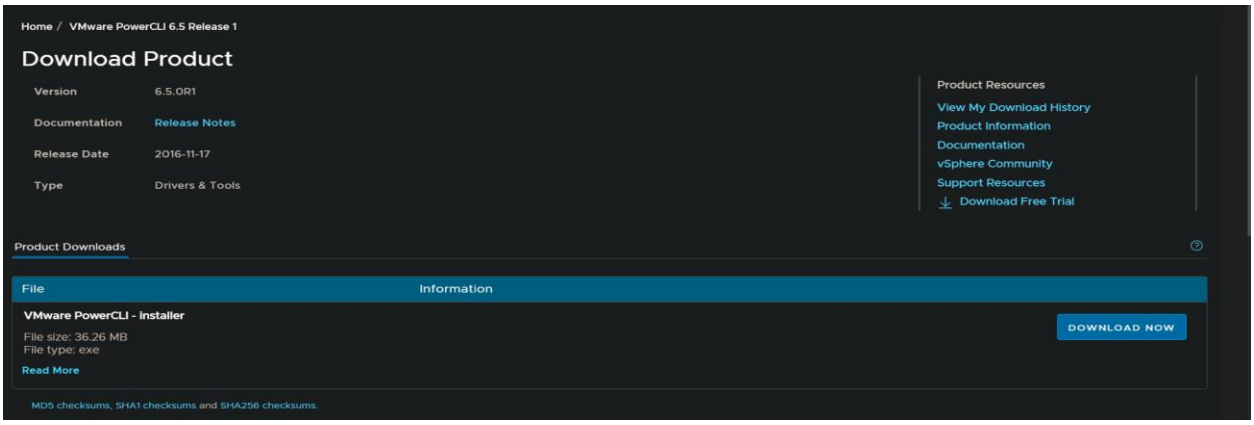
Installing ESXi 6.0 in a Hyper-V Virtual Machine

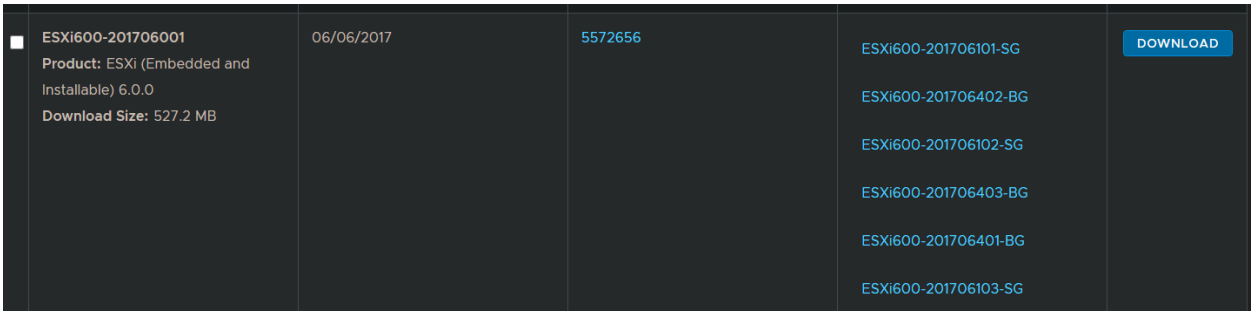
In this post, we will install ESXi 6.0 as a nested virtual machine on Hyper-V Windows Server 2019. This is for testing only not recommended for Production. **Please note ESXi6.5 or ESXi7.0 will not work for nested virtual machine**.

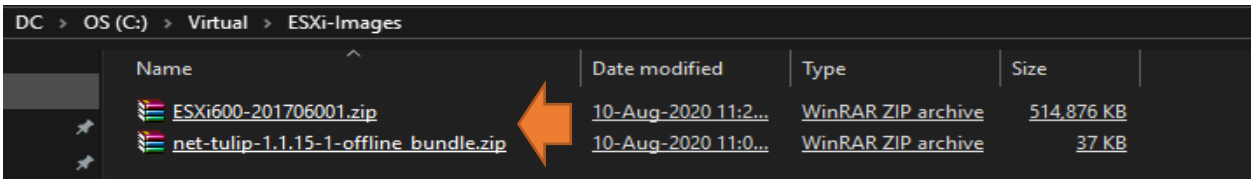
One of the new features with Windows Server 2019 is the Nested Virtualization. It means that you can run a VM inside a Virtual Machine. So, you also can run an ESXi inside a Hyper-V Virtual Machine.

Basically, to install ESXi in a Hyper-V Virtual Machine, below are the steps:

1. Make sure your processor support virtualization – Intel VT-x
2. Make sure physical network card is Intel. If it is Realtek you might have connectivity issue with nested ESXi host later
3. Create a folder structure C:\Virtual\ESXi-Images
4. Install PowerCLI
5. Download ESXi600-201706001.zip from VMWare site
6. Download net-tulip from here http://vibsdepot.v-front.de/depot/bundles/net-tulip-1.1.15-1-offline_bundle.zip
7. Copy 5 and 6 to C:\Virtual\ESXi-Images folder
8. Rest follow the document



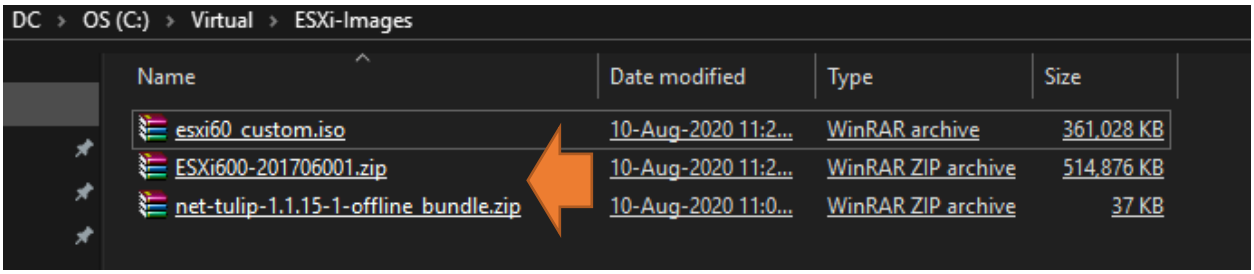




Open PowerCLI and run these commands. When done you folder structure should look as below.

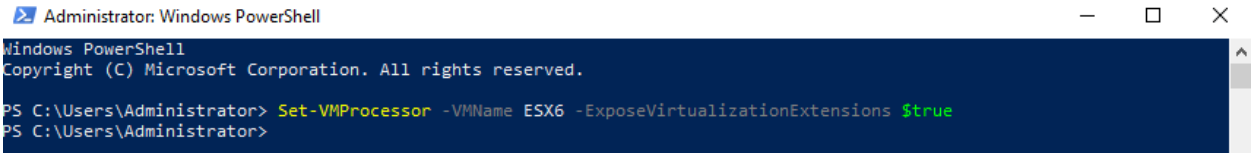
1. Add-EsxSoftwareDepot .\ESXi600-201706001.zip
2. Add-EsxSoftwareDepot .\net-tulip-1.1.15-1-offline_bundle.zip
3. Get-EsxImageProfile|ft Name
4. New-EsxImageProfile -CloneProfile ESXi-6.0.0-20170604001-standard -Name ESXi-NAKIVO -Vendor custom
5. Add-EsxSoftwarePackage -ImageProfile ESXi-NAKIVO -SoftwarePackage net-tulip -Force
6. Set-EsxImageProfile -AcceptanceLevel CommunitySupported -ImageProfile ESXi-NAKIVO
7. Export-EsxImageProfile -ImageProfile ESXi-NAKIVO -FilePath C:\Virtual\ESXi-images\esxi60_custom.iso -ExportToIso -Force

```
VMware PowerCLI 6.5 Release 1 build 4624819
PowerCLI C:\Virtual\ESXi-images> Add-EsxSoftwareDepot .\ESXi600-201706001.zip

Depot Url
---------
zip:C:\Virtual\ESXi-images\ESXi600-201706001.zip?index.xml


PowerCLI C:\Virtual\ESXi-images> Add-EsxSoftwareDepot .\net-tulip-1.1.15-1-offline_bundle.zip

Depot Url
---------
zip:C:\Virtual\ESXi-images\net-tulip-1.1.15-1-offline_bundle.zip?index.xml


PowerCLI C:\Virtual\ESXi-images> Get-EsxImageProfile|ft Name

Name
----
ESXi-6.0.0-20170604001-no-tools
ESXi-6.0.0-20170601001s-no-tools
ESXi-6.0.0-20170604001-standard
ESXi-6.0.0-20170601001s-standard


PowerCLI C:\Virtual\ESXi-images> New-EsxImageProfile -CloneProfile ESXi-6.0.0-20170604001-standard -Name ESXi-NAKIVO -Ve
ndor custom

Name                           Vendor          Last Modified   Acceptance Level
----                           ------          -------------   ----------------
ESXi-NAKIVO                    custom          18-May-2017 ... PartnerSupported


PowerCLI C:\Virtual\ESXi-images> Add-EsxSoftwarePackage -ImageProfile ESXi-NAKIVO -SoftwarePackage net-tulip -Force

Name                           Vendor          Last Modified   Acceptance Level
----                           ------          -------------   ----------------
ESXi-NAKIVO                    custom          10-Aug-2020 ... PartnerSupported


PowerCLI C:\Virtual\ESXi-images> Set-EsxImageProfile -AcceptanceLevel CommunitySupported -ImageProfile ESXi-NAKIVO

Name                           Vendor          Last Modified   Acceptance Level
----                           ------          -------------   ----------------
ESXi-NAKIVO                    custom          10-Aug-2020 ... CommunitySupported


PowerCLI C:\Virtual\ESXi-images> Export-EsxImageProfile -ImageProfile ESXi-NAKIVO -FilePath C:\Virtual\ESXi-images\esxi6
0_custom.iso -ExportToIso -Force
PowerCLI C:\Virtual\ESXi-images>
```

