

How to Make a Virtual Machine's IP Address on Hyper-V Static?

written by sysadmin | 5 March 2025

Throughout my experience using Hyper-V on Windows, if my virtual machine is using a static IP, then if my virtual machine or my laptop is restarted, my virtual machine's IP will change automatically, even though I have created a static IP on my virtual machine. So I had to change the settings in a few places to keep up with the IP changes on my virtual machine, and it's very tiring. However, I plan to make the virtual machine's IP address on Hyper-V static.

Problem

How to make a virtual machine's IP address on Hyper-V static?

Solution

When you create a virtual machine in Hyper-V, it will use the **Default-Switch** connection by default. This connection usually has a class B IP, like in the image below on my laptop:

```
sysadmin@DESKTOP-SYSADMI C:\Users\sysadmin
$ ipconfig

Windows IP Configuration

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 10:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter vEthernet (Default Switch):

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::d345:a72f:784:6fe8%21
    IPv4 Address. . . . . : 172.26.32.1
    Subnet Mask . . . . . : 255.255.240.0
    Default Gateway . . . . . :

sysadmin@DESKTOP-SYSADMI C:\Users\sysadmin
$
```



The IP of the Default Switch in my laptop

If I create a virtual machine in Hyper-V, it will usually get an IP in class B as well, and it will change if there is a restart on my virtual machine or my Windows laptop. Therefore, I want to create a static IP in class C on my virtual machine in Hyper-V.

A. On Windows

First, I have to create a new Virtual Switch, which I call **StaticIP**, and I write the following command in PowerShell:

```
New-VMSwitch -SwitchName "StaticIP" -SwitchType Internal
```

On the new Virtual Switch, I have to enter the IP address 192.168.100.0/24, so I type in PowerShell like the command below:

```
New-NetIPAddress -IPAddress 192.168.100.1 -PrefixLength 24 -InterfaceAlias "vEthernet (StaticIP)"
```

After that, I created an IP NAT for the new Virtual Switch by typing in PowerShell:

```
New-NetNAT -Name NATStaticIP -InternalIPInterfaceAddressPrefix 192.168.100.0/24
```

