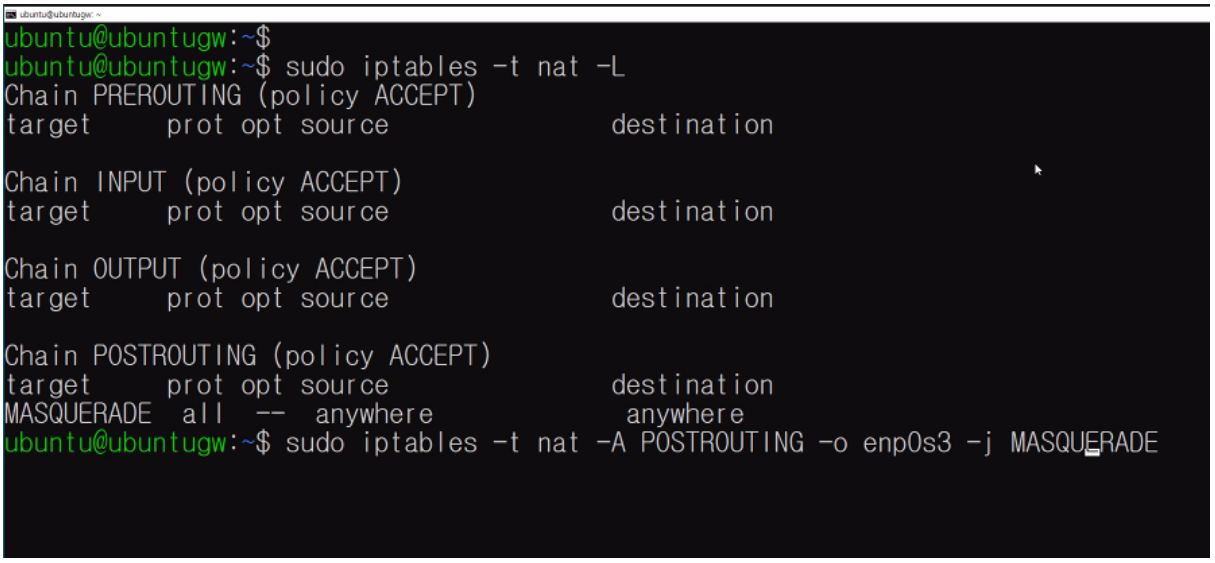
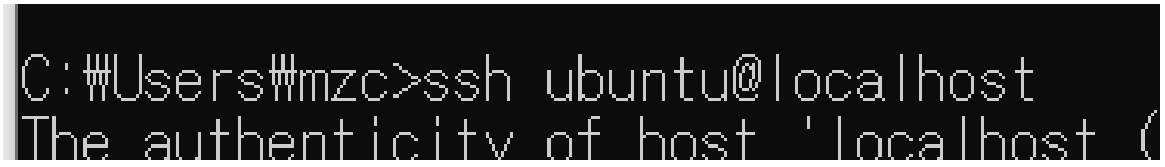
12/28 DNS