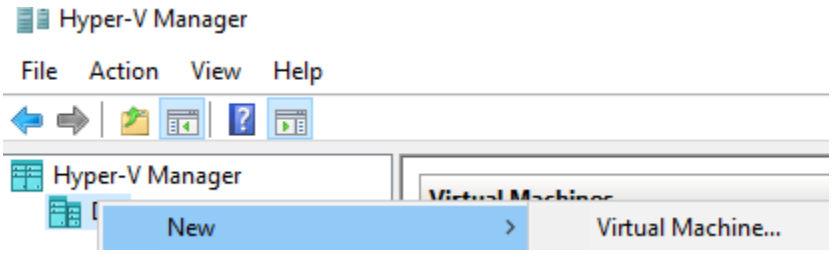


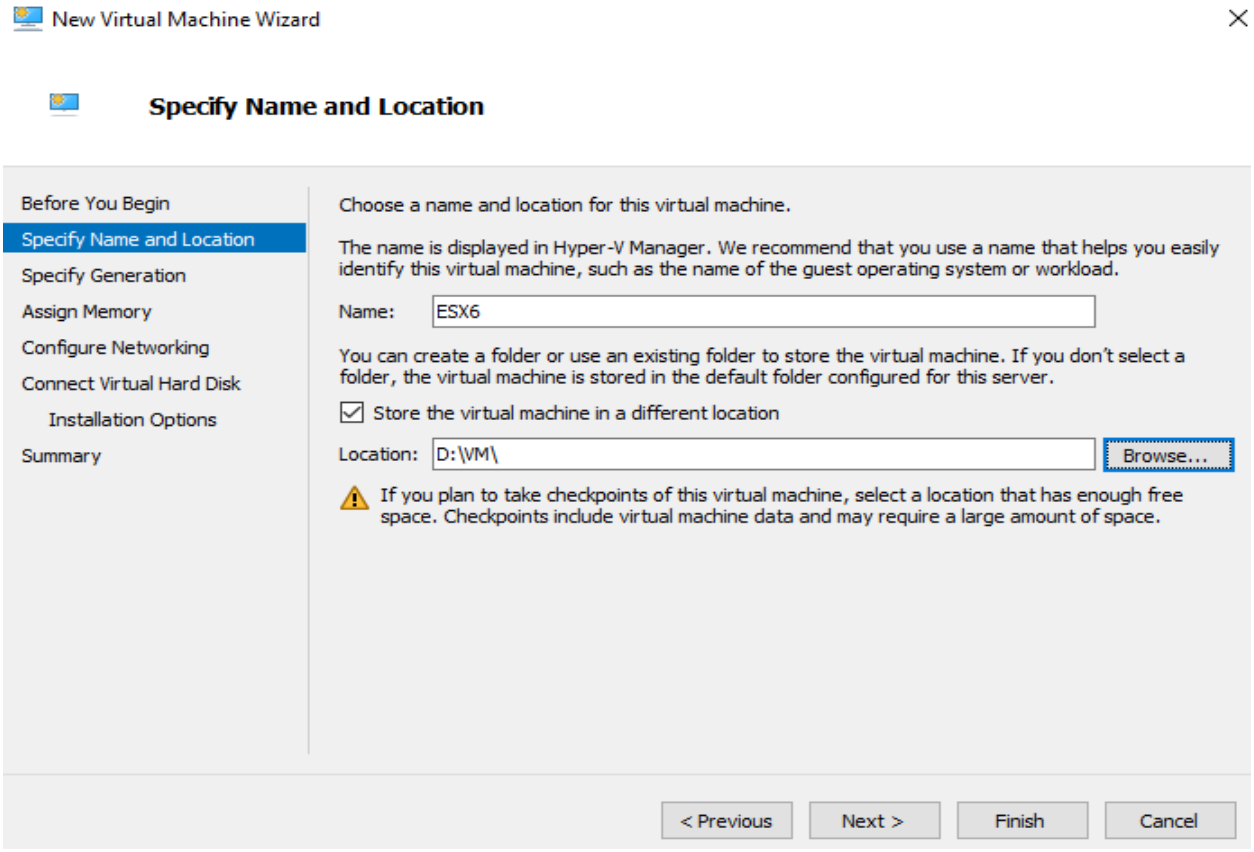
Open PowerShell as Administrator and run below command. Change **VMName** accordingly.

Set-VMProcessor -VMName **ESX6** -ExposeVirtualizationExtensions $true



Now create virtual machine using Hyper-V Manager as detailed below





New Virtual Machine Wizard

Specify Generation

- Before You Begin
- Specify Name and Location
- Specify Generation
- Assign Memory
- Configure Networking
- Connect Virtual Hard Disk
- Installation Options
- Summary

Choose the generation of this virtual machine.

(•) Generation 1

This virtual machine generation supports 32-bit and 64-bit guest operating systems and provides virtual hardware which has been available in all previous versions of Hyper-V.

( ) Generation 2

This virtual machine generation provides support for newer virtualization features, has UEFI-based firmware, and requires a supported 64-bit guest operating system.

⚠ Once a virtual machine has been created, you cannot change its generation.

More about virtual machine generation support

< Previous | Next > | Finish | Cancel

New Virtual Machine Wizard

Assign Memory

- Before You Begin
- Specify Name and Location
- Specify Generation
- Assign Memory
- Configure Networking
- Connect Virtual Hard Disk
- Installation Options
- Summary

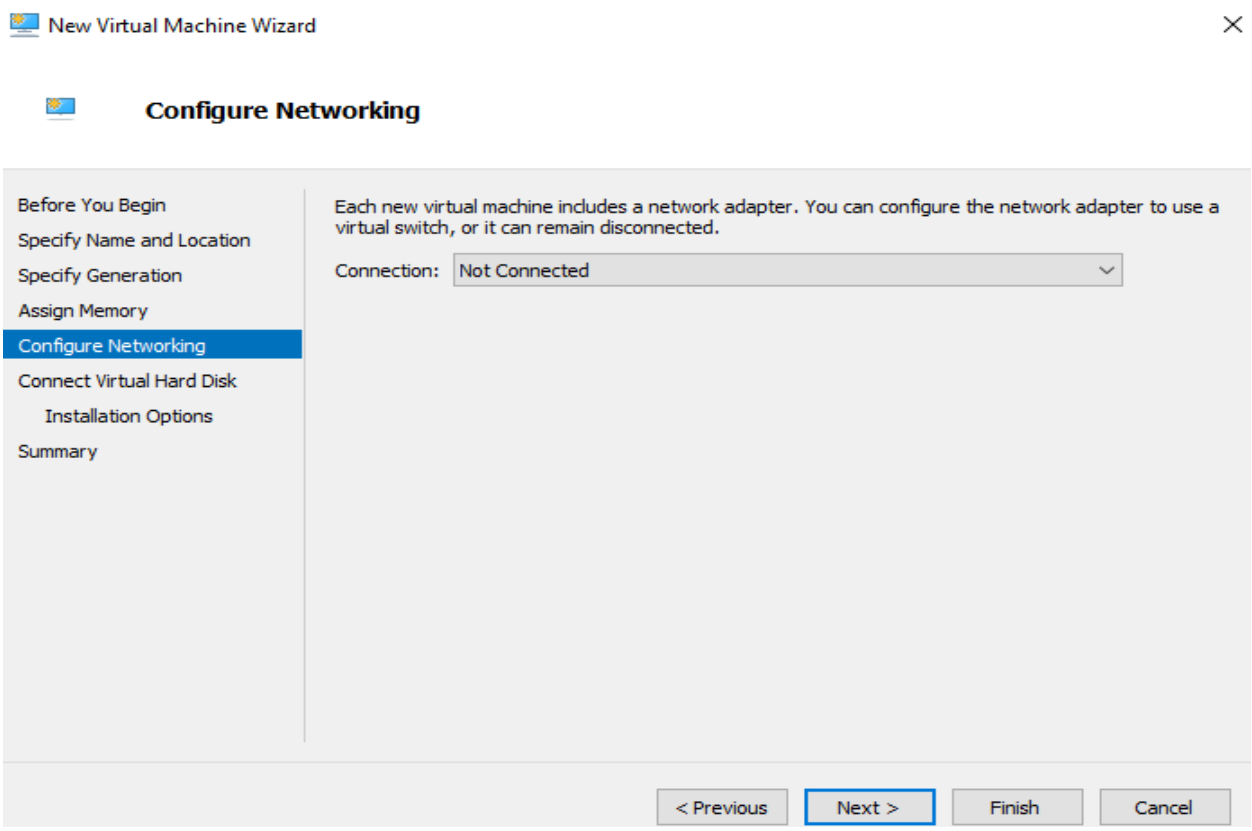
Specify the amount of memory to allocate to this virtual machine. You can specify an amount from 32 MB through 12582912 MB. To improve performance, specify more than the minimum amount recommended for the operating system.

