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The leases file on R4 found in */var/lib/dhcp/dhcpd.leases*

```
student@CN-R4:/var/lib/dhcp$ cat dhcpd.leases
# The format of this file is documented in the dhcpd.leases(5) manual page.
# This lease file was written by isc-dhcp-4.3.5

# authoring-byte-order entry is generated, DO NOT DELETE
authoring-byte-order little-endian;

server-duid "\000\001\000\001*\320hb\000\000\000\000\000\013";

lease 10.10.11.18 {
  starts 3 2022/10/05 16:08:14;
  ends 3 2022/10/05 16:13:14;
  cltt 3 2022/10/05 16:08:14;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 00:00:00:00:00:0c;
  client-hostname "Ubuntu";
}
lease 10.10.11.18 {
  starts 3 2022/10/05 16:10:38;
  ends 3 2022/10/05 16:15:38;
  cltt 3 2022/10/05 16:10:38;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 00:00:00:00:00:0c;
  client-hostname "Ubuntu";
}
lease 10.10.11.18 {
```

Configuration for the DHCP server

```
#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 10.10.11.16 netmask 255.255.255.240 {
  range 10.10.11.18 10.10.11.30;
#   option domain-name-servers ns1.internal.example.org;
#   option domain-name "internal.example.org";
 option subnet-mask 255.255.255.240;
 option routers 10.10.11.17;
 option broadcast-address 10.10.11.31;
 default-lease-time 300;
#   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.
```

Screenshot of ifconfig on Ubuntu

```
student@Ubuntu:~$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.10.11.18  netmask 255.255.255.240  broadcast 10.10.11.31
        inet6 fe80::200:ff:fe00:c  prefixlen 64  scopeid 0x20<link>
        ether 00:00:00:00:00:0c  txqueuelen 1000  (Ethernet)
        RX packets 80244  bytes 7257531 (7.2 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 81800  bytes 6560167 (6.5 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 138  bytes 10052 (10.0 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 138  bytes 10052 (10.0 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Screenshot showing Ubuntu pinging R4

```
student@Ubuntu: ~
File  Edit  Tabs  Help

student@Ubuntu:~$ ping 10.10.11.17
PING 10.10.11.17 (10.10.11.17) 56(84) bytes of data.
64 bytes from 10.10.11.17: icmp_seq=1 ttl=64 time=0.442 ms
64 bytes from 10.10.11.17: icmp_seq=2 ttl=64 time=0.403 ms
64 bytes from 10.10.11.17: icmp_seq=3 ttl=64 time=0.480 ms
64 bytes from 10.10.11.17: icmp_seq=4 ttl=64 time=0.441 ms
64 bytes from 10.10.11.17: icmp_seq=5 ttl=64 time=0.521 ms
64 bytes from 10.10.11.17: icmp_seq=6 ttl=64 time=0.555 ms
64 bytes from 10.10.11.17: icmp_seq=7 ttl=64 time=0.392 ms
64 bytes from 10.10.11.17: icmp_seq=8 ttl=64 time=0.456 ms
64 bytes from 10.10.11.17: icmp_seq=9 ttl=64 time=0.447 ms
64 bytes from 10.10.11.17: icmp_seq=10 ttl=64 time=0.691 ms
64 bytes from 10.10.11.17: icmp_seq=11 ttl=64 time=0.392 ms
```

Screenshot showing Wireshark DHCP messages

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transacti
2	11.943363538	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transacti
4	32.095507899	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transacti
7	51.700395673	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transacti
45	71.619752507	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transacti
47	72.621769960	10.10.11.17	10.10.11.18	DHCP	342	DHCP Offer - Transacti
48	72.622132963	0.0.0.0	255.255.255.255	DHCP	342	DHCP Request - Transacti
49	72.636481961	10.10.11.17	10.10.11.18	DHCP	342	DHCP ACK - Transacti

udp.port == 67   Expression... +