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How to Create a Virtual Machine in VMware ESXI

All the virtual machines are created on top of the VMware hypervisor. Therefore, first of all you have to log into VMware ESXI through the link shared via the email. Go to email and click on the link after ESXI. The browser may prompt “Your connection is not private”. Just ignore it and proceed with ‘Advanced’ and then ‘proceed to link(probably the IP address)’. In the email, along with that, there is another link for excel sheet. Open that excel sheet also.

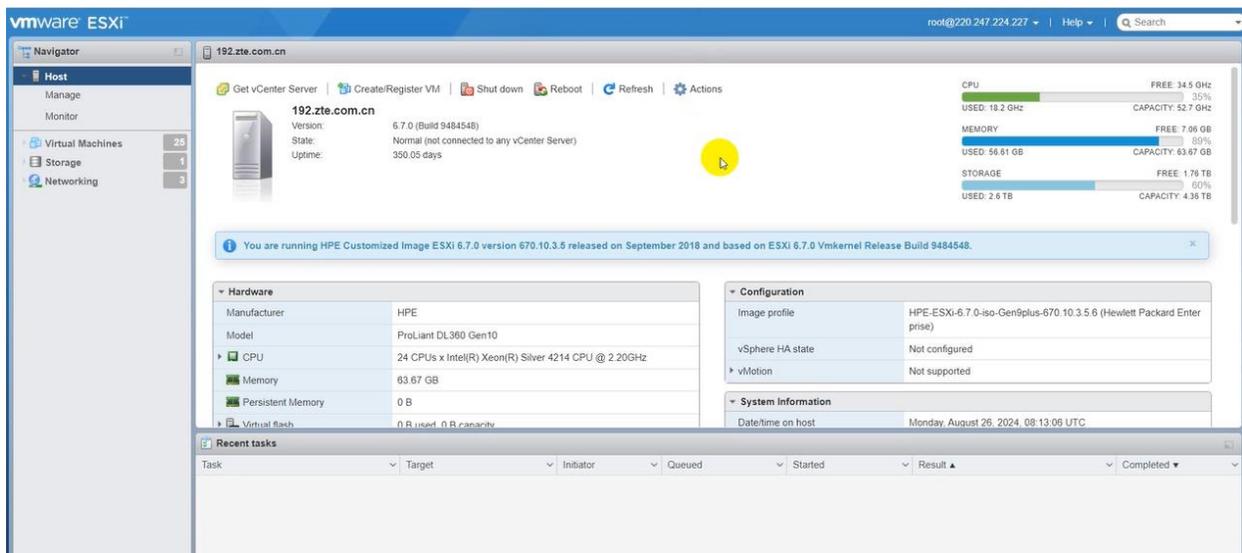
NOTE : Please note that you can log into VMware only via the specific router provided by the SLT or the router in the Digital Platform Office.

👉 <https://220.247.224.227/ui/#/login> → (VMware ESXi)

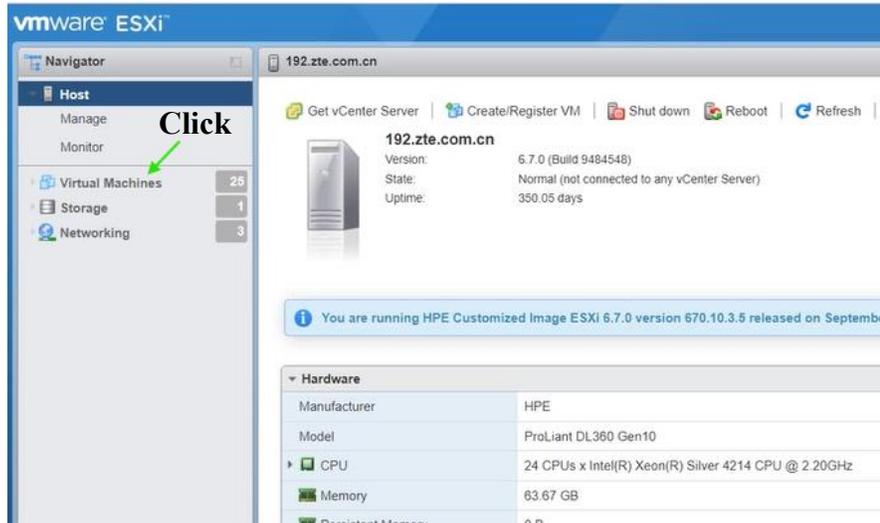
👉 <http://220.247.224.226:5005/index.php> → (Pfsense)

To log into vmware, the username and password can be found in the excel sheet – configurations GUIs page.

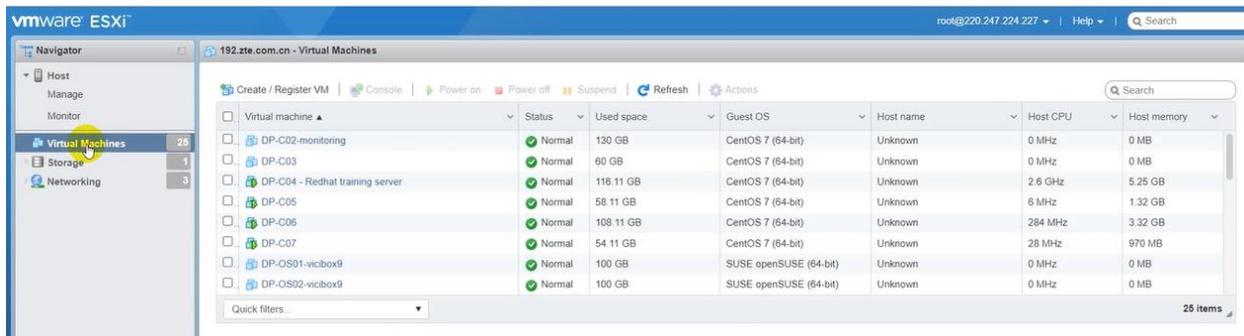
The interface of VMware will be as follows.



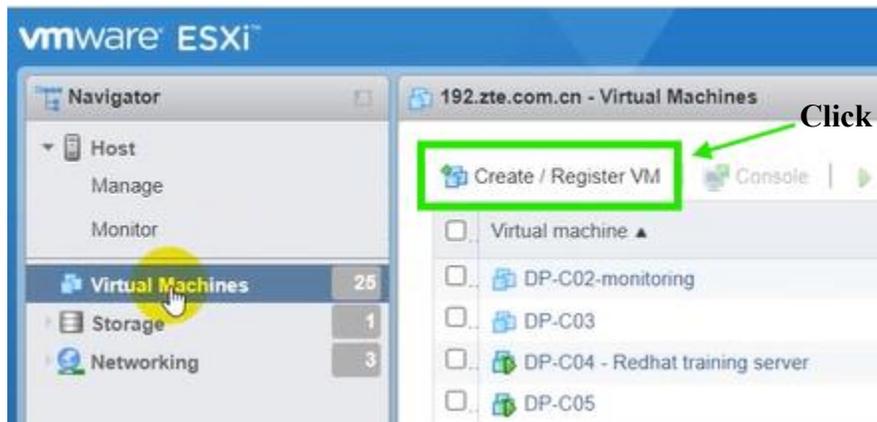
In the VMware, go to virtual machines. It will list all the existing virtual machines in the vmware.



