DHCP Server

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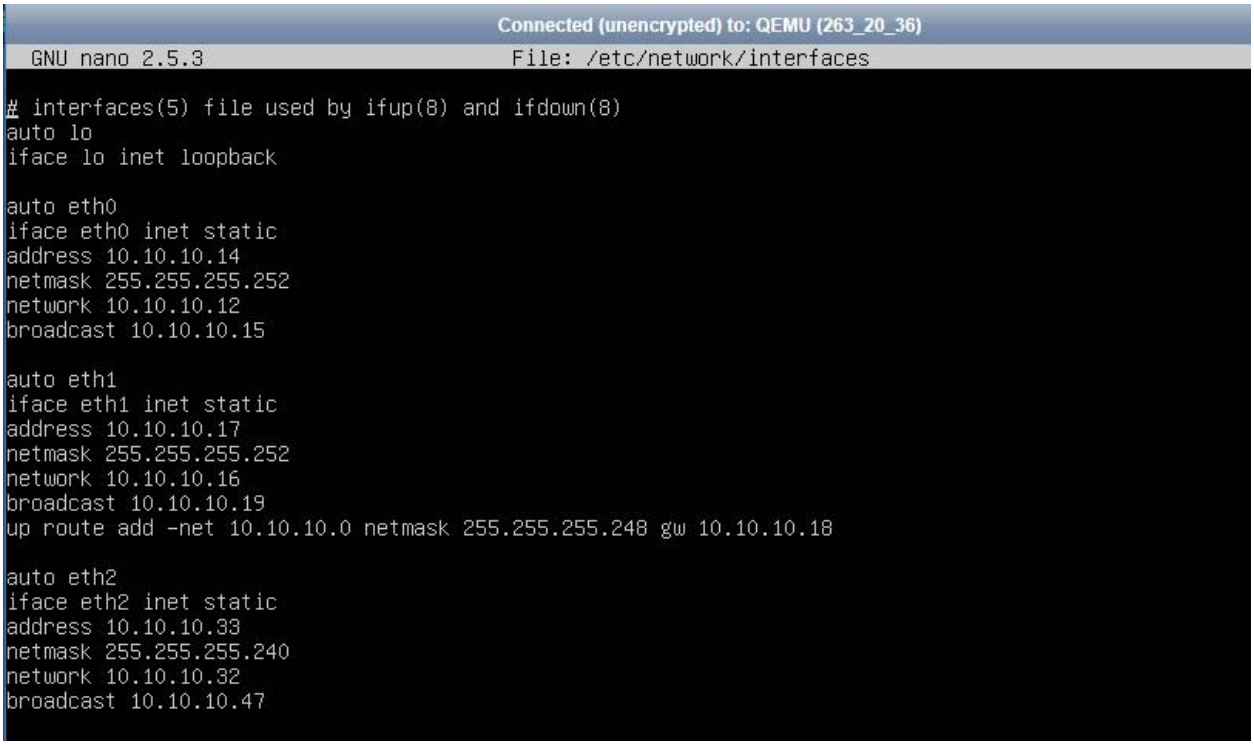
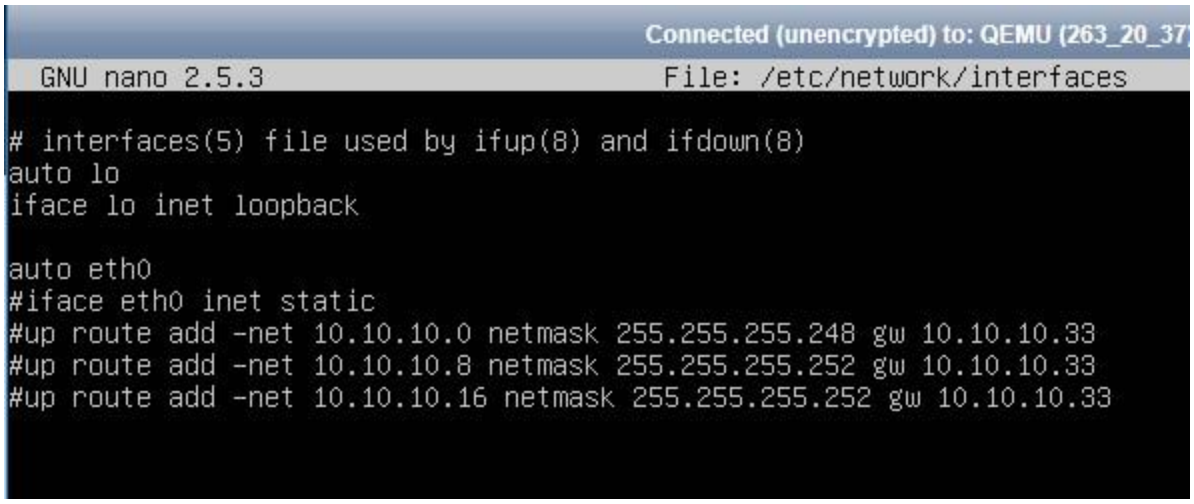
1. Set up a DHCP server on router R4 such that, it leases IP addresses to the Linux eth0 interface using the eth2 interface of router R4. Use the subnet you indicated in your previous assignment. Your subnet should be larger than a /30.

