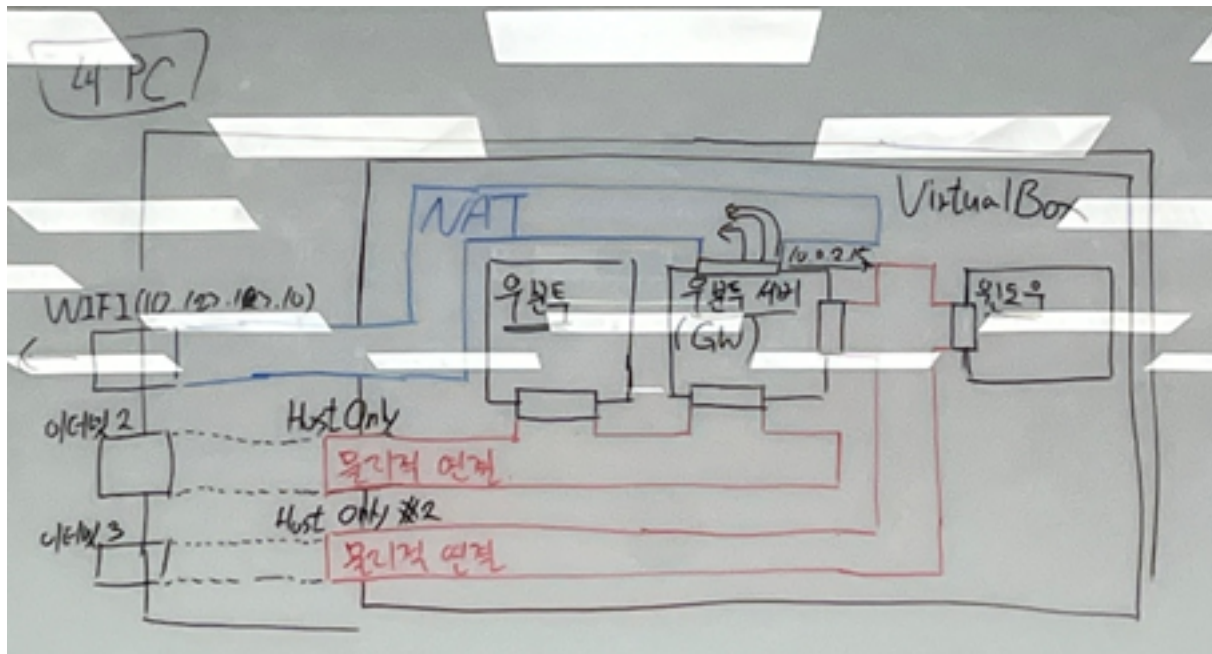




12/27 Ubuntu live Server

≡ 제목



이름(N):	UbuntuGW
폴더(F):	C:\Users\Wmzc\VirtualBox VMs
ISO 이미지(I):	D:\ubuntu-22.04.3-live-server-amd64.iso
에디션(E):	
종류(T):	Linux
버전(V):	Ubuntu (64-bit)
<input type="checkbox"/> 무인 설치 건너뛰기(S)	