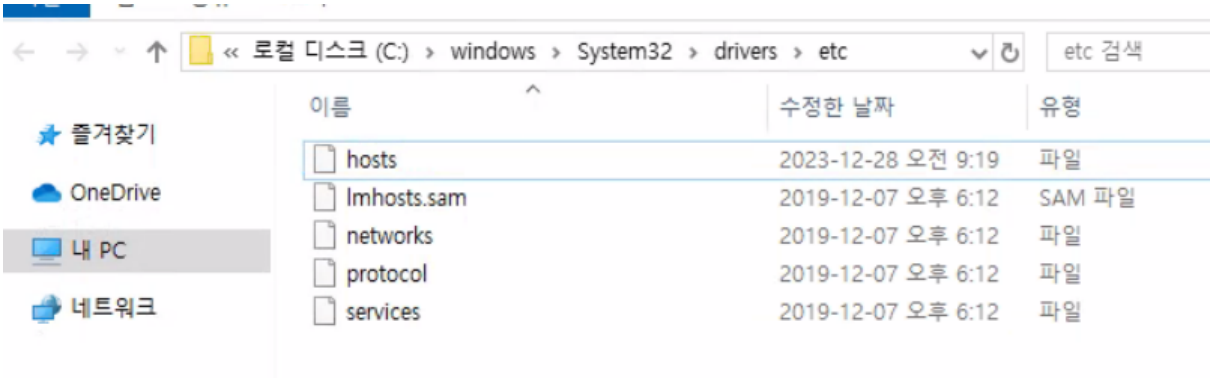
제목

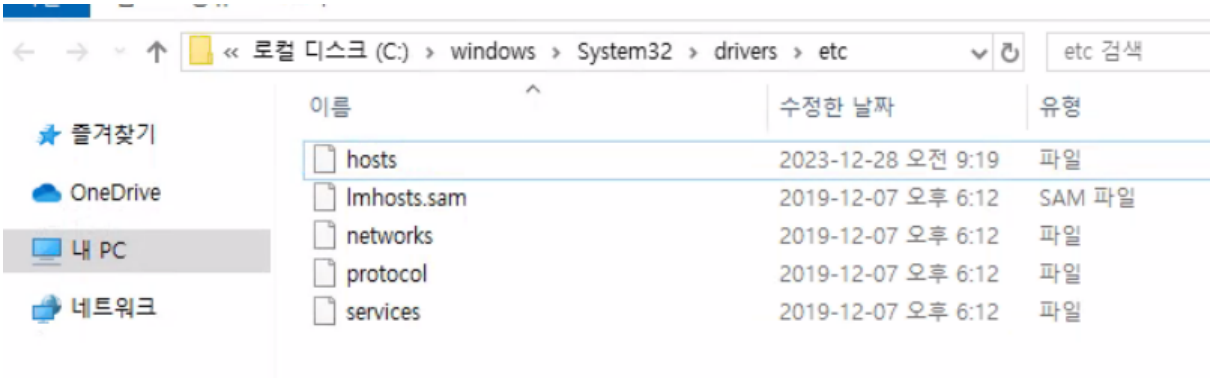


로컬에서 우분투gw 들어가는 방법



```
Last login: Thu Dec 28 00:09:33 2023
ubuntu@ubuntugw:~$ sudo iptables -t nat -L
[sudo] password for ubuntu:
Chain PREROUTING (policy ACCEPT)
target     prot opt source               destination

Chain INPUT (policy ACCEPT)
target     prot opt source               destination

Chain OUTPUT (policy ACCEPT)
target     prot opt source               destination

Chain POSTROUTING (policy ACCEPT)
target     prot opt source               destination
ubuntu@ubuntugw:~$ sudo iptables -t nat -A POSTROUTING -o enp0s3 -j MASQUERADE
ubuntu@ubuntugw:~$
```





→ 윈도우에서는 이렇게 접속했었지.

리눅스에서는 hosts 파일을 /etc/hosts 에서 도메인 이름 형식으로 접근할 수 있어

우분투 서버에서 dns 설정

```
ubuntu@ubuntugw:~$ sudo apt-get install bind9
```

```
ubuntu@ubuntugw:~$ sudo systemctl status named
● named.service - BIND Domain Name Server
     Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
     Active: active (running) since Thu 2023-12-28 00:22:32 UTC; 1min 21s ago
       Docs: man:named(8)
    Process: 1860 ExecStart=/usr/sbin/named $OPTIONS (code=exited, status=0/SUCCESS)
   Main PID: 1868 (named)
      Tasks: 6 (limit: 2220)
     Memory: 6.3M
        CPU: 34ms
     CGroup: /system.slice/named.service
             └─1868 /usr/sbin/named -u bind

Dec 28 00:22:32 ubuntugw named[1868]: network unreachable resolving './DNSKEY/IN': 2001:500:12:
Dec 28 00:22:32 ubuntugw named[1868]: network unreachable resolving './NS/IN': 2001:500:12::d0d
Dec 28 00:22:32 ubuntugw named[1868]: running
Dec 28 00:22:32 ubuntugw systemd[1]: Started BIND Domain Name Server.
Dec 28 00:22:32 ubuntugw named[1868]: managed-keys-zone: Initializing automatic trust anchor ma
Dec 28 00:22:32 ubuntugw named[1868]: resolver priming query complete: success
Dec 28 00:22:32 ubuntugw named[1868]: checkhints: b.root-servers.net/A (170.247.170.2) missing
Dec 28 00:22:32 ubuntugw named[1868]: checkhints: b.root-servers.net/A (199.9.14.201) extra rec
Dec 28 00:22:32 ubuntugw named[1868]: checkhints: b.root-servers.net/AAAA (2801:1b8:10::b) miss
Dec 28 00:22:32 ubuntugw named[1868]: checkhints: b.root-servers.net/AAAA (2001:500:200::b) ext
lines 1-22/22 (END)
```

서비스 이름은 named

```
ubuntu@ubuntugw:~$
ubuntu@ubuntugw:~$ sudo vi /etc/bind/named.conf.local
ubuntu@ubuntugw:~$
```

```
zone "min-domain.com" {
};
~
~
```

```
zone "min-domain.com" {
        type primary;
        file "/etc/bind/zones/db.min-domain.com";
};
```

```
ubuntu@ubuntugw:~$ sudo vi /etc/bind/named.conf.local
ubuntu@ubuntugw:~$ sudo vi /etc/bind/named.conf.options
```

```
        //
        // If BIND logs error messages about the root key being expired,
        // you will need to update your keys.  See https://www.isc.org/bind
        //
        dnssec-validation auto;
        listen-on { any; };
        recursion yes;
        forwarders {
                8.8.8.8;
                8.8.4.4;
        }
        listen-on-v6 { any; };
};
"/etc/bind/named.conf.options" 29L, 921B written                    26,10-2
```


dns 는 53번 포트 사용

53번 포트의 청취 상태를 활성화 시켜준다

```
        // If BIND logs error messages about the root key being expired,
        // you will need to update your keys.  See https://www.isc.org/bind-keys
        //
        dnssec-validation auto;
        listen-on { any; };
        recursion yes;
        forwarders {
                8.8.8.8;
                8.8.4.4;
        }
        listen-on-v6 { any; };
};
"/etc/bind/named.conf.options" 29L, 921B written                    26,10-24      Bot
```

