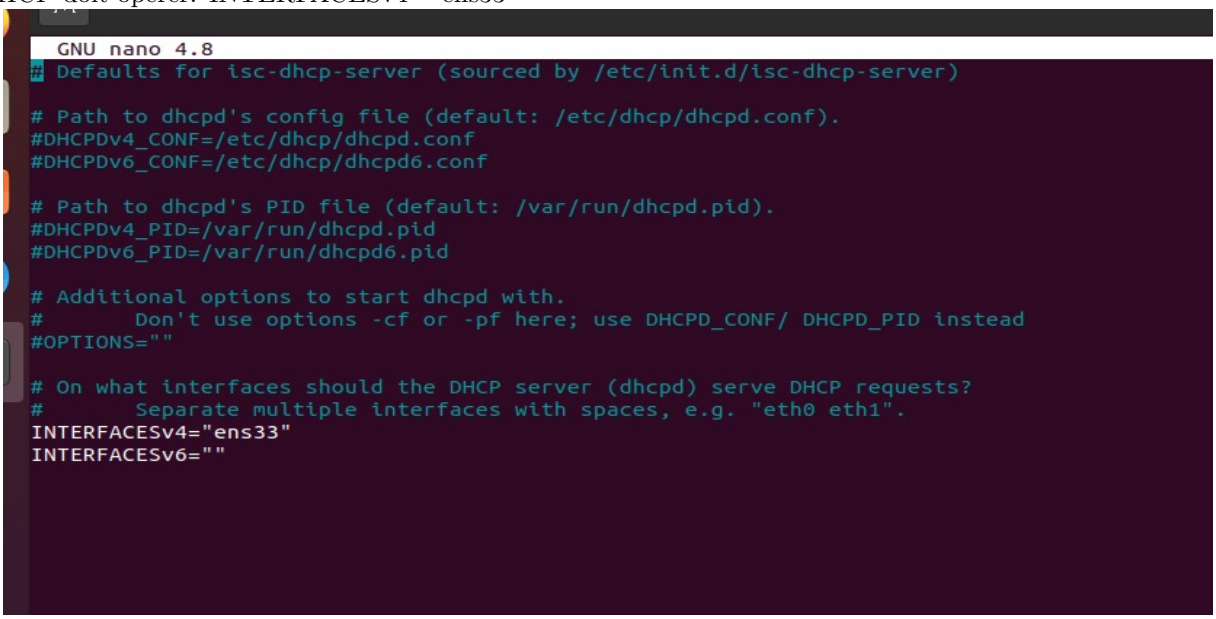
Pour installer DHCP sur Ubuntu, utilisez la commande : "sudo apt install isc-dhcp-server":


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'écoute:

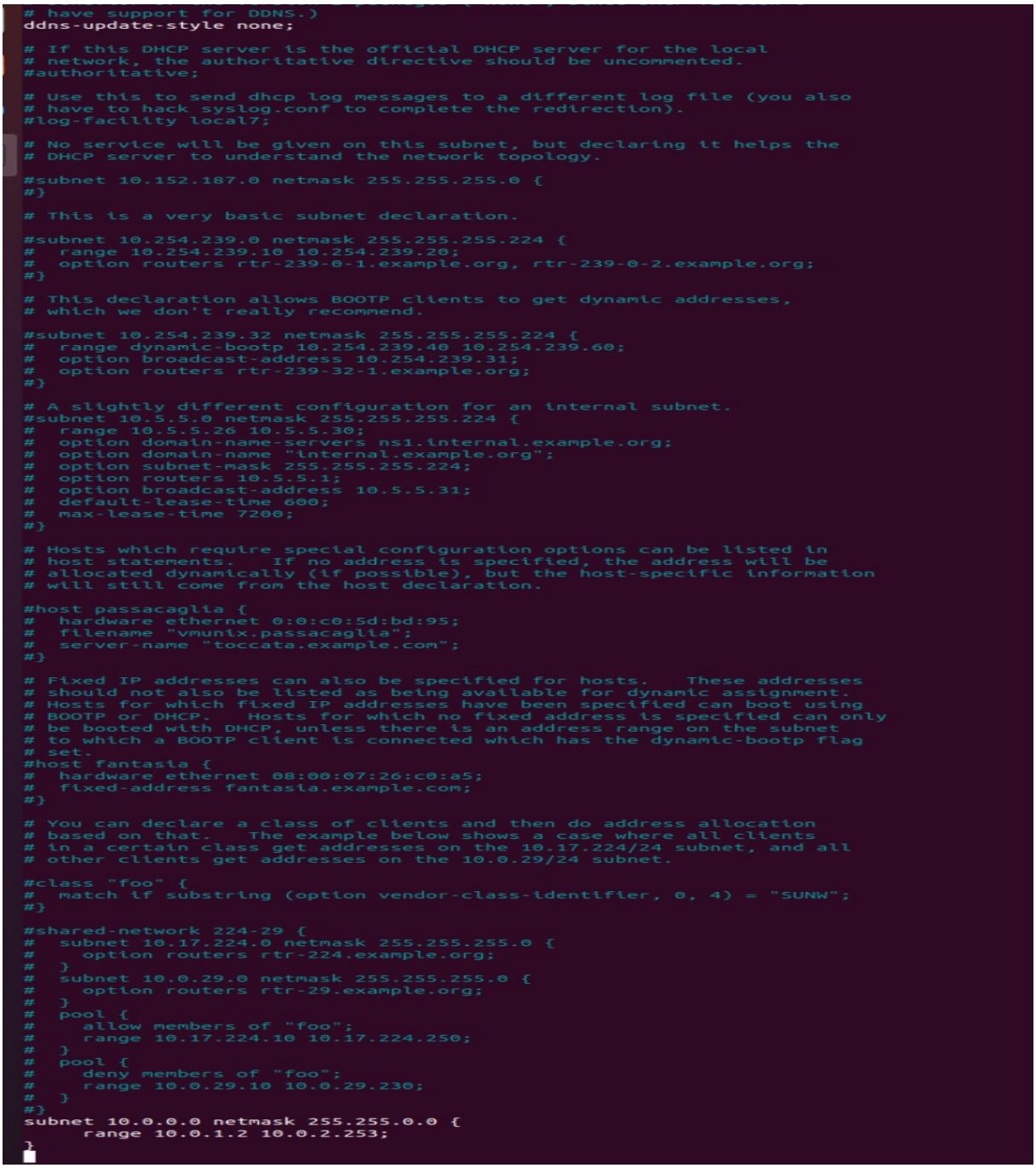
Première chose à paramétrer est l'interface d'écoute du serveur DHCP. Pour cela, éditez le fichier /etc/default/isc-dhcp-server puis modifiez la valeur de INTERFACESv4 pour y ajouter le nom de l'interface réseau sur laquelle le serveur DHCP doit opérer. INTERFACESv4="ens33"



""

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

Par défaut, la configuration du serveur DHCP n'inclut aucun sous-réseau sur lequel le serveur DHCP doit louer des adresses IP. Par conséquent, en fonction de votre système Linux, vous pouvez obtenir le message d'erreur suivant lorsque vous tentez de démarrer le DHCP avec le fichier de configuration par défaut /etc/dhcp/dhcpd.conf.
" subnet 10.0.0.0 netmask 255.255.0.0 range 10.0.1.2 10.0.2.253; "

