

## Bài thực hành 08

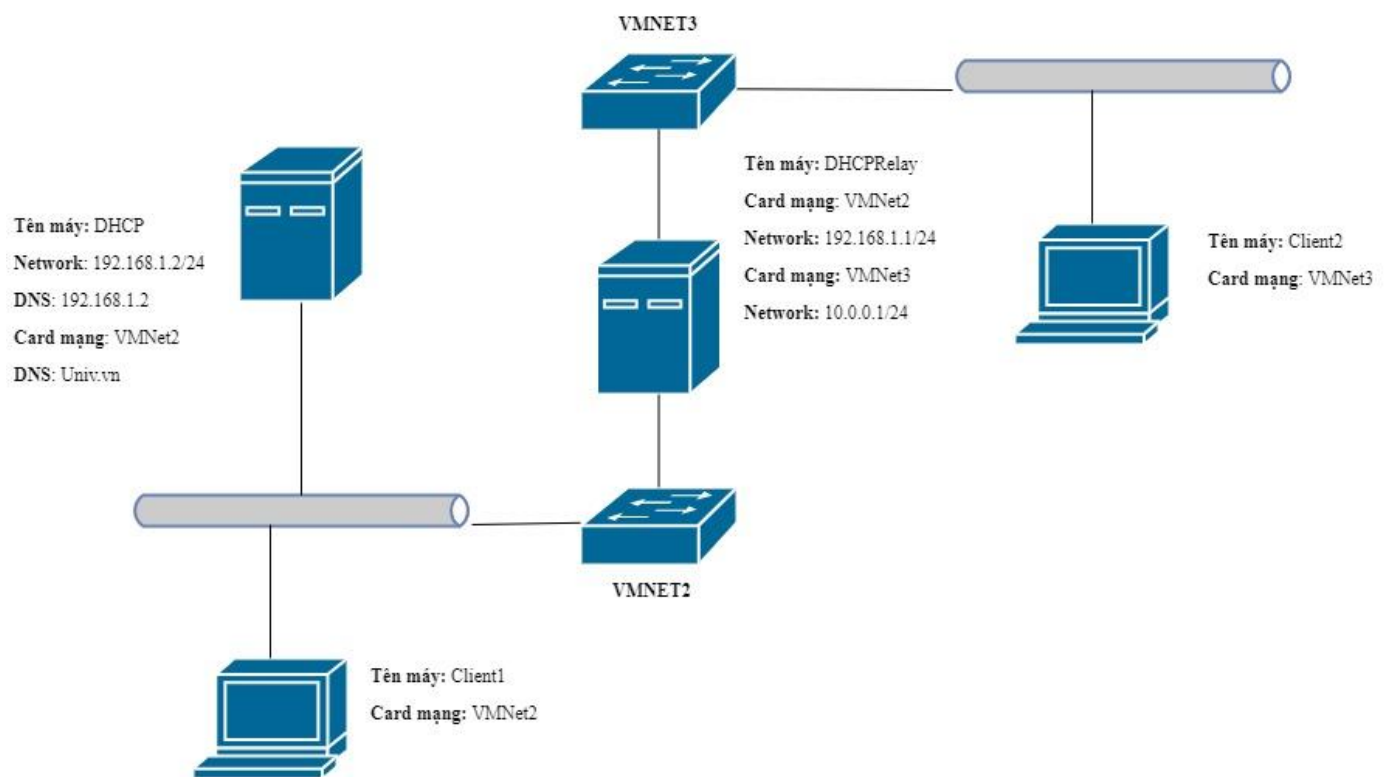
### Cấu hình dịch vụ DHCP Relay

Yêu cầu: Sinh viên thực hành trên hệ điều hành Ubuntu hoặc CentOS đã cài đặt trước. Sau mỗi bài lab, thực hiện Snapshot để lưu lại quá trình làm.

#### I. Cấu hình DHCP Relay

Chuẩn bị: 4 máy, đặt tên lần lượt là DHCP, DHCPRelay, Client1 và Client2.

Địa chỉ IP mạng cấu hình theo sơ đồ sau



Yêu cầu:

- Cấu hình địa chỉ IP tĩnh trên máy DHCP.