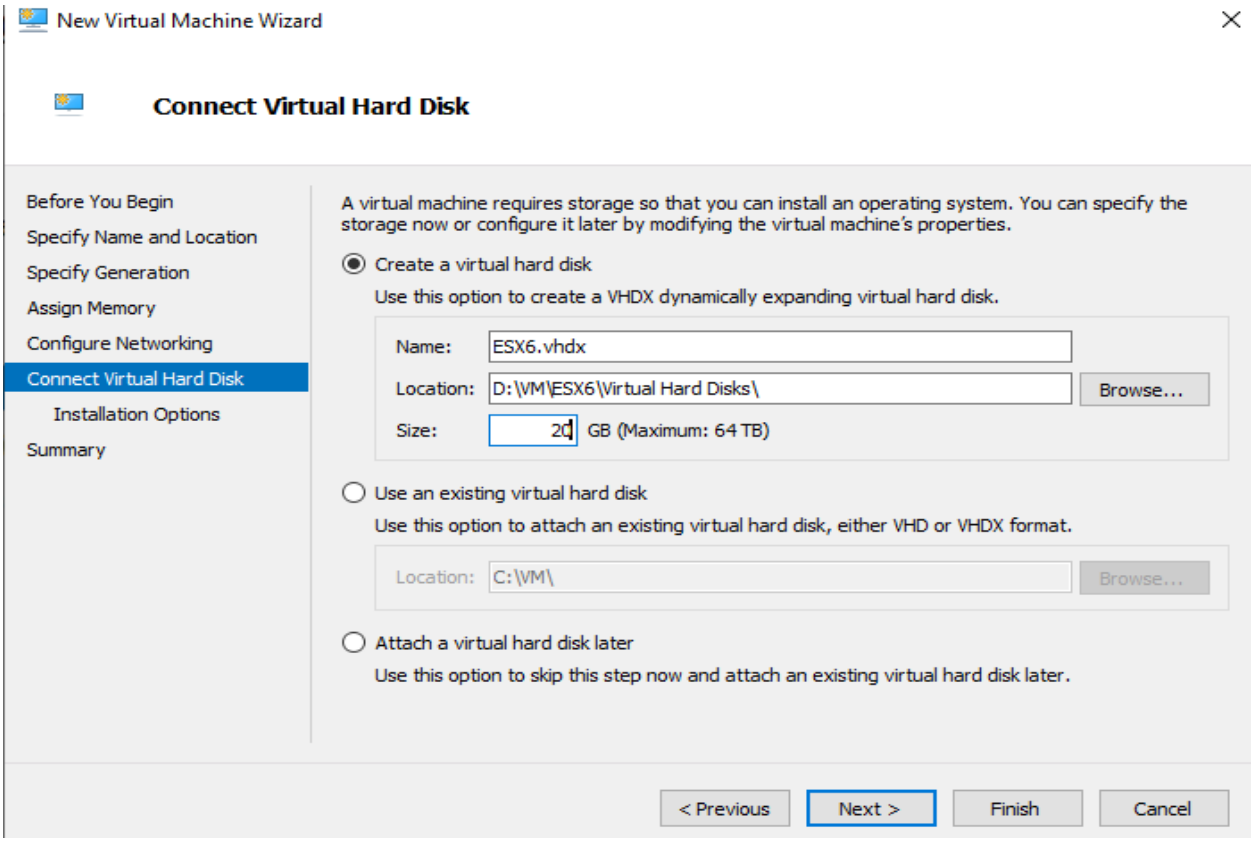
Startup memory: 4048 MB

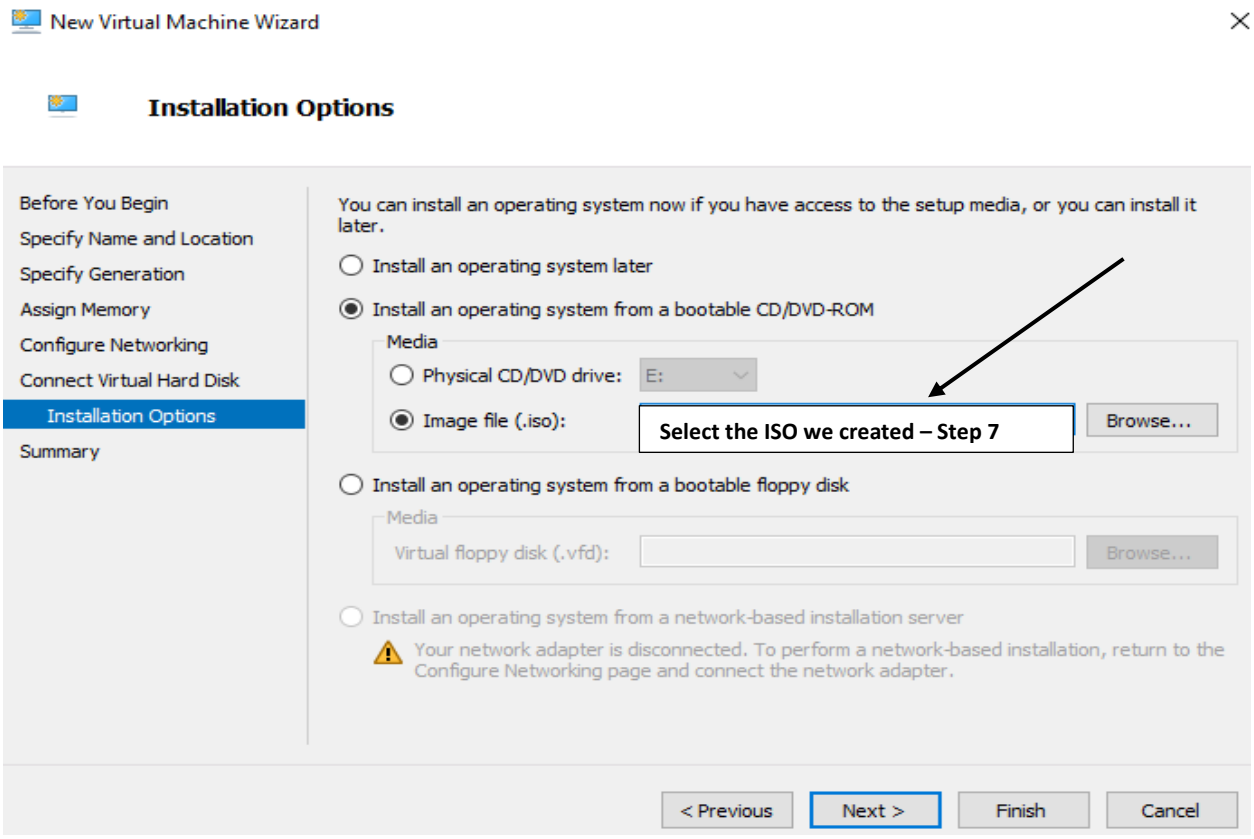
☐ Use Dynamic Memory for this virtual machine.

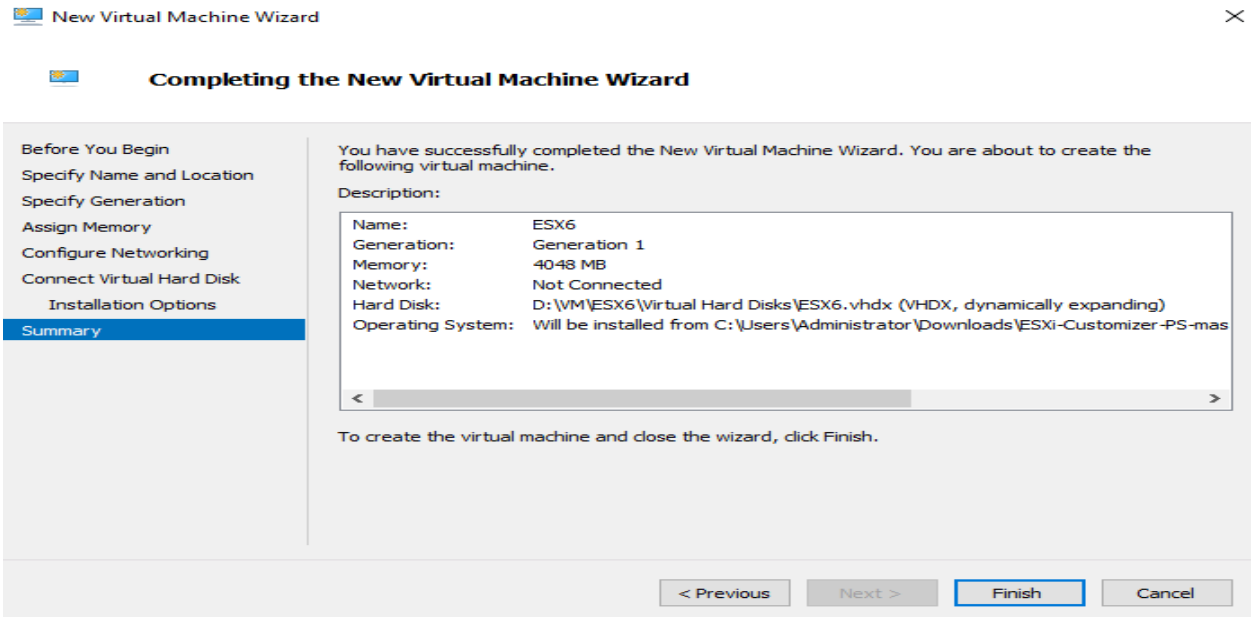
ⓘ When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.

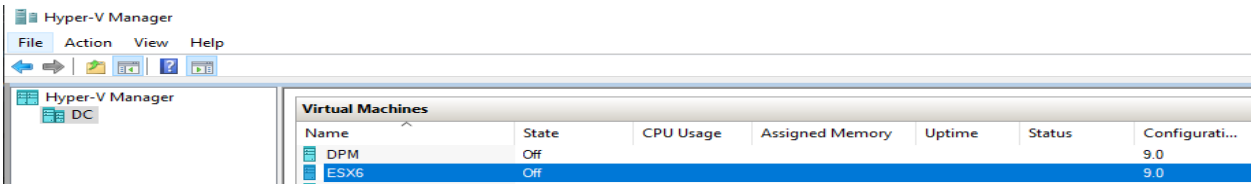
< Previous | Next > | Finish | Cancel

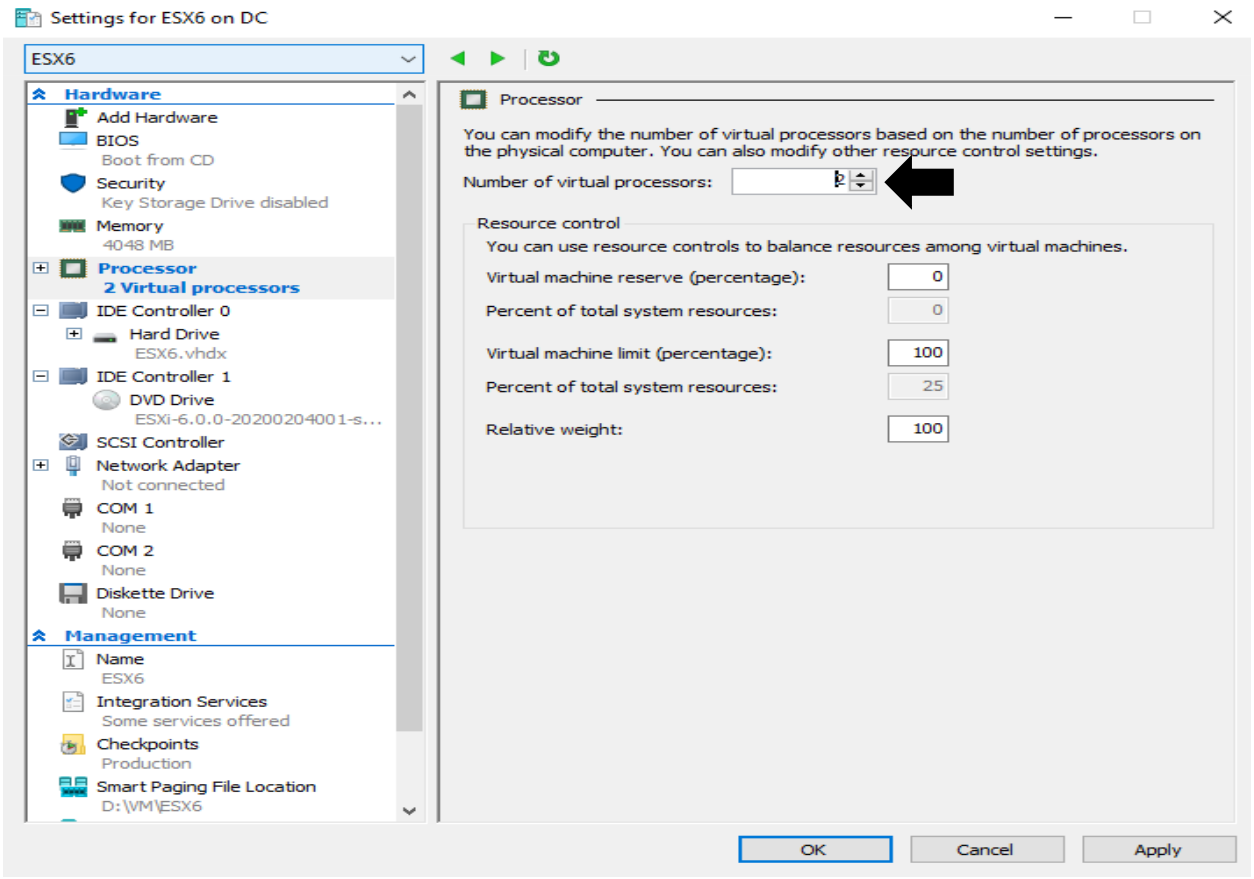

New Virtual Machine Wizard
Configure Networking
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
Each new virtual machine includes a network adapter. You can configure the network adapter to use a virtual switch, or it can remain disconnected.
Connection:
Not Connected
< Previous
Next >
Finish
Cancel

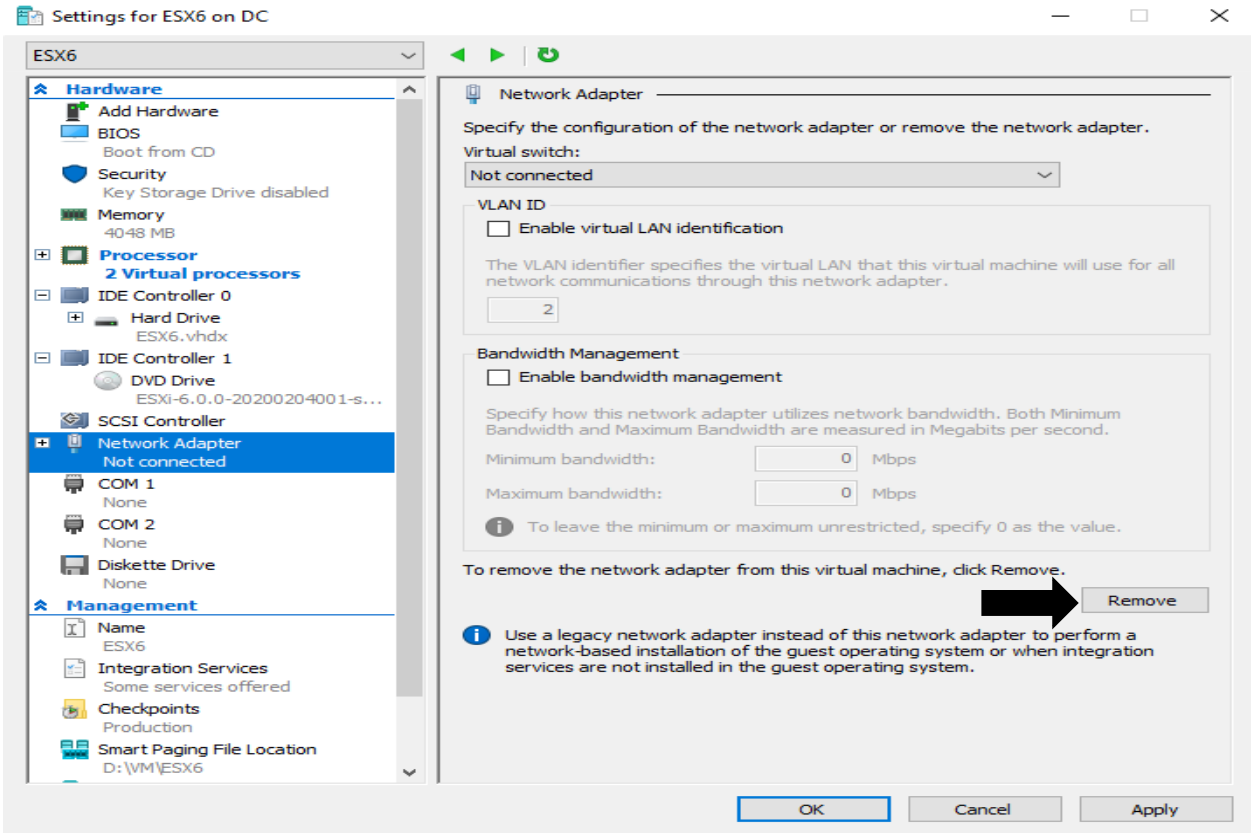

New Virtual Machine Wizard
Connect Virtual Hard Disk
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties.
Create a virtual hard disk
Use this option to create a VHDX dynamically expanding virtual hard disk.
Name:
ESX6.vhdx
Location:
D:\VM\ESX6\Virtual Hard Disks\
Browse...
Size:
20
GB (Maximum: 64 TB)
Use an existing virtual hard disk
Use this option to attach an existing virtual hard disk, either VHD or VHDX format.
Location:
C:\VM\
Browse...
Attach a virtual hard disk later
Use this option to skip this step now and attach an existing virtual hard disk later.
< Previous
Next >
Finish
Cancel