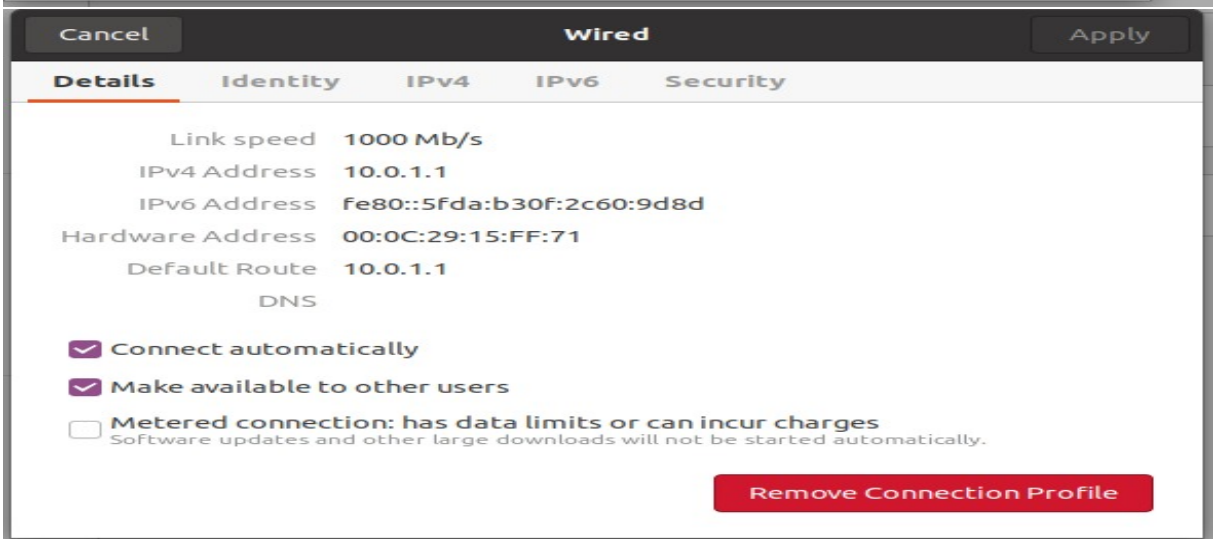


```
# have support for DDNS.)
ddns-update-style none;

# 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:

”” 

”” 

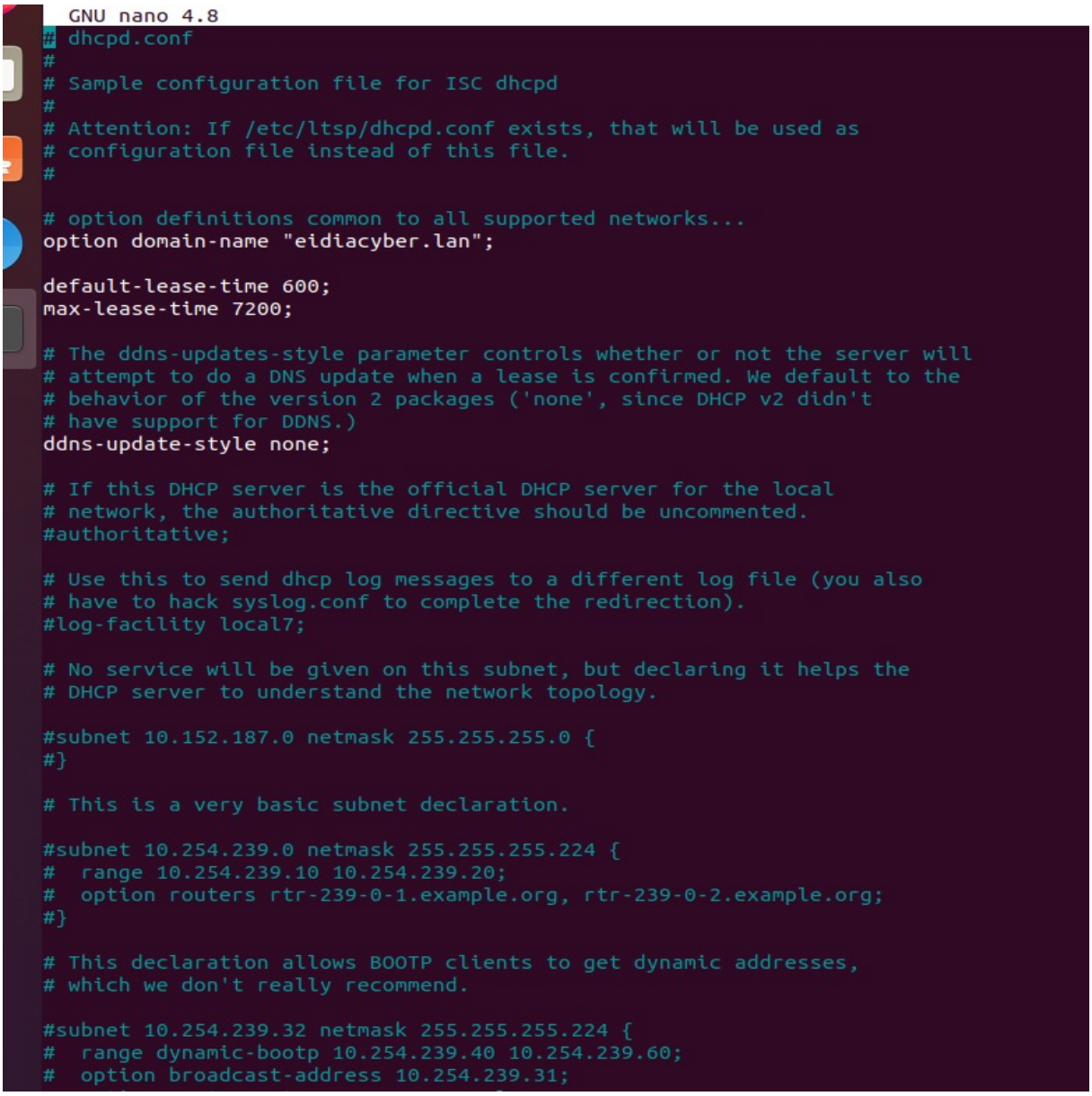
- ***Distribution des address pour 6 machines :***

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;
