



SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY

[Enterprise Standards and Best Practices for IT Infrastructure](#)

4th Year 2nd Semester 2014

Creating Virtual Data Center

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SLIIT ID: IT 13085872

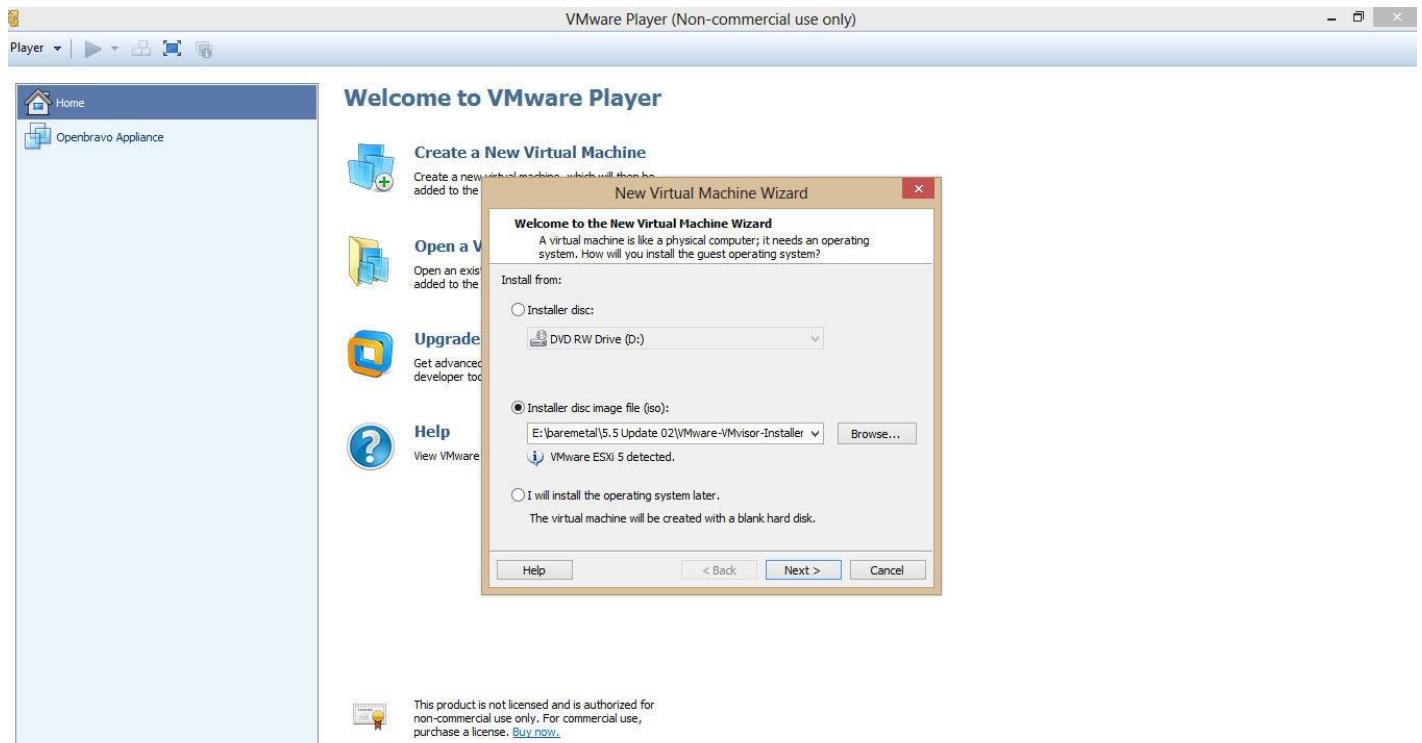
Practical Session: Weekday Friday

Practical Number: Lab 4

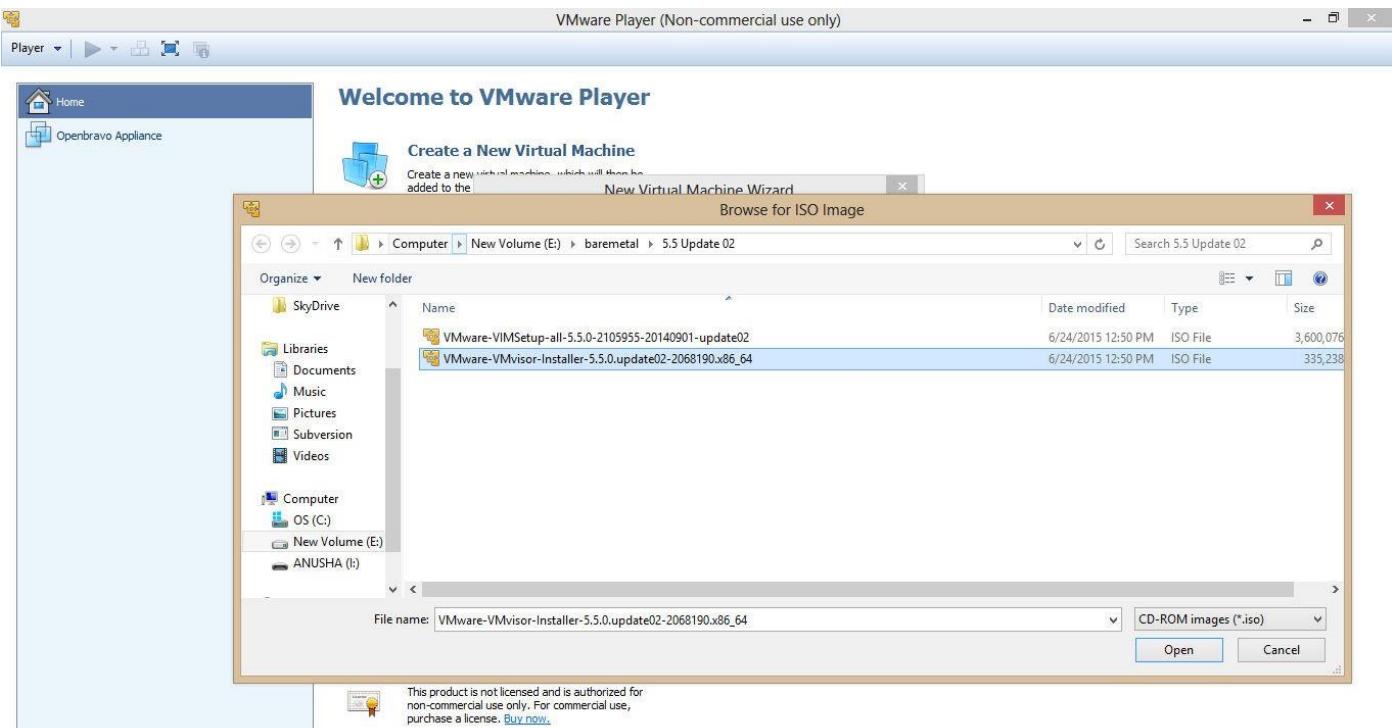
Date of Submission: 16/08/2016

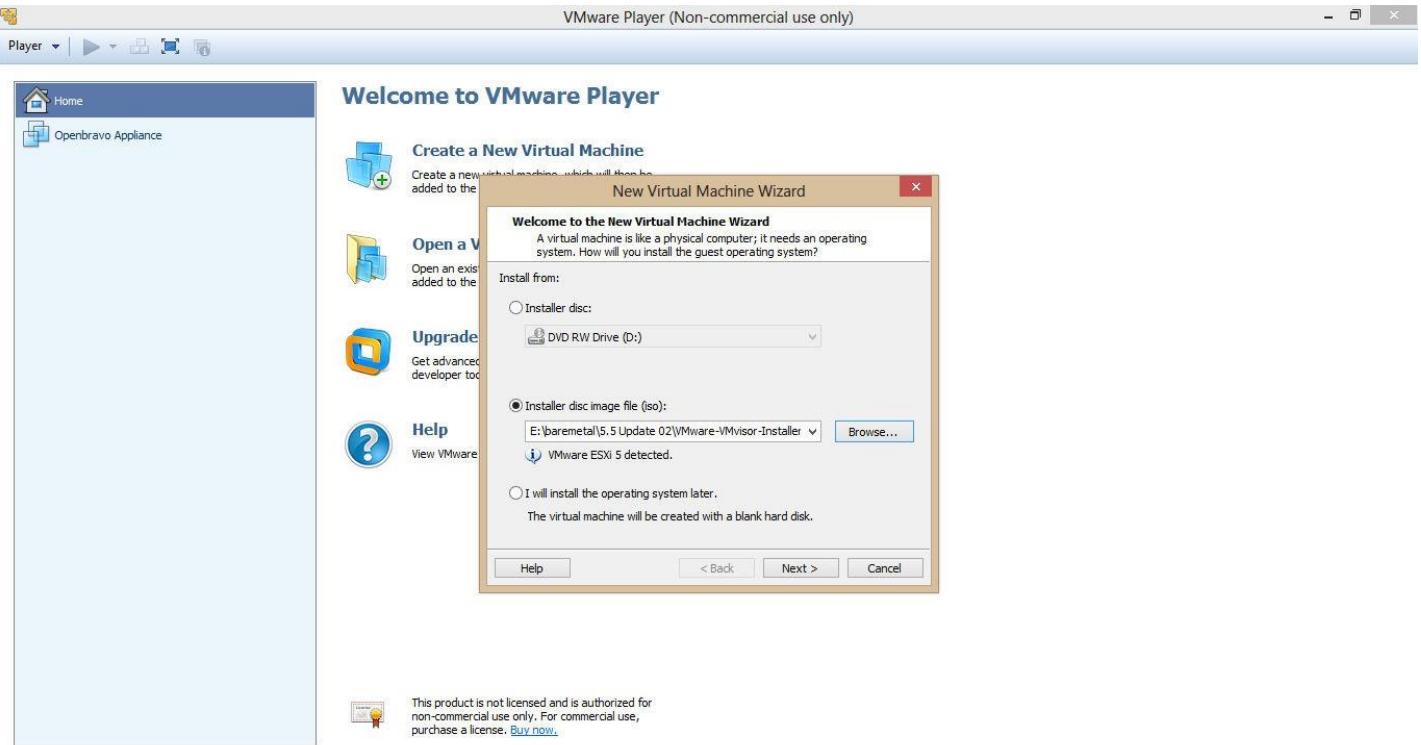
Installing vSphere ESXi Bare-Metal Hypervisor –VMware

- First user has to create a New Virtual Machine using VMware.
- Open VMware
- Select File -> New Virtual Machine

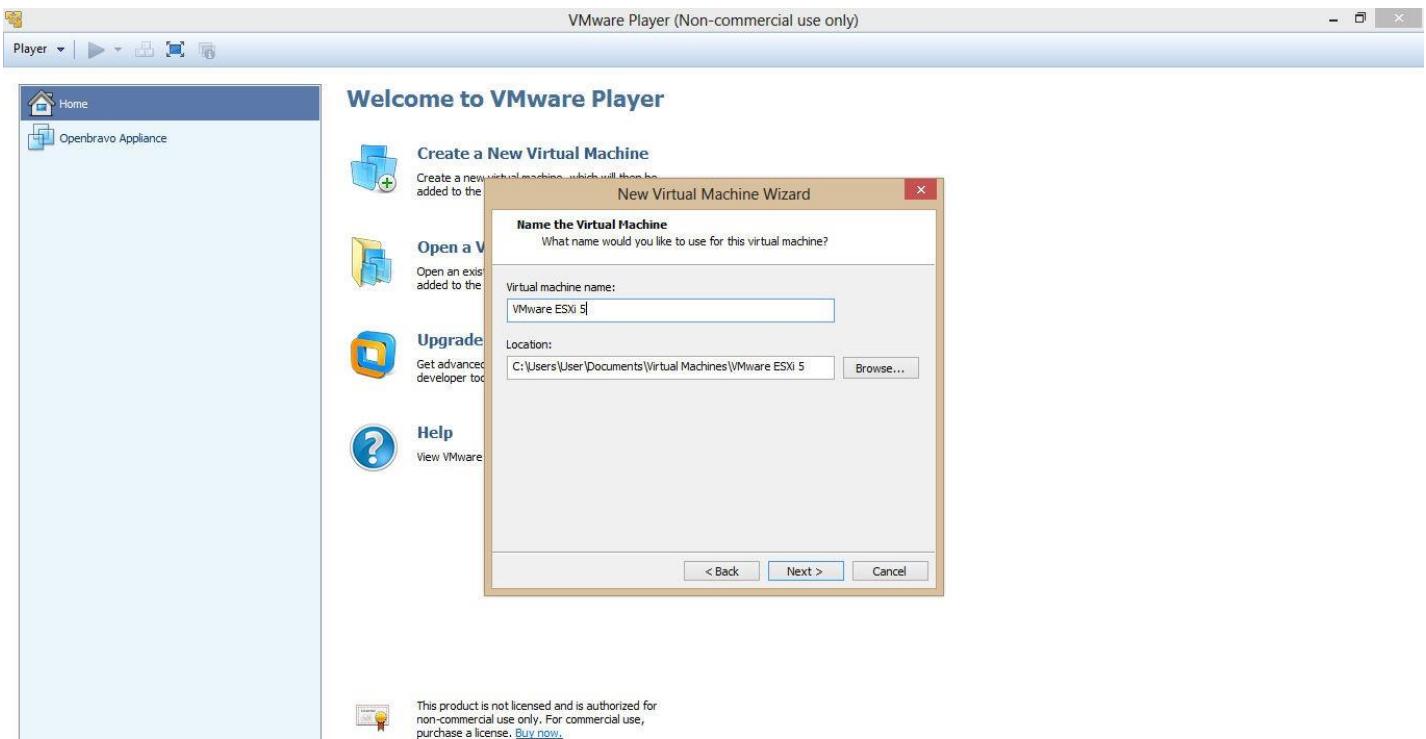


- Select disk image file by clicking Browse... button.





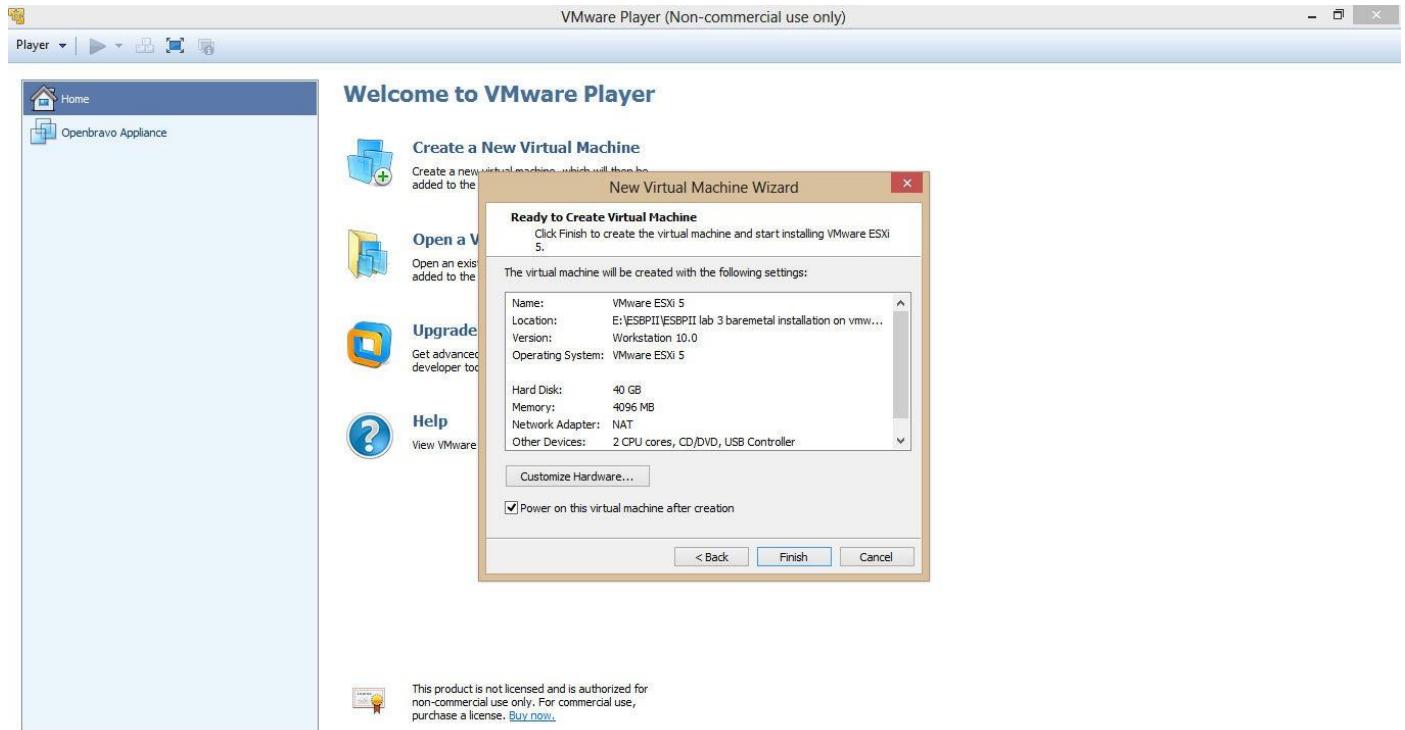
- Click on Next. Select a location to save and give a name to the virtual machine.

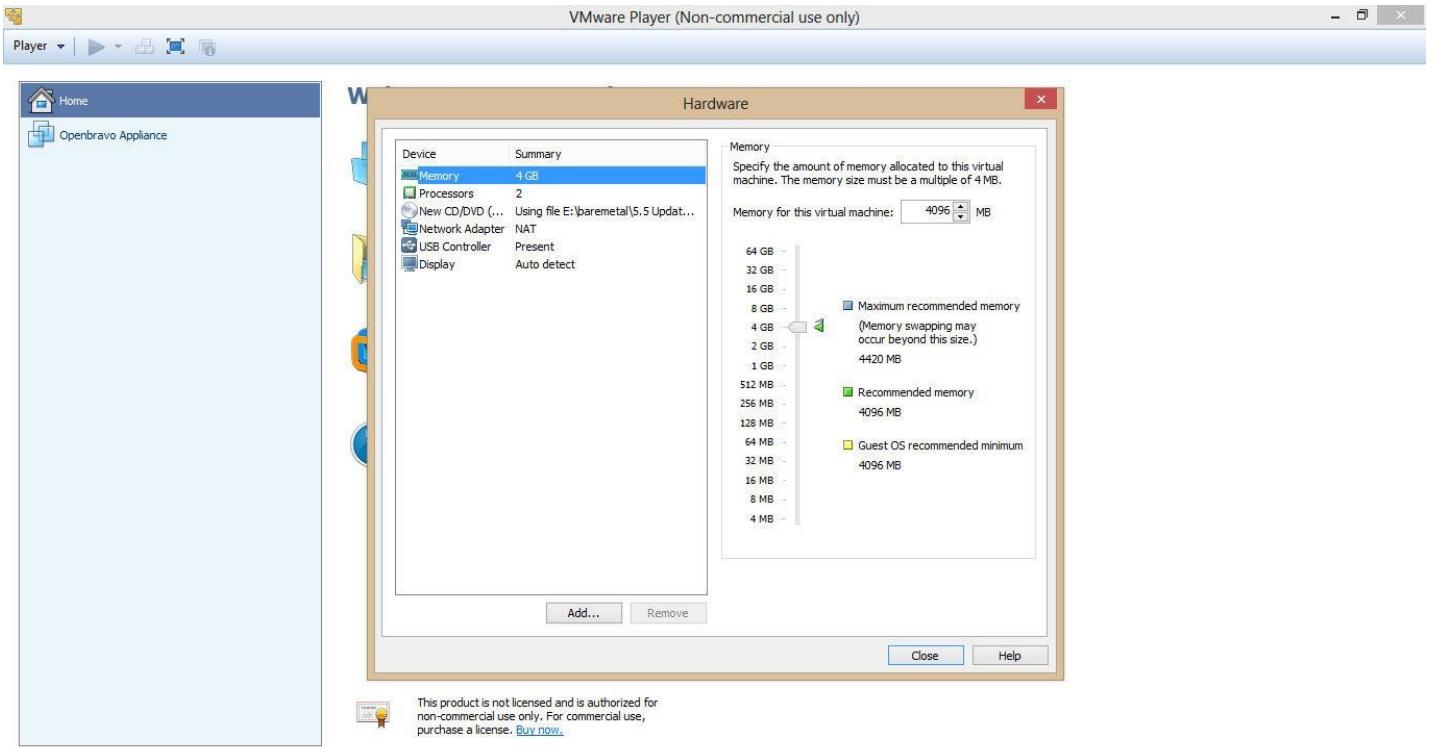


- Click on Next. Give Maximum disk size as 40 GB and select Store virtual disk as a single.

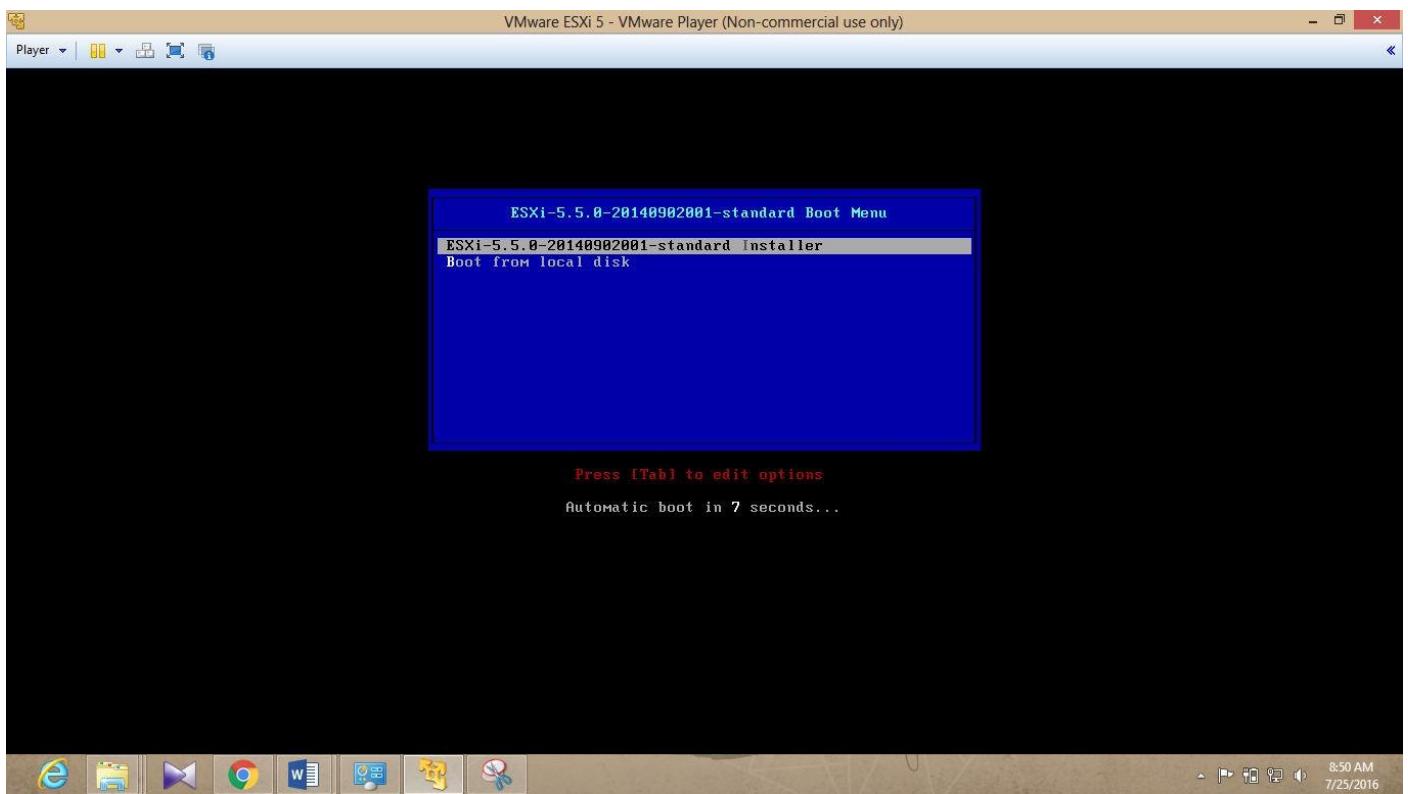


- Click on next and by selecting Customize Hardware button make sure Device memory is 4 GB.





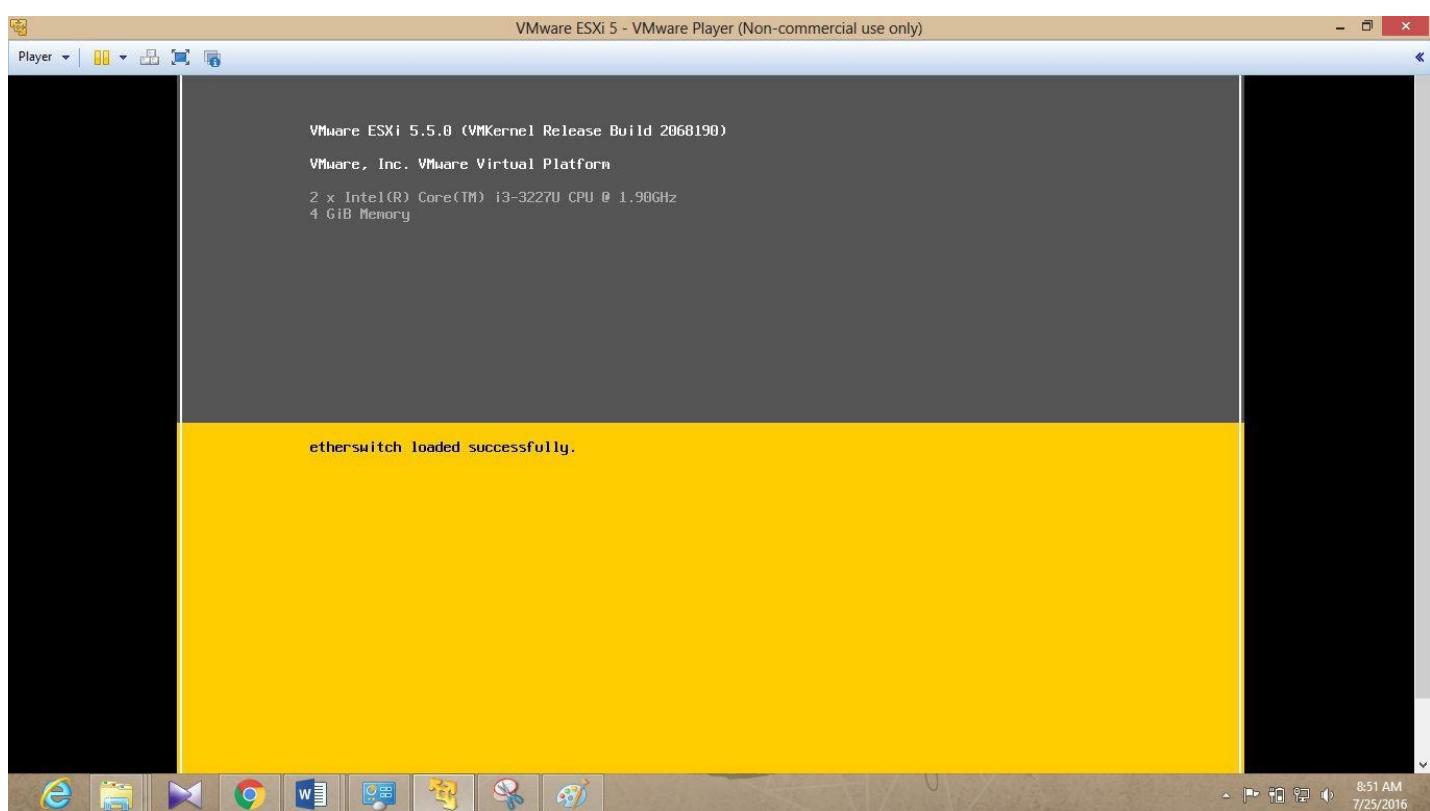
- Click on Finish... It will take a few minutes to boot the process.



