

## Homework.Task2.

### 1. Create a VM with Windows 2016 Server.

VBoxManage commands for configure and start VM:

```

VBoxManage createvm --name "Windows2016Server" --register
VBoxManage modifyvm "Windows2016Server" --memory 1024 //set RAM=1Gb
VBoxManage modifyvm "Windows2016Server" --cpus 1 // number of CPUs=1
vboxmanage modifyvm "Windows2016Server" --vram 256
VBoxManage storagectl "Windows2016Server" --name SATA --add sata. // add SATA controller with name "SATA"

VBoxmanage storageattach "Windows2016Server" --storagectl SATA --type dvddrive --port 2 --medium /Users/dennis/epam/devops/Windows_Server_2016_Datacenter_EVAL_en-us_14393_refresh.ISO //attach DVD with Windows Server 2016 installation files

VBoxmanage storageattach "Windows2016Server" --storagectl SATA --type dvddrive --port 3 --medium /Users/dennis/epam/devops/VBoxGuestAdditions.iso //add Guest Addition

VBoxmanage createmedium disk --filename "/Users/dennis/VirtualBox VMs/ Windows2016Server /HDD15GB.vhd" -size 15000 --format VHD //create HDD image
vboxmanage storageattach "Windows2016Server" --storagectl SATA --port 0 --type hdd --medium "/Users/dennis/VirtualBox VMs/Windows2016Server/HDD15GB.vhd" //attach HDD

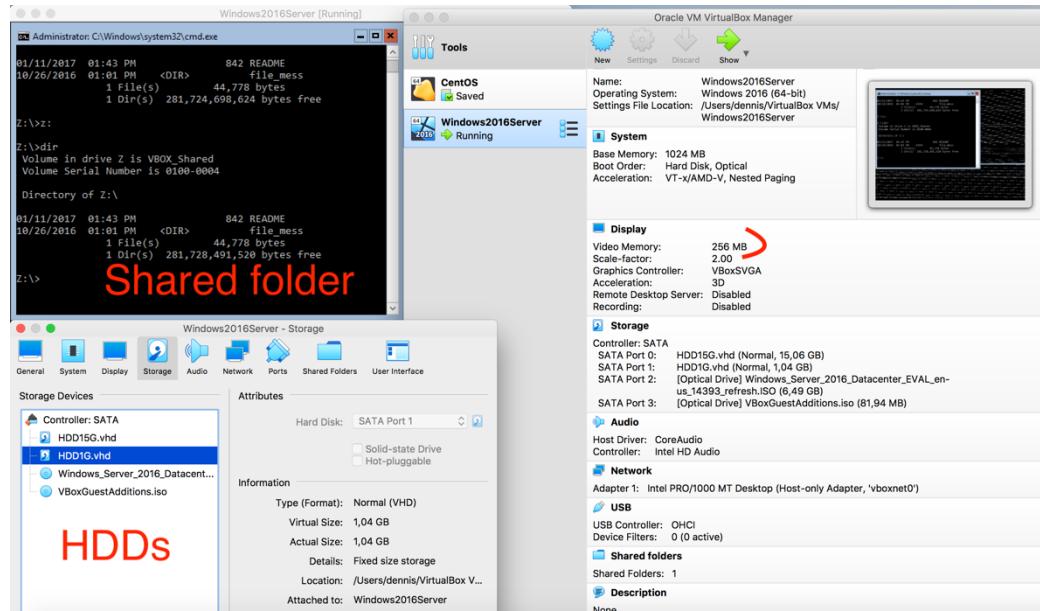
VBoxmanage createmedium disk --filename "/Users/dennis/VirtualBox VMs/ Windows2016Server /HDD1GB.vhd" -size 1024 --format VHD //create HDD image
vboxmanage storageattach "Windows2016Server" --storagectl SATA --port 0 --type hdd --medium "/Users/dennis/VirtualBox VMs/Windows2016Server/HDD1GB.vhd" //attach HDD

vboxmanage modifyvm "Windows2016Server" --nic1 hostonly //setup Host-only mode for Adapter1

vboxmanage startvm "Windows2016Server" //launch VM

```

Screenshot#1. Details tab for Win-2016



### **Notice!**

I couldn't allocate VRAM more than 256Mb on MacBook Pro, HighSierra.