Réservations 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***


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";
#}

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# 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;
}
}
```
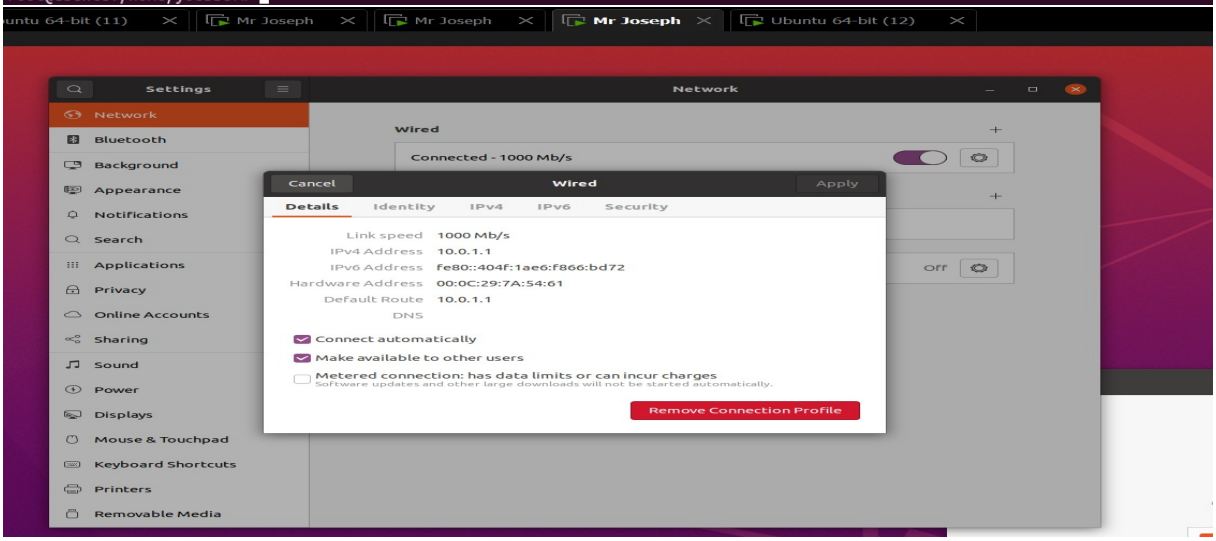
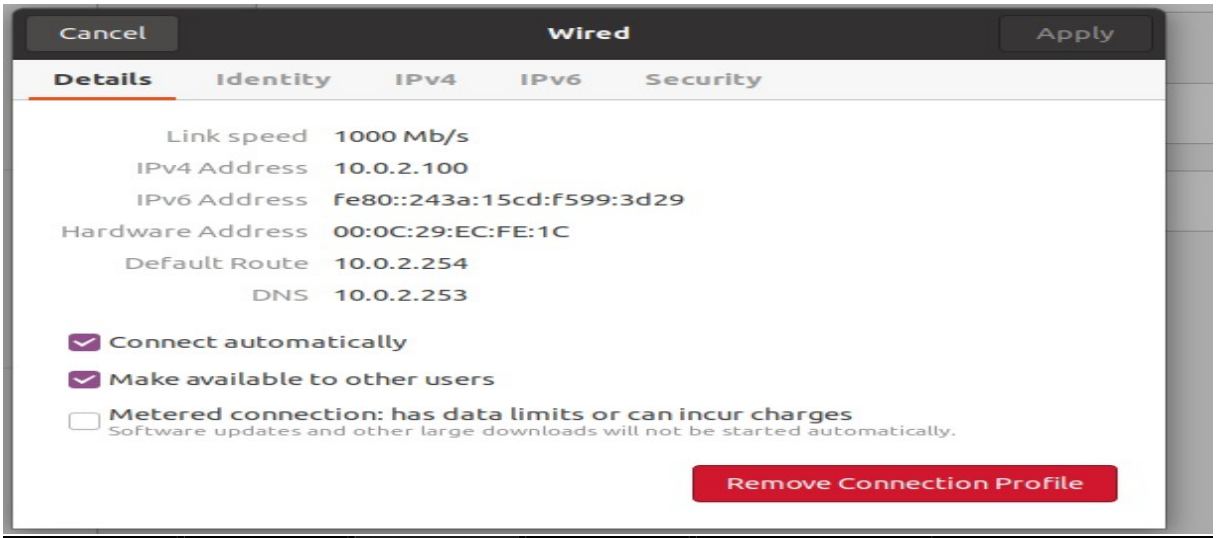