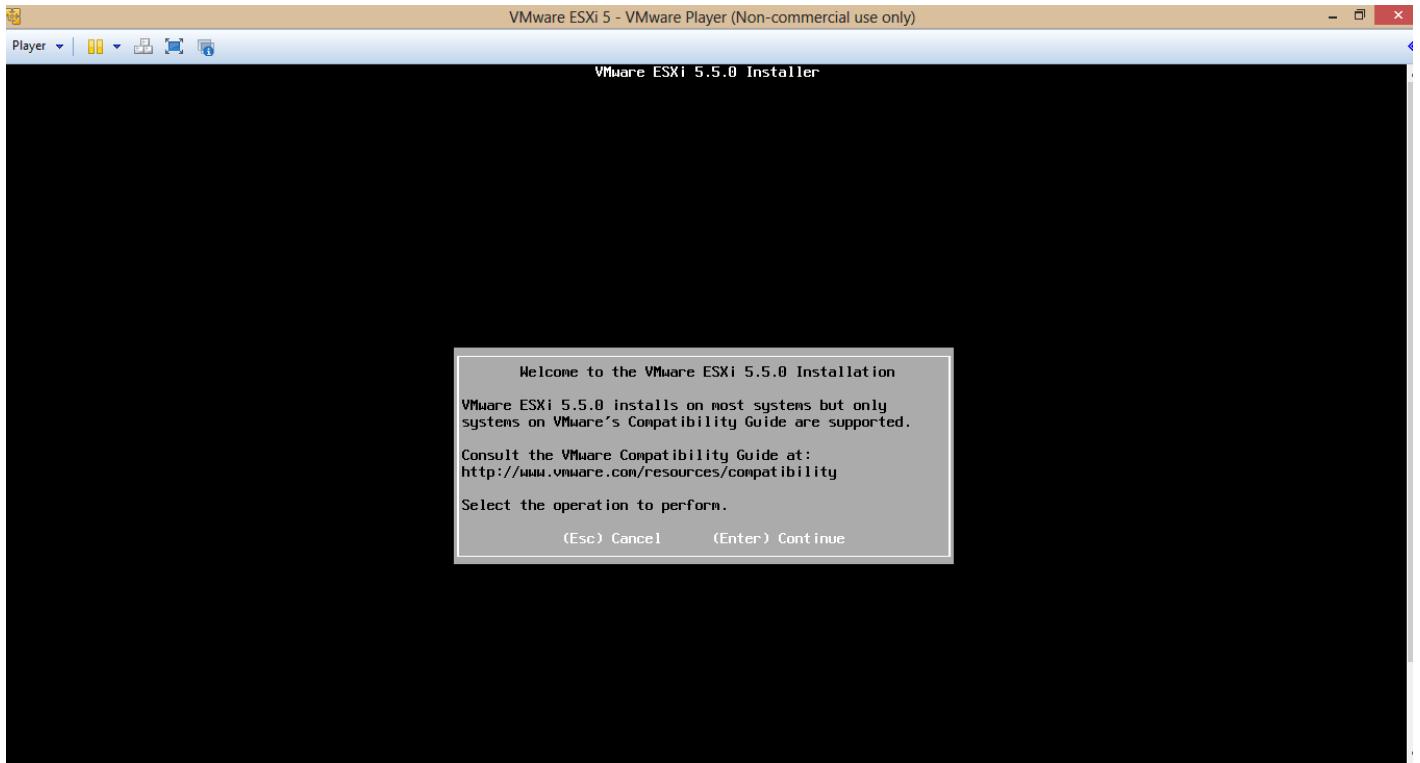
VMware ESXi 5 - VMware Player (Non-commercial use only)

Player ▾

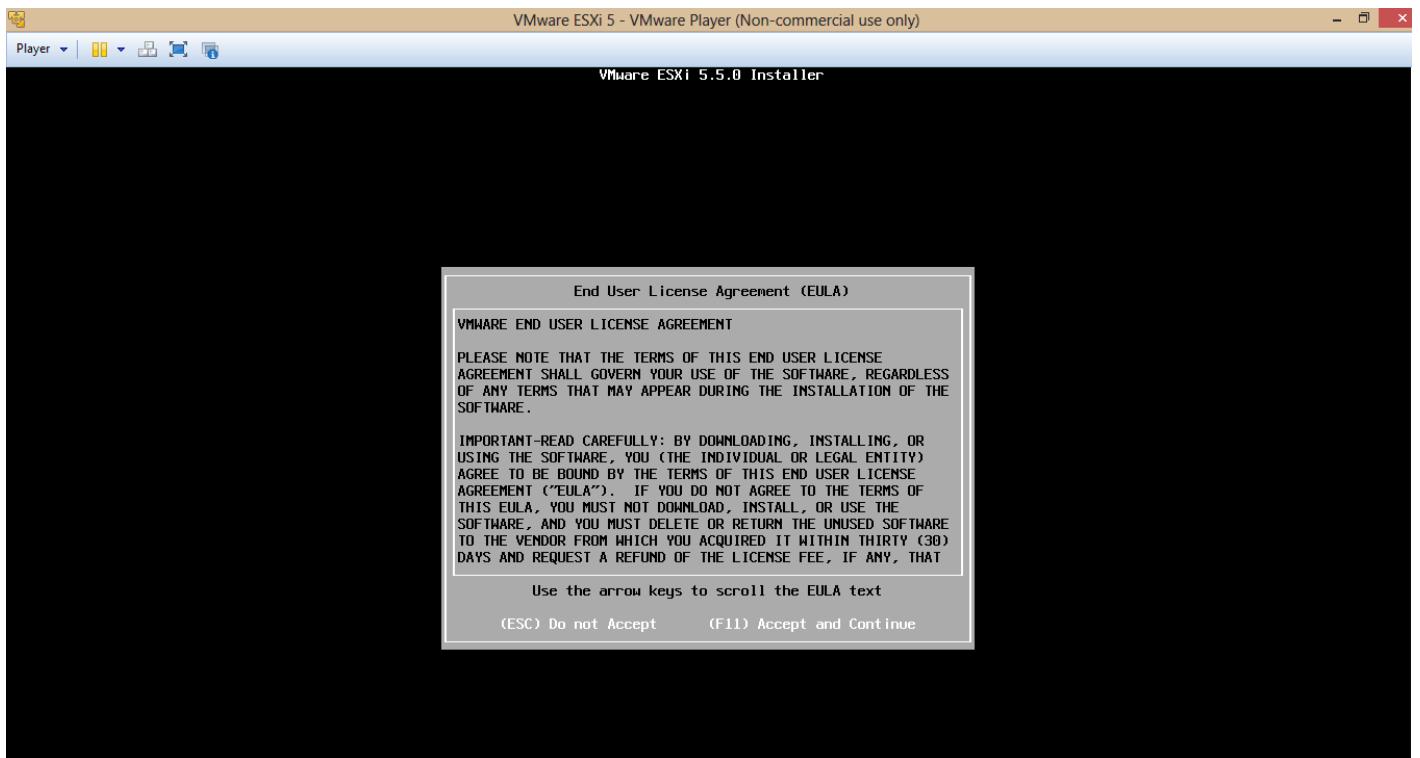
```
Loading /net_ml4.v01
Loading /net_nx_n.v00
Loading /net_tg3.v00
Loading /net_vxlan.v00
Loading /ohci_usb.v00
Loading /qlnative.v00
Loading /rste.v00
Loading /sata_ahc.v00
Loading /sata_ata.v00
Loading /sata_sat.v00
Loading /sata_sat.v01
Loading /sata_sat.v02
Loading /sata_sat.v03
Loading /sata_sat.v04
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_lpf.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 /imgdb.tgz
Loading /imgpayld.tgz
Relocating modules and starting up the kernel...
```

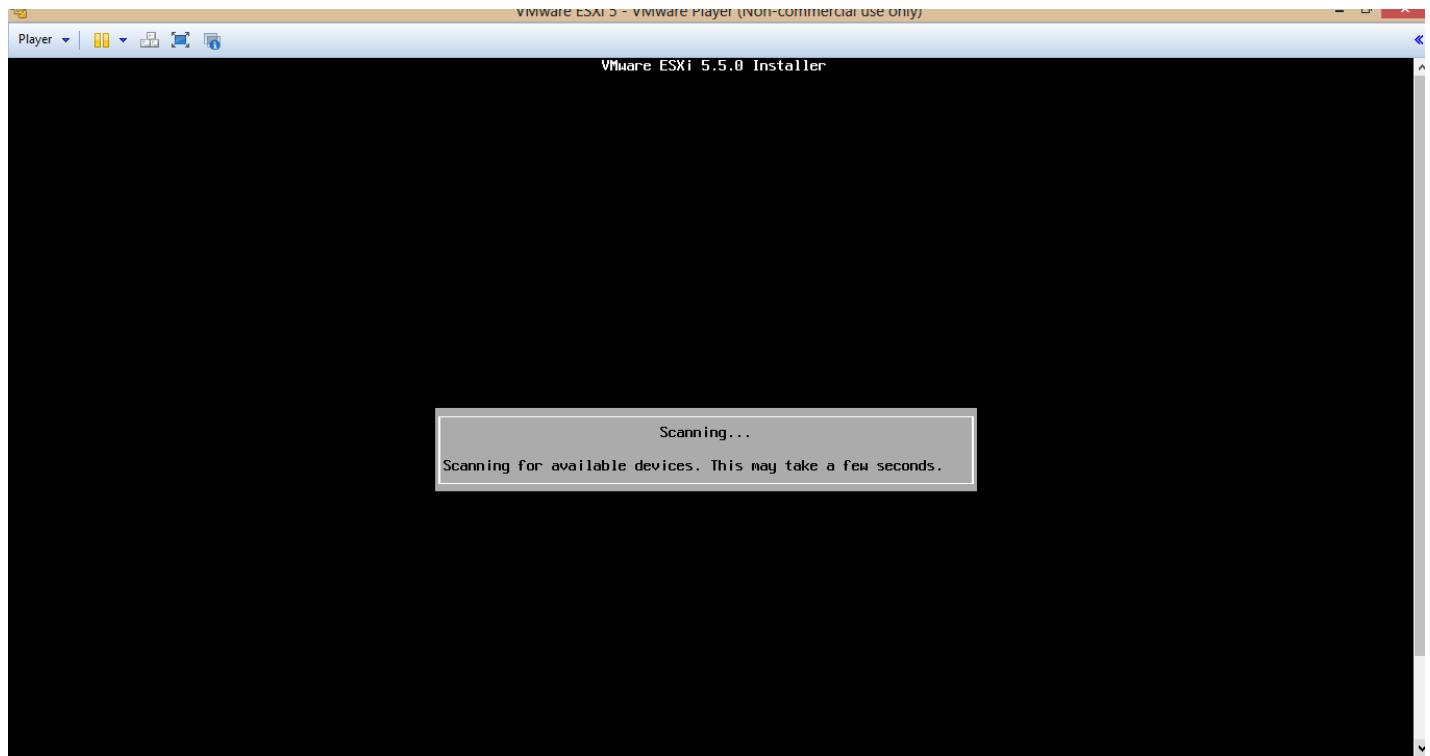


- Press Enter to continue.

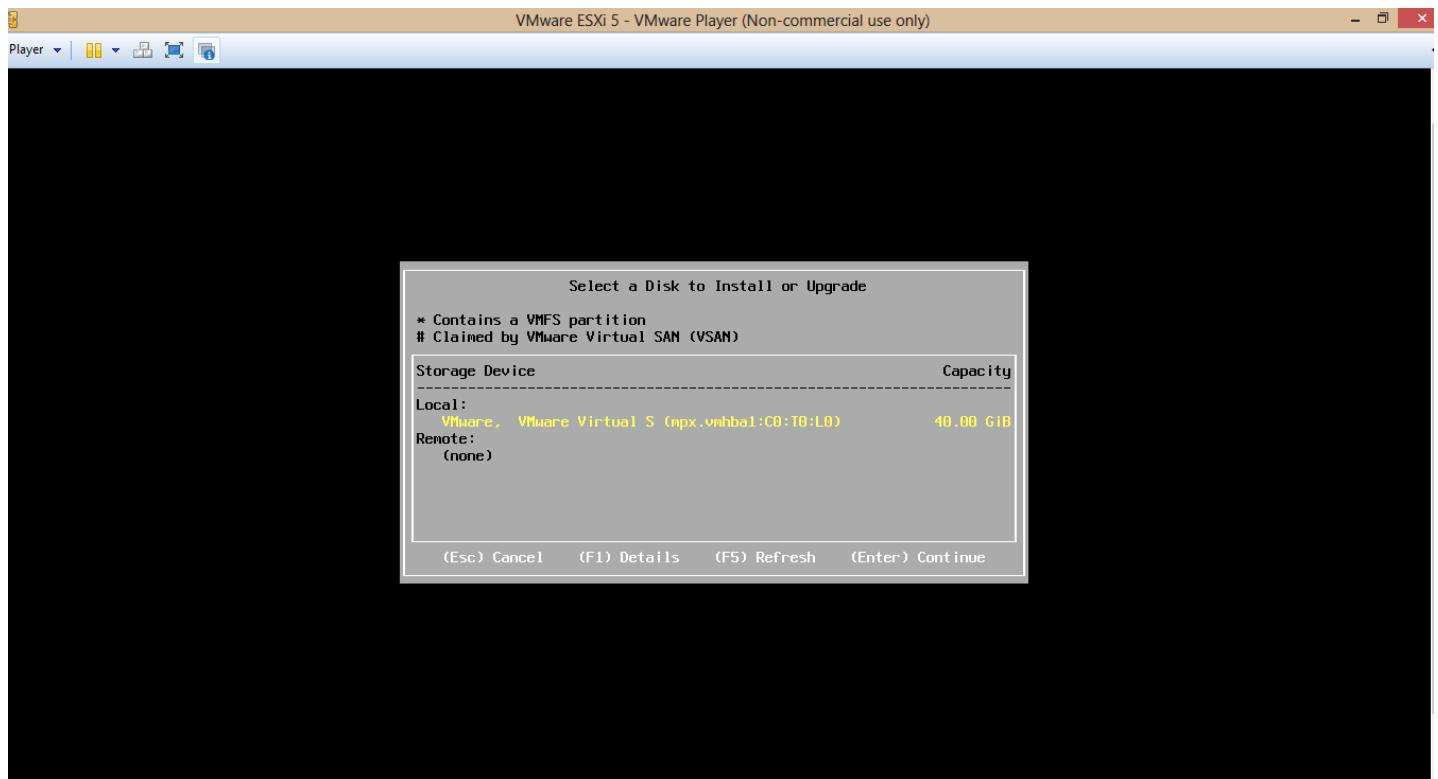


- Press F11 to Accept and continue.

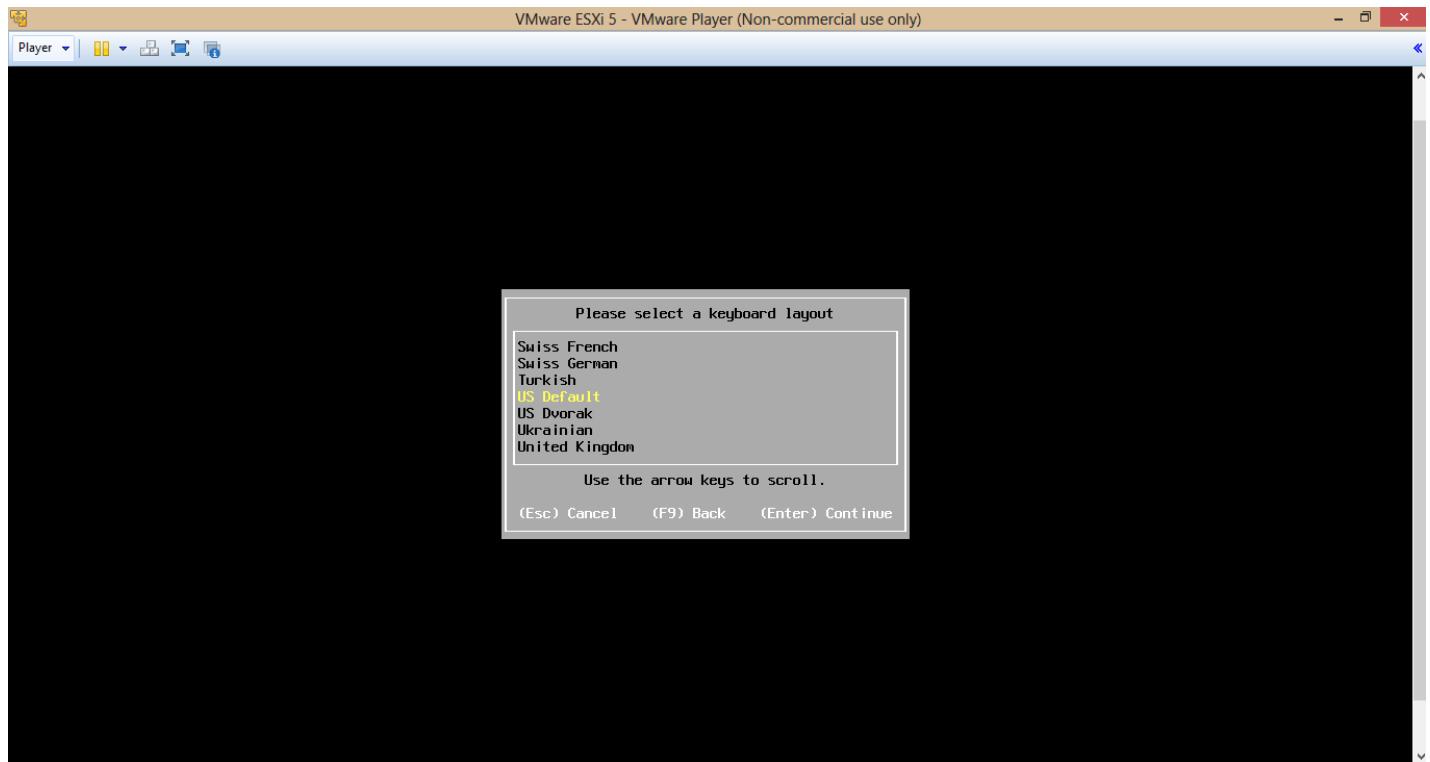




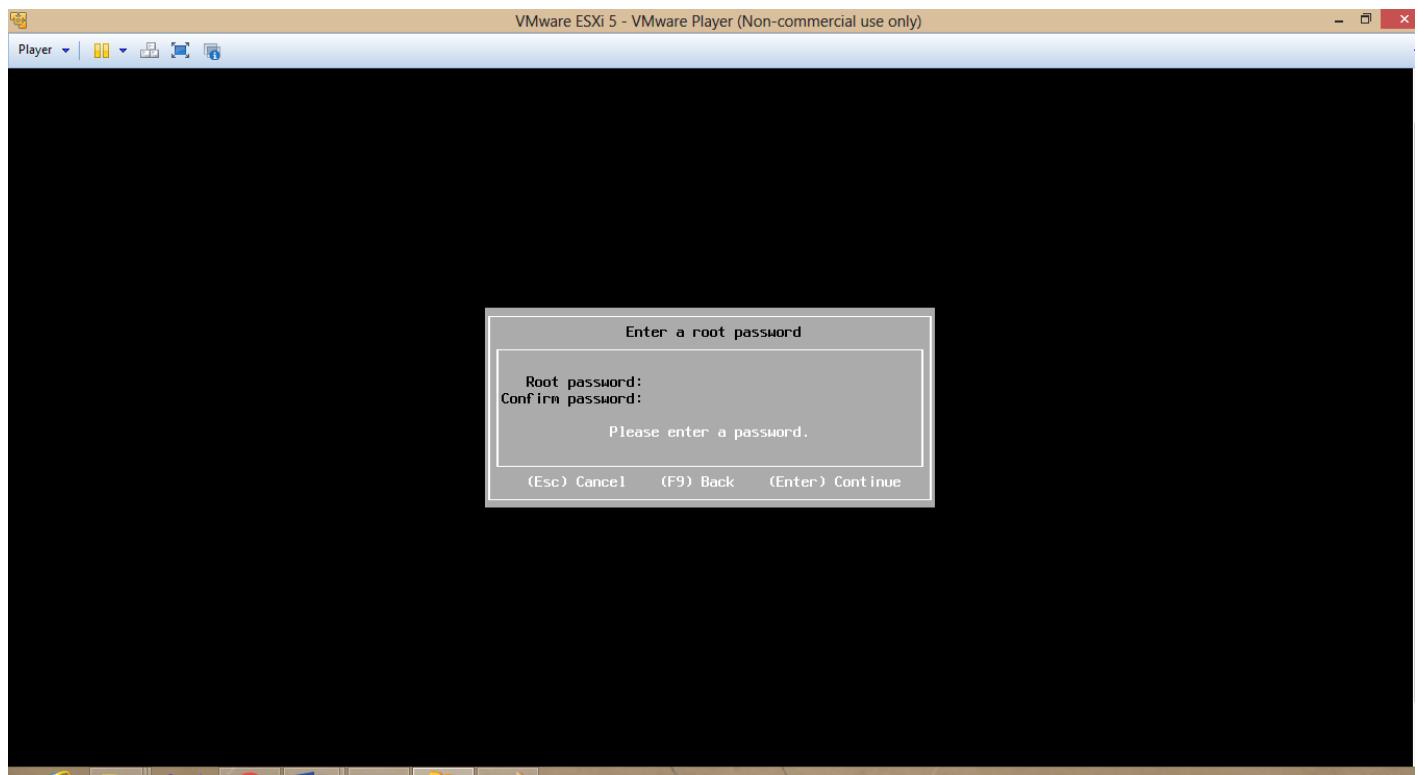
- Press enter to continue.

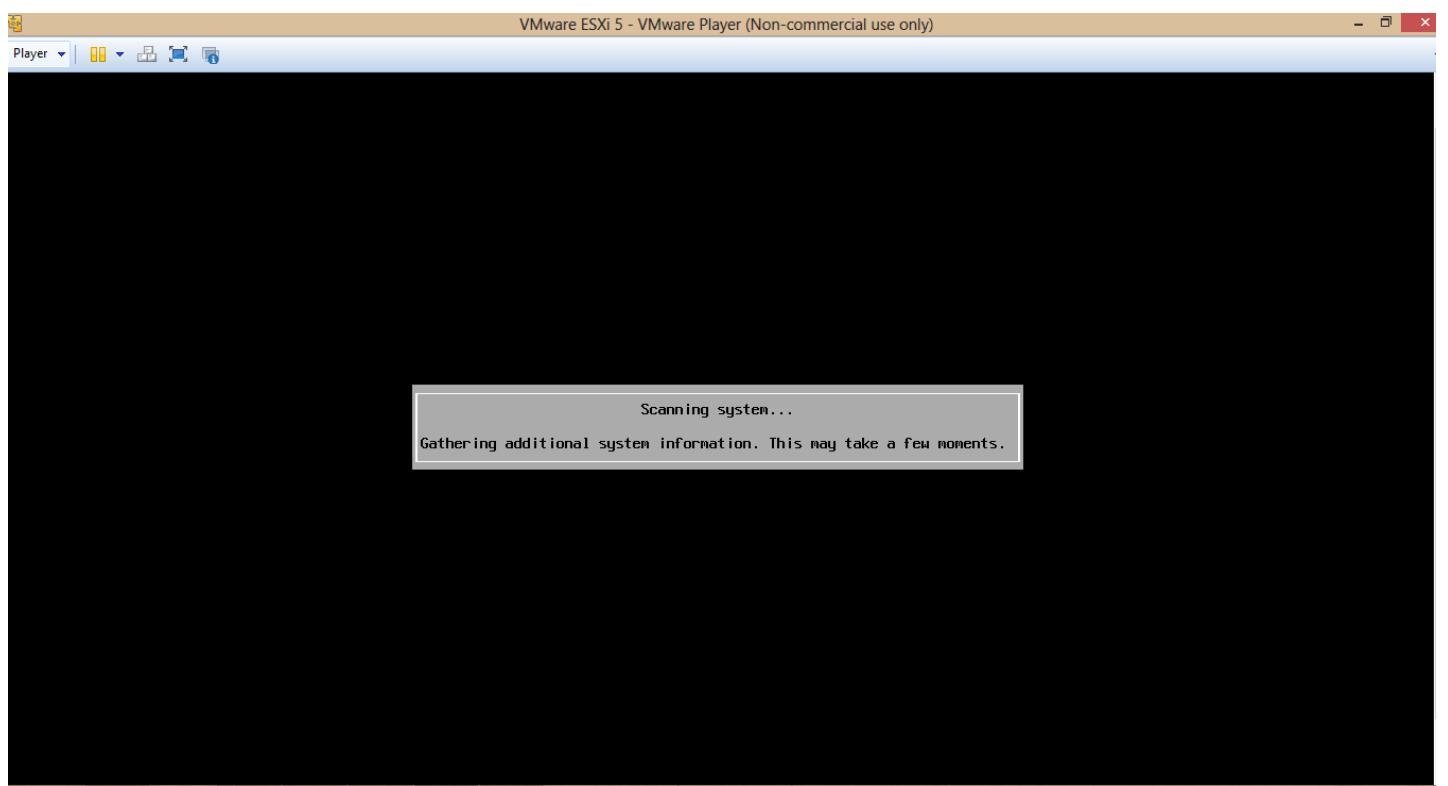
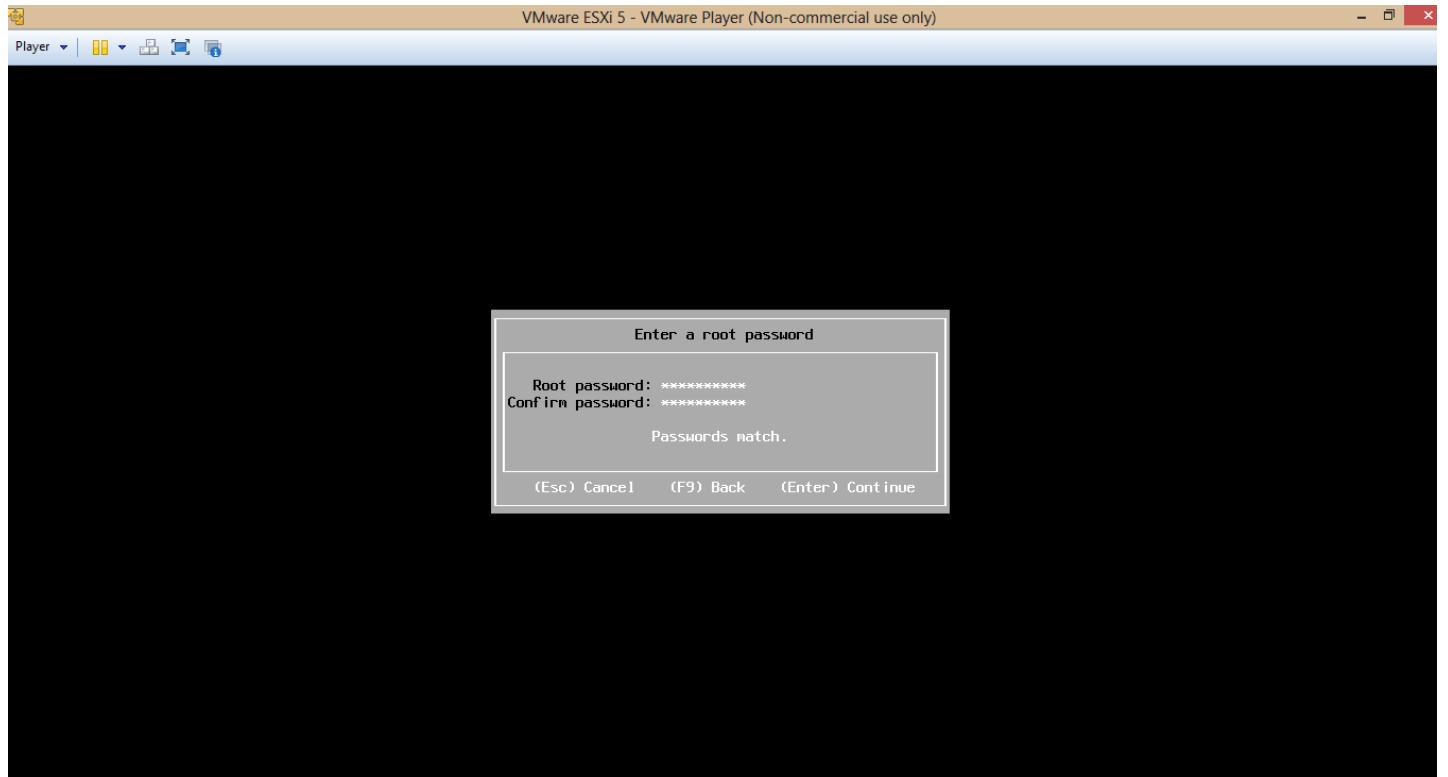


- Select US default and press Enter to continue.

