NETWORK CONFIGURATION

Ahmet Oğuz Ergin

Network Device Types

NAT

- VMs can communicate with outer network over host machine.
- VMs cannot communicate with each other.
- Host machine cannot communicate with VM with its ip address.
- Host machine can communicate with VM with localhost and port.
- Outer network machine cannot communicate with VM?

Host Only

- VMs cannot communicate with outer networks.
- Host machine and VMs can communicate with each other

Bridged

- VMs act like an any other physical machine on the network and get ip address.

Which Network Device Type I Choose

With these information when I consider to which network device should I use, I choose **NAT** and **Host Only** with together.

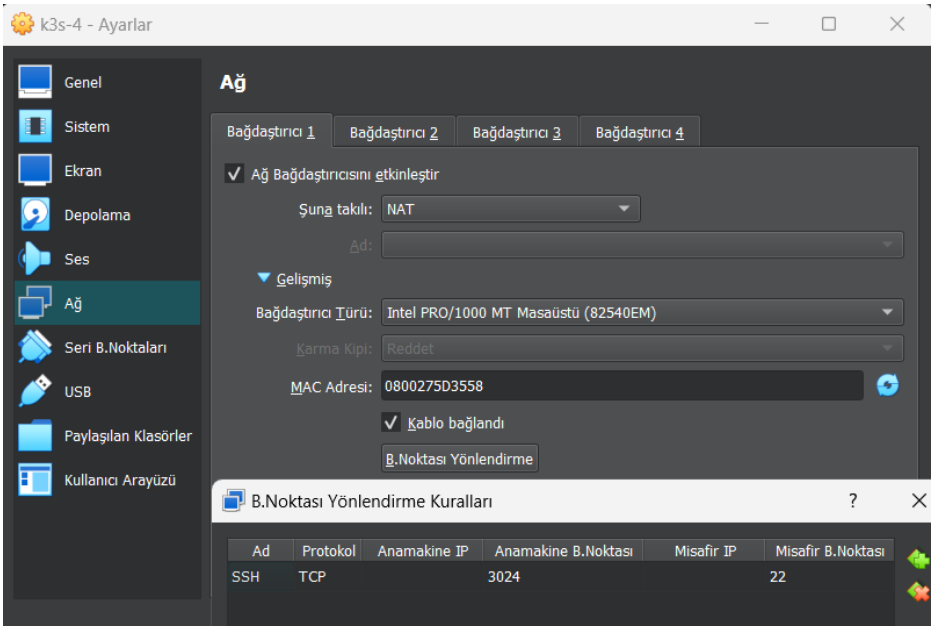
Why not NAT adapter only: VMs cannot communicate with each other.

Why not Host Only adapter only: VMs cannot cummunicate with outer network which I need to reach github and k3s installation.

Why not Bridged: Network changes of host machine affect all the VMs ip adresses.

NAT Device

Installation on VM

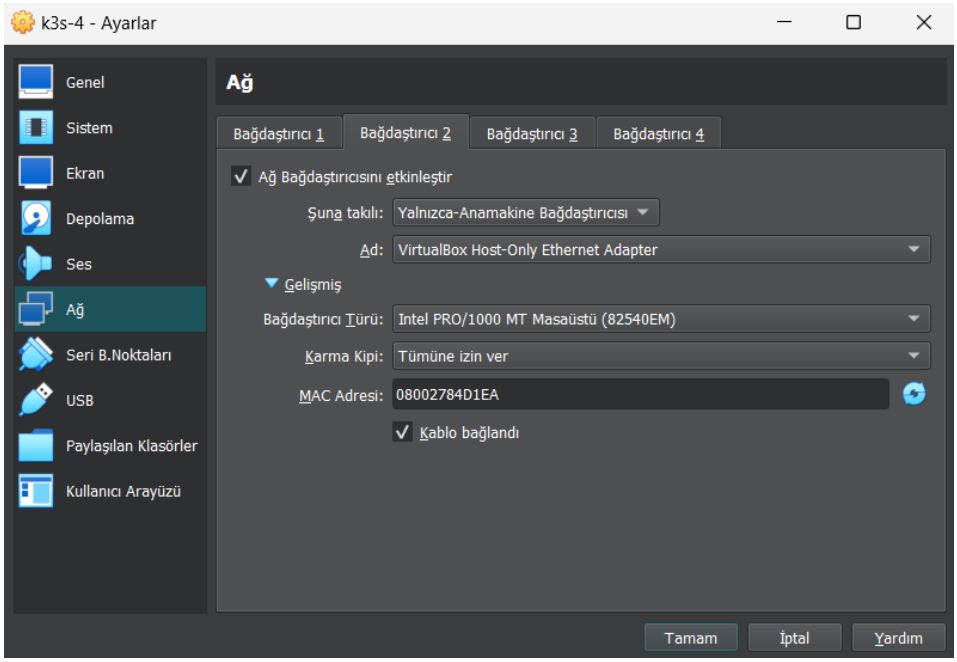


1 NAT Device Configuration

Connection From Host Machine

```
ssh -p 3024 root@localhost
```

Adding Host Only Device



2 Host Only Configuration

Checking The Device Ip

Check information of the device. enp0s8 is added without ip address.

```
root@k3s-4:~# ip link show
```