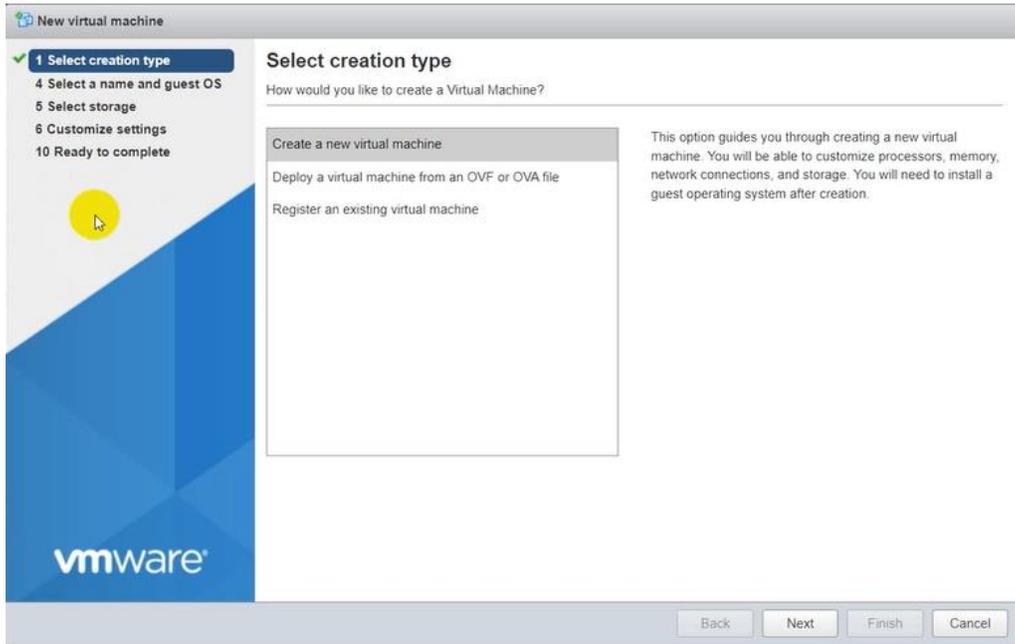
List of all the VMs will be displayed as below. You may see there is a green color play button on the most of the VM icons which implies those VMs are switched on and currently running.



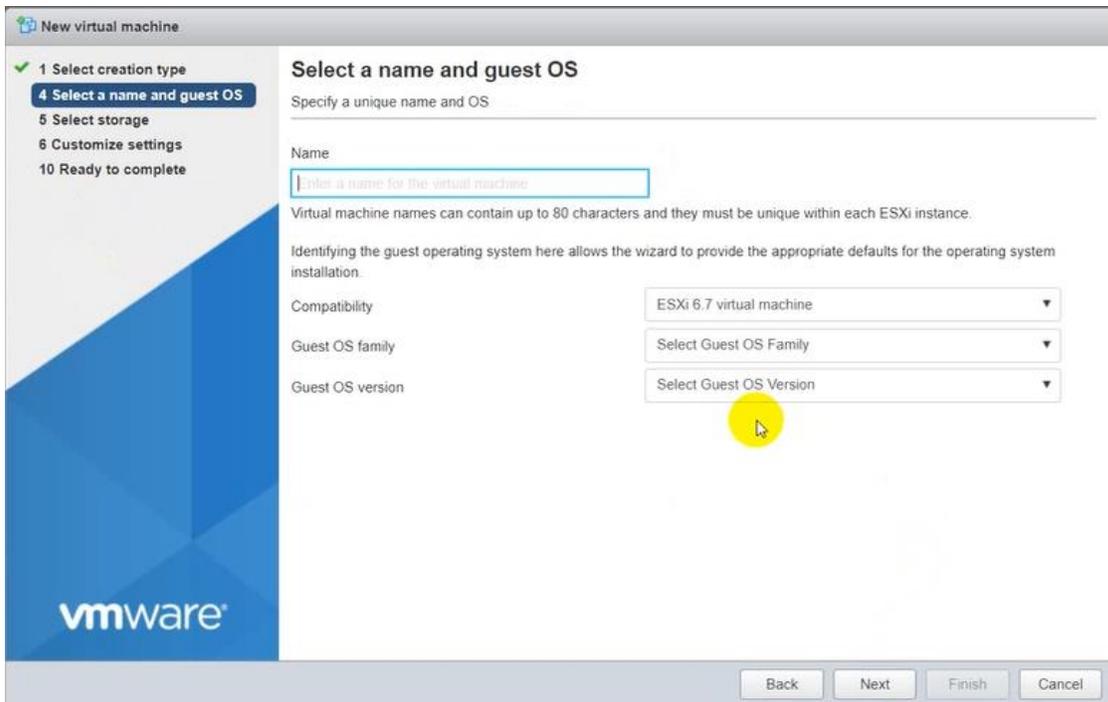
Then click on 'Create/Register VM' button.



Then a new window will appear as below.



While it is selecting the Create new virtual machine, click next.



Now you have to provide a name for the virtual machine you are going to create. Remember, there is a naming convention for the virtual machines we create in these testing servers in digital platform. Since we are in digital platform section and these VMs are managed by digital platform, every VM name starts with 'DP'. Then specify the OS type you are supposed to install on it followed by the VM number. VM number is determined by the referring to the excel sheet and search for the last VM created using the particular OS. For example, if you are creating a windows VM, the name might be DP-W10, if the last windows VM in the excel sheet you see is DP-W09. For an ubuntu VM, DP-U07 or something like that. CentOS is DP-C02.

Please try to adhere to the naming convention. Otherwise, it'll be hard for the auditing purposes.