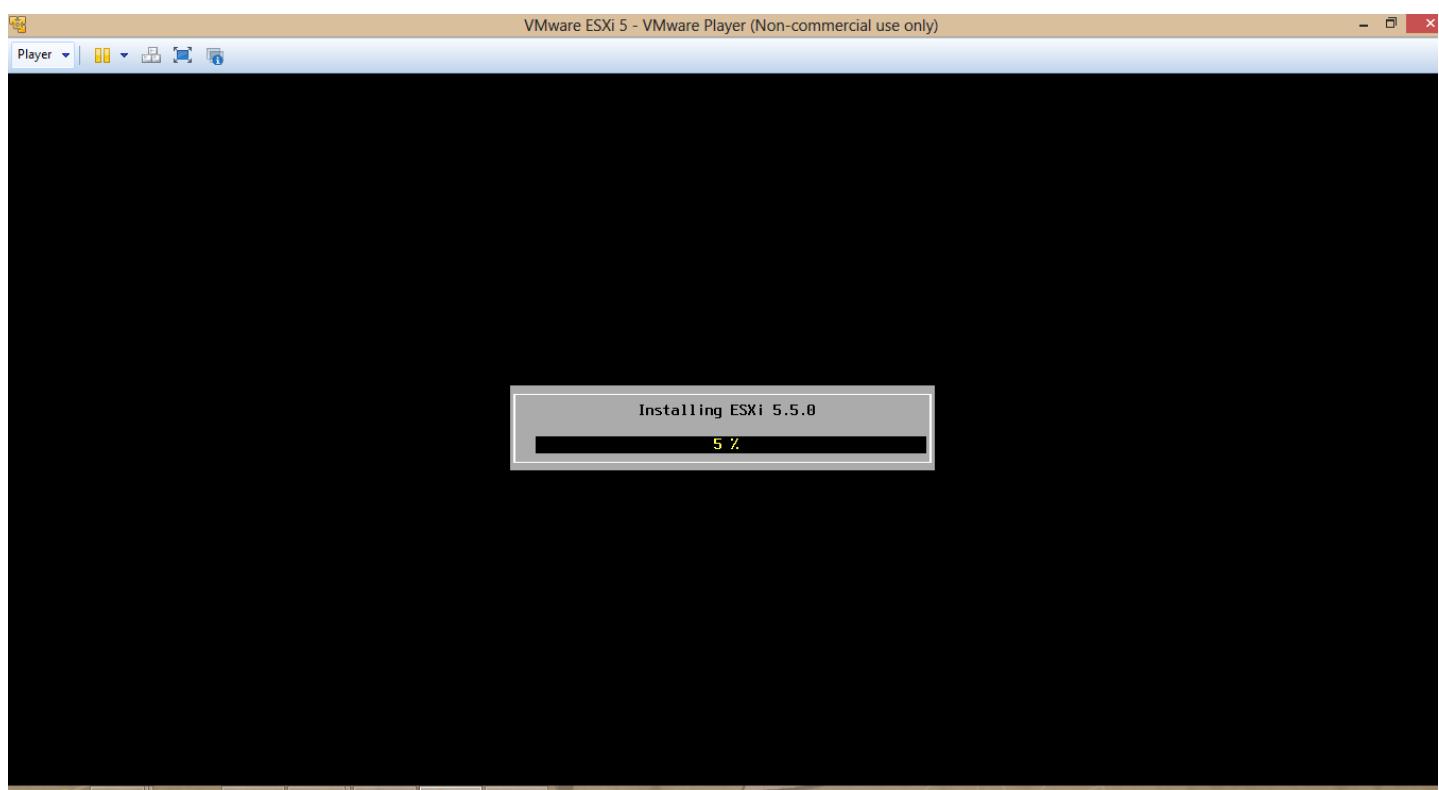
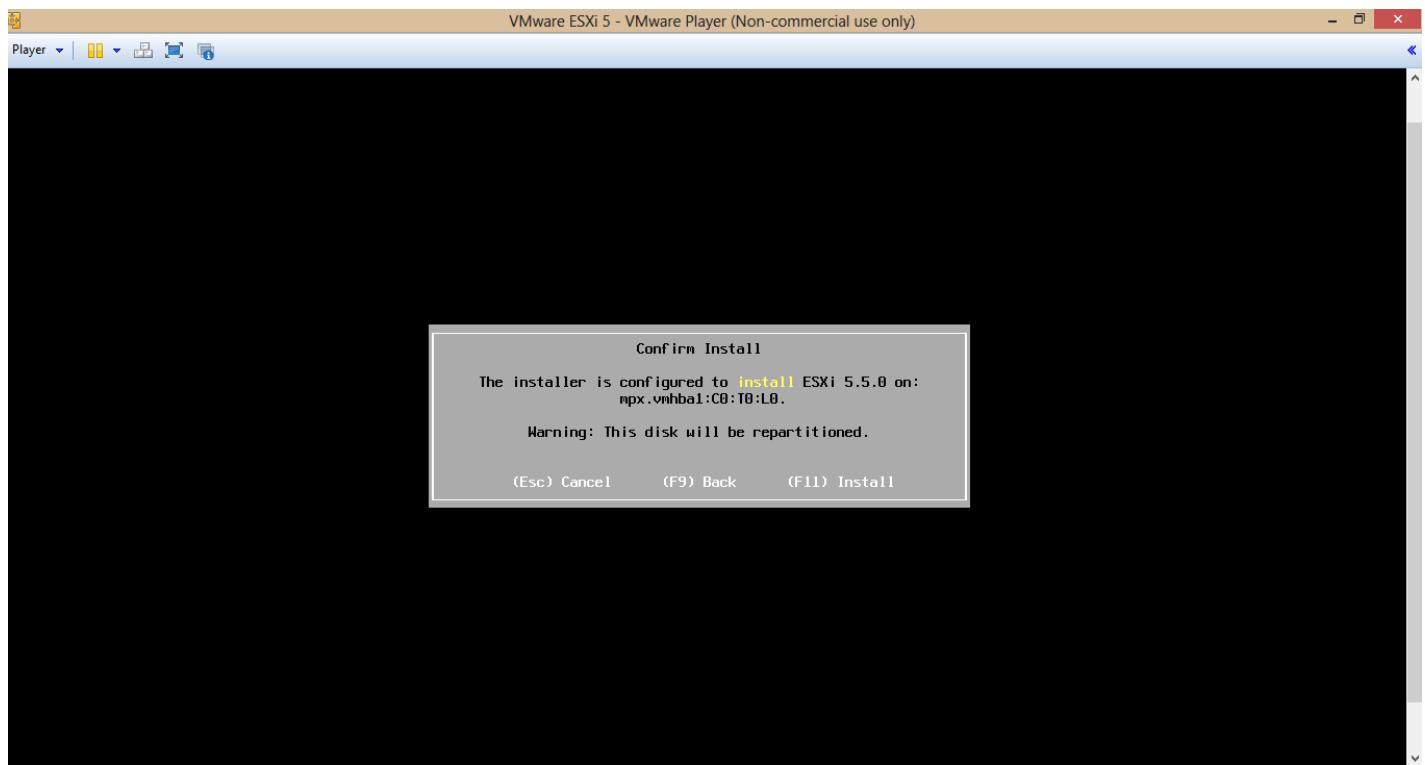


- Enter a password and Continue.

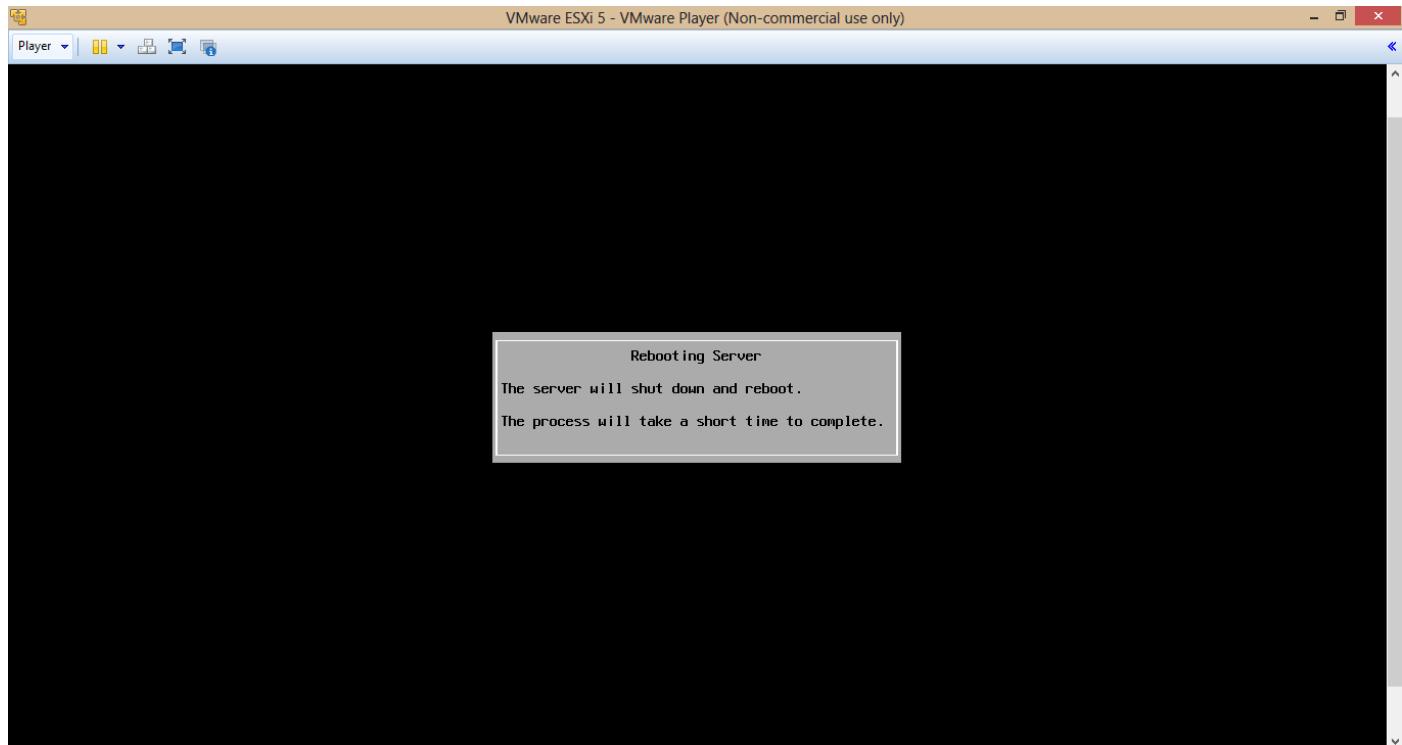
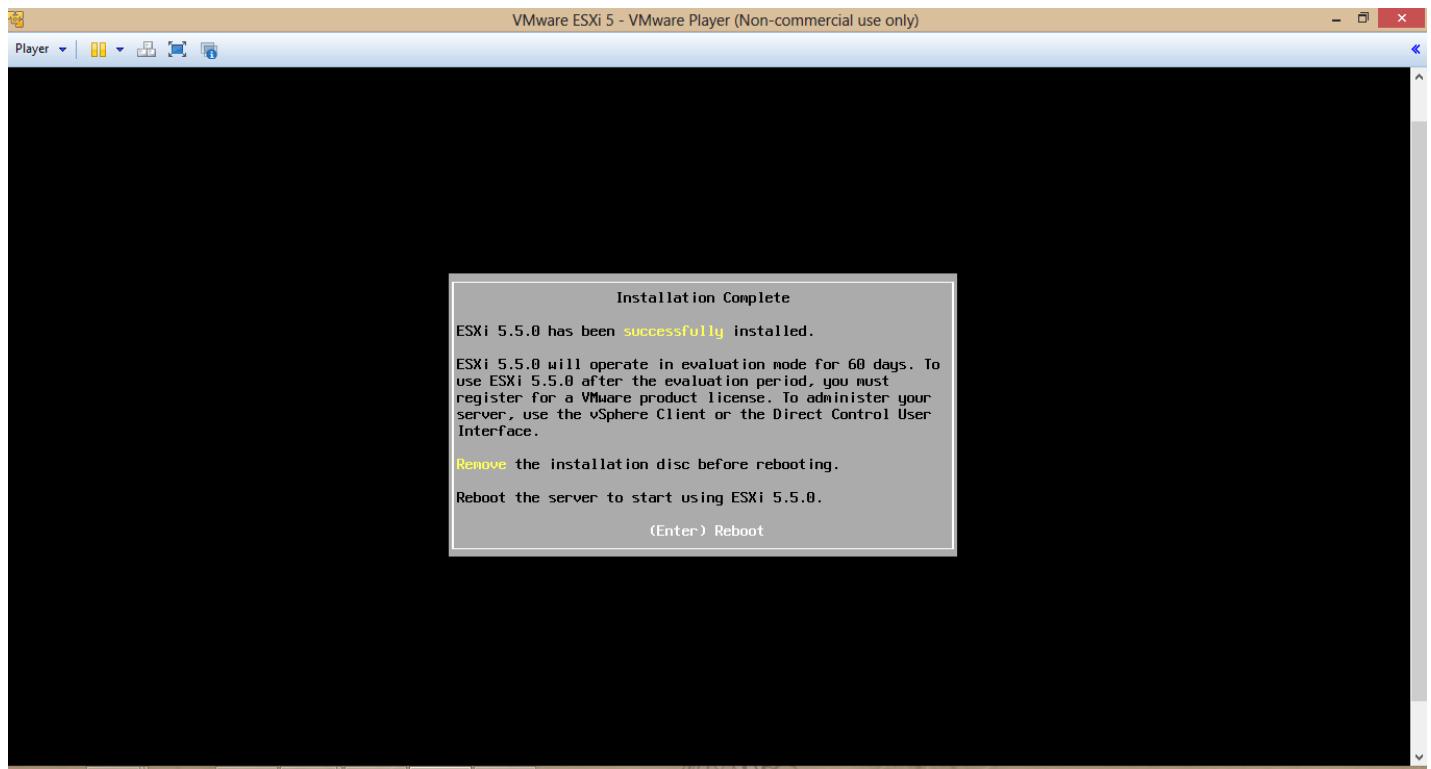


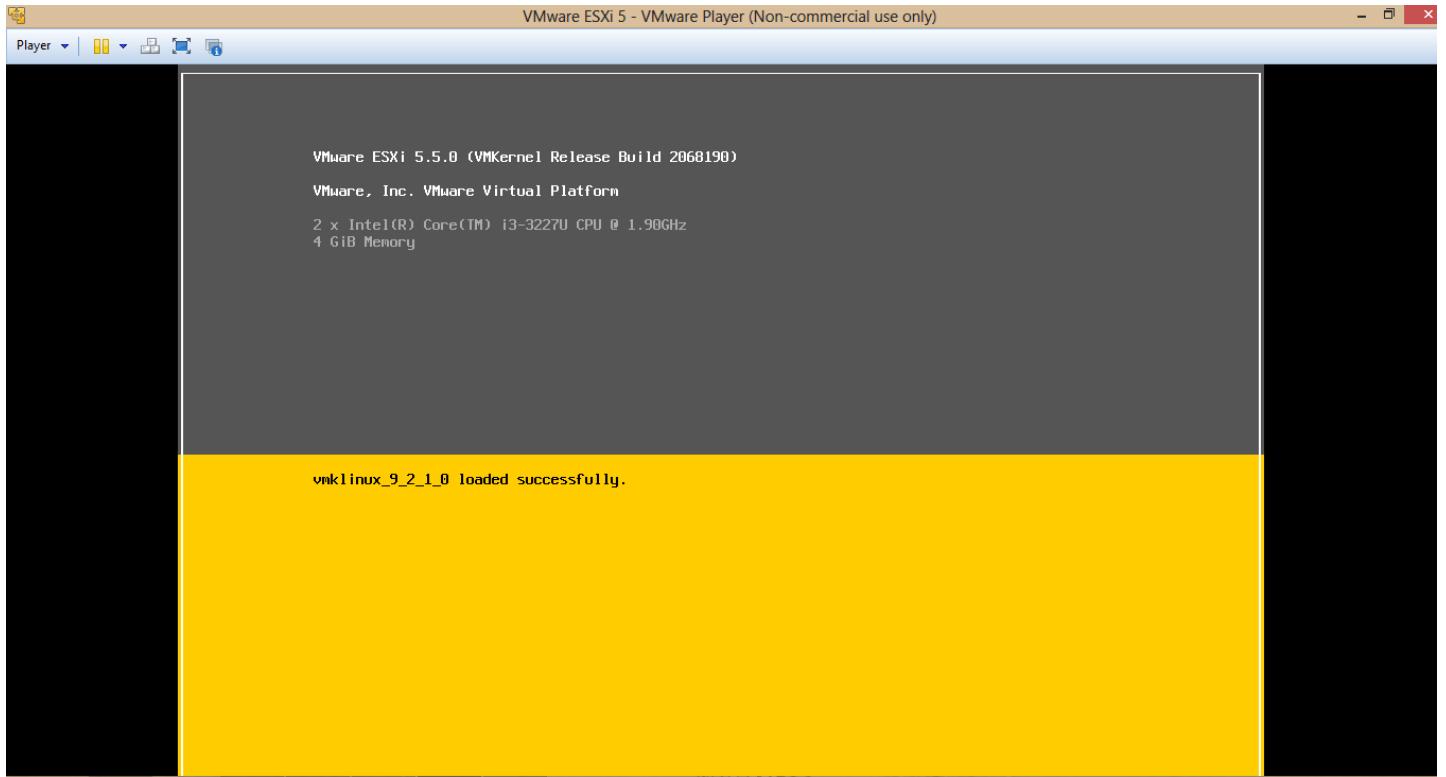


- Press F11 to Install.

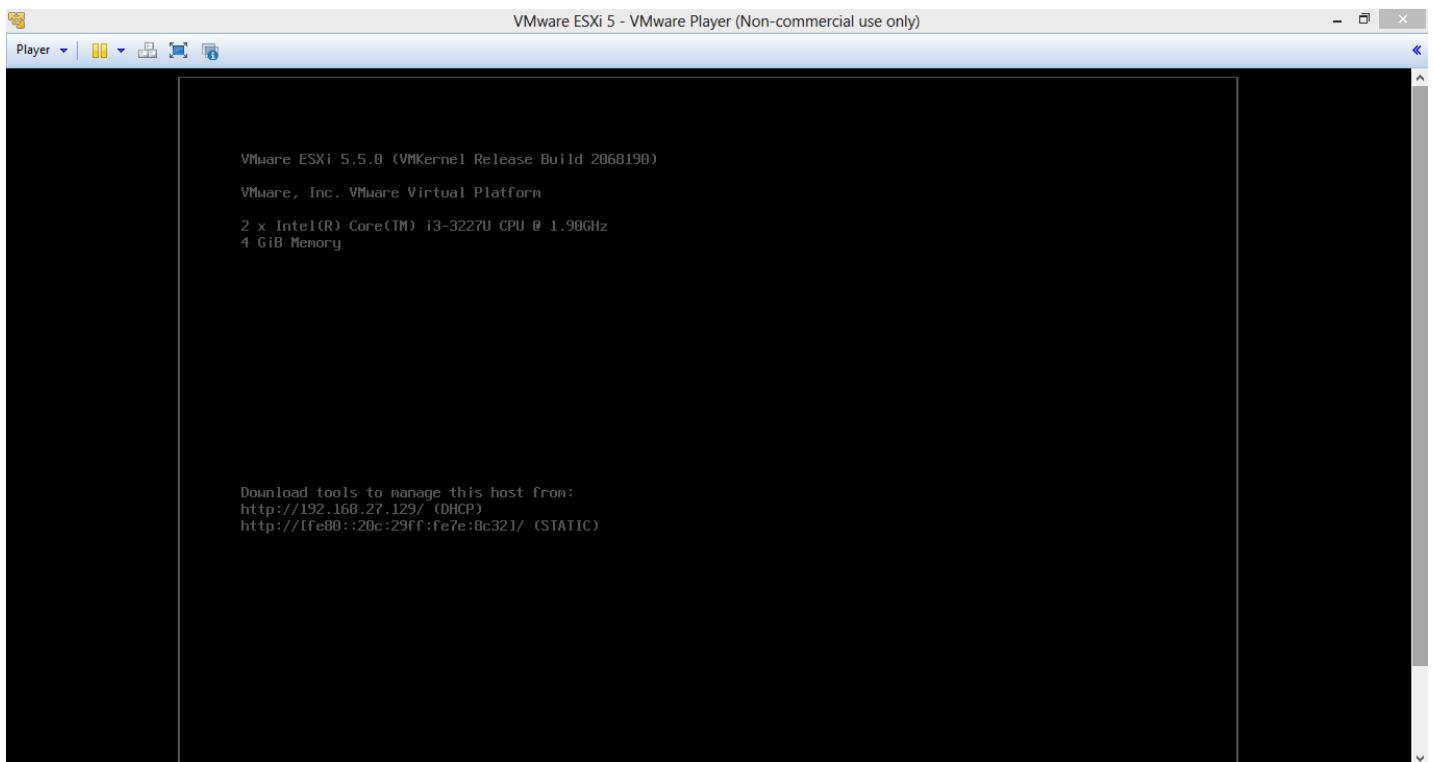


- Press Enter.

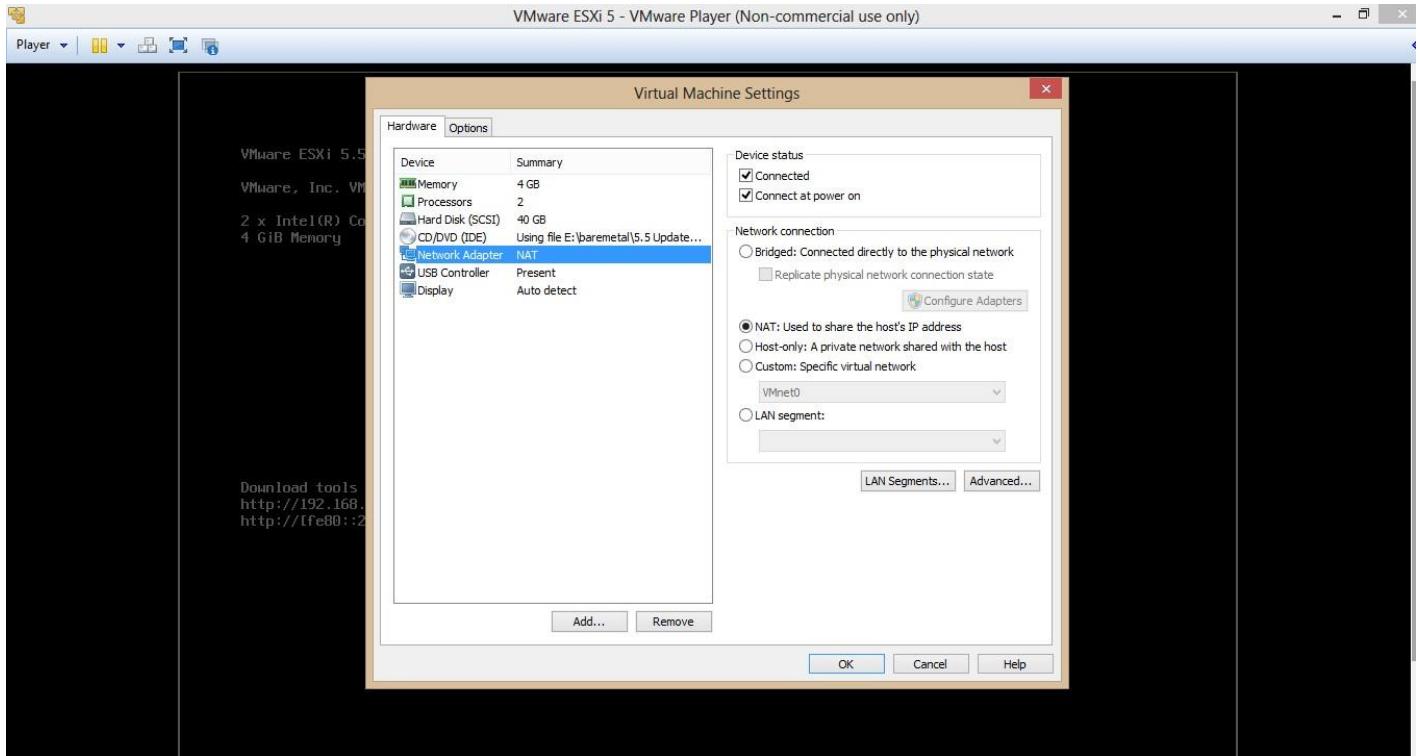




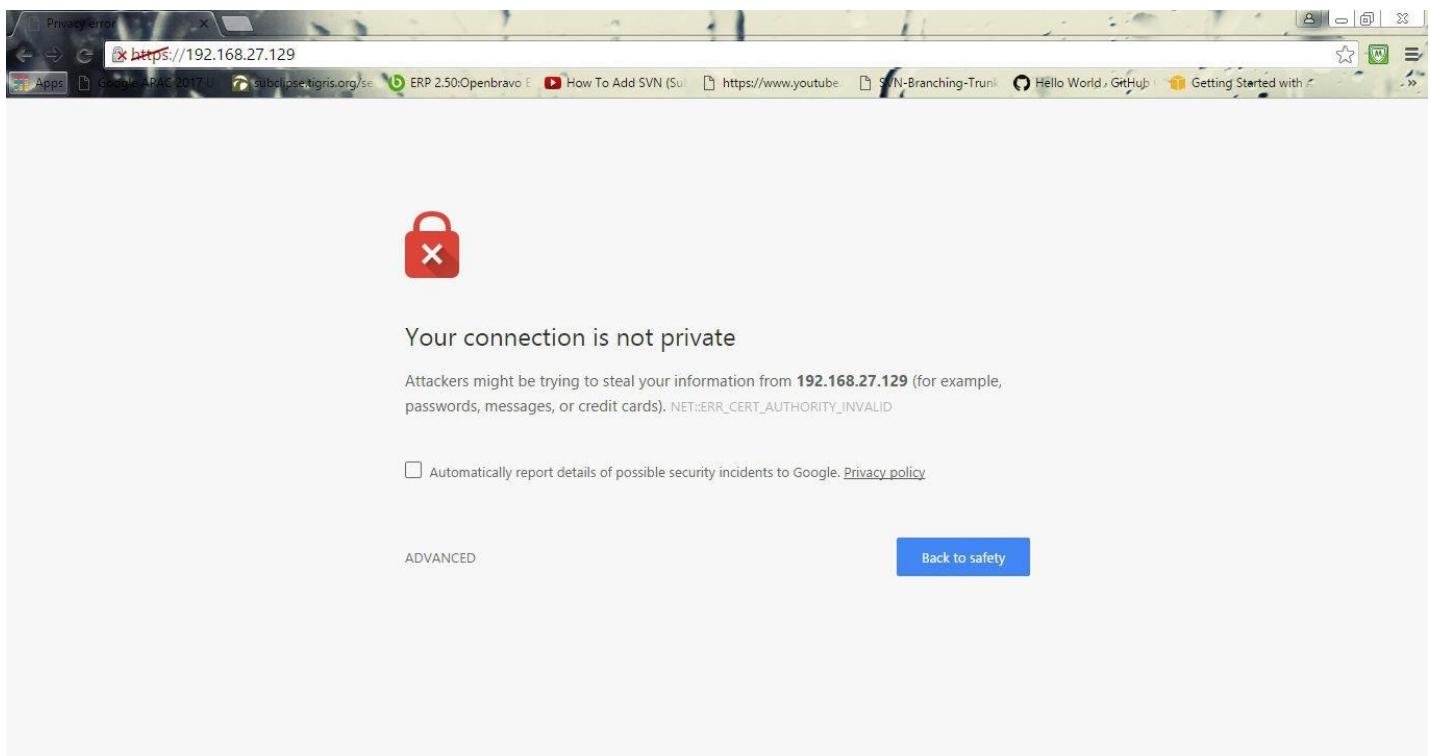
- Finally it will generate an IP address.



