



Sri Lanka Institute of Information Technology

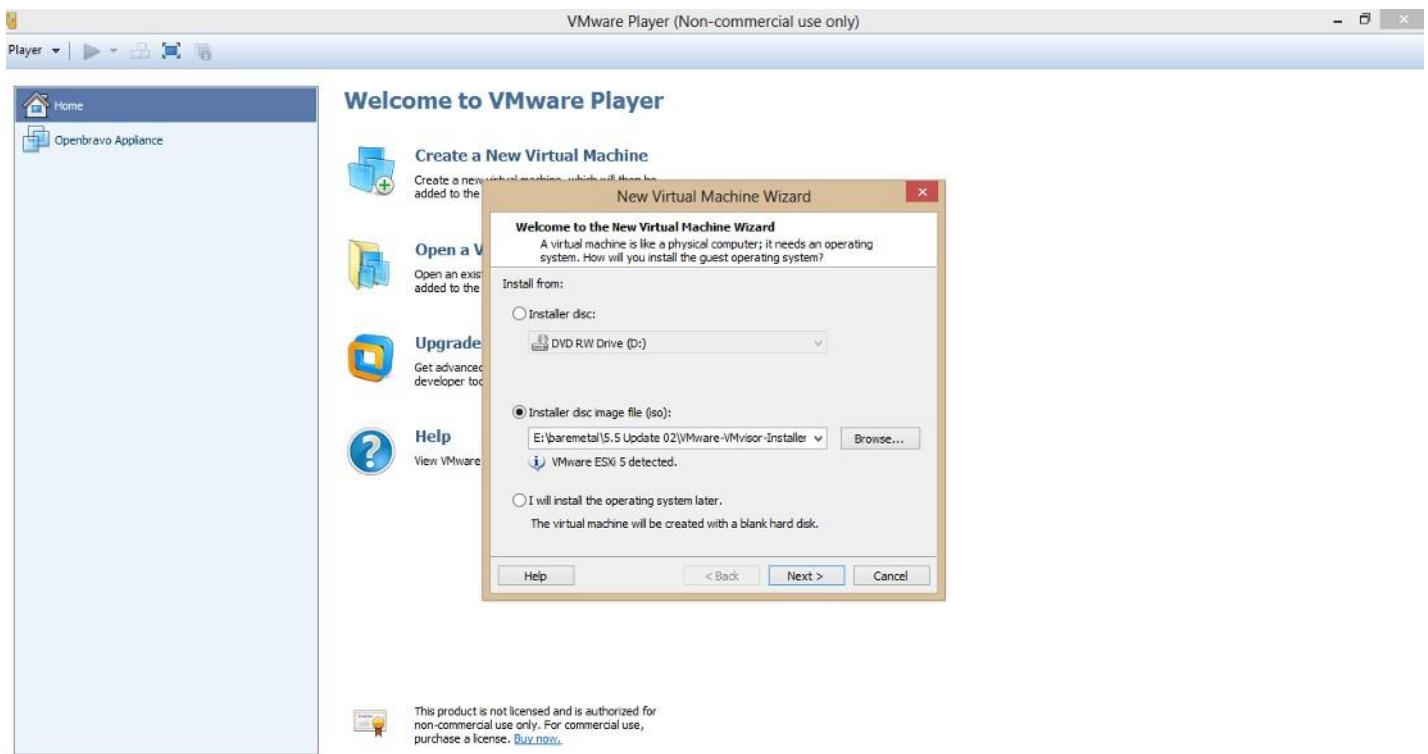
Enterprise Standards and Best Practices for IT Infrastructure

LAB 4

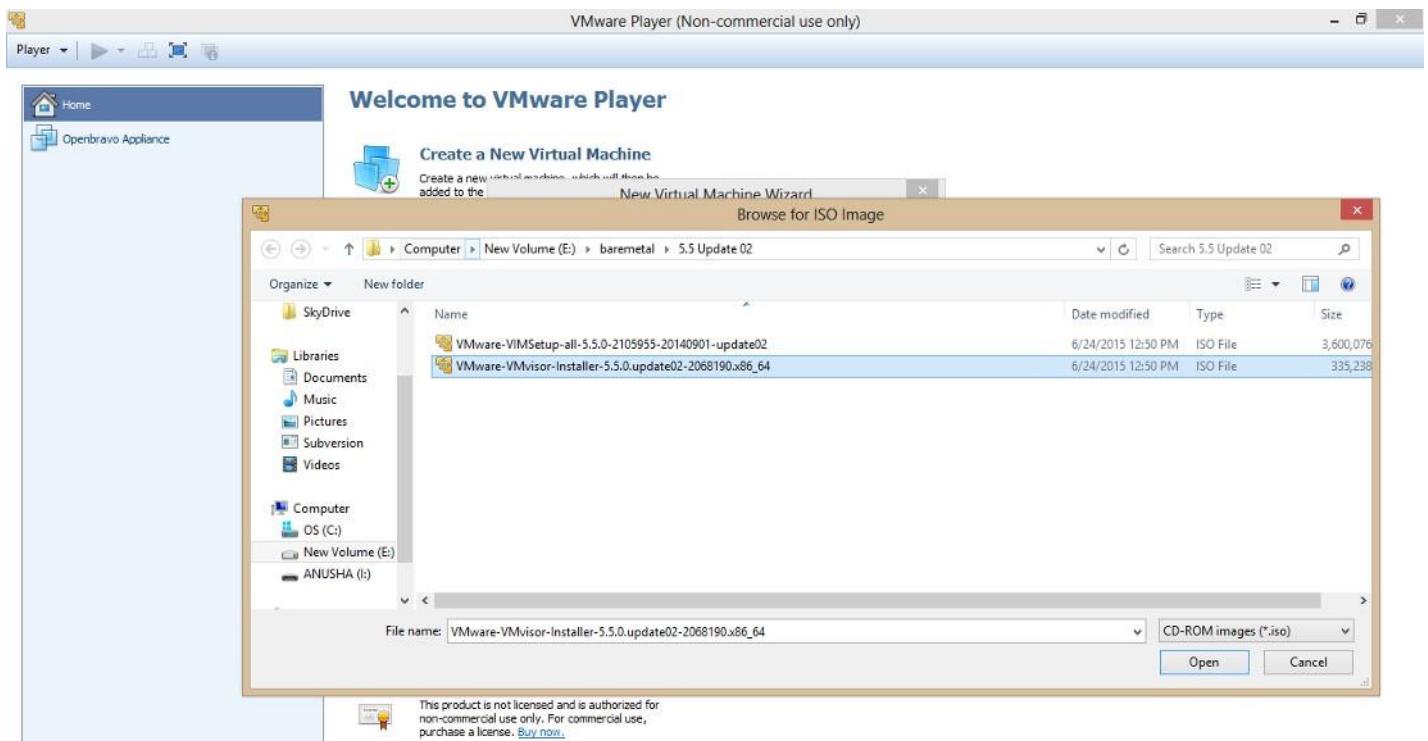
Creating Virtual Data Center

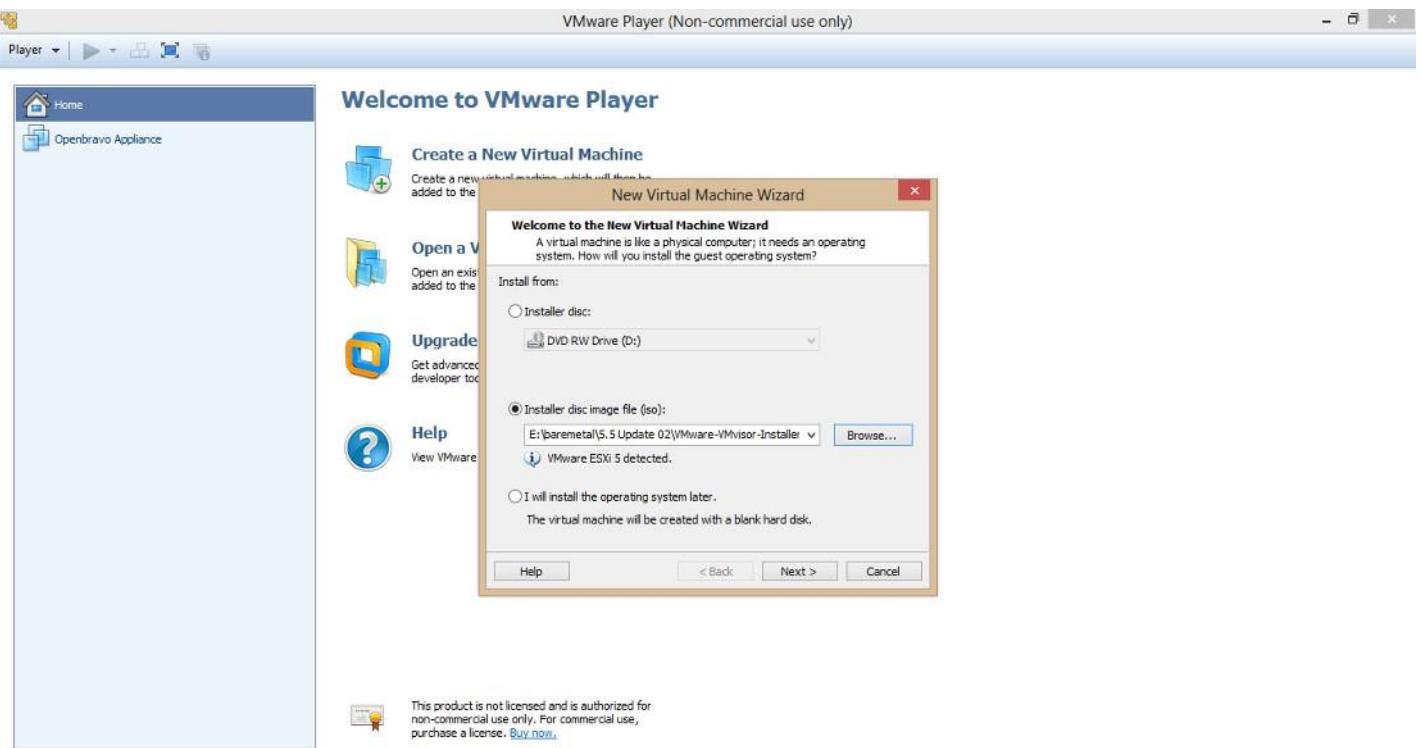
*IT 13 0819 80
L.H.S.S.M Chandrananda*

Installing vSphere ESXi Bare-Metal Hypervisor -VMware

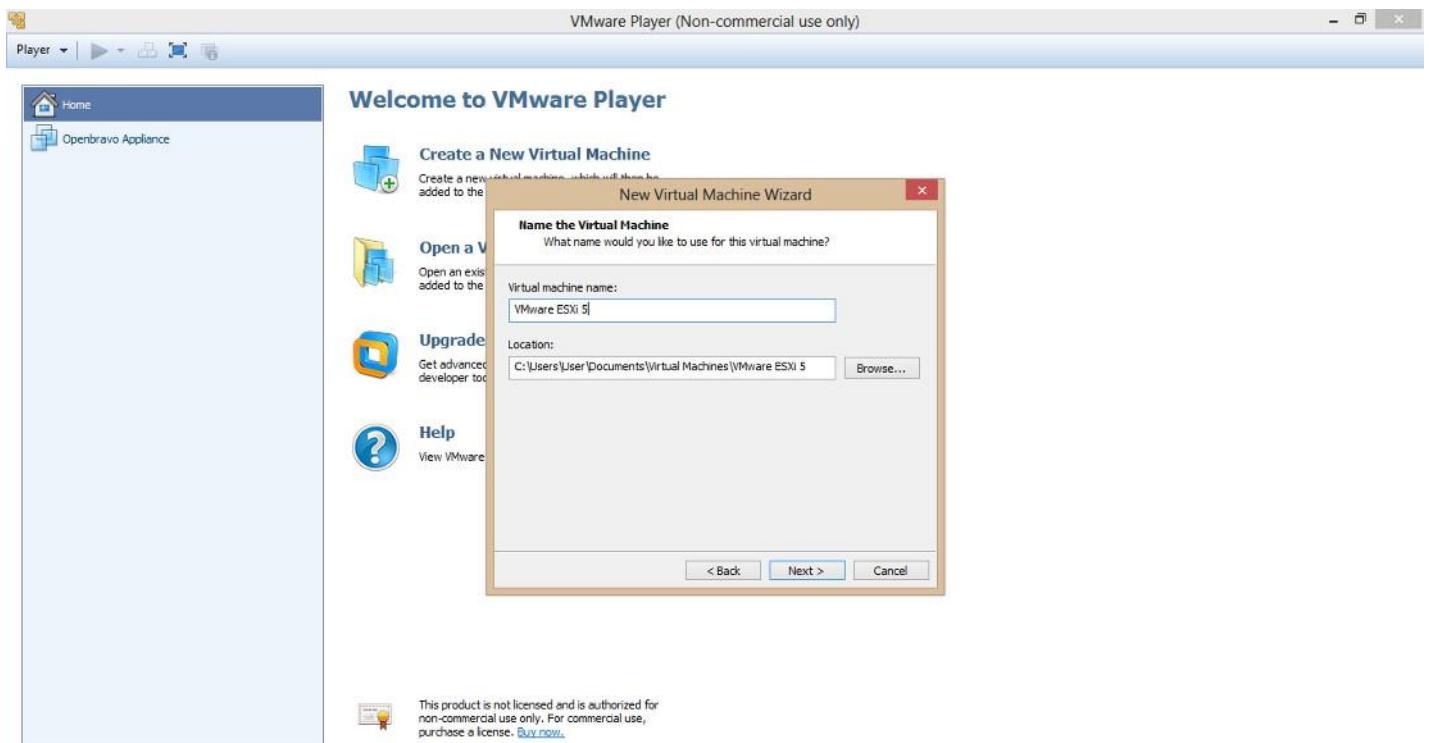


- Select disk image file by clicking Browse... button.





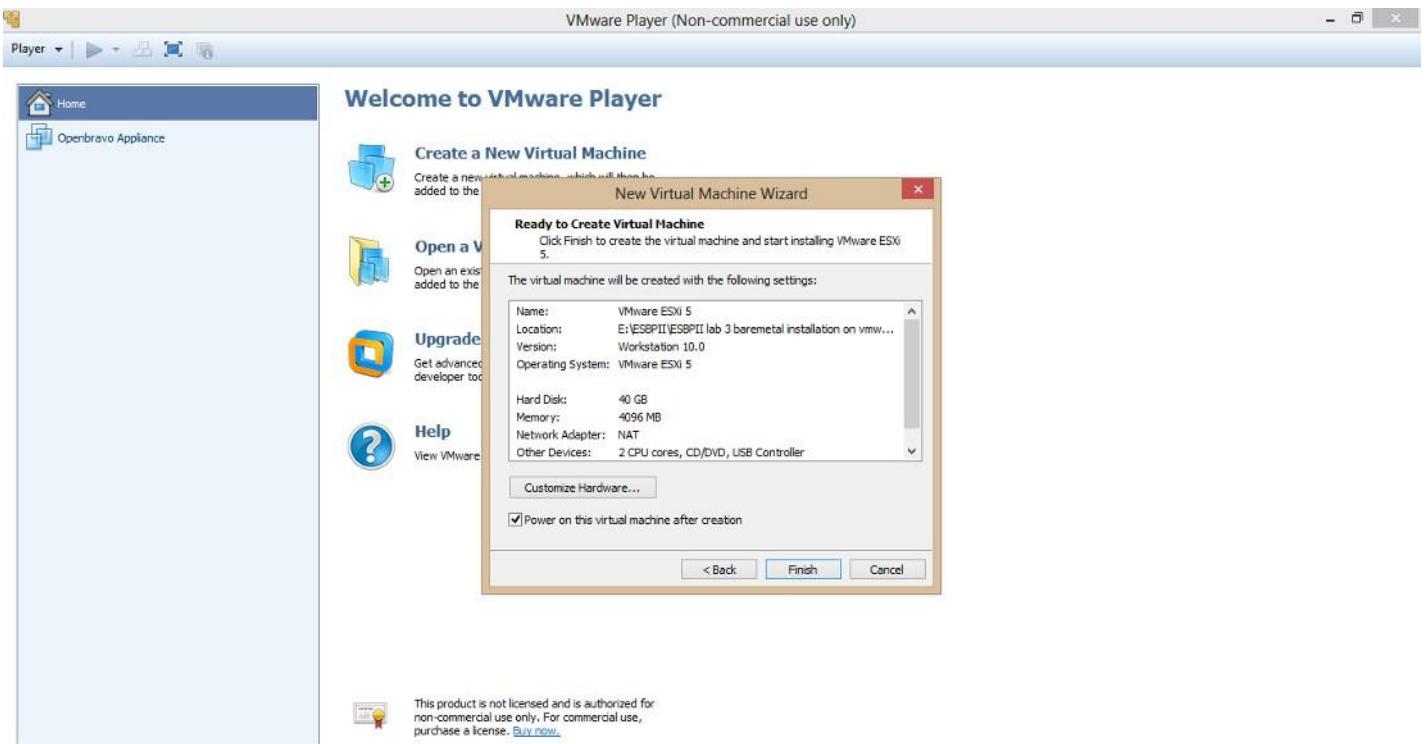
- Click on Next. Select a location to save and give a name to the virtual machine.

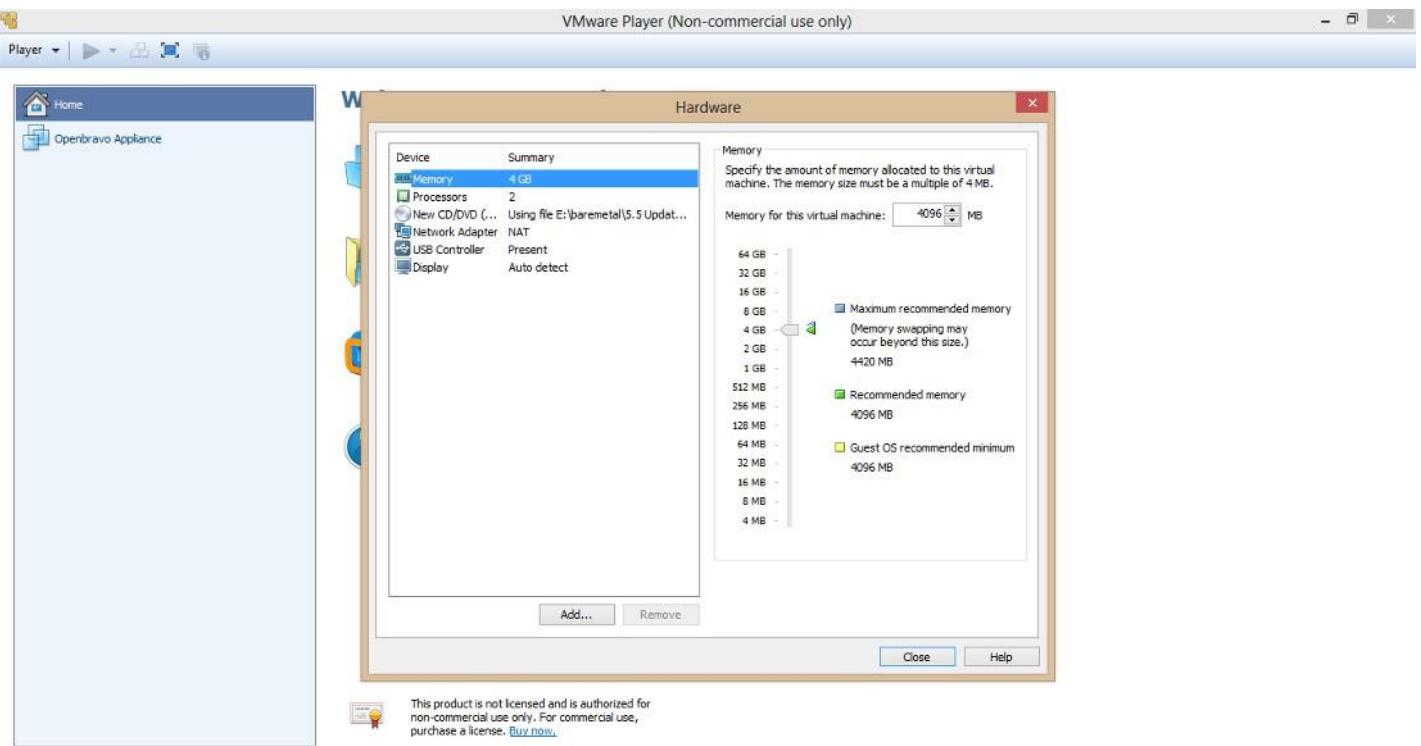


- Click on Next. Give Maximum disk size as 40 GB and select Store virtual disk as a single.

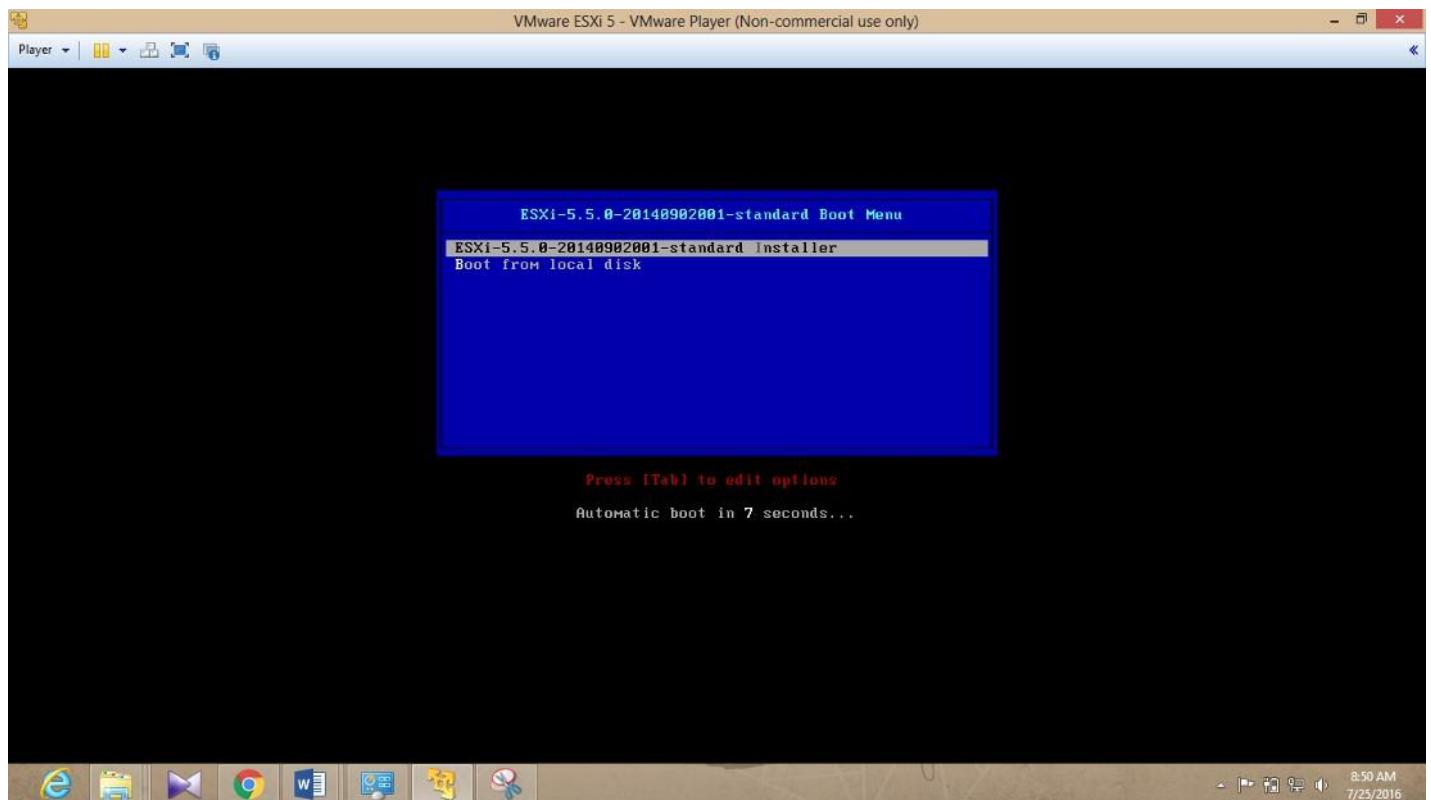


- Click on next and by selecting Customize Hardware button make sure Device memory is 4 GB.



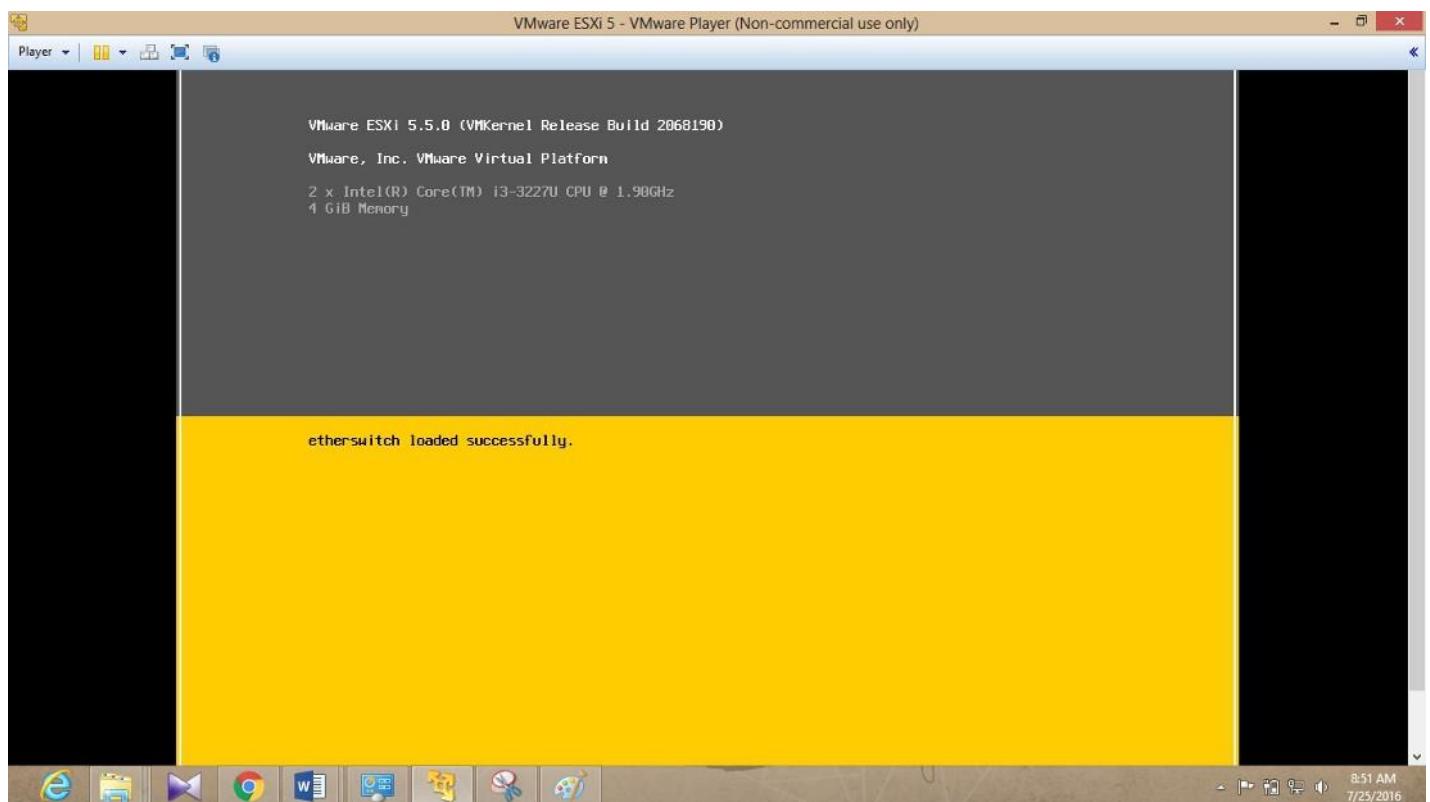


- Click on Finish... It will take a few minutes to boot the process.