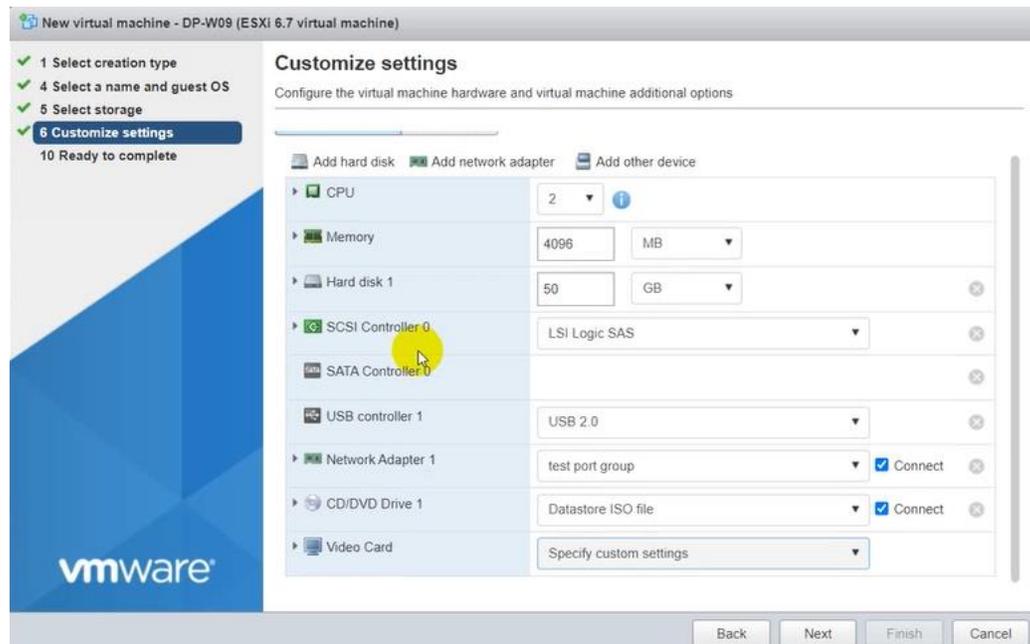
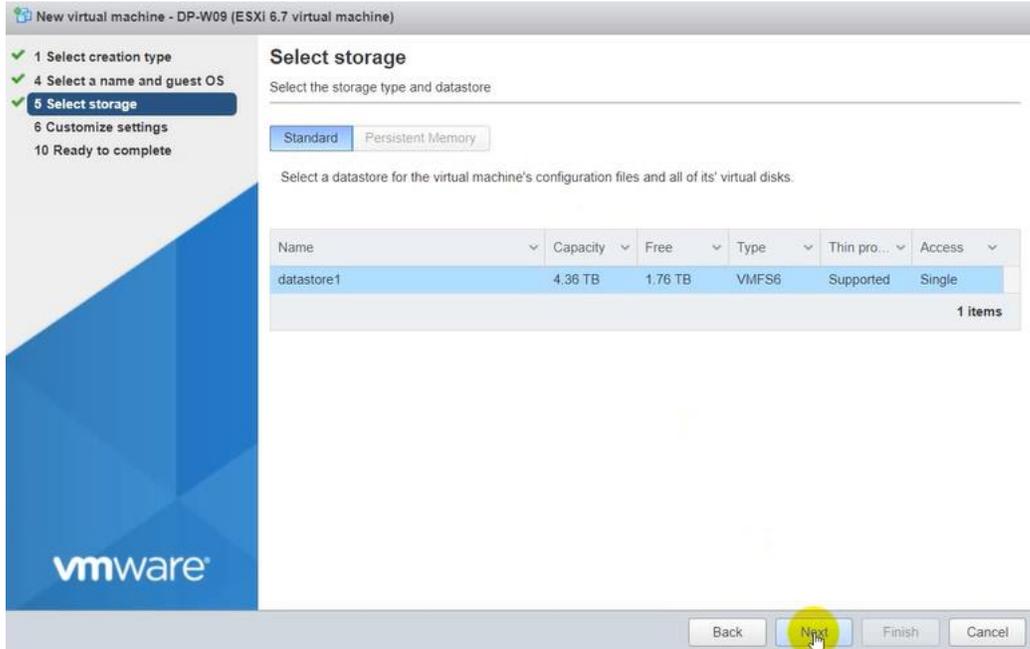
If you are creating windows based VM, the settings will be as follows. For a ubuntu or CentOS machine, the Guest OS family is Linux. For a windows server machine, select the Guest OS version as Windows server 2016 or the latest version. It will not be a big trouble but a good practice to stick with the latest version.

The screenshot shows the VMware vSphere 'New virtual machine' wizard. The title bar reads 'New virtual machine - DP-W09 (ESXi 6.7 virtual machine)'. On the left, a progress bar shows five steps: 1. Select creation type (checked), 2. Select a name and guest OS (highlighted), 3. Select storage, 4. Customize settings, and 5. Ready to complete. The main area is titled 'Select a name and guest OS' and contains the following fields and options:

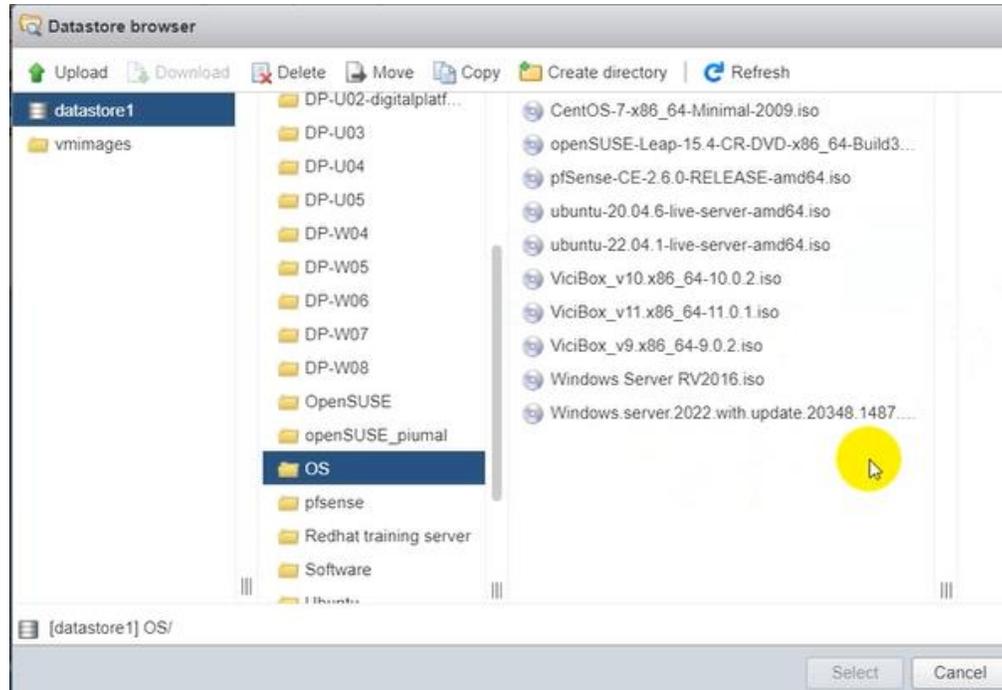
- Name:** A text input field containing 'DP-W09'. Below it, a note states: 'Virtual machine names can contain up to 80 characters and they must be unique within each ESXi instance.'
- Identifying the guest operating system here allows the wizard to provide the appropriate defaults for the operating system installation.**
- Compatibility:** A dropdown menu set to 'ESXi 6.7 virtual machine'.
- Guest OS family:** A dropdown menu set to 'Windows'.
- Guest OS version:** A dropdown menu set to 'Microsoft Windows 10 (64-bit)'.
- Enable Windows Virtualization Based Security:** An unchecked checkbox with an information icon.