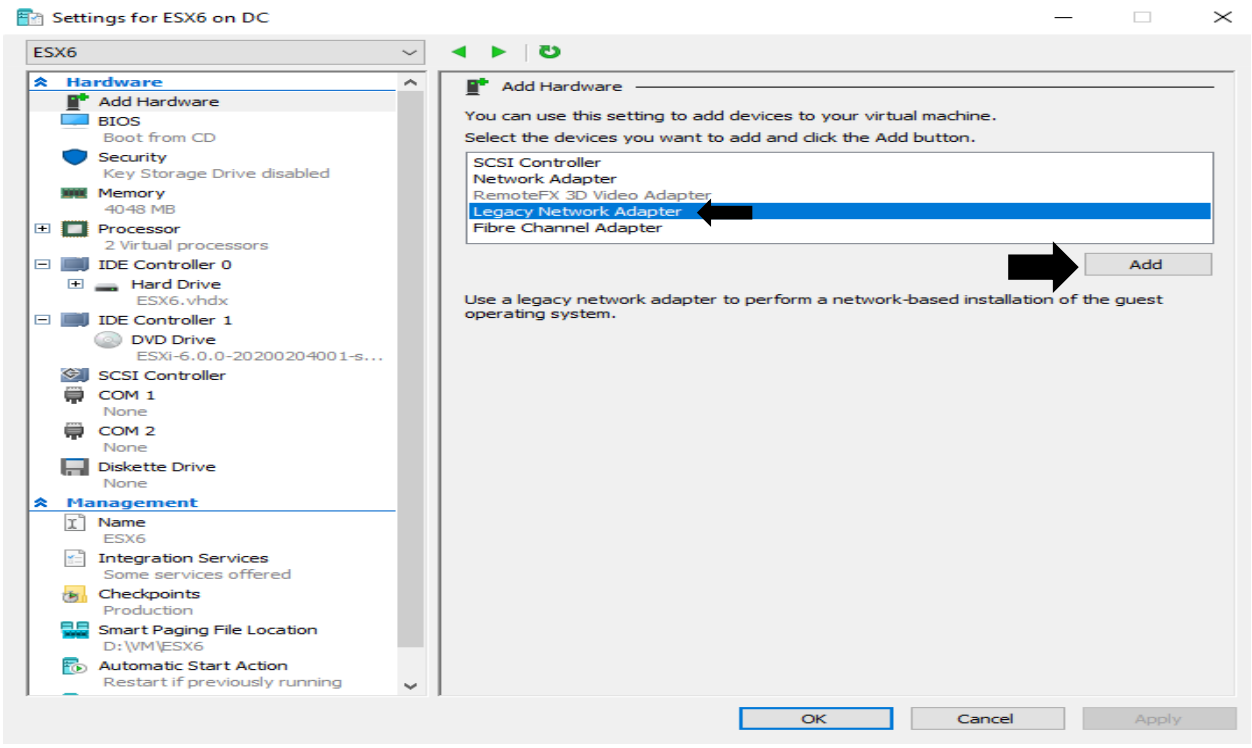

New Virtual Machine Wizard
Installation Options
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
You can install an operating system now if you have access to the setup media, or you can install it later.
Install an operating system later
Install an operating system from a bootable CD/DVD-ROM
Media
Physical CD/DVD drive: E:
Image file (.iso):
Select the ISO we created – Step 7
Browse...
Install an operating system from a bootable floppy disk
Media
Virtual floppy disk (.vfd):
Browse...
Install an operating system from a network-based installation server
Your network adapter is disconnected. To perform a network-based installation, return to the Configure Networking page and connect the network adapter.
< Previous
Next >
Finish
Cancel

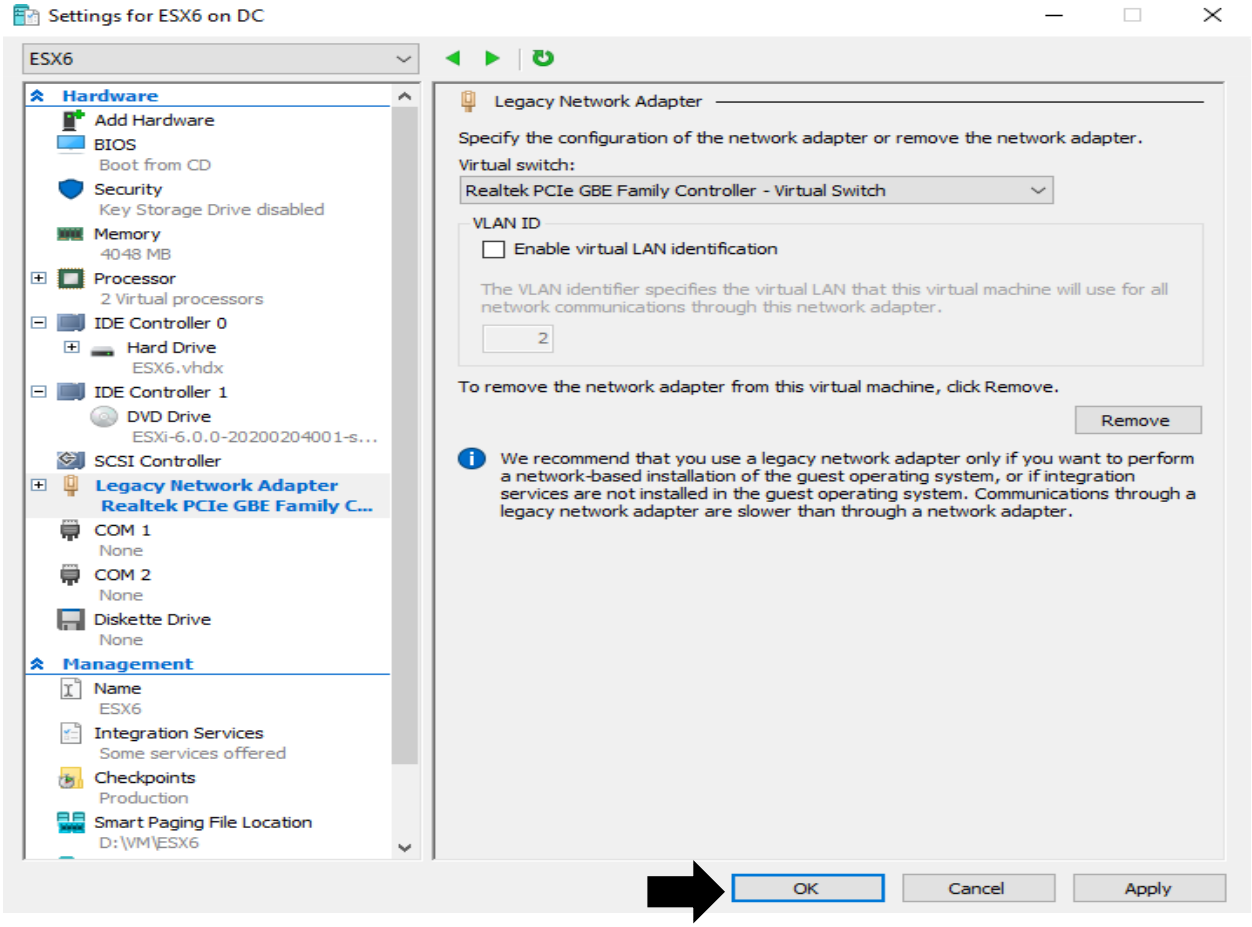

New Virtual Machine Wizard
Completing the New Virtual Machine Wizard
Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary
You have successfully completed the New Virtual Machine Wizard. You are about to create the following virtual machine.
Description:
Name: ESX6
Generation: Generation 1
Memory: 4048 MB
Network: Not Connected
Hard Disk: D:\VM\ESX6\Virtual Hard Disks\ESX6.vhdx (VHDX, dynamically expanding)
Operating System: Will be installed from C:\Users\Administrator\Downloads\ESXi-Customizer-PS-mas
To create the virtual machine and close the wizard, click Finish.
< Previous
Next >
Finish
Cancel


Hyper-V Manager
File
Action
View
Help
Hyper-V Manager
DC
Virtual Machines
Name
State
CPU Usage
Assigned Memory
Uptime
Status
Configurati...
DPM
Off
9.0
ESX6
Off
9.0

