Install and Configure PfSense VM

1. Download PfSense ISO Image File:

a) Sign in to Azure Lab.
b) Open Chrome browser, go to PfSense Download Page: https://www.pfsense.org/download/
c) Click Download > Netgate Installer > Installation Image: Select AMD64 ISO IPMI/Virtual Machines > Add to Cart
It will ask you to register and sign in for download.
d) Once logged in, click Checkout (Free).
e) The downloaded .gz file will be in Downloads/ in File Explorer of your azure system.

2. Check the Hashes to check if they are downloaded properly:

a) In **PowerShell run**,
`Get-FileHash [Filename.iso.gz]`
You will get the hash value of your downloaded file
b) In browser, https://www.netgate.com/hubfs/pfSense-plus-installer-checksums.txt?_gl=1*uld4i3*_gcl_au*MzU2NzU5NzQ3LjE3NDMxMDE4NjE.*_ga*MTUxNDA3NDQ1OS4xNzQzMTAxODYx*_ga_TM99KBGXCB*MTc0MzE1Njc4Ni4zLjEuMTc0MzE1Njc5Ny40OS4wLjE3MDk2NTk5NjM.

If the hashes match, then the file downloaded is not corrupted. (a .iso.gz file will be in Downloads/)

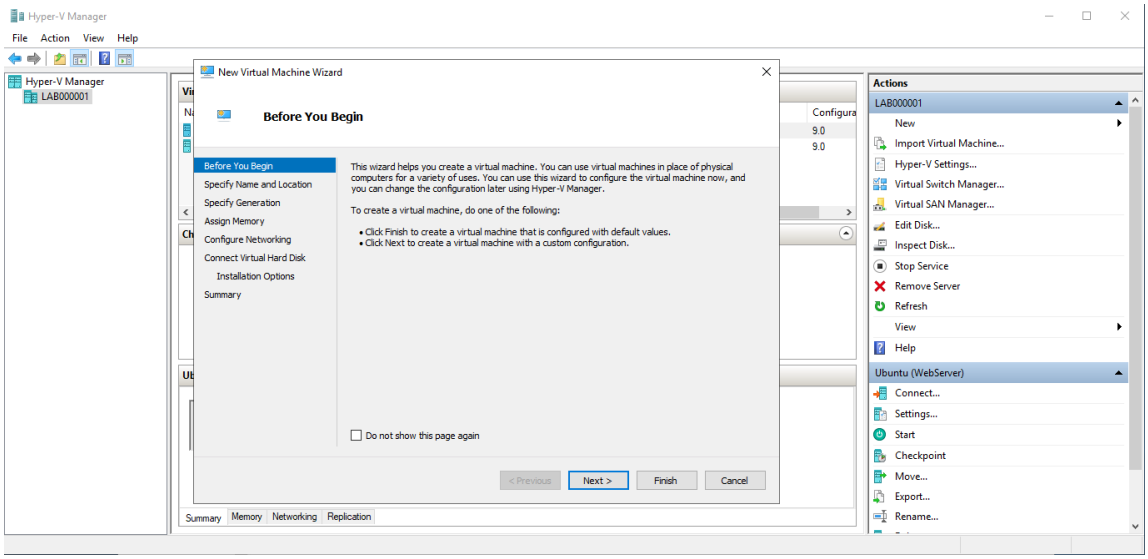
Install 7-zip if not installed and extract the .iso.gz file using this command:

```
& "C:\Program Files\7-Zip\7z.exe" x [filename.iso.gz]
```

The image file will be extracted.

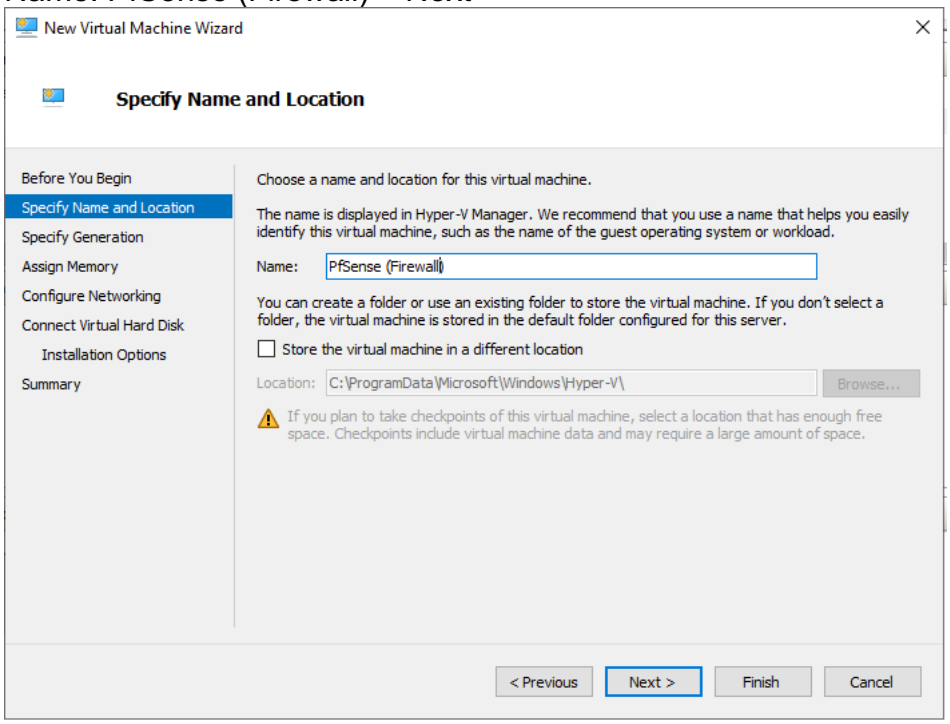
3. Create a new VM in for PfSense in Hyper-V