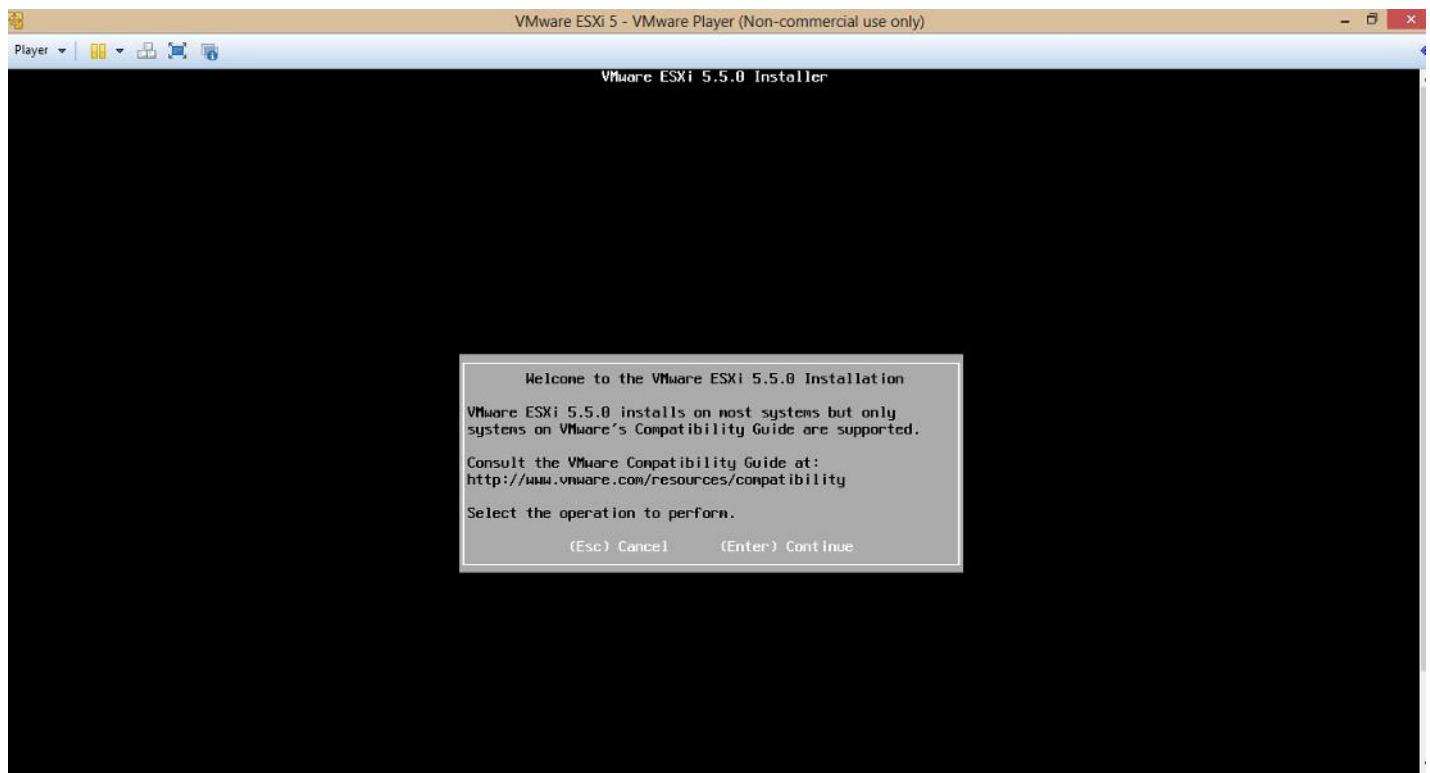


VMware ESXi 5 - VMware Player (Non-commercial use only)

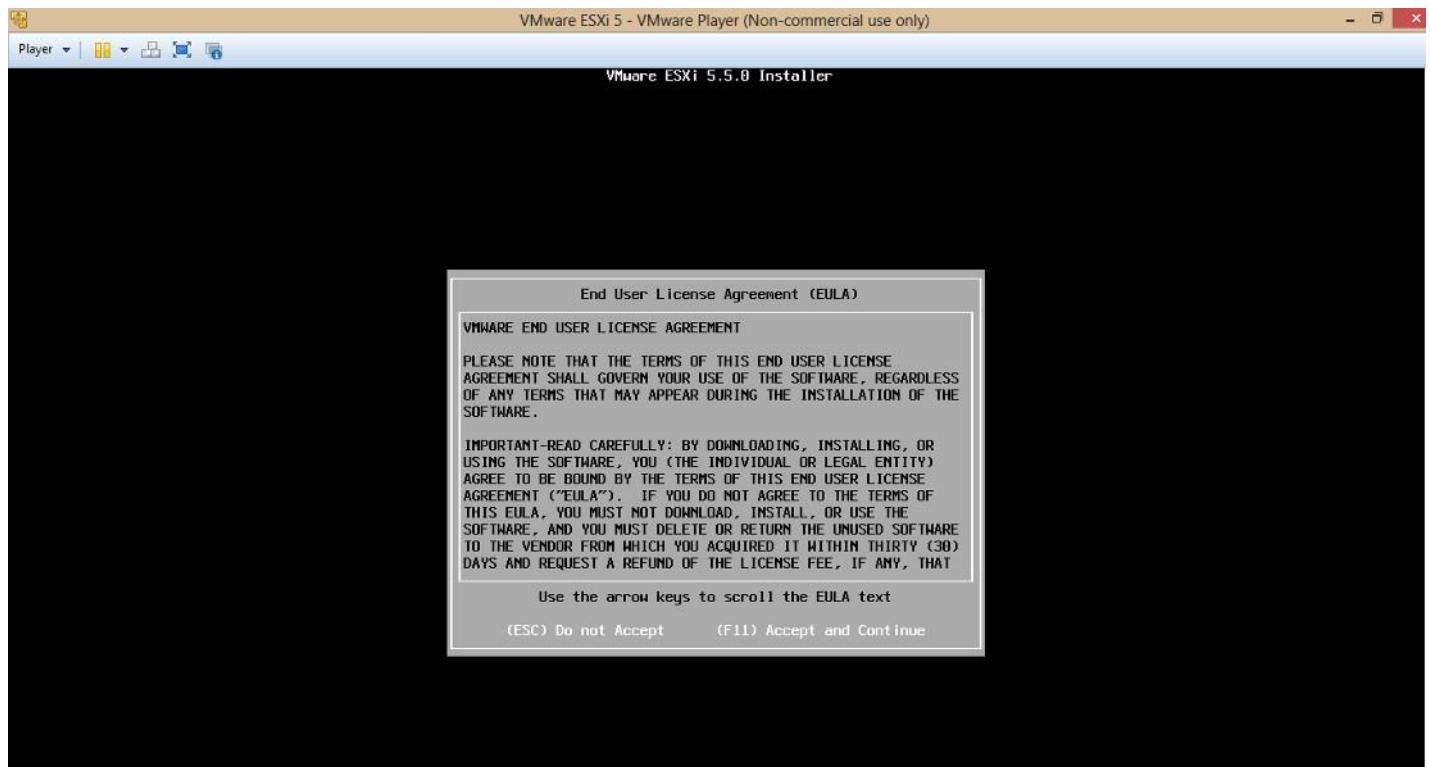
```
Loading /net_nlx4.v01
Loading /net_nx_n.v00
Loading /net_tg3.v00
Loading /net_vmxn.v00
Loading /ohci_usb.v00
Loading /qlnative.v00
Loading /rste.v00
Loading /sata_ahc.v00
Loading /sata_ata.v00
Loading /sata_sat.v00
Loading /sata_sat.v01
Loading /sata_sat.v02
Loading /sata_sat.v03
Loading /sata_sat.v04
Loading /scsi_aac.v00
Loading /scsi_adp.v00
Loading /scsi_aic.v00
Loading /scsi_bnx.v00
Loading /scsi_bnx.v01
Loading /scsi_fni.v00
Loading /scsi_hps.v00
Loading /scsi_ips.v00
Loading /scsi_ipf.v00
Loading /scsi_meg.v00
Loading /scsi_meg.v01
Loading /scsi_meg.v02
Loading /scsi_mpt.v00
Loading /scsi_mpt.v01
Loading /scsi_mpt.v02
Loading /scsi_qla.v00
Loading /scsi_qla.v01
Loading /uhci_usb.v00
Loading /tools.t00
Loading /xorg.v00
Loading /ingdb.tgz
Loading /ingpayload.tgz
Relocating modules and starting up the kernel...
```

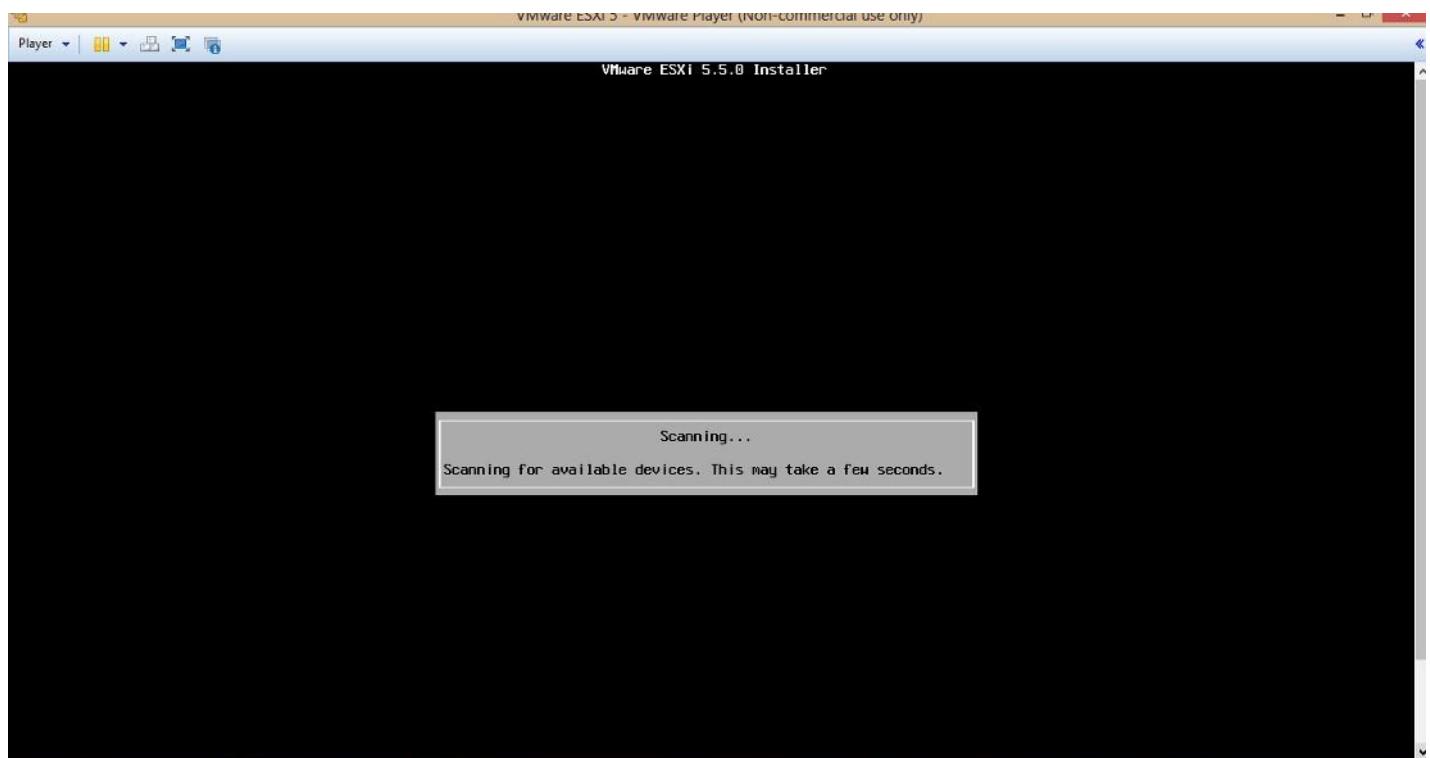


- Press Enter to continue.

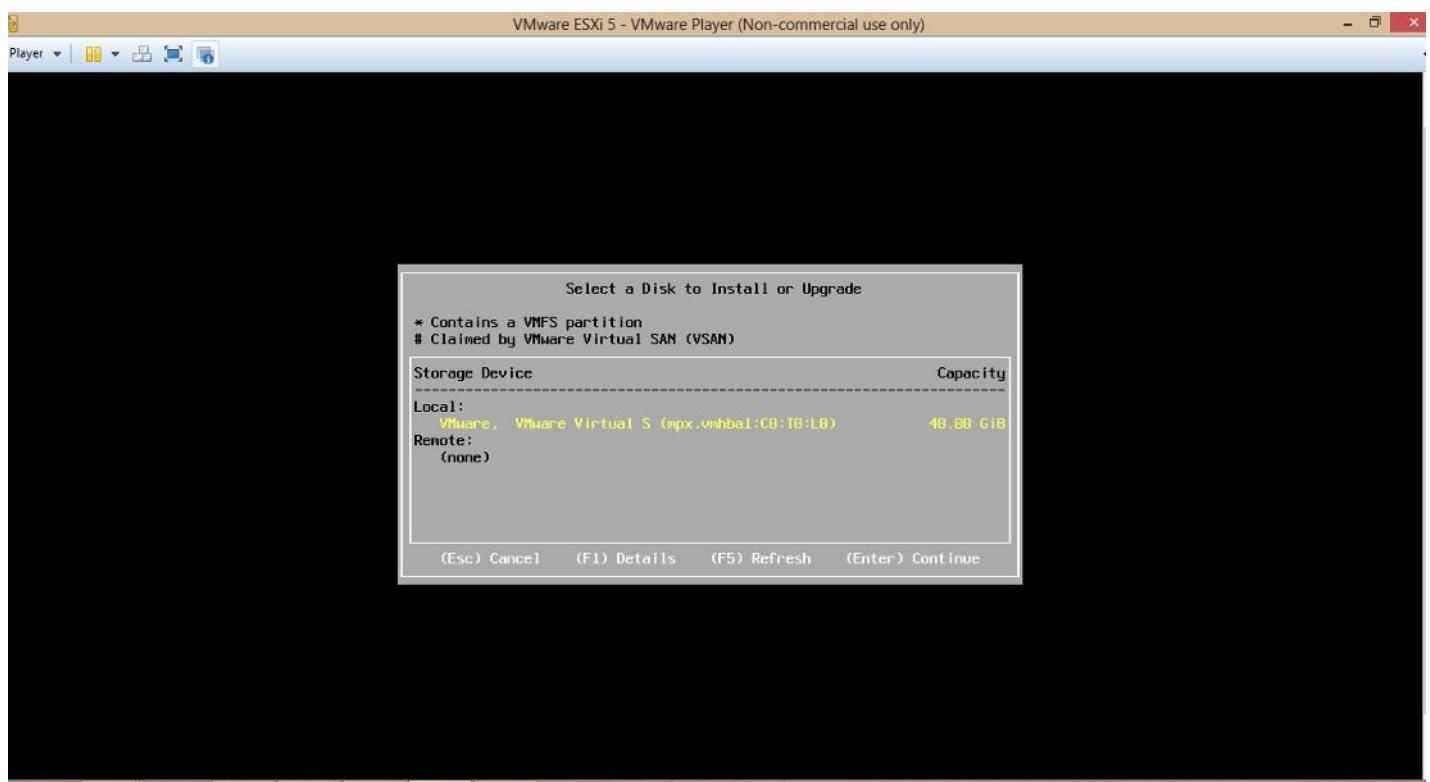


- Press F11 to Accept and continue.

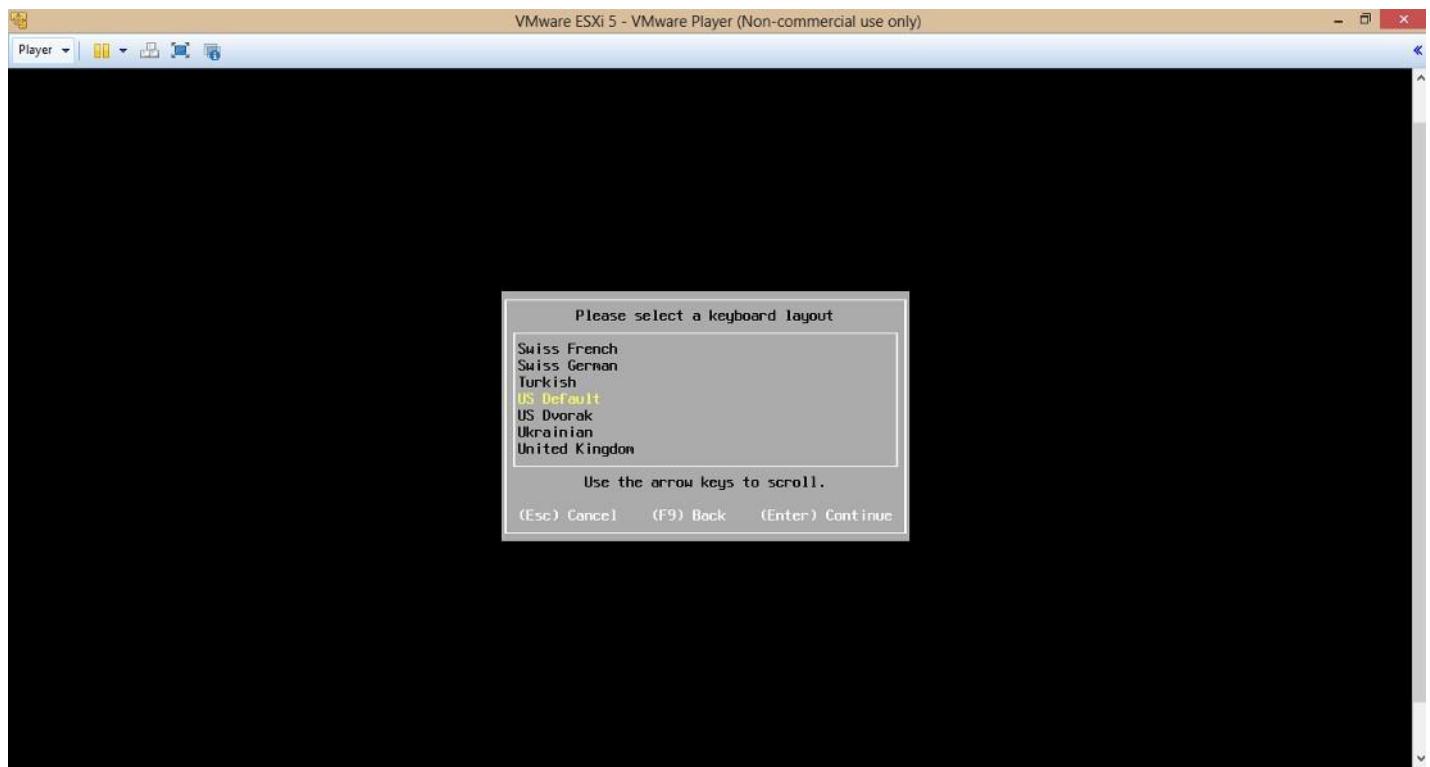




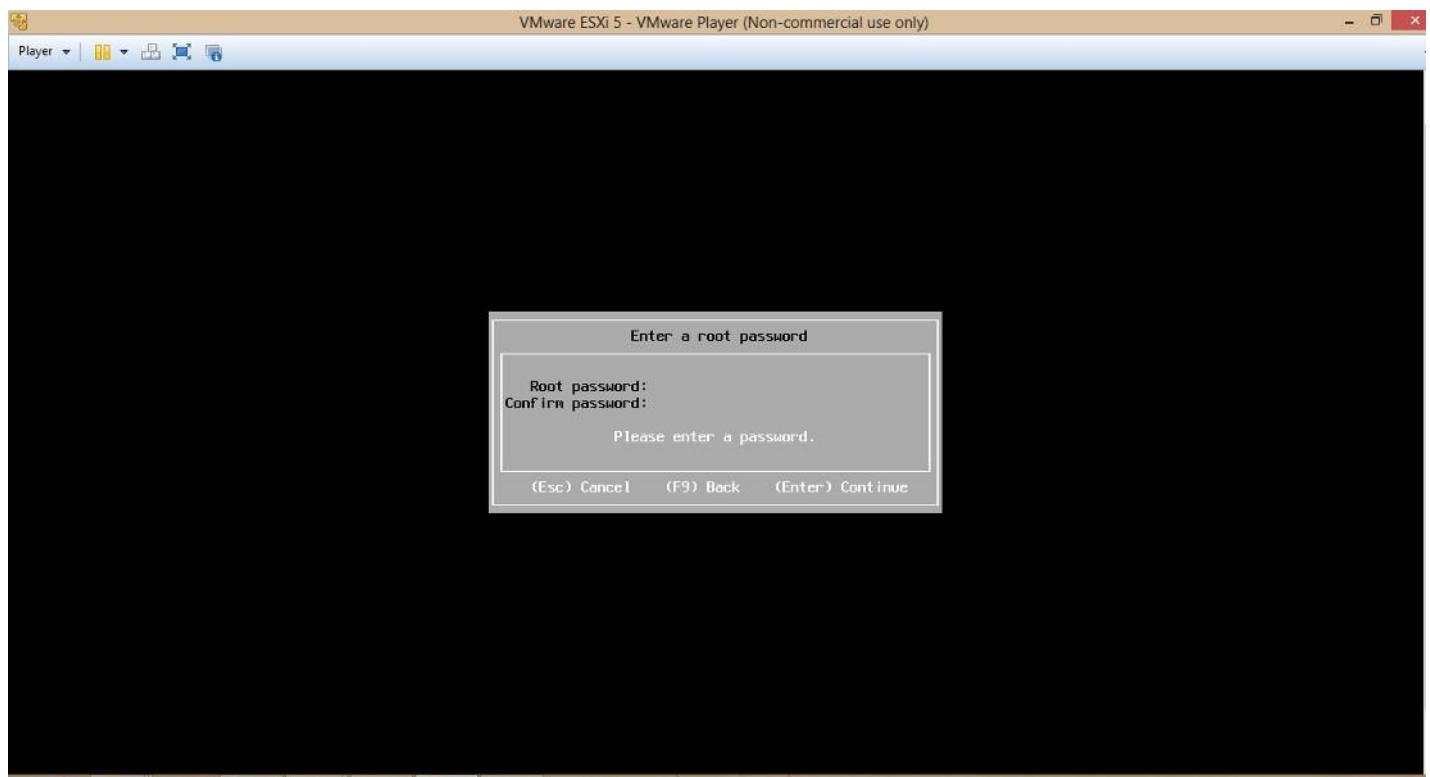
- Press enter to continue.

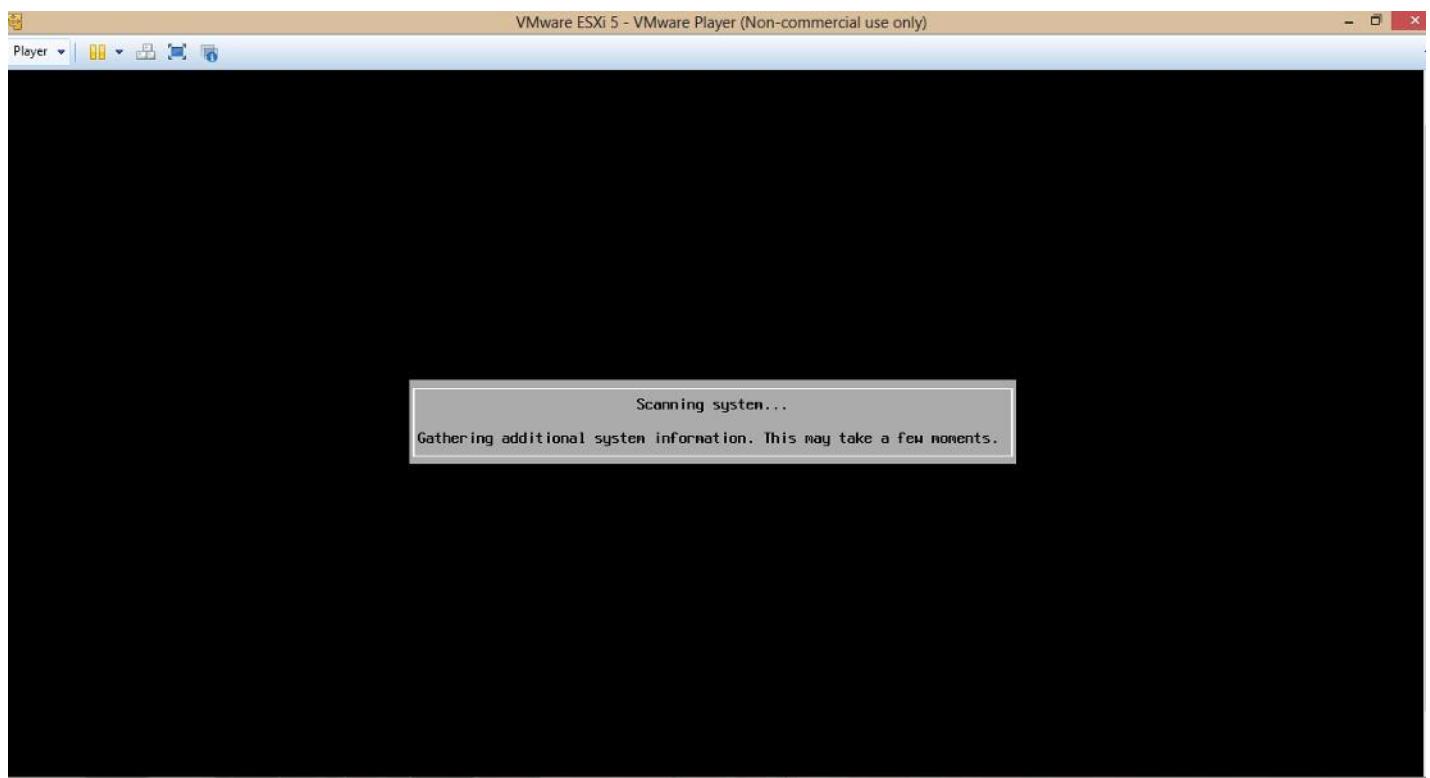
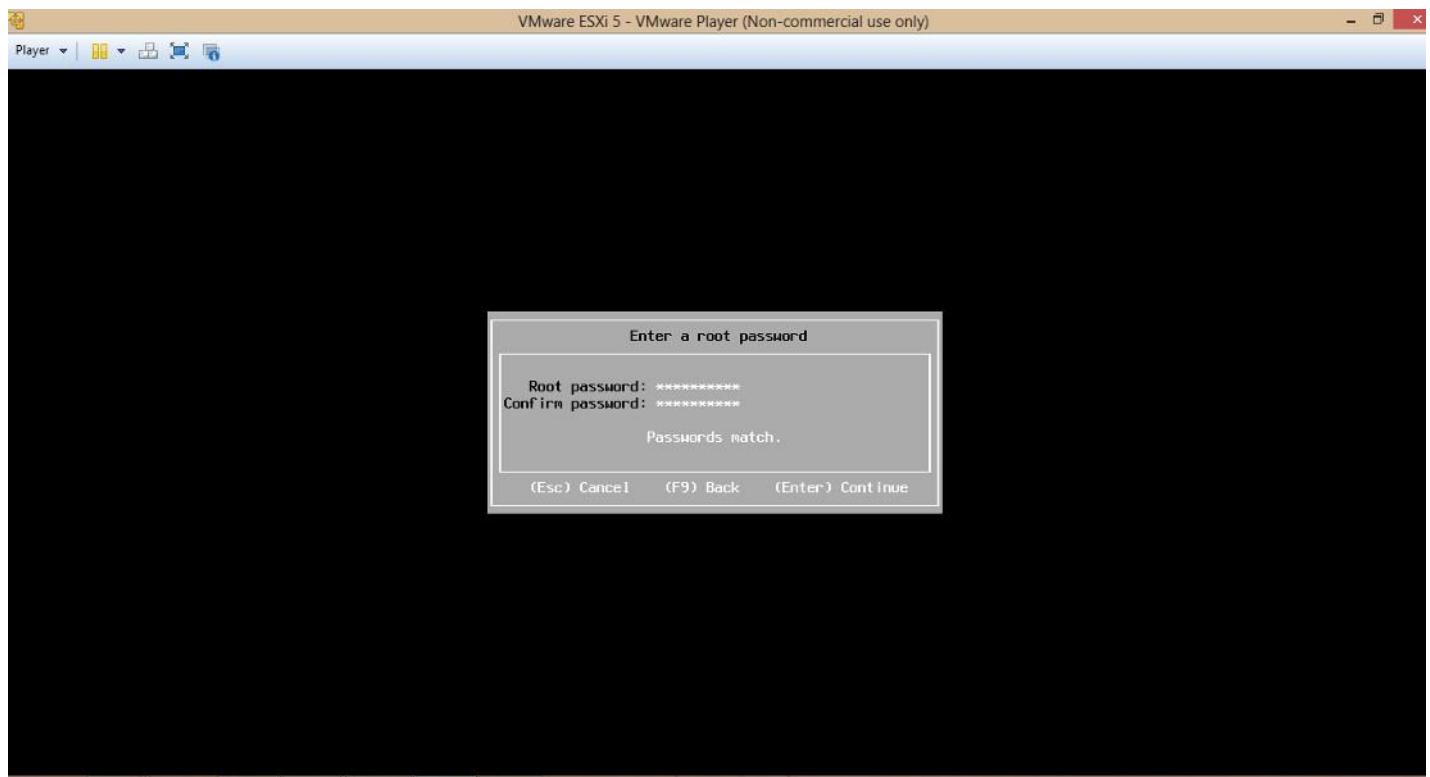


- Select US default and press Enter to continue.