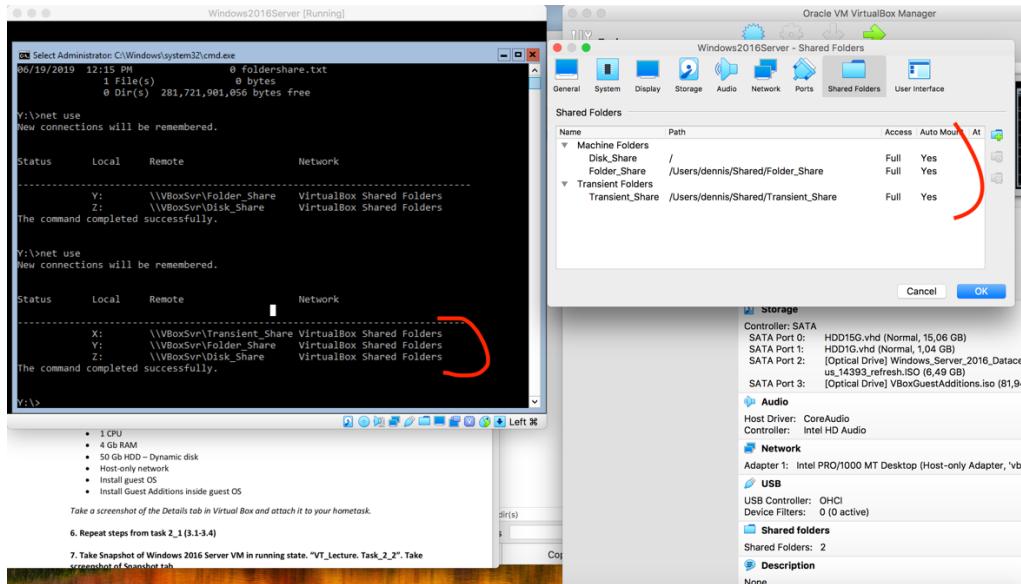
```
L S C L V M - S E S S I O N T Y P E
Denniss-MacBook-Pro:~ dennis$ VBoxManage modifyvm "Windows2016Server" --vram 256
Denniss-MacBook-Pro:~ dennis$ VBoxManage modifyvm "Windows2016Server" --vram 512
VBoxManage: error: Invalid VRAM size: 512 MB (must be in range [0, 256] MB)
VBoxManage: error: Details: code NS_ERROR_INVALID_ARG (0x80007005), component SessionMachine, interface IMachine, callee nsISupports
VBoxManage: error: Context: "COMSETTER(VRAMSize)(ValueUnion.u32)" at line 620 of file VBoxManageModifyVM.cpp
Denniss-MacBook-Pro:~ dennis$
```

There isn't a limitation for VRAM in VM documentation

[https://docs.oracle.com/cd/E97728\\_01/E97727/html/settings-display.html](https://docs.oracle.com/cd/E97728_01/E97727/html/settings-display.html) but looks like  
256Mb is the upper limit <https://askubuntu.com/questions/587083/virtualbox-how-to-increase-video-memory>

## **2. Create three shared folders and map them into guest.**

Screenshot#2. Shared folders.



### 3. Guest Networking.

Screenshot#3. IP settings of Windows2016Server VM

```
Administrator: C:\Windows\system32\cmd.exe
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::a059:185a:e2b5:7210%4
IPv4 Address. . . . . : 192.168.56.101
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

Tunnel adapter isatap.{B0E4C6A3-57EF-4881-B837-613EDE519EF9}:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . . . . : C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . . .
Link-local IPv6 Address . . . . . : fe80::a059:185a:e2b5:7210%4
IPv4 Address. . . . . : 192.168.56.101
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

Tunnel adapter isatap.{B0E4C6A3-57EF-4881-B837-613EDE519EF9}:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . . . . : C:\Users\Administrator>
```

Screenshot #4. Ping statistics – ping from Win-2016 to host.

```
Host
Administrator: C:\Windows\system32\cmd.exe
Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . . .
Link-local IPv6 Address . . . . . : fe80::a059:185a:e2b5:7210%4
IPv4 Address. . . . . : 192.168.56.101
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

Tunnel adapter isatap.{B0E4C6A3-57EF-4881-B837-613EDE519EF9}:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . . . . : C:\Users\Administrator>ping 192.168.56.2

Win2016
Administrator: C:\Windows\system32\cmd.exe
Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . . .
Link-local IPv6 Address . . . . . : fe80::a059:185a:e2b5:7210%4
IPv4 Address. . . . . : 192.168.56.101
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

Tunnel adapter isatap.{B0E4C6A3-57EF-4881-B837-613EDE519EF9}:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . . . . : C:\Users\Administrator>ping 192.168.56.2

Pinging 192.168.56.2 with 32 bytes of data:
Reply from 192.168.56.2: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Users\Administrator>
```