At the bottom of the wizard, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'. The VMware logo is visible in the bottom left corner of the wizard window.

Then click next and following window will appear. There's nothing to do here. Click next.



As you can see in the figure 00, change the settings as above. Set the No. of CPUs, amount of RAM and Disk space as you needed. Select the Network Adapter to 'test port group' and the CD/DVD Drive to 'Datastore ISO file'. Make sure you have tick the Connect to ensure they are properly connected. When you select the Datastore ISO file, a new window will appear. There you have to select the ISO file according to the operating system you suppose to install. There are some iso files already uploaded to the datastore. Go to OS folder. Then in the right-hand side, all the available iso files will appear. Select the preferred iso file and click ok.

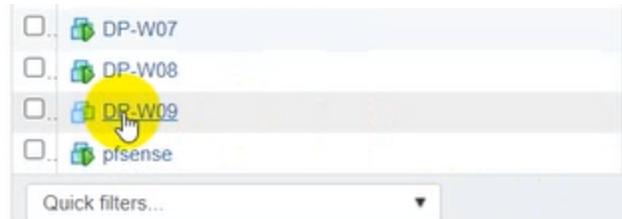


Click next. A summary of the configurations you made will appear. Review the summary and click Finish.

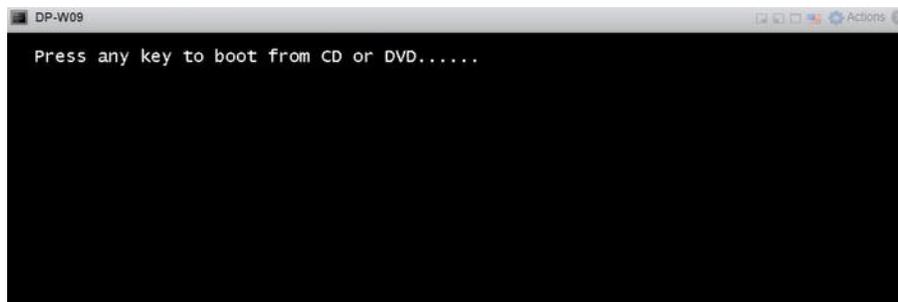
Now the VM is created with all the resource allocation. It is time to install the operating system and boot up the machine. The following steps vary depending on the operating system you are going to install.

Windows Server Machine.

- Go to machine you just created and power on.



- When the machine is power on, click the rectangle window that shows the preview of the machine to view the machine.
- Then it'll ask you to press any key to boot from CD/DVD as typical windows installation step.



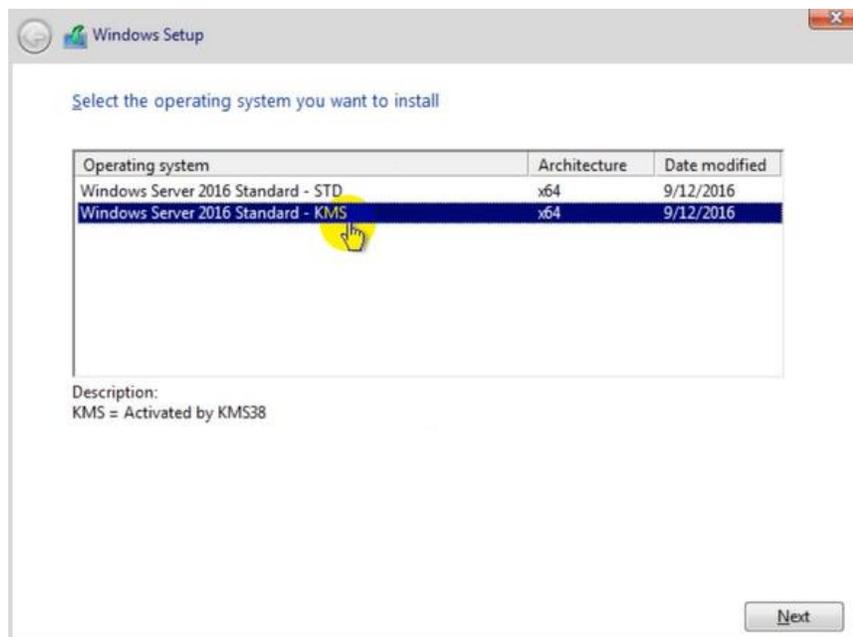
- Then you'll see windows boot manager. Press Enter while selected Boot Normally.



NOTE : Sometimes, although you pressed the keys (Enter or any other key, it will not work. In that case click the window using mouse and then press Enter.)

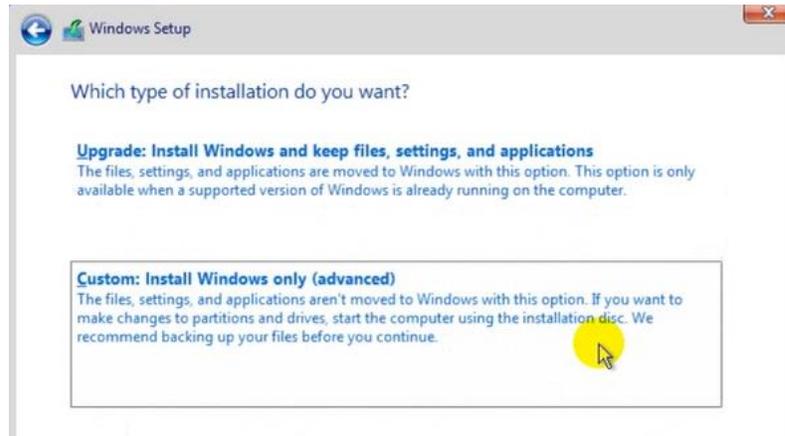


- Click next. Then click Install Now.

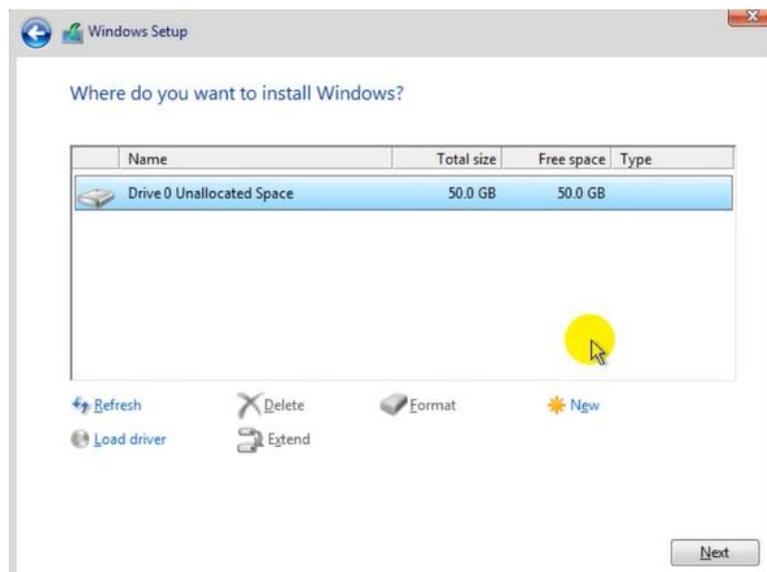


- Select KMS version and click next.