Then there should be a display as in the image below:

```

PS C:\Users\sysadmin> New-VMSwitch -SwitchName "StaticIP" -SwitchType Internal

Name      SwitchType NetAdapterInterfaceDescription
-----
StaticIP  Internal

PS C:\Users\sysadmin> New-NetIPAddress -IPAddress 192.168.100.1 -PrefixLength 24 -InterfaceAlias "vEthernet (StaticIP)"

IPAddress      : 192.168.100.1
InterfaceIndex  : 37
InterfaceAlias  : vEthernet (StaticIP)
AddressFamily   : IPv4
Type            : Unicast
PrefixLength    : 24
PrefixOrigin    : Manual
SuffixOrigin    : Manual
AddressState    : Tentative
ValidLifetime   :
PreferredLifetime :
SkipAsSource    : False
PolicyStore     : ActiveStore

IPAddress      : 192.168.100.1
InterfaceIndex  : 37
InterfaceAlias  : vEthernet (StaticIP)
AddressFamily   : IPv4
Type            : Unicast
PrefixLength    : 24
PrefixOrigin    : Manual
SuffixOrigin    : Manual
AddressState    : Invalid
ValidLifetime   :
PreferredLifetime :
SkipAsSource    : False
PolicyStore     : PersistentStore

PS C:\Users\sysadmin> New-NetNAT -Name NATStaticIP -InternalIPInterfaceAddressPrefix 192.168.100.0/24

Name                  : NATStaticIP
ExternalIPInterfaceAddressPrefix :
InternalIPInterfaceAddressPrefix : 192.168.100.0/24
IcmpQueryTimeout      : 30
TcpEstablishedConnectionTimeout : 1800
TcpTransientConnectionTimeout   : 120
TcpFilteringBehavior  : AddressDependentFiltering
UdpFilteringBehavior  : AddressDependentFiltering
UdpIdleSessionTimeout : 120
UdpInboundRefresh     : False
Store                 : Local
Active                : True

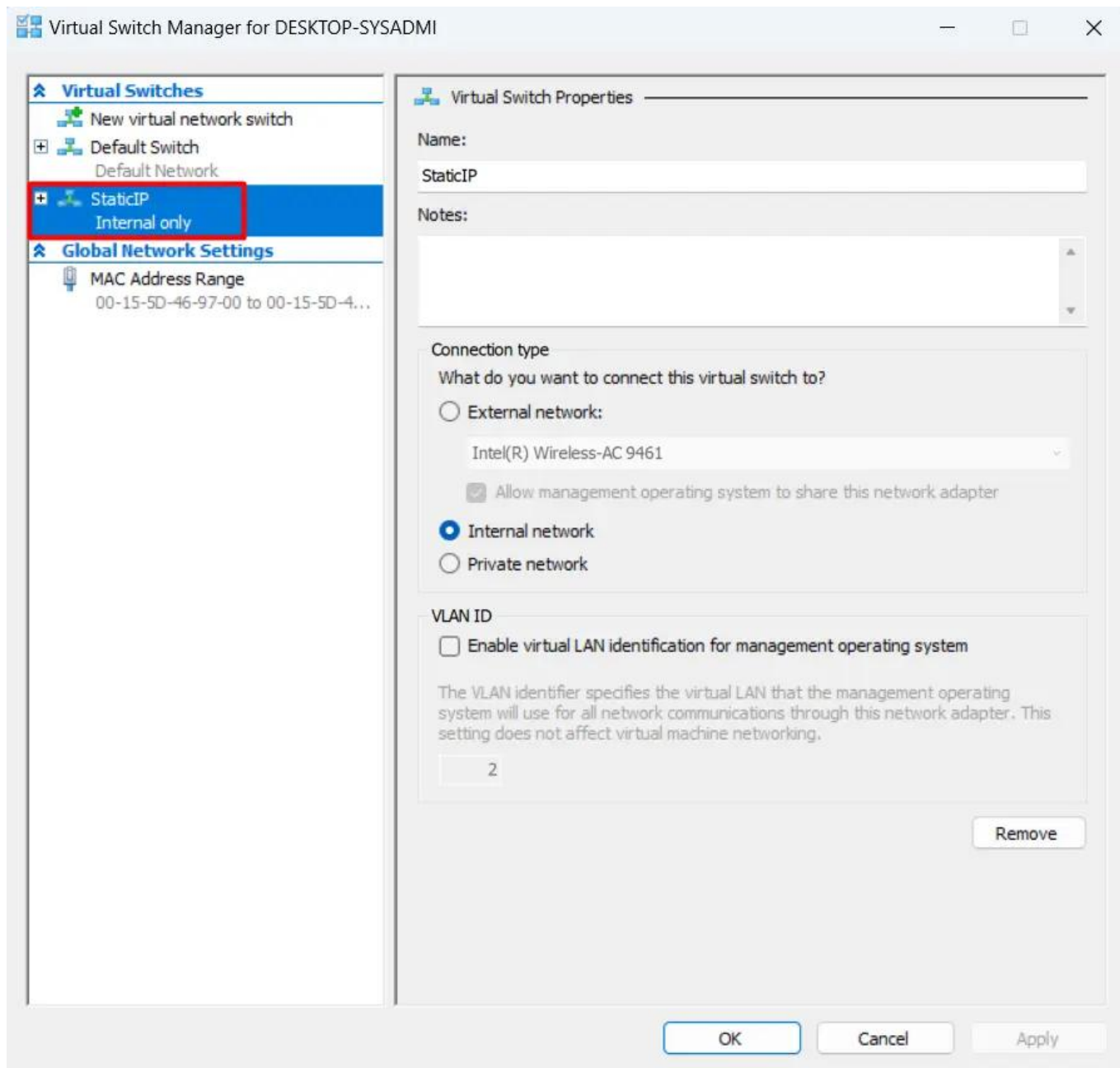
PS C:\Users\sysadmin>

```

Execute the commands

B. Check the Connections

On Hyper-V Manager, there will be a new Virtual Switch Manager named **StaticIP** as shown below:



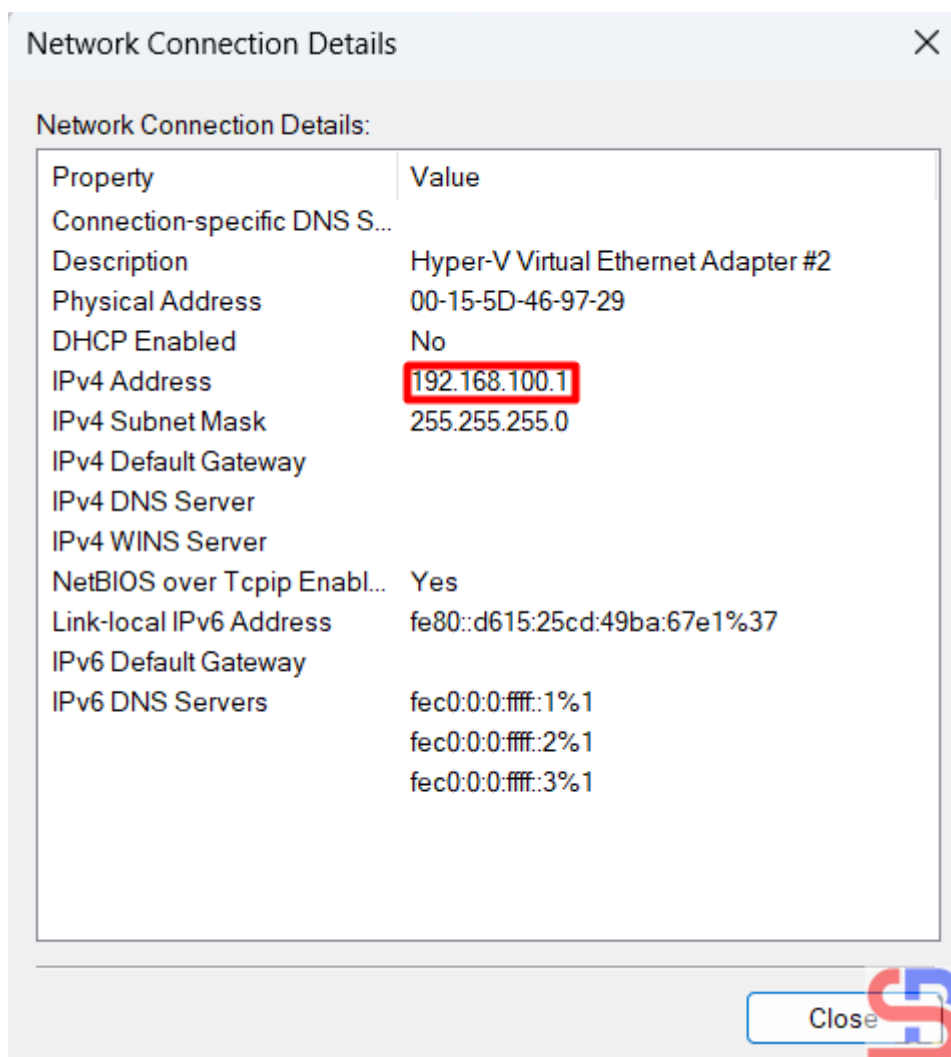
New Virtual Switch

In the **Network Connections** section, there will be a new adapter as shown below:



New adapter in the Network Connection

And the IP of the new adapter is 192.168.100.1 as shown below:



The IP of the new adapter

Or if you want a more complete IP for all adapters can be seen in the image below:

```
sysadmin@DESKTOP-SYSADMI C:\Users\sysadmin
$ ipconfig

Windows IP Configuration

Ethernet adapter vEthernet (StaticIP):

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::d615:25cd:49ba:67e1%37
    IPv4 Address. . . . . : 192.168.100.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Wireless LAN adapter Local Area Connection* 10:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::734b:25a3:755:7651%8
    IPv4 Address. . . . . : 192.168.23.151
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.23.19

Ethernet adapter vEthernet (Default Switch):

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::d345:a72f:784:6fe8%21
    IPv4 Address. . . . . : 172.26.32.1
    Subnet Mask . . . . . : 255.255.240.0
    Default Gateway . . . . . : 

sysadmin@DESKTOP-SYSADMI C:\Users\sysadmin
$ |
```