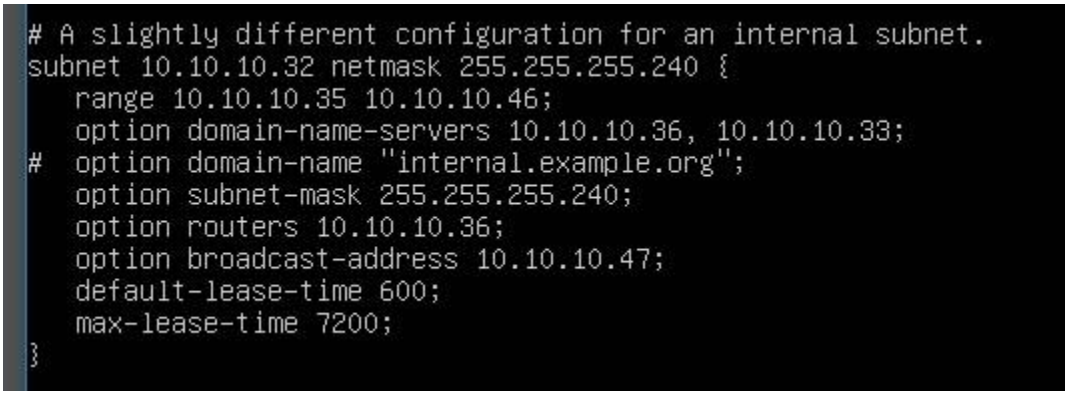


Configured the eth2 of r4 as subnet /28



Ubuntu configurations

2. The first step is to configure the dhcpd.conf file in Router R4. This file is present in /etc/dhcp.



DHCP configurations

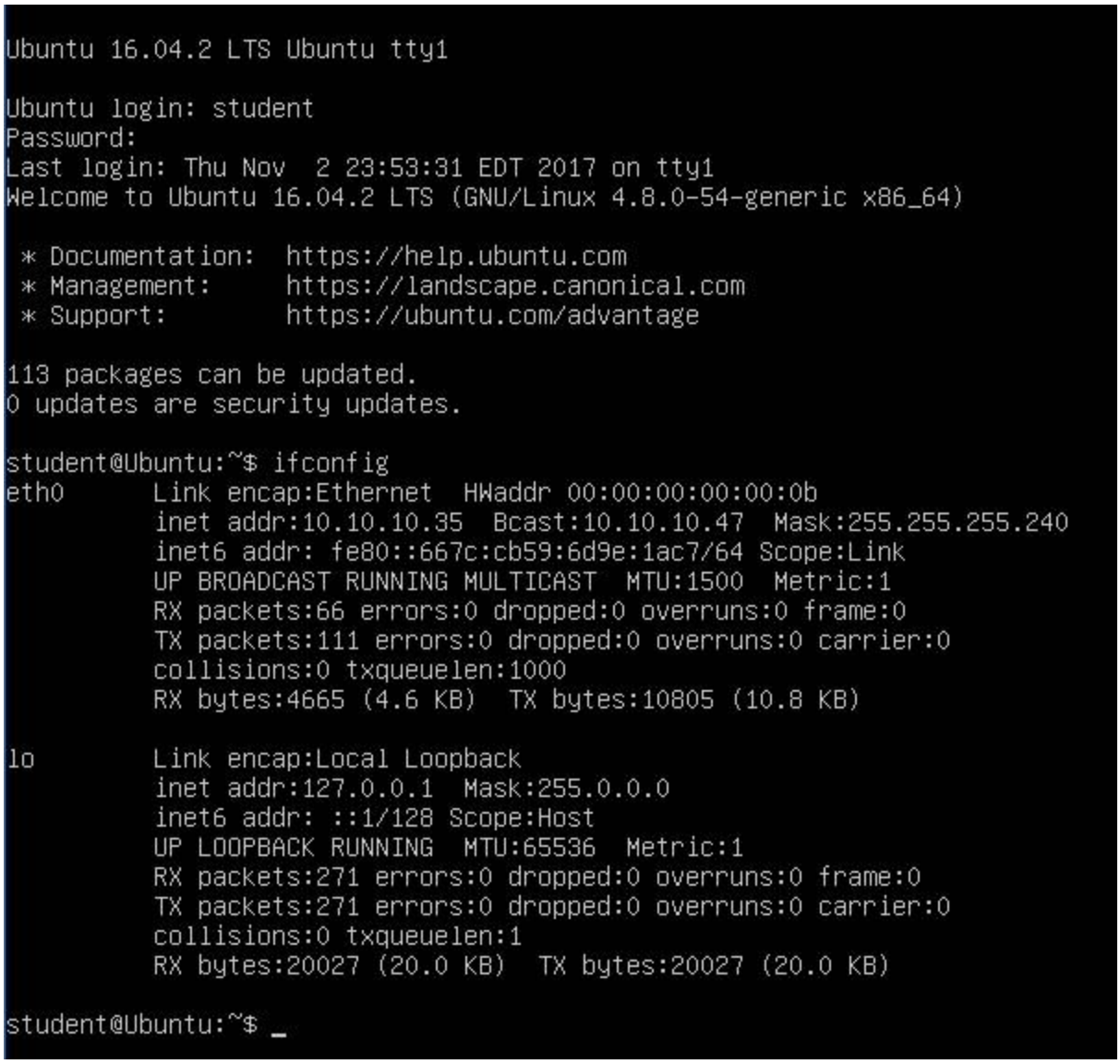
3. As there are multiple interfaces you will also need to edit /etc/defaults/isc-dhcp-server to indicate which of the interfaces dhcpd will run on.

```
# Defaults for isc-dhcp-server initscript
# sourced by /etc/init.d/isc-dhcp-server
# installed at /etc/default/isc-dhcp-server by the maintainer scripts

#
# This is a POSIX shell fragment
#

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPD_CONF=/etc/dhcp/dhcpd.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPD_PID=/var/run/dhcpd.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".
INTERFACES="eth2"
```