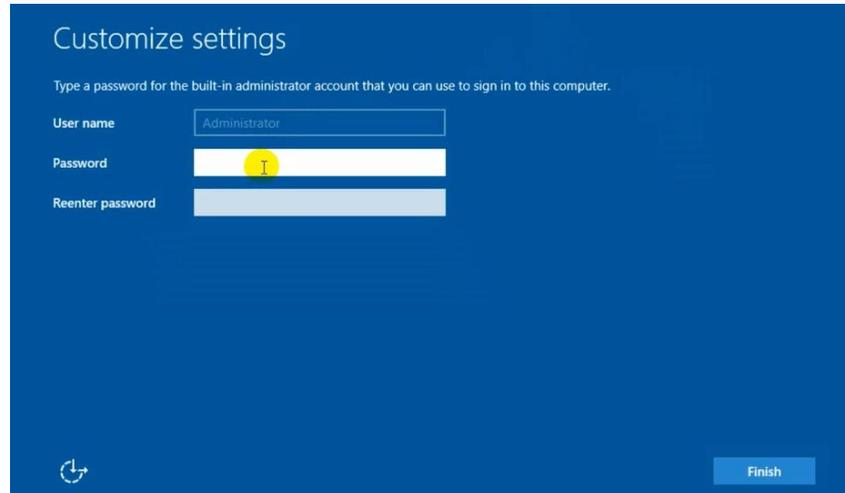
- Accept the license agreement and click next.
- Choose custom installation as below.



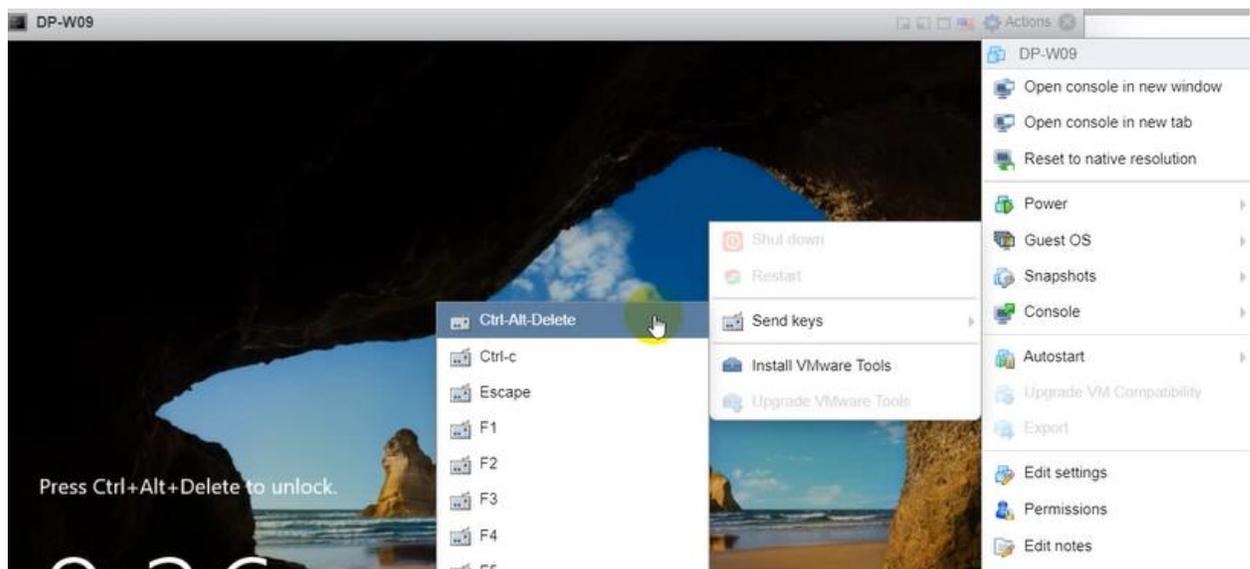
- The disk will appear. You have to create a new disk for windows to install.



- Click new and then apply to use entire disk as a single partition. Then click ok. Go to next and windows will now install.
- When windows installed and rebooted, enter a new administrative password and click finish.



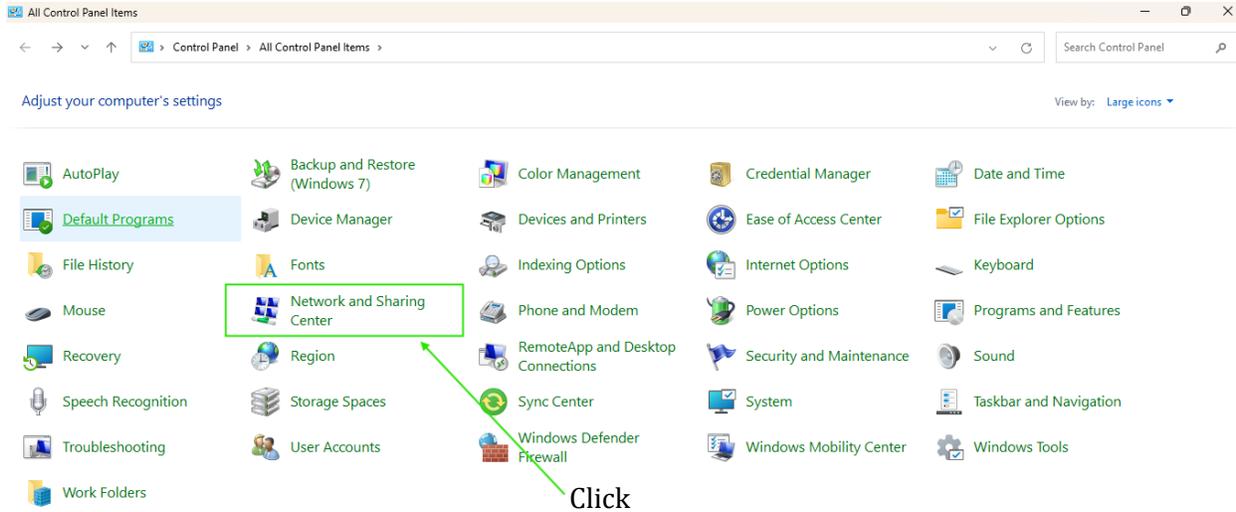
- Then the windows come to welcome screen, the default lock screen and ask you to enter Ctrl + Alt + Delete. Give the command as follows.
- Go to the action button, and then Guest OS and send keys. Then select Ctrs+Alt+Delete.