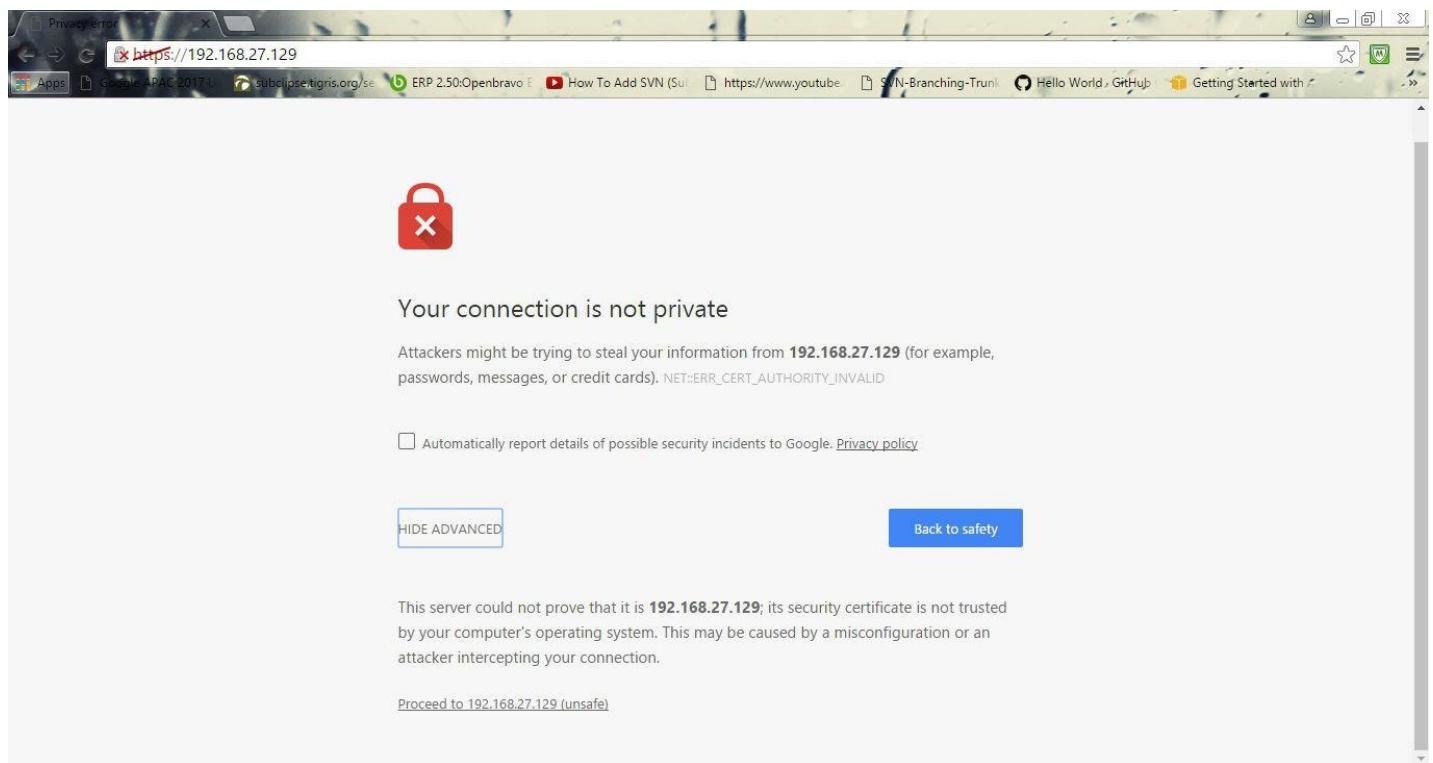
- To share the host's IP address click on Virtual machine settings -> Select Network Adapter -> Select NAT: Used to share the host's IP address.



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

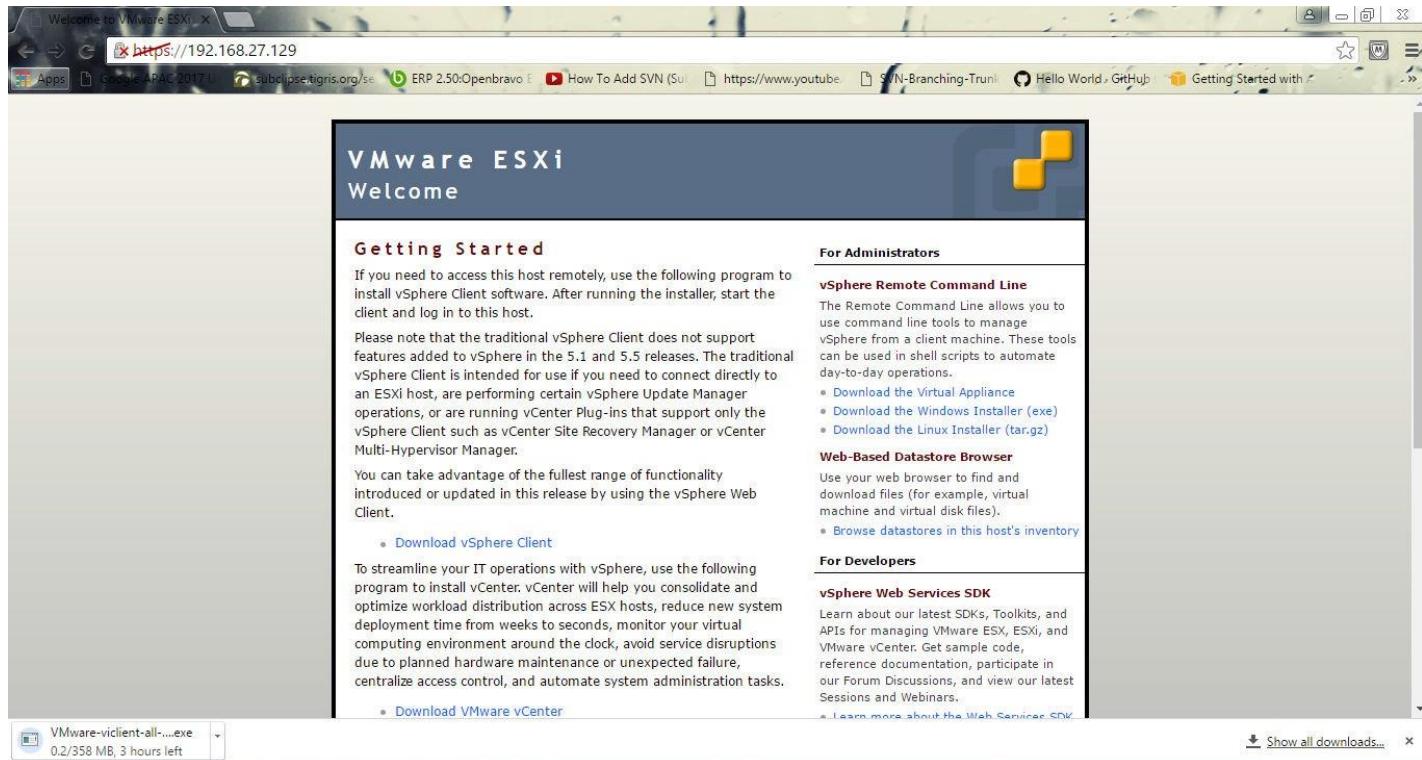


- Click on ‘ Proceed to 192.168.27.129(unsafe) .



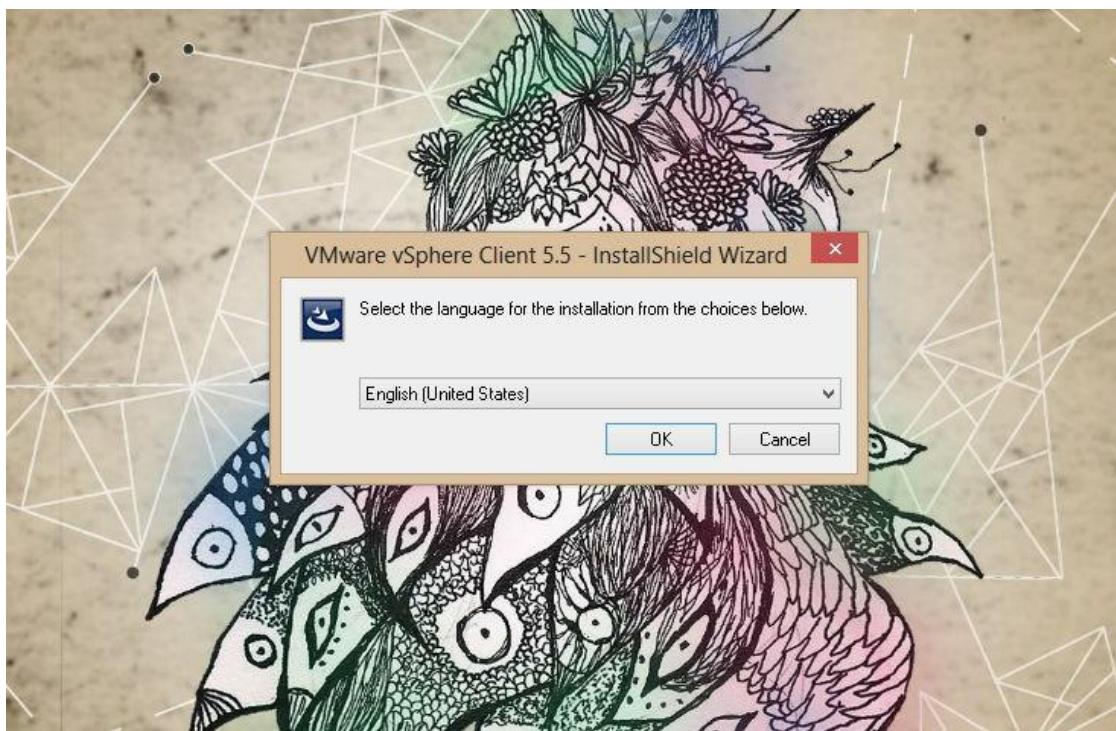
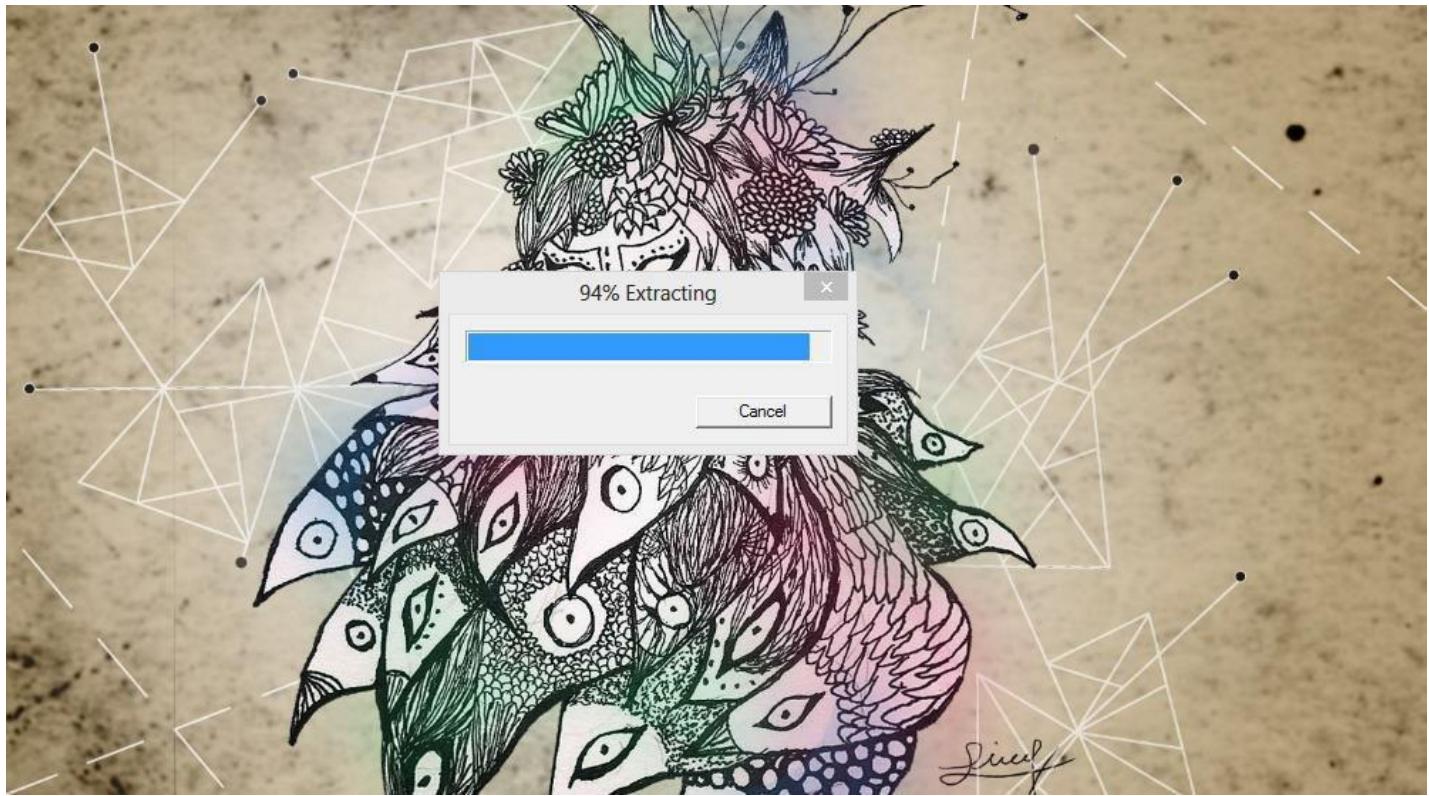
The screenshot shows the 'VMware ESXi Welcome' screen. The main content area has a blue header 'VMware ESXi' and 'Welcome'. It features a 'Getting Started' section with instructions for installing the vSphere Client and using vCenter. A sidebar on the right is titled 'For Administrators' and includes sections for 'vSphere Remote Command Line', 'Web-Based Datastore Browser', and 'For Developers'. The 'vSphere Web Services SDK' section contains links to learn more about the Web Services SDK and browse managed objects.

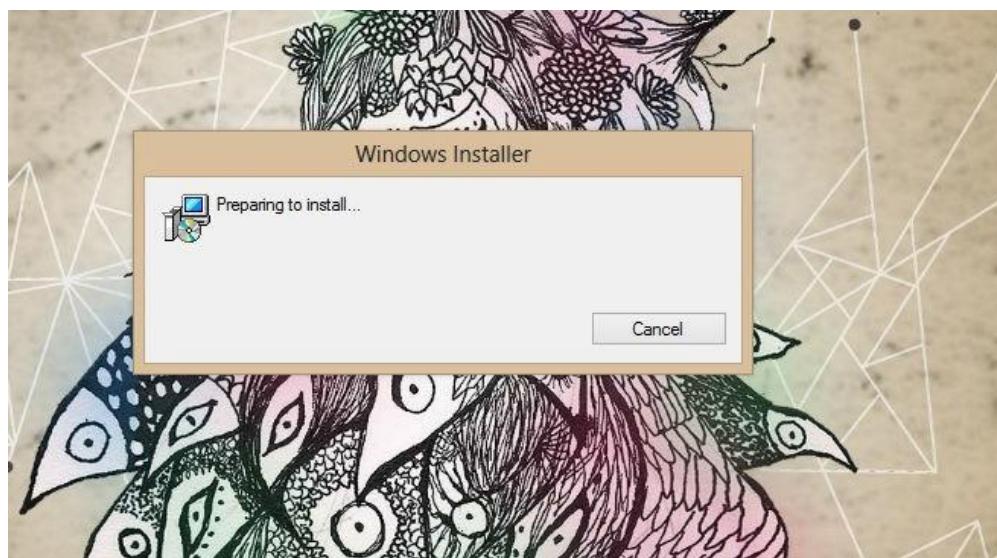
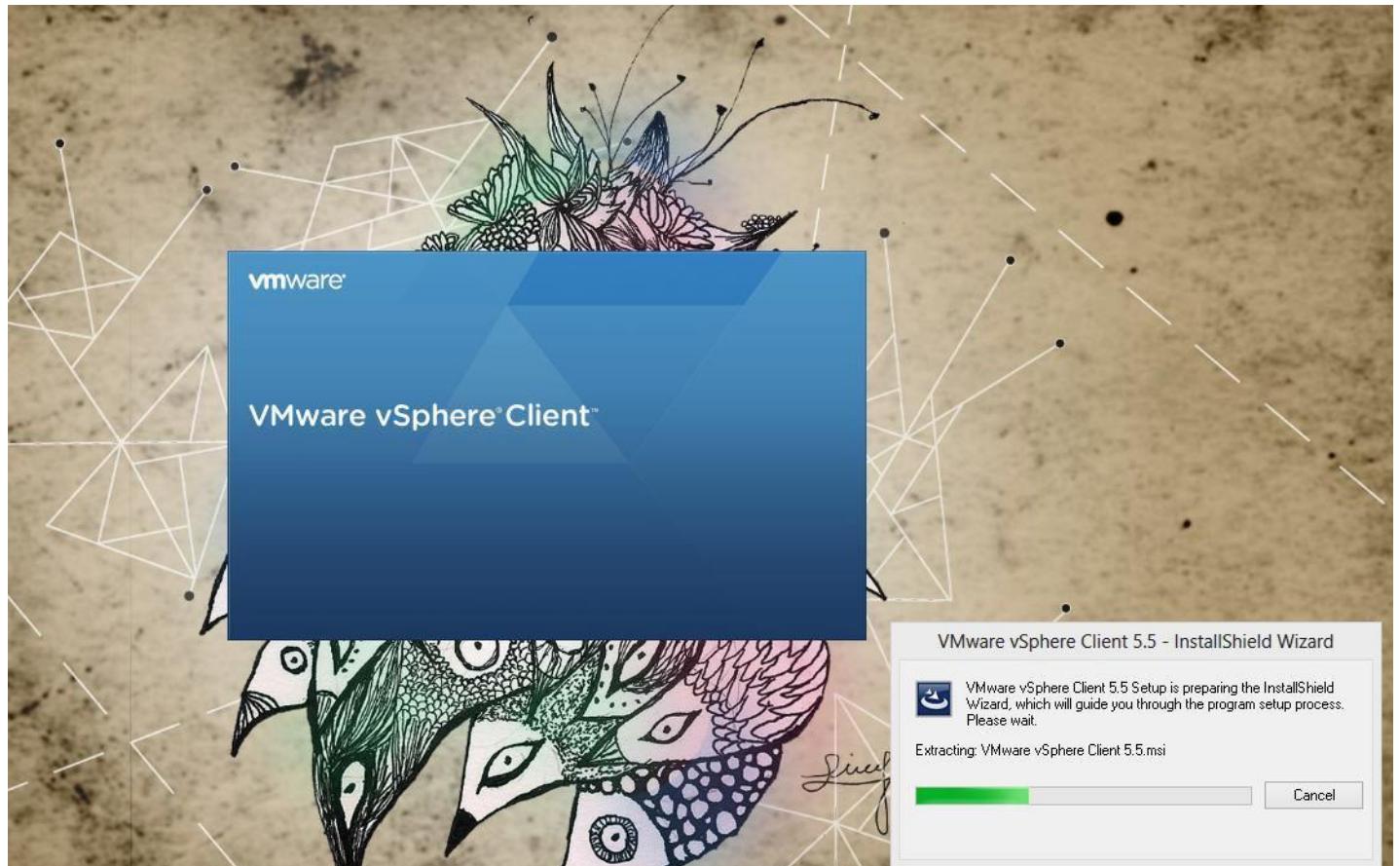
- Then click on ‘Download vSphere Client’. Setup will be downloaded and it will take few minutes to finish.

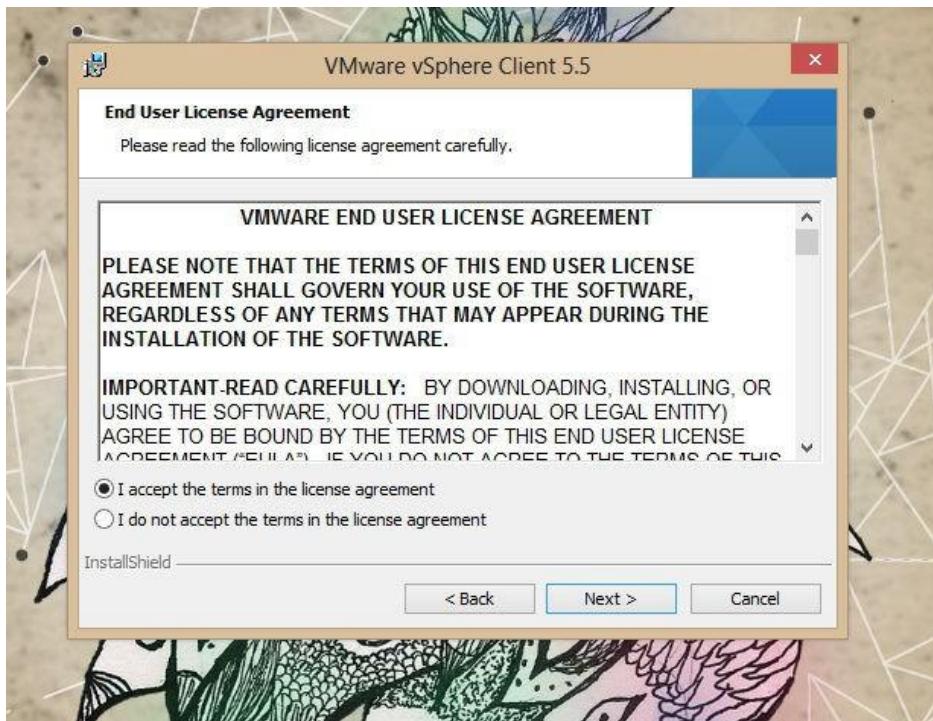


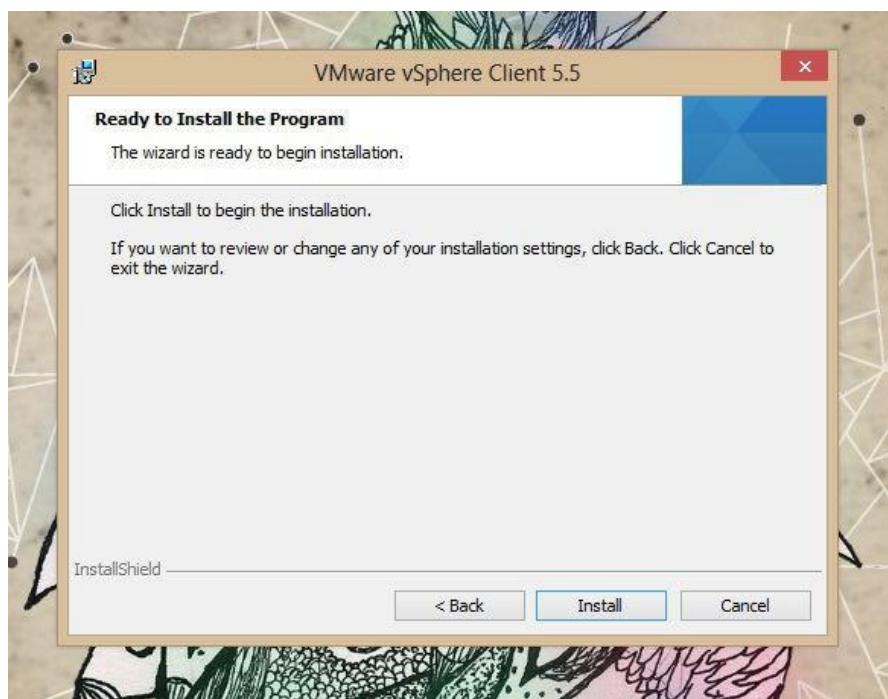
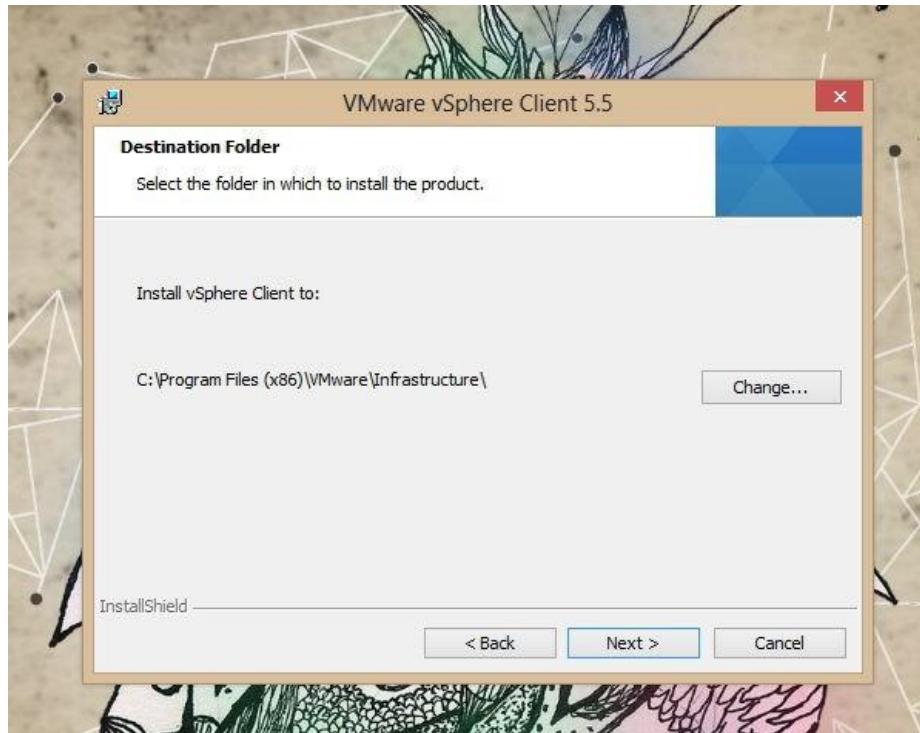
* After Download has finished install the setup.