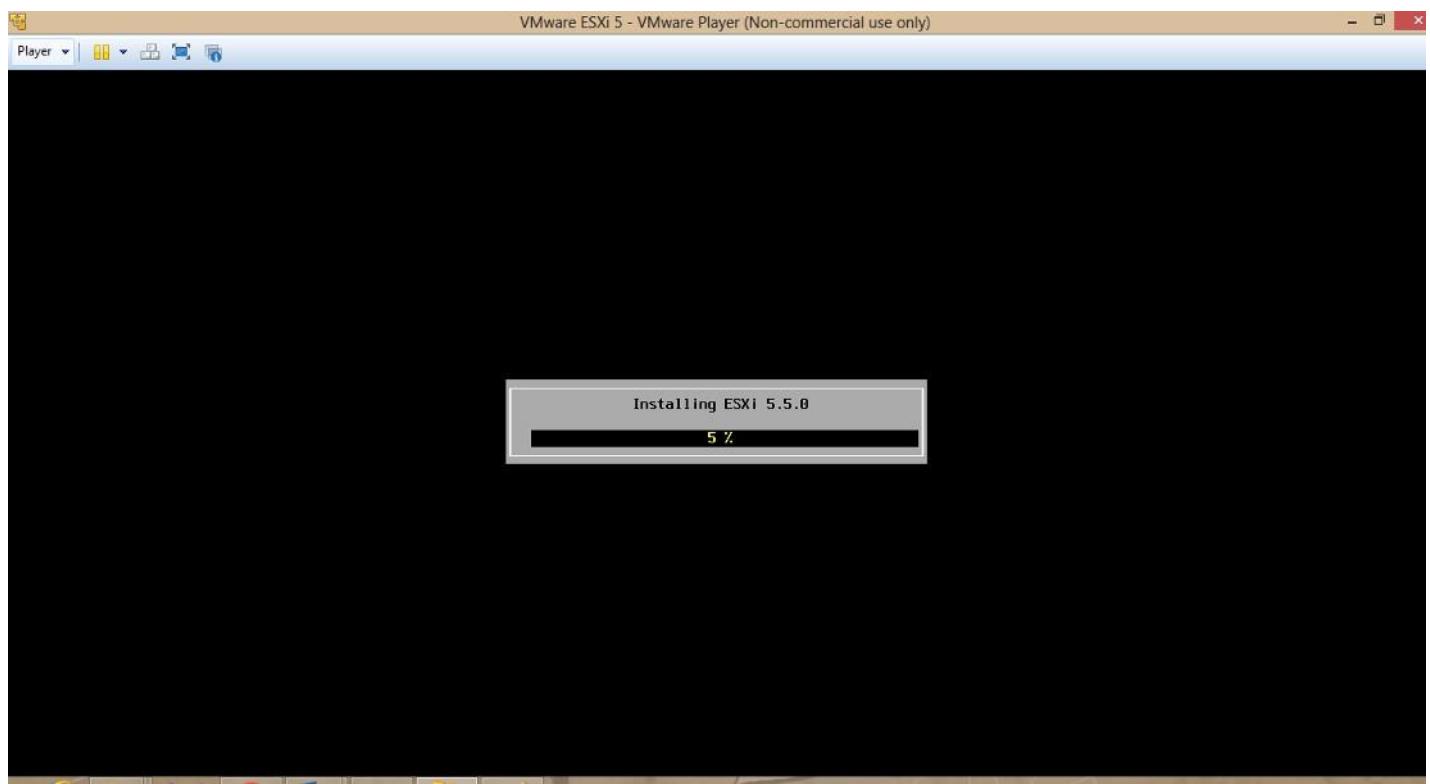
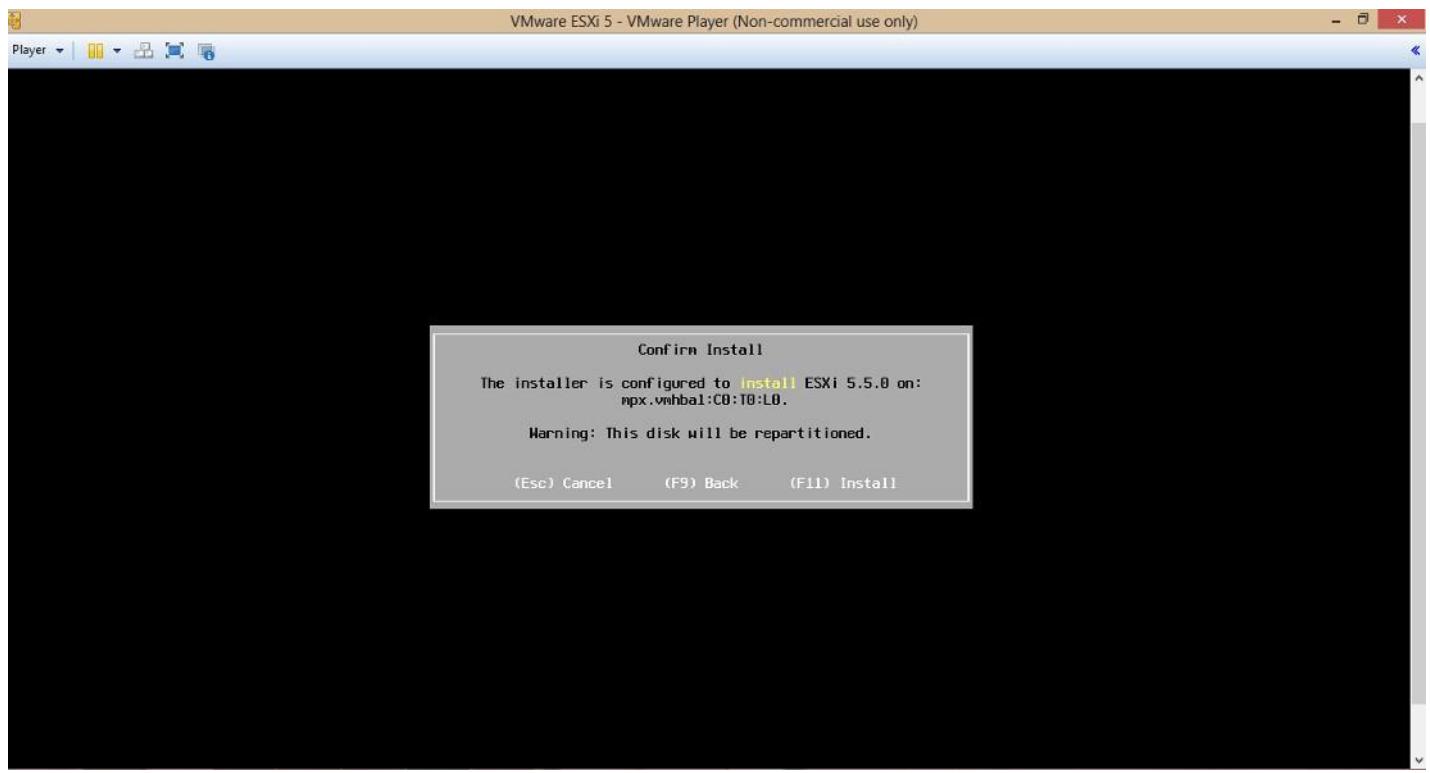


- Enter a password and Continue.

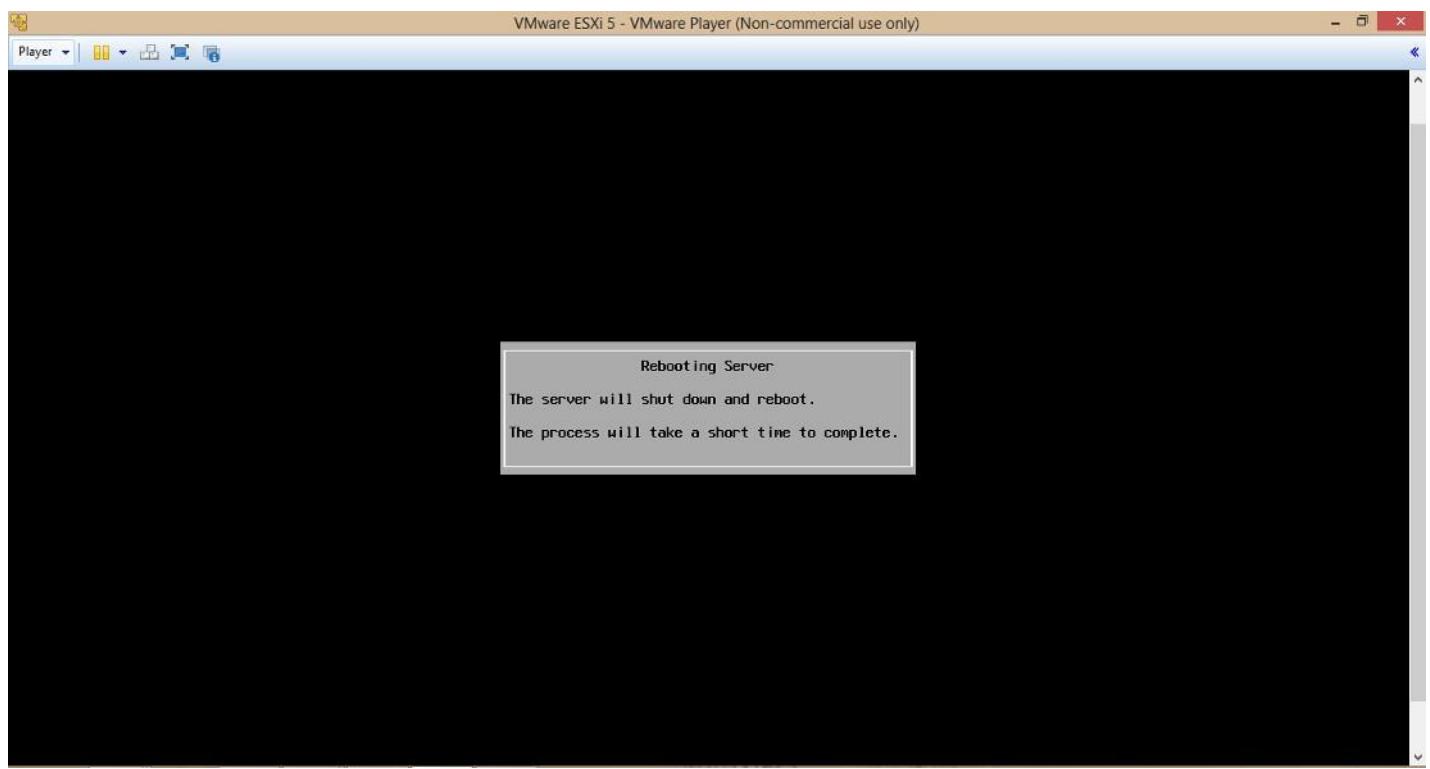


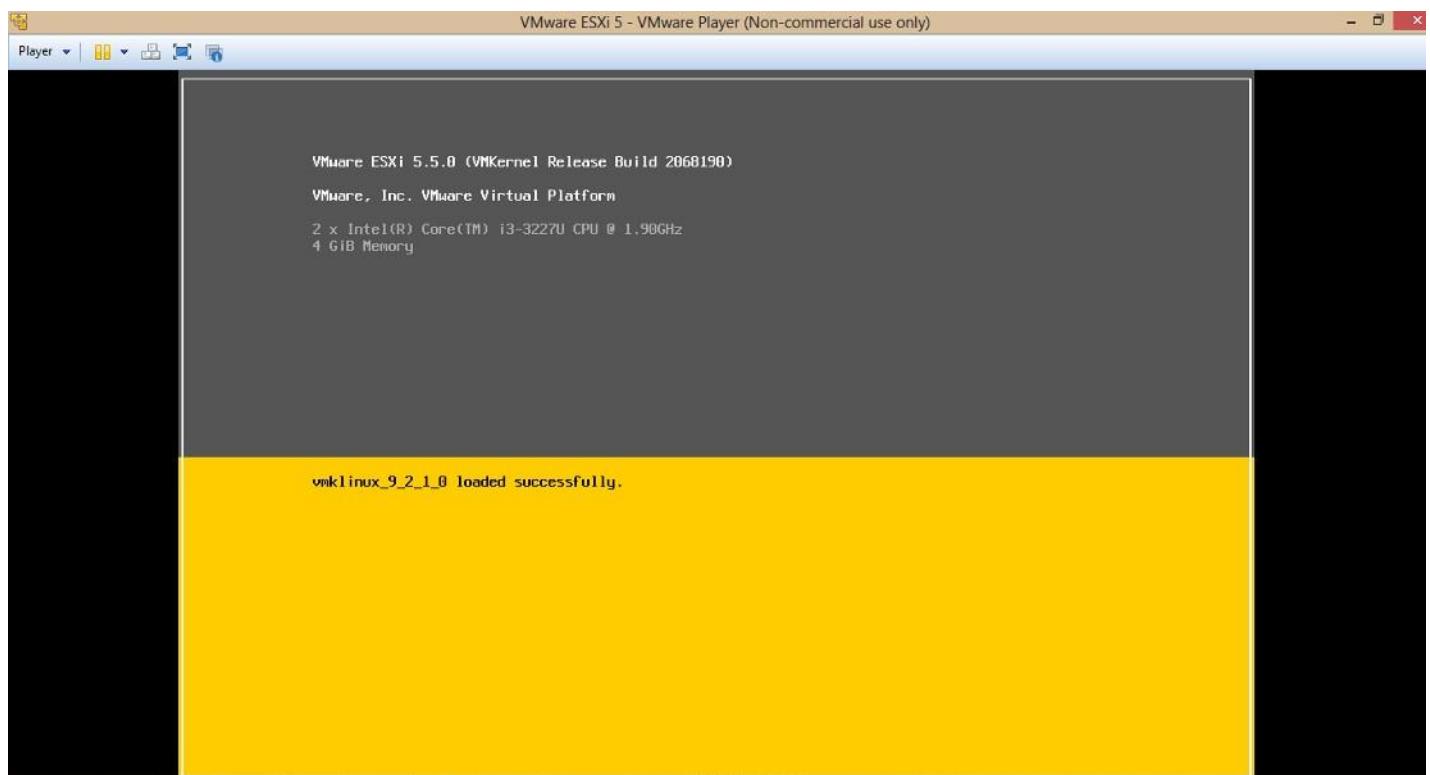


- Press F11 to Install.

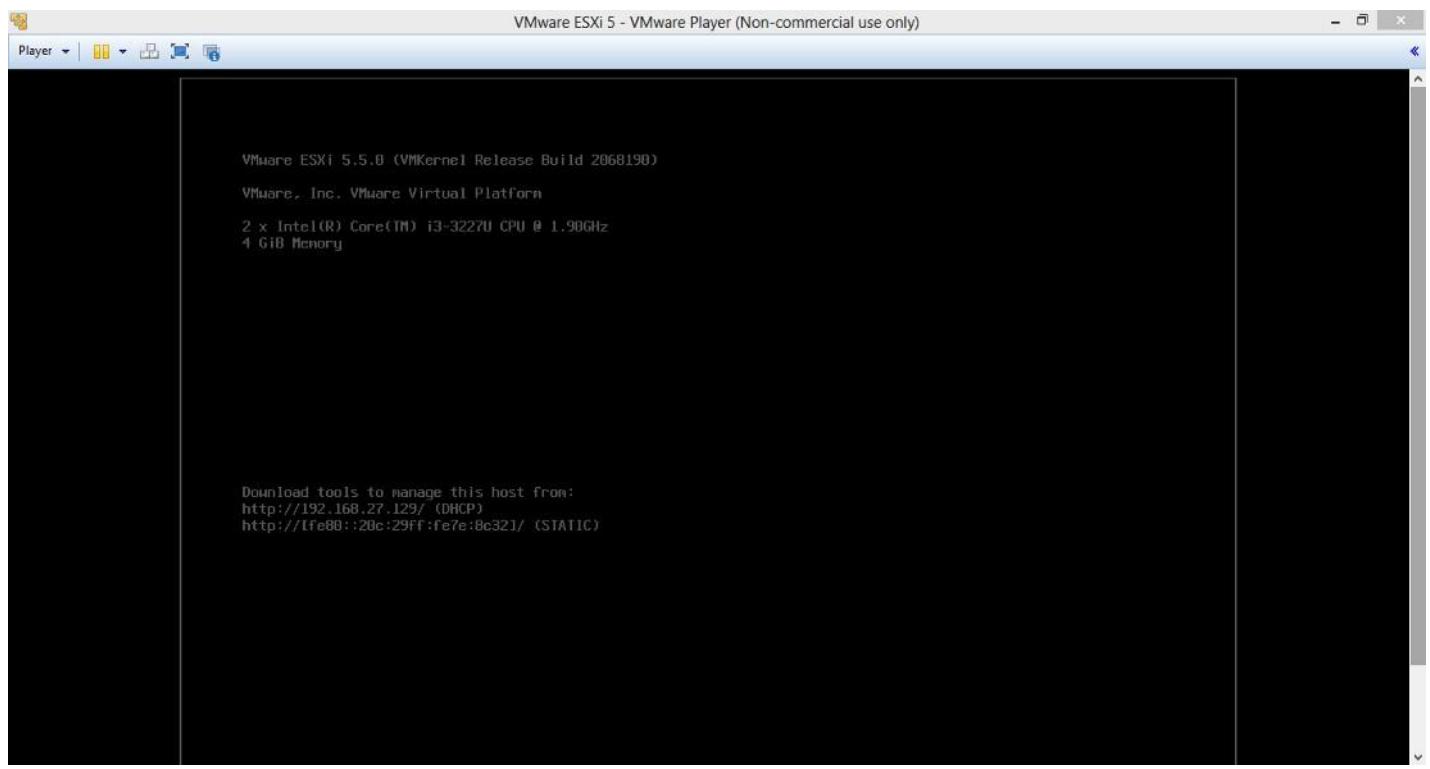


Press Enter.

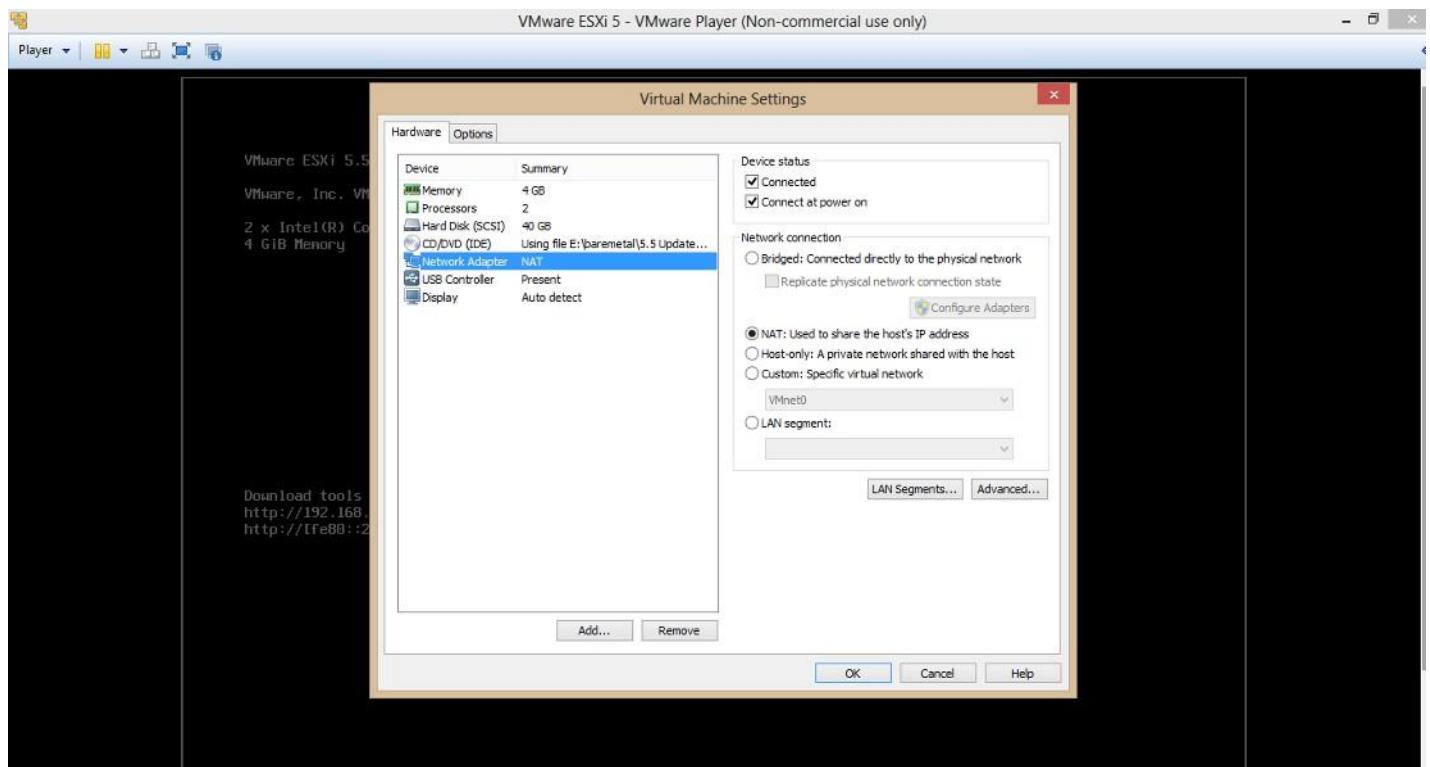




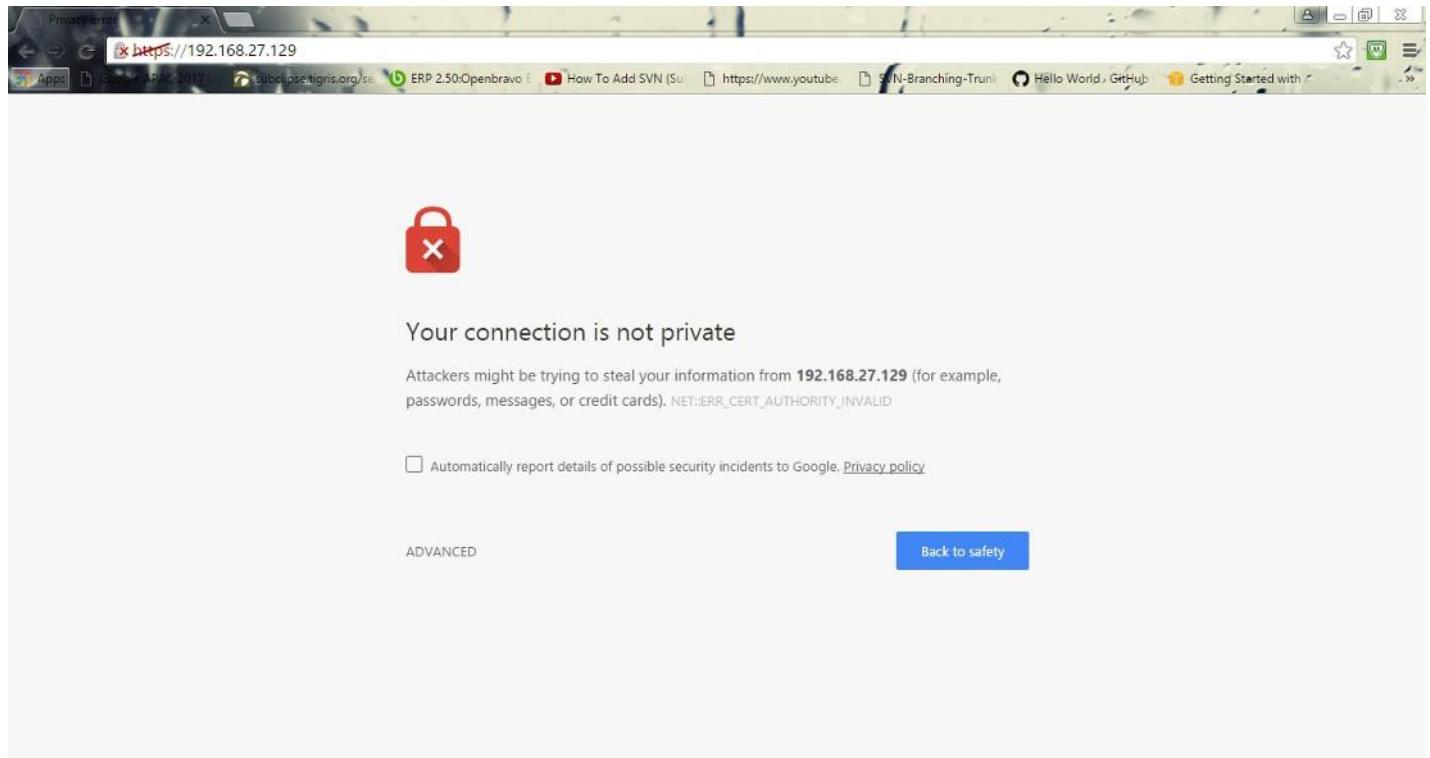
- Finally it will generate an IP address.



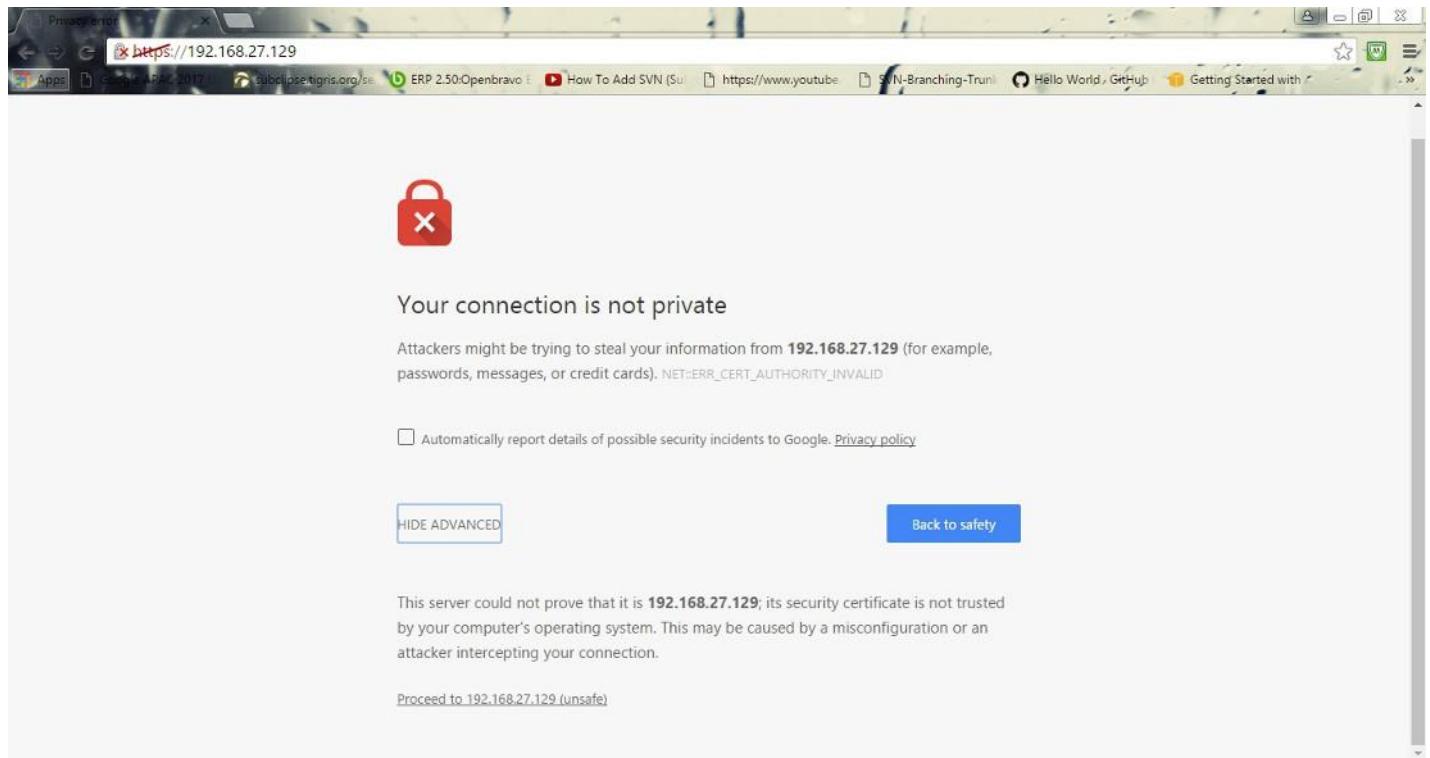
- To share the host's IP address click on Virtual machine settings -> Select Network Adapter -> Select NAT: Used to share the host's IP address.



- Open the URL on a new tab and Click on ADVANCED.



- Click on ' Proceed to 192.168.27.129(unsafe) .



A screenshot of a web browser window showing the "VMware ESXi Welcome" page. The address bar shows the URL <https://192.168.27.129>. The page has a dark header with the "VMware ESXi" logo and a yellow square icon. The main content area is titled "Getting Started". It contains several sections:

- Getting Started**: Text explaining how to access the host remotely using the vSphere Client.
- Please note**: Text about the traditional vSphere Client not supporting features added in version 5.1 and 5.5.
- Download vSphere Client**: A link to download the client.
- To streamline your IT operations**: Text about using vCenter to consolidate workloads.
- Download VMware vCenter**: A link to download vCenter.
- If you need more help**: Text about referring to the documentation library.

On the right side, there are sections for "For Administrators" and "For Developers":

- vSphere Remote Command Line**: Text about using command line tools.
- Web-Based Datastore Browser**: Text about using a web browser to manage datastores.
- vSphere Web Services SDK**: Text about the latest SDKs and APIs.

- Then click on 'Download vSphere Client'. Setup will be downloaded and it will take few minutes to finish.

Welcome to VMware ESXi

https://192.168.27.129

VMware ESXi Welcome

Getting Started

If you need to access this host remotely, use the following program to install vSphere Client software. After running the installer, start the client and log in to this host.