a) Open Hyper-V,
b) New > Virtual Machine > Next



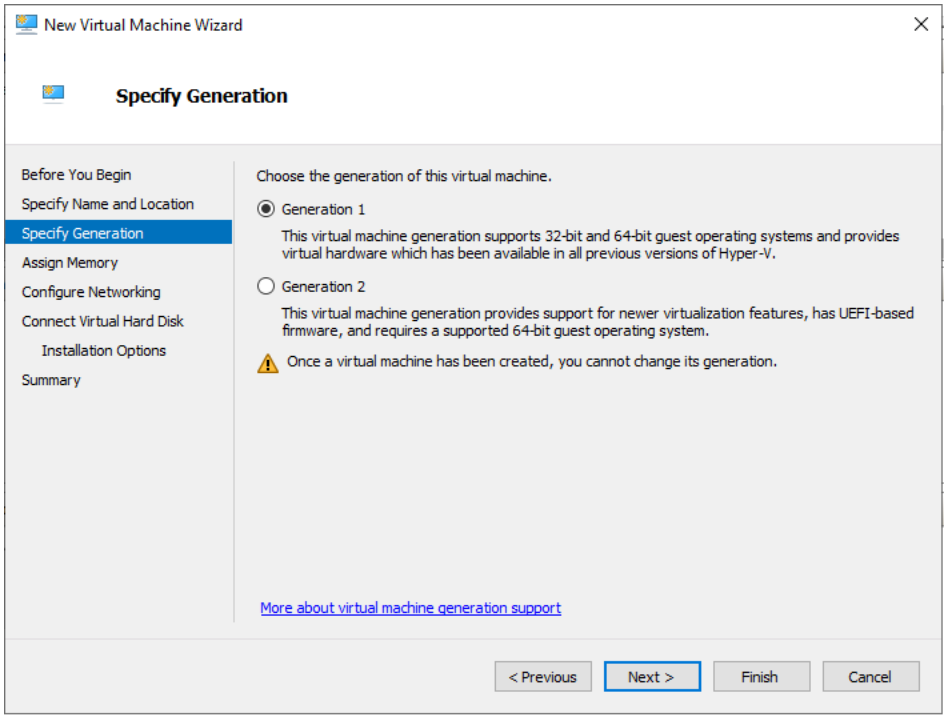
c) Specify Name and Location:

Name: PfSense (Firewall) > Next



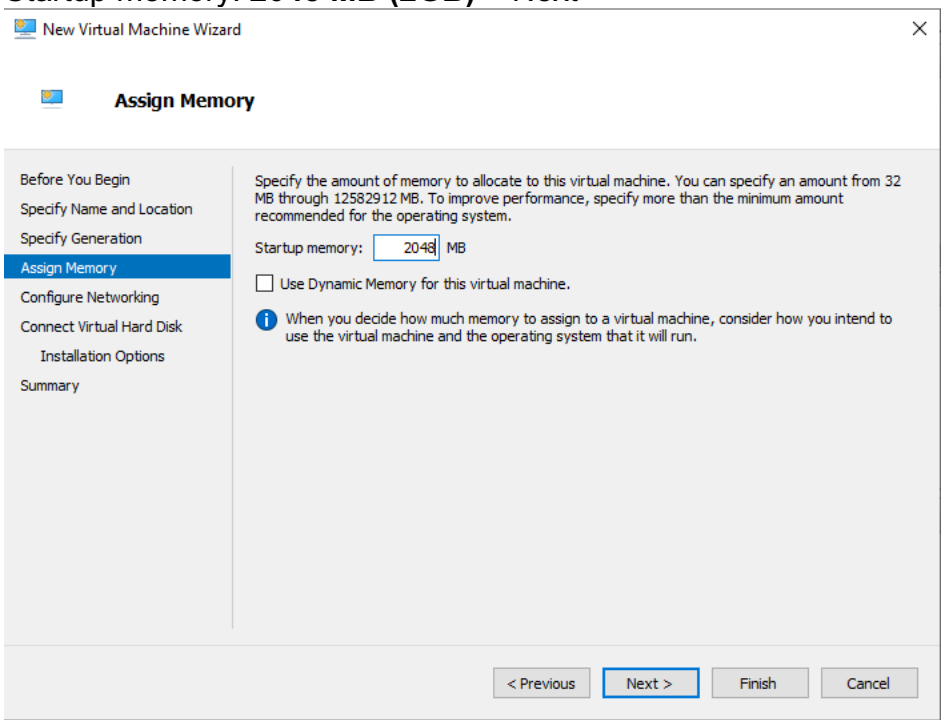
d) Specify Generation:

Choose **Generation 1** > Next



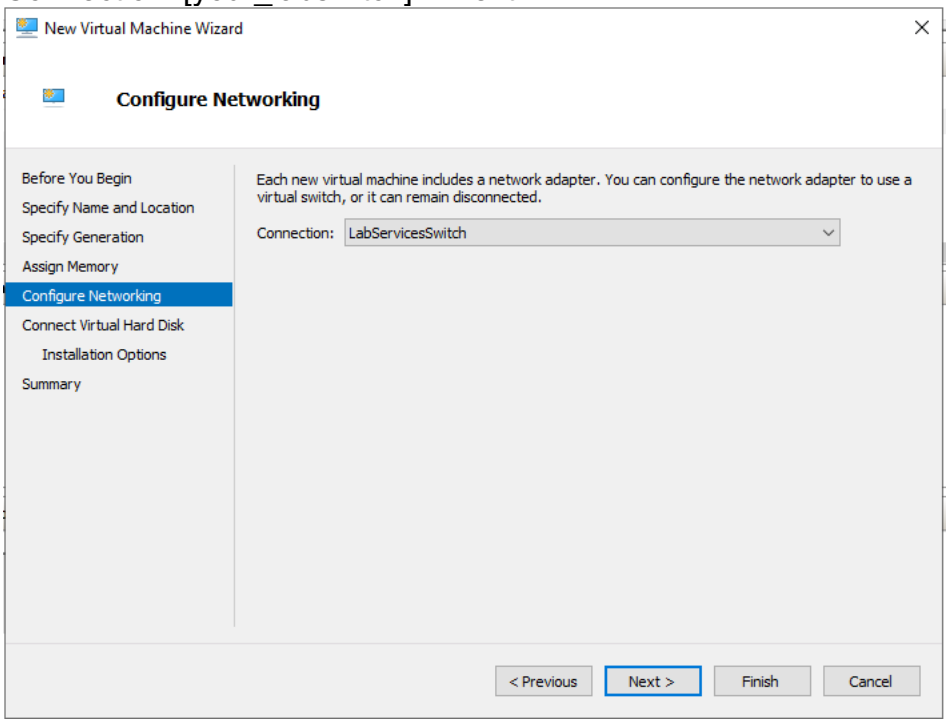
e) Assign Memory:

Startup memory: **2048 MB (2GB)** > Next



f) Configure Networking:

Connection: [your_labswitch] > Next



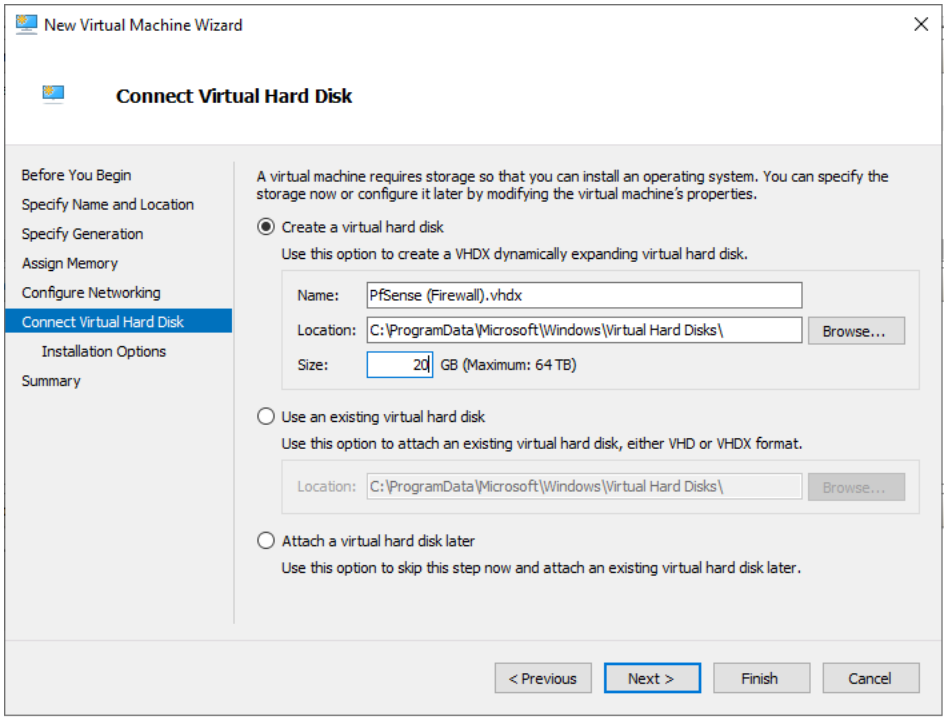
g) Connect Virtual Hard Disk:

Select **Create a virtual hard disk**

Name: PfSense (Firewall)

Location: [your\desired\path]

Size: **20GB** > Next

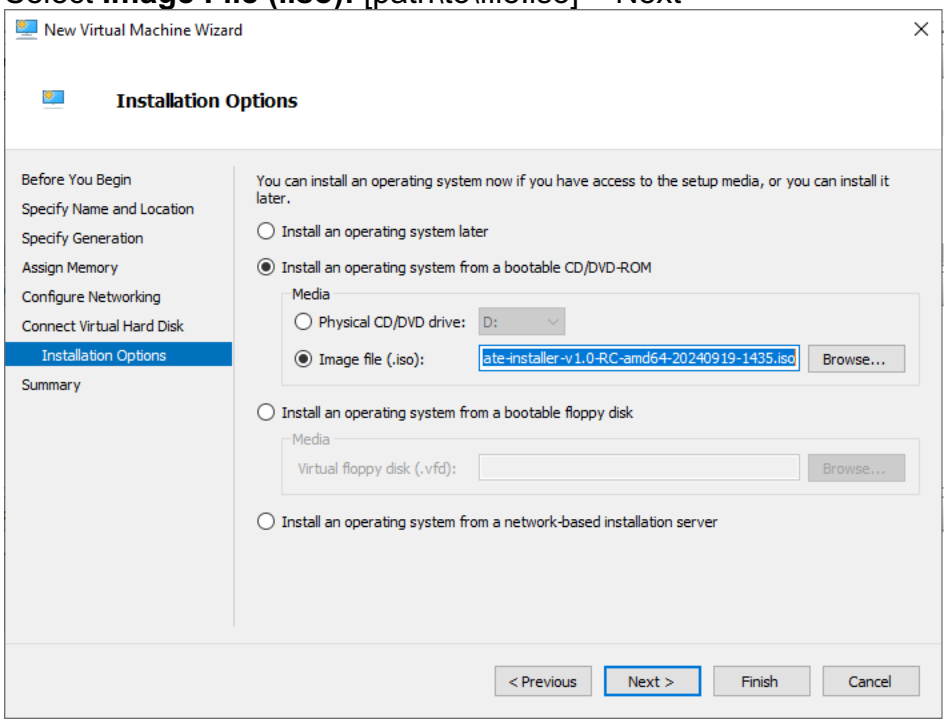


h) Installation options:

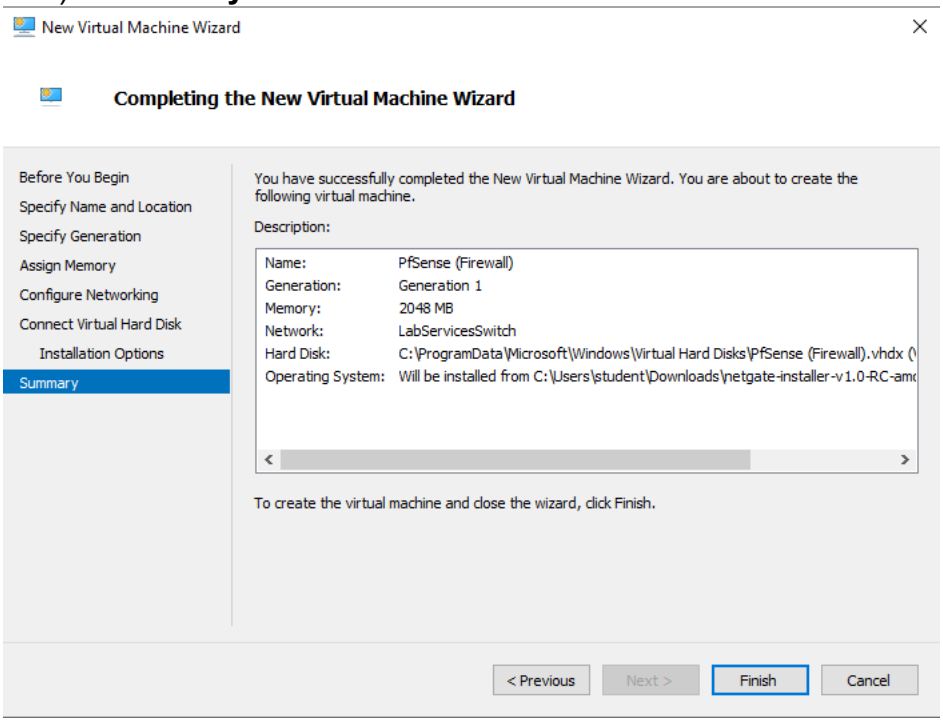
Choose **Install an operating system from a bootable CD/DVD-ROM**

