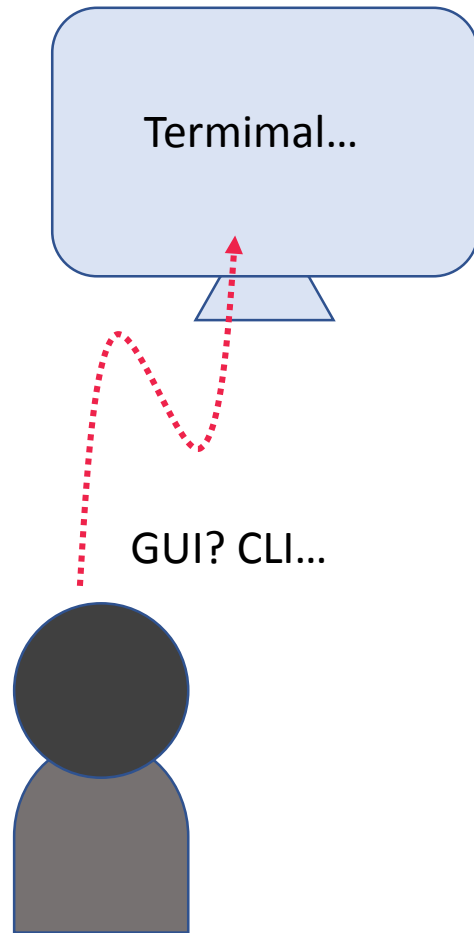


Chapter 01. 실습환경 구축하기

VM 원격 접속환경 구축하기

원격 접속하기



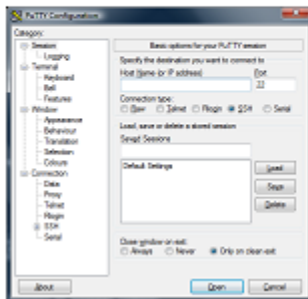
이미지 출처 : <https://www.supermicro.com/en/products/superblade>

터미널 프로그램 설치 - SSH 클라이언트 소프트웨어

- PUTTY (<https://www.putty.org/>)
- SecureCRT
- Teraterm
- Xshell



putty.org



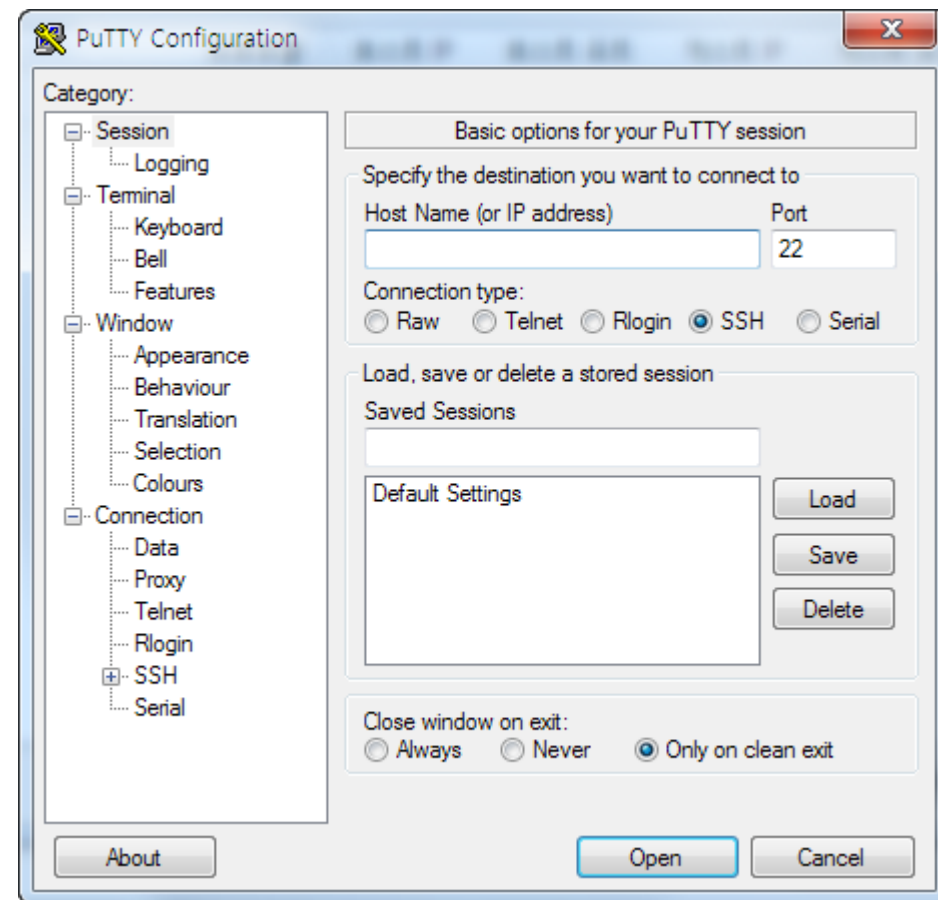
Download PuTTY

PuTTY is an SSH and telnet client, developed originally by Simon Tatham for the Windows platform. PuTTY is open source software that is available with source code and is developed and supported by a group of volunteers.

You can download PuTTY [here](https://www.putty.org/).

터미널 프로그램 설치 - putty 클라이언트 바이너리들

- putty.exe (the SSH and Telnet client itself)
- pscp.exe (an SCP client, i.e. command-line secure file copy)
- pageant.exe (an SSH authentication agent for PuTTY, PSCP, PSFTP, and Plink)
- puttygen.exe (a RSA and DSA key generation utility)
- **putty.zip** (a .ZIP archive of all the above)