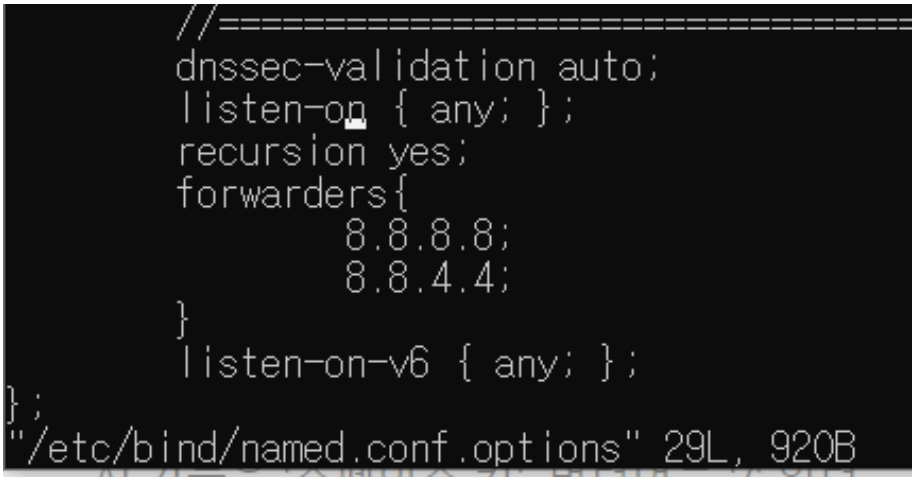

recursion 은 재귀 기능을 활성화 시켜주는 거

→ 만약에 www.naver.co.kr 도메인 주소를 어떤 식으로 찾냐면 dns 서버 여러개가 있는데

root 서버가 있고, 뭐 kr, co 이런거 dns 서버가 있고 naver.co.kr dns 이런 식으로 있는데

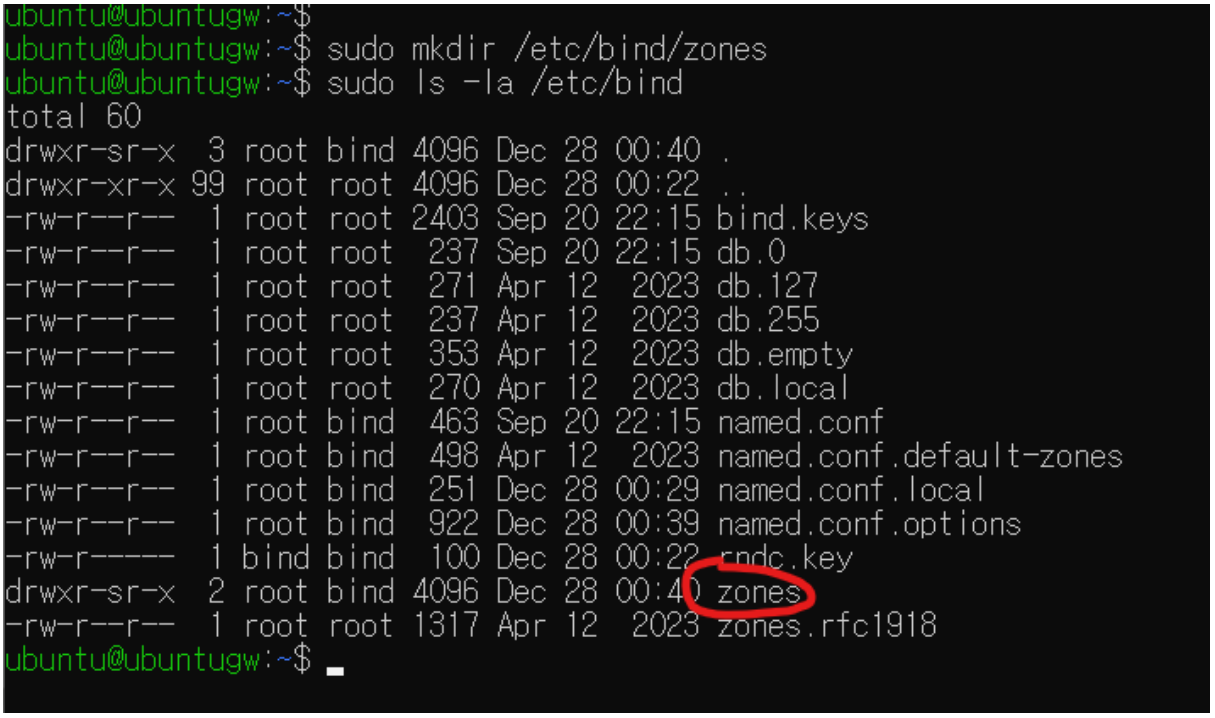
재귀가 활성화 되어 있으면 naver.co.kr 에서 맨 끝에 보이지 않는 root 를 먼저 찾아가고 kr→co.kr 이런식으로 찾아서 올라가는 거야

dns 서버에 계속 재귀 호출하는 기능을 하겠다는거 → recursion



이래도 안되면

forwarders 로 응답을 찾는 방식이 진행 됨



```
ubuntu@ubuntugw:~$ sudo cp /etc/bind/db.local /etc/bind/zones/db.min-domain.com
ubuntu@ubuntugw:~$ sudo cat /etc/bind/named.conf.local
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "min-domain.com" {
        type primary;
        file "/etc/bind/zones/db.min-domain.com";
};
```

```
;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     hyun-domain.com admin.hyun-domain.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      localhost.
@       IN      A       127.0.0.1
@       IN      AAAA    ::1
~
```

```
;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     min-domain.com. admin.min-domain.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      ns1.min-domain.com.
ns1.min-domain.com.     IN      A       192.168.56.53
~
```

```
;
@       IN      NS      ns1.min-domain.com.
ns1     IN      A       192.168.56.53
~
~
```

이렇게 해줘도 됨

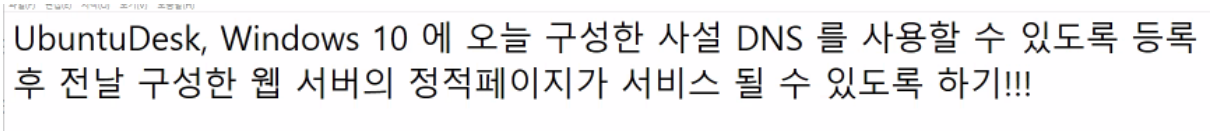
```
@       IN      NS      ns1.min-domain.com.
ns1     IN      A       192.168.56.53
@       IN      A       192.168.56.10
www     IN      A       192.168.56.10
```