## Hệ điều hành Linux – Lab08

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

☐ Automatic (DHCP) ☐ Link-Local Only

☒ Manual ☐ Disable

**Addresses**

Address	Netmask	Gateway	
192.168.1.2	255.255.255.0	192.168.1.1	✕
			✕

**DNS** Automatic **ON**

192.168.1.2

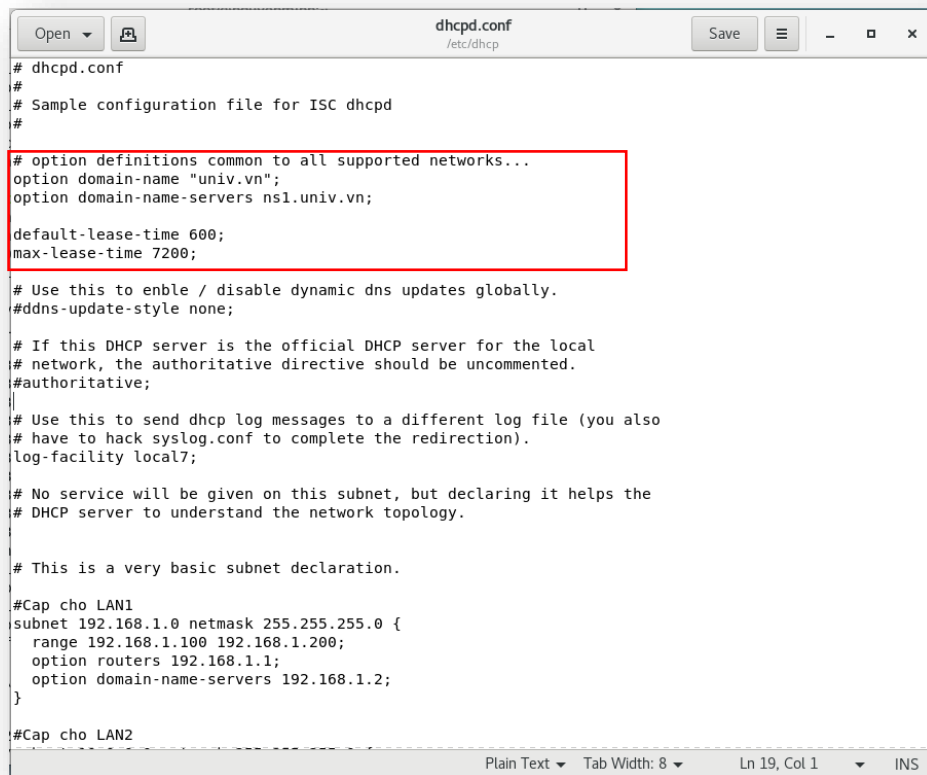
Separate IP addresses with commas

**Routes** Automatic **ON**

Address	Netmask	Gateway	Metric	
				✕

- Cấu hình DHCP trên máy DHCP (Làm tương tự Lab07), kiểm tra kết quả cấp phát trên máy Client1