사용자 이름과 암호

사용자 이름(S): ubuntu ✓

암호(W): ●●●●●●

암호 확인(R): ●●●●●●

추가 옵션

제품 키(P): #####-####-####-####-####

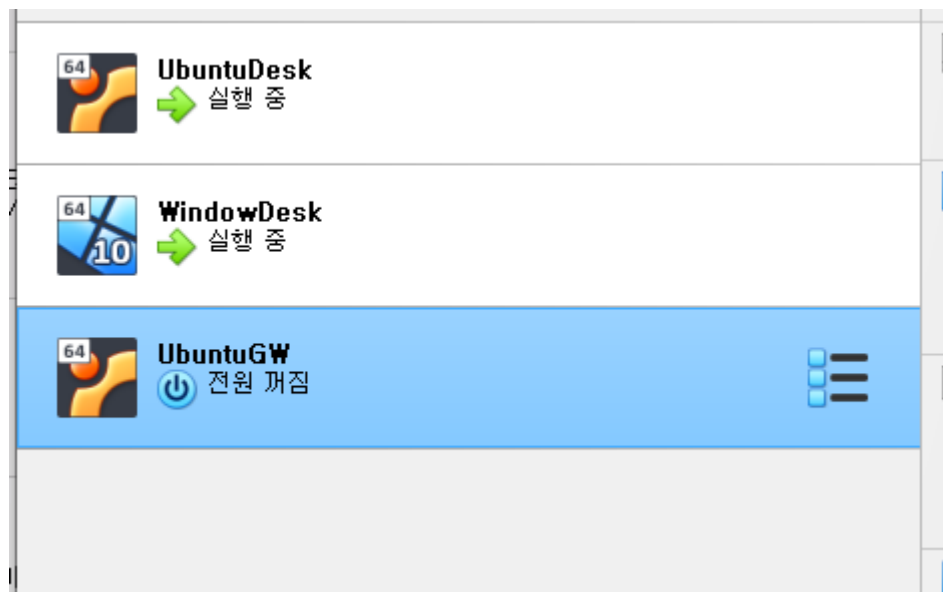
호스트 이름(M): UbuntuGW

도메인 이름(D): UbuntuGW

☐ 백그라운드에서 설치(I)

☒ 게스트 확장(E)

게스트 확장 ISO(A): C:\Program Files\Oracle\VirtualBox\GuestAdditions.iso



우분투 서버 생성

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	192.168.59.1/24		사용 안 함
VirtualBox Host-Only Ethernet Adapter #3	192.168.126.1/24		사용 안 함

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

ip 맞춰주고 dhcp 서버도 활성화 시키기

: DHCP(Dynamic Host Configuration Protocol) 역할

→ 서버는 컴퓨터 네트워크에서 사용자 및 장치에게 IP 주소 및 관련 네트워크 설정 정보를 자동으로 할당하는 역할. DHCP는 클라이언트 장치가 네트워크에 연결될 때 자동으로 IP 주소를 얻을 수 있도록 도와주는 프로토콜

어댑터(A) DHCP 서버(D)

☒ 서버 활성화(E) Host Only #2

서버 주소(R): 192.168.66.2

서버 마스크(M): 255.255.255.0

최저 주소 한계(L): 192.168.66.3

최고 주소 한계(U): 192.168.66.254

적용

```

이더넷 어댑터 이더넷 2:
연결별 DNS 접미사 . . . . . : 
링크-로컬 IPv6 주소 . . . . . : fe80::5a98:4376:dfb1:846f%14
IPv4 주소 . . . . . : 192.168.56.1
서브넷 마스크 . . . . . : 255.255.255.0
기본 게이트웨이 . . . . . : 

이더넷 어댑터 이더넷 3:
연결별 DNS 접미사 . . . . . : 
링크-로컬 IPv6 주소 . . . . . : fe80::9c04:df10:ee3c:7bfb%49
IPv4 주소 . . . . . : 192.168.66.1
서브넷 마스크 . . . . . : 255.255.255.0
기본 게이트웨이 . . . . . :

```

```

이더넷 어댑터 이더넷 4: VirtualBox Host Only #1
연결별 DNS 접미사 . . . . . : 
링크-로컬 IPv6 주소 . . . . . : fe80::4b6b:5723:3e91:a33%22
IPv4 주소 . . . . . : 192.168.56.1
서브넷 마스크 . . . . . : 255.255.255.0
기본 게이트웨이 . . . . . : 

이더넷 어댑터 이더넷 5: VirtualBox Host Only #2
연결별 DNS 접미사 . . . . . : 
링크-로컬 IPv6 주소 . . . . . : fe80::cbc1:caf6:f3dc:49d2%18
IPv4 주소 . . . . . : 192.168.66.1
서브넷 마스크 . . . . . : 255.255.255.0
기본 게이트웨이 . . . . . :