Set static ip address

Determine Ip Address

You may set dhcp as primary network interface and check the host portion of the ip address then change it according to subnet. Another solution is checking the host machine. Get host portion from that.

Determine Gateway

Default gateway is 10.0.2.2 so I will use that.

```
root@k3s-1:~# ip route
default via 10.0.2.2 dev enp0s3
10.0.2.0/24 dev enp0s3 proto kernel scope link src 10.0.2.15
169.254.0.0/16 dev enp0s3 scope link metric 1000
172.17.0.0/16 dev docker0 proto kernel scope link src 172.17.0.1 linkdown
192.168.56.0/24 dev enp0s8 proto kernel scope link src 192.168.56.103
```

Interface Configuration

Configure **interfaces** file and add last block.

```
nano /etc/network/interfaces
```

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
allow-hotplug enp0s3
iface enp0s3 inet dhcp

# My secondary static network interface
auto enp0s8
iface enp0s8 inet static
    address 192.168.56.31
    netmask 255.255.255.0
    gateway 10.0.2.2
    dns-nameservers 8.8.8.8 8.8.4.4
```

Restart Service

```
systemctl restart networking
```

If its giving error try:

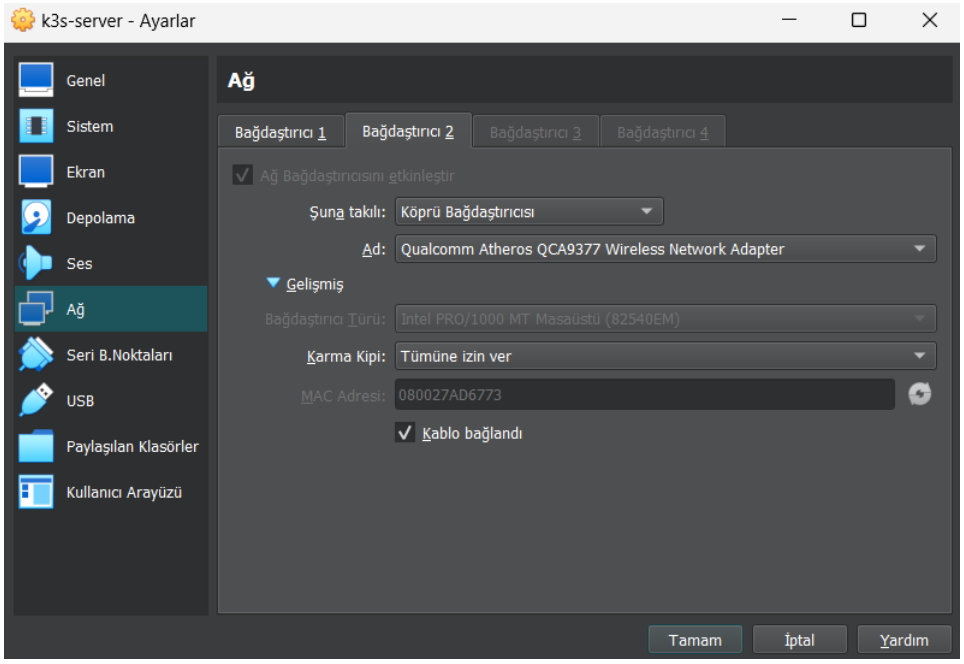
Remove gateway option and

```
ip addr flush dev enp0s8
systemctl restart networking
```

Check Ip Address

```
root@k3s-1:~# ip addr show enp0s8
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen
1000
    link/ether 08:00:27:a3:26:8d brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.31/24 brd 192.168.56.255 scope global enp0s8
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fea3:268d/64 scope link
       valid_lft forever preferred_lft forever
```

Bridge Device



Without any configuration done check ips

```
ip a
```

It will display new device ips empty.

Lets add dhcp configuration for that device so that we will get ip address for that device.

Edit file

```
nano /etc/network/interfaces
```

Add that lines at the end

```
# My secondary network interface
allow-hotplug enp0s8
iface enp0s8 inet dhcp
```

Restart service

```
systemctl restart networking
```

Check ip address again. It will be assigned. Keep that ip and set it static as specified above.