## Hệ điều hành Linux – Lab08



```
# dhcpd.conf
#
# Sample configuration file for ISC dhcpd
#
# option definitions common to all supported networks...
option domain-name "univ.vn";
option domain-name-servers ns1.univ.vn;

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

# Use this to enable / disable dynamic dns updates globally.
#ddns-update-style none;

# If this DHCP server is the official DHCP server for the local
# network, the authoritative directive should be uncommented.
#authoritative;

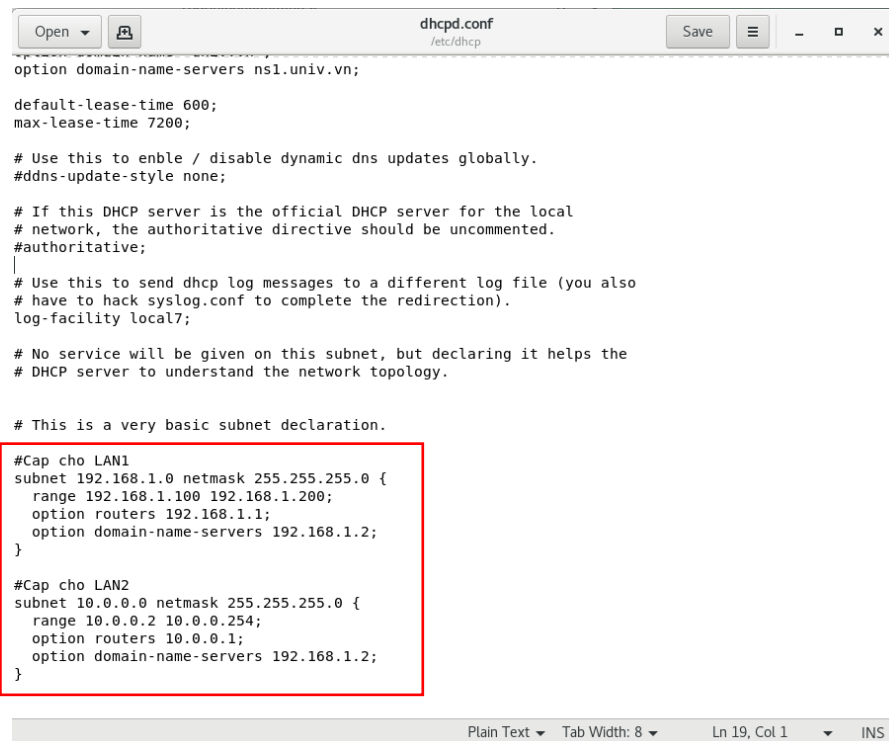
# Use this to send dhcp log messages to a different log file (you also
# have to hack syslog.conf to complete the redirection).
log-facility local7;

# No service will be given on this subnet, but declaring it helps the
# DHCP server to understand the network topology.

# This is a very basic subnet declaration.

#Cap cho LAN1
subnet 192.168.1.0 netmask 255.255.255.0 {
    range 192.168.1.100 192.168.1.200;
    option routers 192.168.1.1;
    option domain-name-servers 192.168.1.2;
}

#Cap cho LAN2
```



```
option domain-name-servers ns1.univ.vn;

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

# Use this to enable / disable dynamic dns updates globally.
#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.

# This is a very basic subnet declaration.

#Cap cho LAN1
subnet 192.168.1.0 netmask 255.255.255.0 {
    range 192.168.1.100 192.168.1.200;
    option routers 192.168.1.1;
    option domain-name-servers 192.168.1.2;
}

#Cap cho LAN2
subnet 10.0.0.0 netmask 255.255.255.0 {
    range 10.0.0.2 10.0.0.254;
    option routers 10.0.0.1;
    option domain-name-servers 192.168.1.2;
}
```

## Hệ điều hành Linux – Lab08

```
[root@nguyenminh ~]# service dhcpd start
Redirecting to /bin/systemctl start dhcpd.service
[root@nguyenminh ~]# service dhcpd status
Redirecting to /bin/systemctl status dhcpd.service
● dhcpd.service - DHCPv4 Server Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcpd.service; disabled; vendor preset: disabled)
   Active: active (running) since Fri 2024-04-19 15:59:34 +07; 3s ago
     Docs: man:dhcpd(8)
           man:dhcpd.conf(5)
   Main PID: 10042 (dhcpd)
    Status: "Dispatching packets..."
      Tasks: 1
   CGroup: /system.slice/dhcpd.service
           └─10042 /usr/sbin/dhcpd -f -cf /etc/dhcp/dhcpd.conf -user dhcpd -g...

Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: No subnet declaration fo...
Apr 19 15:59:34 nguyenminh.localdomain systemd[1]: Started DHCPv4 Server Daemon.
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: ** Ignoring requests on ...
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: you want, please writ...
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: in your dhcpd.conf fi...
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: to which interface vi...
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: nt
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: Listening on LPF/ens33/0...
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: Sending on LPF/ens33/0...
Apr 19 15:59:34 nguyenminh.localdomain dhcpd[10042]: Sending on Socket/fall...
Hint: Some lines were ellipsized, use -l to show in full.
```

```
[root@nguyenminh ~]# cat /var/lib/dhcpd/dhcpd.leases
# The format of this file is documented in the dhcpd.leases(5) manual page.
# This lease file was written by isc-dhcp-4.2.5

server-uid "\000\001\000\001-\264\356\366\000\014)\364\322\353";

lease 192.168.1.100 {
    starts 5 2024/04/19 09:01:02;
    ends 5 2024/04/19 09:11:02;
    cltt 5 2024/04/19 09:01:02;
    binding state active;
    next binding state free;
    rewind binding state free;
    hardware ethernet 00:0c:29:ff:01:8e;
    client-hostname "nguyenminh";
}

lease 192.168.1.100 {
    starts 5 2024/04/19 09:01:26;
    ends 5 2024/04/19 09:11:26;
    cltt 5 2024/04/19 09:01:26;
    binding state active;
    next binding state free;
    rewind binding state free;
    hardware ethernet 00:0c:29:ff:01:8e;
    client-hostname "nguyenminh";
}
```

- Cấu hình địa chỉ IP tĩnh trên máy DHCP Relay.