## Screenshot #5. Ping statistics – ping from host to Win-2016

Host

```
media: unknown type>
status: inactive
utun0: flags=4163<NOARP,BROADCAST,RUNNING,MULTICAST> mtu 2000
        link-layer: fe80::ba43:47ff:fe47:2469 brd fe80::fe43:47ff:fe47:2469
        nd6 options=201<PERFORMNUD,DAD>
vboxnet0: flags=41<UP,BROADCAST,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
        ether 0a:00:27:00:00:00
        inet 192.168.56.2 netmask 0xffffffff broadcast 192.168.56.255
Dennis-MacBook-Pro:~>Folder_Share denissen$ ping 192.168.56.101
PING 192.168.56.101 (192.168.56.101): 56 data bytes
64 bytes from 192.168.56.101: icmp_seq=0 ttl=128 time=0.665 ms
64 bytes from 192.168.56.101: icmp_seq=1 ttl=128 time=0.661 ms
64 bytes from 192.168.56.101: icmp_seq=2 ttl=128 time=0.348 ms
64 bytes from 192.168.56.101: icmp_seq=3 ttl=128 time=0.353 ms
64 bytes from 192.168.56.101: icmp_seq=4 ttl=128 time=0.347 ms
64 bytes from 192.168.56.101: icmp_seq=5 ttl=128 time=0.335 ms
64 bytes from 192.168.56.101: icmp_seq=6 ttl=128 time=0.382 ms
64 bytes from 192.168.56.101: icmp_seq=7 ttl=128 time=0.280 ms
64 bytes from 192.168.56.101: icmp_seq=8 ttl=128 time=0.347 ms
64 bytes from 192.168.56.101: icmp_seq=9 ttl=128 time=0.288 ms
64 bytes from 192.168.56.101: icmp_seq=10 ttl=128 time=0.347 ms
64 bytes from 192.168.56.101: icmp_seq=11 ttl=128 time=0.290 ms
64 bytes from 192.168.56.101: icmp_seq=12 ttl=128 time=0.296 ms
64 bytes from 192.168.56.101: icmp_seq=13 ttl=128 time=0.344 ms
64 bytes from 192.168.56.101: icmp_seq=14 ttl=128 time=0.329 ms
64 bytes from 192.168.56.101: icmp_seq=15 ttl=128 time=0.296 ms
64 bytes from 192.168.56.101: icmp_seq=16 ttl=128 time=0.286 ms
64 bytes from 192.168.56.101: icmp_seq=17 ttl=128 time=0.354 ms
64 bytes from 192.168.56.101: icmp_seq=18 ttl=128 time=0.375 ms
64 bytes from 192.168.56.101: icmp_seq=19 ttl=128 time=0.300 ms
64 bytes from 192.168.56.101: icmp_seq=20 ttl=128 time=0.363 ms
64 bytes from 192.168.56.101: icmp_seq=21 ttl=128 time=0.363 ms
64 bytes from 192.168.56.101: icmp_seq=22 ttl=128 time=0.354 ms
64 bytes from 192.168.56.101: icmp_seq=23 ttl=128 time=0.324 ms
^C
--- 192.168.56.101 ping statistics ---
24 packets transmitted, 24 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 0.268/0.346/0.665/0.074 ms
Dennis-MacBook-Pro:~>Folder_Share denissen$
```

Windows2016Server [Running]

Win2016

```
Administrator: C:\Windows\system32\cmd.exe
Reply from 192.168.56.2: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator>ipconfig
'ipconfig' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix . :
    Link-local IPv6 Address . . . . . : fe80::a059:185a:e2b5:7210%4
    IPv4 Address . . . . . : 192.168.56.101
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

Tunnel adapter isatap.{B0E4C6A3-57EF-4881-8837-613EDE519EF9}:

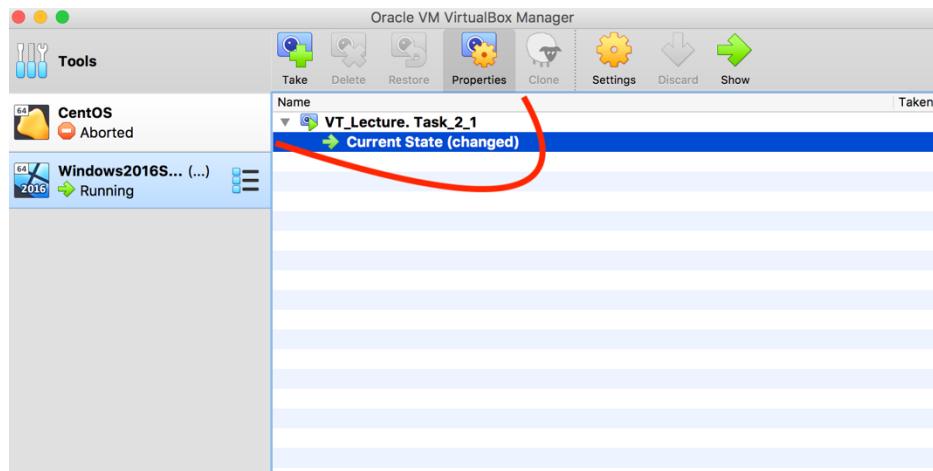
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :

C:\Users\Administrator>
```