```

ipconfig

ipconfig /all

이더넷 어댑터 이더넷 2:

```
연결별 DNS 접미사. . . . . :
설명. . . . . : VirtualBox Host-Only Ethernet Adapter
물리적 주소. . . . . : 0A-00-27-00-00-0E
DHCP 사용. . . . . : 아니요
자동 구성 사용. . . . . : 예
링크-로컬 IPv6 주소. . . . . : fe80::5a98:4376:dfb1:846f%14(기본 설정)
IPv4 주소. . . . . : 192.168.56.1(기본 설정)
서브넷 마스크. . . . . : 255.255.255.0
기본 게이트웨이. . . . . :
DHCPv6 IAID. . . . . : 604635175
DHCPv6 클라이언트 DUID. . . . : 00-01-00-01-2D-16-99-17-8C-B0-E9-1C-C7-80
DNS 서버. . . . . : fec0:0:0:ffff::1%1
                   : fec0:0:0:ffff::2%1
                   : fec0:0:0:ffff::3%1

Tcpip를 통한 NetBIOS. . . . : 사용
```

이더넷 어댑터 이더넷 3:

```
연결별 DNS 접미사. . . . . :
설명. . . . . : VirtualBox Host-Only Ethernet Adapter #2
물리적 주소. . . . . : 0A-00-27-00-00-31
DHCP 사용. . . . . : 아니요
자동 구성 사용. . . . . : 예
링크-로컬 IPv6 주소. . . . . : fe80::9c04:df10:ee3c:7bfb%49(기본 설정)
IPv4 주소. . . . . : 192.168.66.1(기본 설정)
서브넷 마스크. . . . . : 255.255.255.0
기본 게이트웨이. . . . . :
DHCPv6 IAID. . . . . : 822738983
DHCPv6 클라이언트 DUID. . . . : 00-01-00-01-2D-16-99-17-8C-B0-E9-1C-C7-80
DNS 서버. . . . . : fec0:0:0:ffff::1%1
                   : fec0:0:0:ffff::2%1
                   : fec0:0:0:ffff::3%1

Tcpip를 통한 NetBIOS. . . . : 사용
```

확인해보기

우분투 서버 세팅

Profile setup

[Help]

Enter the username and password you will use to log in to the system. You can configure SSH access on the next screen but a password is still needed for sudo.

Your name:

Your server's name:
The name it uses when it talks to other computers.

Pick a username:

Choose a password:

Confirm your password:

```
individual files in /usr/share/doc/*/*copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
ubuntu@ubuntugw:~$ sudo shutdown -h now_
```