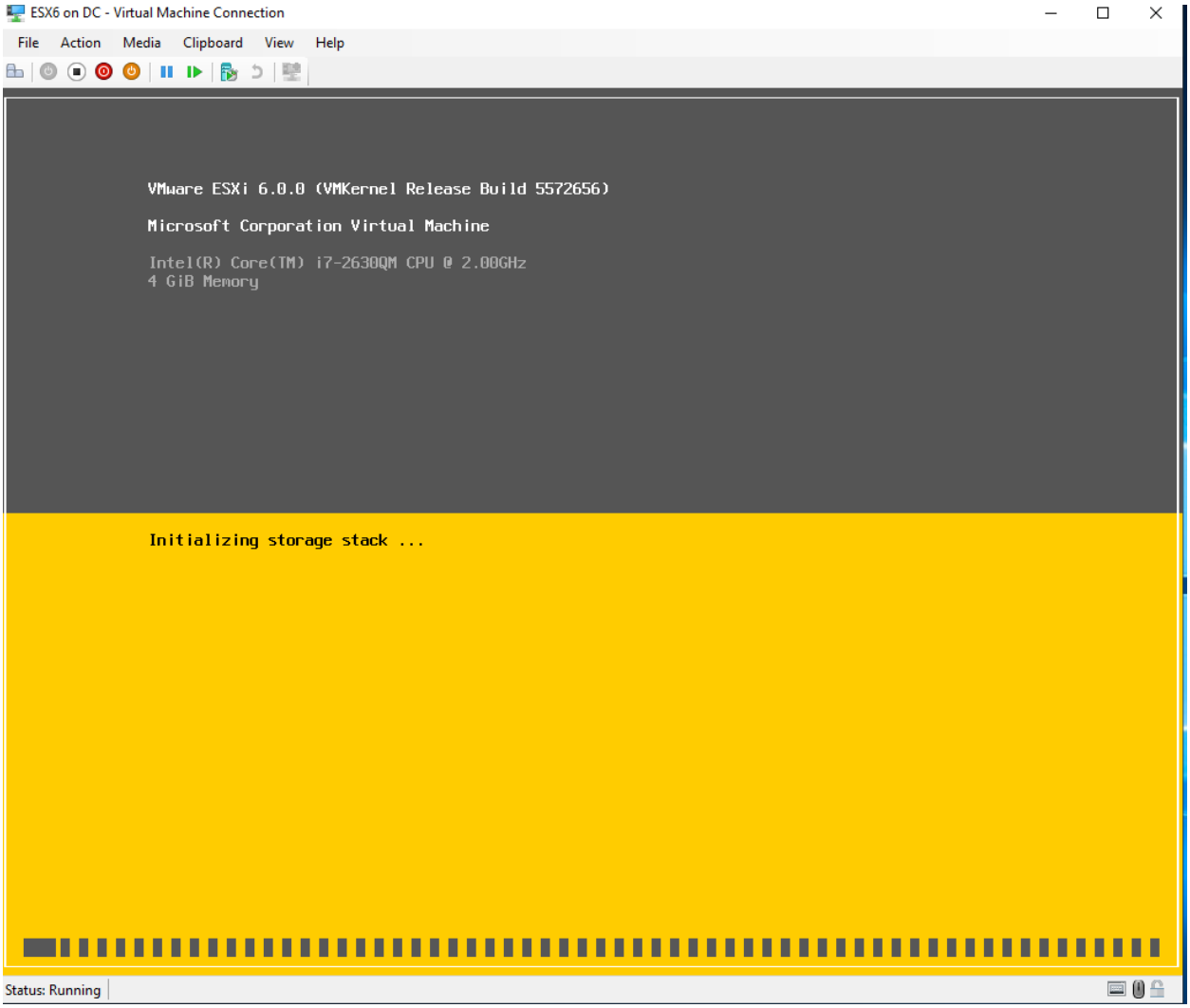

Settings for ESX6 on DC
ESX6
Hardware
Add Hardware
BIOS
Boot from CD
Security
Key Storage Drive disabled
Memory
4048 MB
Processor
2 Virtual processors
IDE Controller 0
Hard Drive
ESX6.vhdx
IDE Controller 1
DVD Drive
ESXi-6.0.0-20200204001-s...
SCSI Controller
Network Adapter
Not connected
COM 1
None
COM 2
None
Diskette Drive
None
Management
Name
ESX6
Integration Services
Some services offered
Checkpoints
Production
Smart Paging File Location
D:\VM\ESX6
Processor
You can modify the number of virtual processors based on the number of processors on the physical computer. You can also modify other resource control settings.
Number of virtual processors:
Resource control
You can use resource controls to balance resources among virtual machines.
Virtual machine reserve (percentage):
0
Percent of total system resources:
0
Virtual machine limit (percentage):
100
Percent of total system resources:
25
Relative weight:
100
OK
Cancel
Apply

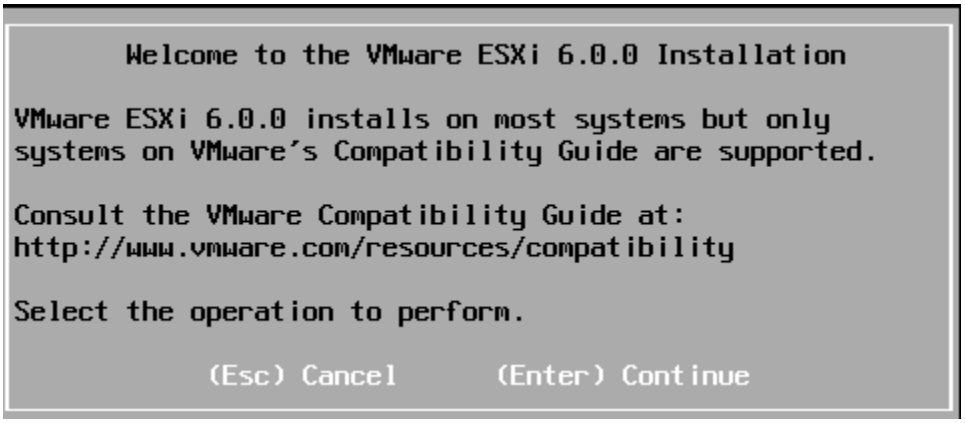

Settings for ESX6 on DC
ESX6
Hardware
Add Hardware
BIOS
Boot from CD
Security
Key Storage Drive disabled
Memory
4048 MB
Processor
2 Virtual processors
IDE Controller 0
Hard Drive
ESX6.vhdx
IDE Controller 1
DVD Drive
ESXi-6.0.0-20200204001-s...
SCSI Controller
Network Adapter
Not connected
COM 1
None
COM 2
None
Diskette Drive
None
Management
Name
ESX6
Integration Services
Some services offered
Checkpoints
Production
Smart Paging File Location
D:\VM\ESX6
Network Adapter
Specify the configuration of the network adapter or remove the network adapter.
Virtual switch:
Not connected
VLAN ID
Enable virtual LAN identification
The VLAN identifier specifies the virtual LAN that this virtual machine will use for all network communications through this network adapter.
2
Bandwidth Management
Enable bandwidth management
Specify how this network adapter utilizes network bandwidth. Both Minimum Bandwidth and Maximum Bandwidth are measured in Megabits per second.
Minimum bandwidth:
0
Mbps
Maximum bandwidth:
0
Mbps
To leave the minimum or maximum unrestricted, specify 0 as the value.
To remove the network adapter from this virtual machine, click Remove.
Remove
Use a legacy network adapter instead of this network adapter to perform a network-based installation of the guest operating system or when integration services are not installed in the guest operating system.
OK
Cancel
Apply

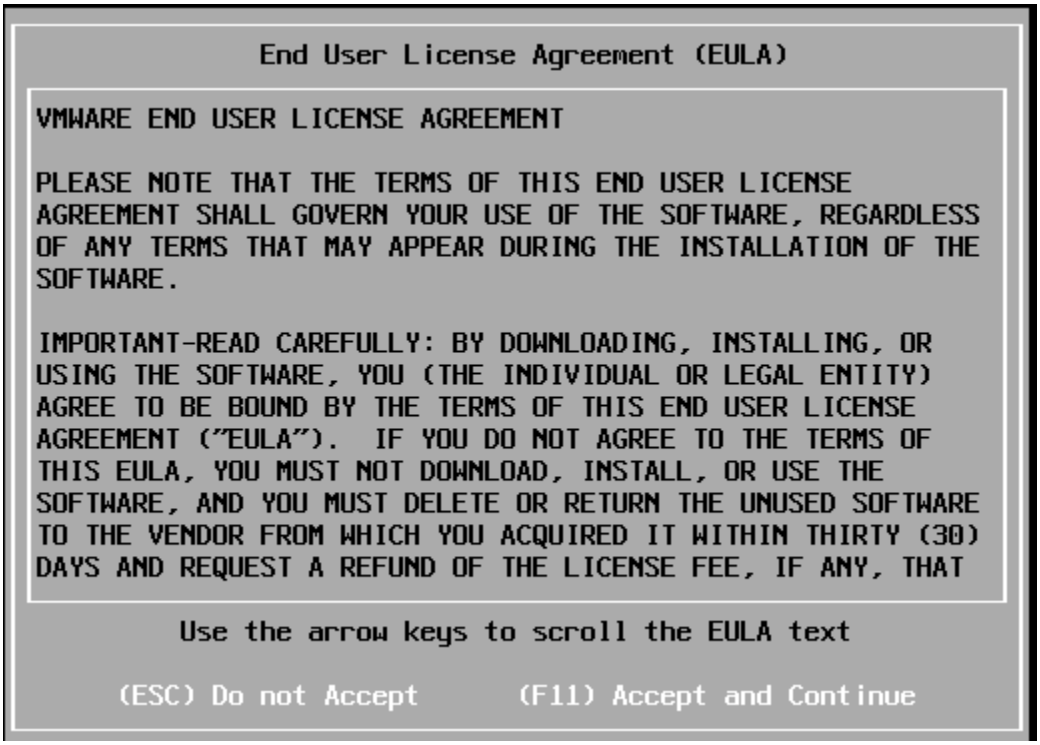

Settings for ESX6 on DC
ESX6
Hardware
Add Hardware
BIOS
Boot from CD
Security
Key Storage Drive disabled
Memory
4048 MB
Processor
2 Virtual processors
IDE Controller 0
Hard Drive
ESX6.vhdx
IDE Controller 1
DVD Drive
ESXi-6.0.0-20200204001-s...
SCSI Controller
COM 1
None
COM 2
None
Diskette Drive
None
Management
Name
ESX6
Integration Services
Some services offered
Checkpoints
Production
Smart Paging File Location
D:\VM\ESX6
Automatic Start Action
Restart if previously running
Add Hardware
You can use this setting to add devices to your virtual machine.
Select the devices you want to add and click the Add button.
SCSI Controller
Network Adapter
RemoteFX 3D Video Adapter
Legacy Network Adapter
Fibre Channel Adapter
Add
Use a legacy network adapter to perform a network-based installation of the guest operating system.
OK
Cancel
Apply

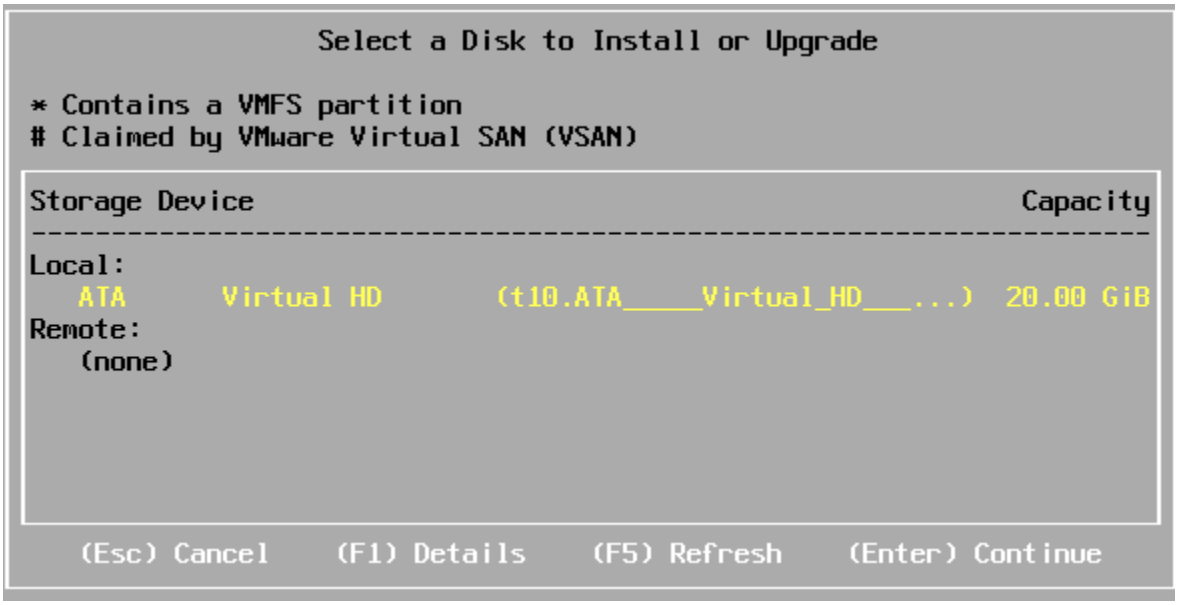

Settings for ESX6 on DC
ESX6
Hardware
Add Hardware
BIOS
Boot from CD
Security
Key Storage Drive disabled
Memory
4048 MB
Processor
2 Virtual processors
IDE Controller 0
Hard Drive
ESX6.vhdx
IDE Controller 1
DVD Drive
ESXi-6.0.0-20200204001-s...
SCSI Controller
Legacy Network Adapter
Realtek PCIe GBE Family C...
COM 1
None
COM 2
None
Diskette Drive
None
Management
Name
ESX6
Integration Services
Some services offered
Checkpoints
Production
Smart Paging File Location
D:\VM\ESX6
Legacy Network Adapter
Specify the configuration of the network adapter or remove the network adapter.
Virtual switch:
Realtek PCIe GBE Family Controller - Virtual Switch
VLAN ID
Enable virtual LAN identification
The VLAN identifier specifies the virtual LAN that this virtual machine will use for all network communications through this network adapter.
2
To remove the network adapter from this virtual machine, click Remove.
Remove
We recommend that you use a legacy network adapter only if you want to perform a network-based installation of the guest operating system, or if integration services are not installed in the guest operating system. Communications through a legacy network adapter are slower than through a network adapter.
OK
Cancel
Apply