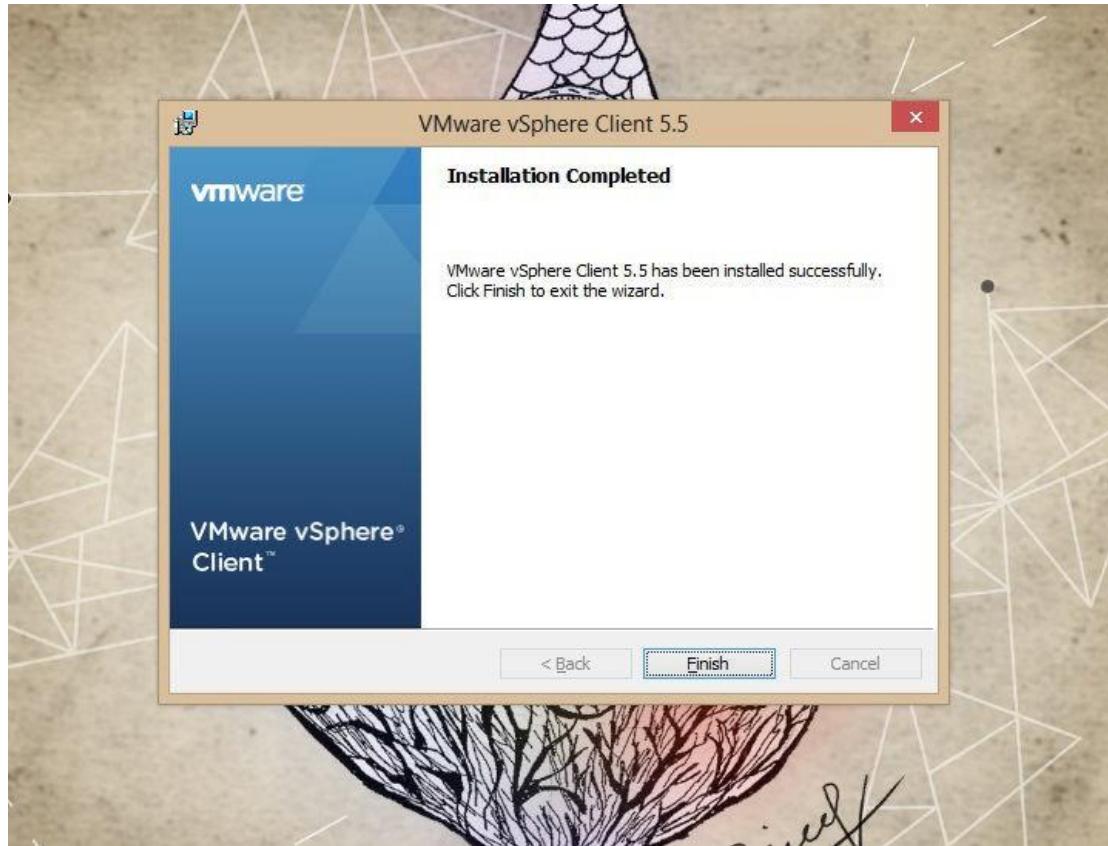
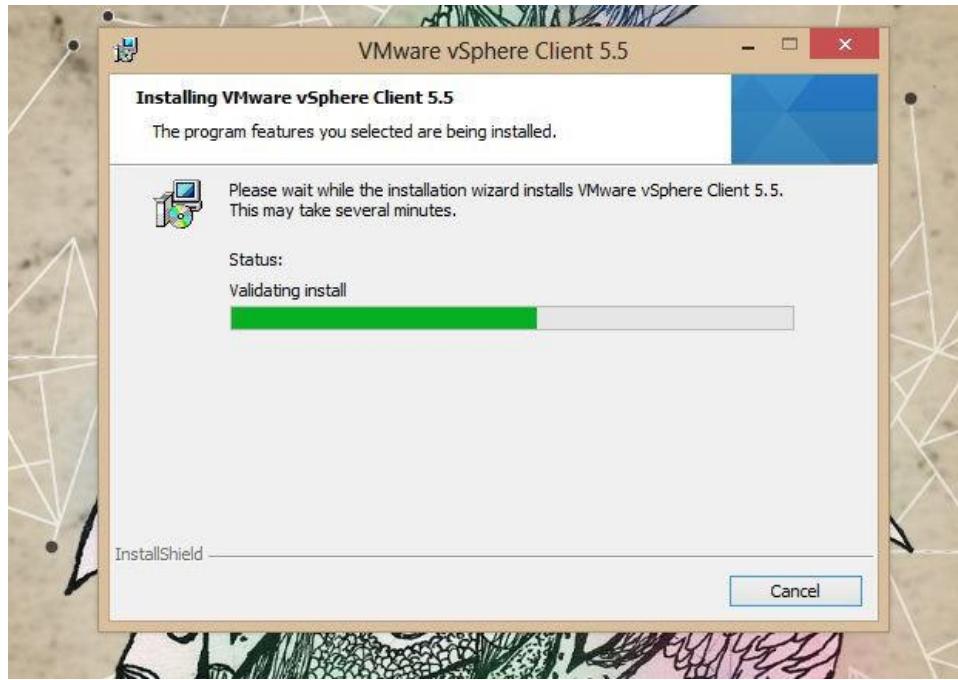
Name	Date modified	Type	Size
VMware-vclient-all-5.5.0-1993072	7/23/2016 2:35 PM	Application	366,357 KB





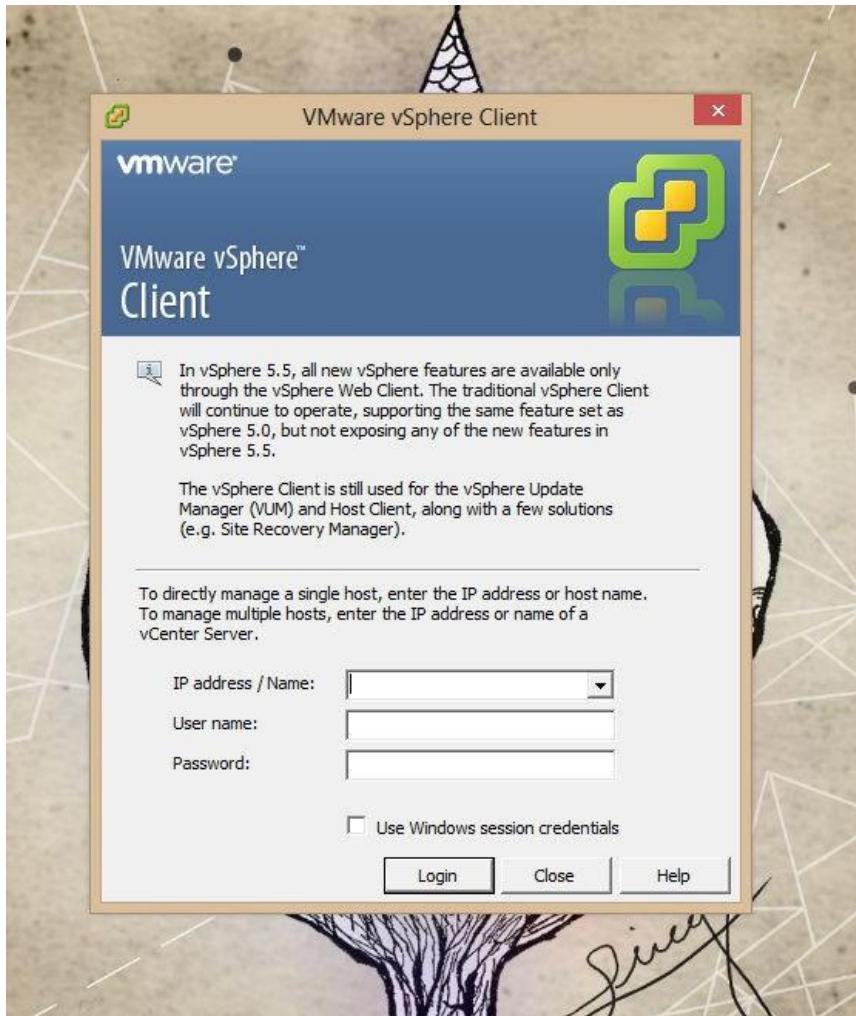






- After the installation process has finished can open the vSphere client by selecting All programs -> VMware vSphere client.





Creating a new 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) > ESBPll > ESBPll lab > ESBPll lab 3 baremetal installation on vmware > Vmware

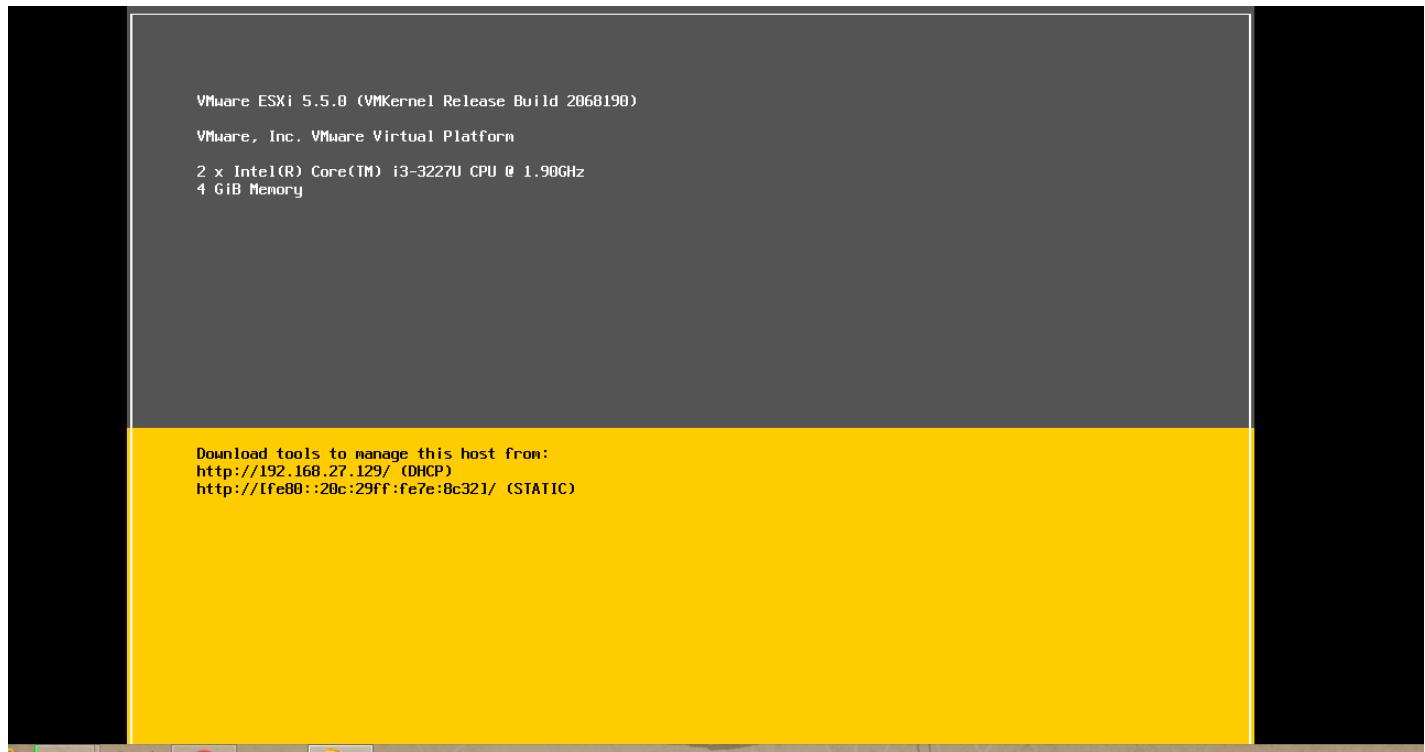
Name	Date modified	Type	Size
564d5a71-5a04-4ff4-2b3f-81b5d82a9a3a...	8/8/2016 10:11 PM	File folder	
VMware ESXi 5.vmdk.lck	8/8/2016 10:11 PM	File folder	
VMware ESXi 5.vmx.lck	8/8/2016 10:11 PM	File folder	
564d5a71-5a04-4ff4-2b3f-81b5d82a9a3a...	8/8/2016 10:11 PM	VMEM File	4,194,304 KB
VMware ESXi 5.nvram	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

Player | ▶ | ⌂ | ⌂ | ⌂

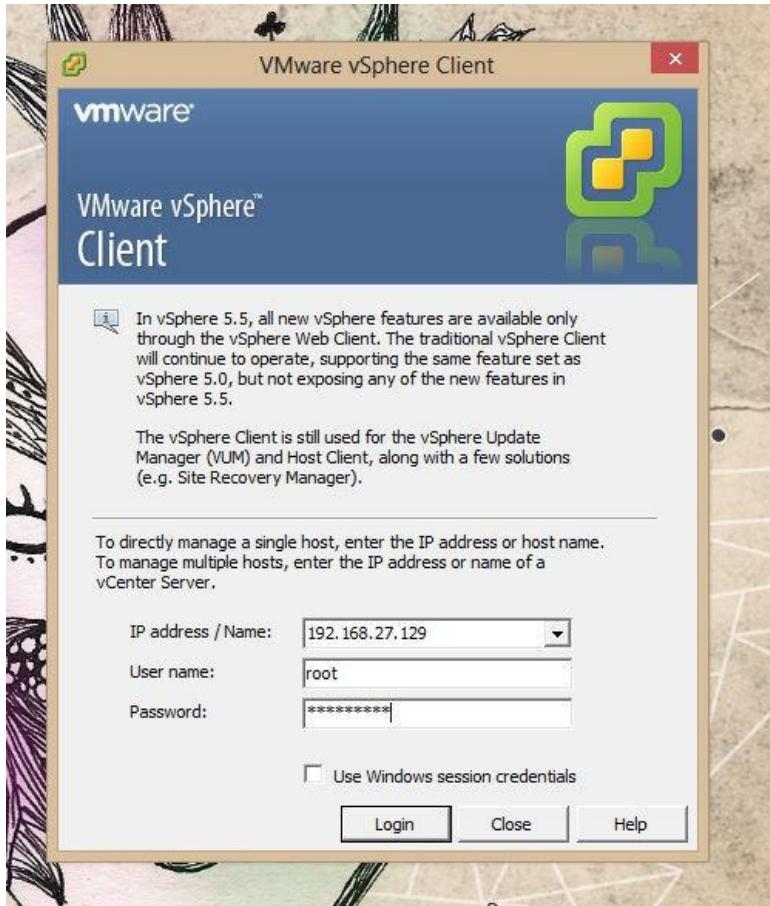
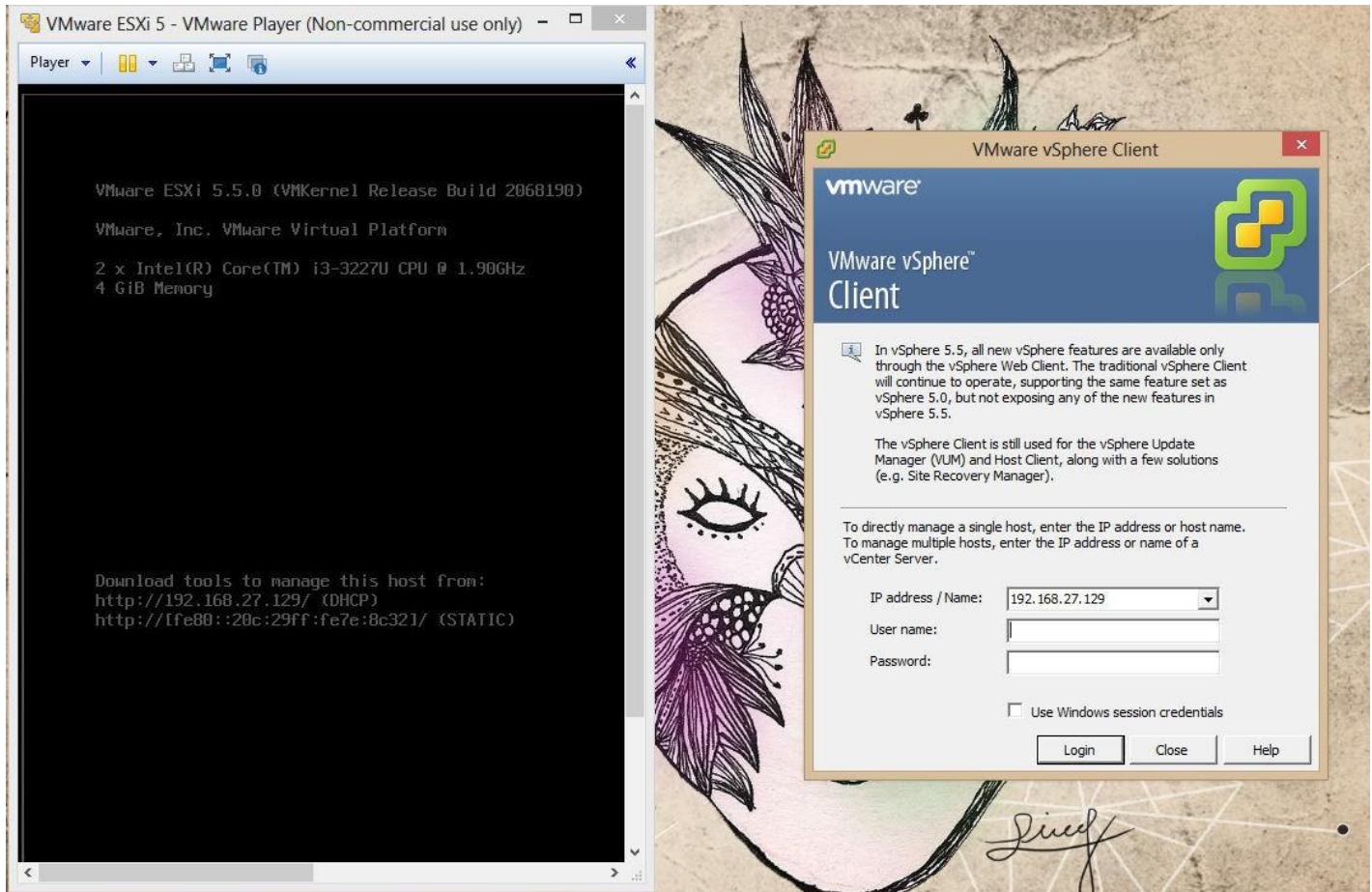
VMware ESXi 5

State: Powered Off
OS: VMware ESXi 5
Version: Workstation 10.0 virtual machine
RAM: 4 GB

▶ Play virtual machine
Edit virtual machine settings



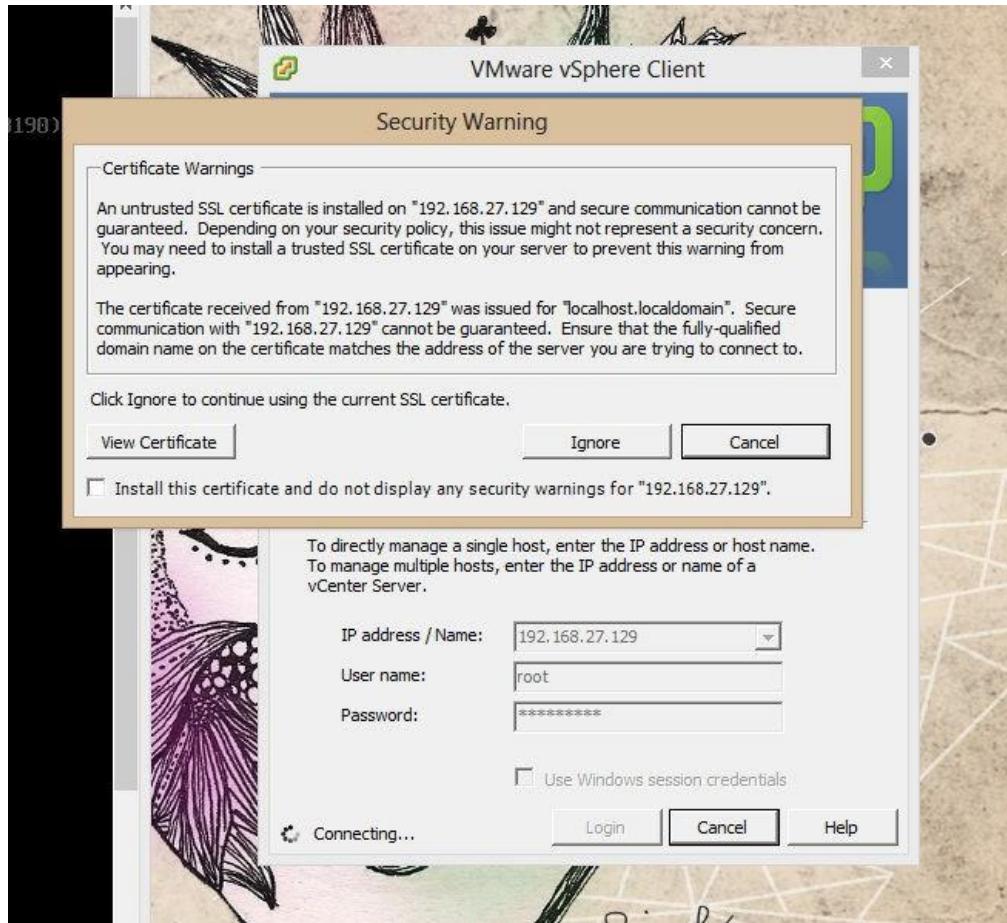
- Start the vSphere Client by opening Start > All Programs > VMware > VMware Sphere Client. This will open up the vSphere Client login page. On this page, provide the IP address for your ESXi 5 host and also provide the root username and password that you specified during the setup of your server.



- 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 sage 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.

A screenshot of the VMware vSphere Client home page for the IP address 192.168.27.129. The interface includes a top navigation bar with File, Edit, View, Inventory, Administration, Plug-ins, and Help. Below the navigation is a toolbar with Home, New, and Search buttons. The main area has two tabs: 'Inventory' (selected) and 'Administration'. Under 'Inventory', there is a single item labeled 'Inventory'. Under 'Administration', there are links for 'Roles' and 'System Logs'. At the bottom, a 'Recent Tasks' table lists two completed tasks:

Name	Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
Unregister virtualmach...	Kali_esp8pi	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

A footer bar at the bottom shows 'Tasks' and 'Evaluation Mode: 60 days remaining / root'.

192.168.27.129 - vSphere Client

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 Ti...	Start Time	Completed Time
Unregister virtualmach...	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.

192.168.27.129 - vSphere Client

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:	ESX-5.5.0-20140902001-st...

Resources

Storage	Drive Type	Capacity
datastore1	Non-SSD	32.50 GB 2 ⁴

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

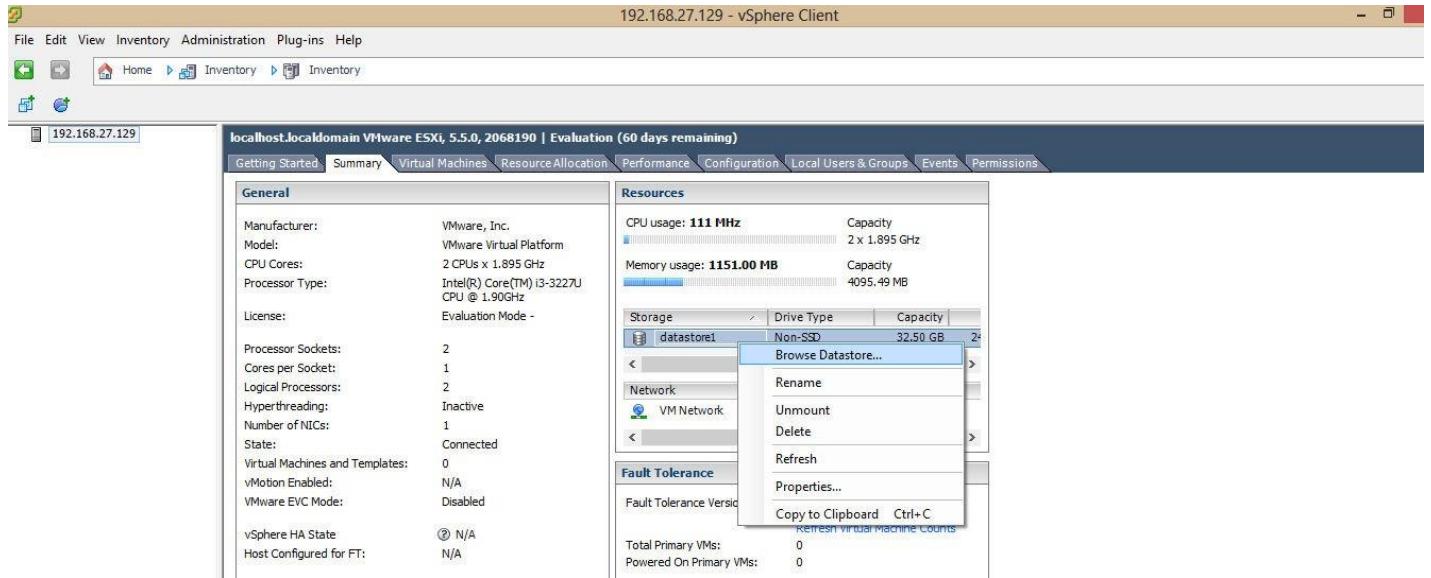
Recent Tasks

Name	Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
Unregister virtualmach...	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

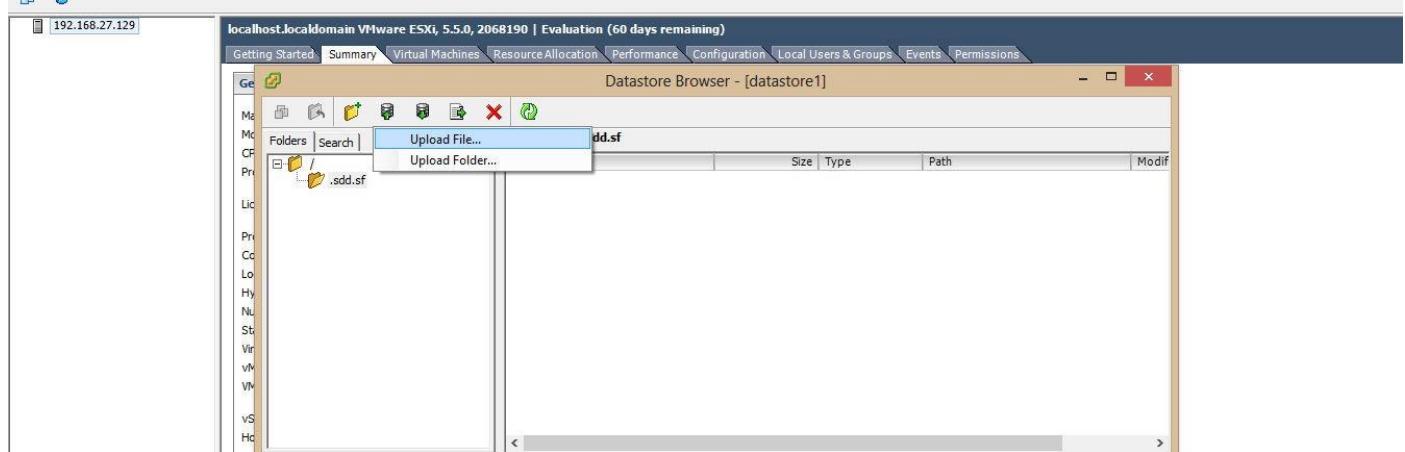
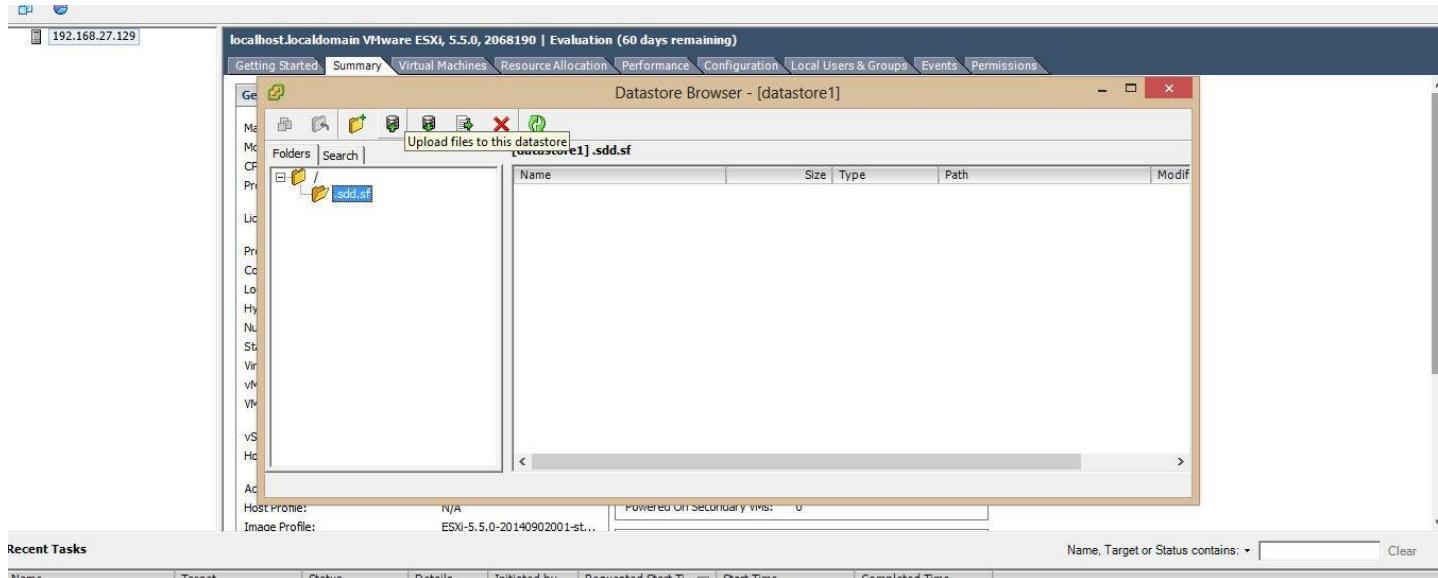
Tasks