Please note that the traditional vSphere Client does not support features added to vSphere in the 5.1 and 5.5 releases. The traditional vSphere Client is intended for use if you need to connect directly to an ESXi host, are performing certain vSphere Update Manager operations, or are running vCenter Plug-ins that support only the vSphere Client such as vCenter Site Recovery Manager or vCenter Multi-Hypervisor Manager.

You can take advantage of the fullest range of functionality introduced or updated in this release by using the vSphere Web Client.

- Download vSphere Client

To streamline your IT operations with vSphere, use the following program to install vCenter. vCenter will help you consolidate and optimize workload distribution across ESX hosts, reduce new system deployment time from weeks to seconds, monitor your virtual computing environment around the clock, avoid service disruptions due to planned hardware maintenance or unexpected failure, centralize access control, and automate system administration tasks.

- Download VMware vCenter

For Administrators

vSphere Remote Command Line

The Remote Command Line allows you to use command line tools to manage vSphere from a client machine. These tools can be used in shell scripts to automate day-to-day operations.

- Download the Virtual Appliance
- Download the Windows Installer (.exe)
- Download the Linux Installer (.tar.gz)

Web-Based Datastore Browser

Use your web browser to find and download files (for example, virtual machine and virtual disk files).

- Browse datastores in this host's inventory

For Developers

vSphere Web Services SDK

Learn about our latest SDKs, Toolkits, and APIs for managing VMware ESX, ESXi, and VMware vCenter. Get sample code, reference documentation, participate in our Forum Discussions, and view our latest Sessions and Webinars.

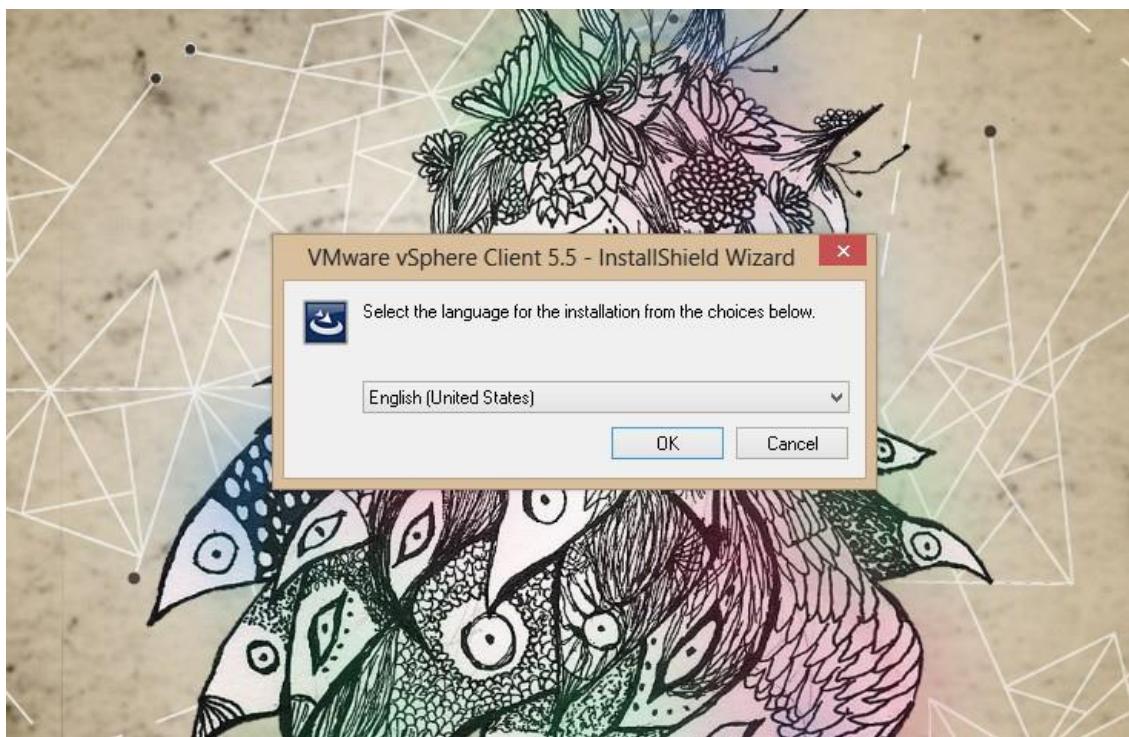
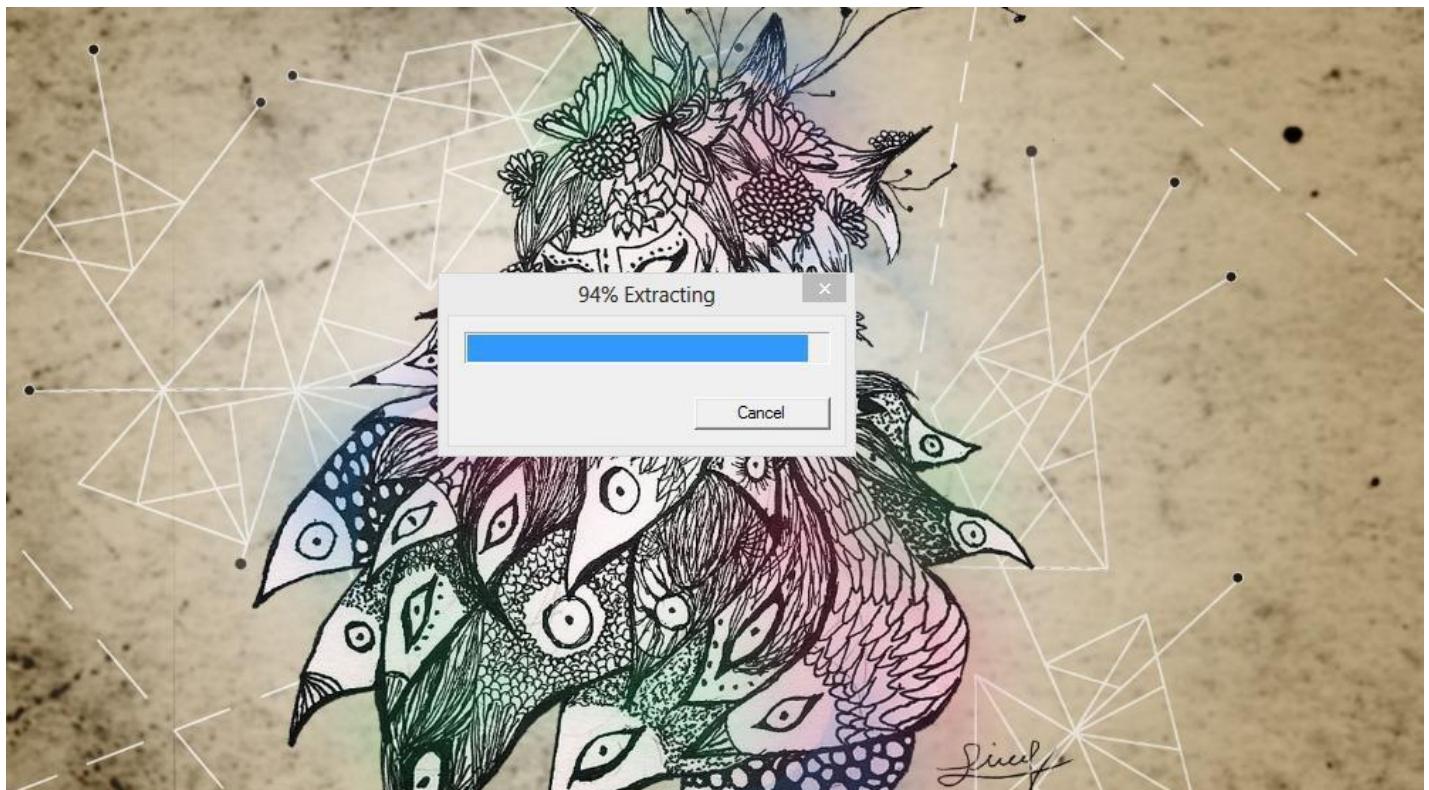
- Learn more about the Web Services SDK

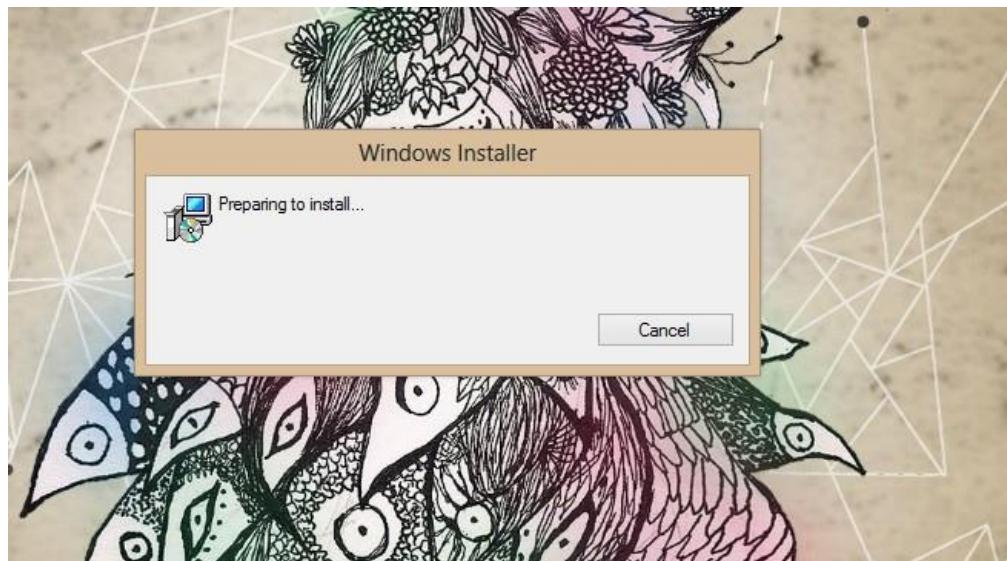
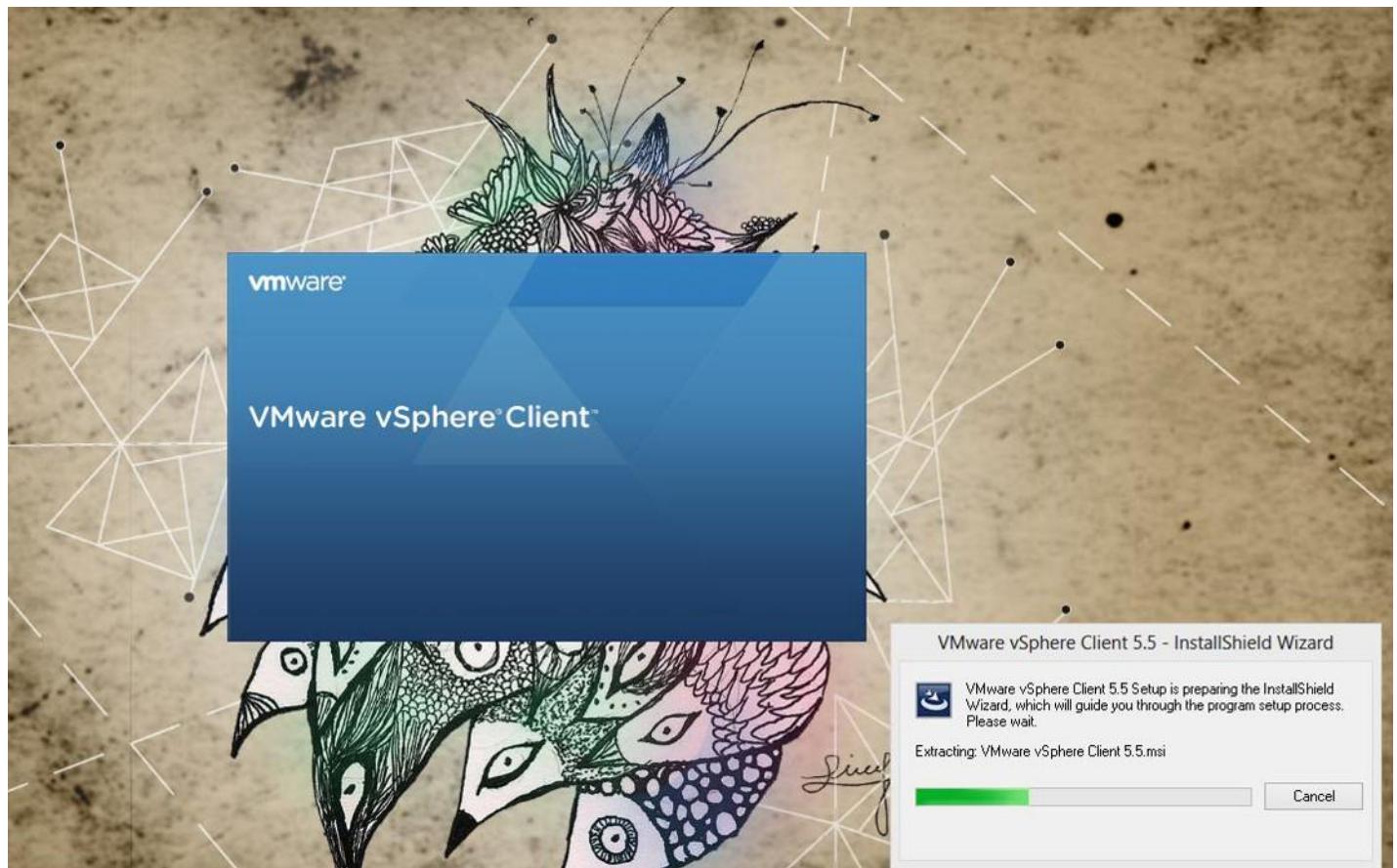
VMware-vclient-all-...exe
0.2/358 MB, 3 hours left

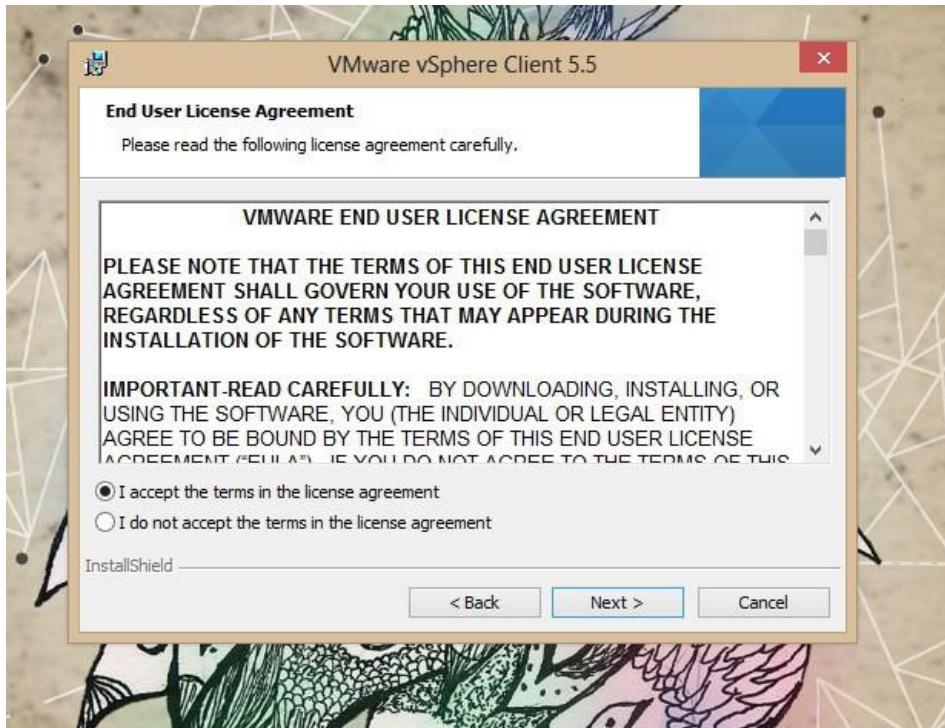
Show all downloads

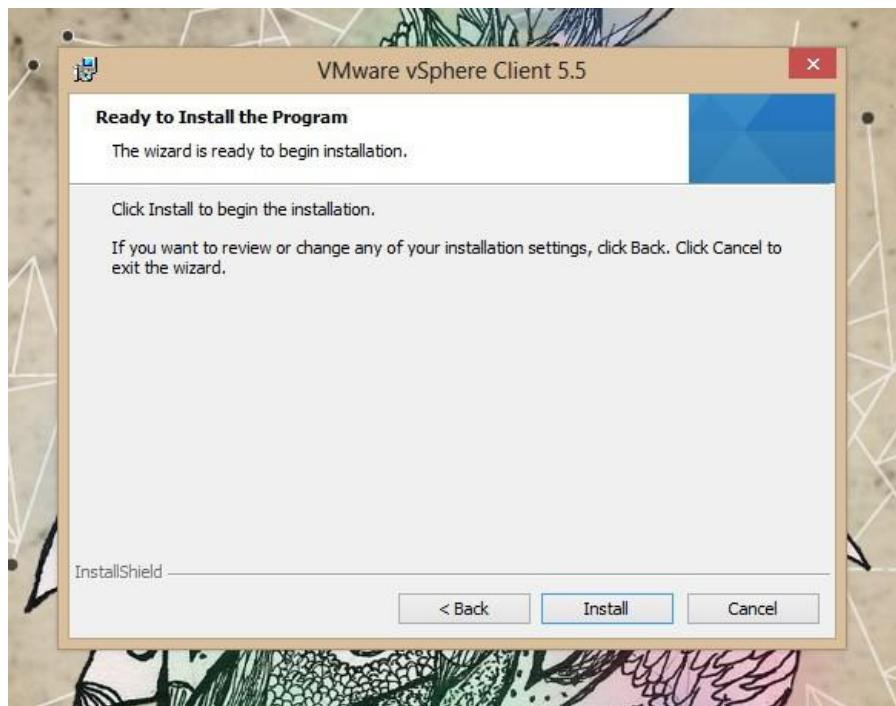
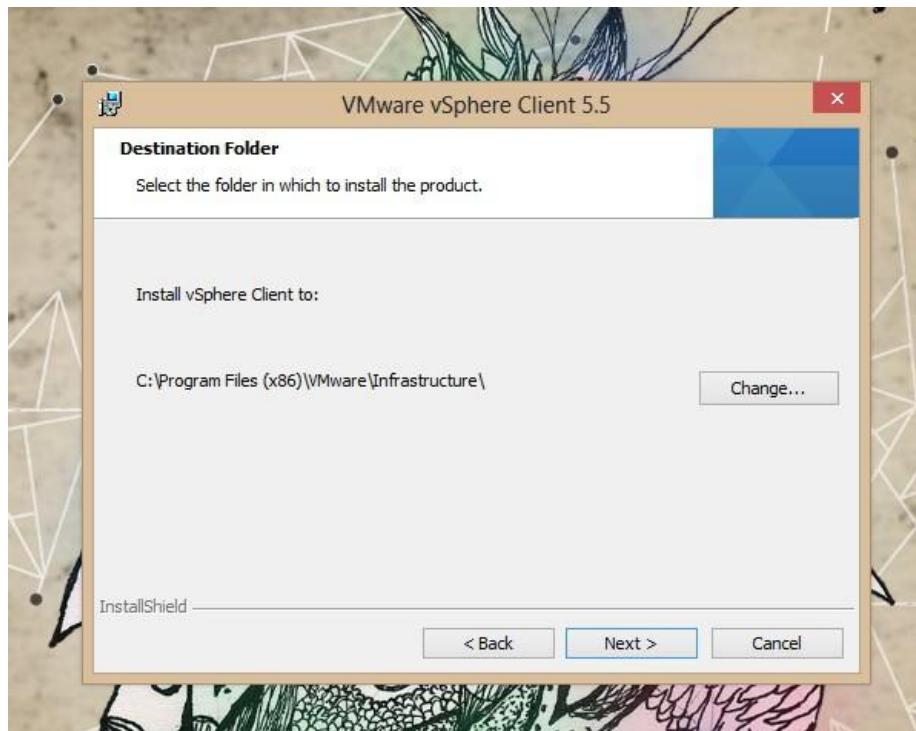
* After Download has finished install the setup.

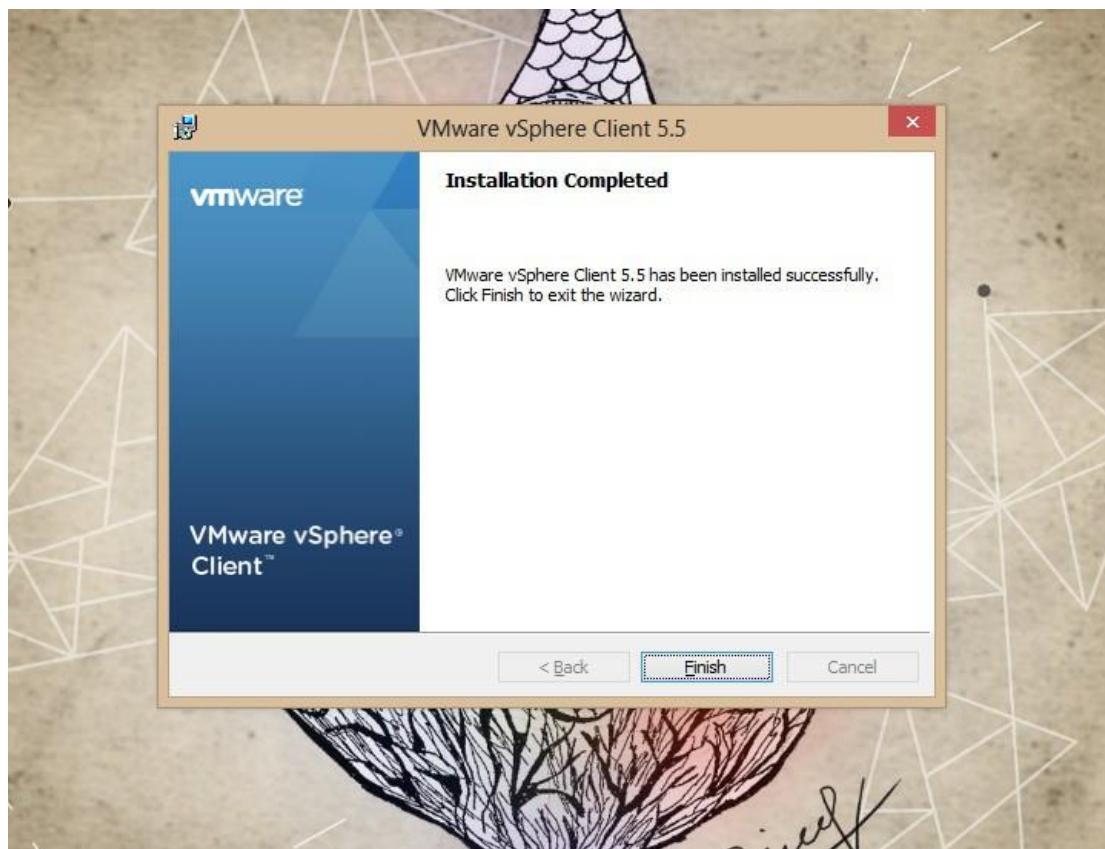
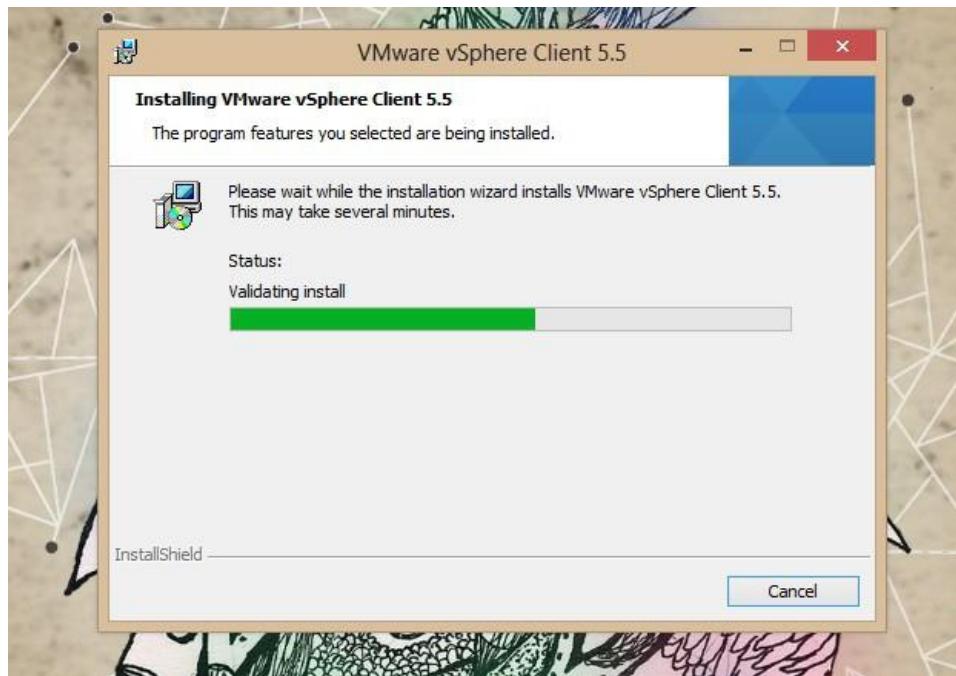
Name	Date modified	Type	Size
VMware-vclient-all-5.5.0-1993072	7/23/2016 2:35 PM	Application	366,357 KB



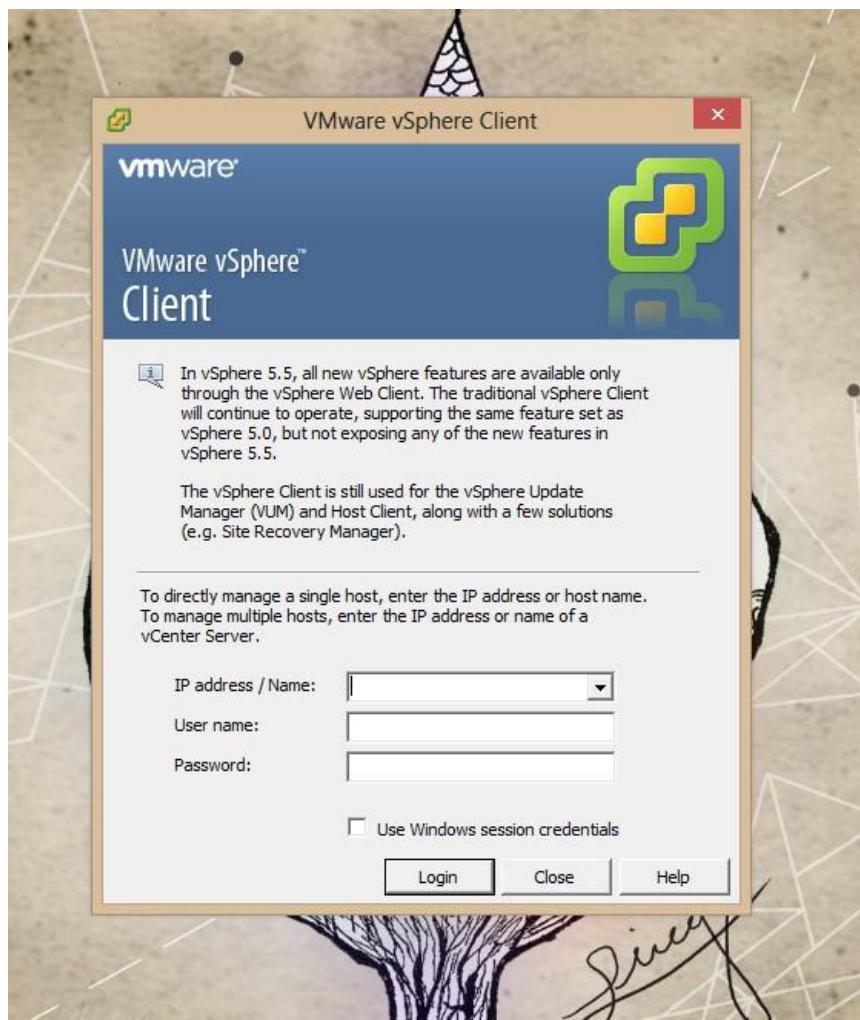








- After the installation process has finished can open the vSphere client by selecting All programs -> VMware vSphere client.