sudo shutdown -h now

포트포워딩

호스트	호스트 IP	호스트 포트
	127.0.0.1	22

Loopback*

이름	프로토콜	호스트 IP	호스트 포트	게스트 IP	게스트 포트
SSH	TCP	127.0.0.1	22	10.0.2.15	22

사람
이름
*

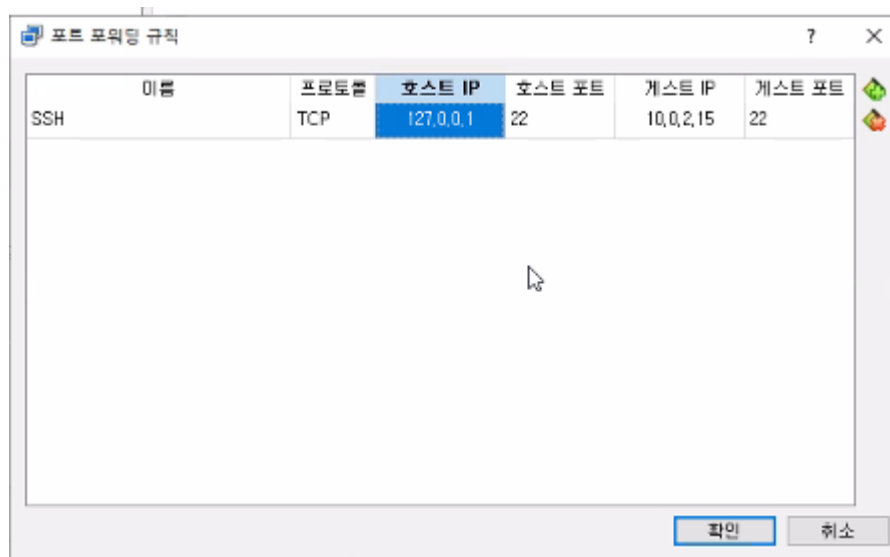
Loopback
127.0.0.0 ~ 127.255.255.255

컴퓨터
IP 주소

loopback: 자문자답

내가 내 이름 부르는데에는 이름이 필요없다

그래서 loopback 가지고는 외부 통신이 안된다.



```
C:\Users\mzc>ssh ubuntu@127.0.0.1
The authenticity of host '127.0.0.1 (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:YvgmIFa9mDsIMJ1Jp4j4E9wzi/tQ7++Vl3fM0NoJlrE
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '127.0.0.1' (ECDSA) to the list of known hosts.
ubuntu@127.0.0.1's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-91-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Wed Dec 27 01:12:24 AM UTC 2023

System load:  1.580078125      Processes:           120
Usage of /:   44.0% of 11.21GB Users logged in:     1
Memory usage: 11%             IPv4 address for enp0s3: 10.0.2.15
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

44 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Wed Dec 27 01:12:25 2023 from 127.0.0.1
ubuntu@ubuntu:~$
```

로컬에서 우분투 서버 접속 가능해짐

127.0.0.1 로 프로토콜 해놓았기 때문에 접속 가능해진거.

```
valid_lft forever preferred_lft forever
inet6 fe80::a00:27ff:fe4c:4a28/64 scope link
valid_lft forever preferred_lft forever
ubuntu@ubuntugw:~$ sudo vi /etc/netplan/00-installer-config.yaml
```

```
ubuntu@ubuntugw:~$ cat /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  ethernets:
    enp0s3:
      dhcp4: true
    enp0s8:
      dhcp4: true
    enp0s9:
      dhcp4: true
  version: 2
```

```
# This is the network config written by 'subiquity'
network:
  ethernets:
    enp0s3:
      dhcp4: true
    enp0s8:
      dhcp4: true
    enp0s9:
      dhcp4: true
  version: 2
```

```
valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
   link/ether 08:00:27:4c:4a:28 brd ff:ff:ff:ff:ff:ff
   inet 192.168.56.103/24 metric 100 brd 192.168.56.255 scope global dynamic enp0s8
       valid_lft 588sec preferred_lft 588sec
   inet6 fe80::a00:27ff:fe4c:4a28/64 scope link
       valid_lft forever preferred_lft forever
4: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
   link/ether 08:00:27:37:c6:99 brd ff:ff:ff:ff:ff:ff
   inet 192.168.66.3/24 metric 100 brd 192.168.66.255 scope global dynamic enp0s9
       valid_lft 588sec preferred_lft 588sec
   inet6 fe80::a00:27ff:fe37:c699/64 scope link
       valid_lft forever preferred_lft forever
ubuntu@ubuntugw:~$ D
```

8번 9번 인터페이스가 잘 받아와짐!!


```

1 #
2 # /etc/sysctl.conf - Configuration file for setting system variables
3 # See /etc/sysctl.d/ for additional system variables.
4 # See sysctl.conf (5) for information.
5 #
6
7 #kernel.domainname = example.com
8
9 # Uncomment the following to stop low-level messages on console
10 #kernel.printk = 3 4 1 3
11
12 #####
13 # Functions previously found in netbase
14 #
15
16 # Uncomment the next two lines to enable Spoof protection (reverse-path fil
17 # Turn on Source Address Verification in all interfaces to
18 # prevent some spoofing attacks
19 #net.ipv4.conf.default.rp_filter=1
20 #net.ipv4.conf.all.rp_filter=1
21
22 # Uncomment the next line to enable TCP/IP SYN cookies
23 # See http://lwn.net/Articles/277146/
24 # Note: This may impact IPv6 TCP sessions too
25 #net.ipv4.tcp_syncookies=1
26
27 # Uncomment the next line to enable packet forwarding for IPv4
28 net.ipv4.ip_forward=1
29
30 # Uncomment the next line to enable packet forwarding for IPv6
31 # Enabling this option disables Stateless Address Autoconfiguration
32 # based on Router Advertisements for this host
33 #net.ipv6.conf.all.forwarding=1
34
35
36 #####
37 # Additional settings - these settings can improve the network
38 # security of the host and prevent against some network attacks
39 # including spoofing attacks and man in the middle attacks through
40 # redirection. Some network environments, however, require that these
41 # settings are disabled so review and enable them as needed.
-- INSERT --