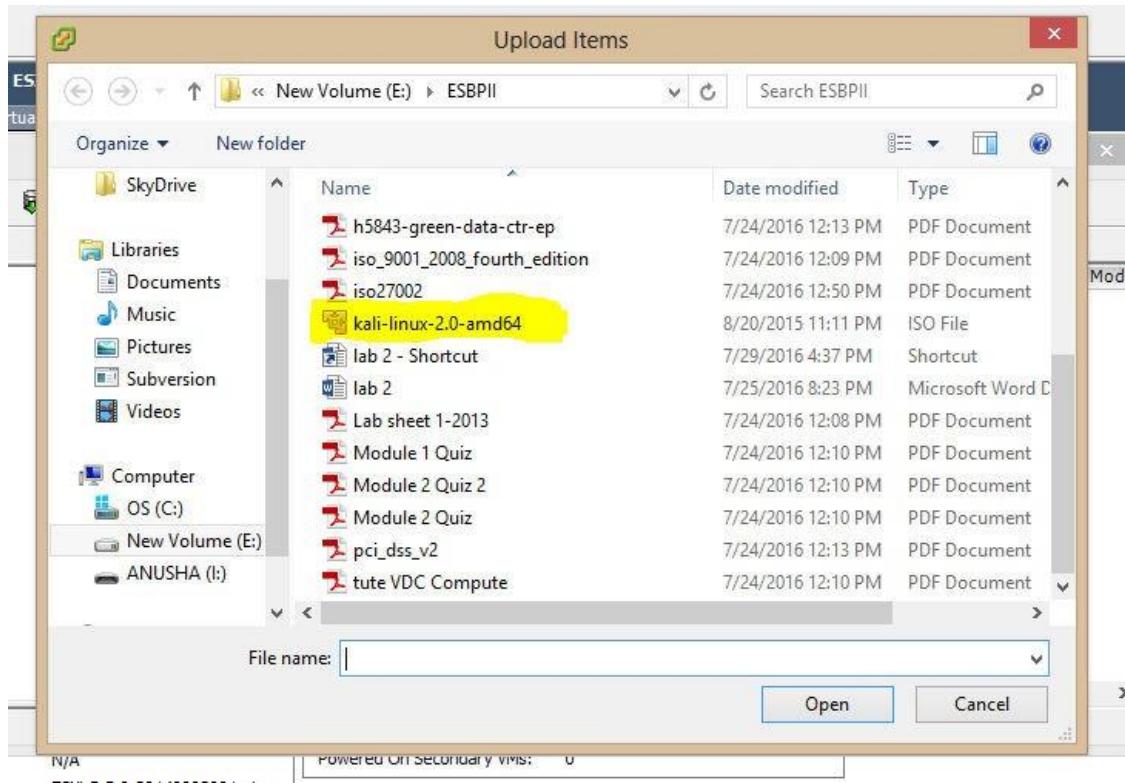
Evaluation Mode: 60 days remaining | root



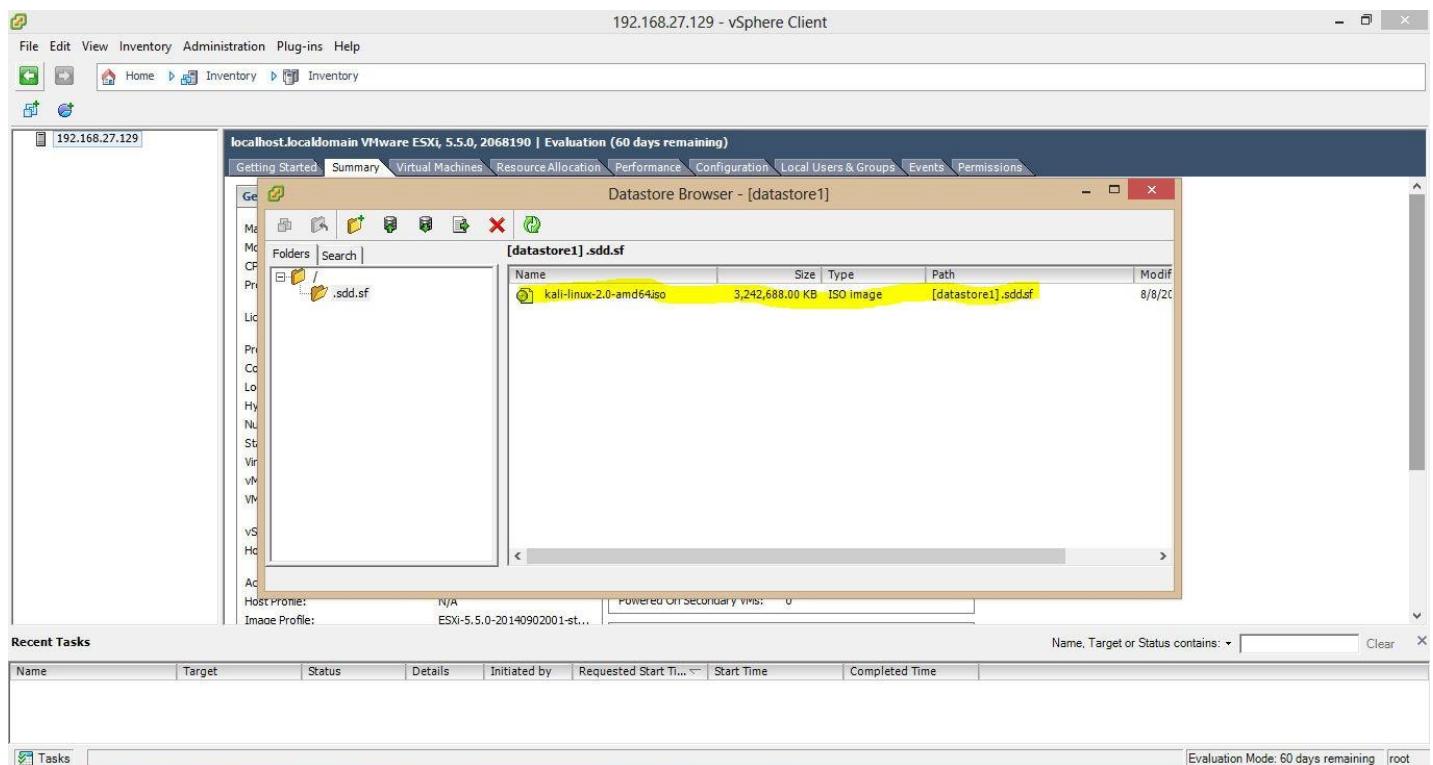
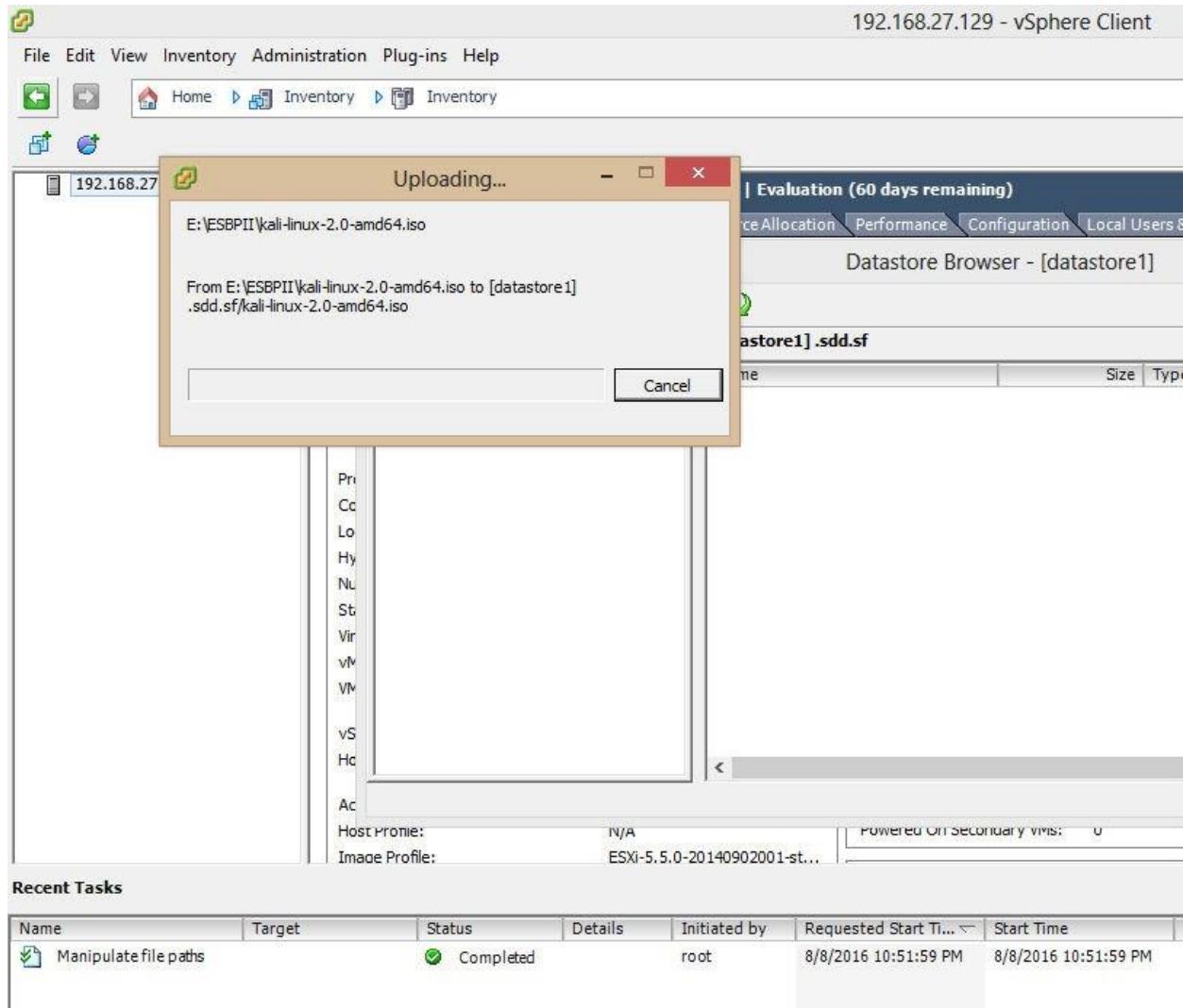
Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
ch...	Completed		root	8/8/2016 10:31:17 PM	8/8/2016 10:31:17 PM	8/8/2016 10:31:18 PM
Kali_espbii	Completed		root	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM	8/8/2016 10:21:53 PM

- 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.

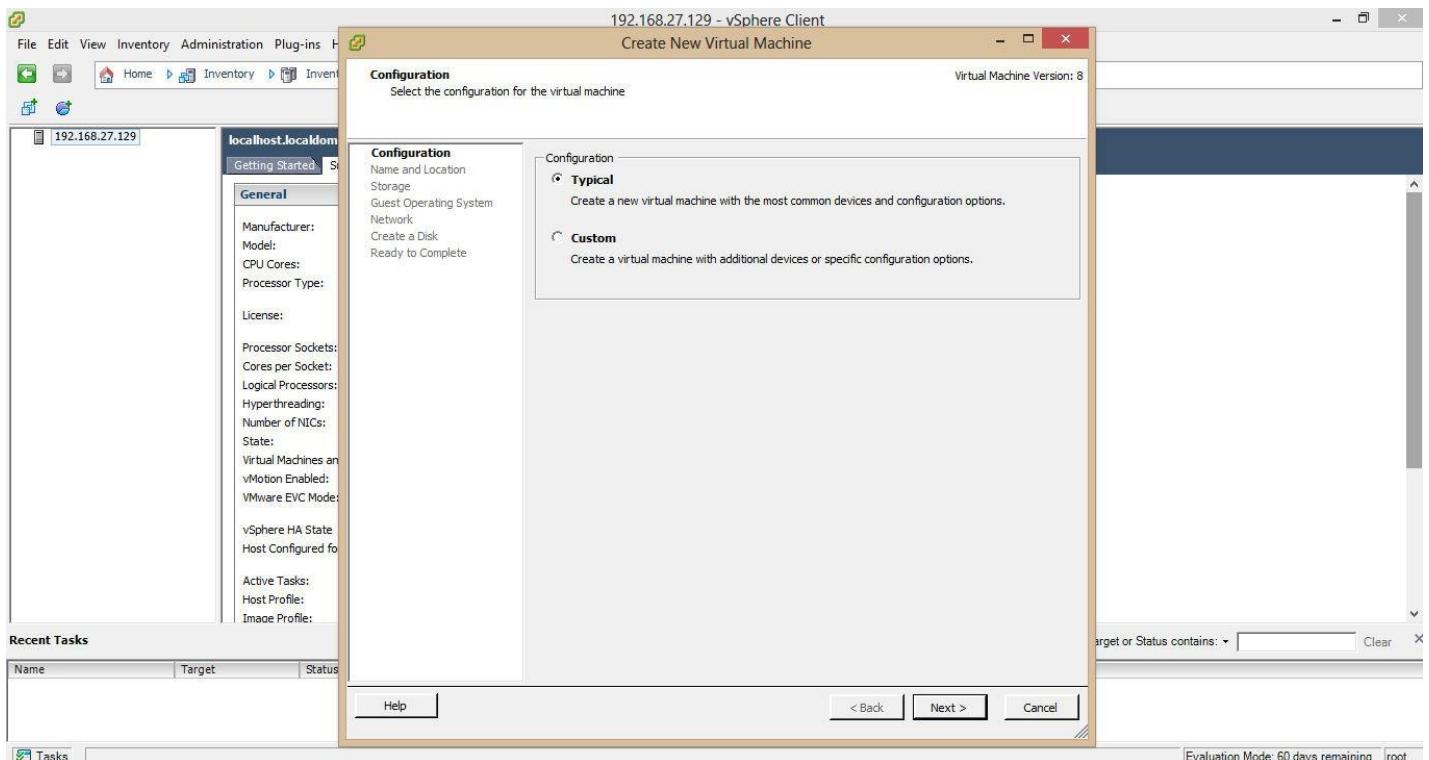
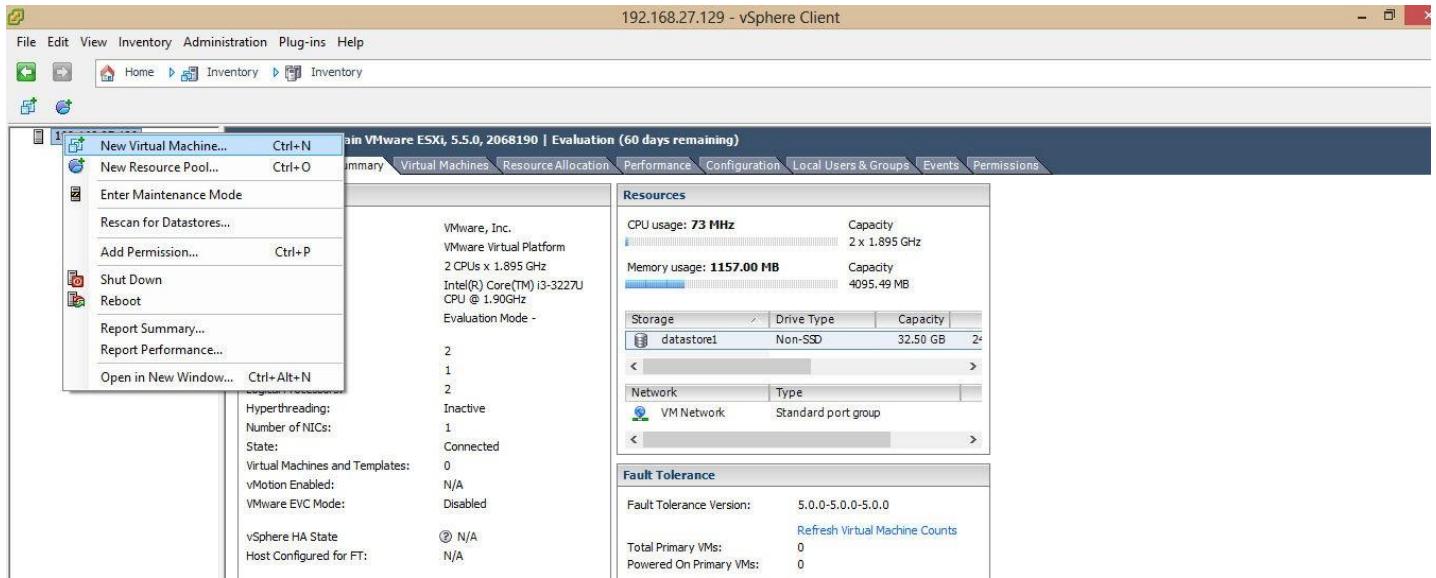




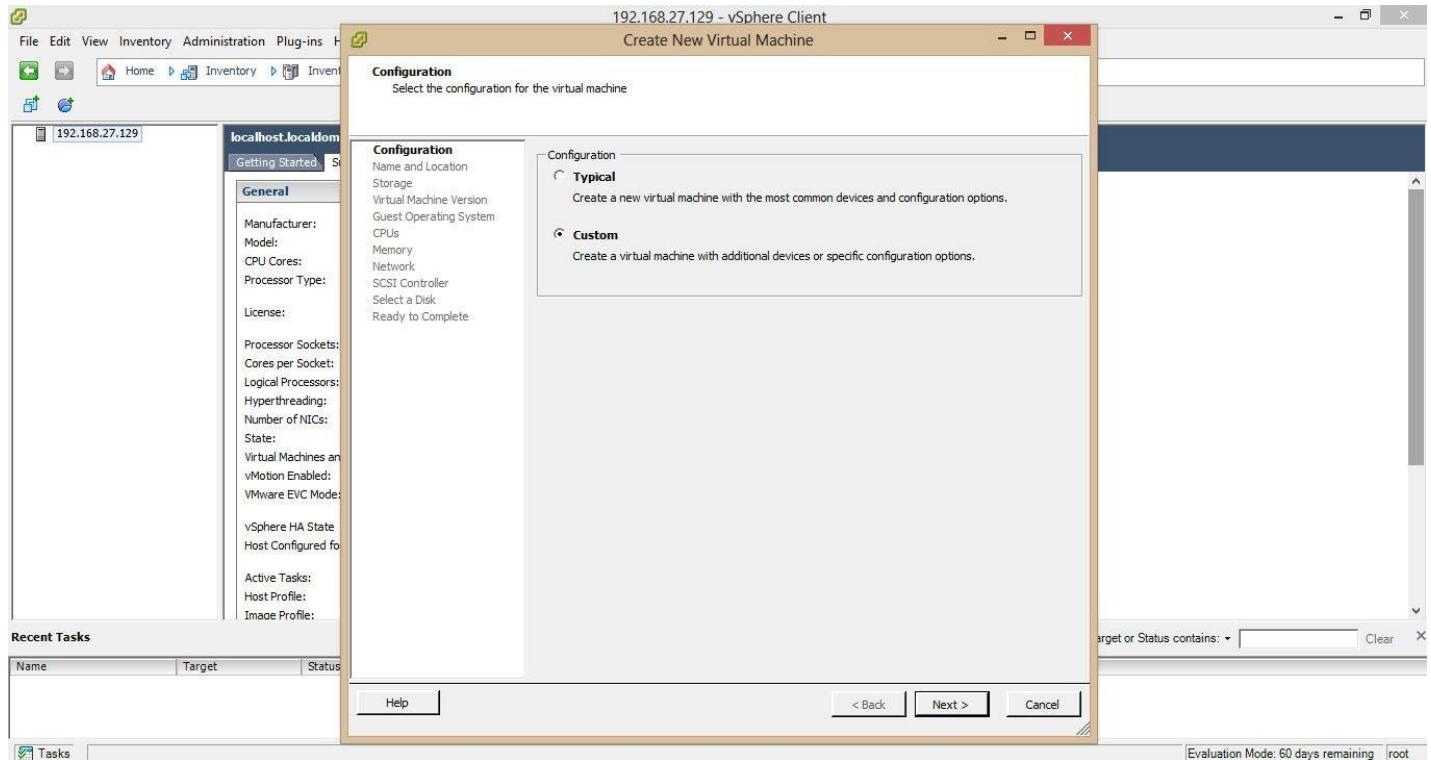
- It will takes few minutes to upload.



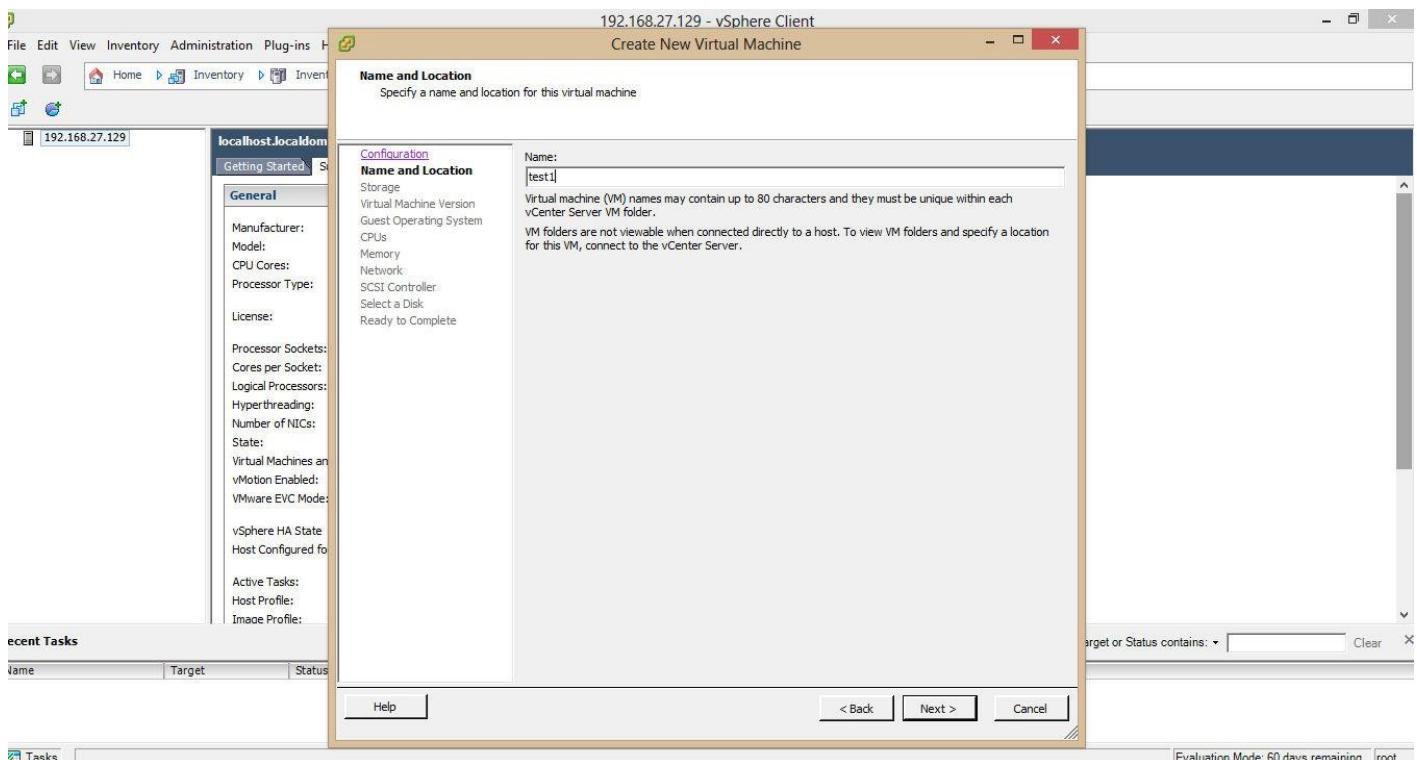
- Right click your server IP address and choose New Virtual Machine.



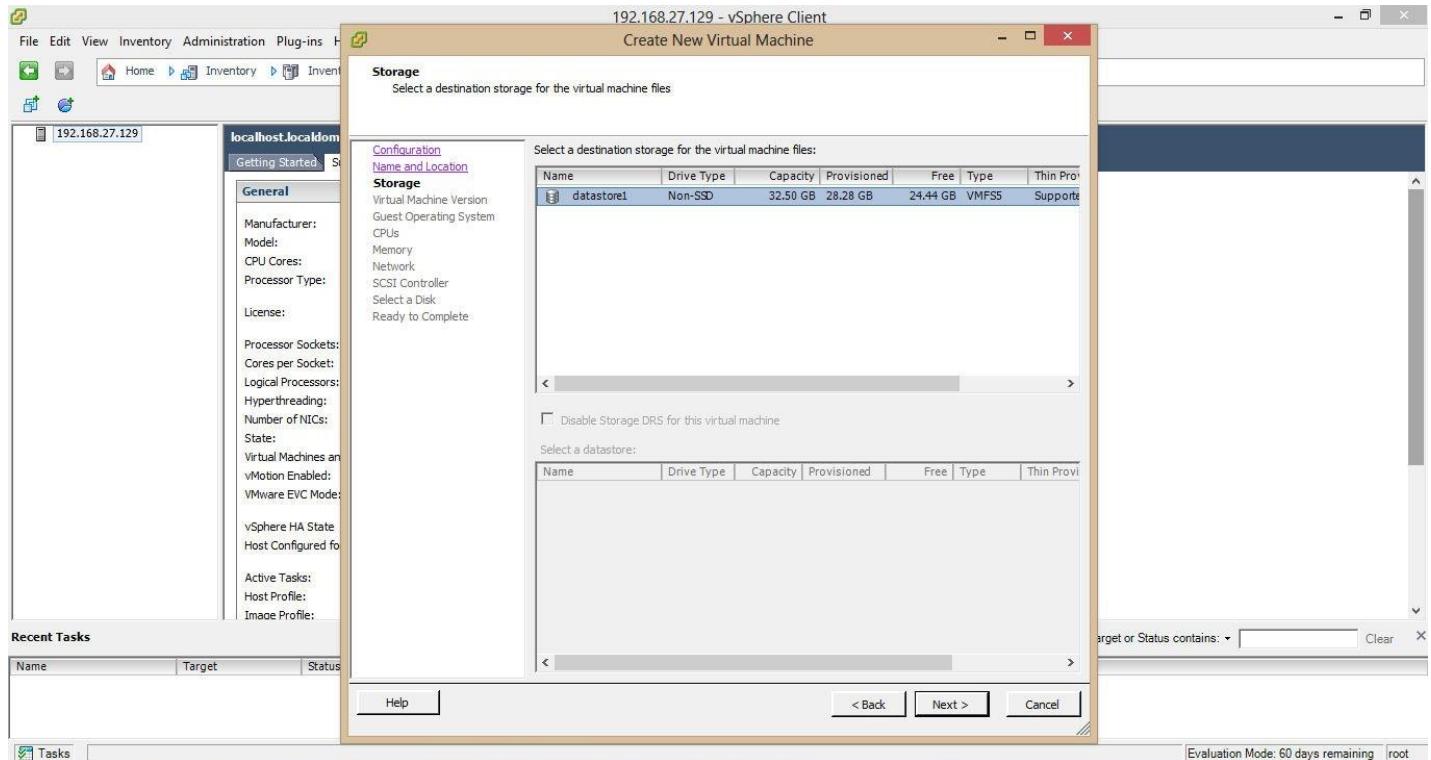
- I'm choosing the Custom option.



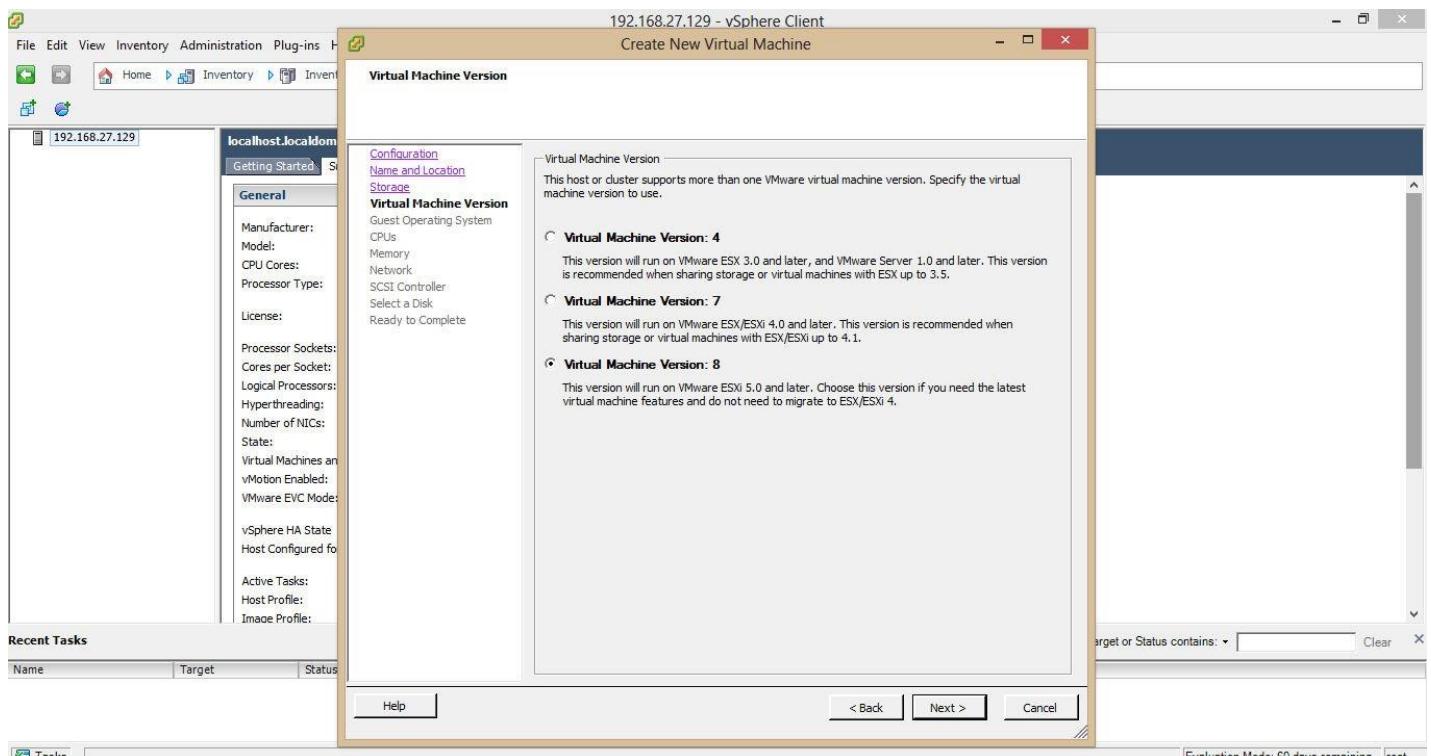
- Now, provide a unique name for your new virtual machine.