원격 접속하기 - SSH 데몬 설치

daemon

\$ service sshd status

~~\$ sudo apt install sshd~~

\$ sudo apt install openssh-server

\$ sudo service sshd start
(systemctl start ssh)\$ service sshd status
(systemctl status ssh
systemctl status sshd
systemctl status ssh.service)~~\$ ssh localhost~~

```

Ubuntu 16.04 [실행 중] - Oracle VM VirtualBox
파일  머신  보기  입력  장치  도움말

터미널
user1@user1-VirtualBox: ~
user1@user1-VirtualBox:~$ sudo apt install openssh-server
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다
상태 정보를 읽는 중입니다... 완료
The following additional packages will be installed:
ncurses-term openssh-client openssh-sftp-server ssh-import-id
제안하는 패키지:
ssh-askpass libpam-ssh keychain monkeysphere rssh molly-guard
다음 새 패키지를 설치할 것입니다:
ncurses-term openssh-server openssh-sftp-server ssh-import-id
다음 패키지를 업그레이드할 것입니다:
openssh
1개 업-
1,223 k
이 작업
계속 하
user1@user1-VirtualBox: ~
user1@user1-VirtualBox:~$ sudo service sshd start
user1@user1-VirtualBox:~$
user1@user1-VirtualBox:~$ sudo service sshd status
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enab
   Active: active (running) since 일 2020-04-05 22:29:29 KST; 37s ago
   Main PID: 3118 (sshd)
   CGroup: /system.slice/ssh.service
           └─3118 /usr/sbin/sshd -D

4월 05 22:29:29 user1-VirtualBox systemd[1]: Starting OpenBSD Secure Shell serv
4월 05 22:29:29 user1-VirtualBox sshd[3118]: Server listening on 0.0.0.0 port 2
4월 05 22:29:29 user1-VirtualBox sshd[3118]: Server listening on :: port 22.
4월 05 22:29:29 user1-VirtualBox systemd[1]: Started OpenBSD Secure Shell serve
4월 05 22:29:50 user1-VirtualBox systemd[1]: Started OpenBSD Secure Shell serve
lines 1-12/12 (END)

```

원격 접속하기 - IP 주소 확인

```
$ ifconfig
```

고전적 이름

eth0, eth1, wlan0

systemd v197 새로운 이름
(ethernet network peripheral #
serial #)

eno1

ens1

enp2s0

enx78e7d1ea46da

<https://www.freedesktop.org/wiki/Software/systemd/PredictableNetworkInterfaceNames/>

```

Ubuntu 16.04 [실행 중] - Oracle VM VirtualBox
파일  머신  보기  입력  장치  도움말
터미널
user1@user1-VirtualBox: ~
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

user1@user1-VirtualBox:~$ ifconfig
enp0s3    Link encap:Ethernet  HWaddr 08:00:27:2a:ec:15
          inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
          inet6 addr: fe80::443f:5be1:1395:4f40/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:34 errors:0 dropped:0 overruns:0 frame:0
          TX packets:137 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:5943 (5.9 KB)  TX bytes:15758 (15.7 KB)

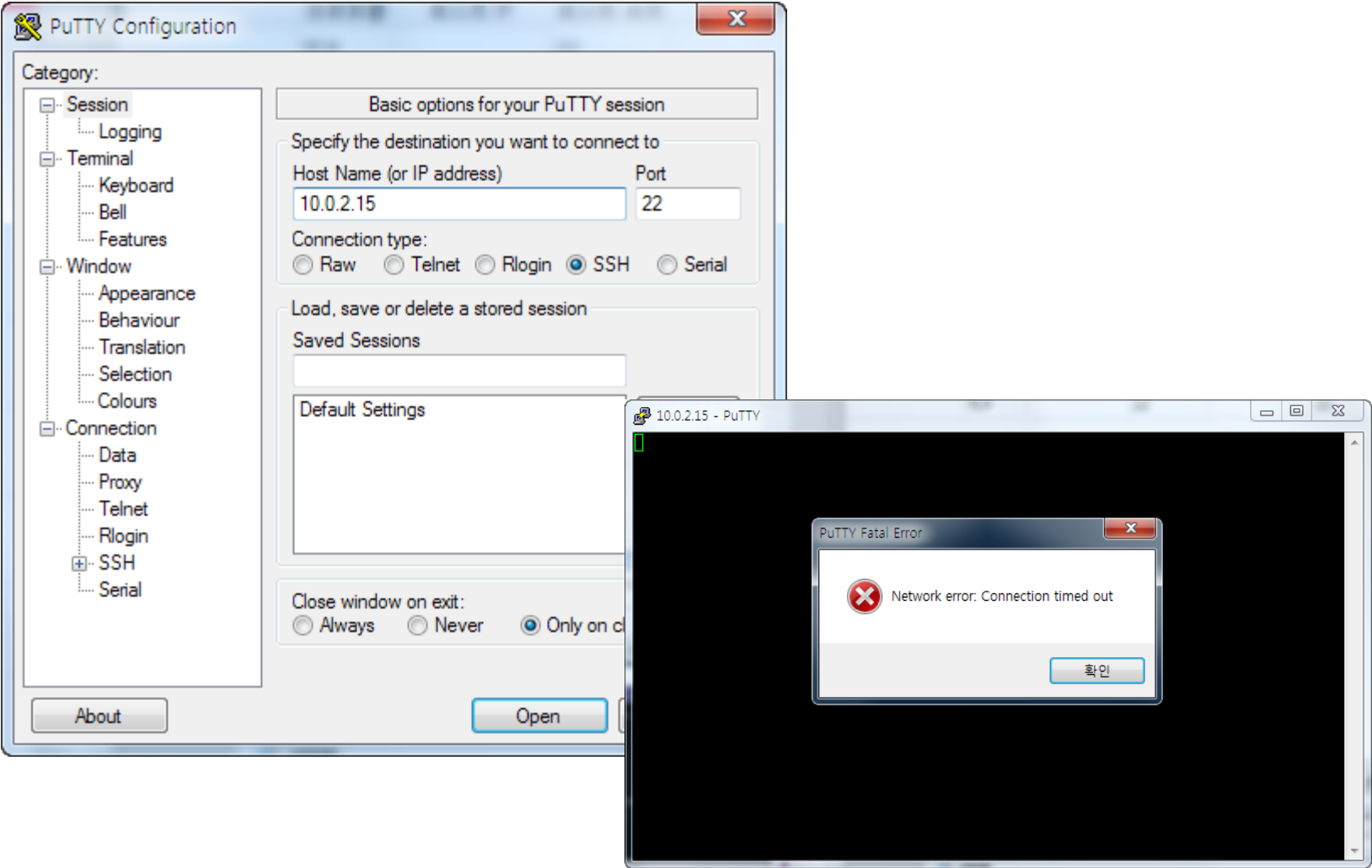
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:217 errors:0 dropped:0 overruns:0 frame:0
          TX packets:217 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:16965 (16.9 KB)  TX bytes:16965 (16.9 KB)

user1@user1-VirtualBox:~$