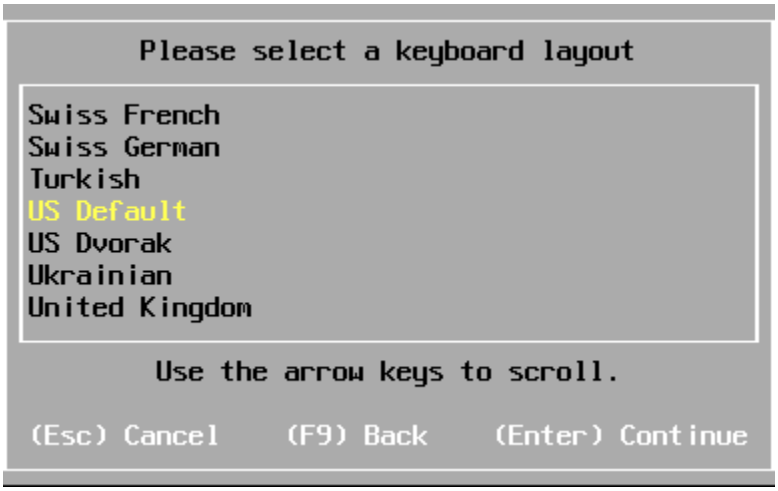
Now power on the virtual machine. When you see Blue screen Press TAB and enter this command **ignoreHeadless=TRUE** and press Enter. The ISO will start to load and you can install ESXi6.0



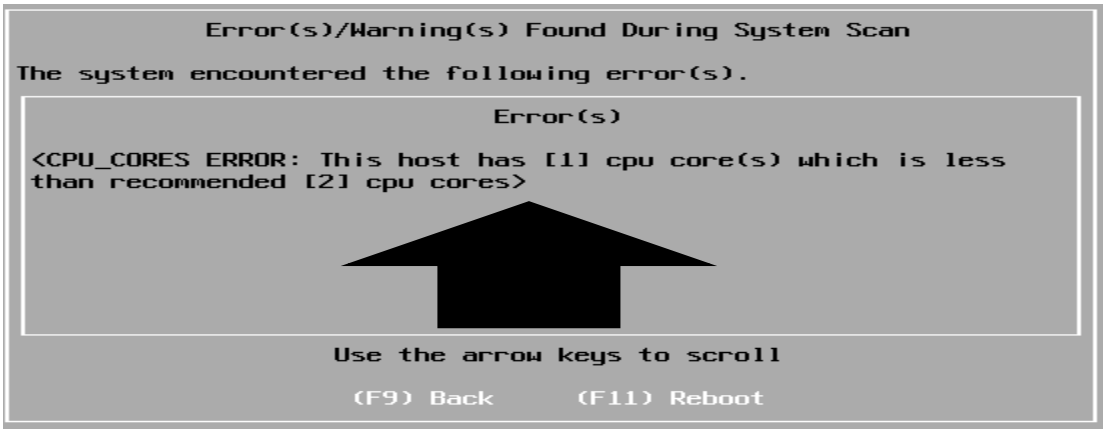

Welcome to the VMware ESXi 6.0.0 Installation
VMware ESXi 6.0.0 installs on most systems but only
systems on VMware's Compatibility Guide are supported.
Consult the VMware Compatibility Guide at:
http://www.vmware.com/resources/compatibility
Select the operation to perform.
(Esc) Cancel
(Enter) Continue

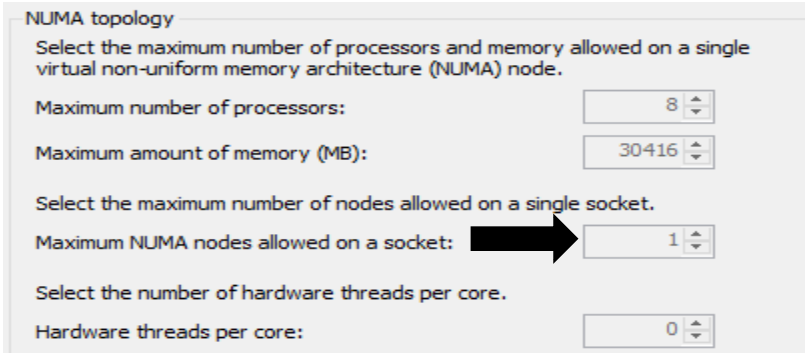

End User License Agreement (EULA)
VMWARE END USER LICENSE AGREEMENT
PLEASE NOTE THAT THE TERMS OF THIS END USER LICENSE AGREEMENT SHALL GOVERN YOUR USE OF THE SOFTWARE, REGARDLESS OF ANY TERMS THAT MAY APPEAR DURING THE INSTALLATION OF THE SOFTWARE.
IMPORTANT-READ CAREFULLY: BY DOWNLOADING, INSTALLING, OR USING THE SOFTWARE, YOU (THE INDIVIDUAL OR LEGAL ENTITY) AGREE TO BE BOUND BY THE TERMS OF THIS END USER LICENSE AGREEMENT ("EULA"). IF YOU DO NOT AGREE TO THE TERMS OF THIS EULA, YOU MUST NOT DOWNLOAD, INSTALL, OR USE THE SOFTWARE, AND YOU MUST DELETE OR RETURN THE UNUSED SOFTWARE TO THE VENDOR FROM WHICH YOU ACQUIRED IT WITHIN THIRTY (30) DAYS AND REQUEST A REFUND OF THE LICENSE FEE, IF ANY, THAT
Use the arrow keys to scroll the EULA text
(ESC) Do not Accept
(F11) Accept and Continue

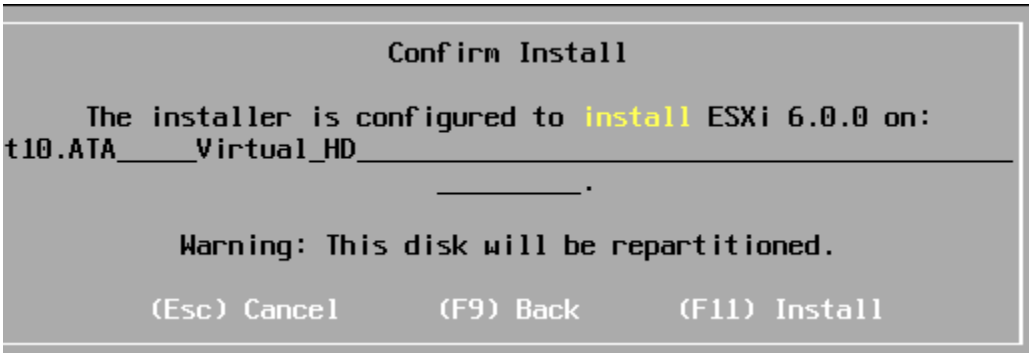

Select a Disk to Install or Upgrade
* Contains a VMFS partition
# Claimed by VMware Virtual SAN (VSAN)
Storage Device
Capacity
Local:
ATA Virtual HD (t10.ATA_____Virtual_HD___...) 20.00 GiB
Remote:
(none)
(Esc) Cancel
(F1) Details
(F5) Refresh
(Enter) Continue

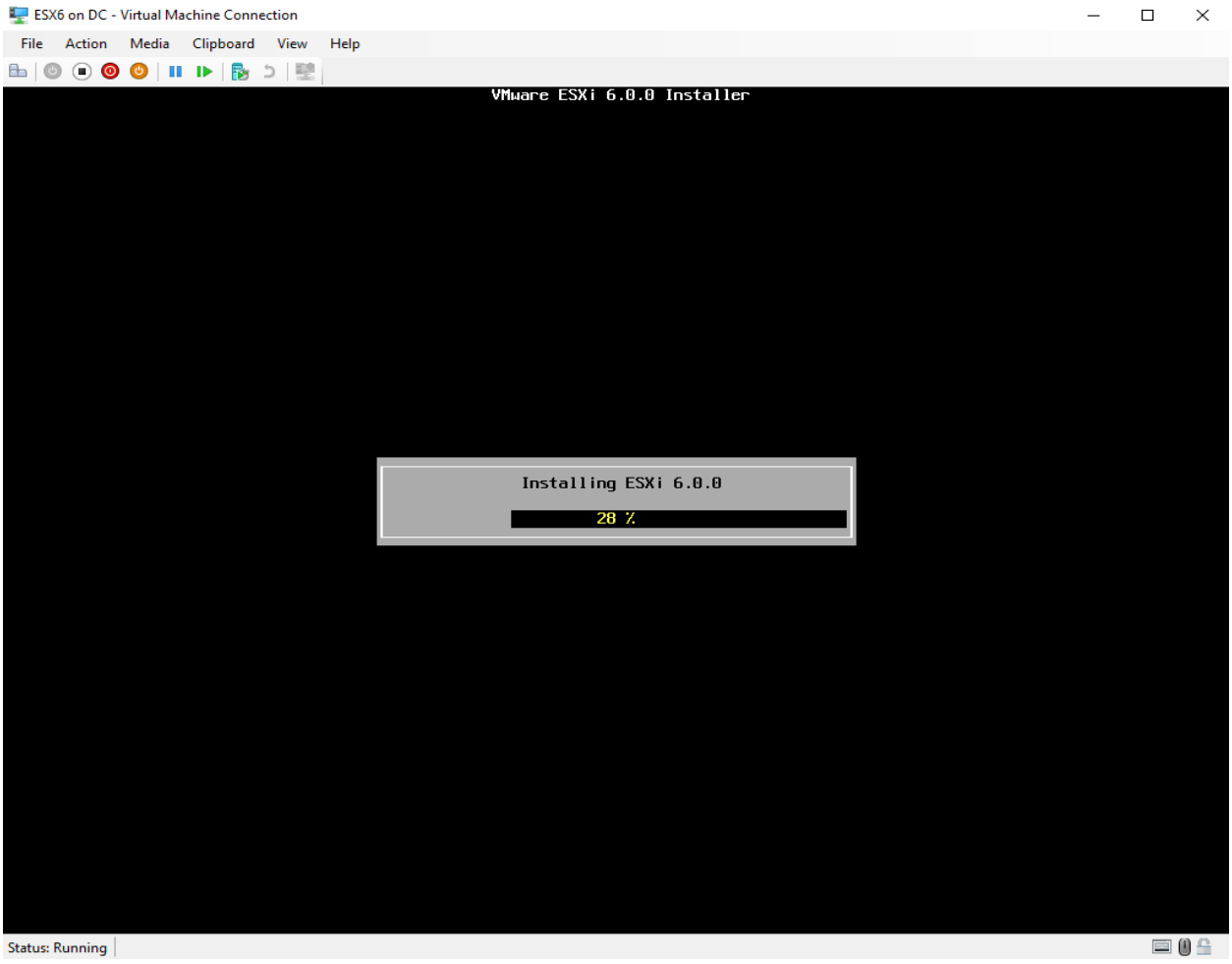


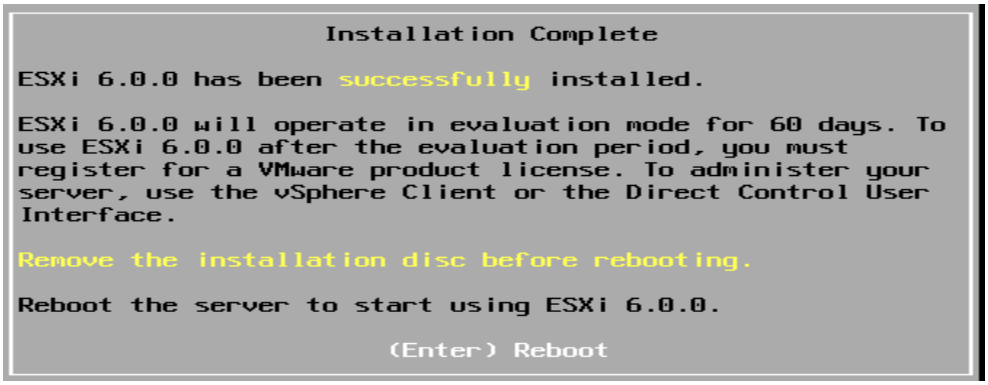
If you see this error – you can change NUMA setting to 2 within VM settings and try again.