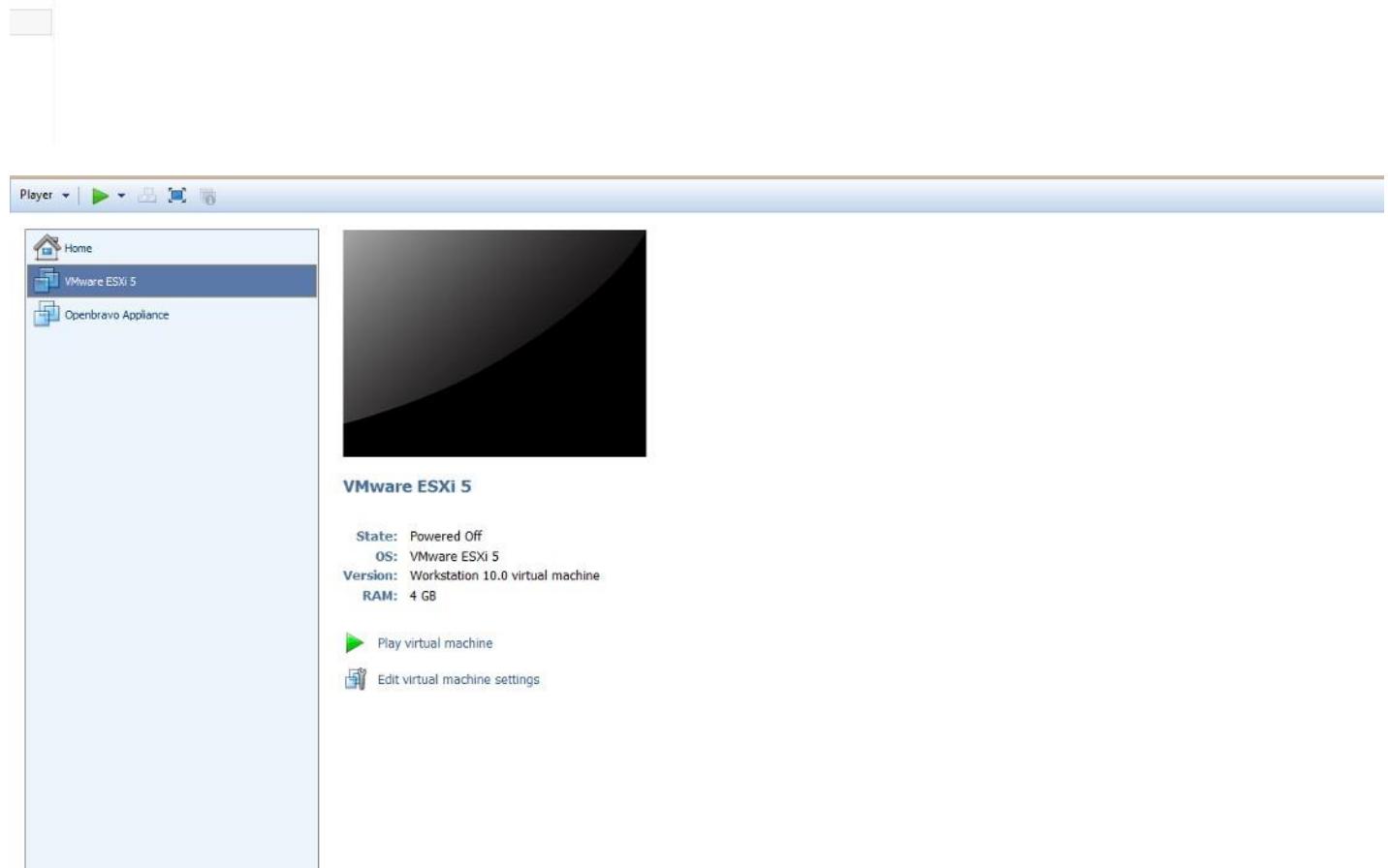


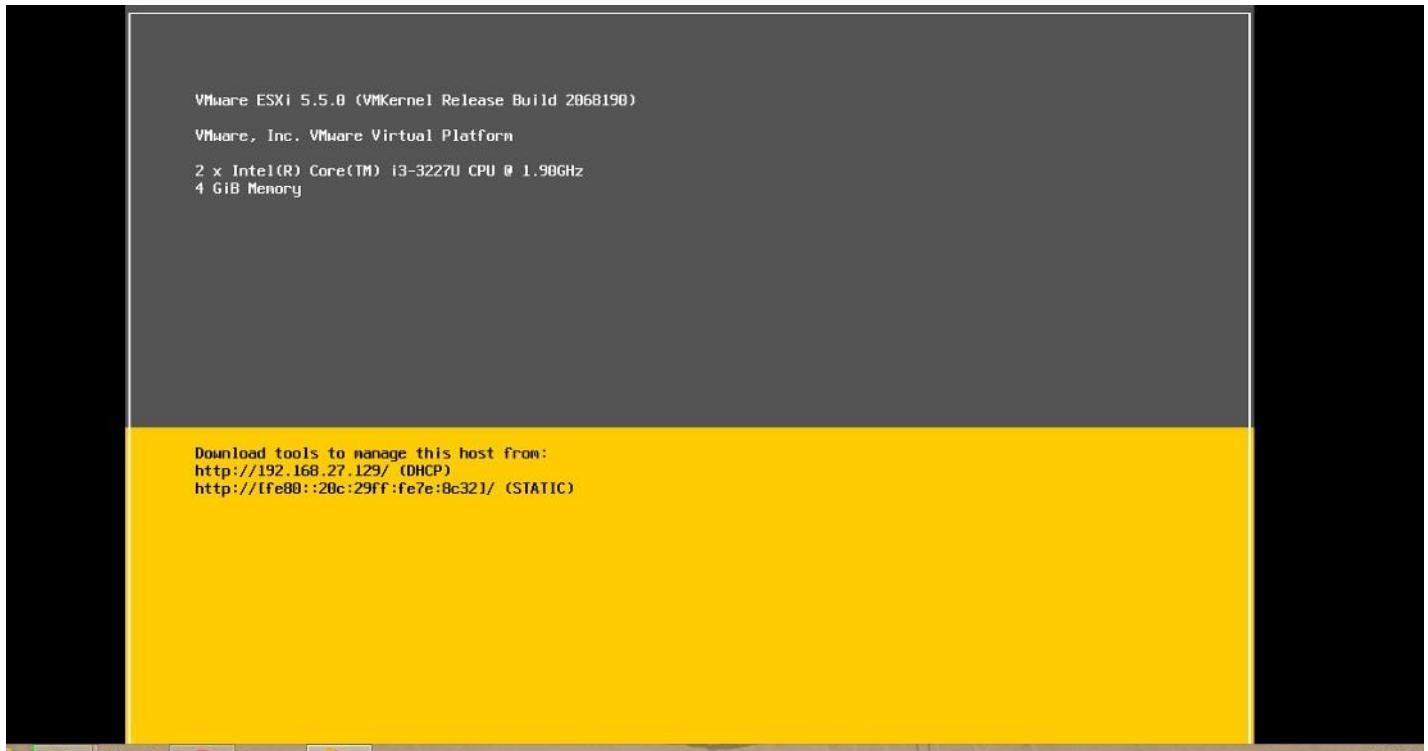
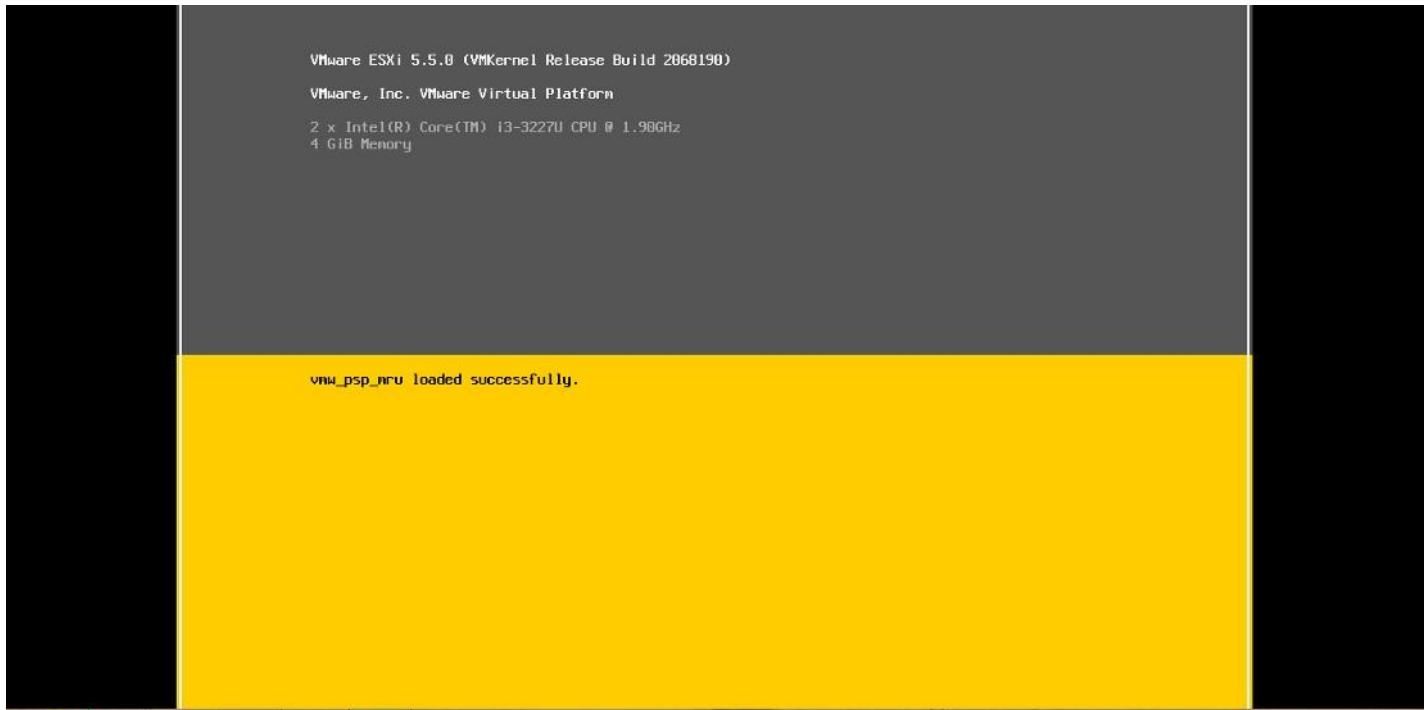
Creating a ne' virtual machine on vSphere ESXi Bare-Metal Hypervisor

You now have the key ingredients for virtual machine success. You've installed the hypervisor - ESXi 5 - and a management tool - vSphere Client. From here, you can start building virtual machines to meet organizational needs.

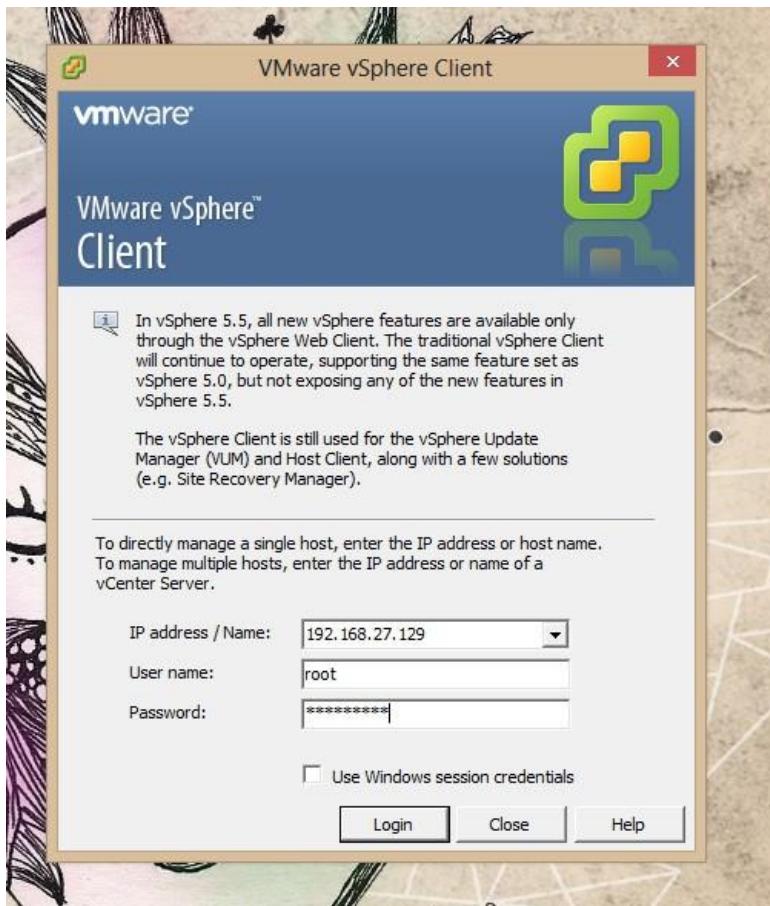
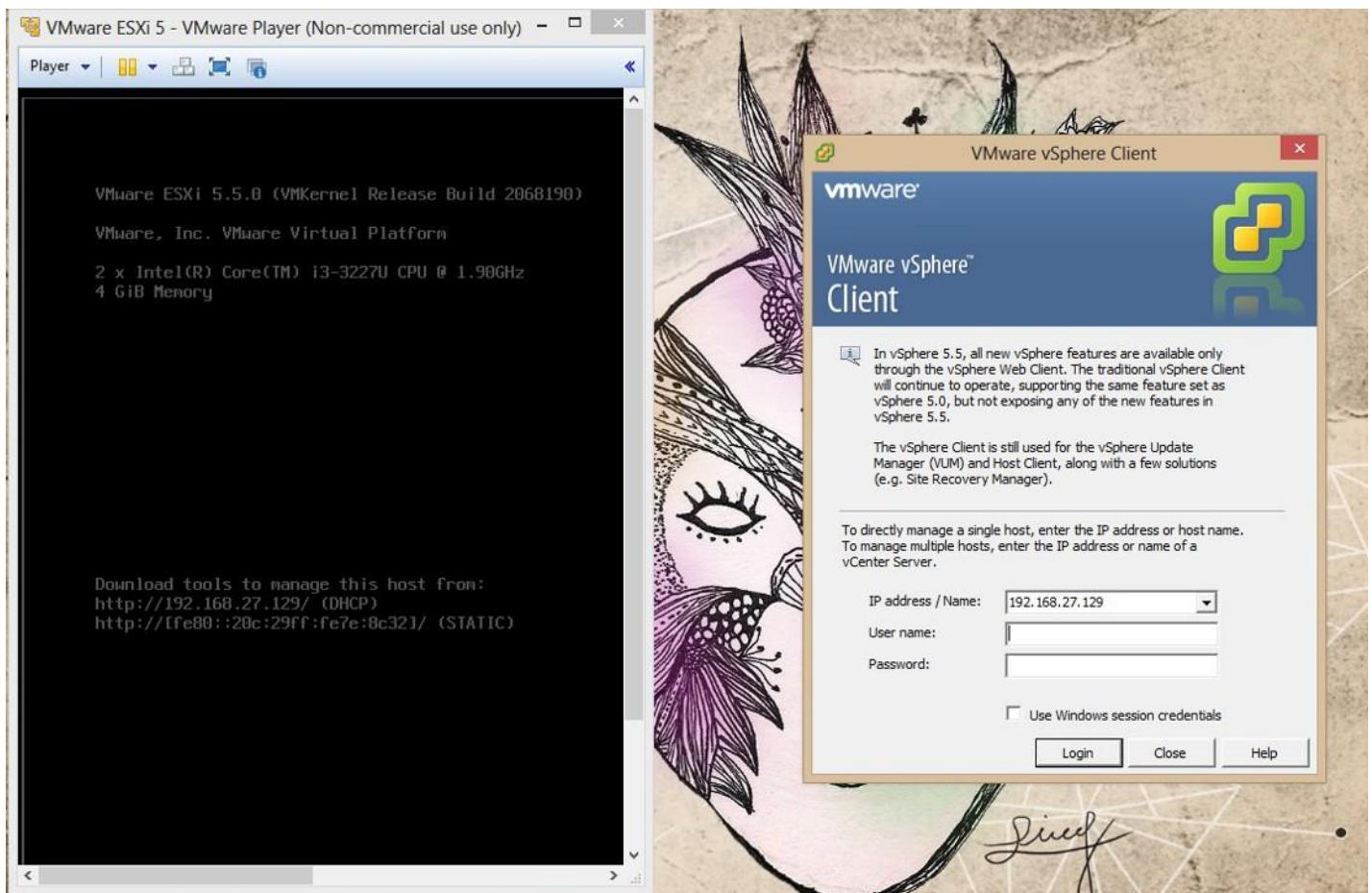
- To open the VMware ESXi 5 from Virtual Machine management software open the location that you have selected early to save the file. It will takes few minutes and will generate an IP address.

New Volume (E:) ▶ ESBP II ▶ ESBP II lab ▶ ESBP II lab 3 baremetal installation on vmware ▶ Vmware			
Name	Date modified	Type	Size
564d5a71-5a04-4ff4-2b3f-81b5d82a9a3a....	8/8/2016 10:11 PM	File folder	
VMware ESXi 5.vmdk.lck	8/8/2016 10:11 PM	File folder	
VMware ESXi 5.vmx.lck	8/8/2016 10:11 PM	File folder	
564d5a71-5a04-4ff4-2b3f-81b5d82a9a3a....	8/8/2016 10:11 PM	VMEM File	4,194,304 KB
VMware ESXi 5.nvram	8/2/2016 8:55 AM	NVRAM File	9 KB
VMware ESXi 5	8/8/2016 10:12 PM	VMware virtual disk file	3,616,512 KB
VMware ESXi 5.vmsd	7/25/2016 8:56 AM	VMSD File	0 KB
VMware ESXi 5	8/8/2016 10:11 PM	VMware virtual machine configuration	3 KB
VMware ESXi 5.vmxsf	7/25/2016 8:56 AM	VMXF File	1 KB
vmware	8/8/2016 10:11 PM	Text Document	0 KB
vmware-0	8/2/2016 8:56 AM	Text Document	146 KB
vmware-1	7/29/2016 5:26 PM	Text Document	170 KB
vmware-2	7/29/2016 4:16 PM	Text Document	158 KB



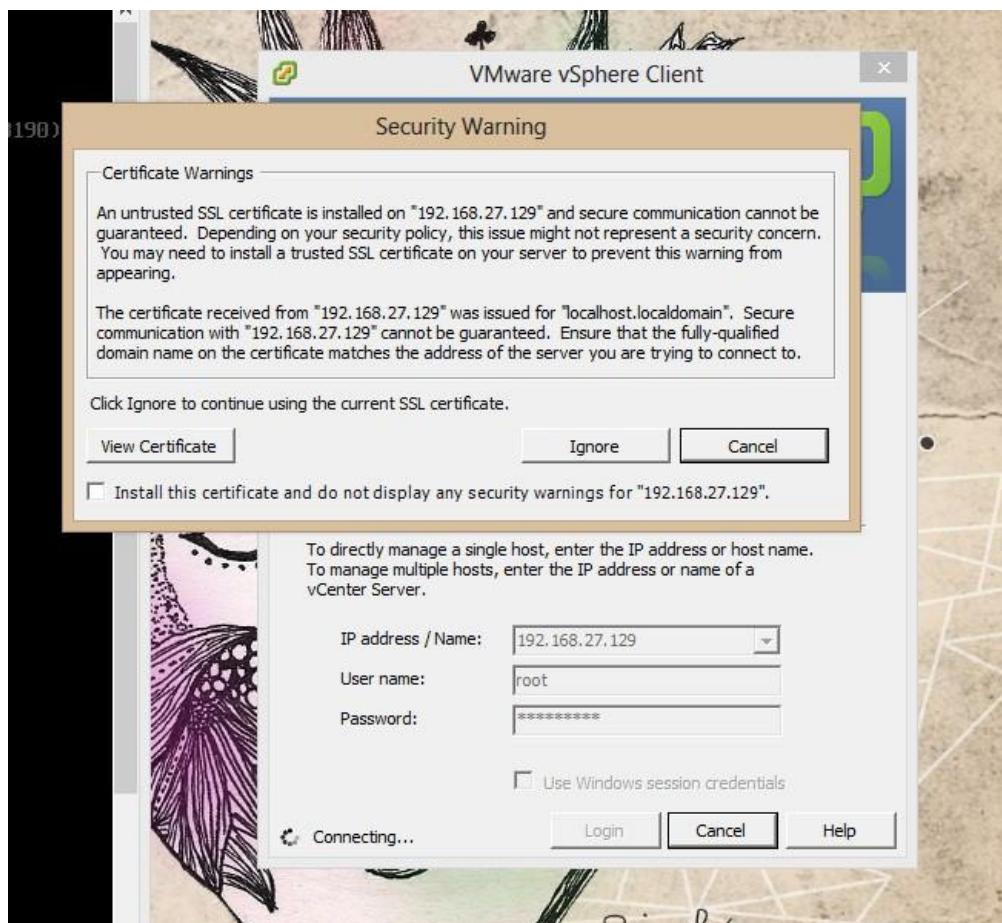


- Start the vSphere Client by opening Start > All Programs > VMware > VMware Sphere Client. This will open up the vSphere Client login page. On this page, provide the IP address for your ESXi 5 host and also provide the root username and password that you specified during the setup of your server.



- You will receive a security warning and it is basically telling you that SSL certificate being used by the ESXi host can't be trusted. However, since you just installed the ESXi server, you're generally safe simply clicking the Ignore button here, although you can also choose to install

the certificate to your local certificate store so that you don't see this message again.



- Then you will be redirected to the home page. Double click on Inventory image button to see server IP address.

The screenshot shows the VMware vSphere Client home page. The top navigation bar includes File, Edit, View, Inventory, Administration, Plug-ins, and Help. The main area has tabs for Home, Inventory, and Administration. Under Administration, there are links for Roles and System Logs. At the bottom, there is a 'Recent Tasks' table:

Name	Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
Unregister virtualmach...	Kali_espri	Completed		root	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM
Auto power On	192.168.27.129	Completed		root	8/8/2016 10:13:28 PM	8/8/2016 10:13:28 PM	8/8/2016 10:13:28 PM

File Edit View Inventory Administration Plug-ins Help

Home > Inventory > Inventory

localhost.localdomain VMware ESXi, 5.5.0, 2068190 | Evaluation (60 days remaining)

Getting Started Summary Virtual Machines Resource Allocation Performance Configuration Local Users & Groups Events Permissions close tab [X]

What is a Host?

A host is a computer that uses virtualization software, such as ESX or ESXi, to run virtual machines. Hosts provide the CPU and memory resources that virtual machines use and give virtual machines access to storage and network connectivity.

You can add a virtual machine to a host by creating a new one or by deploying a virtual appliance.

The easiest way to add a virtual machine is to deploy a virtual appliance. A virtual appliance is a pre-built virtual machine with an operating system and software already installed. A new virtual machine will need an operating system installed on it, such as Windows or Linux.



Basic Tasks

- Deploy from VA Marketplace
- Create a new virtual machine

Explore Further

- Learn about vSphere

Recent Tasks

Name	Target	Status	Details	Initiated by	Requested Start Time	Start Time	Completed Time
Unregister virtual mach...	Kali_esbpi	Completed		root	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM

Name, Target or Status contains: Clear [X]

Tasks

Evaluation Mode: 60 days remaining root

- Click on summary tab and it shows storage area at right corner. Right click on datastore1 and select browse data.

File Edit View Inventory Administration Plug-ins Help

Home > Inventory > Inventory

localhost.localdomain VMware ESXi, 5.5.0, 2068190 | Evaluation (60 days remaining)

Getting Started Summary Virtual Machines Resource Allocation Performance Configuration Local Users & Groups Events Permissions

General

Manufacturer:	VMware, Inc.
Model:	VMware Virtual Platform
CPU Cores:	2 CPUs x 1.895 GHz
Processor Type:	Intel(R) Core(TM) i3-3227U CPU @ 1.90GHz
License:	Evaluation Mode -
Processor Sockets:	2
Cores per Socket:	1
Logical Processors:	2
Hyperthreading:	Inactive
Number of NICs:	1
State:	Connected
Virtual Machines and Templates:	0
vMotion Enabled:	N/A
VMware EVC Mode:	Disabled
vSphere HA State	② N/A
Host Configured for FT:	N/A
Active Tasks:	
Host Profile:	N/A
Image Profile:	ESXi-5.5.0-20140902001-st...

Resources

CPU usage: 219 MHz	Capacity	
2 x 1.895 GHz		
Memory usage: 1148.00 MB	Capacity	
4095.49 MB		
Storage	Drive Type	Capacity
datastore1	Non-SSD	32.50 GB
<		>
Network	Type	
VM Network	Standard port group	
<		>

Fault Tolerance

Fault Tolerance Version:	5.0.0-5.0.0-5.0.0
Refresh Virtual Machine Counts	
Total Primary VMs:	0
Powered On Primary VMs:	0
Total Secondary VMs:	0
Powered On Secondary VMs:	0

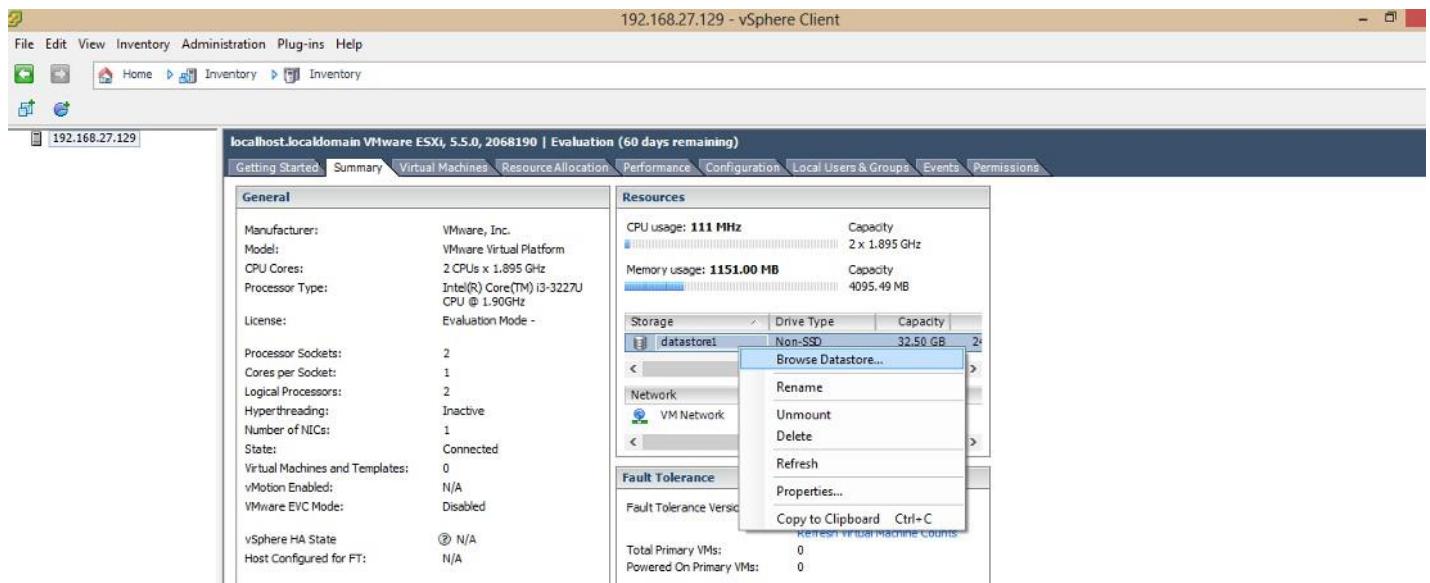
Recent Tasks

Name	Target	Status	Details	Initiated by	Requested Start Time	Start Time	Completed Time
Unregister virtual mach...	Kali_esbpi	Completed		root	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM

Name, Target or Status contains: Clear [X]

