Institut Antoni Ballester Sistemes Microinformàtics i Xarxes. M7- ServeisdeXarxa	MP07 UF1 NF1 A1.1 Pràctica 1 DHCP	Unai O. Pujol	Curs: 24-25

Copiar la estructura de sota, tantes vegades com sigui necessari

Entrega una captura del resultat de la comanda ip a (on també es vegi el prompt modificat de la màquina)

```
Thu Sep 19 11:52:17 pujolu@Zeus:/etc/netplan$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:49:a2:e6 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 metric 100 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86396sec preferred_lft 86396sec
    inet6 fd00::a00:27ff:fe49:a2e6/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 86396sec preferred_lft 14396sec
    inet6 fe80::a00:27ff:fe49:a2e6/64 scope link
       valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:04:4b:83 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.1/24 brd 192.168.1.255 scope global enp0s8
       valid_lft forever preferred_lft forever
    inet 172.30.1.1/24 brd 172.30.1.255 scope global enp0s8
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe04:4b83/64 scope link
       valid_lft forever preferred_lft forever
4: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:5d:e8:5d brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.101/24 metric 100 brd 192.168.56.255 scope global dynamic enp0s9
       valid_lft 595sec preferred_lft 595sec
    inet6 fe80::a00:27ff:fe5d:e85d/64 scope link
       valid_lft forever preferred_lft forever
```

Entrega una captura del contingut del fitxer /etc/default/isc-dhcp-server.

```
Thu Sep 19 12:04:46 pujolu@Zeus:/etc/netplan$ sudo cat /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=""
```

Entrega una captura on es vegi que has realitzat la còpia

```
Thu Sep 19 12:08:18 pujolu@Zeus:/etc/dhcp$ sudo cp dhcpd.conf dhcpd_copia.conf
Thu Sep 19 12:08:21 pujolu@Zeus:/etc/dhcp$ ls -la
total 40
drwxr-xr-x   5 root root  4096 Sep 19 12:08 .
drwxr-xr-x 101 root root  4096 Sep 19 12:00 ..
drwxr-x---   2 root dhcpd 4096 Sep 19 12:00 ddns-keys
-rw-r--r--   1 root root  1426 May  5  2022 debug
-rw-r--r--   1 root root  1735 May  5  2022 dhclient.conf
drwxr-xr-x   2 root root  4096 Sep 11 14:25 dhclient-enter-hooks.d
drwxr-xr-x   2 root root  4096 Sep 11 14:25 dhclient-exit-hooks.d
-rw-r--r--   1 root root  3331 Jan 31  2023 dhcpd6.conf
-rw-r--r--   1 root root  3646 Jan 31  2023 dhcpd.conf
-rw-r--r--   1 root root  3646 Sep 19 12:08 dhcpd_copia.conf
```

Entrega una captura amb la instrucció utilitzada per reiniciar el servidor i el resultat que llença.

```
Thu Sep 19 12:11:09 pujolu@Zeus:/etc/dhcp$ sudo systemctl restart isc-dhcp-server
Thu Sep 19 12:11:22 pujolu@Zeus:/etc/dhcp$ sudo 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: failed (Result: exit-code) since Thu 2024-09-19 12:11:24 UTC; 4s ago
       Docs: man:dhcpd(8)
    Process: 2017 ExecStart=/bin/sh -ec      CONFIG_FILE=/etc/dhcp/dhcpd.conf;      if [ -f /etc/ltsp/dhcpd.conf ]; then CON>
   Main PID: 2017 (code=exited, status=1/FAILURE)
        CPU: 16ms

Sep 19 12:11:24 Zeus dhcpd[2017]:
Sep 19 12:11:24 Zeus dhcpd[2017]: If you think you have received this message due to a bug rather
Sep 19 12:11:24 Zeus dhcpd[2017]: than a configuration issue please read the section on submitting
Sep 19 12:11:24 Zeus systemd[1]: isc-dhcp-server.service: Main process exited, code=exited, status=1/FAILURE
Sep 19 12:11:24 Zeus dhcpd[2017]: bugs on either our web page at www.isc.org or in the README file
Sep 19 12:11:24 Zeus systemd[1]: isc-dhcp-server.service: Failed with result 'exit-code'.
Sep 19 12:11:24 Zeus dhcpd[2017]: before submitting a bug.  These pages explain the proper
Sep 19 12:11:24 Zeus dhcpd[2017]: process and the information we find helpful for debugging.
Sep 19 12:11:24 Zeus dhcpd[2017]:
Sep 19 12:11:24 Zeus dhcpd[2017]: exiting.
lines 1-18/18 (END)
```