””

```
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#
```

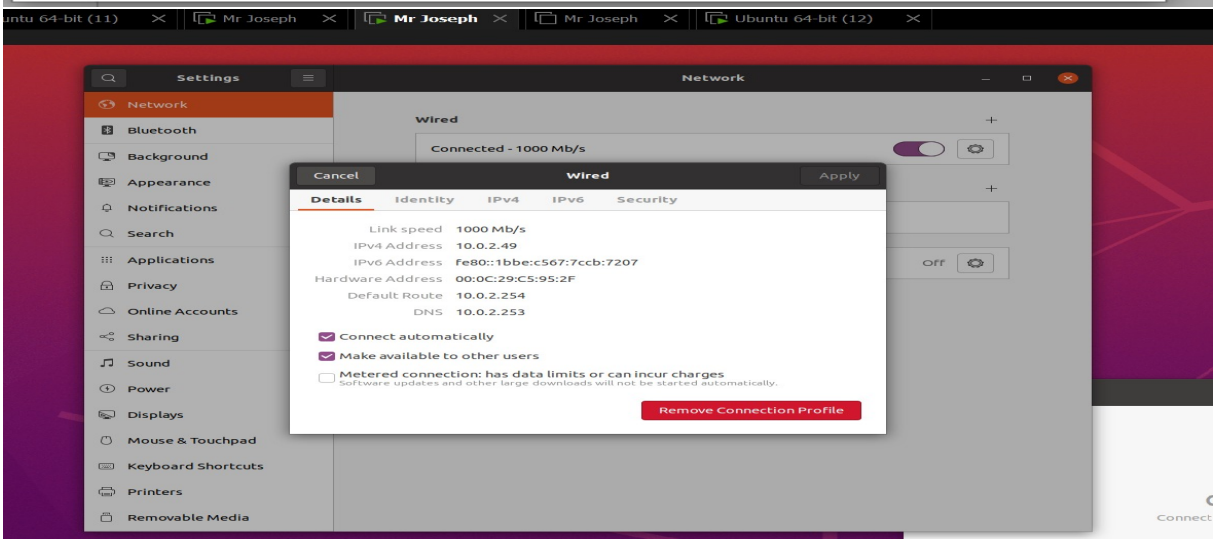
”