이런 식으로

```
# This is the network config written by 'subiquity'
network:
  ethernets:
    enp0s3:
      dhcp4: true
    enp0s8:
      dhcp4: true
      addresses: [192.168.56.53/24]
    enp0s9:
      dhcp4: true
  version: 2
~
```

```
ubuntu@ubuntugw:~$ nslookup min-domain.com 192.168.56.53
Server:         192.168.56.53
Address:        192.168.56.53#53

Name:   min-domain.com
Address: 192.168.56.10
```

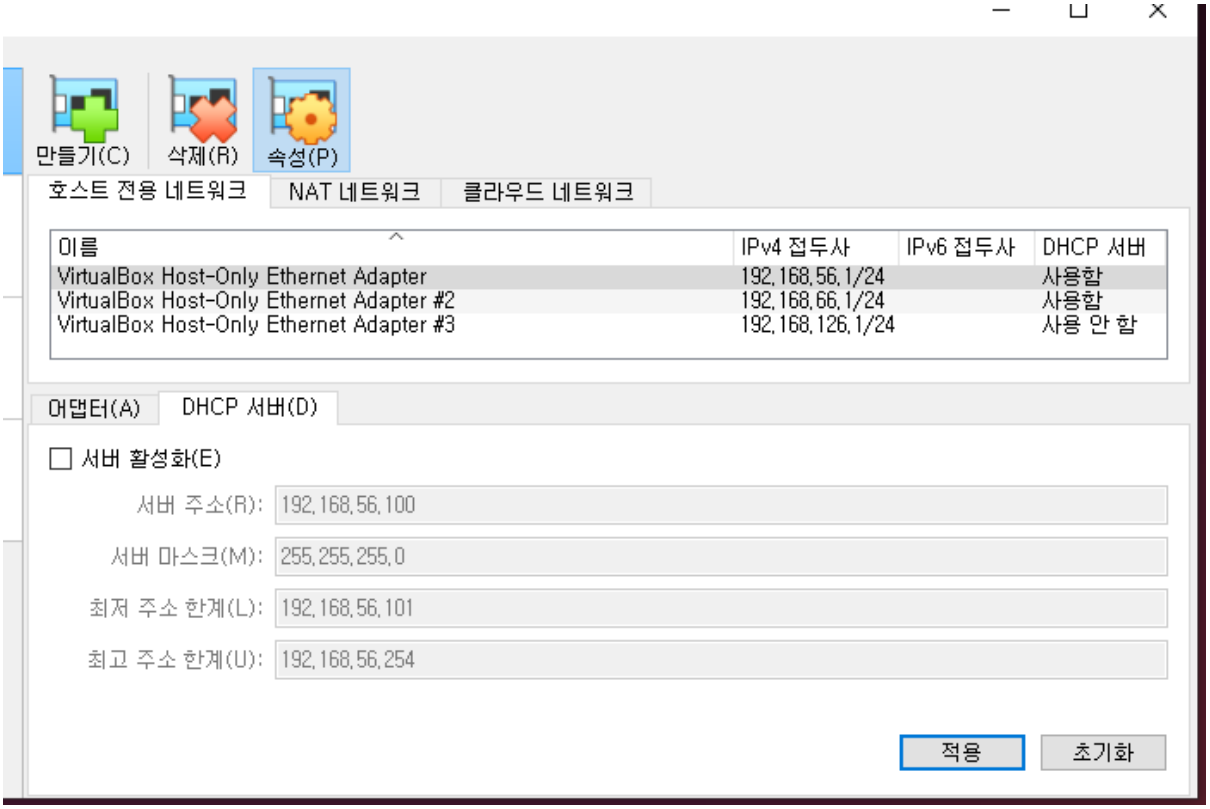
UbuntuDesk, Windows 10 사설 DNS 사용할 수 있도록 등록



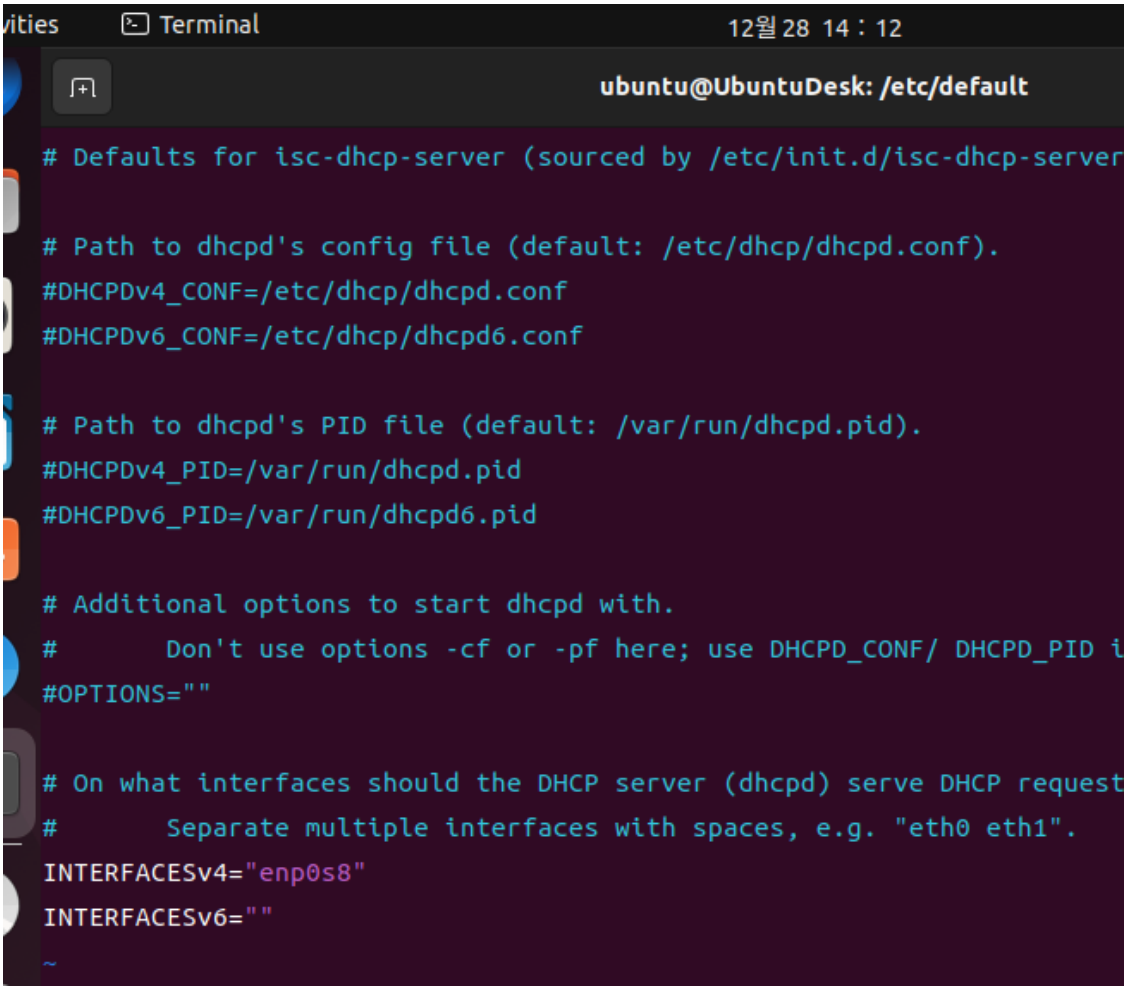
```
127.0.0.1       localhost
127.0.1.1       UbuntuDesk.UbuntuDesk   UbuntuDesk
192.168.56.53   min-domain.com
192.168.56.10   www
192.168.56.10   @
# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
~
```