Entrega una captura del resultat de la instrucció anterior.

```
Thu Sep 19 12:15:47 pujolu@Zeus:/etc/dhcp$ sudo cat /var/log/syslog | grep dhcpd
Sep 19 12:00:31 unaiopujol kernel: [ 1460.084157] audit: type=1400 audit(1726747231.627:43): apparmor="STATUS" operation="pro
file_load" profile="unconfined" name="/usr/sbin/dhcpd" pid=1709 comm="apparmor_parser"
Sep 19 12:00:33 unaiopujol dhcpd[1824]: Internet Systems Consortium DHCP Server 4.4.1
Sep 19 12:00:33 unaiopujol dhcpd[1824]: Copyright 2004-2018 Internet Systems Consortium.
Sep 19 12:00:33 unaiopujol dhcpd[1824]: All rights reserved.
Sep 19 12:00:33 unaiopujol dhcpd[1824]: For info, please visit https://www.isc.org/software/dhcp/
Sep 19 12:00:33 unaiopujol dhcpd[1824]: Config file: /etc/dhcp/dhcpd6.conf
Sep 19 12:00:33 unaiopujol sh[1824]: Config file: /etc/dhcp/dhcpd6.conf
Sep 19 12:00:33 unaiopujol dhcpd[1824]: Database file: /var/lib/dhcp/dhcpd6.leases
Sep 19 12:00:33 unaiopujol sh[1824]: Database file: /var/lib/dhcp/dhcpd6.leases
Sep 19 12:00:33 unaiopujol dhcpd[1824]: PID file: /run/dhcp-server/dhcpd6.pid
Sep 19 12:00:33 unaiopujol sh[1824]: PID file: /run/dhcp-server/dhcpd6.pid
Sep 19 12:00:33 unaiopujol dhcpd[1824]: Wrote 0 NA, 0 TA, 0 PD leases to lease file.
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]: No subnet6 declaration for enp0s9 (fe80::a00:27ff:fe5d:e85d).
Sep 19 12:00:33 unaiopujol dhcpd[1824]: ** Ignoring requests on enp0s9.  If this is not what
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    you want, please write a subnet6 declaration
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol sh[1824]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    to which interface enp0s9 is attached. **
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]: No subnet6 declaration for enp0s8 (fe80::a00:27ff:fe04:4b83).
Sep 19 12:00:33 unaiopujol dhcpd[1824]: ** Ignoring requests on enp0s8.  If this is not what
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    you want, please write a subnet6 declaration
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol sh[1824]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    to which interface enp0s8 is attached. **
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]: No subnet6 declaration for enp0s3 (fd00::a00:27ff:fe49:a2e6).
Sep 19 12:00:33 unaiopujol dhcpd[1824]: ** Ignoring requests on enp0s3.  If this is not what
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    you want, please write a subnet6 declaration
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol sh[1824]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol dhcpd[1824]:    to which interface enp0s3 is attached. **
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]: Not configured to listen on any interfaces!
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]: If you think you have received this message due to a bug rather
Sep 19 12:00:33 unaiopujol dhcpd[1824]: than a configuration issue please read the section on submitting
Sep 19 12:00:33 unaiopujol dhcpd[1824]: bugs on either our web page at www.isc.org or in the README file
Sep 19 12:00:33 unaiopujol dhcpd[1824]: before submitting a bug.  These pages explain the proper
Sep 19 12:00:33 unaiopujol dhcpd[1824]: process and the information we find helpful for debugging.
Sep 19 12:00:33 unaiopujol dhcpd[1824]:
Sep 19 12:00:33 unaiopujol dhcpd[1824]: exiting.
Sep 19 12:00:33 unaiopujol dhcpd[1871]: Internet Systems Consortium DHCP Server 4.4.1
Sep 19 12:00:33 unaiopujol dhcpd[1871]: Copyright 2004-2018 Internet Systems Consortium.
Sep 19 12:00:33 unaiopujol dhcpd[1871]: All rights reserved.
Sep 19 12:00:33 unaiopujol dhcpd[1871]: For info, please visit https://www.isc.org/software/dhcp/
Sep 19 12:00:33 unaiopujol dhcpd[1871]: Config file: /etc/dhcp/dhcpd.conf
Sep 19 12:00:33 unaiopujol sh[1871]: Config file: /etc/dhcp/dhcpd.conf
Sep 19 12:00:33 unaiopujol sh[1871]: Database file: /var/lib/dhcp/dhcpd.leases
Sep 19 12:00:33 unaiopujol sh[1871]: PID file: /run/dhcp-server/dhcpd.pid
Sep 19 12:00:33 unaiopujol dhcpd[1871]: Database file: /var/lib/dhcp/dhcpd.leases
Sep 19 12:00:33 unaiopujol dhcpd[1871]: PID file: /run/dhcp-server/dhcpd.pid
Sep 19 12:00:33 unaiopujol dhcpd[1871]: Wrote 0 leases to leases file.
Sep 19 12:00:33 unaiopujol dhcpd[1871]:
Sep 19 12:00:33 unaiopujol sh[1871]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol sh[1871]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol sh[1871]:    in your dhcpd.conf file for the network segment
Sep 19 12:00:33 unaiopujol dhcpd[1871]: No subnet declaration for enp0s9 (192.168.56.101).
Sep 19 12:00:33 unaiopujol dhcpd[1871]: ** Ignoring requests on enp0s9.  If this is not what
Sep 19 12:00:33 unaiopujol dhcpd[1871]:    you want, please write a subnet declaration
```