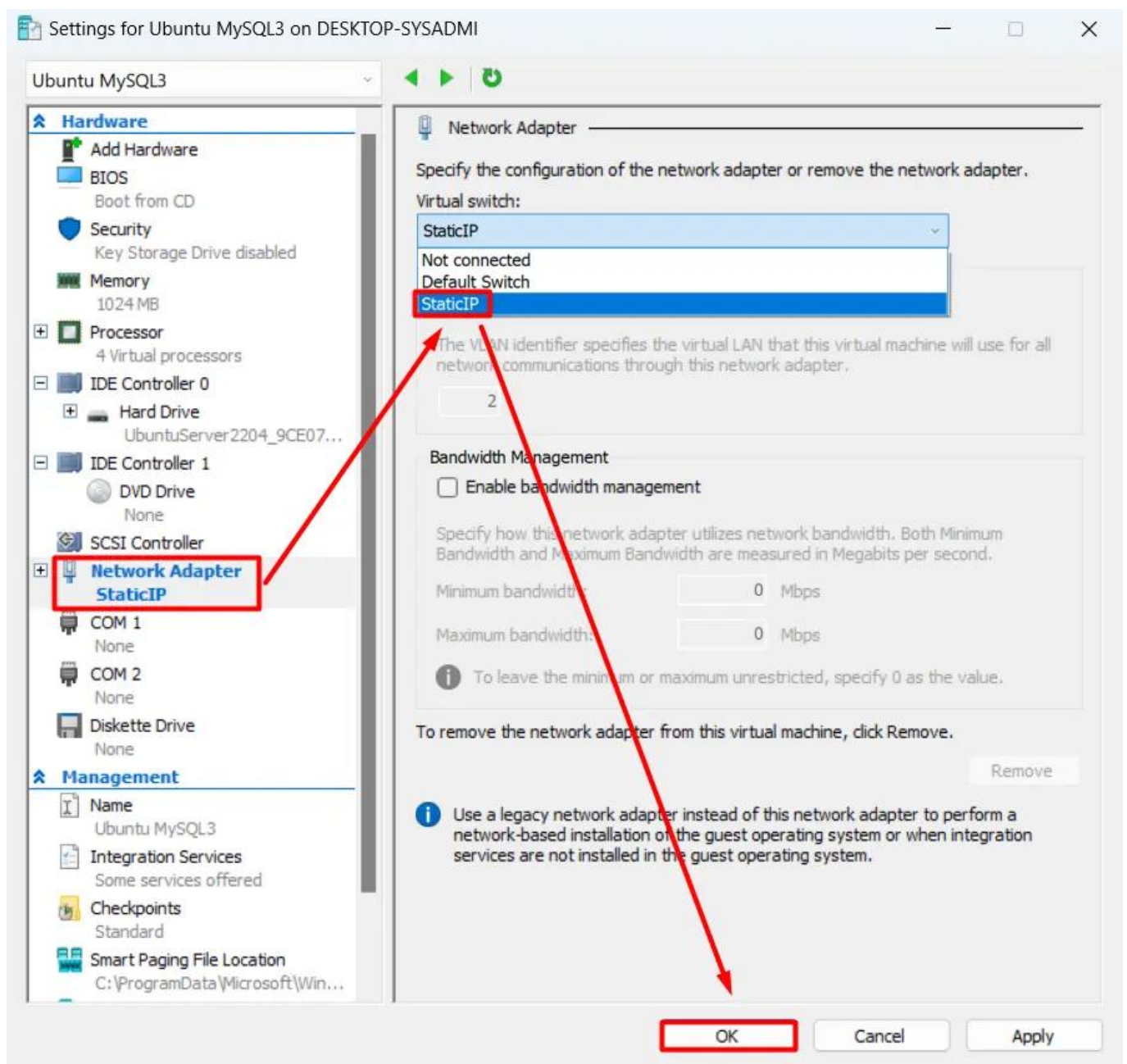


Display all IPs of adapters

B. On a Virtual Machine

If you have previously created a virtual machine, change the virtual machine settings in the **Virtual Switch** section,

select StaticIP as shown below, and then click the OK button:



Select the new Virtual Switch

After that, log in to the virtual machine and change the IP. Because I am using Ubuntu, I changed it in the netplan section as shown below:

```
# This is the network config written by 'subiquity'
network:
  ethernets:
    eth0:
      dhcp4: false
      addresses:
        - 192.168.100.11/24
      routes:
        - to: default
          via: 192.168.100.1
      nameservers:
        addresses:
          - 8.8.8.8
          - 8.8.4.4
  version: 2
```

Change IP in Ubuntu

After that, I restarted the network and saw the changed IP as in the picture below:

```
qwerty@server3:~$ sudo netplan apply
[ 143.282259] blk_update_request: I/O error, dev fd0, sector 0 op 0x0:(READ) flags 0x80700 phys_seg 1 prio class 0
[ 143.282598] blk_update_request: I/O error, dev fd0, sector 0 op 0x0:(READ) flags 0x0 phys_seg 1 prio class 0
[ 143.282634] Buffer I/O error on dev fd0, logical block 0, async page read
qwerty@server3:~$
qwerty@server3:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:46:97:22 brd ff:ff:ff:ff:ff:ff
    inet 192.168.100.11/24 brd 192.168.100.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe46:9722/64 scope link
        valid_lft forever preferred_lft forever
qwerty@server3:~$
qwerty@server3:~$ ping -c2 google.com
PING google.com (142.250.4.113) 56(84) bytes of data:
64 bytes from sm-in-f113.1e100.net (142.250.4.113): icmp_seq=1 ttl=108 time=41.6 ms
64 bytes from sm-in-f113.1e100.net (142.250.4.113): icmp_seq=2 ttl=108 time=50.8 ms

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 41.648/46.231/50.815/4.583 ms
qwerty@server3:~$
qwerty@server3:~$ _
```

Restart the network in the VM

Based on the picture above, my virtual machine can connect to the internet, making it easier for me to install something from the internet on my virtual machine. After that, I tried to reboot the virtual machine, and the IP of the virtual machine is still the same.

Note

You don't need the above steps if your virtual machine uses DHCP.

References

mattwalsh.dev

devpress.csdn.net

superuser.com