## Hệ điều hành Linux – Lab08

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

☐ Automatic (DHCP) ☐ Link-Local Only

☒ Manual ☐ Disable

**Addresses**

Address	Netmask	Gateway
192.168.1.1	255.255.255.0	

**DNS** Automatic **ON**

Separate IP addresses with commas

**Routes** Automatic **ON**

Address	Netmask	Gateway	Metric

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

☐ Automatic (DHCP) ☐ Link-Local Only

☒ Manual ☐ Disable

**Addresses**

Address	Netmask	Gateway
10.0.0.1	255.255.255.0	

**DNS** Automatic **ON**


Separate IP addresses with commas

**Routes** Automatic **ON**

Address	Netmask	Gateway	Metric

- Cấu hình DHCP Relay ở file *dhcrelay.service*

## Hệ điều hành Linux – Lab08



```
Open [icon] dhcrelay.service /usr/lib/systemd/system Save [menu] [window controls]

[Unit]
Description=DHCP Relay Agent Daemon
Documentation=man:dhcrelay(8)
Wants=network-online.target
After=network-online.target

[Service]
Type=notify
ExecStart=/usr/sbin/dhcrelay -d --no-pid 192.168.1.2

[Install]
WantedBy=multi-user.target
```



```
Open [icon] dhcrelay.service /etc/systemd Save [menu] [window controls]

[Unit]
Description=DHCP Relay Agent Daemon
Documentation=man:dhcrelay(8)
Wants=network-online.target
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[Service]
Type=notify
ExecStart=/usr/sbin/dhcrelay -d --no-pid |192.168.1.2

[Install]
WantedBy=multi-user.target
```

## Hệ điều hành Linux – Lab08

```
[root@nguyenminh ~]# systemctl enable dhcrelay
Created symlink from /etc/systemd/system/multi-user.target.wants/dhcrelay.service to /usr/lib/systemd/system/dhcrelay.service.
[root@nguyenminh ~]# systemctl --system daemon-reload
[root@nguyenminh ~]# systemctl --system daemon-reexec
[root@nguyenminh ~]# systemctl force-reload dhcrelay.service
[root@nguyenminh ~]# systemctl restart dhcrelay.service
[root@nguyenminh ~]# systemctl status dhcrelay.service
● dhcrelay.service - DHCP Relay Agent Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcrelay.service; enabled; vendor preset: disabled)
   Active: active (running) since Fri 2024-04-19 16:15:11 +07; 5s ago
     Docs: man:dhcrelay(8)
    Main PID: 10316 (dhcrelay)
    Status: "Dispatching packets..."
     Tasks: 1
    CGroup: /system.slice/dhcrelay.service
            └─10316 /usr/sbin/dhcrelay -d --no-pid 192.168.1.2
```

- Kiểm tra kết quả cấp phát trên máy Client2 và DHCP.

```
lease 192.168.1.100 {
  starts 5 2024/04/19 09:18:48;
  ends 5 2024/04/19 09:28:48;
  cltt 5 2024/04/19 09:18:48;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 00:0c:29:ff:01:8e;
  client-hostname "nguyenminh";
}
lease 10.0.0.2 {
  starts 5 2024/04/19 09:19:26;
  ends 5 2024/04/19 09:29:26;
  cltt 5 2024/04/19 09:19:26;
  binding state active;
  next binding state free;
  rewind binding state free;
  hardware ethernet 00:0c:29:1e:35:9f;
  client-hostname "nguyenminh";
}
```

## **II. Bài tập**

Cấu hình dịch vụ DNS phân giải tên miền ***univ.vn*** với địa chỉ IP 192.168.1.2

***Lưu ý: Sau khi hoàn thành tất cả bài Lab, thực hiện snapshot các máy, đặt tên là Lab8.***