Changed the defaults to eth2

```
root@CN-R4:/home/student# /etc/init.d/isc-dhcp-server restart
[ ok ] Restarting isc-dhcp-server (via systemctl): isc-dhcp-server.service.
root@CN-R4:/home/student# 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 Fri 2017-11-03 10:37:57 EDT; 14s ago
     Docs: man:dhcpd(8)
 Main PID: 1573 (dhcpd)
   CGroup: /system.slice/isc-dhcp-server.service
           └─1573 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/dhcpd.pid -cf /etc/dhcp/d

Nov 03 10:37:57 CN-R4 dhcpd[1573]: All rights reserved.
Nov 03 10:37:57 CN-R4 dhcpd[1573]: For info, please visit https://www.isc.org/software/dhcp/
Nov 03 10:37:57 CN-R4 dhcpd[1573]: Wrote 0 leases to leases file.
Nov 03 10:37:57 CN-R4 dhcpd[1573]: Listening on LPF/eth2/00:00:00:00:00:0a/10.10.10.32/28
Nov 03 10:37:57 CN-R4 sh[1573]: Listening on LPF/eth2/00:00:00:00:00:0a/10.10.10.32/28
Nov 03 10:37:57 CN-R4 sh[1573]: Sending on   LPF/eth2/00:00:00:00:00:0a/10.10.10.32/28
Nov 03 10:37:57 CN-R4 sh[1573]: Sending on   Socket/fallback/fallback-net
Nov 03 10:37:57 CN-R4 dhcpd[1573]: Sending on   LPF/eth2/00:00:00:00:00:0a/10.10.10.32/28
Nov 03 10:37:57 CN-R4 dhcpd[1573]: Sending on   Socket/fallback/fallback-net
Nov 03 10:37:57 CN-R4 dhcpd[1573]: Server starting service.
root@CN-R4:/home/student# _
```

Status of the DHCP



Ubuntu ifconfig

```
# The format of this file is documented in the dhcpd.leases(5) manual page.
# This lease file was written by isc-dhcp-4.3.3

lease 10.10.10.35 {
  starts 5 2017/11/03 14:38:59;
  ends 5 2017/11/03 14:48:59;
  tstp 5 2017/11/03 14:48:59;
  cltt 5 2017/11/03 14:38:59;
  binding state free;
  hardware ethernet 00:00:00:00:00:0b;
}
server-duid "\000\001\000\001!\217;\305\000\000\000\000\000\012";

lease 10.10.10.35 {
  starts 0 2017/11/05 15:32:51;
  ends 0 2017/11/05 15:42:51;
  cltt 0 2017/11/05 15:32:51;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 00:00:00:00:00:0b;
  client-hostname "Ubuntu";
}
lease 10.10.10.35 {
  starts 0 2017/11/05 15:36:45;
  ends 0 2017/11/05 15:46:45;
  cltt 0 2017/11/05 15:36:45;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 00:00:00:00:00:0b;
  client-hostname "Ubuntu";
}
lease 10.10.10.35 {
  starts 0 2017/11/05 15:41:38;
  ends 0 2017/11/05 15:51:38;
  cltt 0 2017/11/05 15:41:38;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 00:00:00:00:00:0b;
  client-hostname "Ubuntu";
```

DHCP Leases