Ubuntugw 에 DHCP 서버 기능을 추가 설치 및 구성(일반 클라이언트 PC에 자동으로 IP 주소, GW 주소, DNS 주소 정보가 설정)

ubuntugw 에 DHCP 서버 기능을 추가 설치 및 구성하여 일반 클라이언트 PC에 자동으로 IP 주소, GW 주소, DNS 주소 정보가 설정 될 수 있도록 합니다.


만들기(C)
삭제(R)
속성(P)
호스트 전용 네트워크
NAT 네트워크
클라우드 네트워크
이름
IPv4 접두사
IPv6 접두사
DHCP 서버
VirtualBox Host-Only Ethernet Adapter
192.168.56.1/24
사용함
VirtualBox Host-Only Ethernet Adapter #2
192.168.66.1/24
사용함
VirtualBox Host-Only Ethernet Adapter #3
192.168.126.1/24
사용 안 함
어댑터(A)
DHCP 서버(D)
서버 활성화(E)
서버 주소(R):
192.168.56.100
서버 마스크(M):
255.255.255.0
최저 주소 한계(L):
192.168.56.101
최고 주소 한계(U):
192.168.56.254
적용
초기화

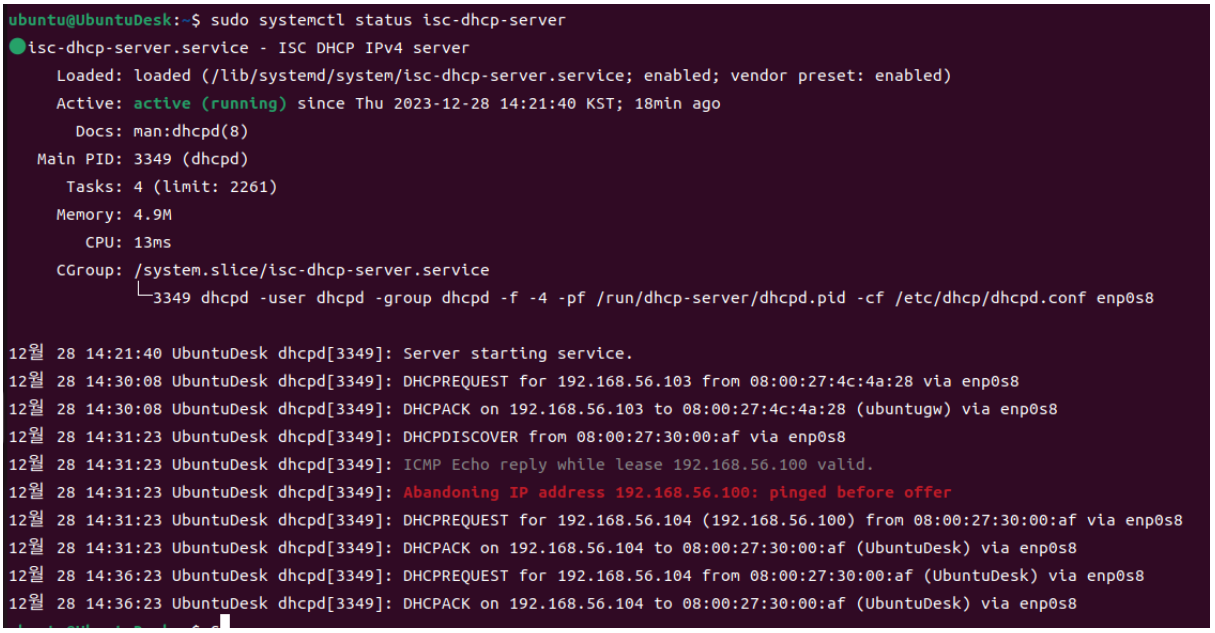

ubuntu@UbuntuDesk: /etc/dhcp
No service will be given on this subnet, but declaring it helps the
DHCP server to understand the network topology.
#subnet 10.152.187.0 netmask 255.255.255.0 {
#}
# This is a very basic subnet declaration.
subnet 192.168.56.0 netmask 255.255.255.0 {
range 192.168.56.100 192.168.56.200;
option routers 192.168.56.1;
option domain-name-servers 192.168.56.53;
option domain-name "min-domain.com";
}
#subnet 10.254.239.0 netmask 255.255.255.224 {
range 10.254.239.10 10.254.239.20;
option routers rtr-239-0-1.example.org, rtr-239-0-2.example.org;
#}
:wq