Media:

Select **Image File (.iso):** [path\to\file.iso] > Next

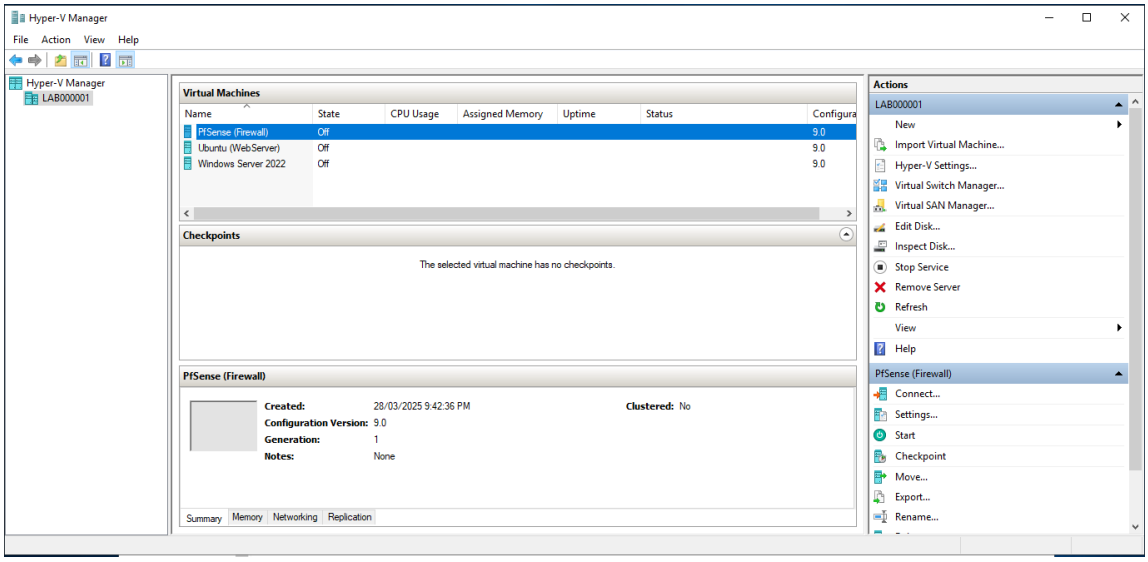


i) **Summary**: Check and confirm all the selected features > Finish



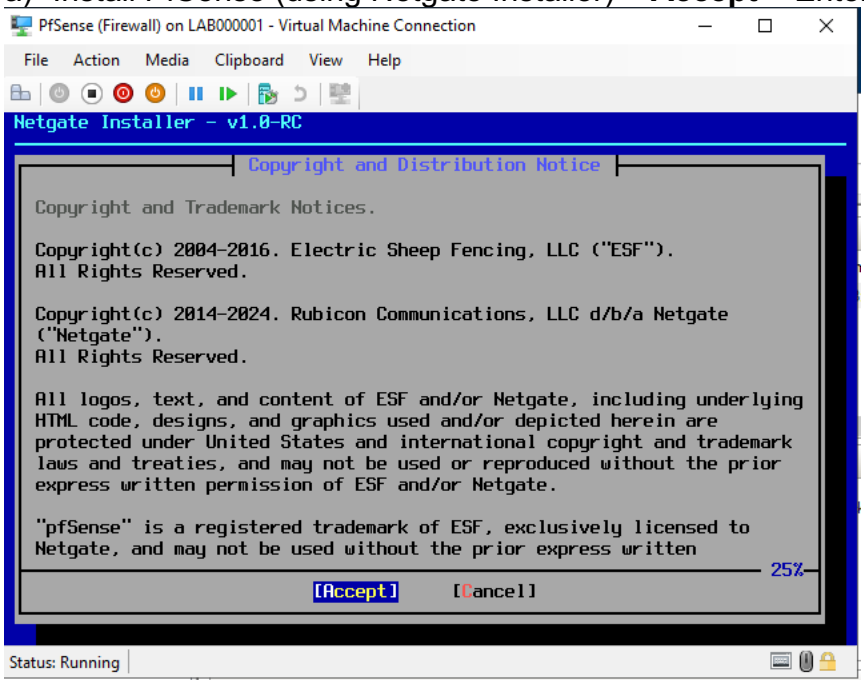
j) PfSense (Firewall) is listed as new VM in Hyper-V
Right-click PfSense (Firewall) VM > Settings…
Add Hardware > Network Adaptor > Add
In the New Network Adaptor window
Connection: [your_labSwitch] > Apply > OK

This VM should have **2 network adaptors** for **WAN** (Wide Area Network): connected to **external network** like internet and **LAN** (Local Area Network): **connected to internal network** like local VMs and resources.