**4. Take a Snapshot of this VM in running state. Name it “VT\_Lecture\_Task\_2\_1”. Take screenshot of Snapshot tab**

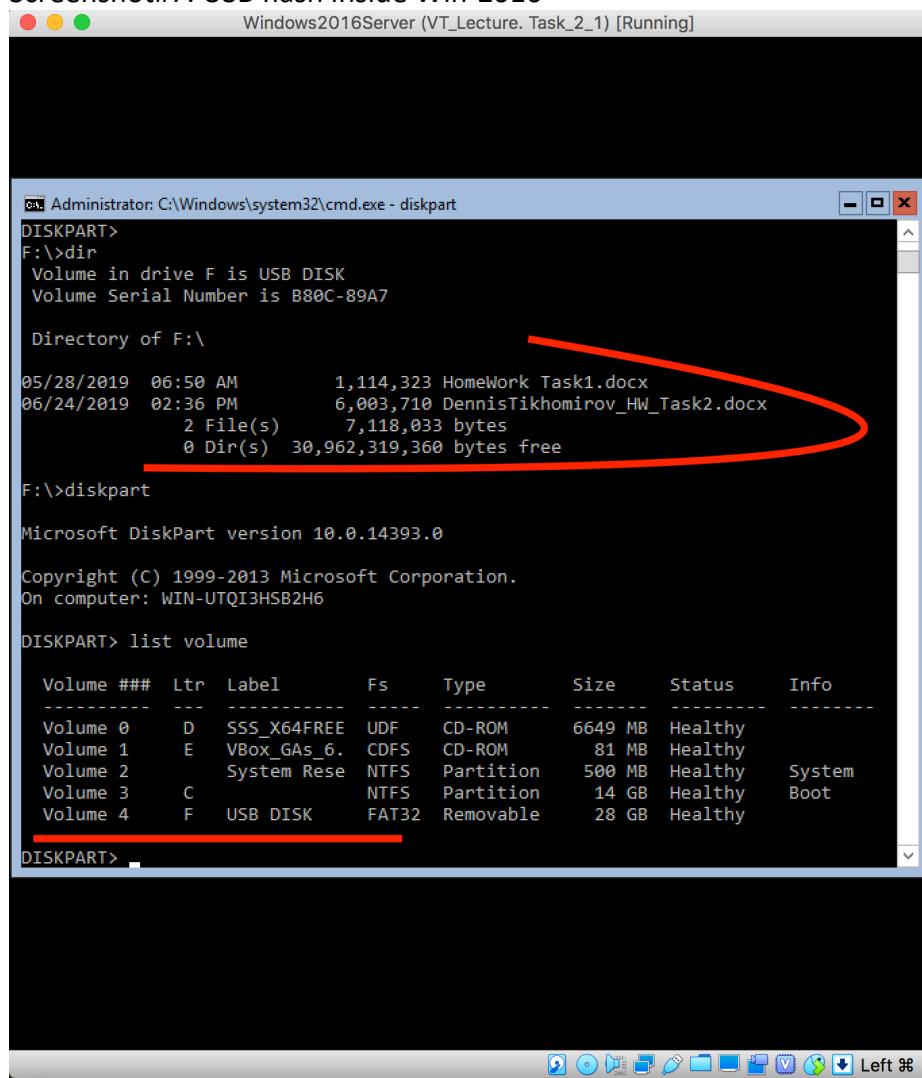
Command: `vboxmanage snapshot "Windows2016Server" take ""VT_Lecture_Task_2_1"`

Screenshot #6. Snapshot tab for Win-2016



**5. Mount a USB flash drive with some files into the VM and copy these files inside**

Screenshot#7. USB flash drive inside Win-2016



Administrator: C:\Windows\system32\cmd.exe - diskpart

```
DISKPART>
F:\>dir
 Volume in drive F is USB DISK
 Volume Serial Number is B80C-89A7

 Directory of F:\

05/28/2019  06:50 AM      1,114,323 Homework_Task1.docx
06/24/2019  02:36 PM      6,003,710 DennisTikhomirov_HW_Task2.docx
              2 File(s)     7,118,033 bytes
               0 Dir(s)   30,962,319,360 bytes free

F:\>diskpart

Microsoft DiskPart version 10.0.14393.0

Copyright (C) 1999-2013 Microsoft Corporation.
On computer: WIN-UTQI3HSB2H6

DISKPART> list volume

  Volume ###  Ltr  Label        Fs    Type        Size     Status     Info
  -----  -----
  Volume 0    D    SSS_X64FREE  UDF  CD-ROM     6649 MB  Healthy
  Volume 1    E    VBox_GAs_6.  CDFS  CD-ROM     81 MB   Healthy
  Volume 2          System Rese  NTFS  Partition   500 MB  Healthy   System
  Volume 3    C          NTFS  Partition   14 GB   Healthy   Boot
  Volume 4    F    USB DISK    FAT32 Removable  28 GB   Healthy

DISKPART>
```