ities
Terminal
12월 28 14 : 12
ubuntu@UbuntuDesk: /etc/default
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 i
#OPTIONS=""
# On what interfaces should the DHCP server (dhcpd) serve DHCP request
# Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="enp0s8"
INTERFACESv6=""
~

ubuntu@ubuntugw: ~

```
# Use this to send dhcp log messages to a different log fi
# have to hack syslog.conf to complete the redirection).
#log-facility local7;

# No service will be given on this subnet, but declaring i
subnet 192.168.56.0 netmask 255.255.255.0 {
  range 192.168.56.100 192.168.56.200;
  option routers 192.168.56.1;
  option domain-name-servers 192.168.56.53;
  option domain-name "min-domain.com";
}
# DHCP server to understand the network topology.

#subnet 10.152.187.0 netmask 255.255.255.0 {
#}

# This is a very basic subnet declaration.
```

```
# 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=""
~
~
~
~
```



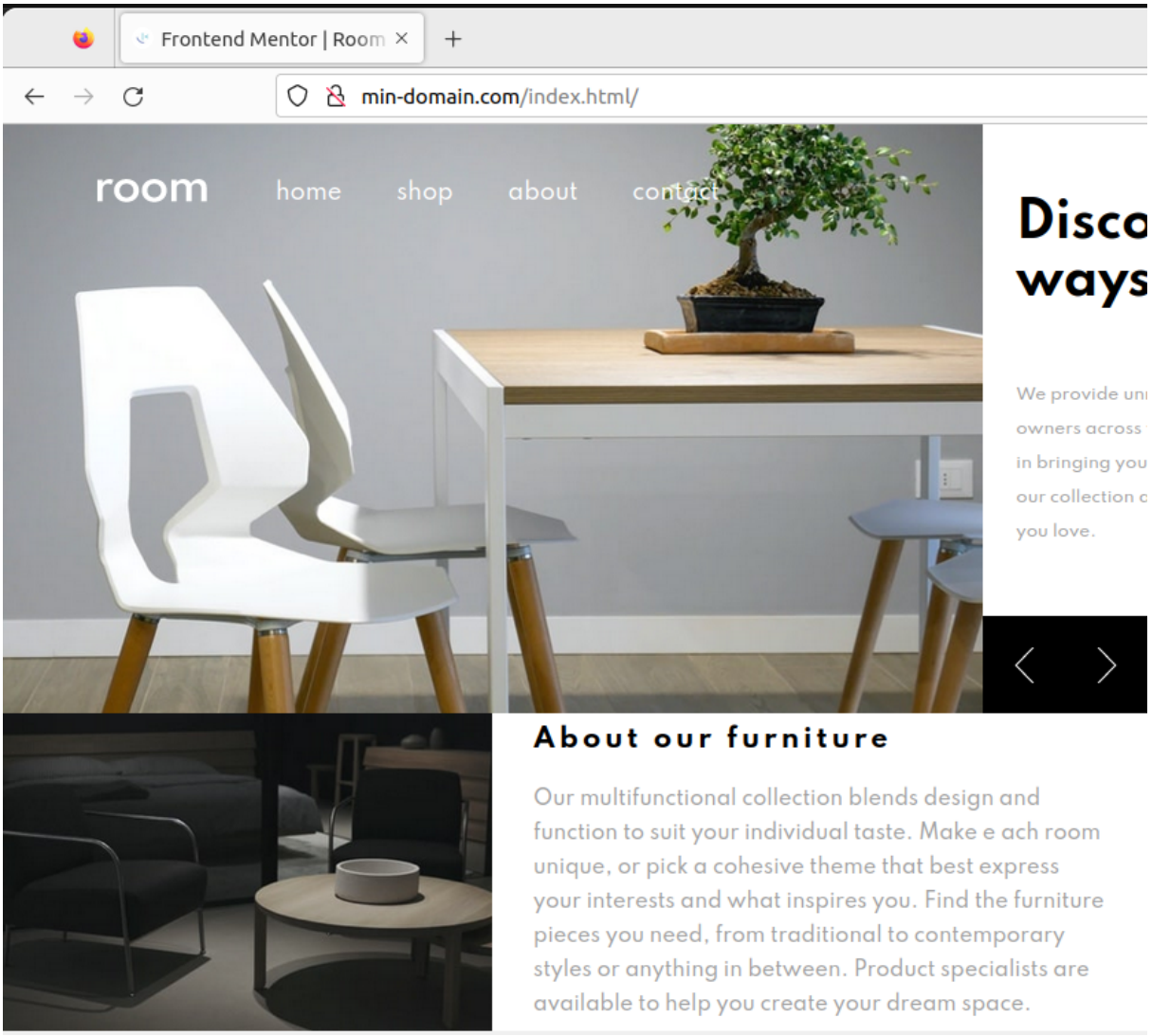
주어진 로그에서 DHCP 서버의 상태 및 클라이언트에 대한 동작을 설명하겠습니다:

1. **서비스 상태:**
   - DHCP 서버는 `Active: active (running)` 상태이며, `Main PID`는 3349로 나와 있습니다. 이는 DHCP 서버가 현재 실행 중이라는 것을 의미합니다.
2. **클라이언트 IP 주소 할당 이벤트:**
   - `12월 28 14:30:08`: `ubuntugw`라는 클라이언트가 IP 주소 `192.168.56.103`을 요청하고 성공적으로 받았습니다.
   - `12월 28 14:31:23`: `UbuntuDesk`라는 클라이언트가 DHCPDISCOVER를 통해 서버에 IP 주소를 요청합니다. 이때 DHCP 서버는 이미 사용 중인 IP 주소 `192.168.56.100`에 대한 ICMP Echo Reply를 받고, 이 주소를 포기합니다(`Abandoning IP address 192.168.56.100: pinged before offer`).
   - 다시 `UbuntuDesk` 클라이언트가 IP 주소 `192.168.56.104`를 요청하고 성공적으로 받았습니다.
   - `12월 28 14:36:23`: `UbuntuDesk` 클라이언트가 IP 주소 `192.168.56.104`를 요청하고 성공적으로 받았습니다.
3. **서버 로그:**
   - `Server starting service.`: DHCP 서버가 서비스 시작을 로그에 남겼습니다.
   - `ICMP Echo reply while lease 192.168.56.100 valid.`: DHCP 서버가 IP 주소 `192.168.56.100`에 대한 ICMP Echo Reply를 받은 적이 있습니다.
   - `Abandoning IP address 192.168.56.100: pinged before offer`: 클라이언트가 IP 주소 `192.168.56.100`을 요청하기 전에 이미 사용 중이라는 것을 확인하고 해당 IP 주소를 포기했습니다.

이 로그는 DHCP 서버가 클라이언트에게 IP 주소를 할당하고, 클라이언트들이 요청하는 동안 발생하는 여러 이벤트를 기록하고 있습니다. 현재 시스템에서 DHCP 서버는 정상적으로 동작하며, 클라이언트들에게 IP 주소를 할당하고 있습니다.

```
ubuntu@ubuntugw:~$ dhcp-lease-list
To get manufacturer names please download http://standards.ieee.org/regauth/oui/oui.txt to /usr/local/etc/oui.txt
Reading leases from /var/lib/dhcp/dhcpd.leases
MAC                IP              hostname       valid until         manufacturer
============================================================================================
08:00:27:30:00:af  192.168.56.101  UbuntuDesk     2023-12-28 07:59:31 -NA-
08:00:27:4c:4a:28  192.168.56.103  ubuntugw       2023-12-28 07:53:14 -NA-
ubuntu@ubuntugw:~$
```

```
# Let NetworkManager manage all devices on this system
network:
  version: 2
  renderer: NetworkManager
  ethernets:
    enp0s8:
      dhcp4: yes
        #addresses: [192.168.56.53/24]
        #gateway4: 192.168.56.103
        #nameservers:

~
```



현재 웹 서버로 동작하고 있는 ubuntudesk 에 main.domain.com 형식의 도메인 주소 요청에 대해 html&css-training 폴더에 있는 정적페이지가 서비스 될 수 있도록 하며, 추가로 shop.domain.com 형식의 도메인 주소 요청에 대해서는 room-homepage-master 폴더에 있는 정적페이지가 서비스 될 수 있도록 합니다. (필요한 경우 서버를 1개 더 추가하여 구성해도 됩니다.

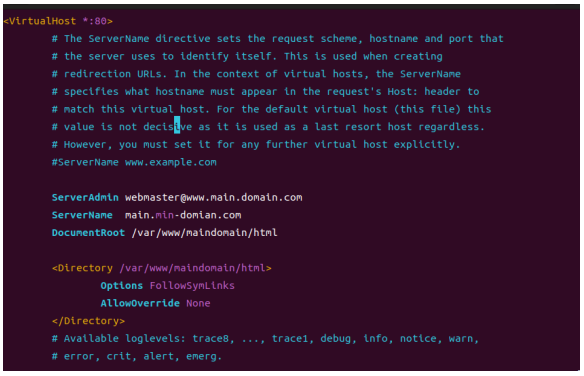
우분투에서 아파치 가상호스트 (Virtual Host) 로, 한대의 서버에서 여러 웹서비스를...

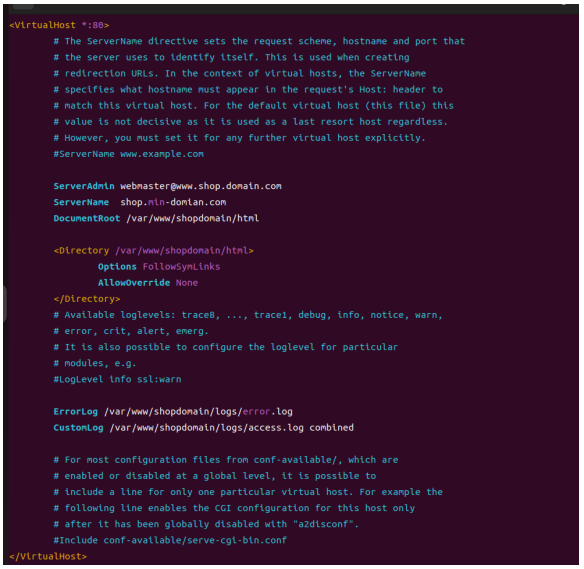
이번 포스트에서는 가상호스트(버추얼 호스트, Virtual Host)로 한대의 아파치 서버에서 여러 도메인으로 각각의 웹서비스를 하는 방법을 살펴 봅니다. 웹호스팅 서비스를 받으면서, 어떻게 하나의 서버에 수많은 사람들이 입주해서 각자의 도메인을 가지고 웹서비스를 할까 궁금한적이 없는

https://wingsnote.com/20

```
;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     min-domain.com. admin.min-domain.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      ns1.min-domain.com.
ns1     IN      A       192.168.56.53
@       IN      A       192.168.56.10
www     IN      A       192.168.56.10
main    IN      A       192.168.56.101
shop    IN      A       192.168.56.101
```

```
ubuntu@UbuntuDesk:~$ cd /var/www
ubuntu@UbuntuDesk:/var/www$ ls
html  maindomain  shopdomain
ubuntu@UbuntuDesk:/var/www$ cd main
```