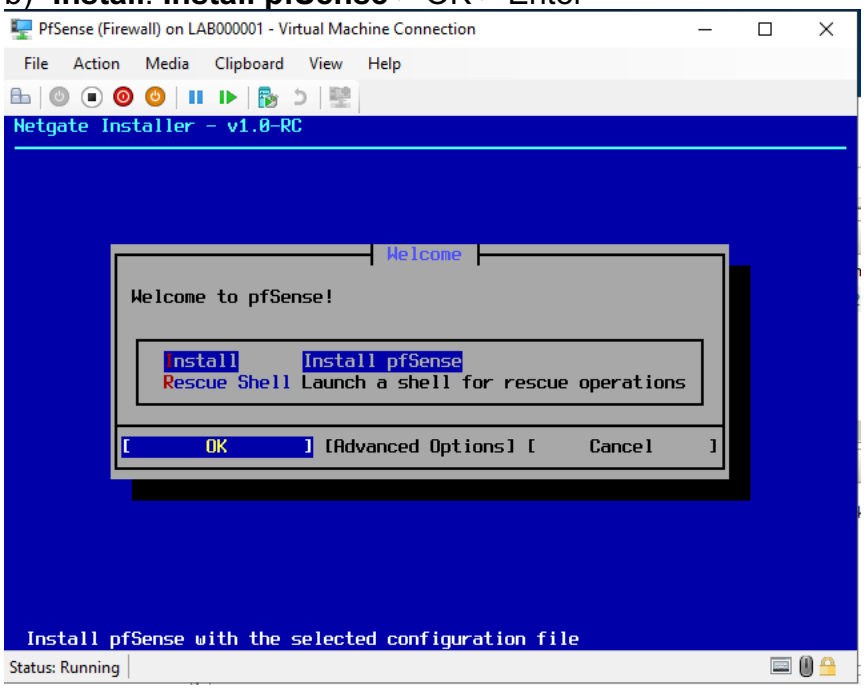


4. Install PfSense by connecting and booting the VM:

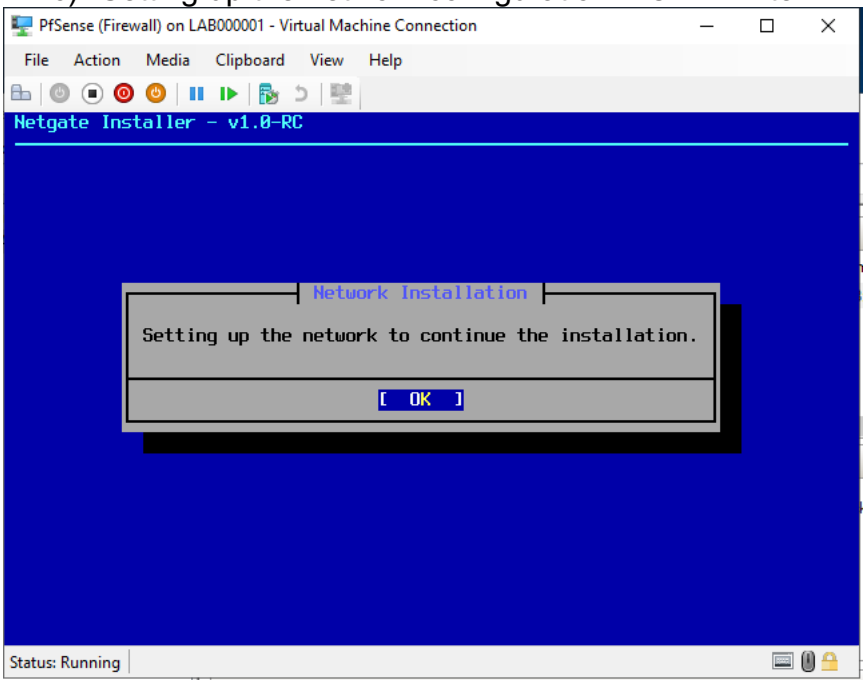
a) Install PfSense (using Netgate Installer) > **Accept** > Enter