Entrega una captura de l'arxiu de configuració complet (esborreu tots els comentaris i feu-lo llegible).

```
Thu Sep 19 12:35:55 pujolu@Zeus:/etc/dhcp$ cat dhcpd.conf
option domain-name "example.org";
option domain-name-servers ns1.example.org, ns2.example.org;

default-lease-time 600;
max-lease-time 7200;

ddns-update-style none;

subnet 172.30.1.0 netmask 255.255.255.0 {
  range 172.30.1.100 172.30.1.254;
  option domain-name-servers 172.30.1.1, 172.30.1.2;
  option domain-name "unai-o-pujol.test";
  option subnet-mask 255.255.255.0;
  option routers 172.30.1.1;
  option broadcast-address 172.30.1.255;
  default-lease-time 3600;
  max-lease-time 7200;
}
```

Entrega una captura on es mostri la configuració de xarxa de *PC1 (comanda ipa)*

```
Sun Sep 22 10:20:00 pujolu@PC1:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:c7:01:06 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 metric 100 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 85625sec preferred_lft 85625sec
    inet6 fd00::a00:27ff:fec7:106/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 86191sec preferred_lft 14191sec
    inet6 fe80::a00:27ff:fec7:106/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:89:ab:b0 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.1/24 brd 192.168.1.255 scope global enp0s8
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe89:abb0/64 scope link
        valid_lft forever preferred_lft forever
4: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:19:bc:f5 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.101/24 metric 100 brd 192.168.56.255 scope global dynamic enp0s9
        valid_lft 425sec preferred_lft 425sec
    inet 192.168.56.102/24 brd 192.168.56.255 scope global secondary dynamic enp0s9
        valid_lft 485sec preferred_lft 485sec
    inet6 fe80::a00:27ff:fe19:bcf5/64 scope link
        valid_lft forever preferred_lft forever
```