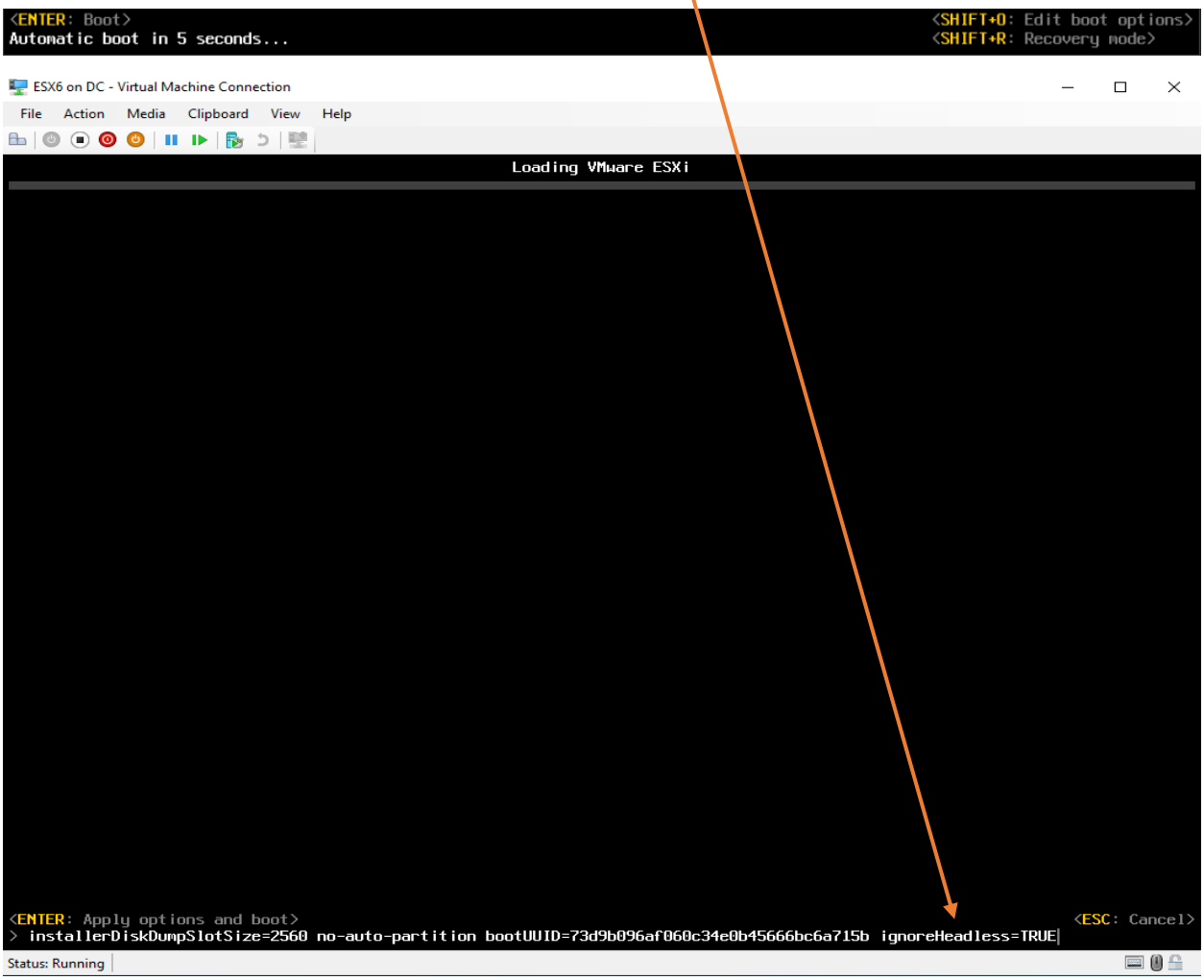


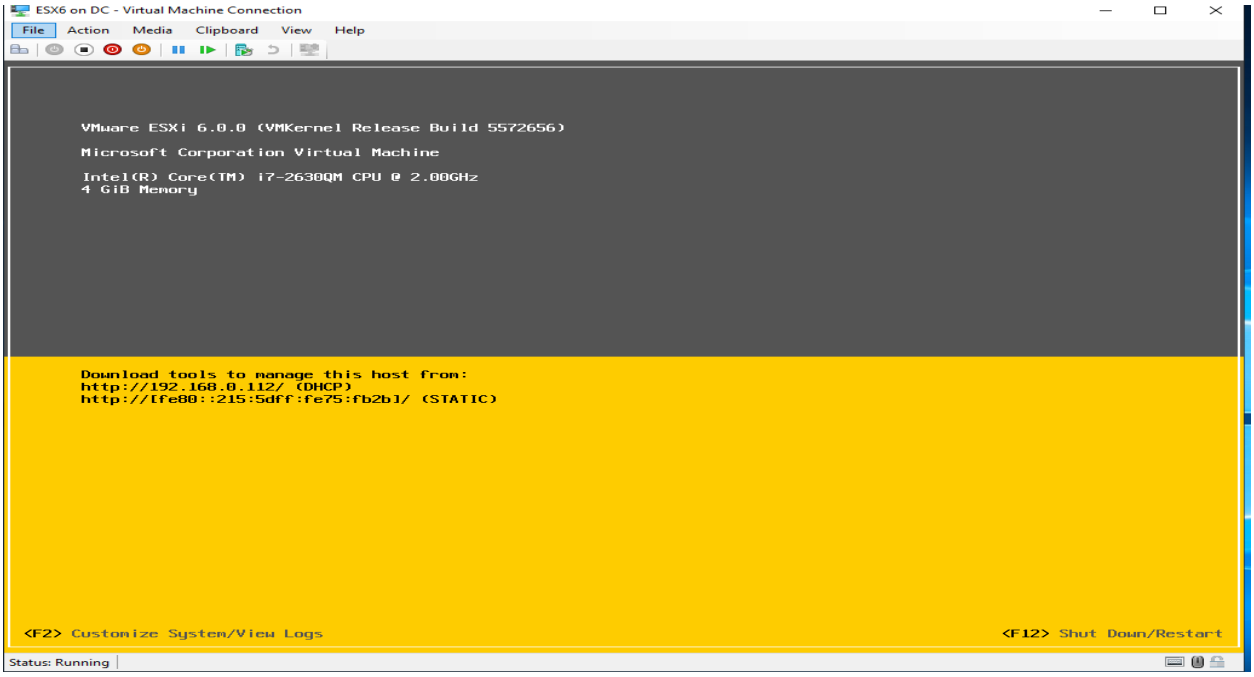

Confirm Install
The installer is configured to install ESXi 6.0.0 on:
t10.ATA_____Virtual_HD_____.
Warning: This disk will be repartitioned.
(Esc) Cancel
(F9) Back
(F11) Install


ESX6 on DC - Virtual Machine Connection
File
Action
Media
Clipboard
View
Help
VMware ESXi 6.0.0 Installer
Installing ESXi 6.0.0
28 %
Status: Running

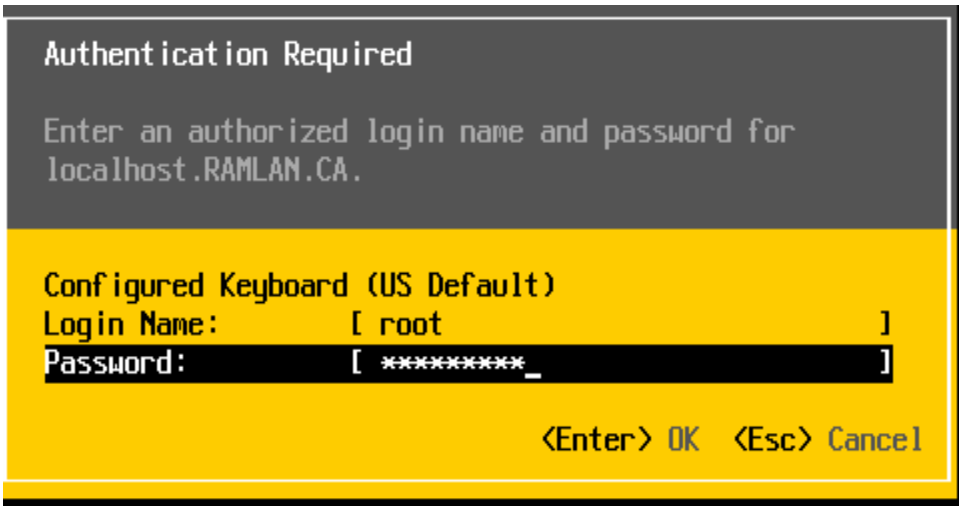

Installation Complete
ESXi 6.0.0 has been successfully installed.
ESXi 6.0.0 will operate in evaluation mode for 60 days. To use ESXi 6.0.0 after the evaluation period, you must register for a VMware product license. To administer your server, use the vSphere Client or the Direct Control User Interface.
Remove the installation disc before rebooting.
Reboot the server to start using ESXi 6.0.0.
(Enter) Reboot