여기서 해준 거는 기존 /etc/apache2/sites-available/ 디렉터리에 있는 default 파일을 복사해서 수정하는 것

그럼 가상 호스트 파일을 만들어 봅시다.가상 호스트 파일은 이 쉽습니다.먼저 가상 호스트 피

```
sudo cp 000-default.conf  /etc/apache2/sites-available/shopdomain.conf
sudo cp 000-default.conf  /etc/apache2/sites-available/maindomain.conf
```

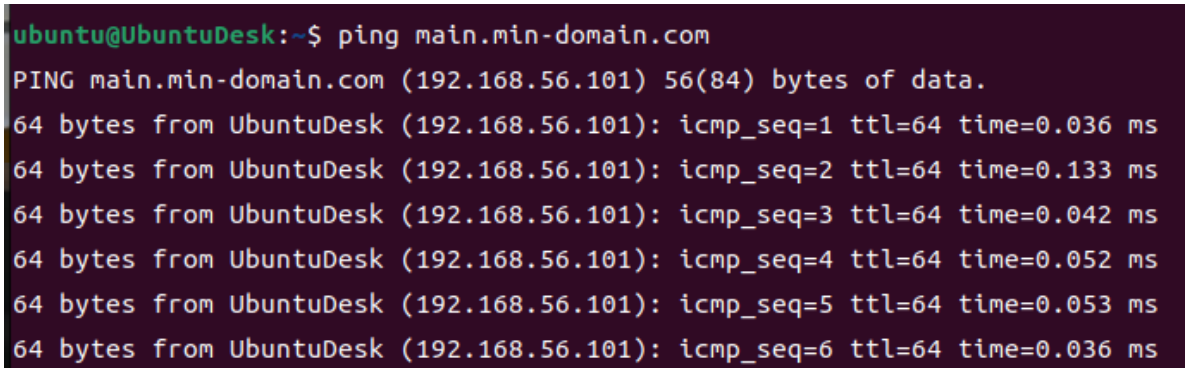
```
<VirtualHost *:80>
        # The ServerName directive sets the request scheme, hostname and
        # the server uses to identify itself. This is used when creating
        # redirection URLs. In the context of virtual hosts, the ServerN
        # specifies what hostname must appear in the request's Host: hea
        # match this virtual host. For the default virtual host (this fi
        # value is not decisive as it is used as a last resort host rega
        # However, you must set it for any further virtual host explicit
        #ServerName www.example.com

        ServerAdmin webmaster@www.main.domain.com
        ServerName  main.min-domian.com
```

```
        DocumentRoot /var/www/maindomain/html

        <Directory /var/www/maindomain/html>
                Options FollowSymLinks
                AllowOverride None
        </Directory>
        # Available loglevels: trace8, ..., trace1, debug, info, notice,
        # error, crit, alert, emerg.
        # It is also possible to configure the loglevel for particular
        # modules, e.g.
        #LogLevel info ssl:warn

        ErrorLog /var/www/maindomain/logs/error.log
        CustomLog /var/www/maindomain/logs/access.log combined
# For most configuration files from conf-available/, which are
        # enabled or disabled at a global level, it is possible to
        # include a line for only one particular virtual host. For examp
        # following line enables the CGI configuration for this host onl
        # after it has been globally disabled with "a2disconf".
        #Include conf-available/serve-cgi-bin.conf
</VirtualHost>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
```

수정이 완료 되었으면, 새로 만든 두 가상 호스트를 활성화 하기 위해 Enable 해줍니다.

```
$ sudo a2ensite maindomain
$ sudo a2ensite shopdomain
```

이후 아파치를 재시작



```
;
; BIND data file for local loopback interface
;
$TTL    604800
@       IN      SOA     min-domain.com. admin.min-domain.com. (
                              2         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         604800 )       ; Negative Cache TTL
;
@       IN      NS      ns1.min-domain.com.
ns1     IN      A       192.168.56.53
@       IN      A       192.168.56.10
www     IN      A       192.168.56.10
main    IN      A       192.168.56.101
shop    IN      A       192.168.56.101
```

```
2: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:30:00:af brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.101/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
       valid_lft 463sec preferred_lft 463sec
    inet 192.168.56.104/24 brd 192.168.56.255 scope global secondary dynamic enp0s8
       valid_lft 531sec preferred_lft 531sec
    inet6 fe80::a00:27ff:fe30:af/64 scope link
       valid_lft forever preferred_lft forever
```

```
ubuntu@ubuntugw:~$ sudo vi /etc/bind/zones/db.min-domain.com
ubuntu@ubuntugw:~$ sudo systemctl restart named
ubuntu@ubuntugw:~$ sudo systemctl status named
● named.service - BIND Domain Name Server
     Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
     Active: active (running) since Thu 2023-12-28 08:53:13 UTC; 4s ago
       Docs: man:named(8)
    Process: 5327 ExecStart=/usr/sbin/named $OPTIONS (code=exited, status=0/SUCCESS)
   Main PID: 5329 (named)
      Tasks: 4 (limit: 2220)
     Memory: 6.0M
        CPU: 74ms
     CGroup: /system.slice/named.service
             └─5329 /usr/sbin/named -u bind
```

```
sudo systemctl restart named
sudo systemctl status named
sudo vi /etc/bind/zones/db.min-domain.com
```