Entrega una captura amb la comanda per demanar una nova IP amb `dhclient` i a continuació fes ip a

```
Sun Sep 22 14:42:51 pujolu@PC1:~$ sudo dhclient -4
Sun Sep 22 14:44:00 pujolu@PC1:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:c3:bf:21 brd ff:ff:ff:ff:ff:ff
    inet 172.30.1.0/24 metric 100 brd 172.30.1.255 scope global dynamic enp0s3
        valid_lft 3034sec preferred_lft 3034sec
    inet 172.30.1.2/24 brd 172.30.1.255 scope global secondary dynamic enp0s3
        valid_lft 3384sec preferred_lft 3384sec
    inet6 fe80::a00:27ff:fec3:bf21/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:ce:1c:d9 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.25/18 metric 100 brd 10.0.63.255 scope global dynamic enp0s9
        valid_lft 43113sec preferred_lft 43113sec
    inet6 fe80::a00:27ff:fece:1cd9/64 scope link
        valid_lft forever preferred_lft forever
```

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Entrega una captura de les últimes línies del `syslog` de Zeus. Hauran d'incloure aquelles que posi DHCPREQUEST i DHCPACK.

```
Sun Sep 22 14:46:38 pujolu@zeus:~$ sudo tail -f /var/log/syslog
[sudo] password for pujolu:
Sep 22 14:42:37 zeus dhcpd[1225]: DHCPOFFER on 172.30.1.0 to 08:00:27:c3:bf:21 (PC1) via enp0s8
Sep 22 14:42:39 zeus dhcpd[1225]: reuse_lease: lease age 481 (secs) under 25% threshold, reply with unaltered, existing lease
 for 172.30.1.0
Sep 22 14:42:39 zeus dhcpd[1225]: DHCPDISCOVER from 08:00:27:c3:bf:21 (PC1) via enp0s8
Sep 22 14:42:40 zeus dhcpd[1225]: DHCPOFFER on 172.30.1.0 to 08:00:27:c3:bf:21 (PC1) via enp0s8
Sep 22 14:42:40 zeus dhcpd[1225]: reuse_lease: lease age 482 (secs) under 25% threshold, reply with unaltered, existing lease
 for 172.30.1.0
Sep 22 14:42:40 zeus dhcpd[1225]: DHCPREQUEST for 172.30.1.0 (172.30.1.1) from 08:00:27:c3:bf:21 (PC1) via enp0s8
Sep 22 14:42:40 zeus dhcpd[1225]: DHCPACK on 172.30.1.0 to 08:00:27:c3:bf:21 (PC1) via enp0s8
Sep 22 14:44:00 zeus dhcpd[1225]: reuse_lease: lease age 211 (secs) under 25% threshold, reply with unaltered, existing lease
 for 172.30.1.2
Sep 22 14:44:00 zeus dhcpd[1225]: DHCPREQUEST for 172.30.1.2 from 08:00:27:c3:bf:21 (PC1) via enp0s8
Sep 22 14:44:00 zeus dhcpd[1225]: DHCPACK on 172.30.1.2 to 08:00:27:c3:bf:21 (PC1) via enp0s8
```

Realitza i entrega una captura del resultat de fer `ip a` aPC1

```
Sun Sep 22 14:48:01 pujolu@PC1:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:c3:bf:21 brd ff:ff:ff:ff:ff:ff
    inet 172.30.1.0/24 metric 100 brd 172.30.1.255 scope global dynamic enp0s3
       valid_lft 2797sec preferred_lft 2797sec
    inet 172.30.1.2/24 brd 172.30.1.255 scope global secondary dynamic enp0s3
       valid_lft 3147sec preferred_lft 3147sec
    inet6 fe80::a00:27ff:fec3:bf21/64 scope link
       valid_lft forever preferred_lft forever
3: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:ce:1c:d9 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.25/18 metric 100 brd 10.0.63.255 scope global dynamic enp0s9
       valid_lft 42876sec preferred_lft 42876sec
    inet6 fe80::a00:27ff:fece:1cd9/64 scope link
       valid_lft forever preferred_lft forever
Sun Sep 22 14:48:02 pujolu@PC1:~$
```