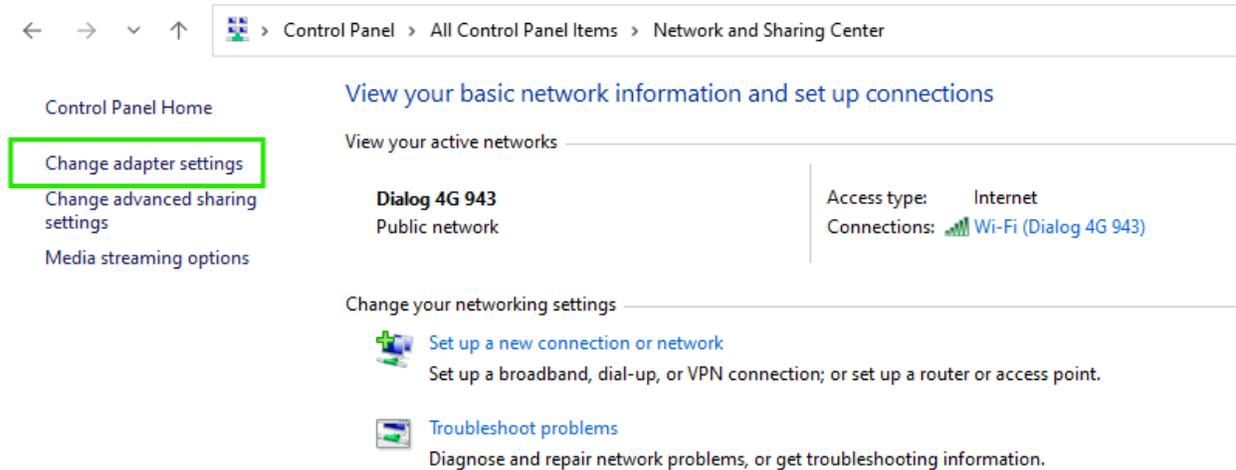
Now you have created and install the operating system to the virtual machine. But still there are some configurations to do. You still don't have internet connection to the VM. Also the VM is not configured for Remote Desktop connection. (RDP)

Assigning the static IP address

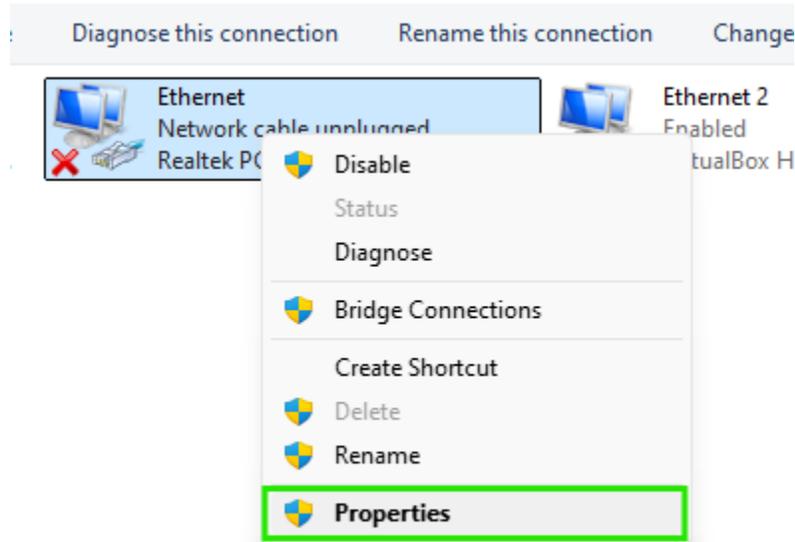
Go to Control Panel → Network and Sharing Center



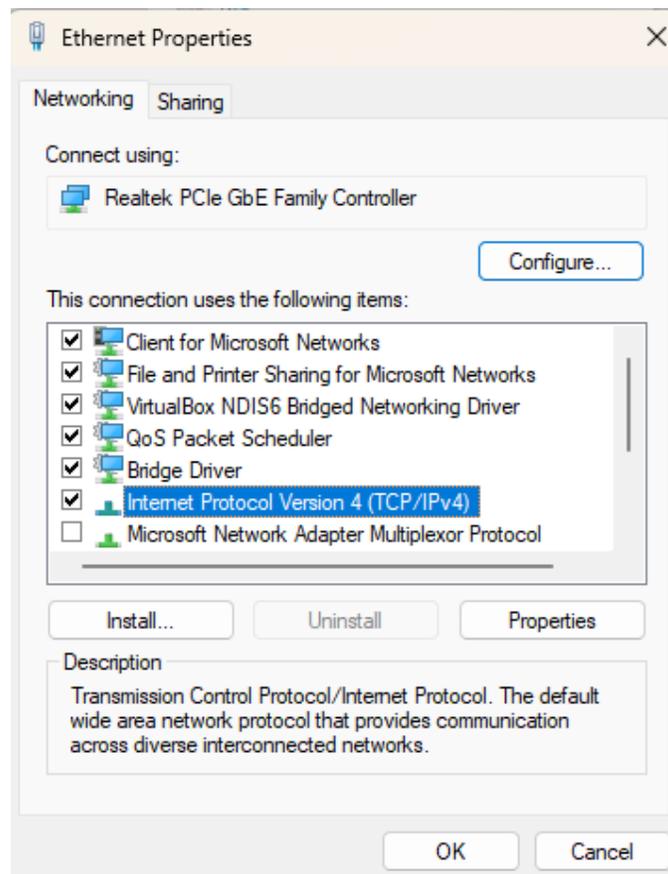
Click on 'Change adapter settings'



Right click on Ethernet adapter and then properties.

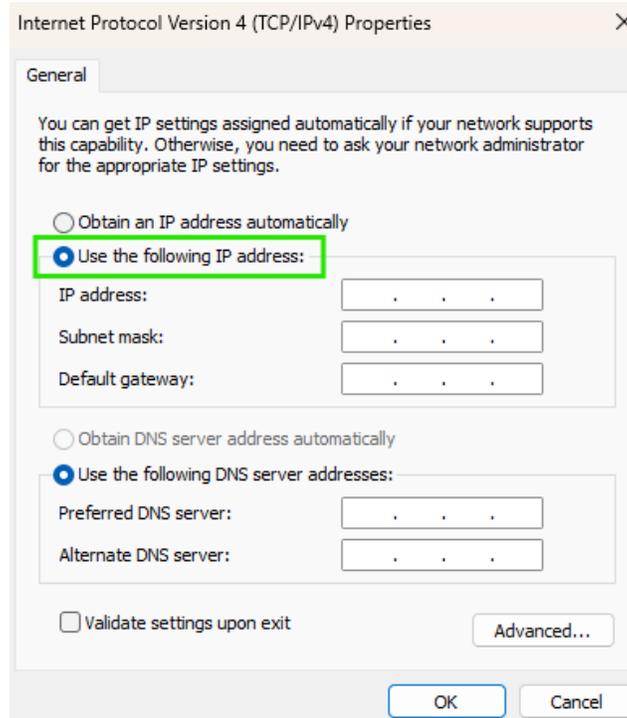


Select Internet Protocol version 4. (TCP/IPv4)



Then click properties.