```

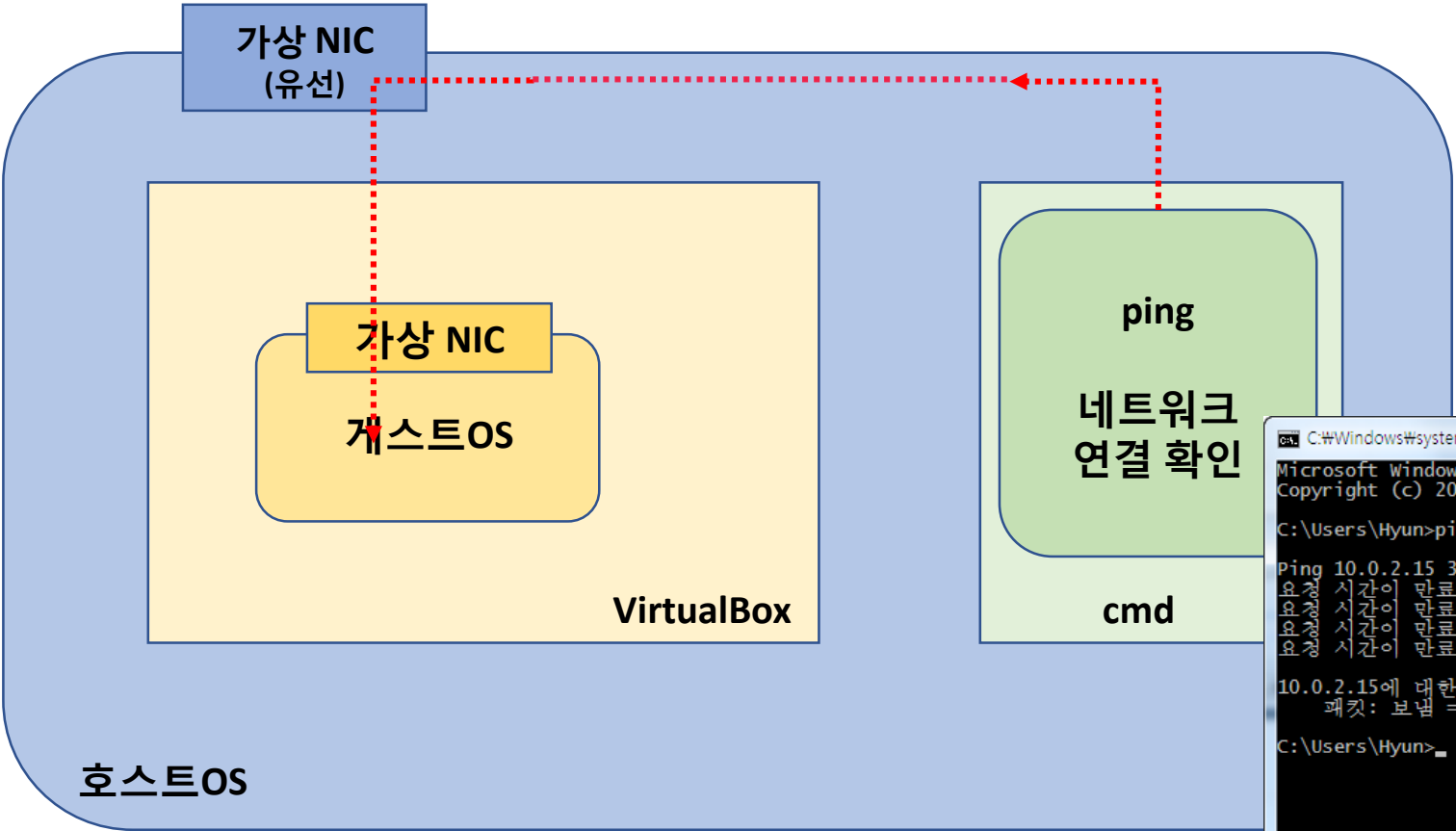
원격 접속하기 - Putty

putty> 10.0.2.15

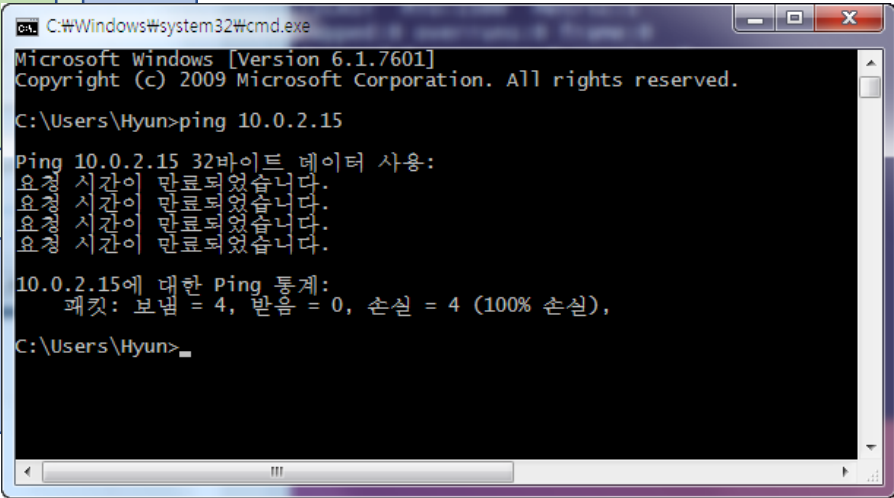
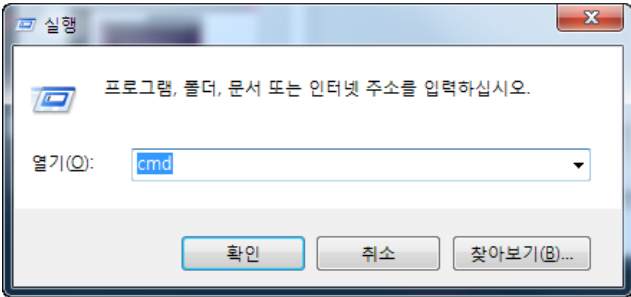