The screenshot shows a Windows 2016 Server terminal window titled "Windows2016Server (VT\_Lecture\_Task\_2\_1) [Running]". Inside, a command prompt session is running. The user has navigated to the "F:\>" directory and run the "dir" command, which lists two files: "Homework\_Task1.docx" and "DennisTikhomirov\_HW\_Task2.docx". A red arrow points from the top right towards this file list. The user then runs the "diskpart" command, followed by "list volume", to view the disk configuration. The output shows five volumes: Volume 0 (CD-ROM), Volume 1 (CD-ROM), Volume 2 (System partition, NTFS, healthy, System, Boot), Volume 3 (NTFS, healthy, Boot), and Volume 4 (FAT32, removable, healthy, labeled "USB DISK"). The bottom of the screen shows the Windows taskbar with various icons.

## 6. 2<sup>nd</sup> VM : Windows 2019 Server

### 6.1 Create a VM with Windows 2019 Server.

VBoxManage commands for configure and start VM:

```
VBoxManage createvm --name "Win2019" --register
VBoxManage modifyvm "Windows2019" --memory 4096 //set RAM=4Gb
VBoxManage modifyvm "Windows2019" --cpus 1 // number of CPUs=1
VBoxManage storagectl "Windows2019" --name CTL1 --add sata // add SATA controller with name "CTL1"

VBoxmanage storageattach "Windows2019" --storagectl CTL1 --type dvddrive --port 1 --medium /Users/dennis/epam/devops/17763.379.190312-0539.rs5_release_svc_refresh_SERVER_EVAL_x64FRE_en-us.iso //attach DVD with Windows Server 2019 installation files

VBoxmanage storageattach "Windows2019" --storagectl CTL1 --type dvddrive --port 2 --medium /Users/dennis/epam/devops/VBoxGuestAdditions.iso //add Guest Addition

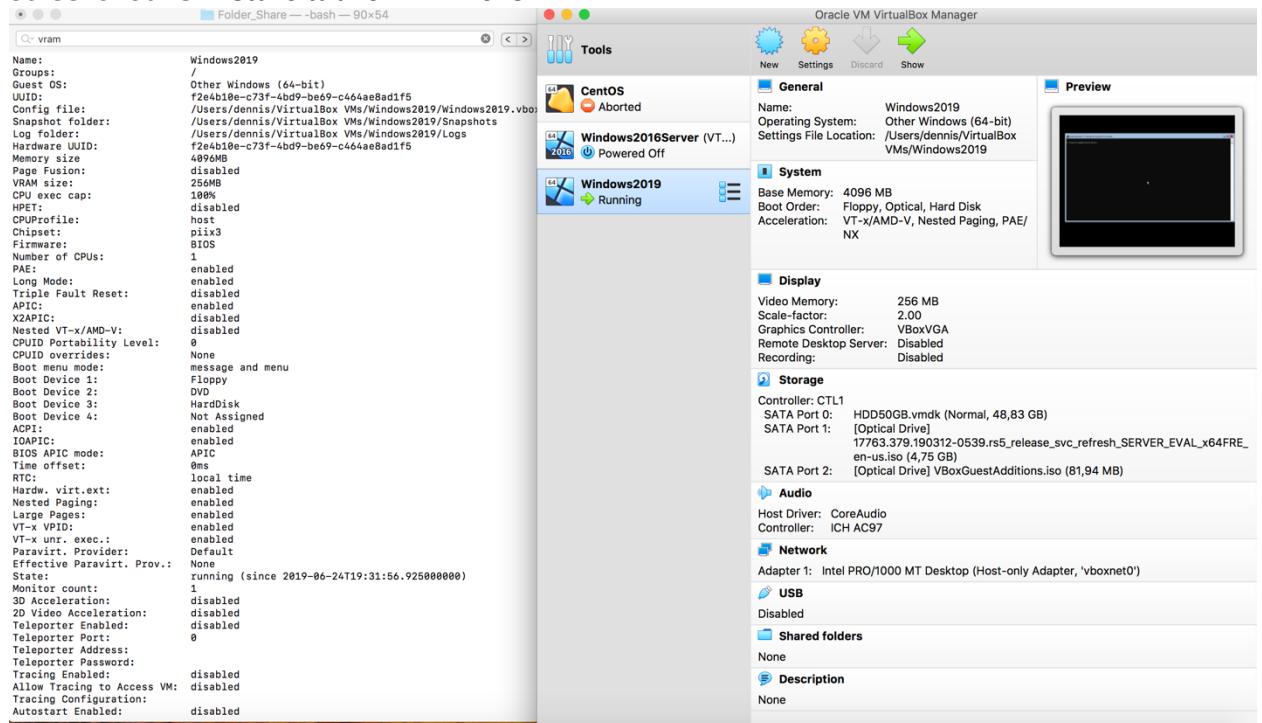
VBoxmanage createmedium disk --filename "/Users/dennis/VirtualBox VMs/Windows2019/HDD50GB.vmdk" -size 50000 --format VHD //create HDD image

vboxmanage storageattach "Windows2019" --storagectl CTL1 --port 0 --type hdd --medium "/Users/dennis/VirtualBox VMs/Windows2019/HDD50GB.vmdk" //attach HDD

vboxmanage modifyvm "Windows2019" --nic1 hostonly //setup Host-only mode for Adapter1

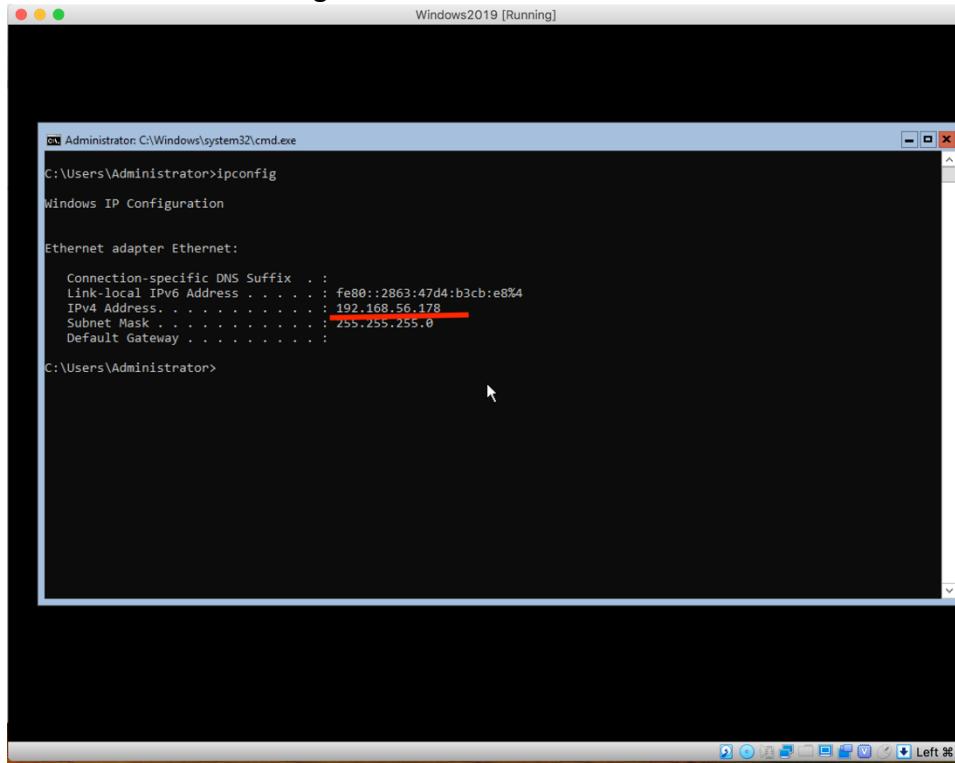
vboxmanage startvm "Windows2019" //launch VM
```

Screenshot #8. Details tab for Win-2019



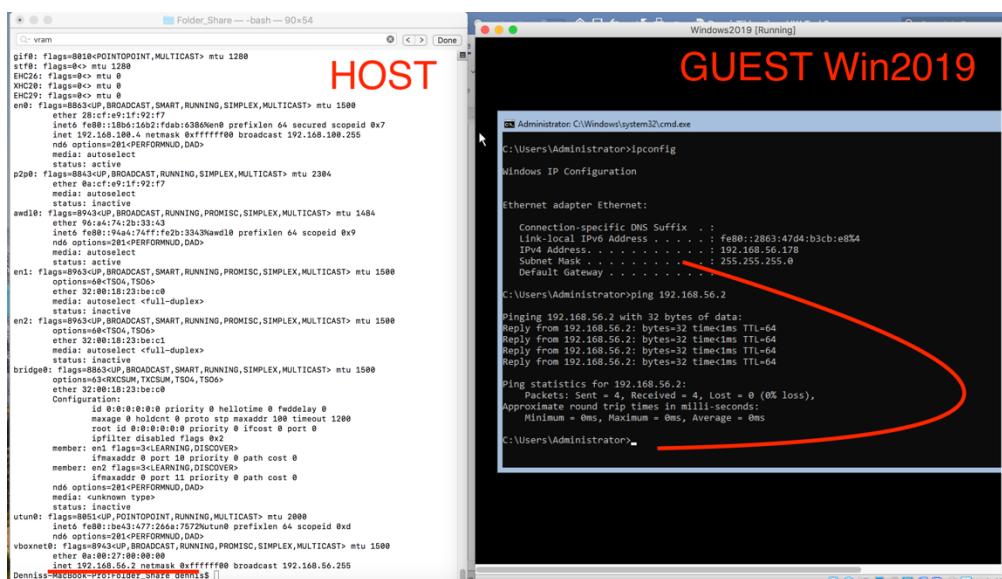
## 6.2 Find out IP settings of Windows 2019 Server VM