Select 'Use the following IP address'



Set the values as follows.

IP address : The unique IP address you selected for the new machine. (Ex : 192.168.4.219)

Subnet mask : 255.255.255.0

Default gateway : 192.168.4.253

Preferred DNS server : 8.8.8.8

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: 192 . 168 . 4 . 219

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 4 . 253

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: 8 . 8 . 8 . 8

Alternate DNS server: . . .

Validate settings upon exit

Advanced...

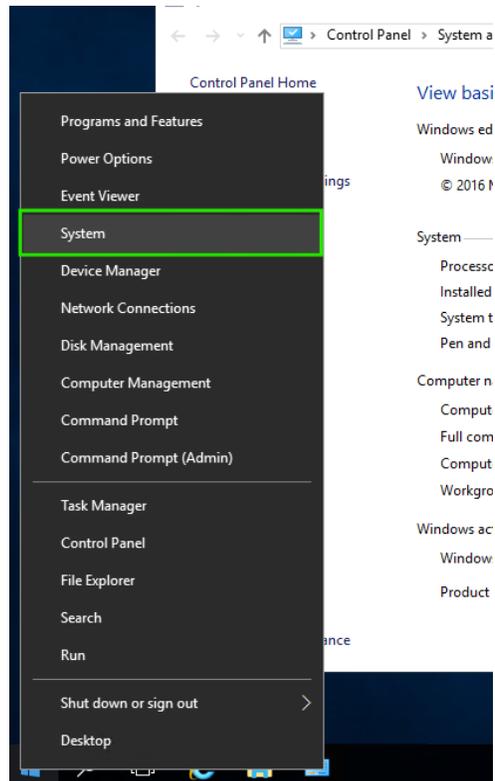
OK Cancel

Unique to the machine

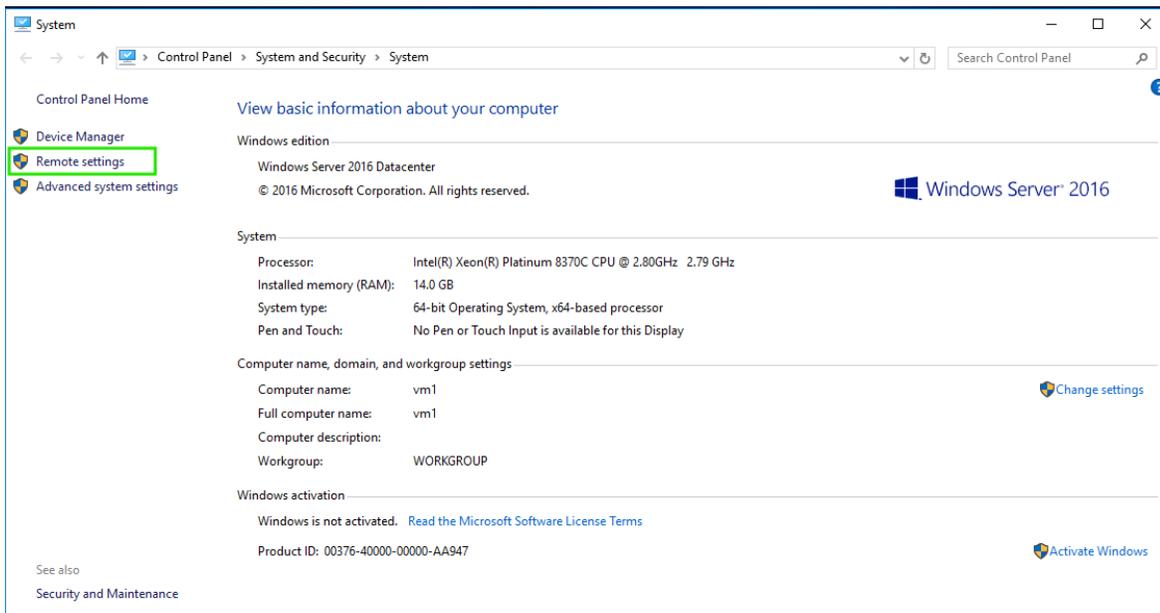


Allow RDP connection through firewall

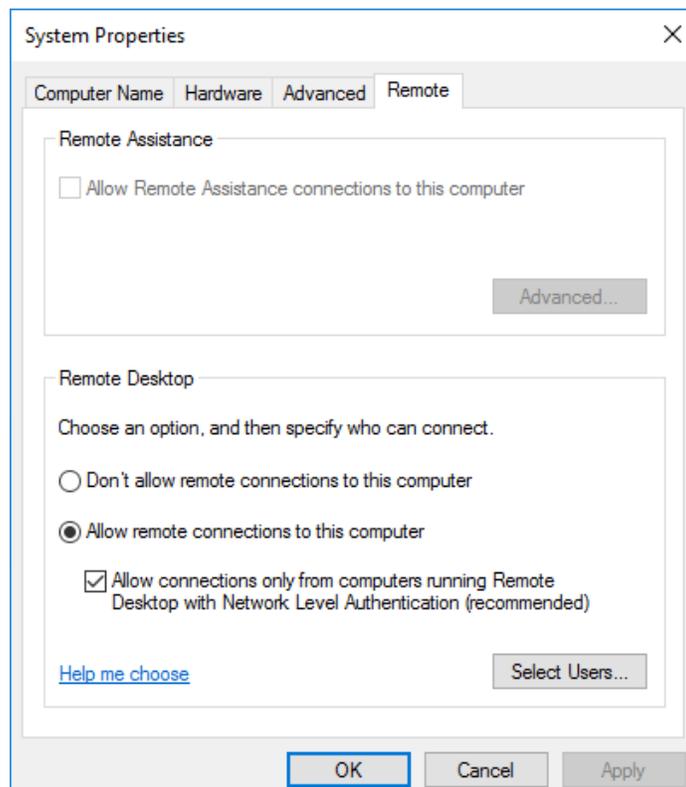
Right click on windows button and select system.



Then select Remote settings



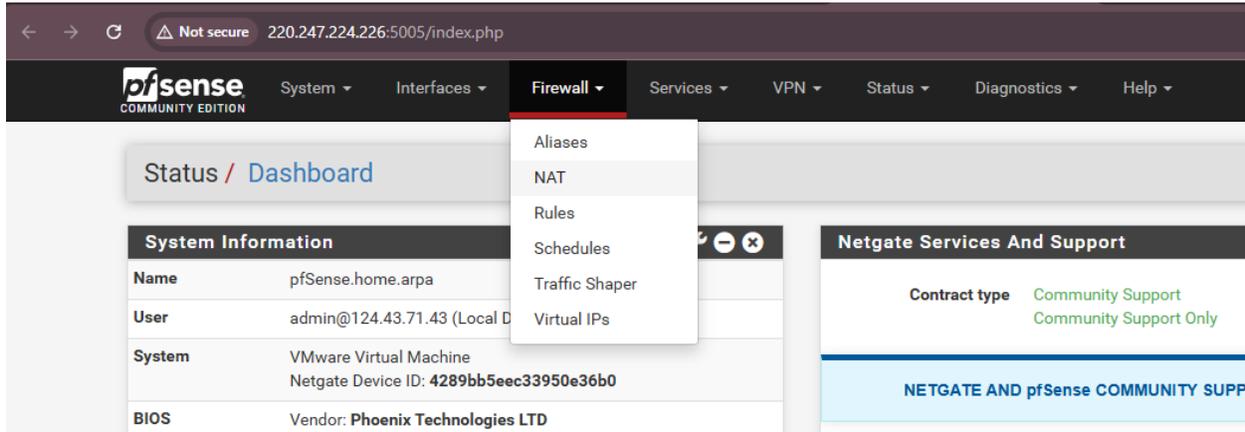
Change the settings to Allow remote connections to this computer. Then click OK.