원격 접속하기 - IP 주소 접속 시도

```
cmd> ping 10.0.2.15
```

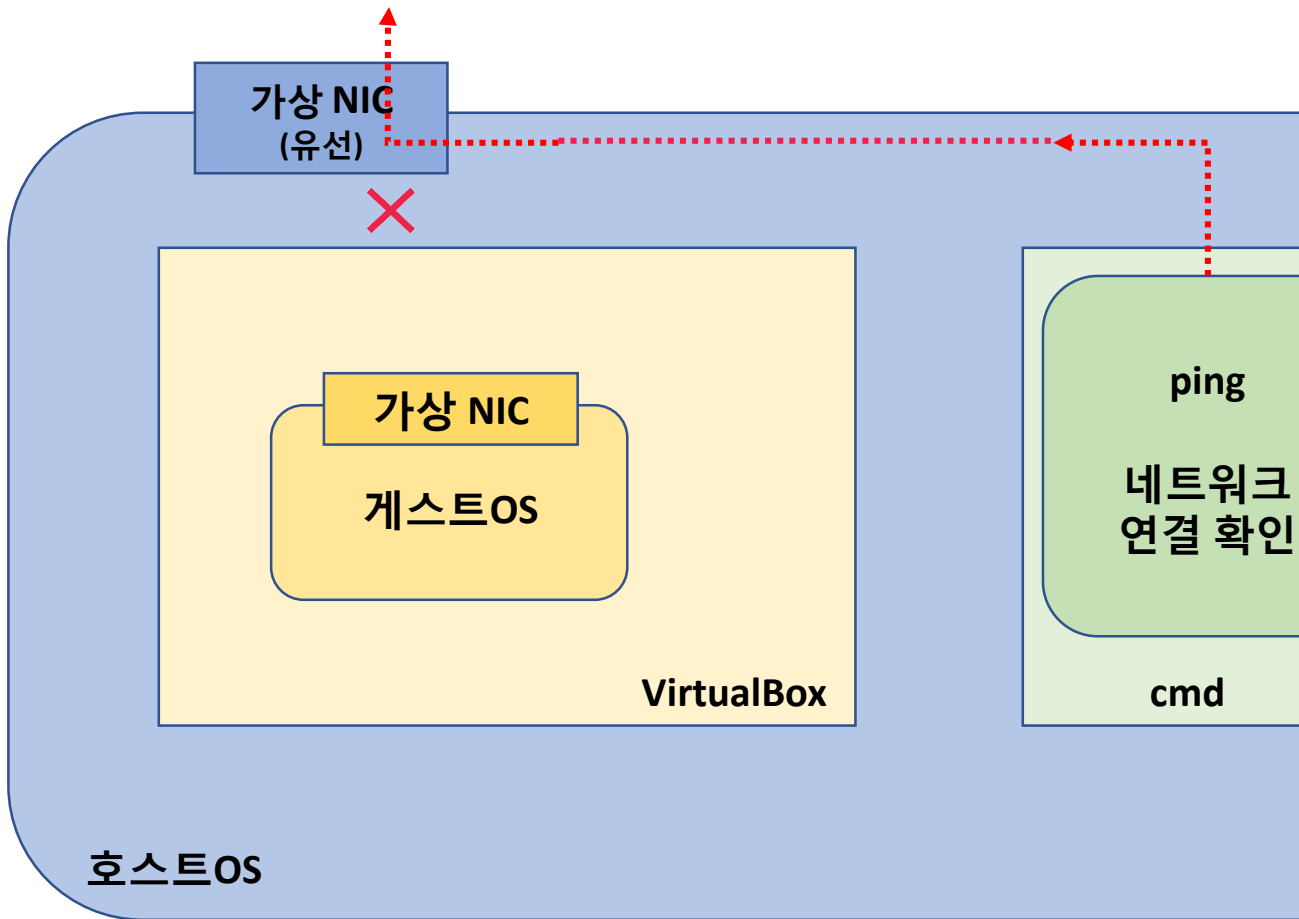


- Win + R



원격 접속하기 - 접속 실패

- NAT 환경의 망 분리



- route print

```
(base) C:\Users\WHgun>route print
=====
인터페이스 목록
37...02 00 4c 4f 4f 50 .....Npcap Loopback Adapter
30...00 ff f9 6f 16 e6 .....TeamViewer UPN Adapter
24...f0 1f af 28 ef c5 .....Killer e2200 PCI-E Gigabit Ethernet Controller (NDIS 6.20)
23...bc 85 56 eb 15 c4 .....Bluetooth 장치<개인 영역 네트워크> #2
19...2e 85 56 eb 15 c3 .....Microsoft Virtual WiFi Miniport Adapter #2
18...bc 85 56 eb 15 c3 .....Killer Wireless-N 1202 (2.4GHz and 5GHz) #2
35...00 50 56 c0 00 01 .....VMware Virtual Ethernet Adapter for VMnet1
36...00 50 56 c0 00 08 .....VMware Virtual Ethernet Adapter for VMnet8
25...0a 00 27 00 00 19 .....VirtualBox Host-Only Ethernet Adapter
81...0a 00 27 00 00 51 .....VirtualBox Host-Only Ethernet Adapter #2
1.....Software Loopback Interface 1
13...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter
11...00 00 00 00 00 00 e0 Microsoft 6to4 Adapter
105...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter #3
16...00 00 00 00 00 00 e0 Teredo Tunneling Pseudo-Interface
27...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter #4
28...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter #5
104...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter #6
41...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter #9
33...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter #10
34...00 00 00 00 00 00 e0 Microsoft ISAATAP Adapter #11
=====

IPv4 경로 테이블
=====
활성 경로:
네트워크 대상      네트워크 마스크      게이트웨이      인터페이스      메트릭
0.0.0.0            0.0.0.0            192.168.0.1      192.168.0.19      20
127.0.0.0          255.0.0.0
127.0.0.1          255.255.255.255
127.255.255.255    255.255.255.255
169.254.0.0        255.255.0.0      169.254.183.68   286
169.254.183.68    255.255.255.255
169.254.255.255    255.255.255.255
192.168.0.0        255.255.255.0    192.168.0.19     276
192.168.0.19      255.255.255.255
```