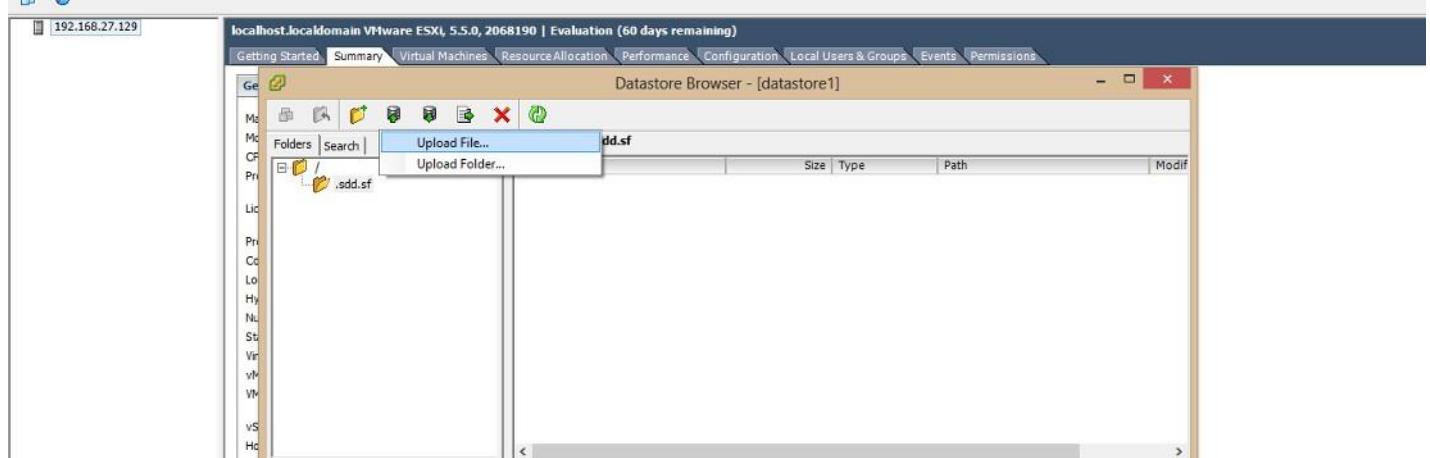
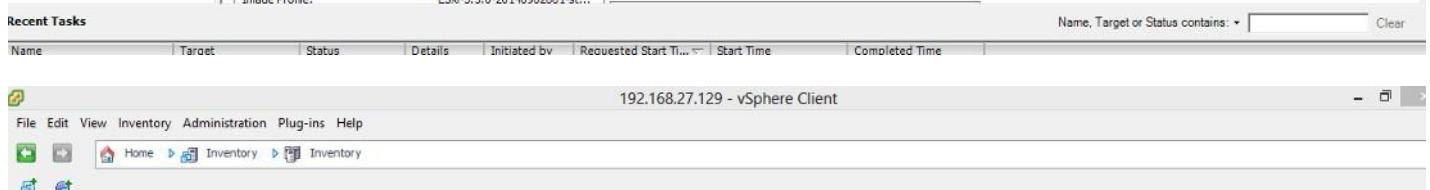
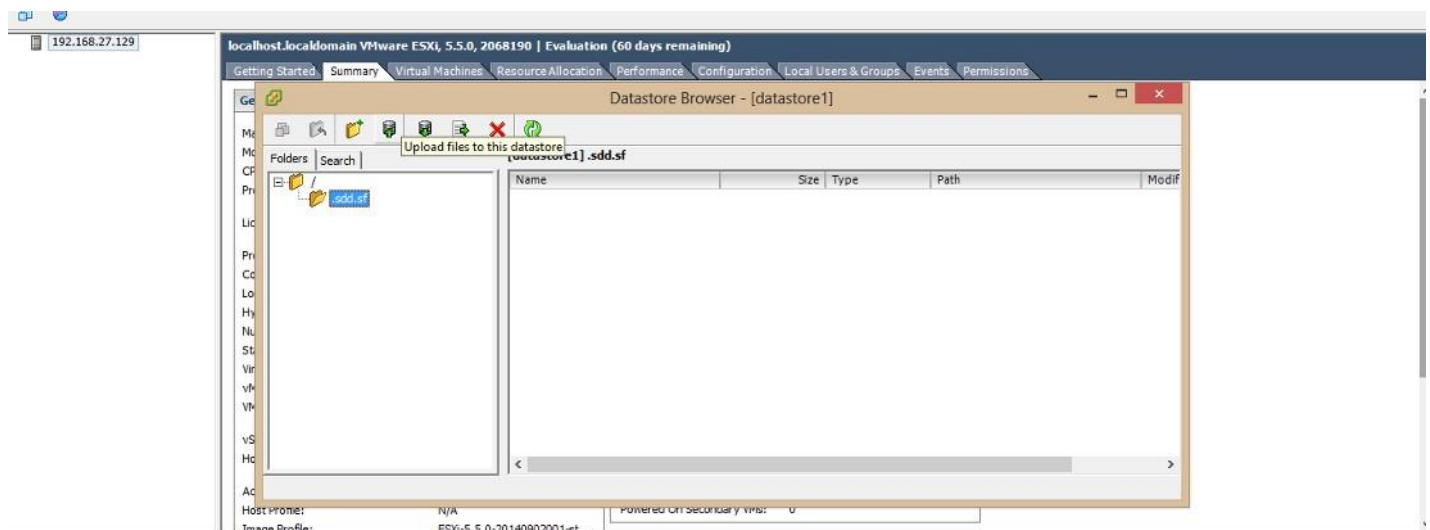
Tasks

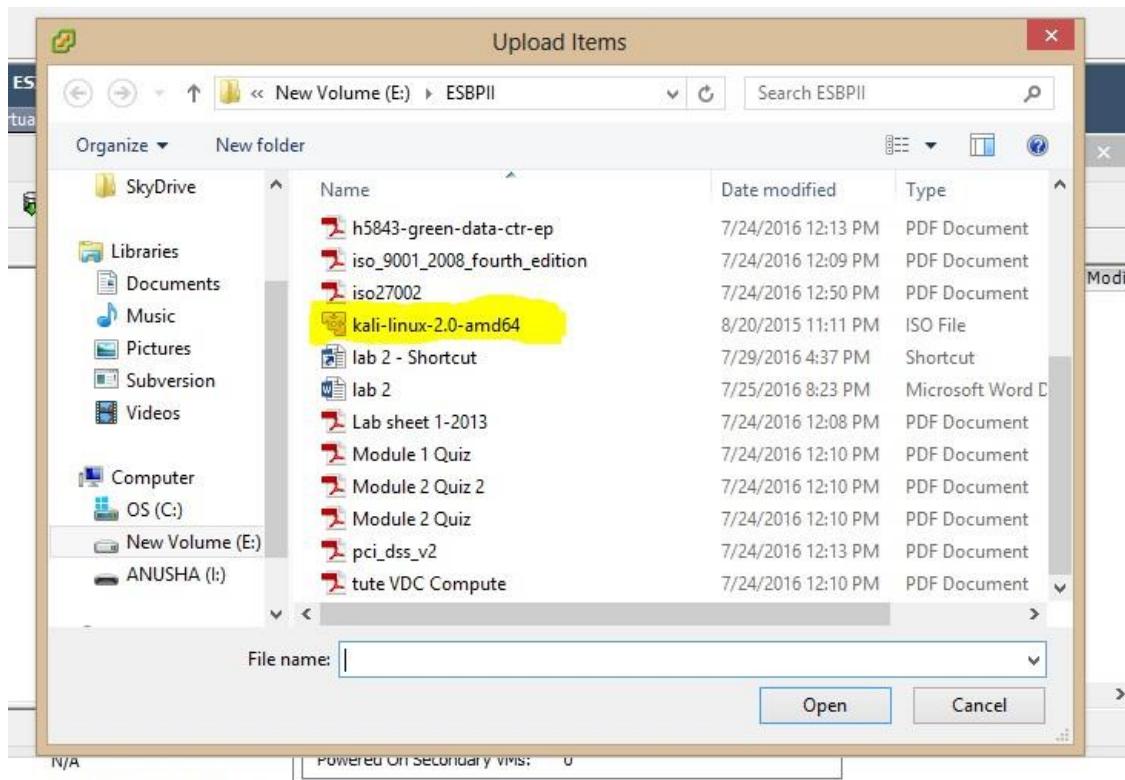
Evaluation Mode: 60 days remaining root



Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
ch...	Completed		root	8/8/2016 10:31:17 PM	8/8/2016 10:31:17 PM	8/8/2016 10:31:18 PM
Kali_esbp1i	Completed		root	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM

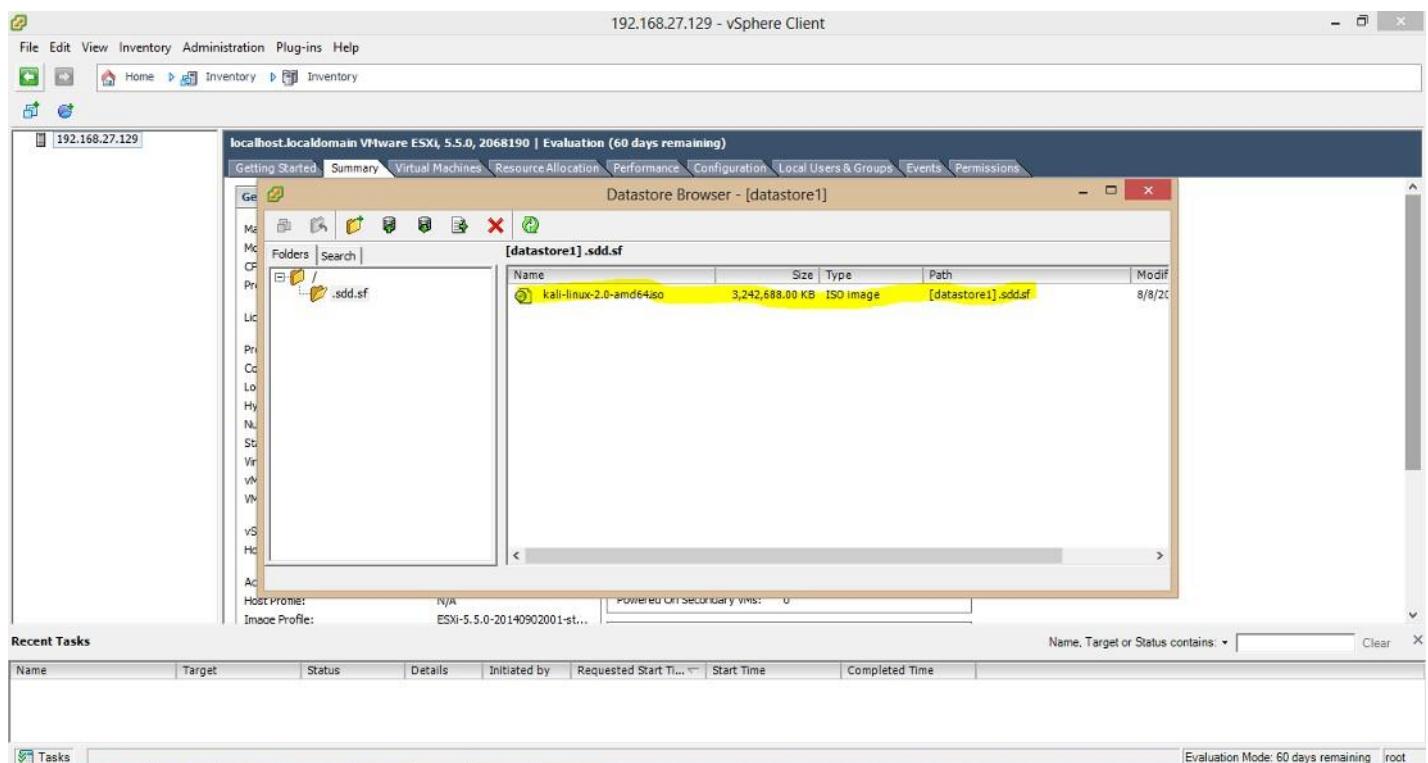
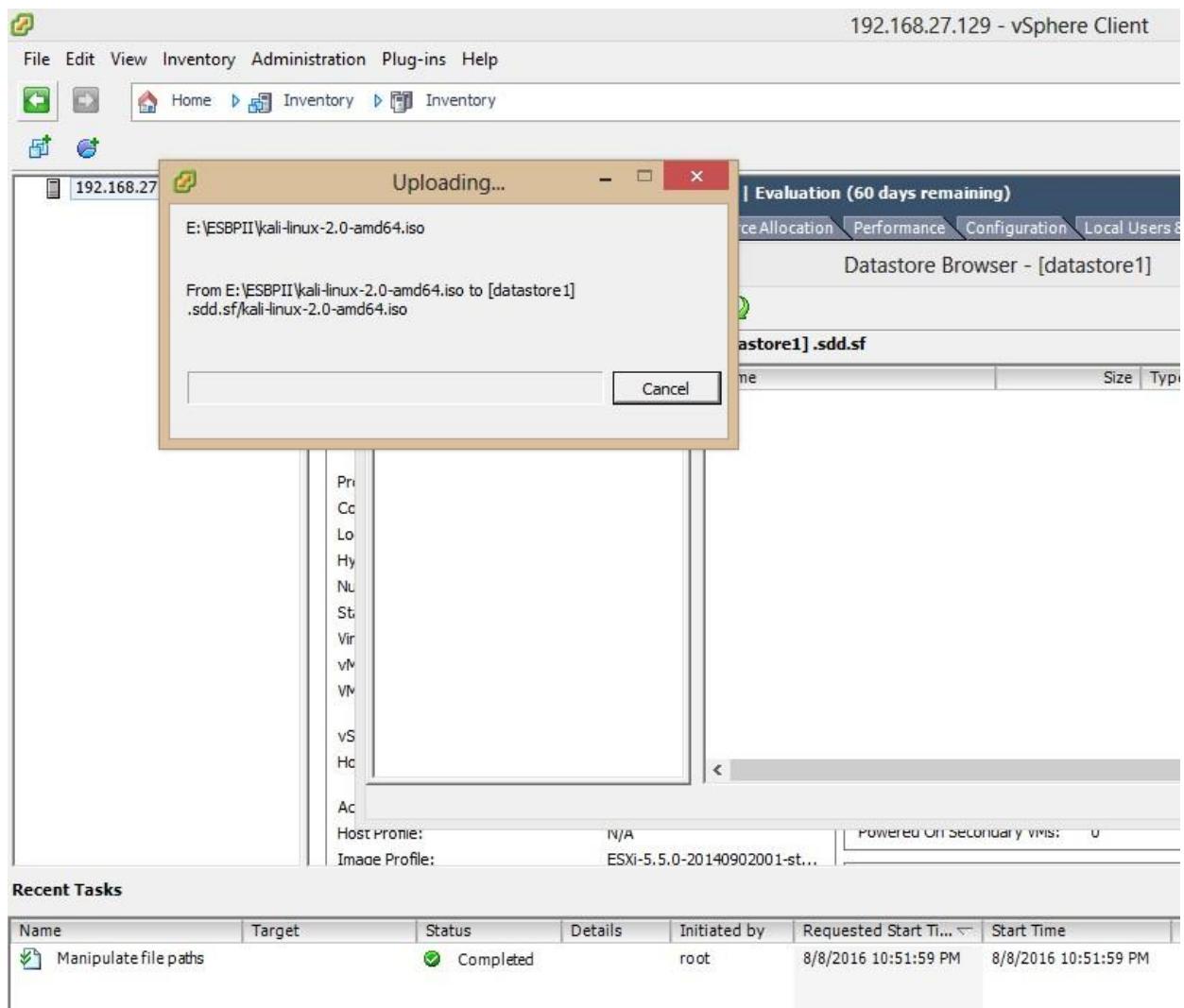
- Select 5th icon (upload files to this datastore) from tool bar to upload a disk image of a new operating system that you want to install. Click on Upload file and select an operating system that you want to install. Here I'm going to install Kali-linux Operating system.



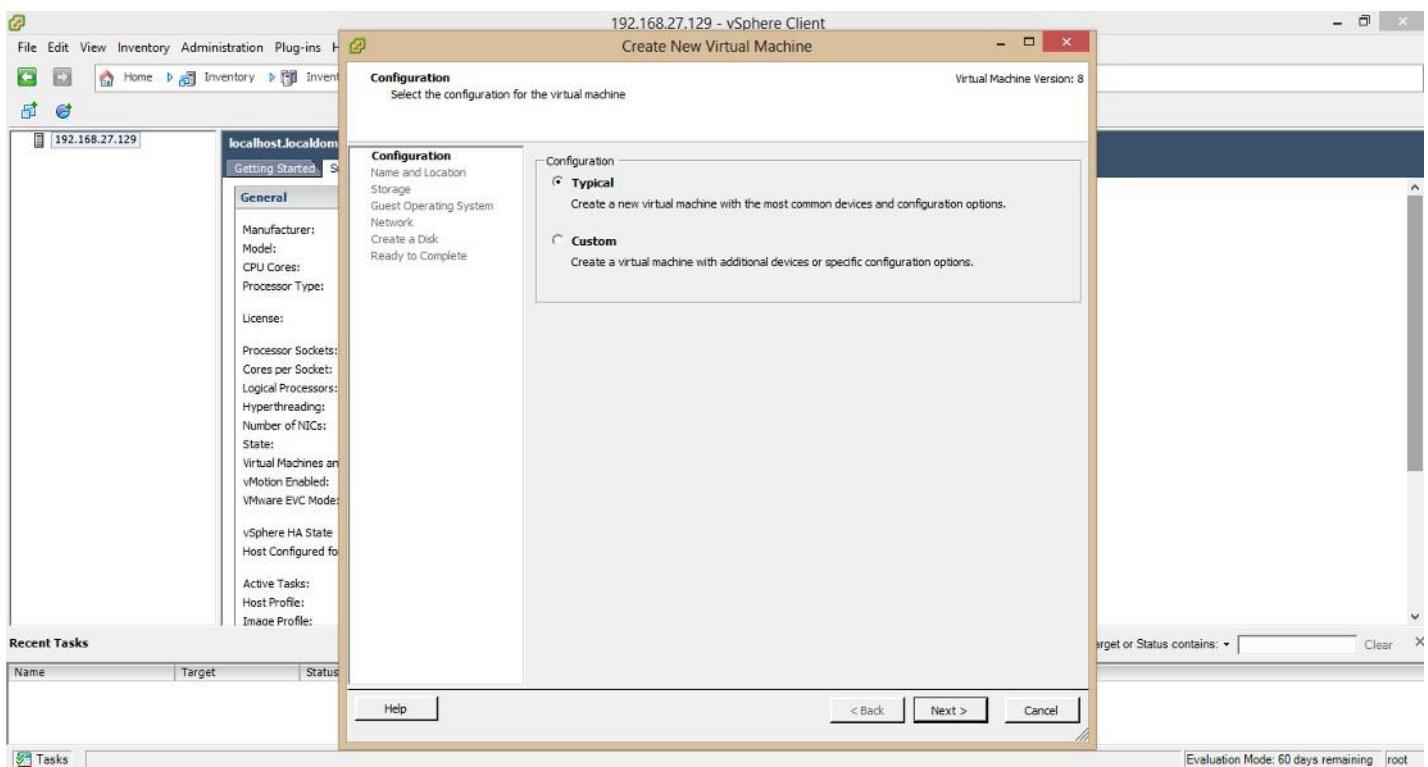
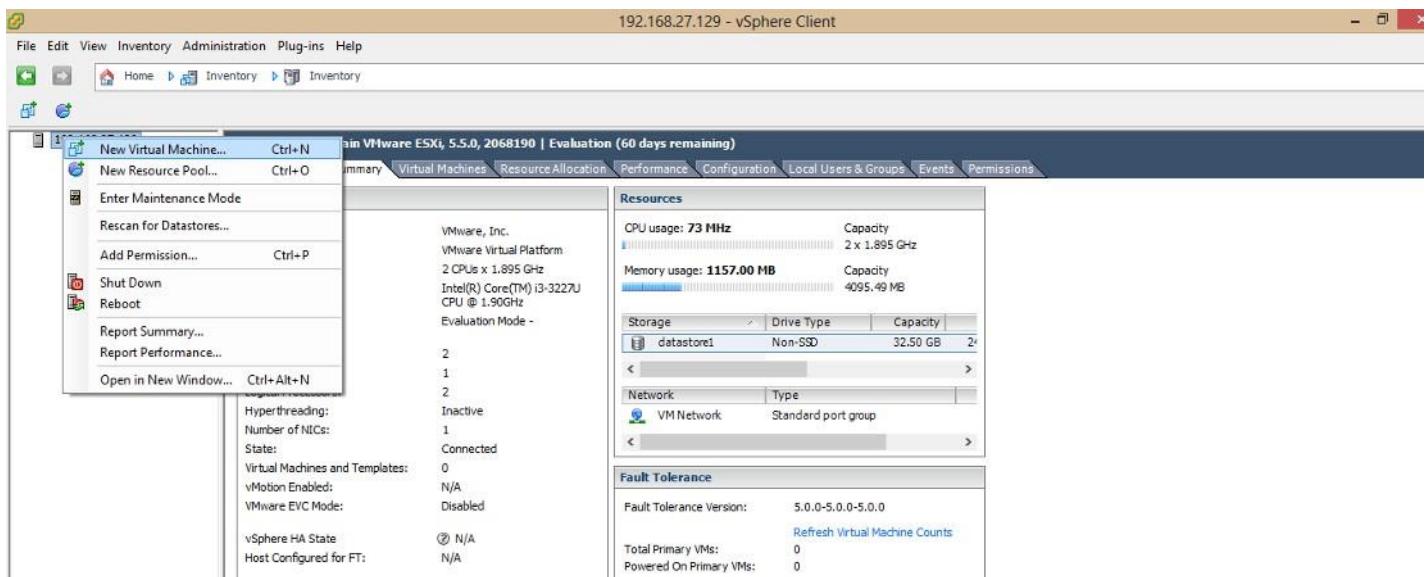


- It will take few minutes to upload.

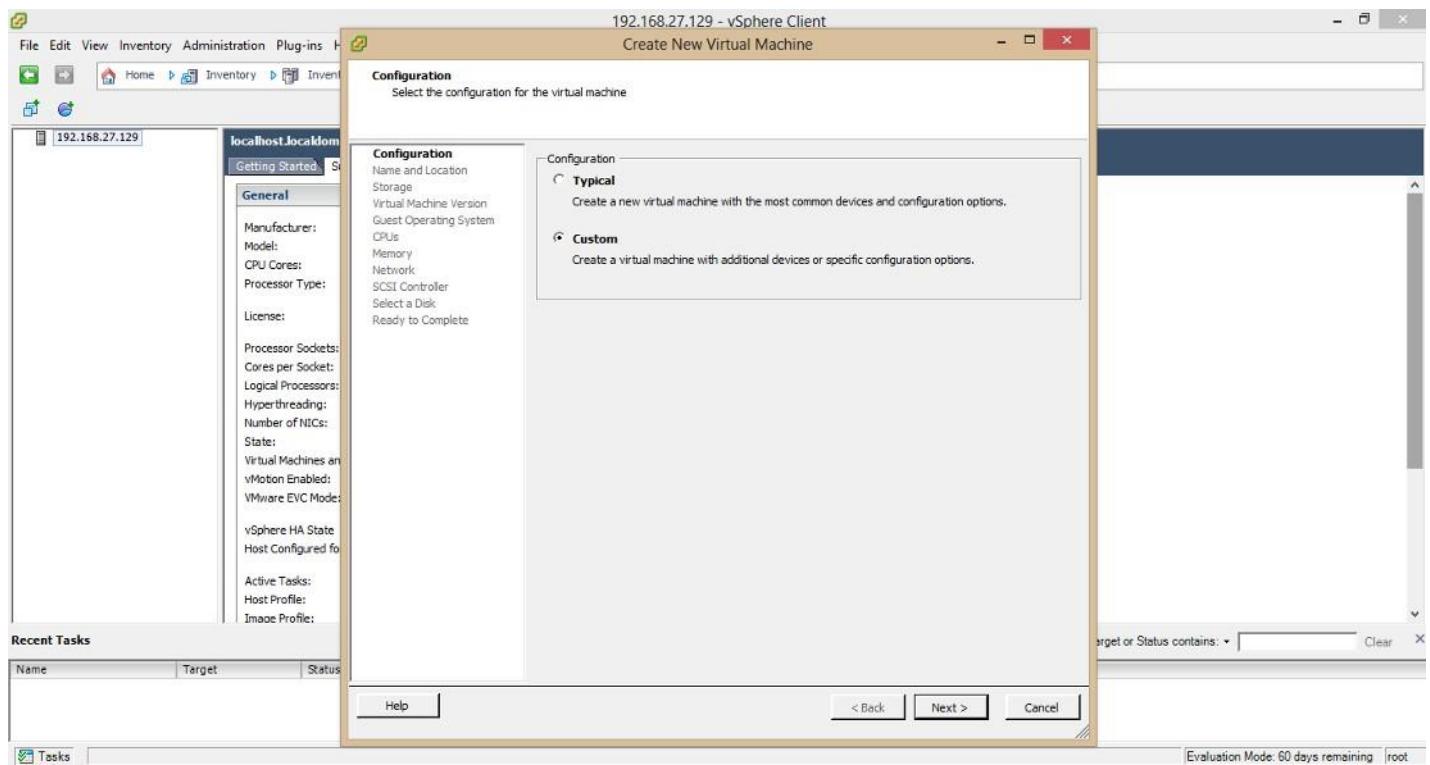
The screenshot shows the vSphere Client interface with the title '192.168.27.129 - vSphere Client'. The top menu includes File, Edit, View, Inventory, Administration, Plug-ins, and Help. The navigation bar shows Home, Inventory, and another Inventory link. The main content area displays 'localhost.localdomain VMware ESXi, 5.5.0, 2068190 | Evaluation (60 days remaining)'. A 'Datastore Browser - [datastore1].sddsf' window is open, showing a tree view with a folder named '.sddsf'. A warning dialog box titled 'Upload/Download Operation Warning' is in the foreground, stating: 'If a file or folder in the target location has the same name as the one being copied, it will be replaced. Do you still want to continue?'. It has 'Yes' and 'No' buttons. The status bar at the bottom shows 'Host Profile: IV/A' and 'Powered On Secondary VMs: 0'.



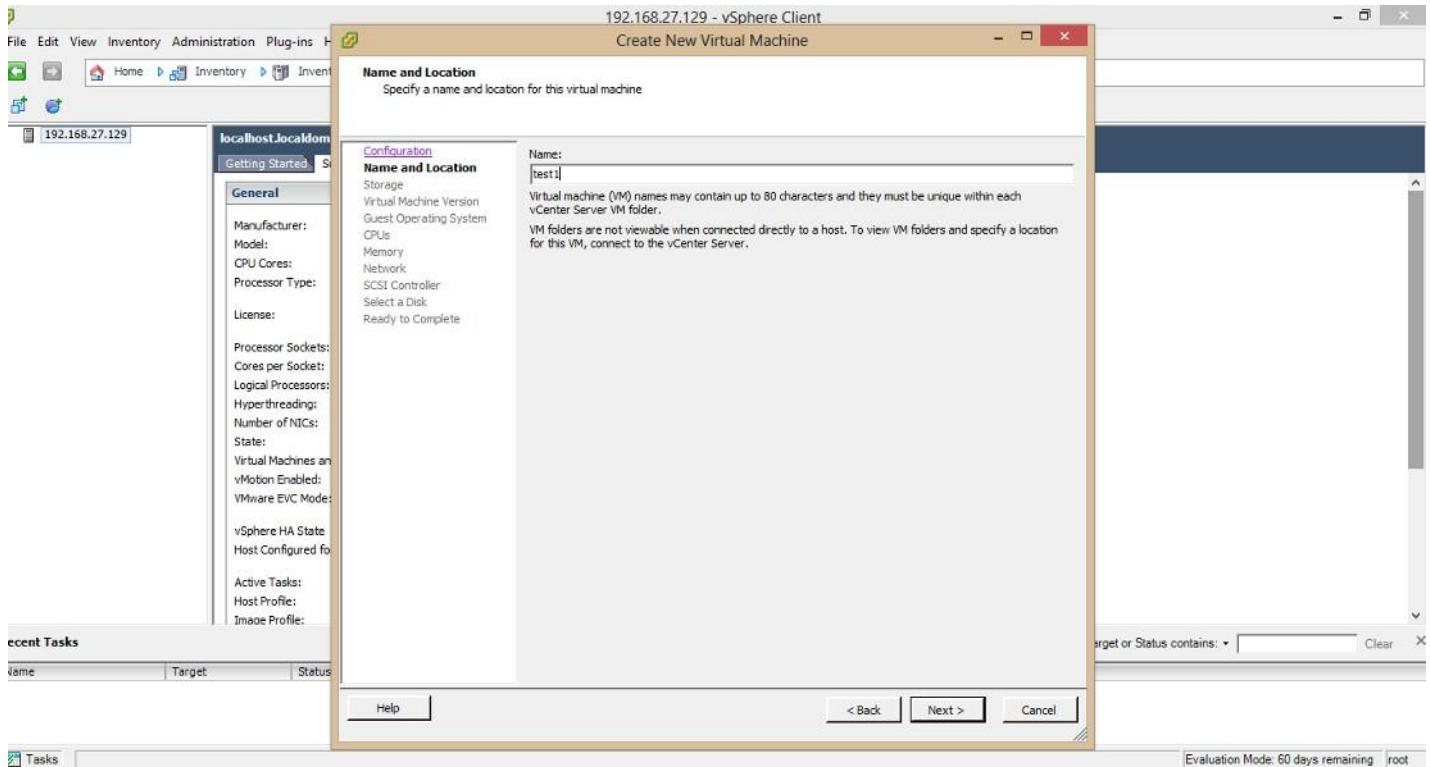
- Right click your server IP address and choose New Virtual Machine.



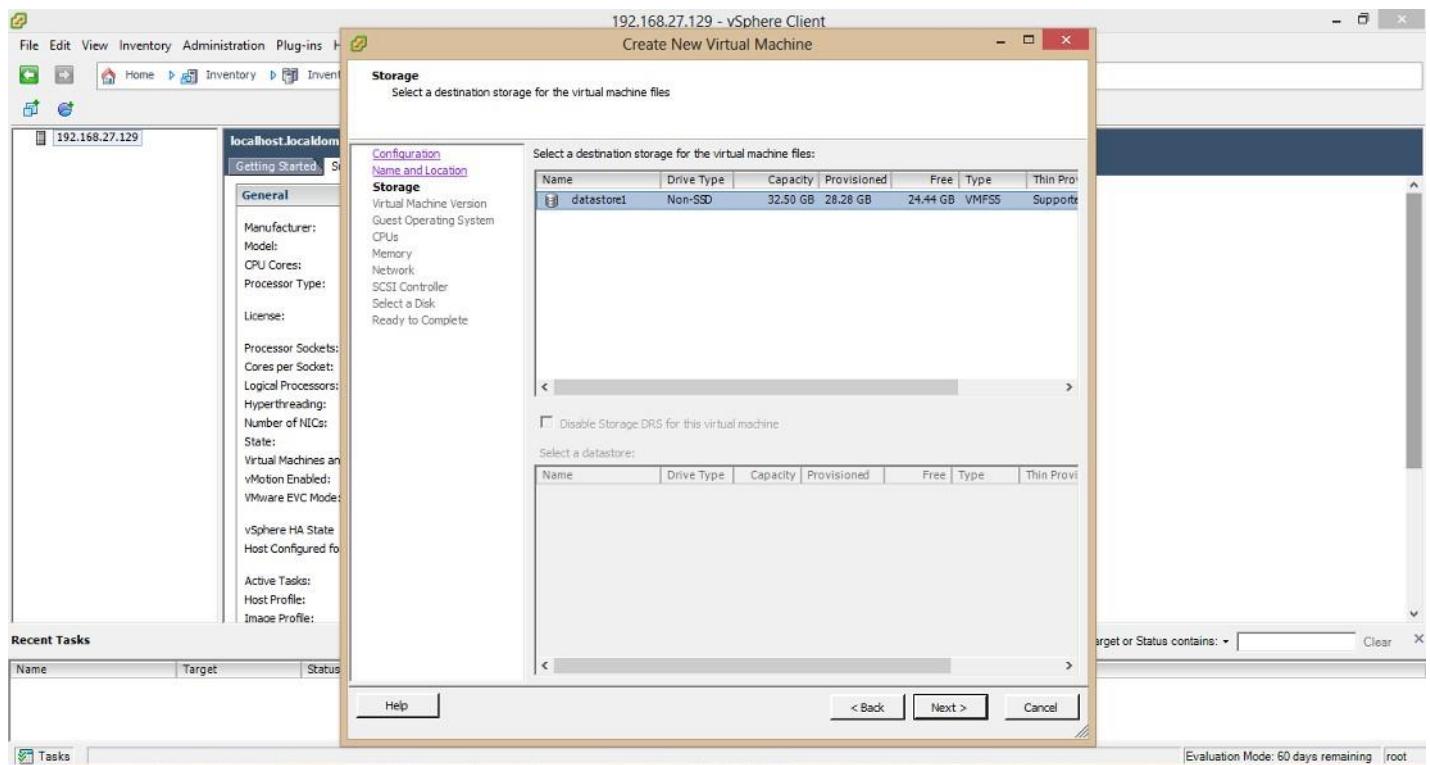
- I'm choosing the Custom option.