Add a NAT rule to allow Remote connections through pfsense

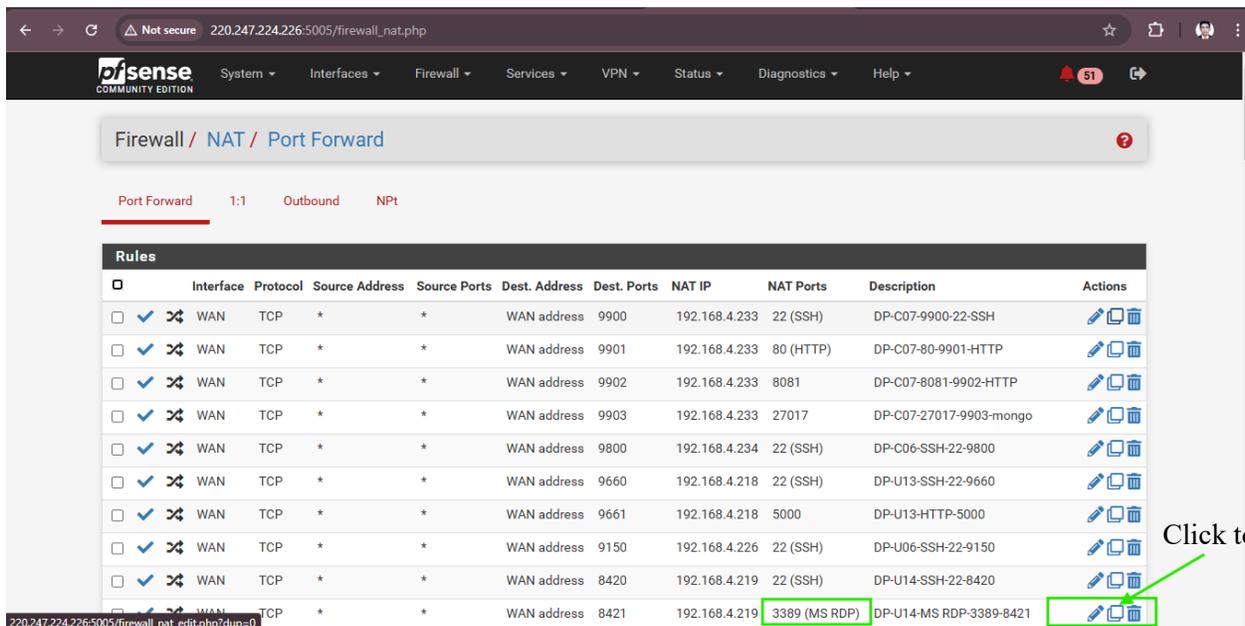
Log into pfsense using the link provided in the server credentials document.

Go to Firewall → NAT



Then all the NAT rules will be appeared.

Since we have created a windows VM, we should add a rule to access via Remote Desktop Protocol. (RDP) We can take a copy from the previously configured rule.



Now you should assign a port number to access the VM via the pfSense firewall. Carefully select an appropriate port number that has not been used before. (Ex : 9900)

Then set that port number and IP address of your newly created VM to relevant fields in the rule as follows.

Edit Redirect Entry

Disabled Disable this rule

No RDR (NOT) Disable redirection for traffic matching this rule
This option is rarely needed. Don't use this without thorough knowledge of the implications.

Interface: WAN

Address Family: IPv4

Protocol: TCP

Source:

Destination: Invert match. WAN address

Destination port range: From port: 9900 To port: 9900

Redirect target IP: Single host 192.168.4.233

Then select the Redirect target port to 'MS RDP'. If you are adding a rule to Linux VM, then this should be SSH.

Specify the port or port range for the destination of the packet for this mapping. The 'to' field may be left empty if only mapping a single port.

Redirect target IP: Single host 192.168.4.233

Redirect target port: SSH

Description: DP-C07-9900-22-SSH

No XMLRPC Sync: Do not automatically sync to other CARP members

NAT reflection: Use system default

Filter rule association: Add associated filter rule

Then change the description appropriately. Since you have created and added a RDP rule to a windows machine, set the description like DP-W01-3389-MS RDP.

Then click save and Apply changes.

Specify the port or port range for the destination of the packet for this mapping. The 'to' field may be left empty if only mapping a single port.

Redirect target IP
Type: Single host Address: 192.168.4.233
Enter the internal IP address of the server on which to map the ports. e.g.: 192.168.1.12 for IPv4
In case of IPv6 addresses, it must be from the same 'scope', i.e. it is not possible to redirect from link-local addresses scope (fe80:*) to local scope (::1)

Redirect target port
Port: SSH Custom
Specify the port on the machine with the IP address entered above. In case of a port range, specify the beginning port of the range (the end port will be calculated automatically).
This is usually identical to the "From port" above.

Description
DP-C07-9900-22-SSH
A description may be entered here for administrative reference (not parsed).

No XMLRPC Sync
 Do not automatically sync to other CARP members
This prevents the rule on Master from automatically syncing to other CARP members. This does NOT prevent the rule from being overwritten on Slave.

NAT reflection
Use system default

Filter rule association
Add associated filter rule
The "pass" selection does not work properly with Multi-WAN. It will only work on an interface containing the default gateway.

Save

Firewall / NAT / Port Forward

The NAT configuration has been changed.
The changes must be applied for them to take effect.

Port Forward 1:1 Outbound NPt

Rules											
<input type="checkbox"/>	Interface	Protocol	Source Address	Source Ports	Dest. Address	Dest. Ports	NAT IP	NAT Ports	Description	Actions	
<input type="checkbox"/>	WAN	TCP	*	*	WAN address	9900	192.168.4.233	22 (SSH)	DP-C07-9900-22-SSH	<input type="button" value="edit"/>	<input type="button" value="trash"/>
<input type="checkbox"/>	WAN	TCP	*	*	WAN address	9900	192.168.4.233	22 (SSH)	DP-C07-9900-22-SSH	<input type="button" value="edit"/>	<input type="button" value="trash"/>

Now you have successfully created a windows VM and configured a rule to access via RDP.