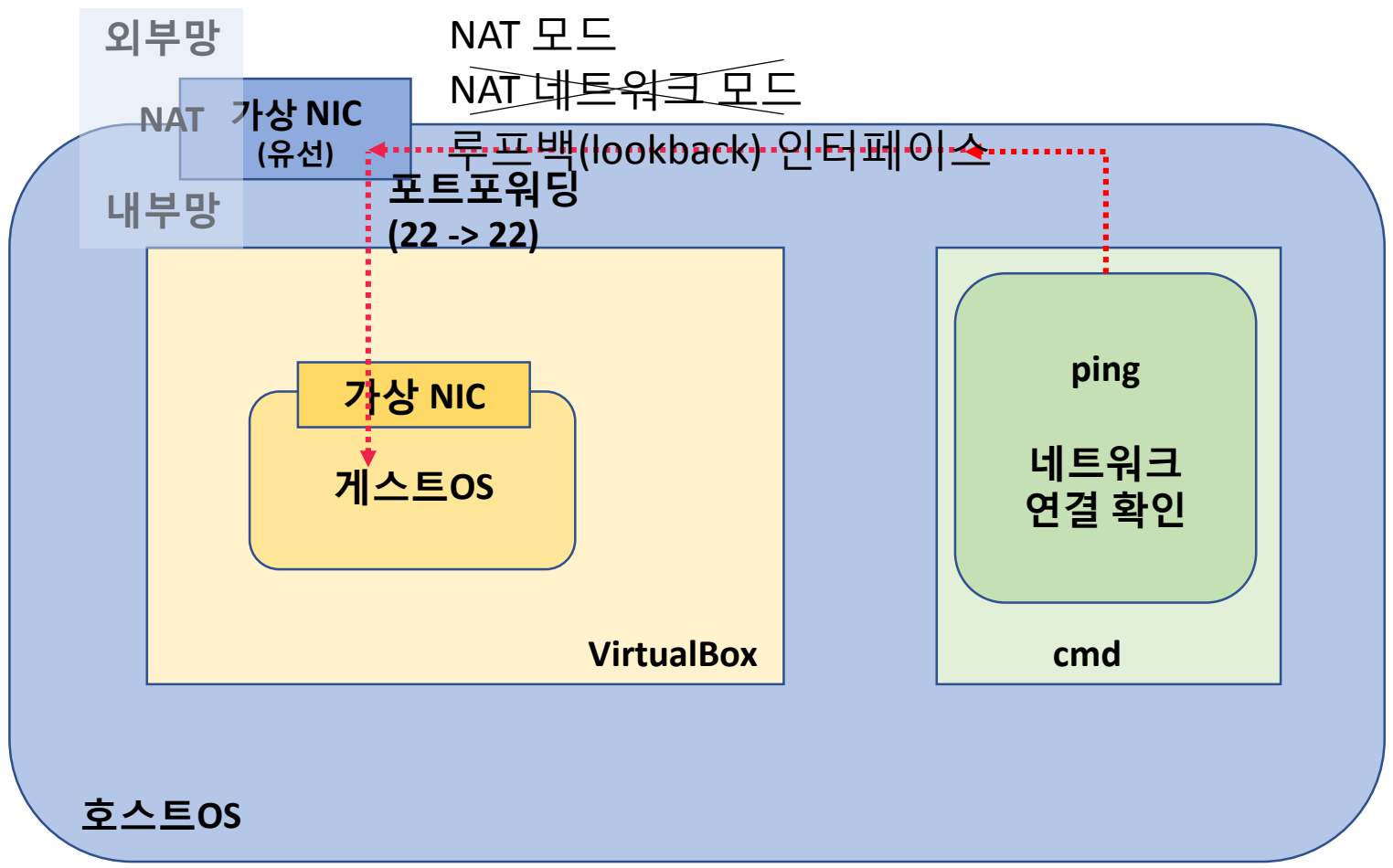
원격 접속하기 - 실패?!

솔루션

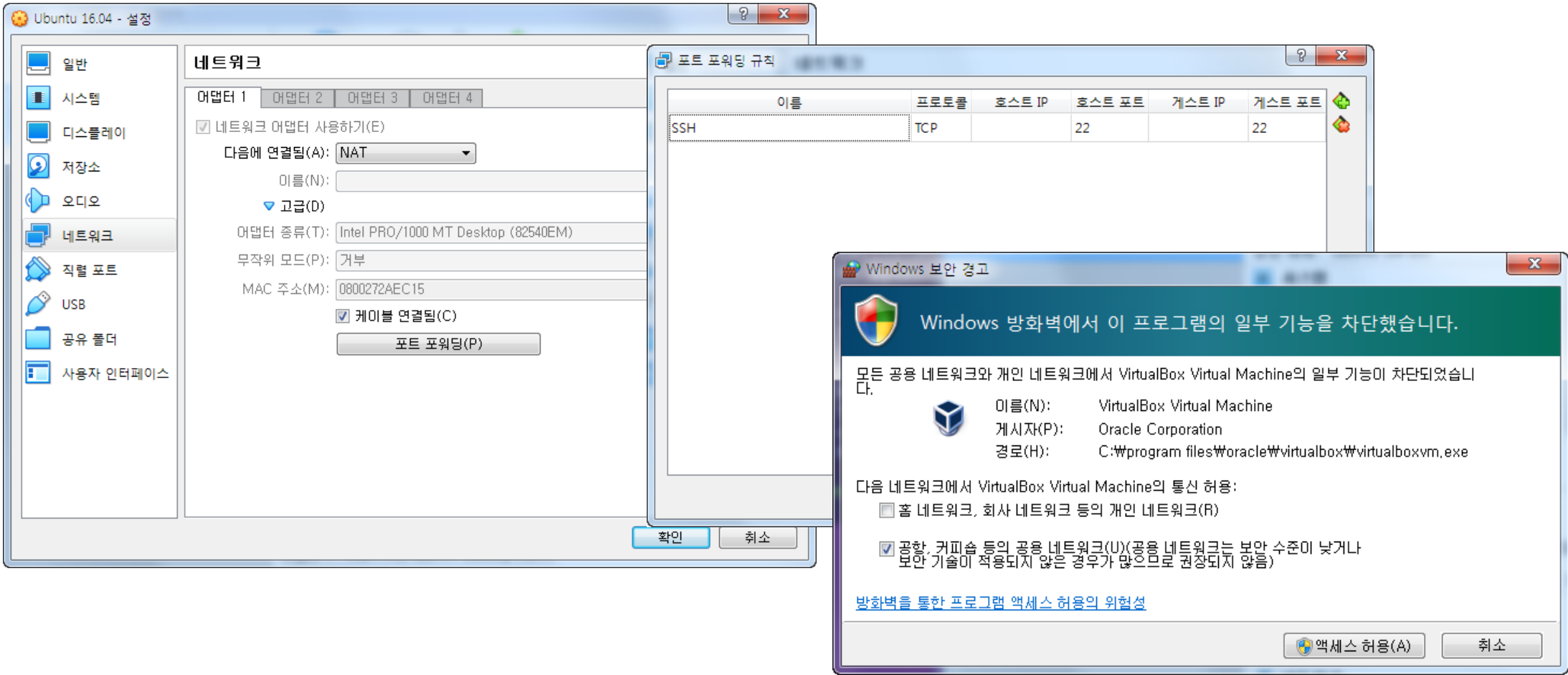
1. NAT 내부망 내 로 접속하기
2. 호스트 전용 어댑터로 접속하기
3. 그 외 다수...
 - “NAT 네트워크” 환경에서 접속하기
 - “어댑터에 브리지” 환경에서 접속하기