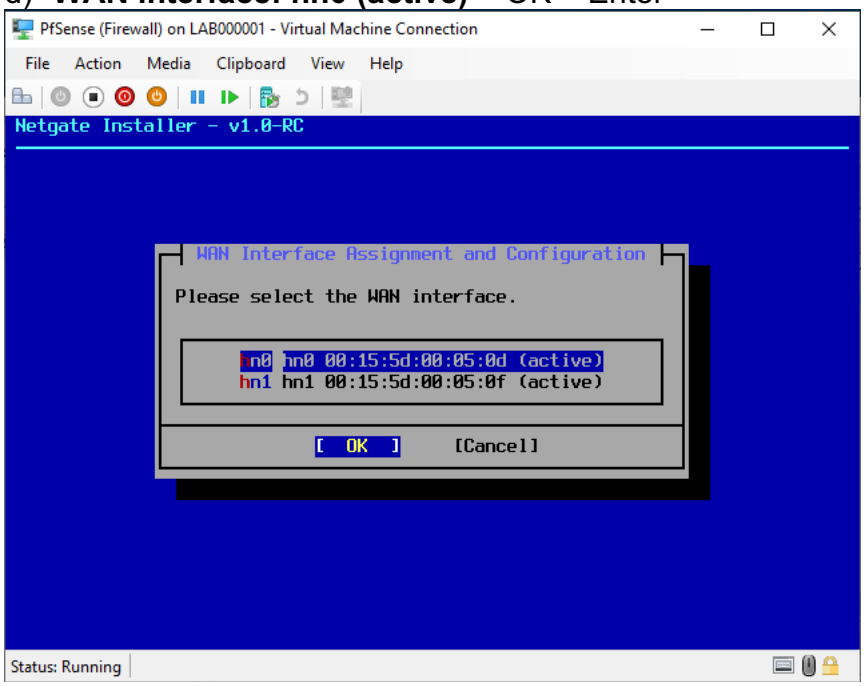
b) **Install**: **Install pfSense** > OK > Enter



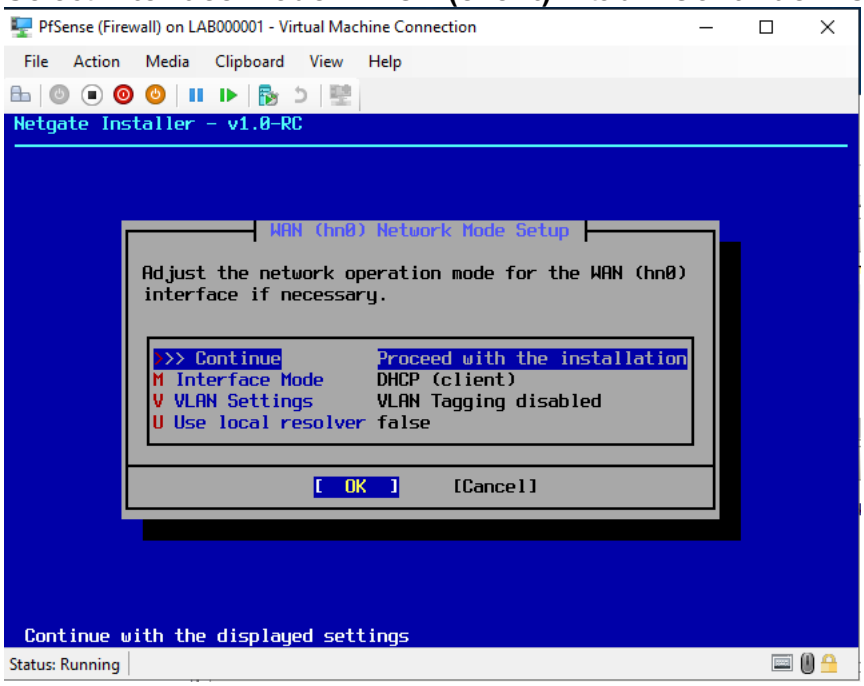
c) Setting up the network configuration > OK > Enter



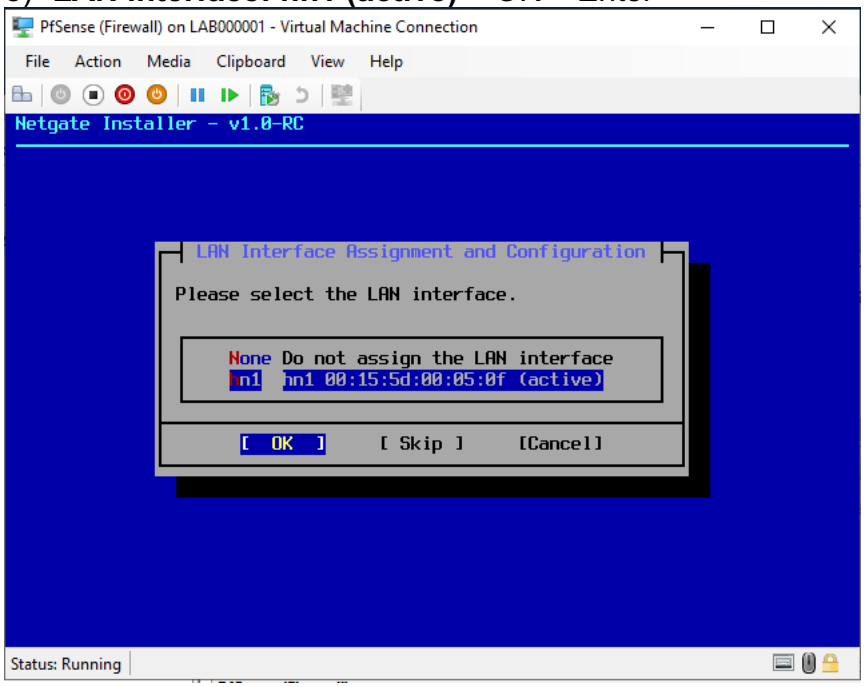
d) **WAN interface: hn0 (active)** > OK > Enter