Screenshot #9. IP settings of Win-2019 .



## 6.3 Ping statistic from Windows2019Server to host

Screenshot #10. Ping statistics – ping from Win-2019 to host



## 6.4 Ping statistic from host to Windows2019Server

Screenshot #11. Ping statistics – ping from host to Win-2019

The screenshot displays two terminal windows. The left window is a macOS terminal session titled "vram" showing ping statistics from a MacBook Pro to a Windows 2019 Server. The right window is a Windows Command Prompt session titled "Windows2019 [Running]" showing the results of running ipconfig and netsh commands.

**MacOS Terminal (Left):**

```
PING to 192.168.56.177 (192.168.56.177): 56 data bytes
64 bytes from 192.168.56.177: icmp_seq=1 ttl=128 time=0.536 ms
64 bytes from 192.168.56.177: icmp_seq=2 ttl=128 time=0.386 ms
64 bytes from 192.168.56.177: icmp_seq=3 ttl=128 time=0.332 ms
64 bytes from 192.168.56.177: icmp_seq=4 ttl=128 time=0.316 ms
64 bytes from 192.168.56.177: icmp_seq=5 ttl=128 time=0.442 ms
^C
--- 192.168.56.177 ping statistics ---
5 packets transmitted, 5 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 0.167/0.396/0.594/0.082 ms
Dennis-MacBook-Pro:Folder_Share dennis$ ping 192.168.56.178
```

**Windows Command Prompt (Right):**

```
Administrator: C:\Windows\system32\cmd.exe
Windows IP Configuration

Ethernet adapter Ethernet:
  Connection-specific DNS Suffix . :
  Link-local IPv6 Address . . . . . : fe80::2863:47d4:b3cb:e8%4
  IPv4 Address . . . . . : 192.168.56.178
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . :

C:\Users\Administrator>netsh advfirewall set allprofiles state off
Ok.

C:\Users\Administrator>ipconfig
Windows IP Configuration

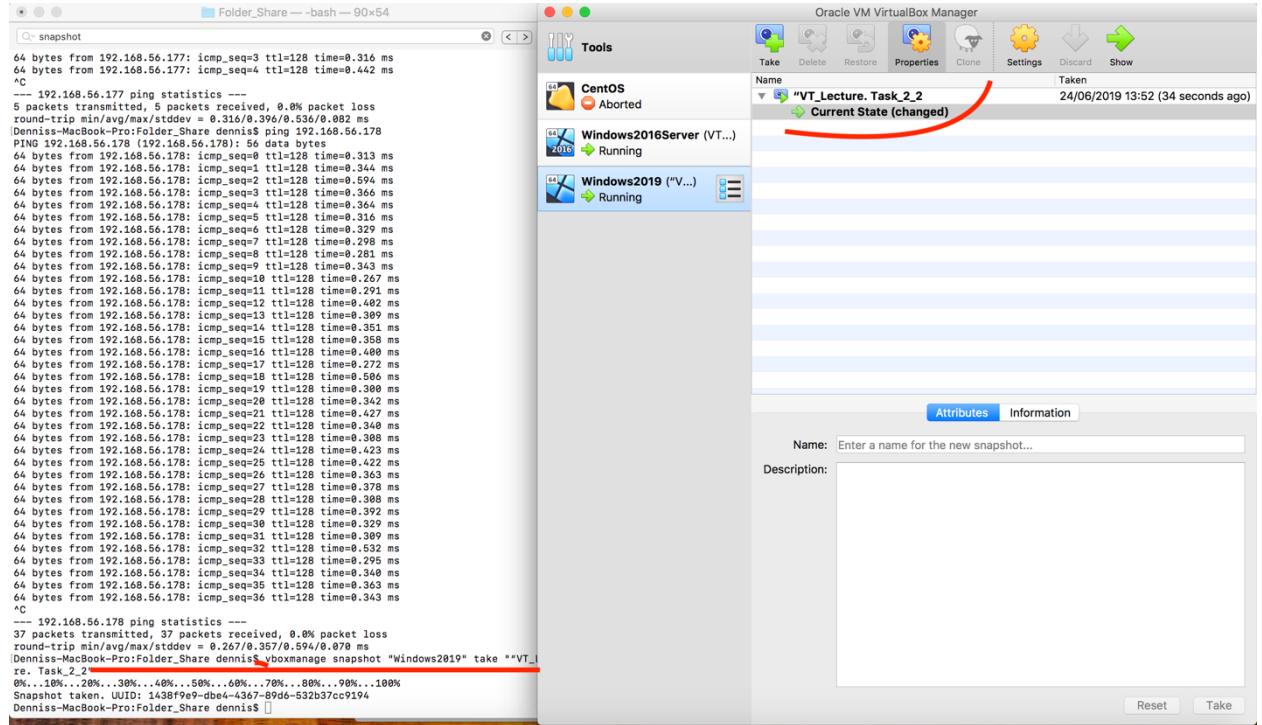
Ethernet adapter Ethernet:
  Connection-specific DNS Suffix . :
  Link-local IPv6 Address . . . . . : fe80::2863:47d4:b3cb:e8%4
  IPv4 Address . . . . . : 192.168.56.178
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . :

C:\Users\Administrator>
```