솔루션 #1. 원격 접속하기 - NAT 환경에서 게스트OS 접속하기

- 포트포워딩 추가하기

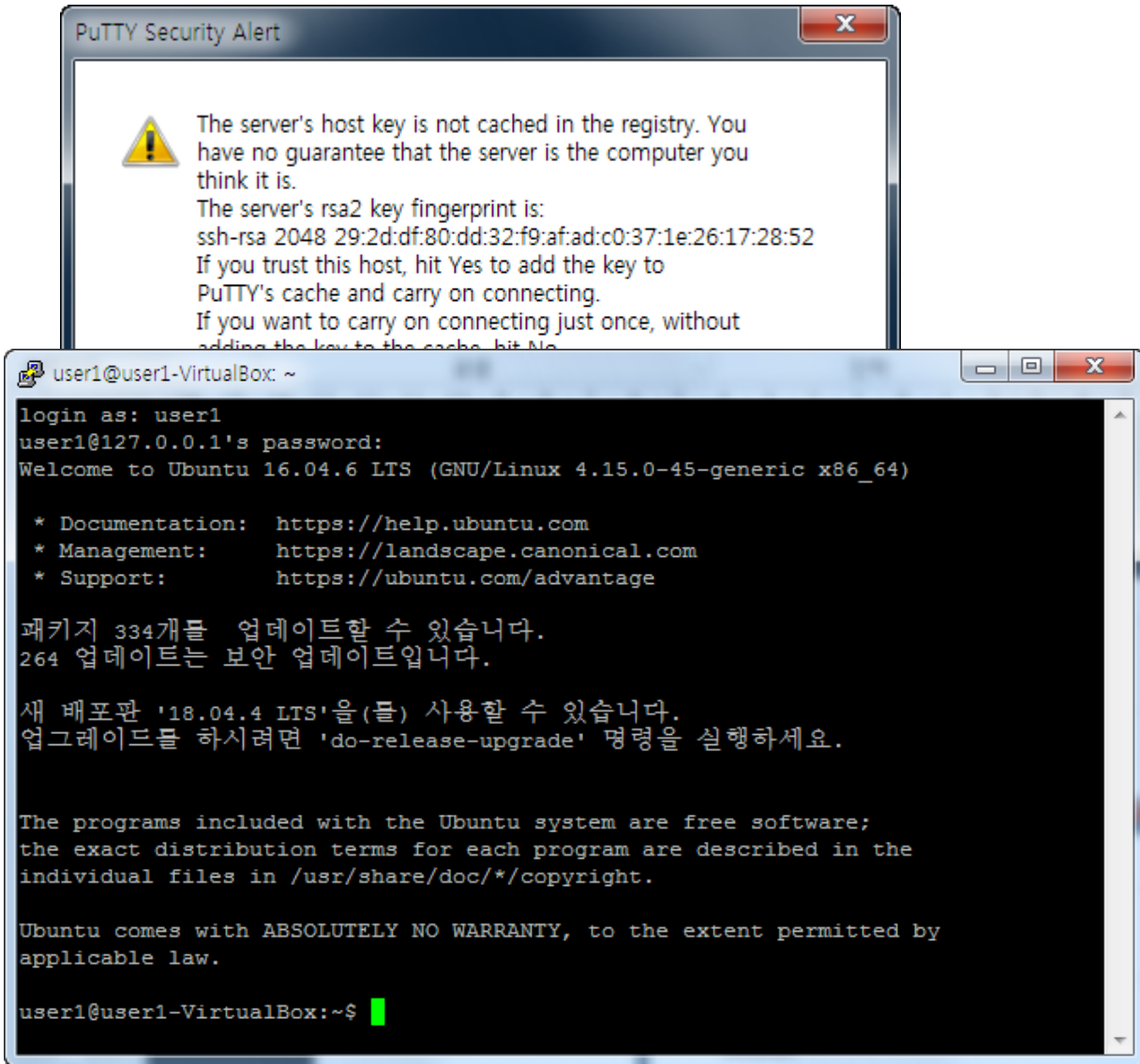
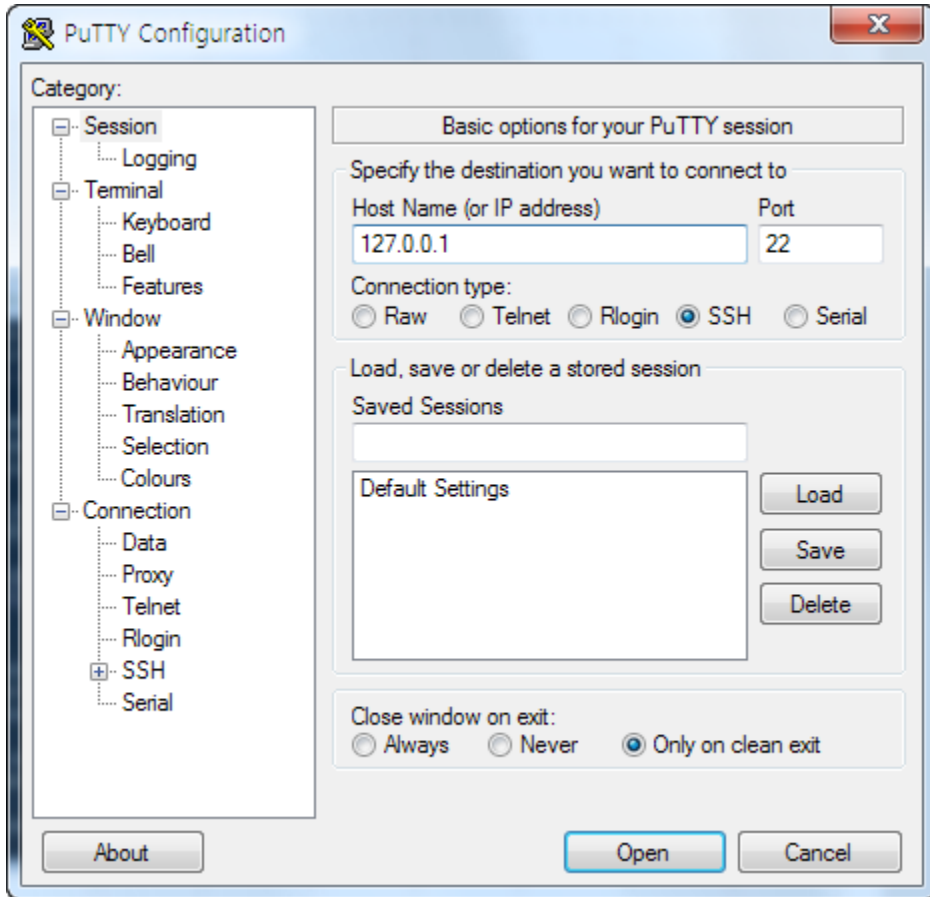