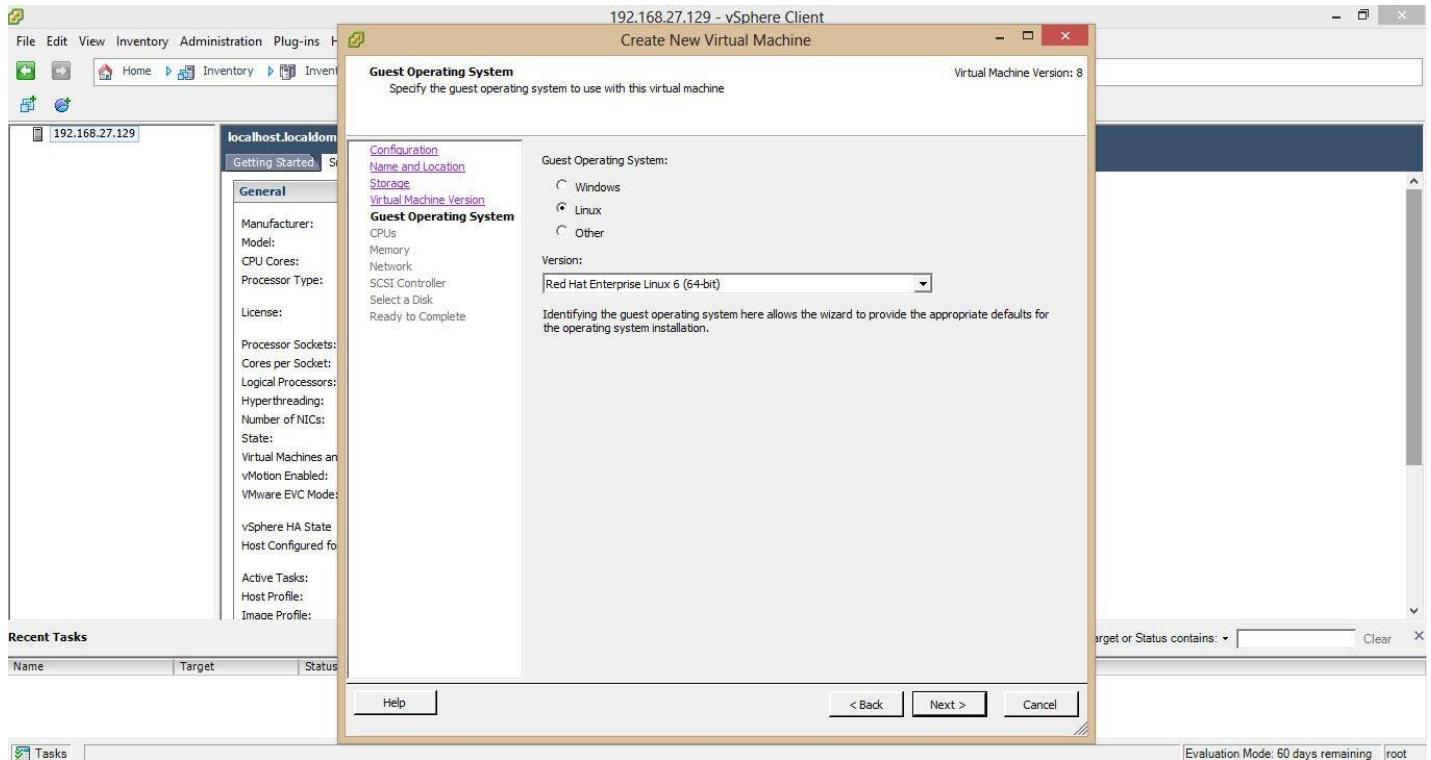
- Select the data storage file which was created the operating system.



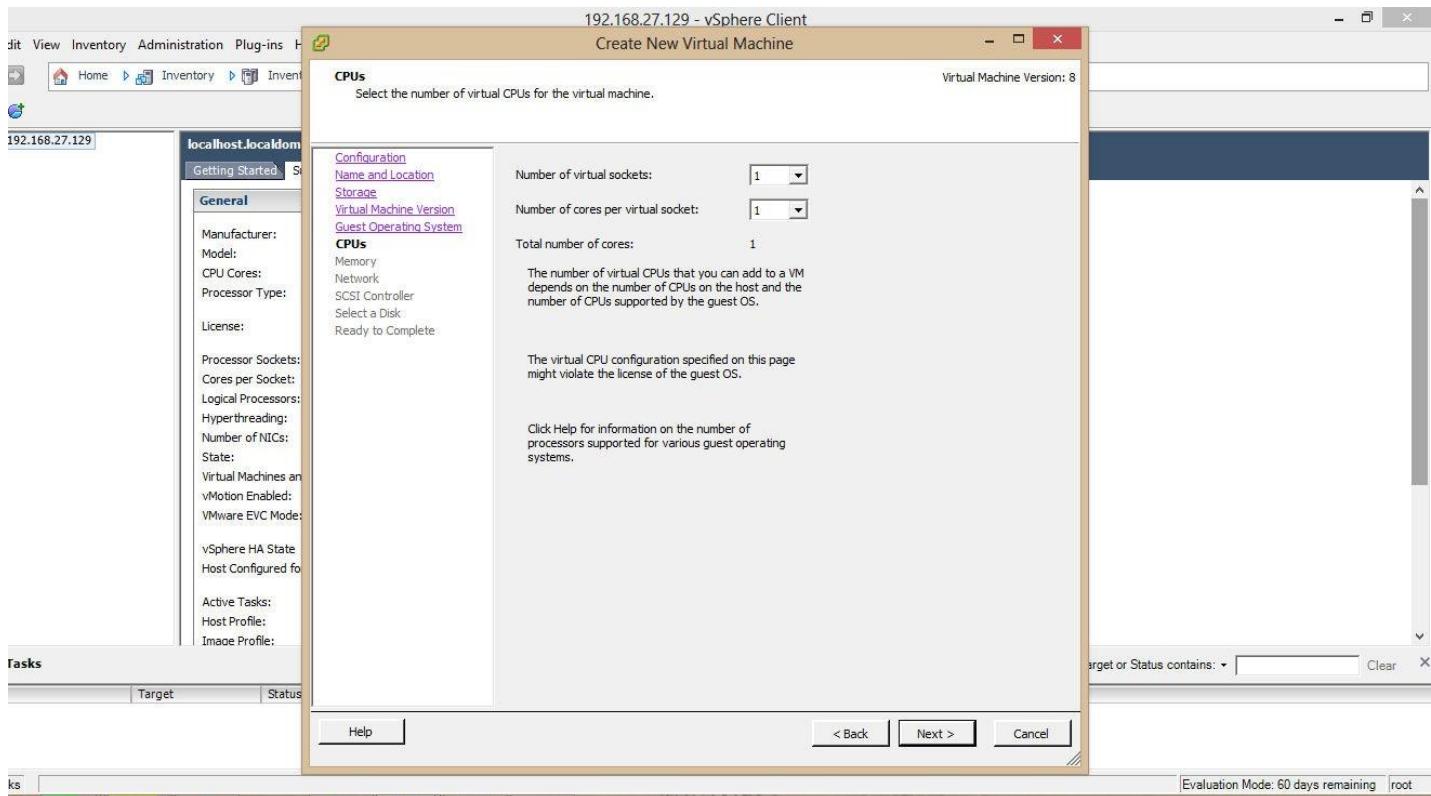
- Select Virtual Machine version 8.



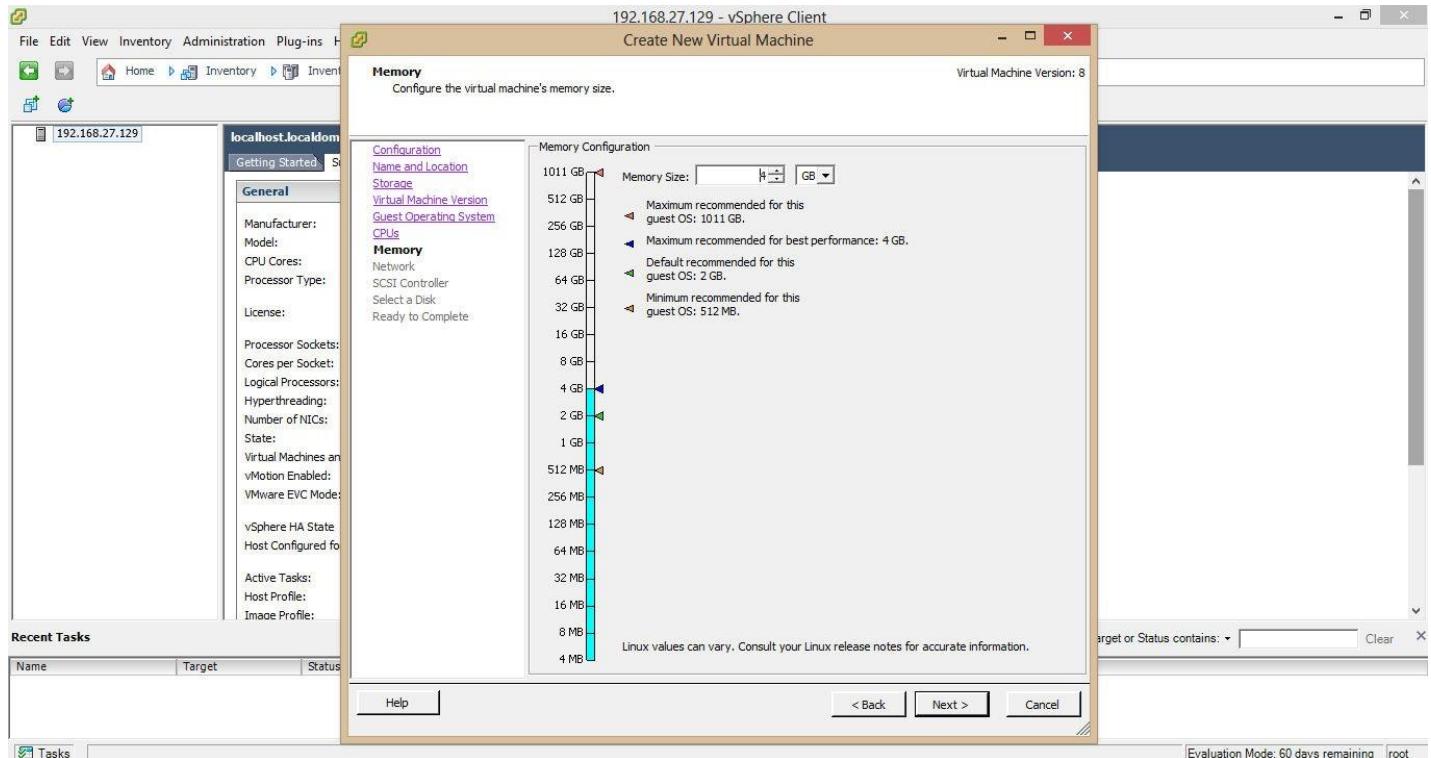
- Select guest operating system as Linux.



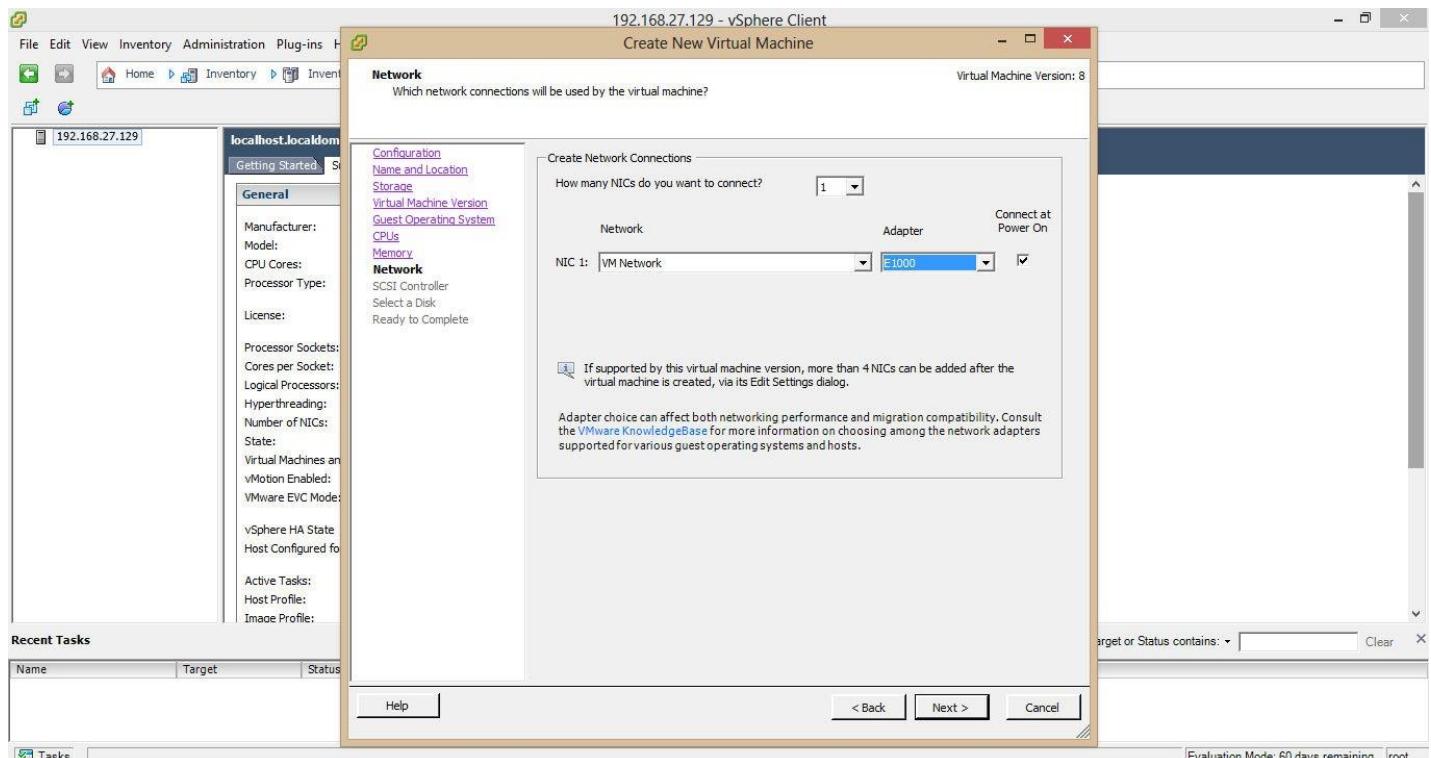
- Here I'm selecting number of virtual CPU s as 1.



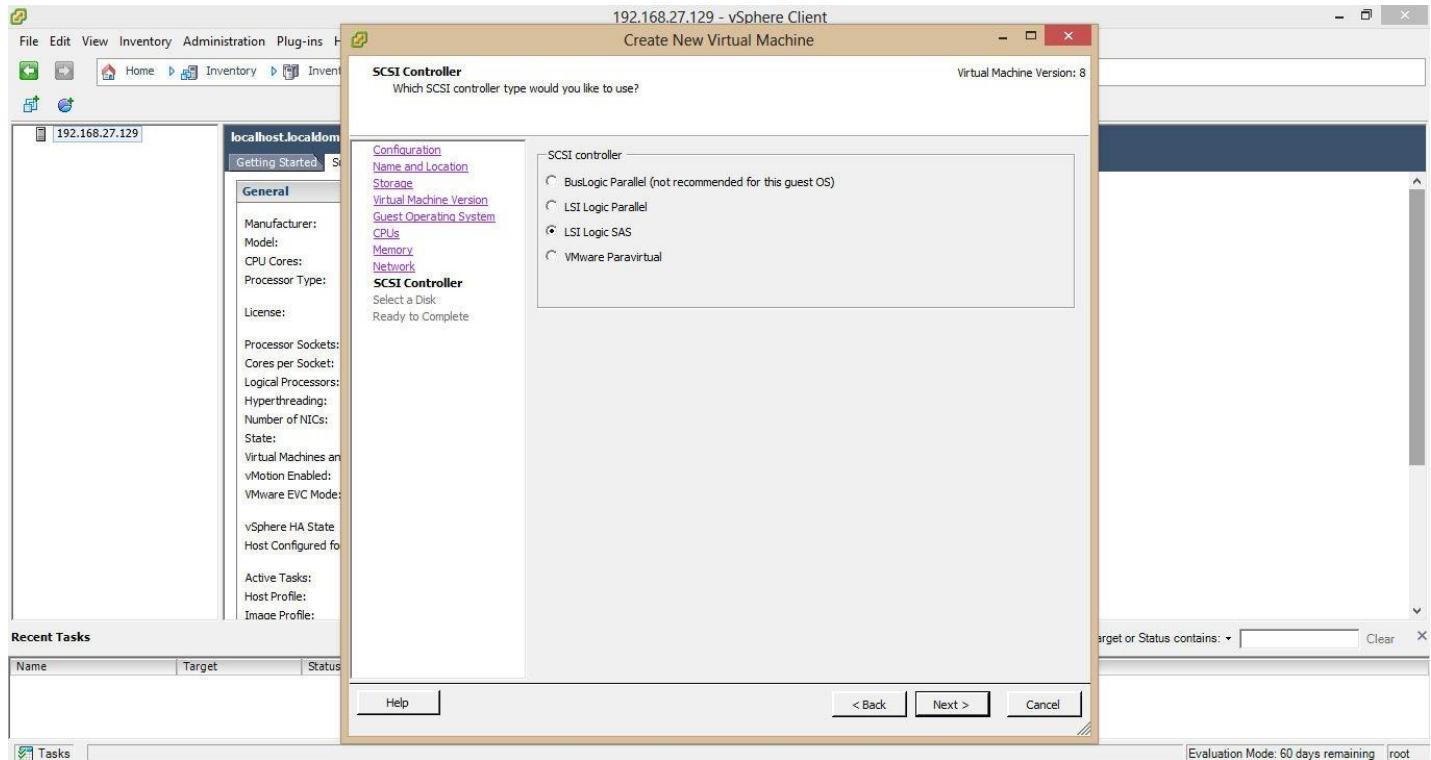
- Set memory size to 4 GB.



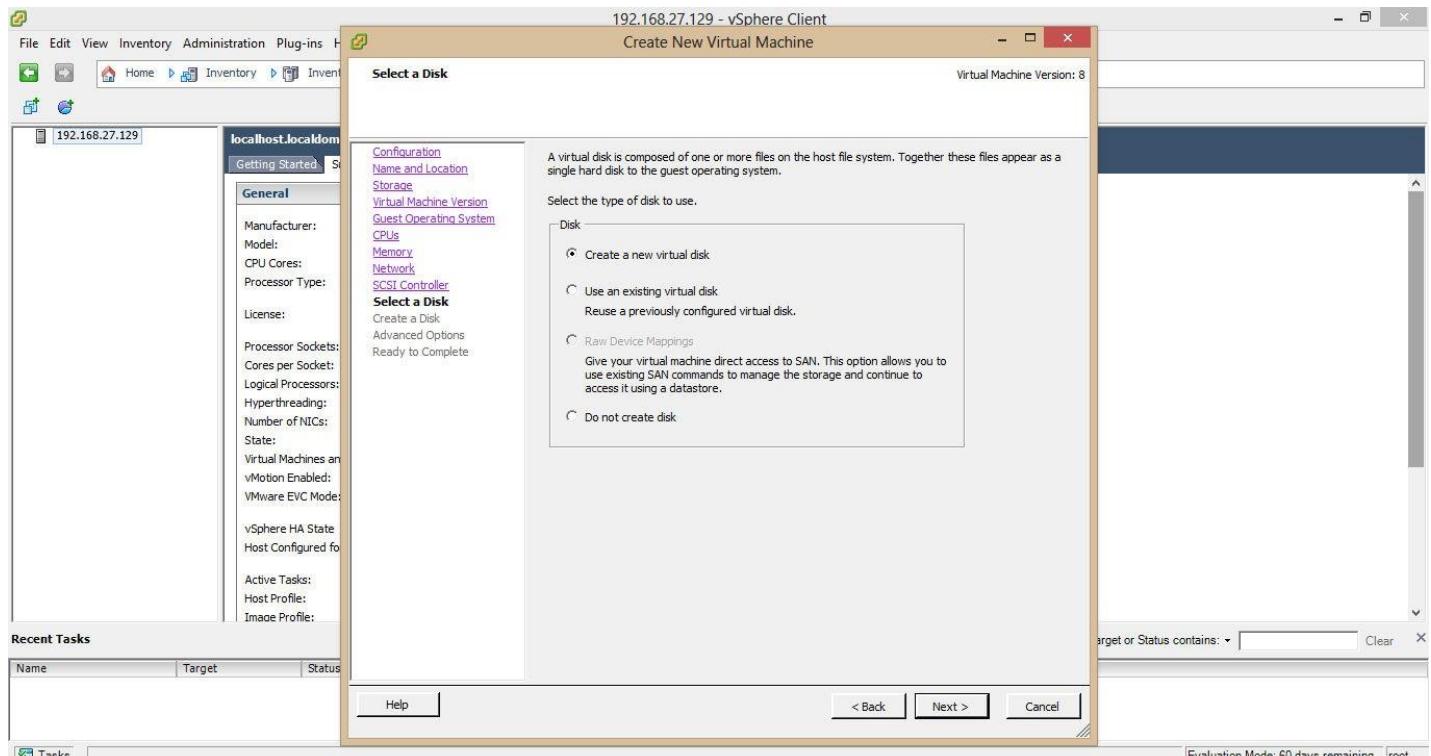
- Create Network connections. Select adapter type as E1000.



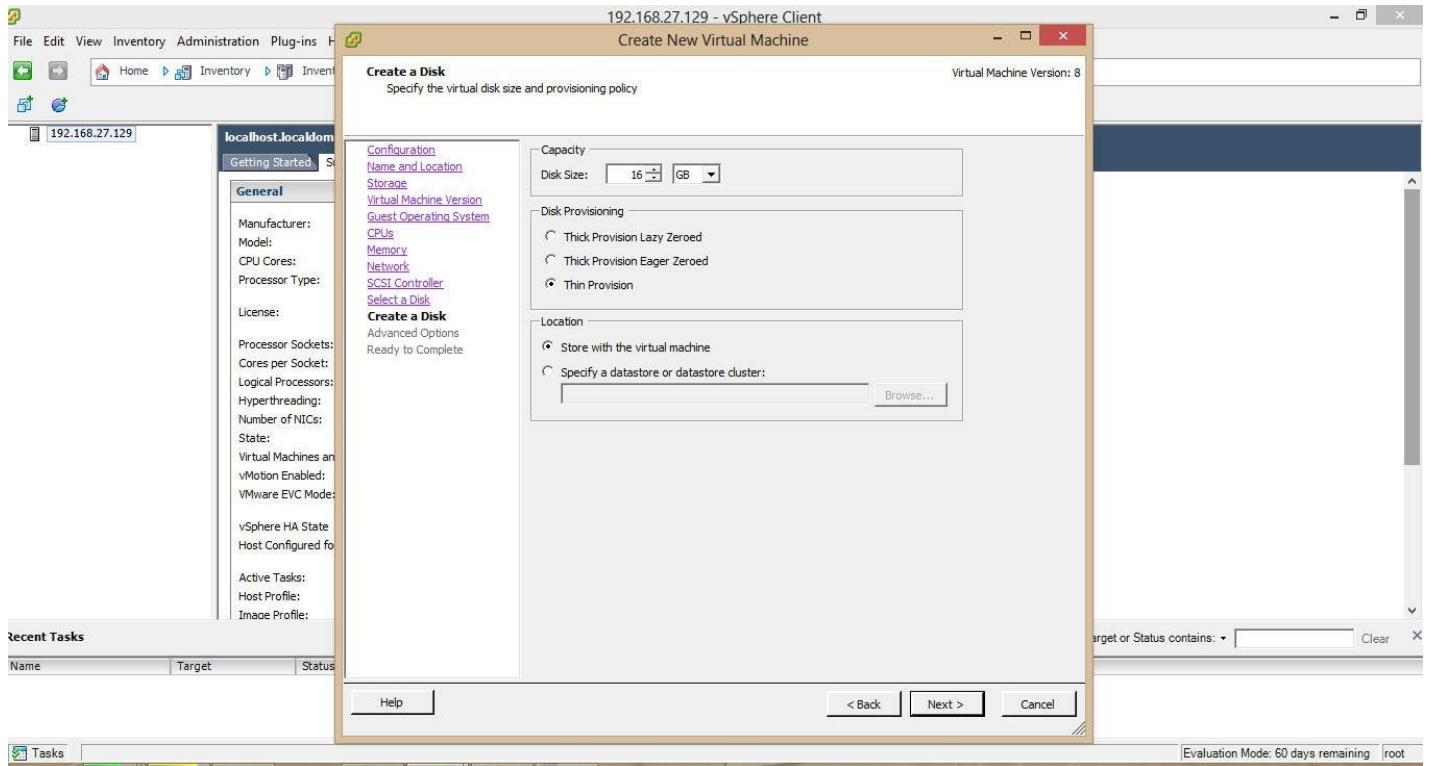
- Select SCSI controller as LSI Logic SAS.



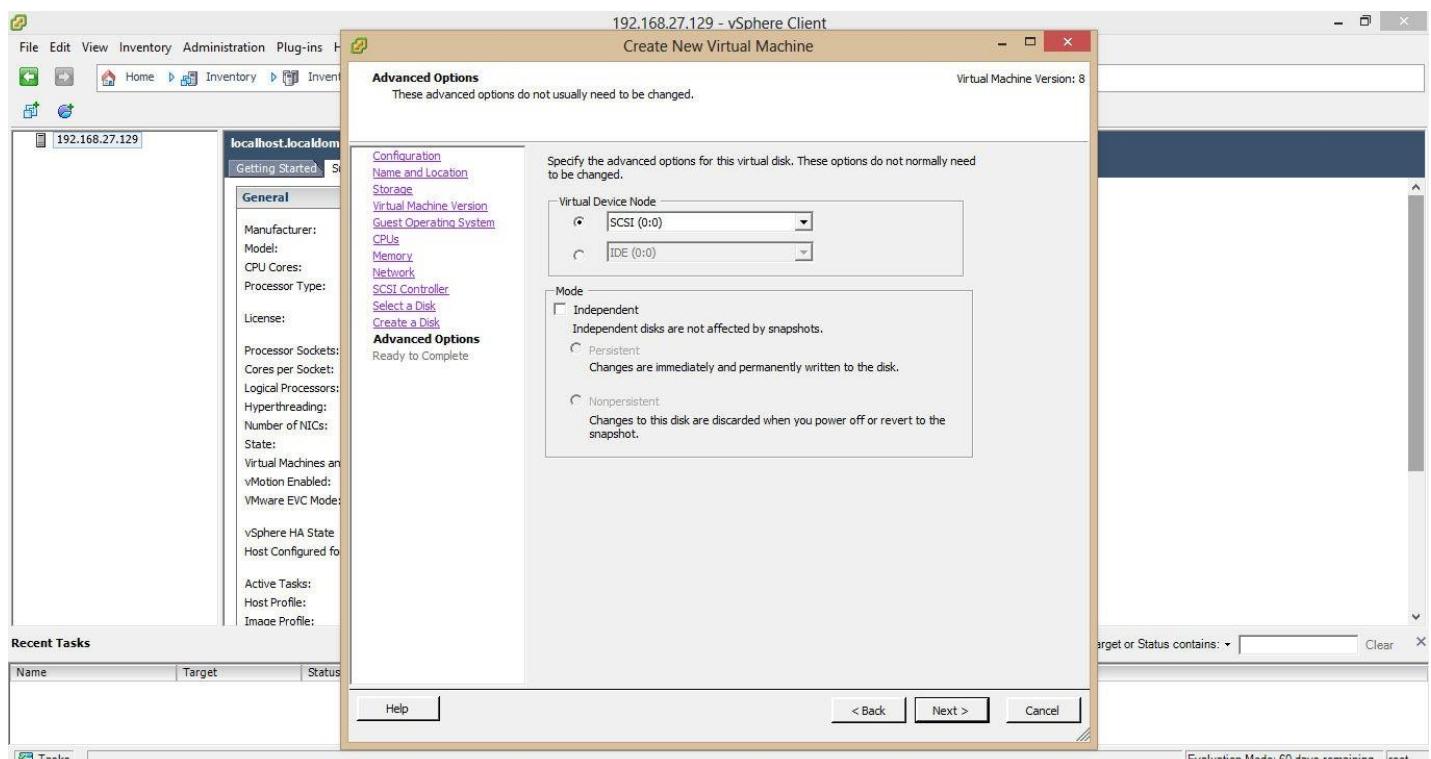
- Select the type of disk to use.