## 7. Take Snapshot of Windows 2016 Server VM in running state. "VT\_Lecture. Task\_2\_2". Take screenshot of Snapshot tab

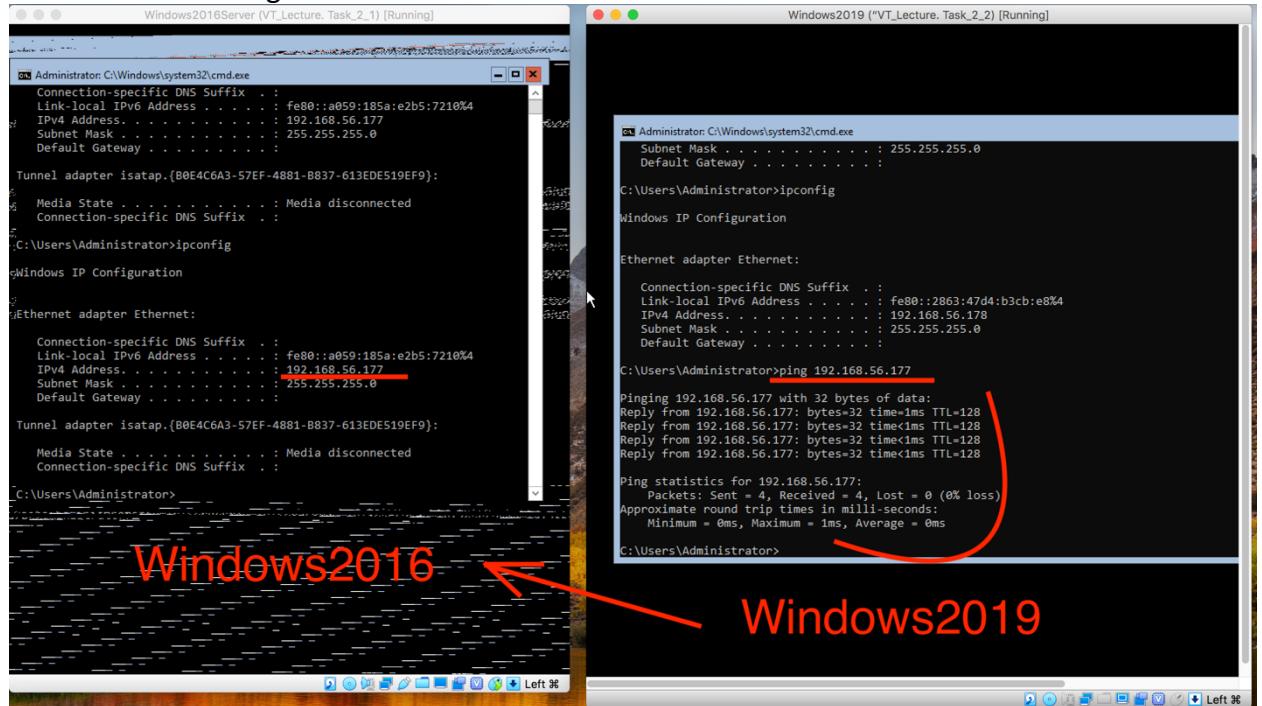
```
vboxmanage snapshot "Windows2019" take ""VT_Lecture. Task_2_2"
```

Screenshot #14. Snapshot tab for Win-2019



## 8. Ping Windows 2016 VM from Windows 2019 and vice versa

Screenshot #11. Ping from Win-2019 to Win-2016



Screenshot #12. Ping from Win-2016 to Win-2019