솔루션 #1. 원격 접속하기 - NAT 환경 확인 (포트포워딩 추가)

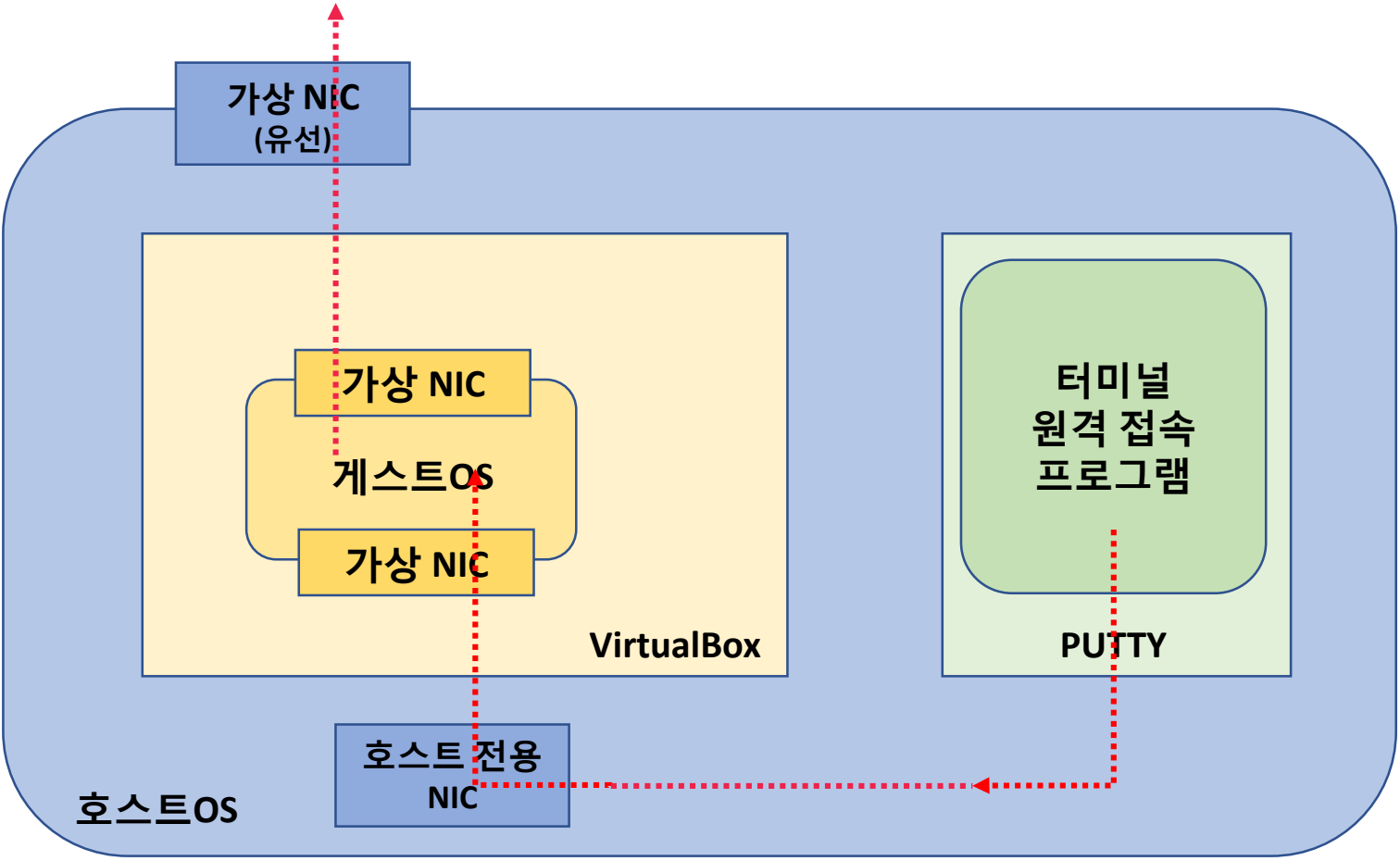


솔루션 #1. 원격 접속하기 - NAT 환경 (포트포워딩)