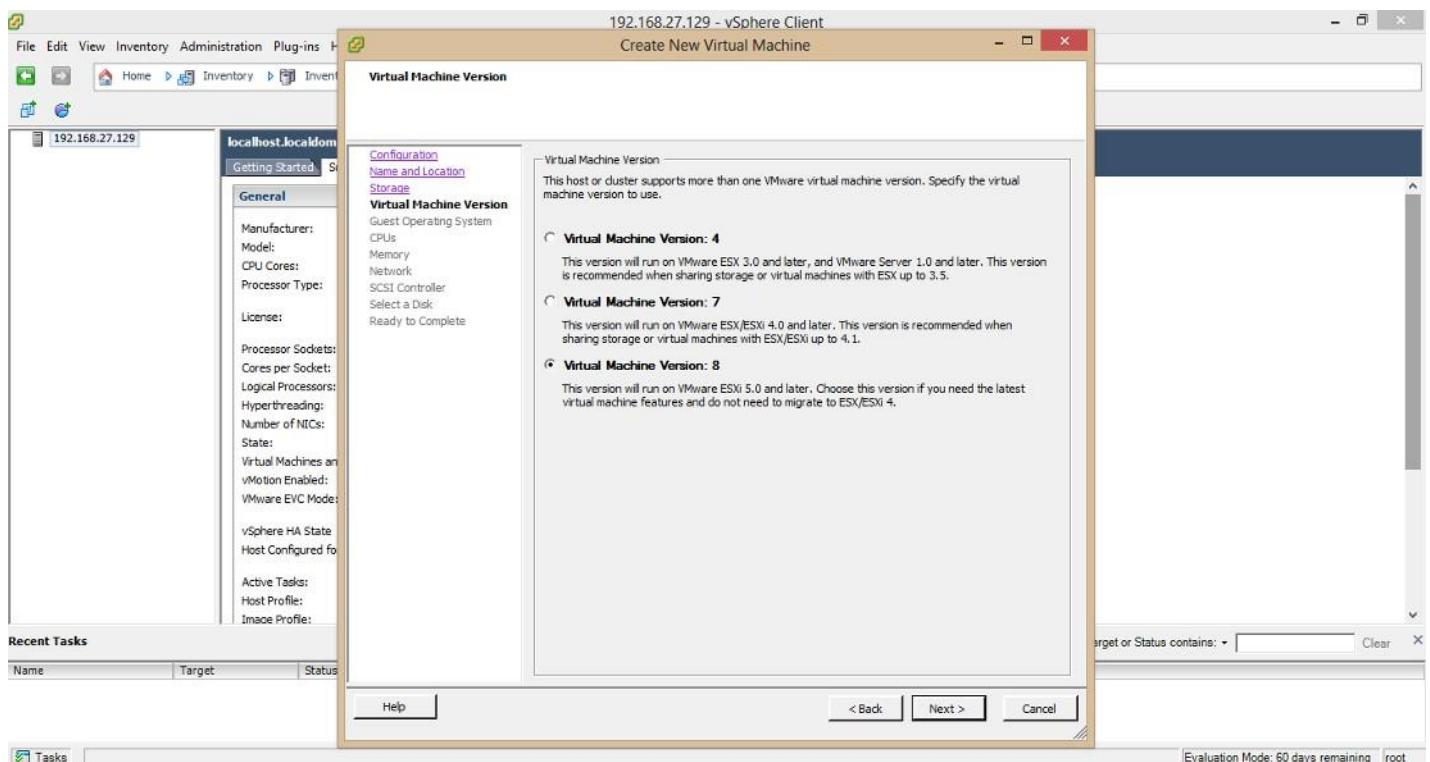
- Now, provide a unique name for your new virtual machine.



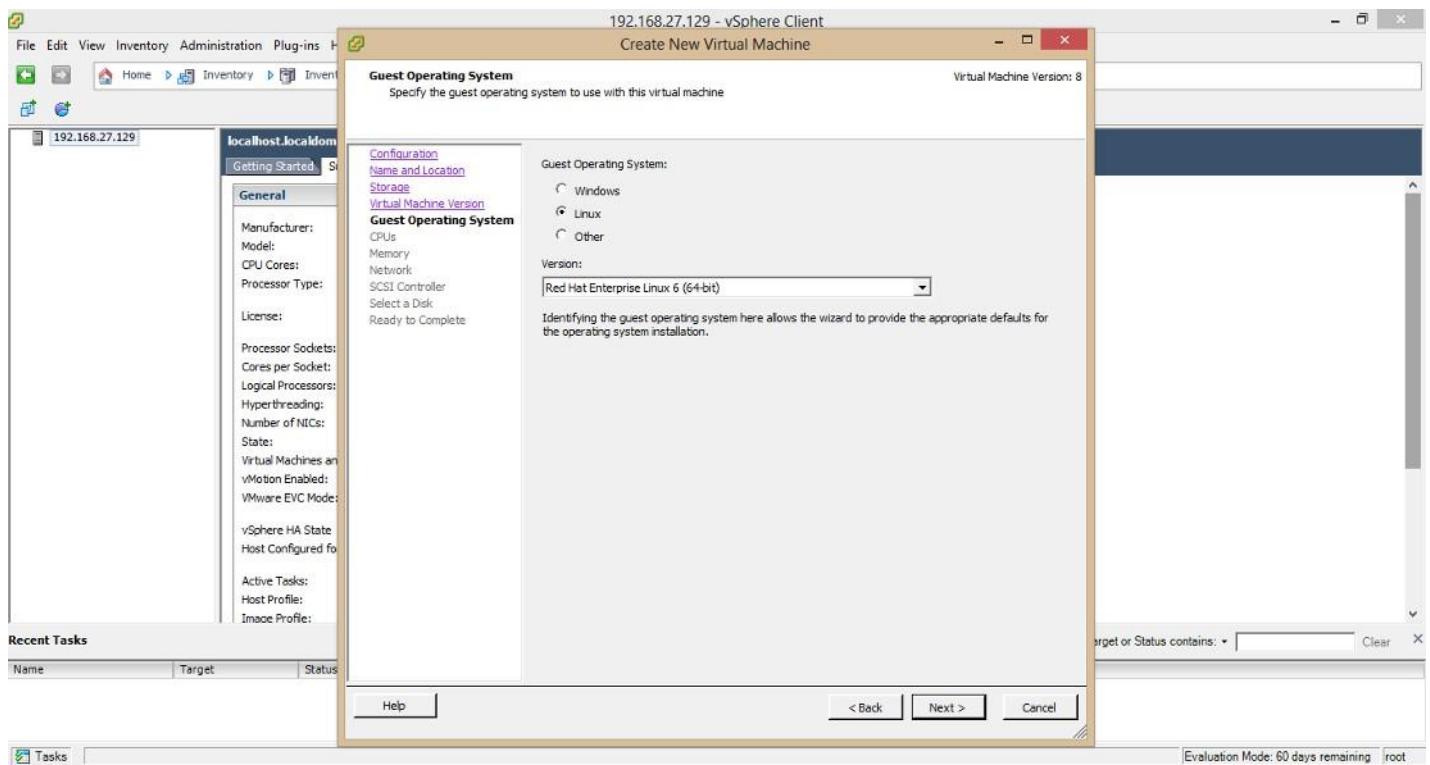
- Select the data storage file which was created the operating system.



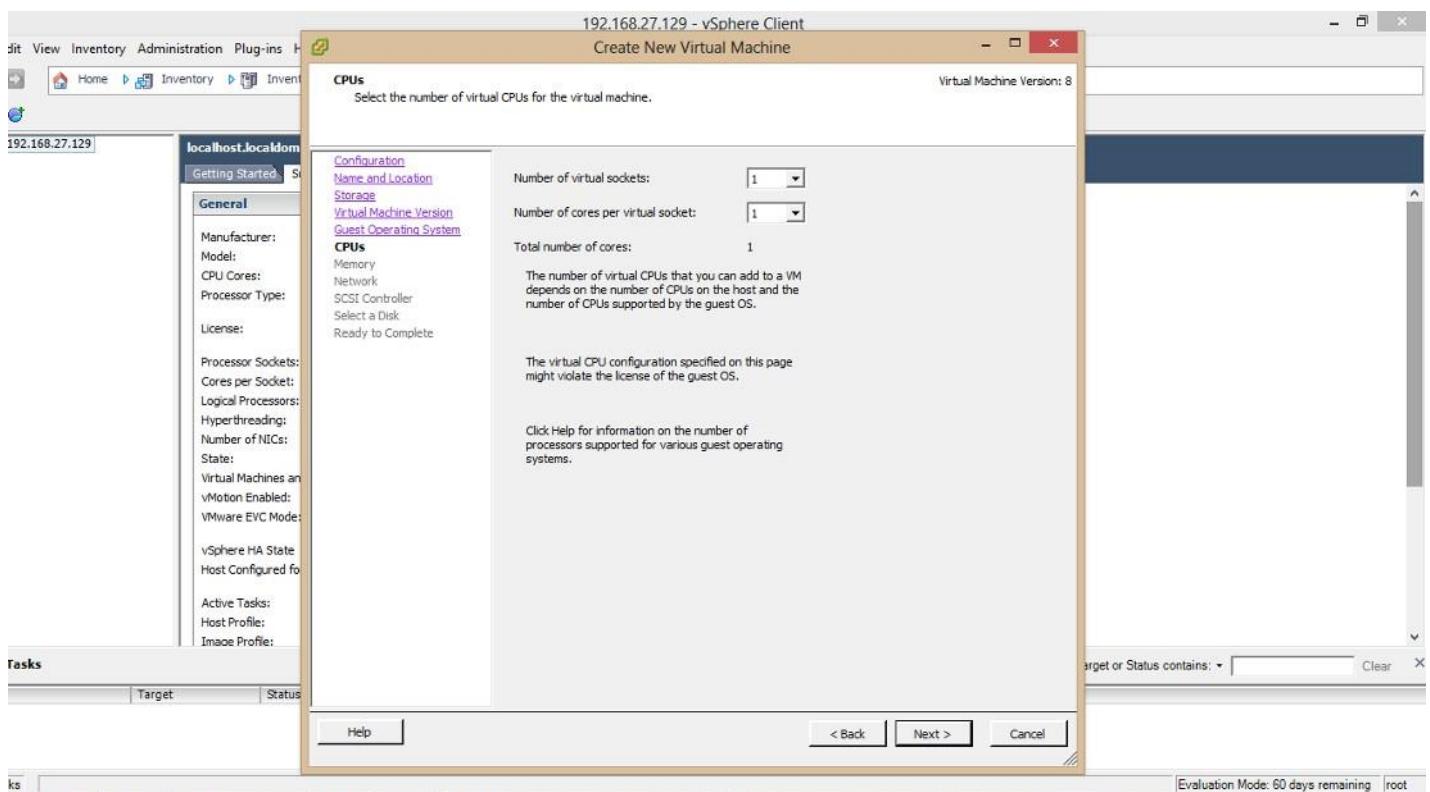
- Select Virtual Machine version 8.



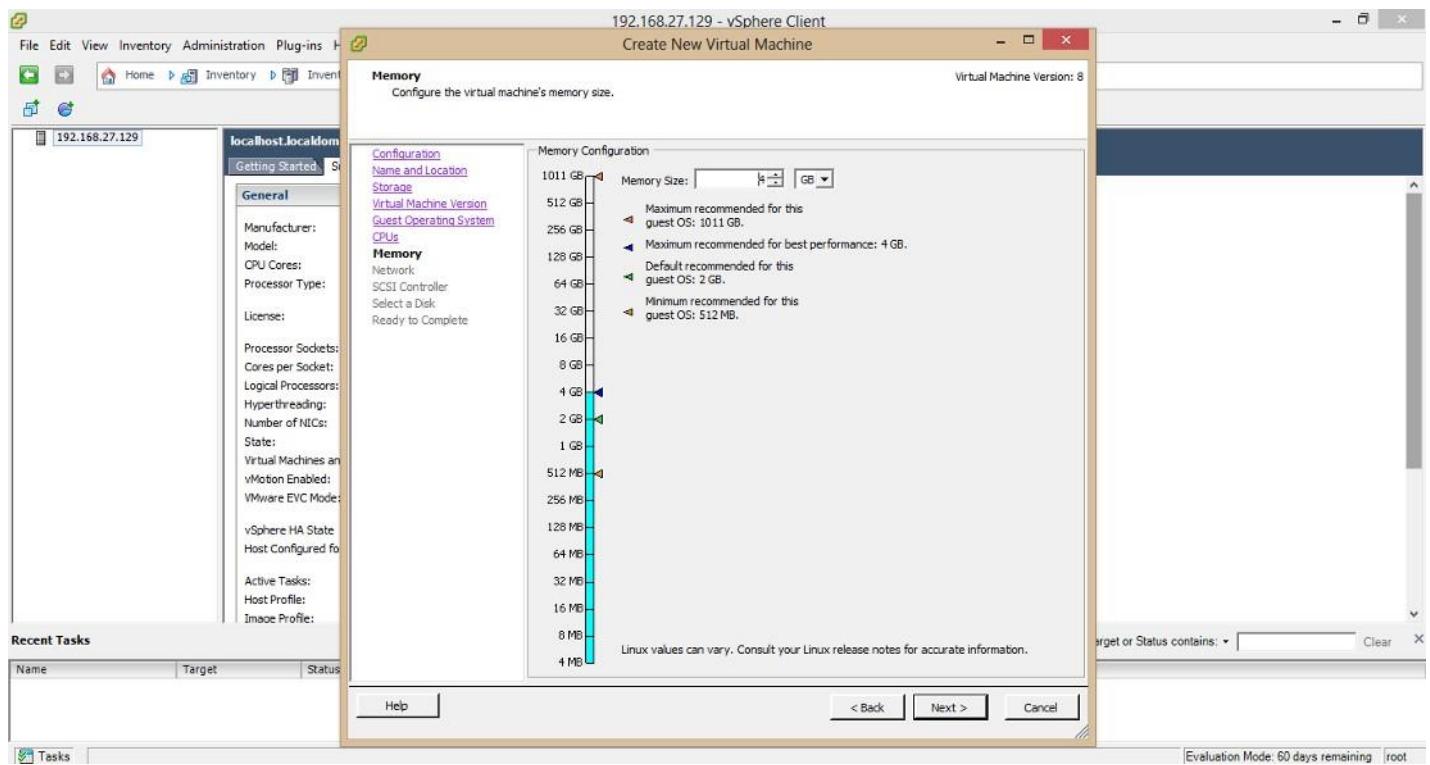
- Select guest operating system as Linux.



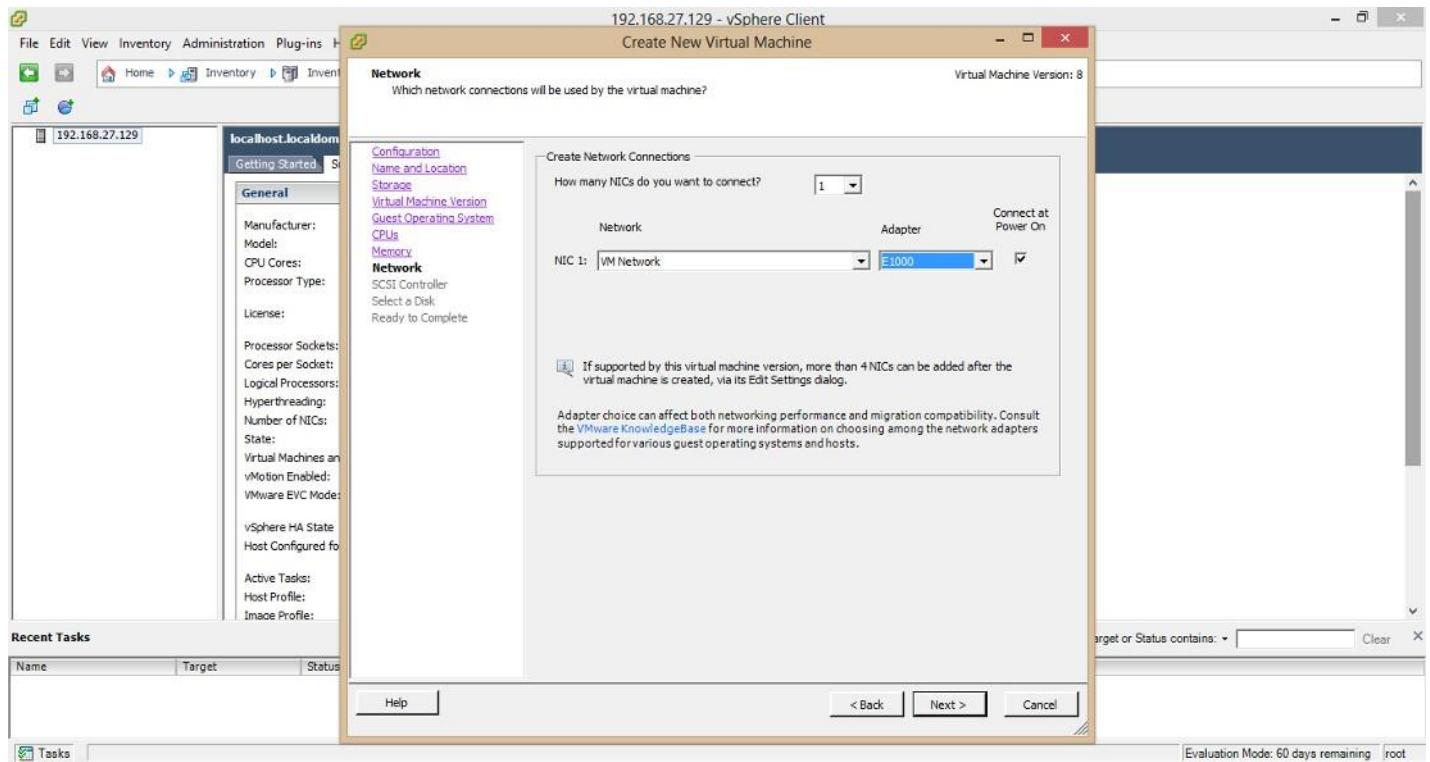
- Here I'm selecting number of virtual CPU s as 1.



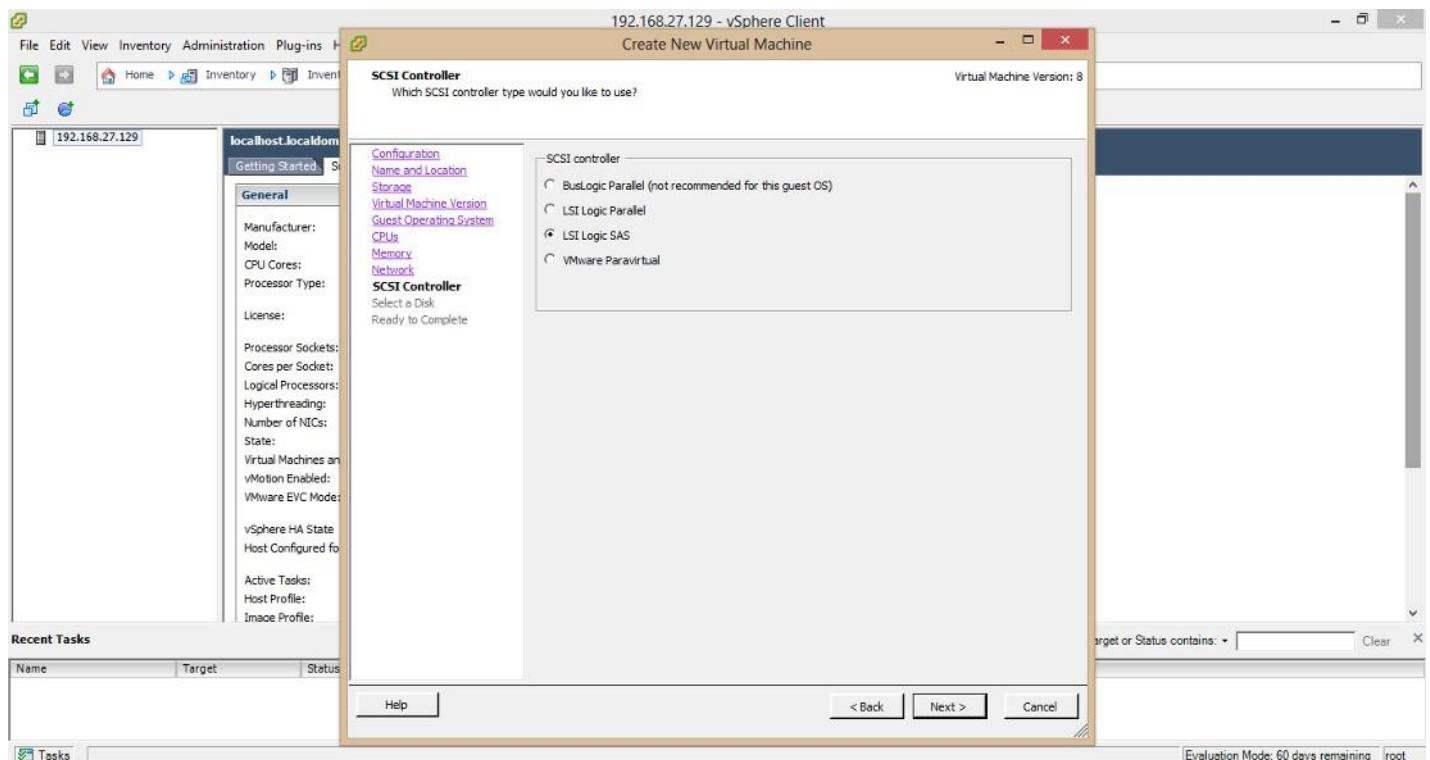
- Set memory size to 4 GB.



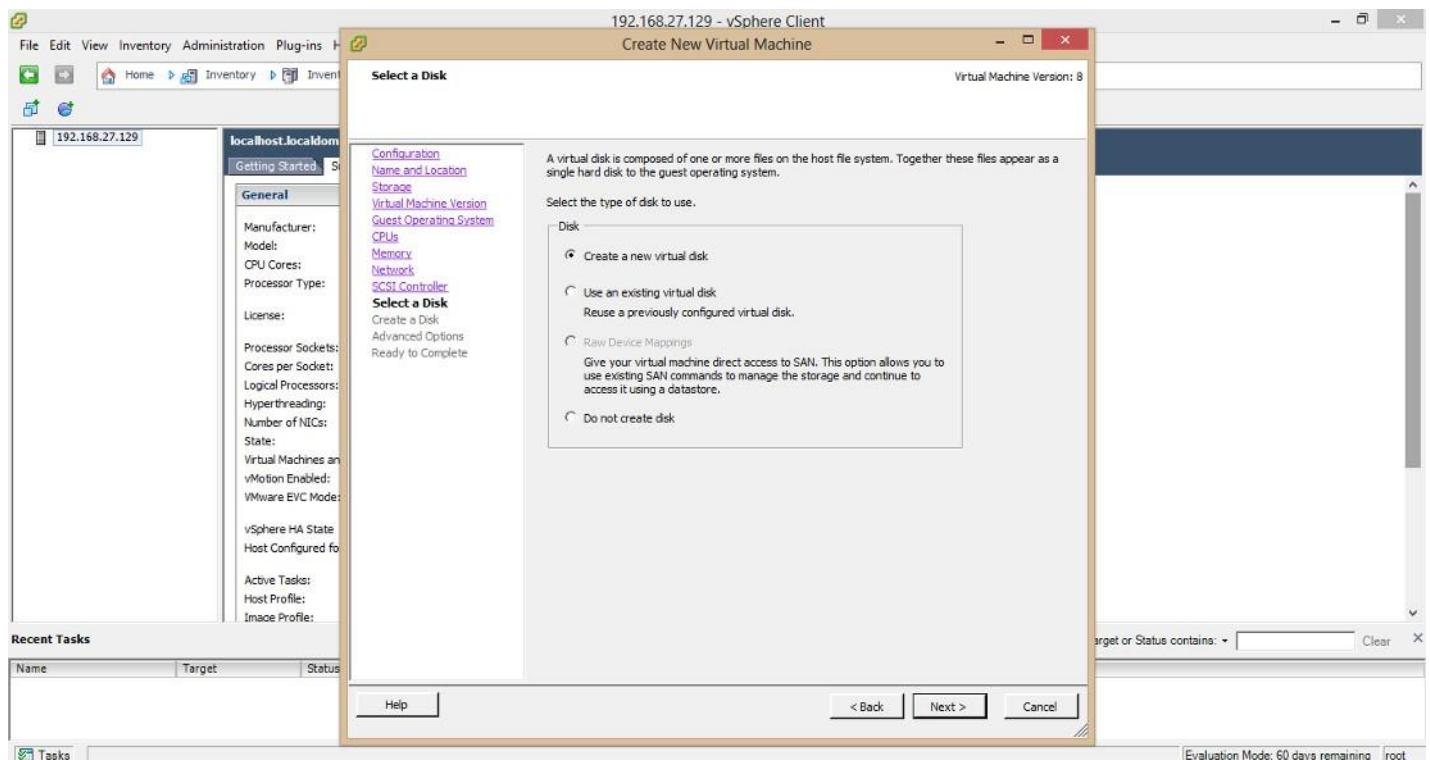
- Create Network connections. Select adapter type as E1000.



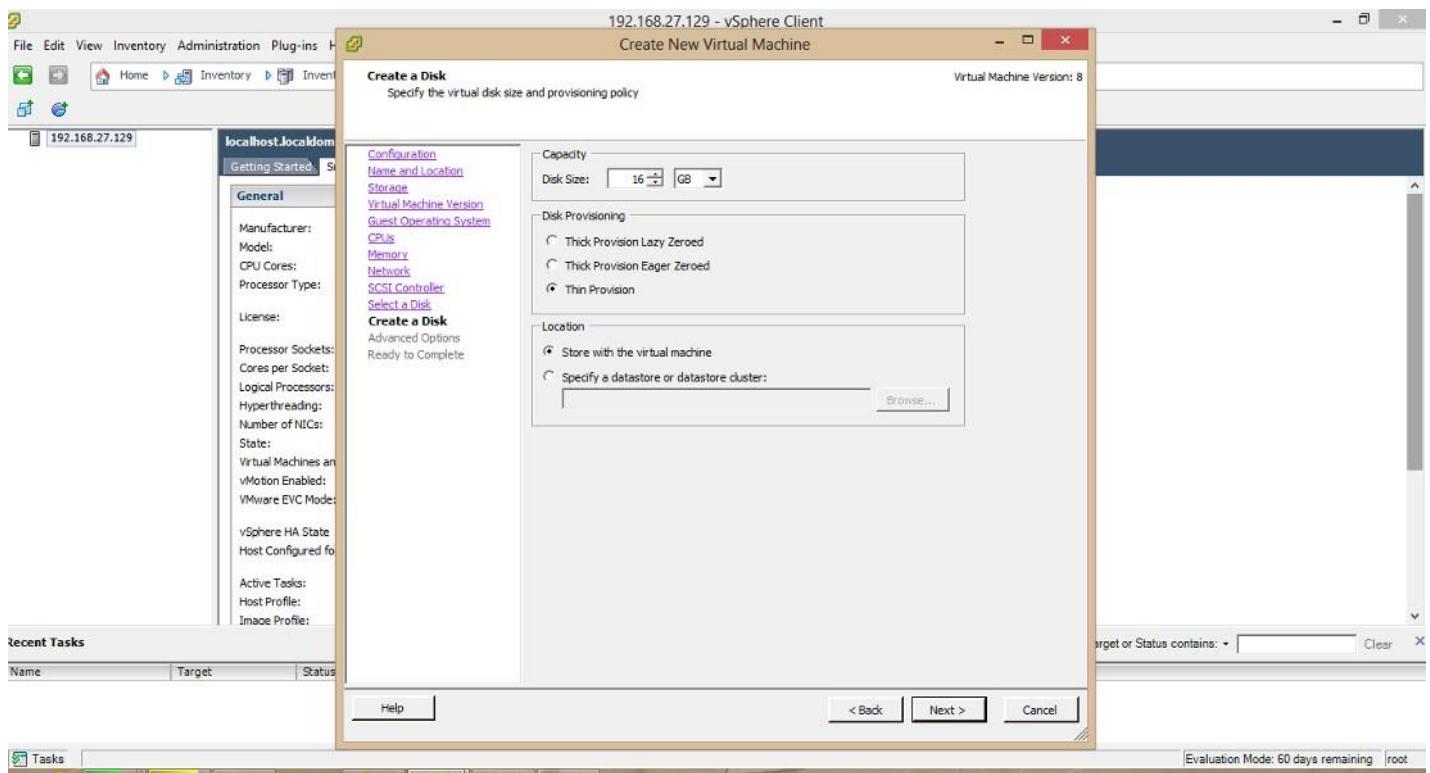
- Select SCSI controller as LSI Logic SAS.