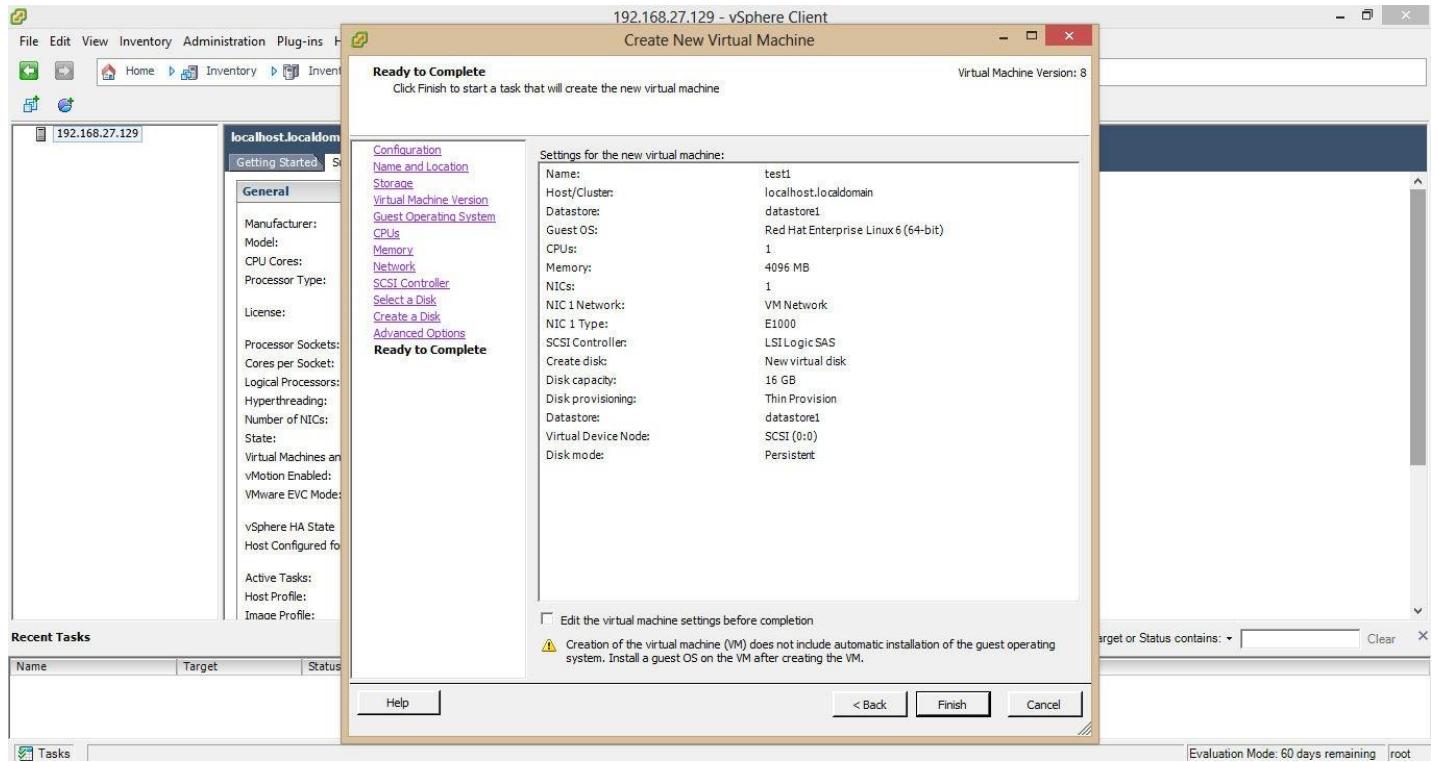
- Give disk size as 16 GB. Select thin provision and store with the virtual machine.



- Keep default virtual device node.



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



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

General

Manufacturer:	VMware, Inc.
Model:	VMware 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 Ti...	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

Tasks

- 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

test1

Getting Started Summary Resource Allocation Performance Events Console Permissions close tab X

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.

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

test1

Getting Started Summary Resource Allocation Performance Events Console Permissions close tab X

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

Basic Tasks

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

Recent Tasks							Name, Target or Status contains: ▾	Clear	X
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		

Evaluation Mode: 60 days remaining root

192.168.27.129 - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home Inventory

test1

Getting Started Summary Resource Allocation Performance Events Console Permissions

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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

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

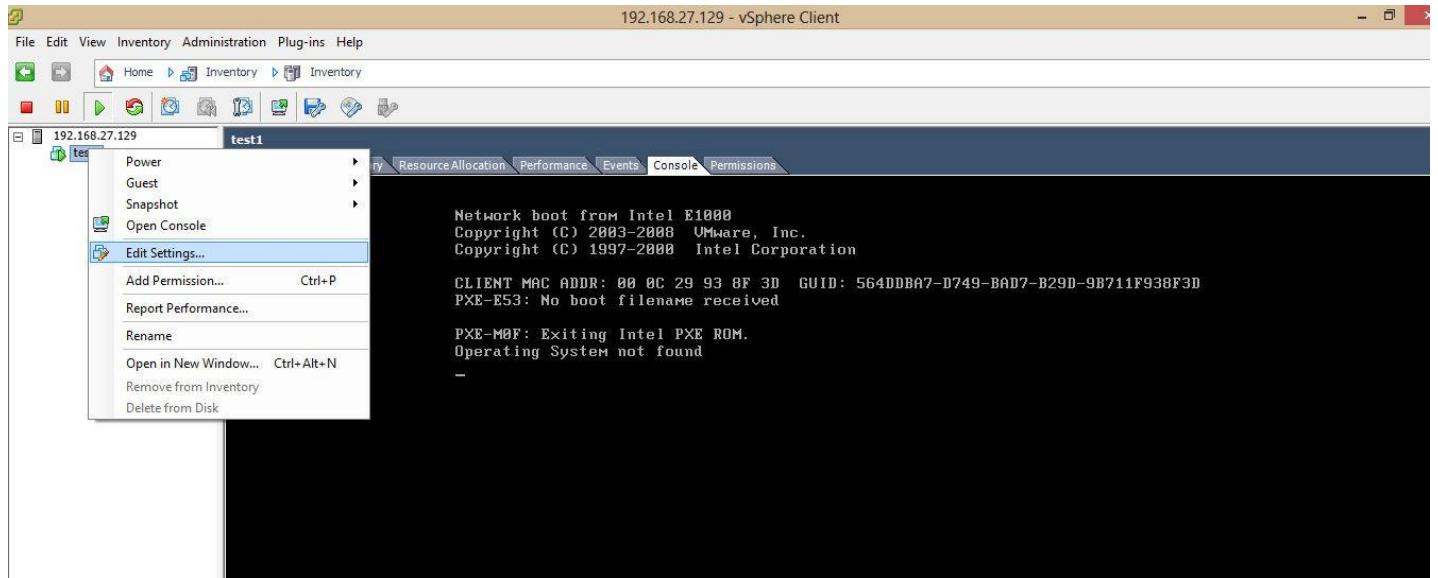
Home Inventory

test1

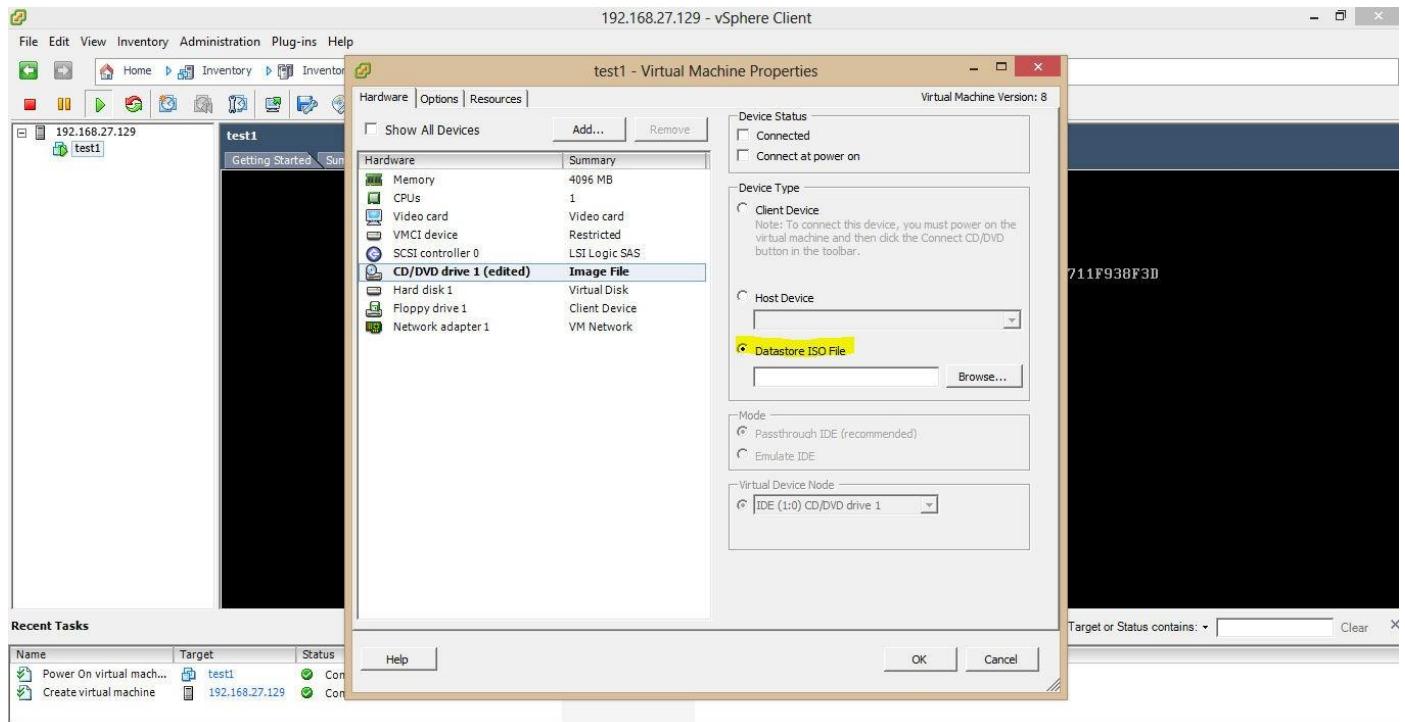
Getting Started Summary Resource Allocation Performance Events Console Permissions

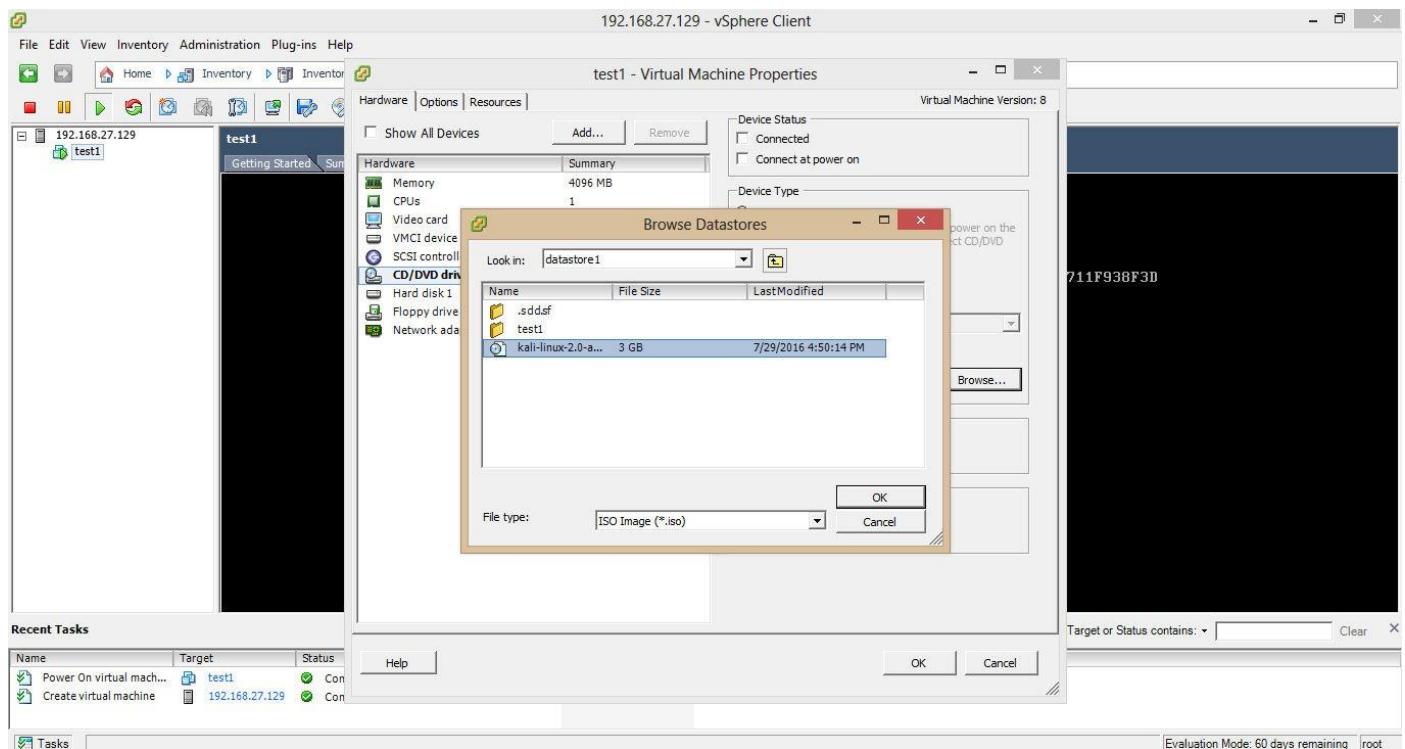
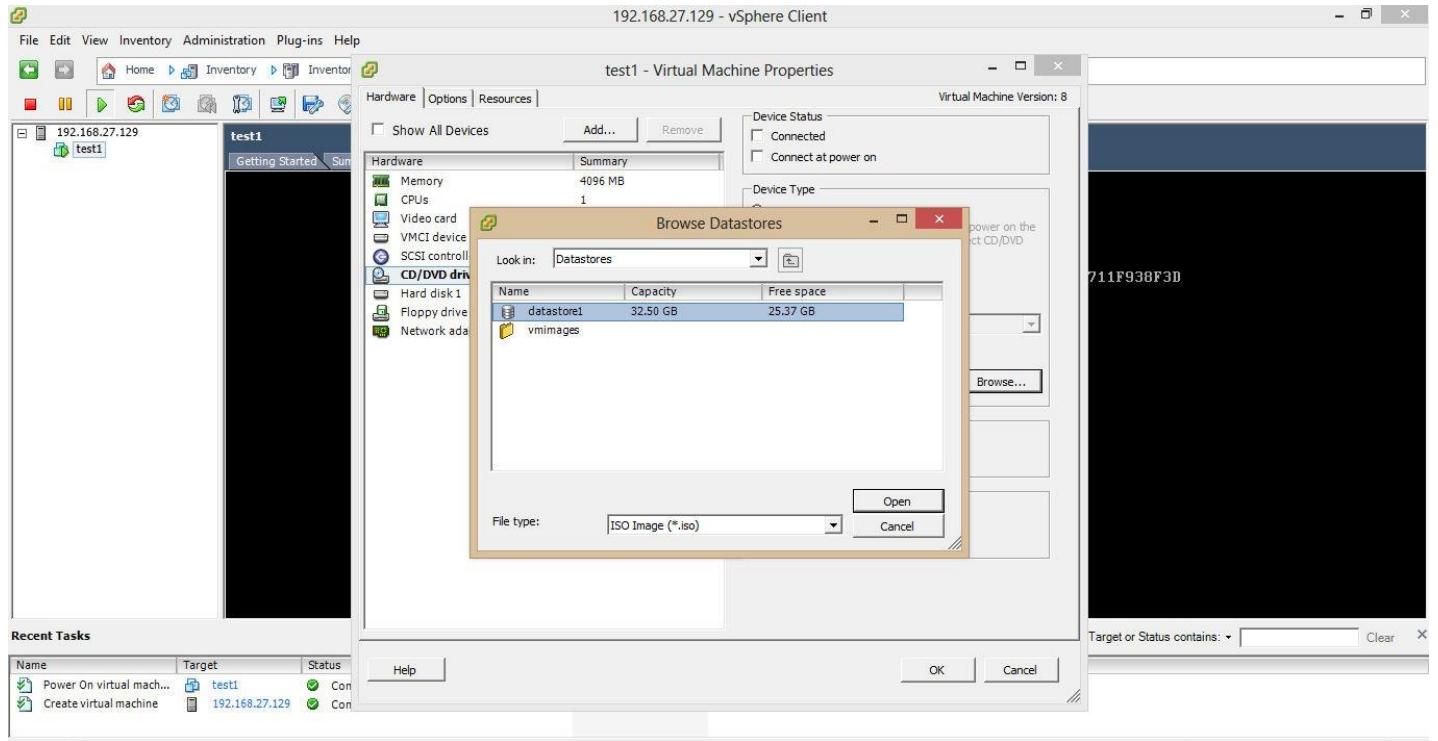
Recent Tasks

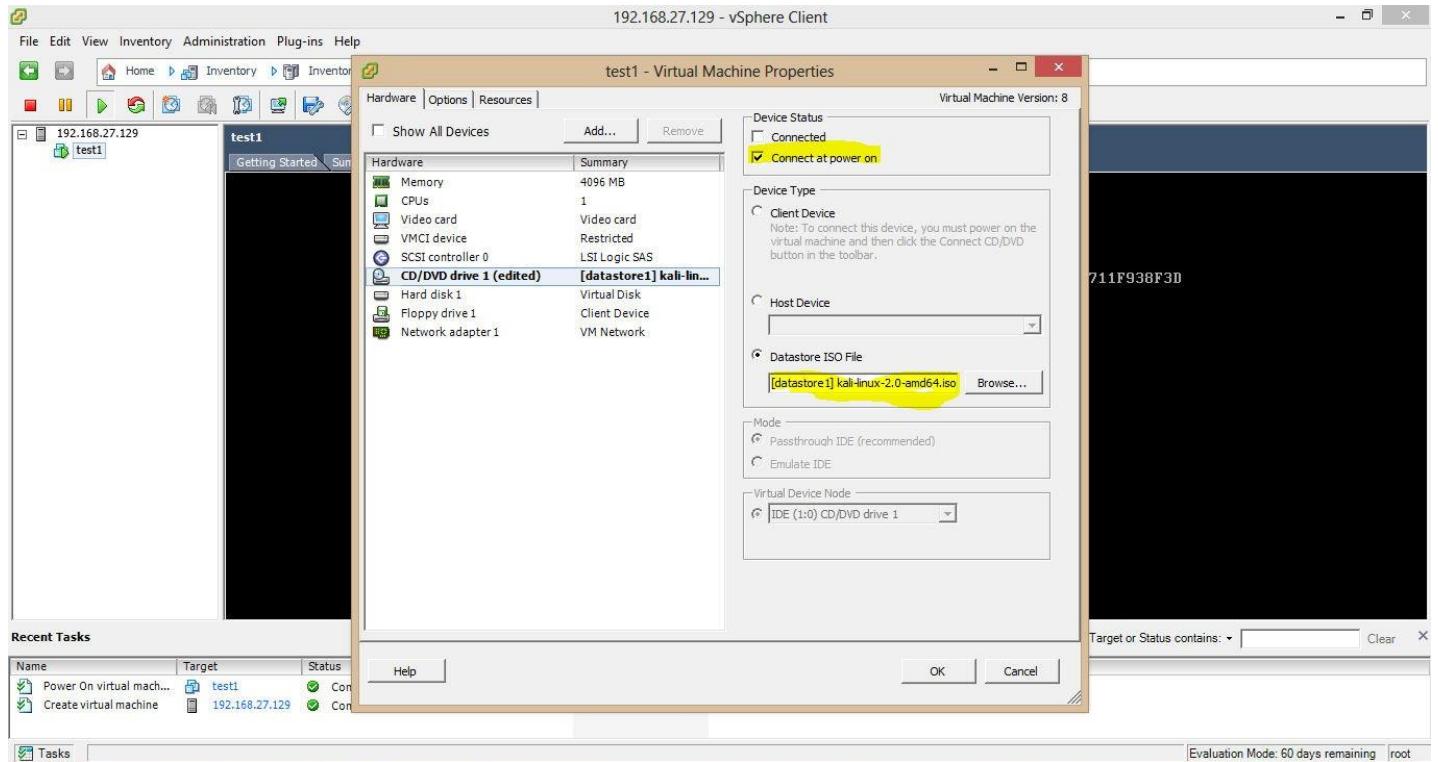
Name	Target	Status	Details	Initiated by	Requested Start Ti...	Start Time	Completed Time
Power On virtual mach...	test1	Completed		root	8/8/2016 11:26:20 PM	8/8/2016 11:26:20 PM	8/8/2016 11:26:22 PM
Create virtual machine	192.168.27.129	Completed		root	8/8/2016 11:25:04 PM	8/8/2016 11:25:04 PM	8/8/2016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



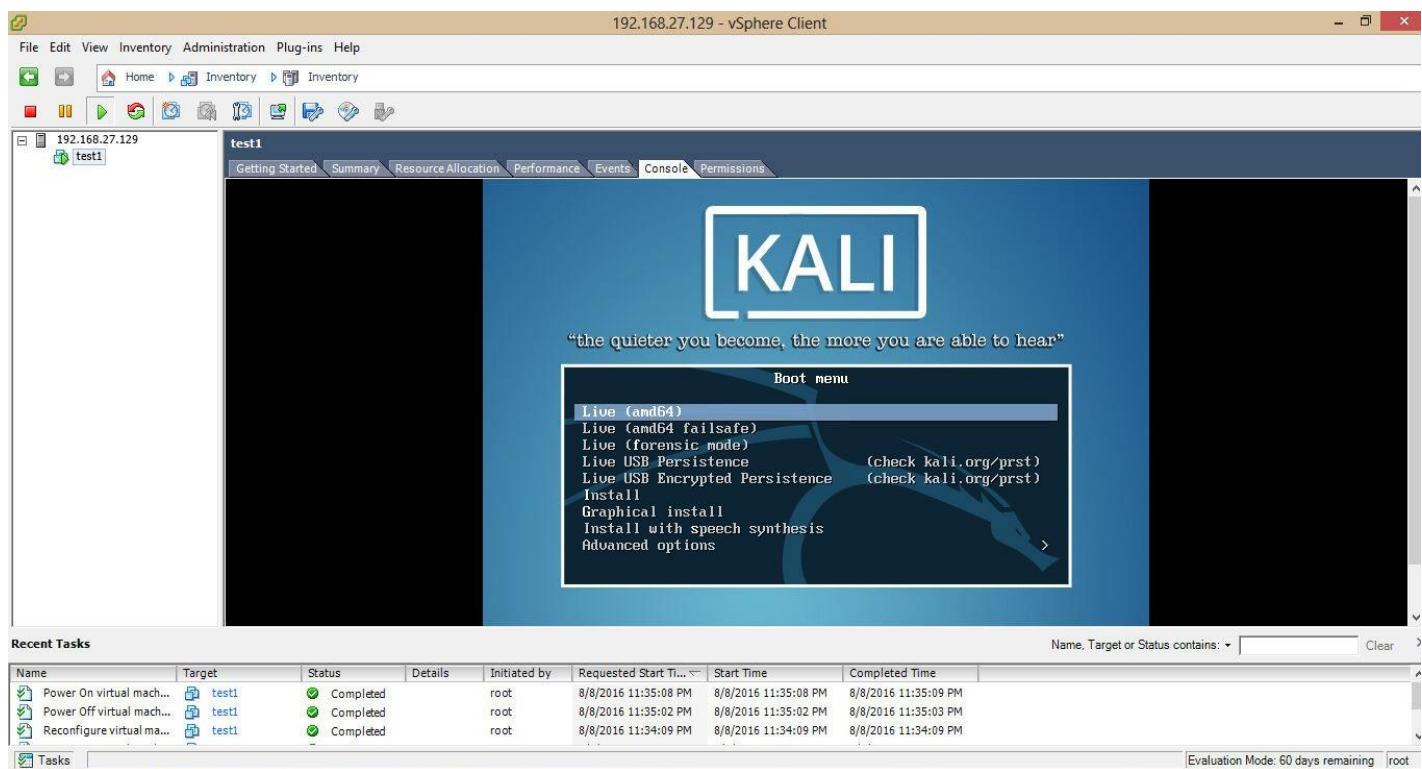
- Select CD/DVD driver and from Datastore ISO file browse early created datastore1 file.







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



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 ResourceAllocation Performance Events Console Permissions

```
[ 7.062342] sr 1:0:0:0: Attached scsi generic sg0 type 5
[ 7.114343] e1000e 0000:02:00.0 eth0: (PCI:66MHz:32-bit) 00:0c:29:93:8f:3d
[ 7.116282] e1000e 0000:02:00.0 eth0: Intel(R) PRO/1000 Network Connection
[ 7.120393] ioc0: LSISAS1068 B0: Capabilities={Initiator}
[ 7.286700] scsi host2: ioc0: LSISAS1068 B0, FwRev=01032920h, Ports=1, MaxQ=1
28, IRQ=18
[ 7.300567] mptas: ioc0: attaching ssp device: fw_channel 0, fw_id 0, phy 0,
sas_addr 0x5000c29eab5dde34
[ 7.308957] scsi 2:0:0:0: Direct-Access     VMware     Virtual disk    1.0 PQ
: 0 ANSI: 2
[ 7.312989] scsi 2:0:0:0: Attached scsi generic sg1 type 0
[ 7.321999] sd 2:0:0:0: [sdal 33554432 512-byte logical blocks: (17.1 GB/16.8
GiB)
[ 7.325346] sd 2:0:0:0: [sdal Write Protect is off
[ 7.326923] sd 2:0:0:0: [sdal Cache data unavailable
[ 7.328467] sd 2:0:0:0: [sdal Assuming drive cache: write through
[ 7.335657] sd 2:0:0:0: [sdal Attached SCSI disk
Begin: Loading essential drivers ... done.
Begin: Running /scripts/init-premount ... done.
Begin: Mounting root file system ... [ 7.542361] aufs: module is from the sta
ging directory, the quality is unknown, you have been warned.
[ 7.557103] aufs 4.0-20150525
[ 7.583118] loop: module loaded
[ 7.666673] squashfs: version 4.0 (2009/01/31) Phillip Louher
-
```

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 11:35:08 PM	8/8/2016 11:35:08 PM	8/8/2016 11:35:09 PM
Power Off virtual mach...	test1	Completed		root	8/8/2016 11:35:02 PM	8/8/2016 11:35:02 PM	8/8/2016 11:35:03 PM
Reconfigure virtual ma...	test1	Completed		root	8/8/2016 11:34:09 PM	8/8/2016 11:34:09 PM	8/8/2016 11:34:09 PM

Evaluation Mode: 60 days remaining | root

Tasks

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 ResourceAllocation 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 11:35:08 PM	8/8/2016 11:35:08 PM	8/8/2016 11:35:09 PM
Power Off virtual mach...	test1	Completed		root	8/8/2016 11:35:02 PM	8/8/2016 11:35:02 PM	8/8/2016 11:35:03 PM
Reconfigure virtual ma...	test1	Completed		root	8/8/2016 11:34:09 PM	8/8/2016 11:34:09 PM	8/8/2016 11:34:09 PM

Evaluation Mode: 60 days remaining | root

Tasks