```

이게 라우팅 설정

주석 풀 거 무슨 의미 → 이 리눅스 게이트웨이로 사용하게산

게이트웨이: 서로 다른 네트워크에 존재하는 장치들이 외부 트래픽 요청하면 게이트웨이가 수행해야해. 포워딩 시켜줘야해

근데 일반적으로 그런 포워딩 기능이 없어 그걸 활성화 시켜준 거

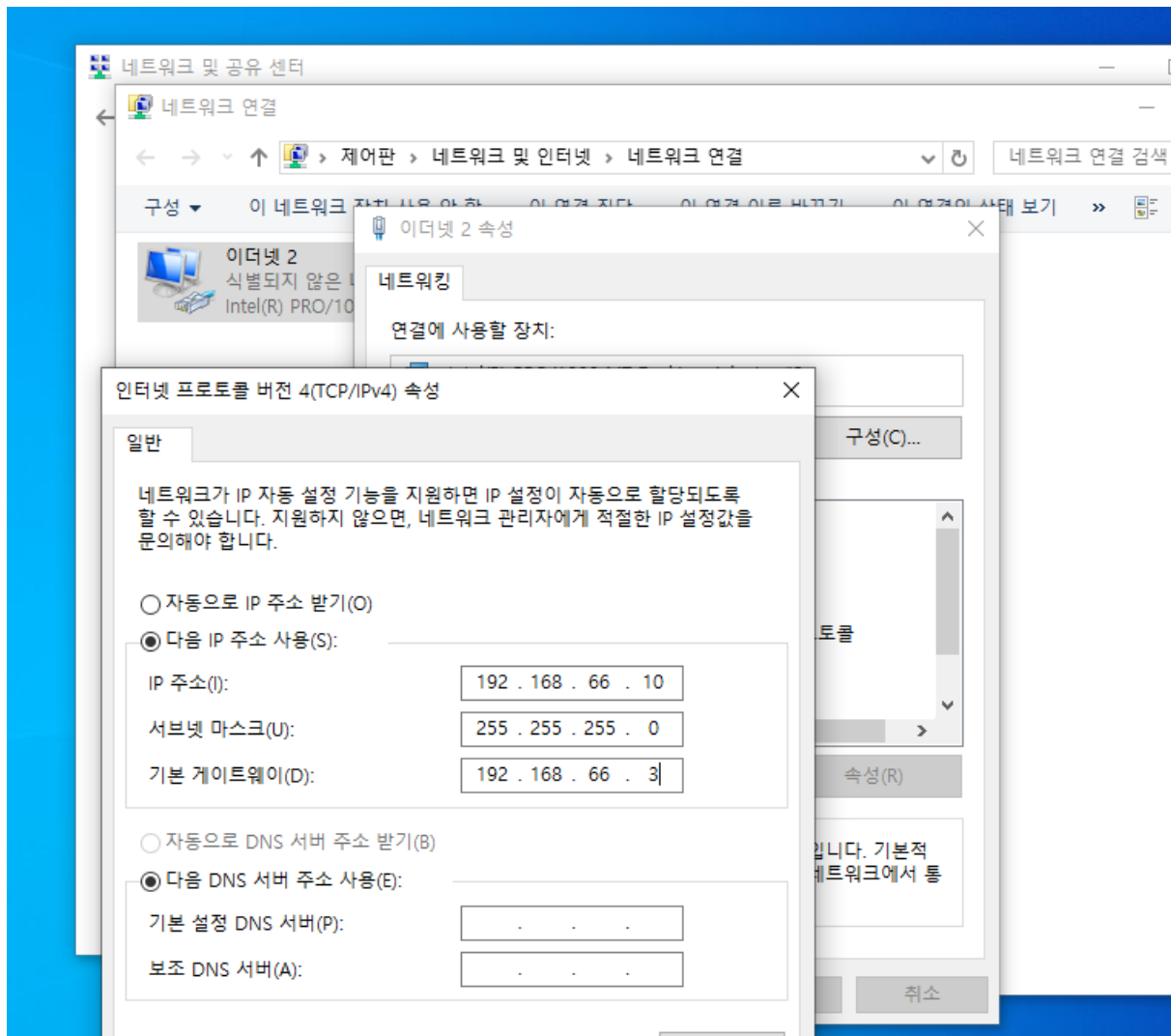
```
ubuntu@ubuntuugw:~$ sudo vi /etc/sysctl
ubuntu@ubuntuugw:~$ sudo sysctl -p
net.ipv4.ip_forward = 1
ubuntu@ubuntuugw:~$
```

그래서 활성화 된 거

forward =1

다른 pc 에 라우팅 전달시켜줄 수 있다.