When the system starts to reboot – Press Shift+O and enter

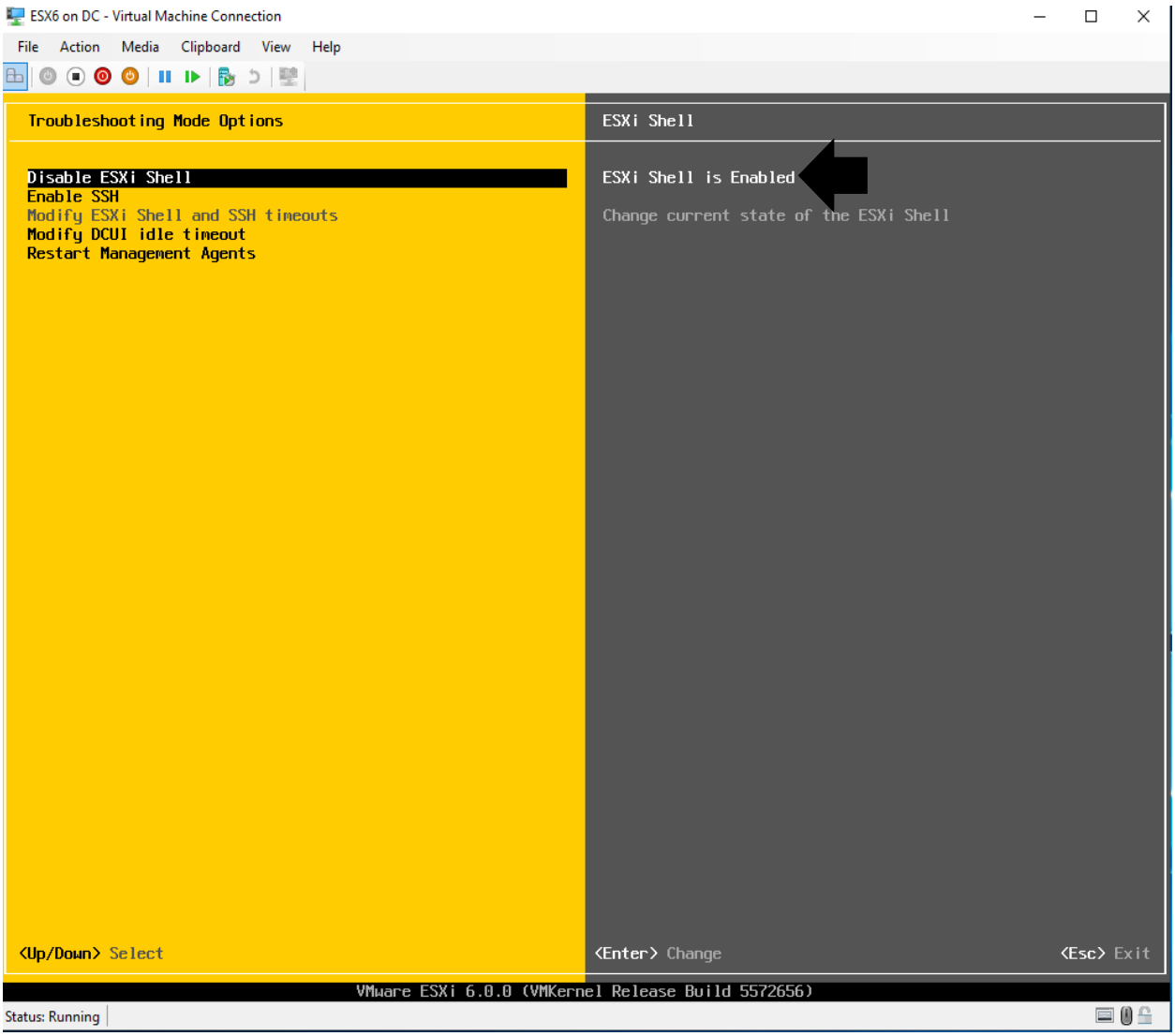




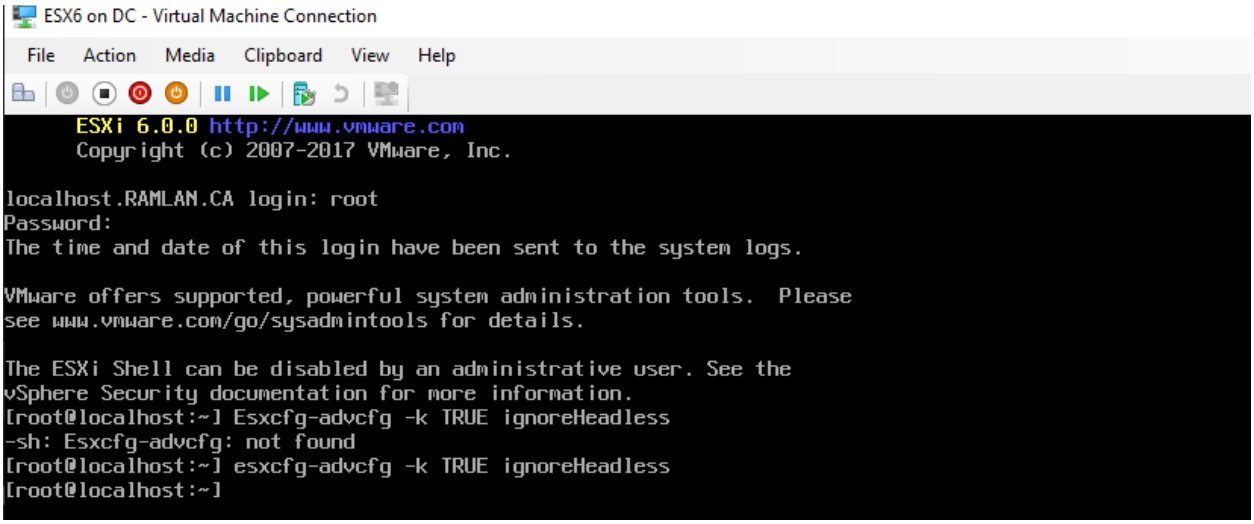
Press F2 – Enter Root and Password



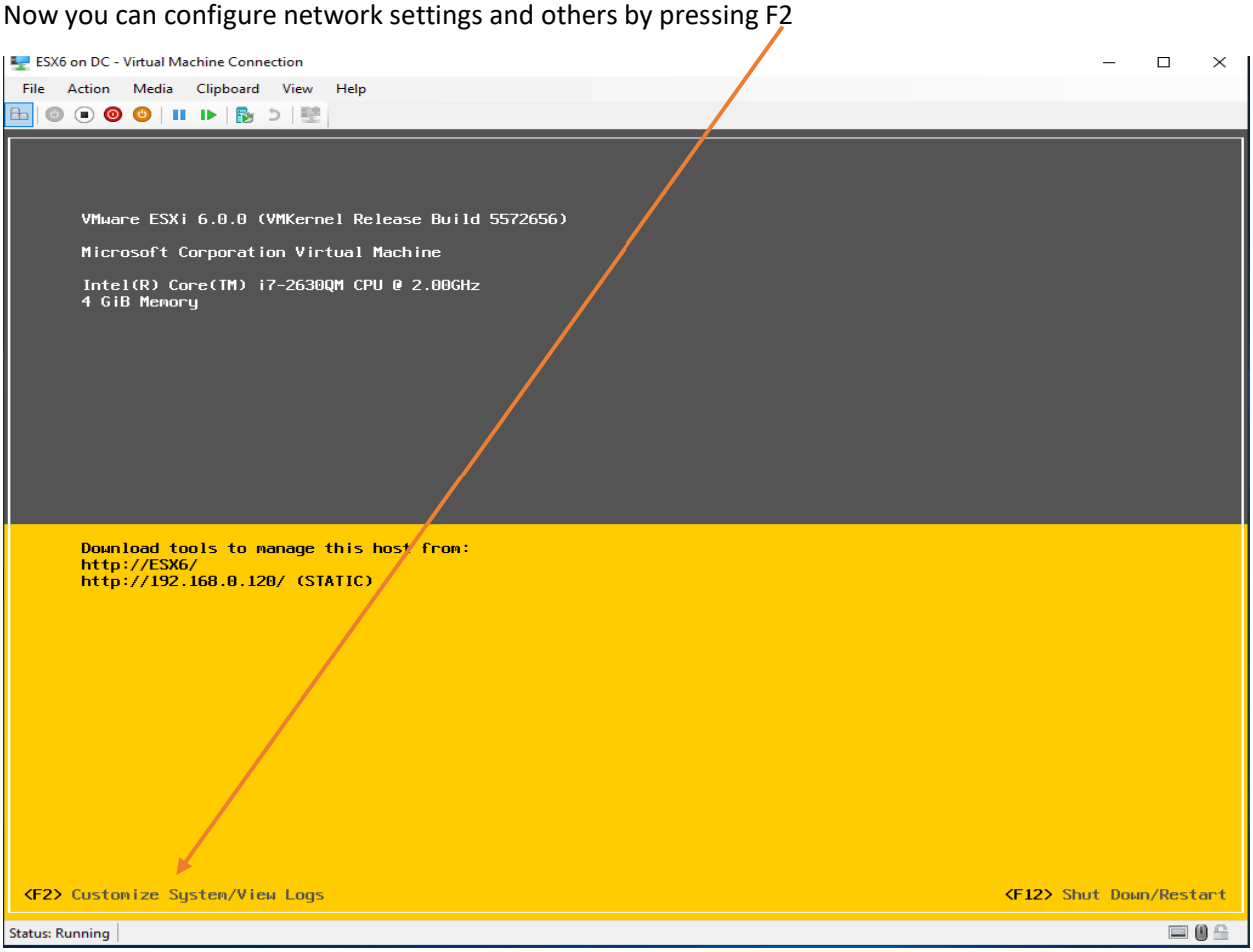
Enable Shell



Press Alt+F1
Enter Root and Password
Type below command **esxcfg-advcfg -k TRUE ignoreHeadless**
Now Press Alt+F2

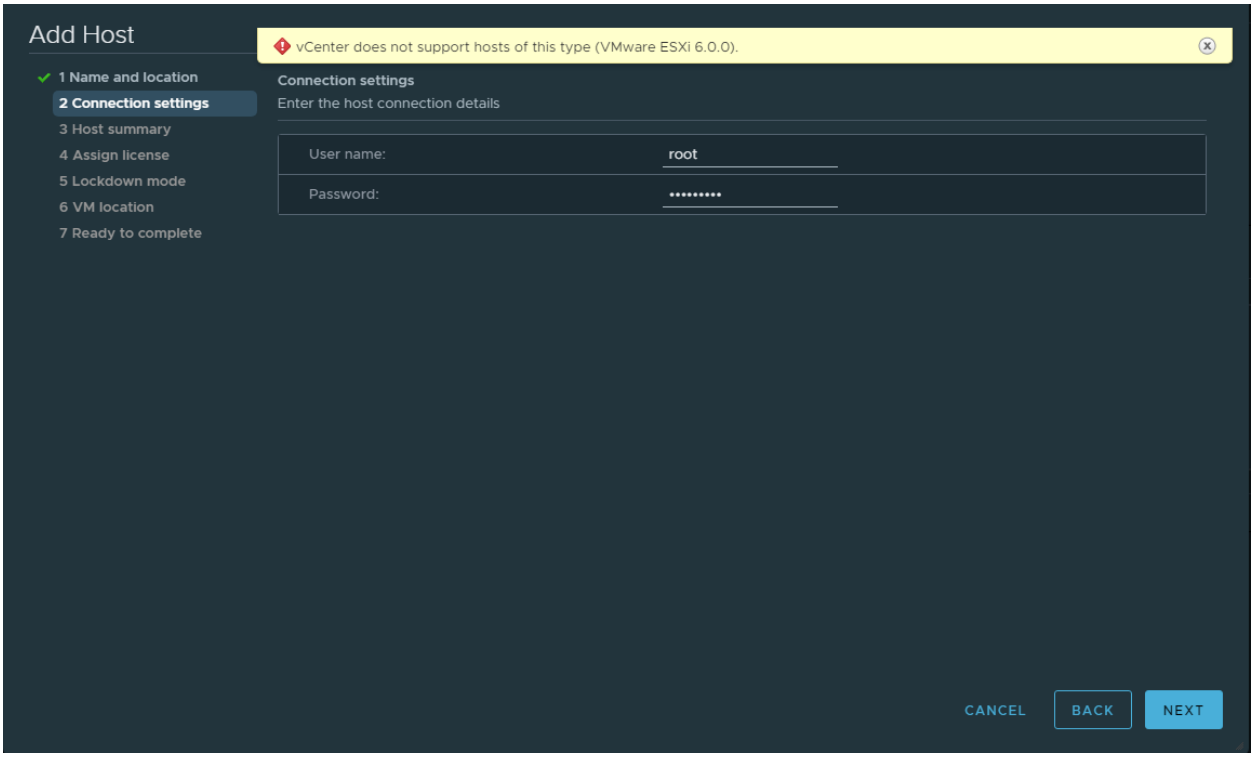


Now you can configure network settings and others by pressing F2



With this you have nested ESXi6.0 on Hyper-V running Windows Sever 2019.

As you can see below, I cannot add ESX6 nested host to vCenter Appliance 7.0. ESXi6.0 is not supported with vCenter 7.0



I am fine since, I was just testing the possibility of running ESXi on Hyper-V.

Thanks

Ram Lan
10th Aug 2020