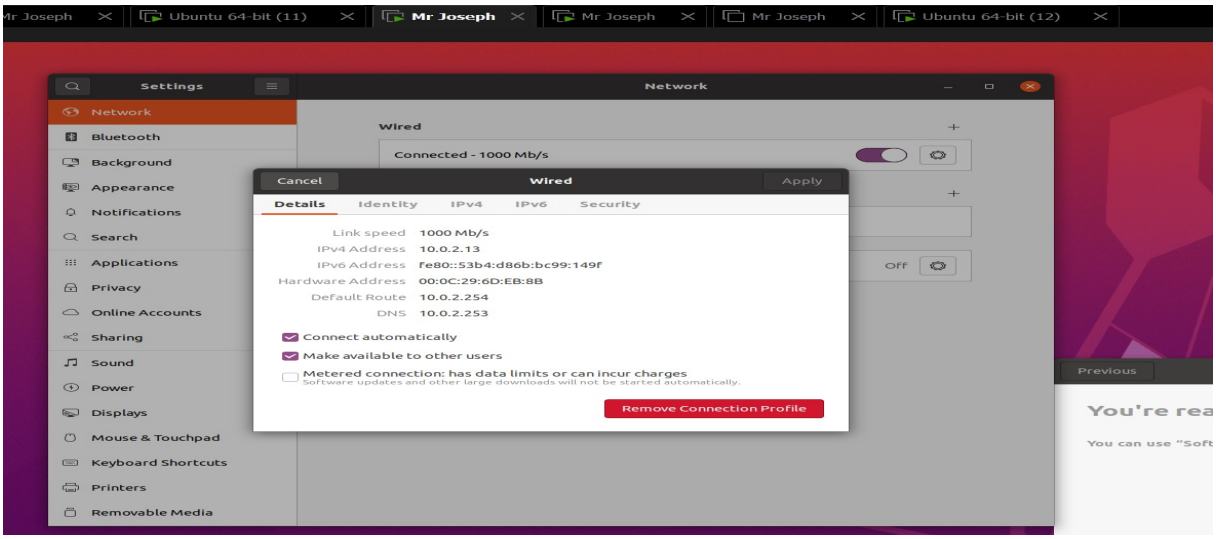
”


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

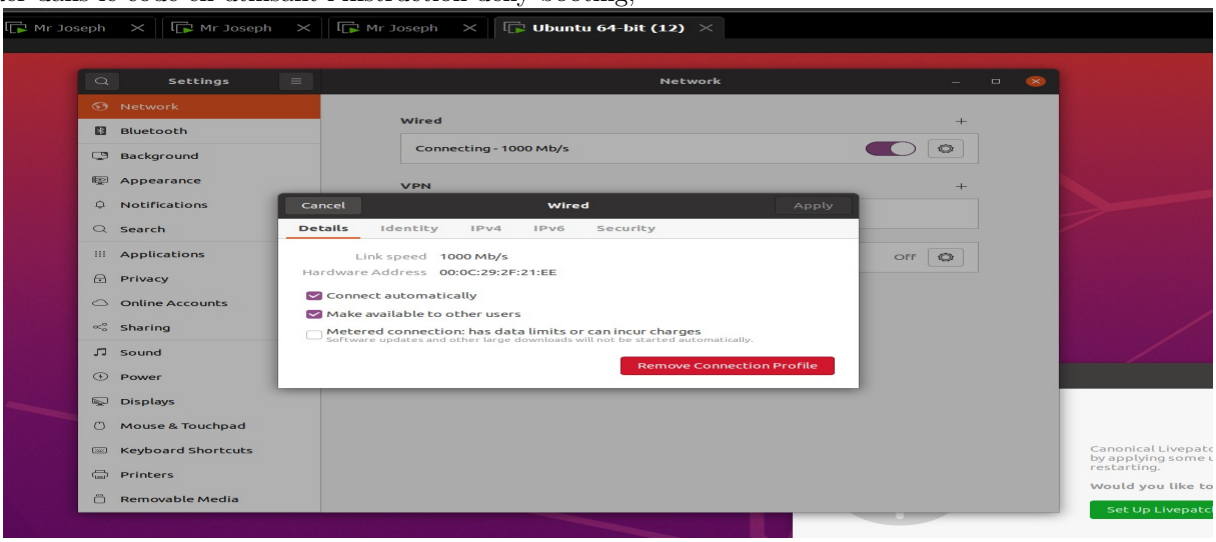
”


Mr Joseph
Mr Joseph
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
Network
Wired
Connected - 1000 Mb/s
Off
Cancel
Wired
Apply
Details
Identity
IPv4
IPv6
Security
Link speed 1000 Mb/s
IPv4 Address 10.0.2.49
IPv6 Address fe80::1bbe:c567:7ccb:7207
Hardware Address 00:0C:29:C5:95:2F
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

”



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



””