→ 윈도우 가상 머신 와서



```

4: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 10
    link/ether 08:00:27:37:c6:99 brd ff:ff:ff:ff:ff:ff
    inet 192.168.66.3/24 metric 100 brd 192.168.66.255 scope global dynamic enp0s9
        valid_lft 596sec preferred_lft 596sec
    inet6 fe80::a00:27ff:fe37:c699/64 scope link
        valid_lft forever preferred_lft forever
ubuntu@ubuntugw:~$

```

게이트웨이 주소

92. 168.66.3

윈도우에서 그렇다면 ping 192.168.66.3

```

C:\Users\user>ping 192.168.66.3

Pinging 192.168.66.3 with 32 bytes of data:
Reply from 192.168.66.3: bytes=32 time<1ms TTL=64
Reply from 192.168.66.3: bytes=32 time<1ms TTL=64
Reply from 192.168.66.3: bytes=32 time<1ms TTL=64
Reply from 192.168.66.3: bytes=32 time<1ms TTL=64
*

Ping statistics for 192.168.66.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\user>

```

ping 192.168.66.3 게이트웨이 잘 작동하는지 확인해본 거

윈도우 서버에서 우분투 서버로 통신이 되게끔 하는 거?

여기서

게이트 번호 192..168.56.103

확인하고

```

3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4c:4a:28 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.103/24 metric 100 brd 192.168.56.255 scope global dynamic enp0s8
        valid_lft 346sec preferred_lft 346sec
    inet6 fe80::a00:27ff:fe4c:4a28/64 scope link
        valid_lft forever preferred_lft forever
4: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000

```

우분투 네트워크에서 수정해주고

```
# Let NetworkManager manage all devices on this system
network:
  version: 2
  renderer: NetworkManager
  ethernets:
    enp0s8:
      dhcp4: yes
      #addresses: [192.168.250.20/24,192.168.250.11/24]
      gateway4: 192.168.56.101
      #nameservers:
      #addresses: [8.8.8.8,8.8.4.4]
```

```
varu_Htt forever preferred_Htt forever
ubuntu@ubuntugw:~$ ping 192.168.56.101
PING 192.168.56.101 (192.168.56.101) 56(84) bytes of data:
64 bytes from 192.168.56.101: icmp_seq=1 ttl=64 time=0.773 ms
64 bytes from 192.168.56.101: icmp_seq=2 ttl=64 time=0.615 ms
64 bytes from 192.168.56.101: icmp_seq=3 ttl=64 time=0.693 ms
64 bytes from 192.168.56.101: icmp_seq=4 ttl=64 time=0.420 ms
64 bytes from 192.168.56.101: icmp_seq=5 ttl=64 time=0.291 ms
64 bytes from 192.168.56.101: icmp_seq=6 ttl=64 time=0.296 ms
64 bytes from 192.168.56.101: icmp_seq=7 ttl=64 time=0.577 ms
64 bytes from 192.168.56.101: icmp_seq=8 ttl=64 time=0.428 ms
64 bytes from 192.168.56.101: icmp_seq=9 ttl=64 time=0.452 ms
64 bytes from 192.168.56.101: icmp_seq=10 ttl=64 time=0.855 ms
64 bytes from 192.168.56.101: icmp_seq=11 ttl=64 time=0.613 ms
64 bytes from 192.168.56.101: icmp_seq=12 ttl=64 time=0.555 ms
64 bytes from 192.168.56.101: icmp_seq=13 ttl=64 time=0.539 ms
```

윈도우 → 우분투 서버 → 우분투


```
C:\Users\user>ping 192.168.56.103

Pinging 192.168.56.103 with 32 bytes of data:
Reply from 192.168.56.103: bytes=32 time<1ms TTL=64
Reply from 192.168.56.103: bytes=32 time<1ms TTL=64
Reply from 192.168.56.103: bytes=32 time<1ms TTL=64
Reply from 192.168.56.103: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\user>
```