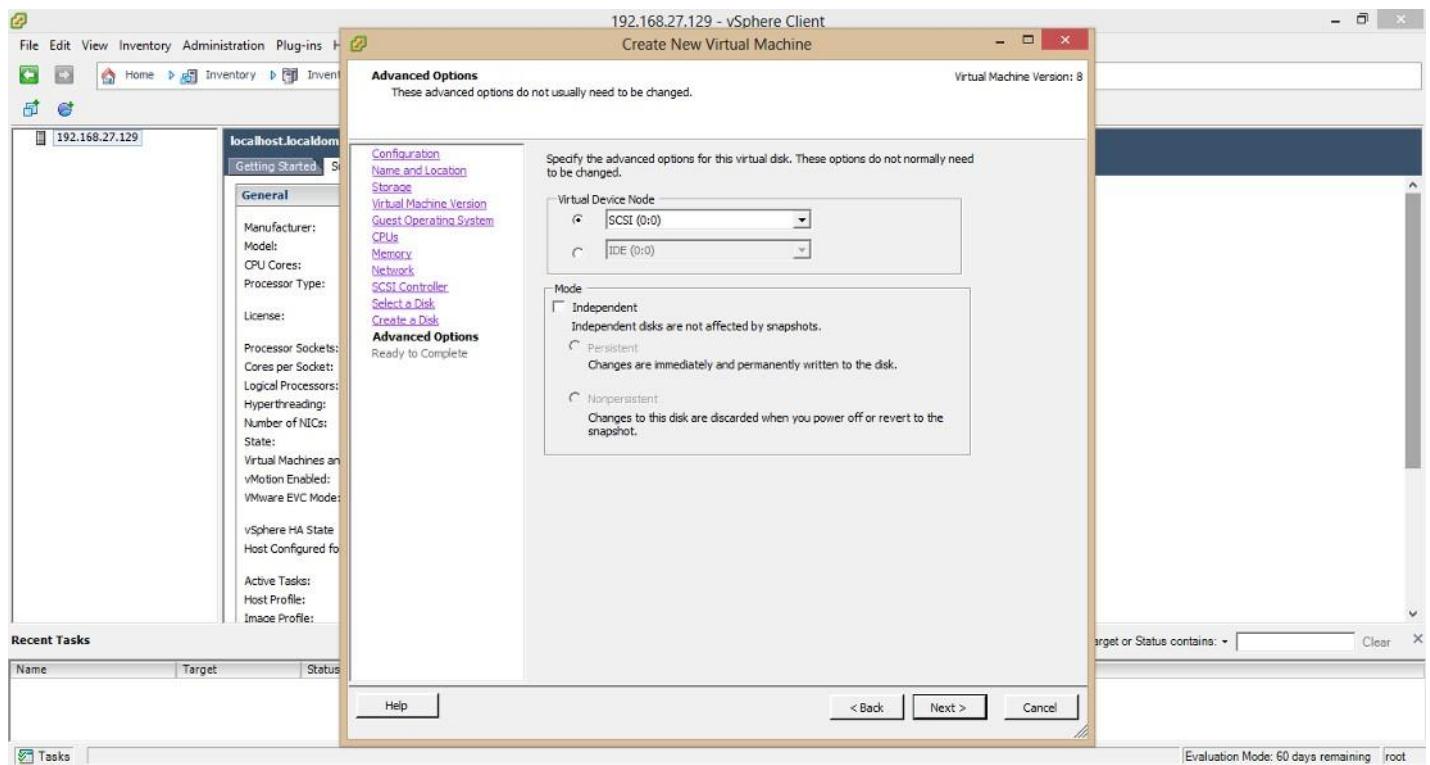
- Select the type of disk to use.



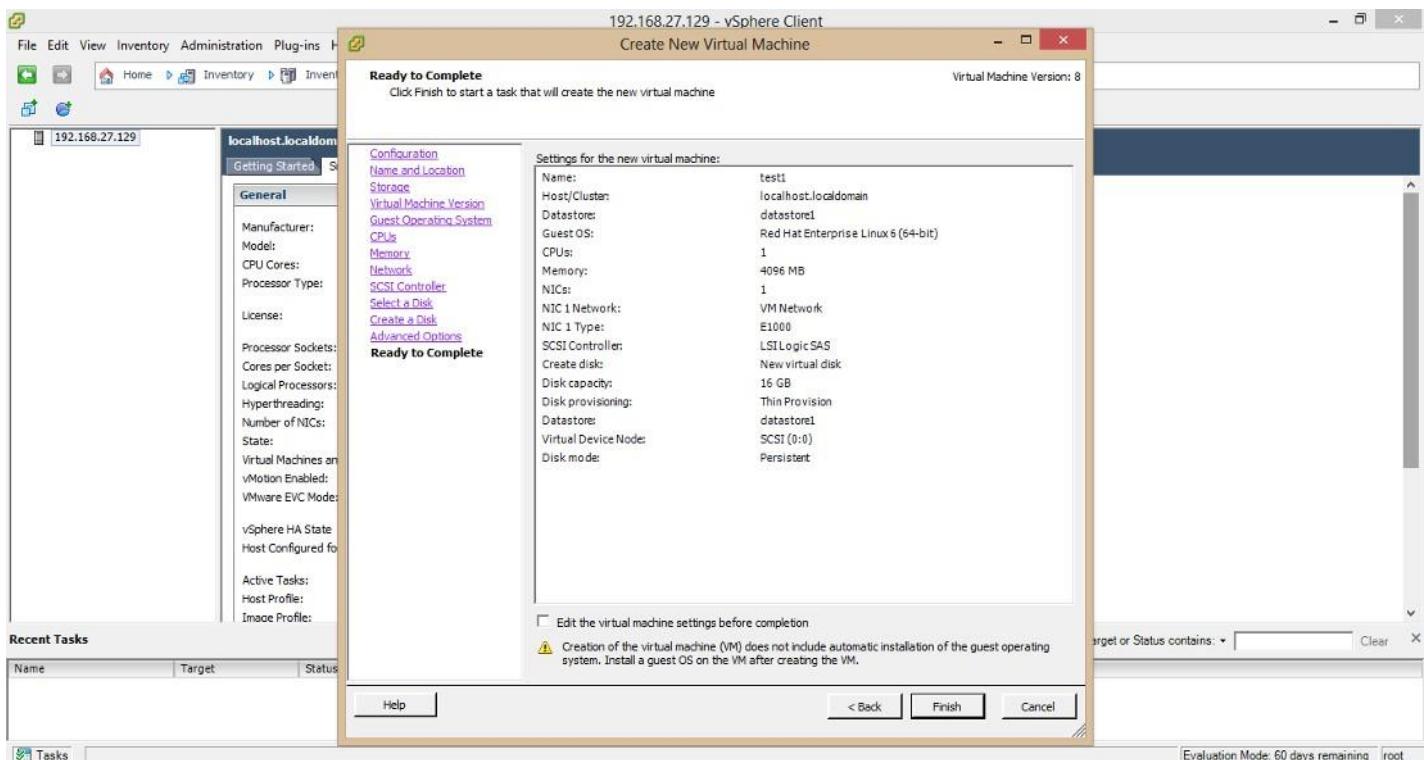
- Give disk size as 16 GB. Select thin provision and store with the virtual machine.



- Keep default virtual device node.



- Click on finish button and after configuration has done it shows the created virtual machine (test1).



192.168.27.129 - vSphere Client

localhost.localdomain VMware ESXi, 5.5.0, 2068190 | Evaluation (60 days remaining)

General

Manufacturer:	VMware, Inc.
Model:	VMware Virtual Platform
CPU Cores:	2 CPUs x 1.895 GHz
Processor Type:	Intel(R) Core(TM) i3-3227U CPU @ 1.90GHz
License:	Evaluation Mode -
Processor Sockets:	2
Cores per Socket:	1
Logical Processors:	2
Hyperthreading:	Inactive
Number of NICs:	1
State:	Connected
Virtual Machines and Templates:	1
vMotion Enabled:	N/A
VMware EVC Mode:	Disabled
vsphere HA State:	② N/A
Host Configured for FT:	N/A
Active Tasks:	
Host Profile:	N/A
Image Profile:	ESXi-5.5.0-20140902001-st...

Resources

CPU usage: 76 MHz	Capacity: 2 x 1.895 GHz
Memory usage: 1159.00 MB	Capacity: 4095.49 MB
Storage	Drive Type Capacity
datastore1	Non-SSD 32.50 GB
Network	Type
VM Network	Standard port group

Fault Tolerance

Fault Tolerance Version:	5.0.0-5.0.0-5.0.0
Total Primary VMs:	0
Powered On Primary VMs:	0
Total Secondary VMs:	0
Powered On Secondary VMs:	0

Recent Tasks

Name	Target	Status	Details	Initiated by	Requested Start Time	Start Time	Completed Time
Create virtual machine	192.168.27.129	Completed		root	8/8/2016 11:25:04 PM	8/8/2016 11:25:04 PM	8/8/2016 11:25:05 PM

- Select the virtual machine and click on 'Power on the virtual machine'.

192.168.27.129 - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home Inventory test1

192.168.27.129 test1

Getting Started Summary Resource Allocation Performance Events Console Permissions close tab

What is a Virtual Machine?

A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. An operating system installed on a virtual machine is called a guest operating system.

Because every virtual machine is an isolated computing environment, you can use virtual machines as desktop or workstation environments, as testing environments, or to consolidate server applications.

Virtual machines run on hosts. The same host can run many virtual machines.

Virtual Machines

Host

vSphere Client

Basic Tasks

- Power on the virtual machine
- Edit virtual machine settings

192.168.27.129 - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home Inventory test1

192.168.27.129 test1

Getting Started Summary Resource Allocation Performance Events Console Permissions close tab

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Virtual Machines

Host

vSphere Client

Basic Tasks

- Power Off the virtual machine
- Suspend the virtual machine
- Edit virtual machine settings

Recent Tasks

Name	Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
Power On virtual mach...	test1	Completed		root	8/8/2016 11:26:20 PM	8/8/2016 11:26:20 PM	8/8/2016 11:26:22 PM
Create virtual machine	192.168.27.129	Completed		root	8/8/2016 11:25:04 PM	8/8/2016 11:25:04 PM	8/8/2016 11:25:05 PM

Name, Target or Status contains: Clear X

Tasks Evaluation Mode: 60 days remaining root

192.168.27.129 - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home Inventory Inventory

192.168.27.129 test1 Getting Started Summary Resource Allocation Performance Events Console Permissions close tab

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Virtual Machines

vSphere Client

Basic Tasks

- Power Off the virtual machine
- Suspend the virtual machine
- Edit virtual machine settings

Recent Tasks

Name	Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
Power On virtual mach...	test1	Completed		root	8/8/2016 11:26:20 PM	8/8/2016 11:26:20 PM	8/8/2016 11:26:22 PM
Create virtual machine	192.168.27.129	Completed		root	8/8/2016 11:25:04 PM	8/8/2016 11:25:04 PM	8/8/2016 11:25:05 PM

Tasks Evaluation Mode: 60 days remaining root

- Go to console tab. Then right click on the test1 and select Edit settings.

192.168.27.129 - vSphere Client

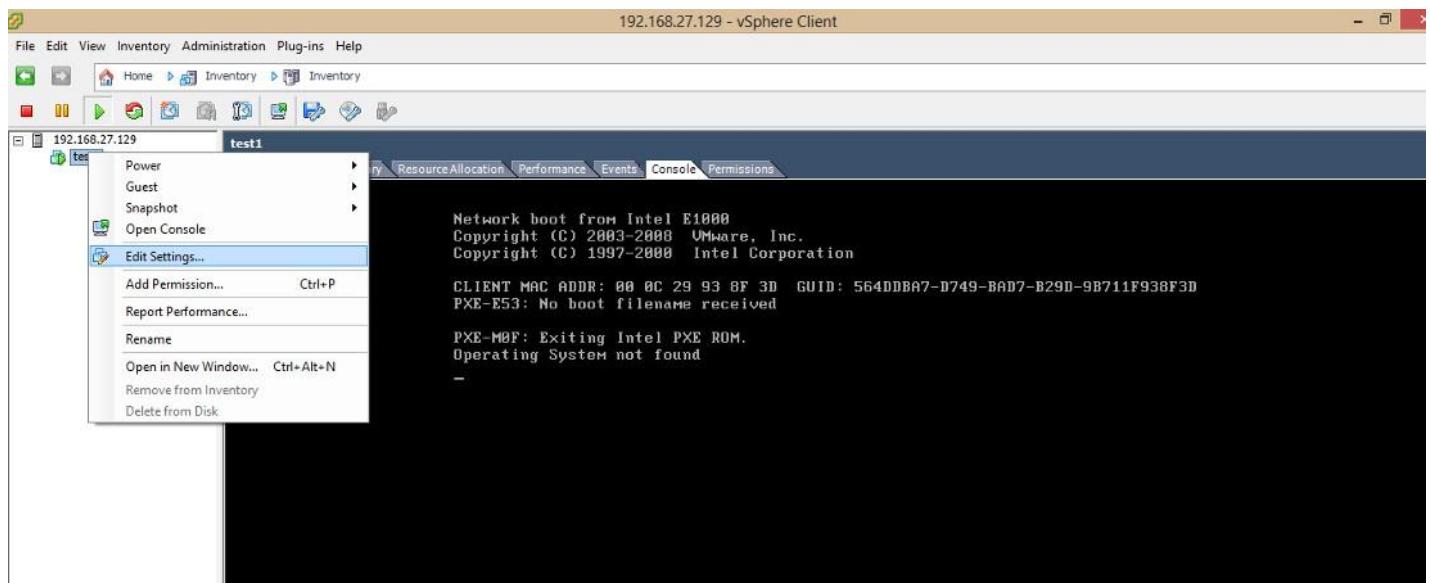
File Edit View Inventory Administration Plug-ins Help

Home Inventory Inventory

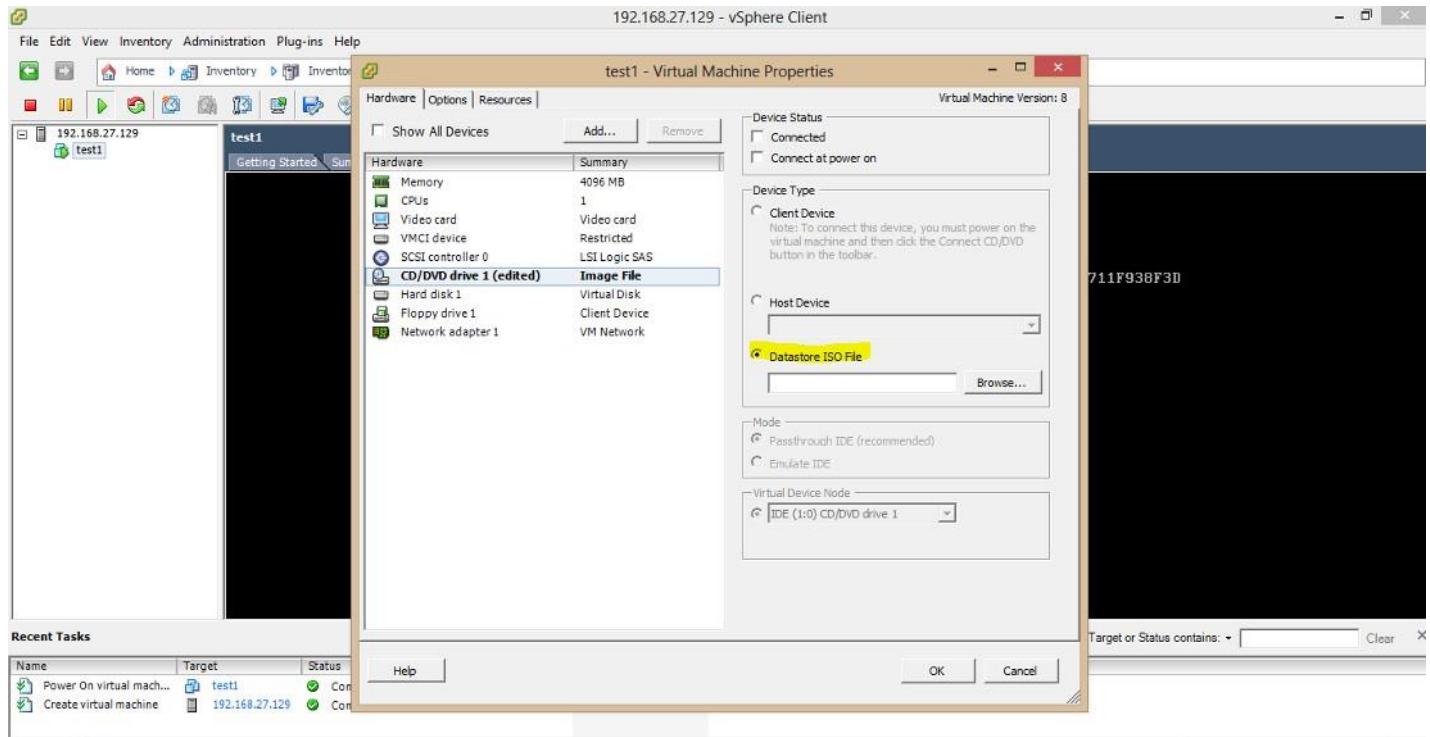
192.168.27.129 test1 Getting Started Summary Resource Allocation Performance Events Console Permissions

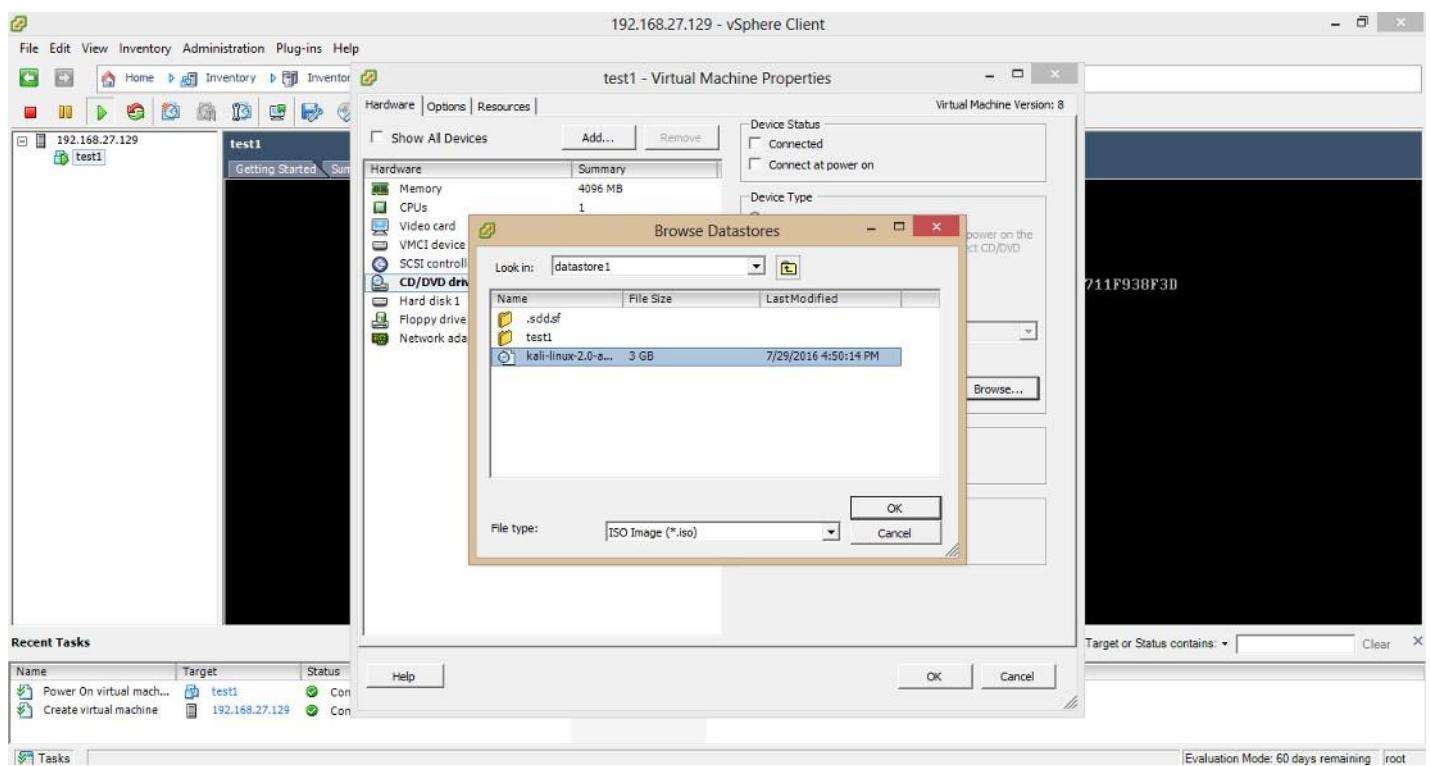
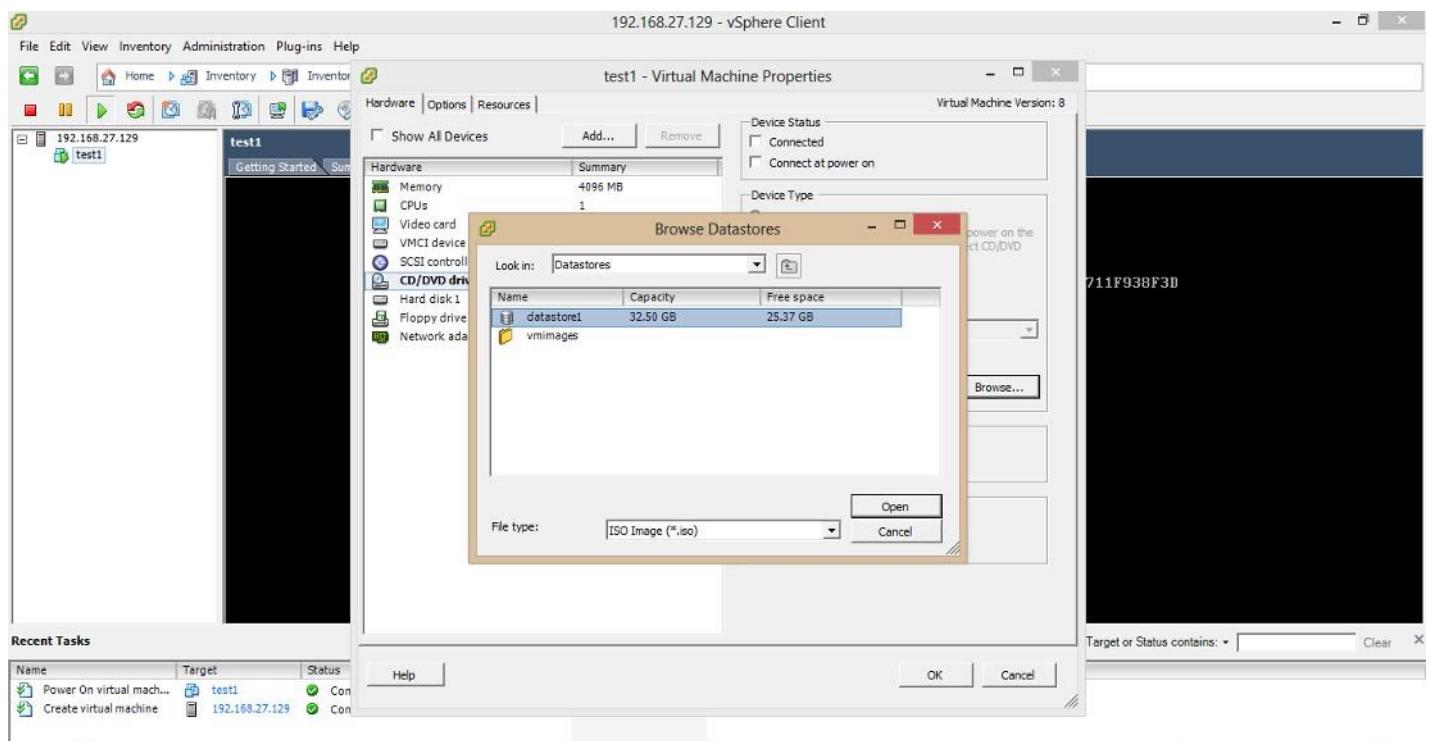
Recent Tasks

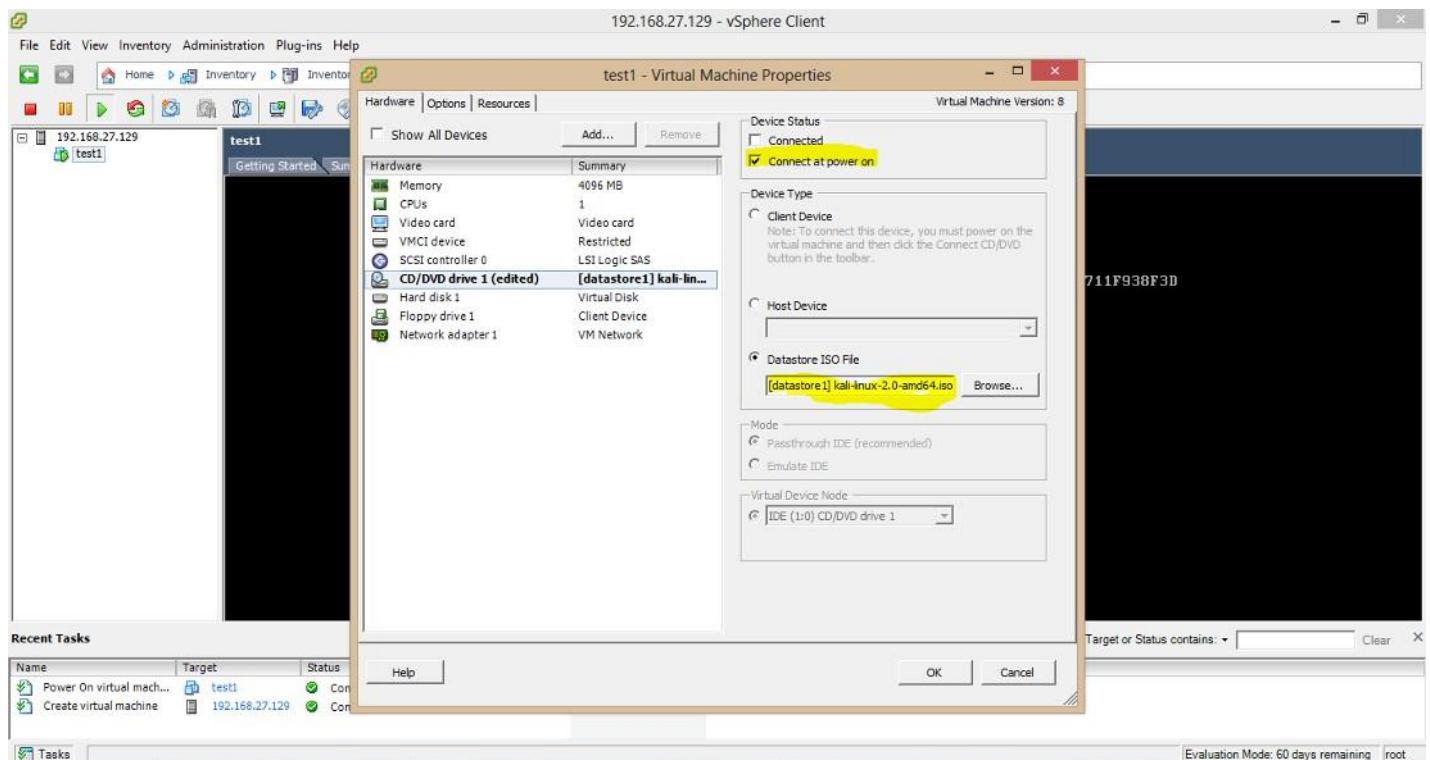
Name	Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
Power On virtual mach...	test1	Completed		root	8/8/2016 11:26:20 PM	8/8/2016 11:26:20 PM	8/8/2016 11:26:22 PM
Create virtual machine	192.168.27.129	Completed		root	8/8/2016 11:25:04 PM	8/8/2016 11:25:04 PM	8/8/2016 11:25:05 PM



- Select CDHDVD driver and from Datastore ISO file browse early created datastore1 file.







- After the configuration the operating system will be loaded. Select Live (amd64) and press enter to continue.

