

Approximate time to complete this assignment: 12 hours

On Machine A, install the ISC DHCP server and configure it to set the network configuration and new hostname for machines B-F.

First, I changed the hostname of A manually, by editing the `/etc/hostname` file and replacing the old hostname with **router.dundermifflin.com**.

The lease time must be 10 minutes.

I added these two lines in `/etc/dhcp/dhcpd.conf` file:

```
default-lease-time 600;  
max-lease-time 600;
```

The lease times take seconds as value, hence added 600s (10 minutes).

All machines must use 128.138.240.1 and 128.138.130.30 as name servers and the domain name must be dundermifflin.com.

```
option domain-name-servers 128.138.240.1, 128.138.130.30;
```

The LAN and DMZ subnets must each have a DHCP pool where the last octet is in the range 100-199.

```
#LAN  
subnet 10.21.32.0 netmask 255.255.255.0 {  
    range 10.21.32.100 10.21.32.199;  
    option routers 10.21.32.1;  
}  
  
#DMZ  
subnet 100.64.26.0 netmask 255.255.255.0 {  
    range 100.64.26.100 100.64.26.199;  
    option routers 100.64.26.1;  
}
```

Set the NTP servers to be time-a-wwv.nist.gov and time-a-b.nist.gov.

```
option ntp-servers 132.163.97.1, 132.163.96.1;
```

Set the DHCP server to first send an ICMP Echo request to the address it is considering to dynamically allocate and wait 100 milliseconds for a reply. If a reply is heard, the server must not respond and the lease must be abandoned for ten minutes.

```
# Enable ping-check globally
ping-check true;
#
# Set the ping timeout to 100 milliseconds
ping-timeout-ms 100;
#
# Set the abandon-lease-time to 600 seconds (10 minutes)
abandon-lease-time 600;
```

Client Configuration:

Configure Machines B to F to obtain their network configuration and hostname from Machine A using DHCP. Example configuration for two machines:

```
host dns0 {
    hardware ethernet 00:50:56:89:3e:7a;
    fixed-address 100.64.26.2;
    option routers 100.64.26.1;
    option host-name "dns0.dundermifflin.com";
}

host nfs {
    hardware ethernet 00:50:56:89:7f:99;
```

```
fixed-address 10.21.32.2;
option routers 10.21.32.1;
option host-name "nfs.dundermifflin.com";
}
```

We want all the machines to have the same IP address (*hence the fixed-address*). The default gateway is set to be the IP address of the one that connects to Machine A's interface (*which is in the same subnet*).

Interface and DHCP Configuration on Clients:

For Debian, use the "systemctl status networking" service to manage interfaces. Update the "/etc/network/interfaces" file to use DHCP configuration.

For Redhat, use "systemctl status NetworkManager" to manage interfaces. Update the "/etc/NetworkManager/system-connections/ens192.nmconnection" file to use automatic configuration.

Debian:

Update the /etc/network/interfaces file from

```
allow-hotplug ens192
iface ens192 inet static
address 100.64.42.6 netmask 255.255.255.0 gateway 100.64.42.1
```

To

```
allow-hotplug ens192
iface ens192 inet dhcp
```

Redhat:

Update /etc/NetworkManager/system-connections/ens192.nmconnection:

```
[ipv4]
method=manual
address1=100.64.42.6/24,100.64.42.1
```

To

```
[ipv4]
method=auto
```

The above would force clients to take configuration from DHCP.

Updating Hostnames on Clients:

Remove the `/etc/hostname` file to ensure dynamically assigned hostnames are used.
Comment out the line in `/etc/dhcp/dhclient.conf` that sets the host-name.

```
send host-name = gethostname();
```

NTP Servers and DNS Configuration on Clients:

For NTP servers, comment out this line in `/etc/chrony/chrony.conf` to pick up NTP servers from DHCP:

```
2.pool.ntp.org
```

For DNS servers, NetworkManager automatically manages `/etc/resolv.conf`.