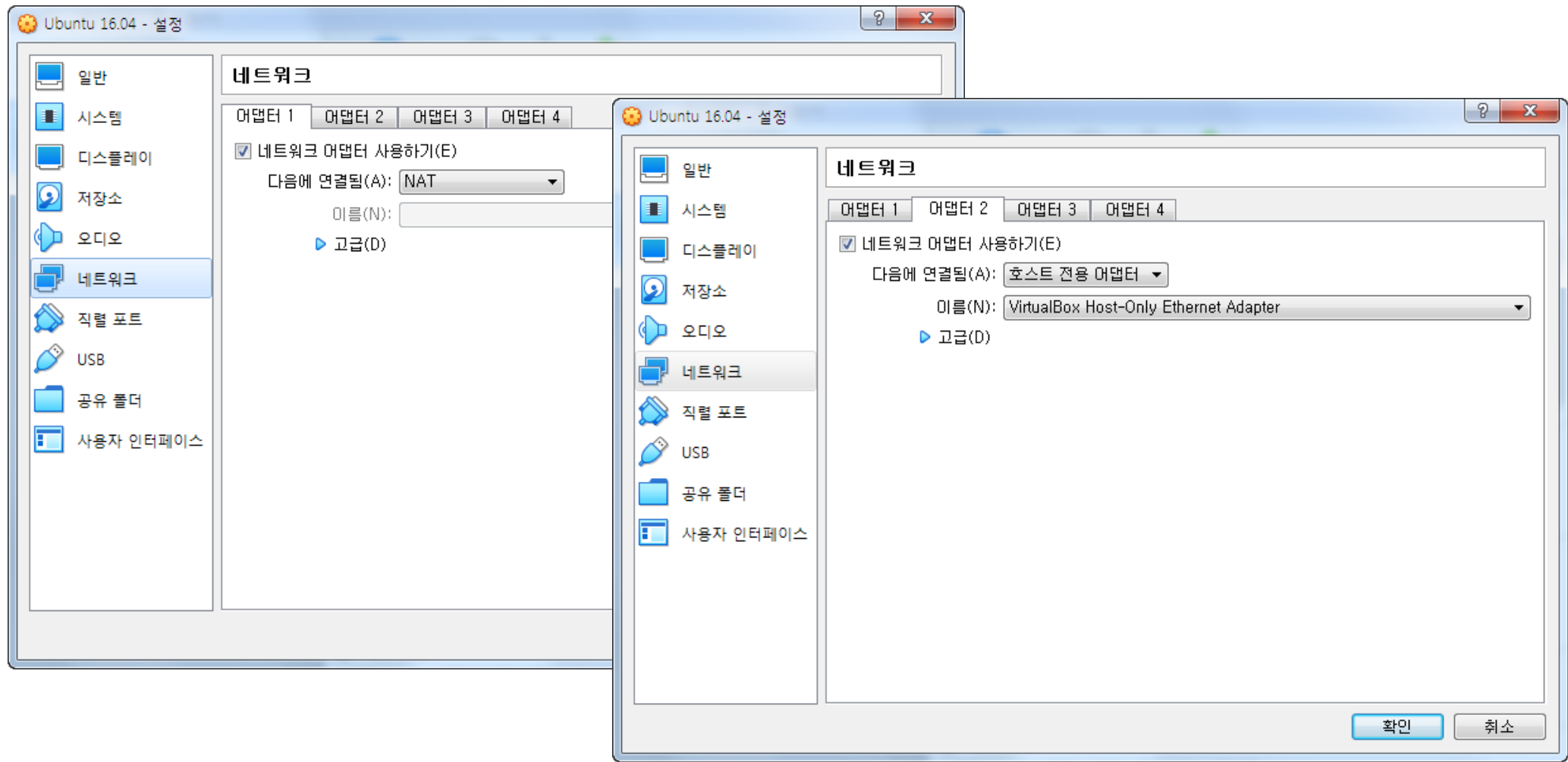
putty> 127.0.0.1 : 22



솔루션 #2. 원격 접속하기 - 호스트 전용 어댑터 개념



솔루션 #2. 원격 접속하기 - 호스트 전용 어댑터 추가하기



Ubuntu 16.04 [실행 중] - Oracle VM VirtualBox

파일 편집 보기 입력 장치 도움말

터미널 터미널 파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)

user1@user1-VirtualBox: ~

```
user1@user1-VirtualBox:~$ ifconfig
enp0s3  Link encap:Ethernet  HWaddr 08:00:27:2a:ec:15
        inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
        inet6 addr: fe80::861e:e90a:7aa6:2184/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:21 errors:0 dropped:0 overruns:0 frame:0
        TX packets:81 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:3795 (3.7 KB)  TX bytes:9085 (9.0 KB)

enp0s8  Link encap:Ethernet  HWaddr 08:00:27:70:27:b1
        inet addr:192.168.56.101  Bcast:192.168.56.255  Mask:255.255.255.0
        inet6 addr: fe80::1ba5:87bc:fb32:bcfd/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:4 errors:0 dropped:0 overruns:0 frame:0
        TX packets:55 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:1490 (1.4 KB)  TX bytes:7008 (7.0 KB)

lo       Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:204 errors:0 dropped:0 overruns:0 frame:0
        TX packets:204 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:15783 (15.7 KB)  TX bytes:15783 (15.7 KB)

user1@user1-VirtualBox:~$
```

호스트 네트워크 관리자

네트워크(N)

만들기(C) 삭제(R) 속성(P)

이름	IPv4 주소/마스크	IPv6 주소/마스크	DHCP 서버
VirtualBox Host-Only Ethernet Adapter	192.168.56.1/24		<input checked="" type="checkbox"/> 사용함
VirtualBox Host-Only Ethernet Adapter #2	192.168.98.1/24		<input type="checkbox"/> 사용함

어댑터(A) DHCP 서버(D)

☐ 자동으로 어댑터 설정(A)

☒ 수동으로 어댑터 설정(M)

IPv4 주소(I): 192,168,56,1

IPv4 서브넷 마스크(M): 255,255,255,0

IPv6 주소(P): fe80::5963:6a38:50d7:c716

IPv6 접두사 길이(L): 64

초기화 적용 닫기

솔루션 #2. 원격 접속하기 - 호스트 전용 어댑터 추가

putty> 192.168.56.101 : 22