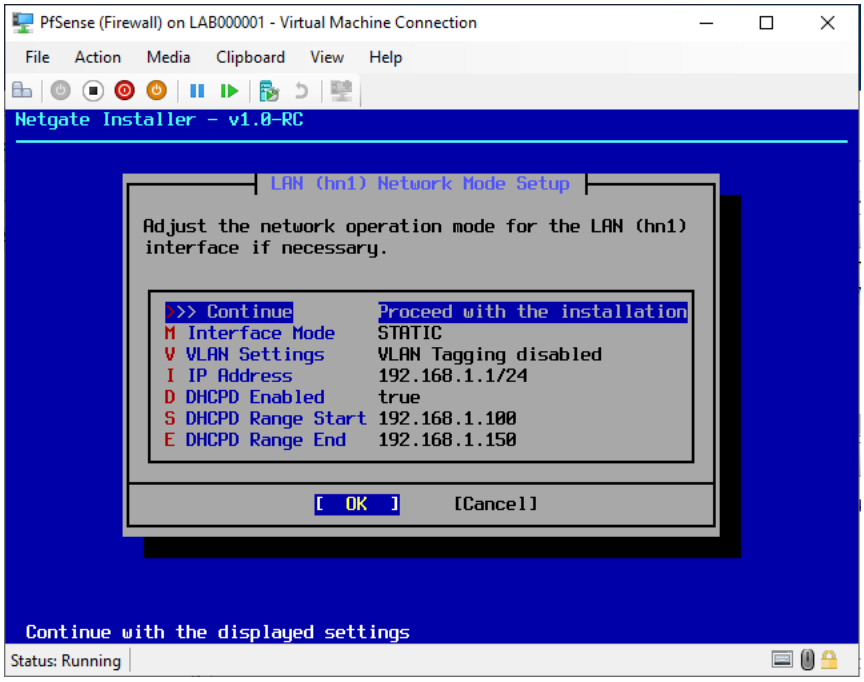
Select **Interface Mode: DHCP (client)** > tab > **Continue** > OK > Enter



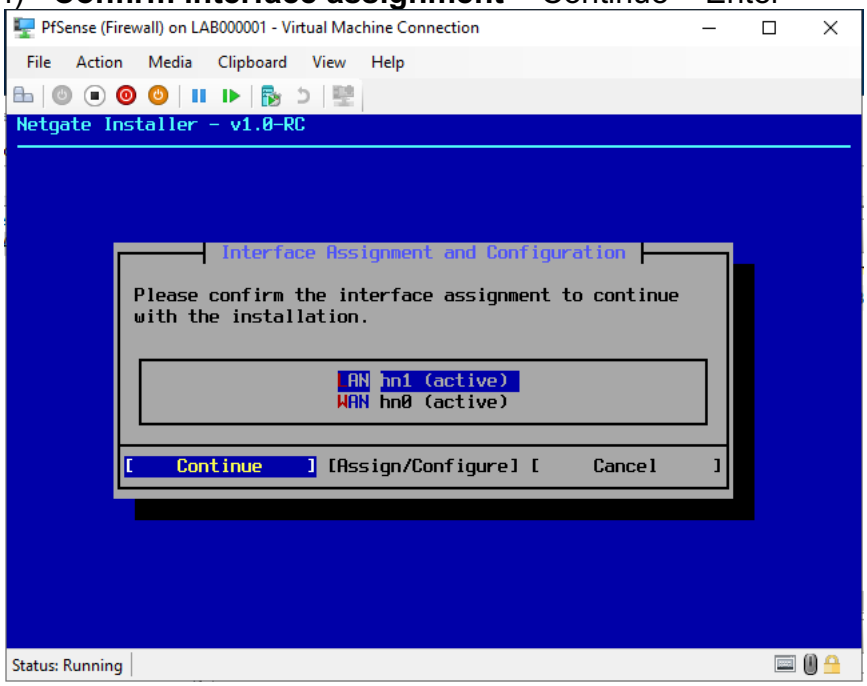
e) **LAN interface: hn1 (active)** > OK > Enter

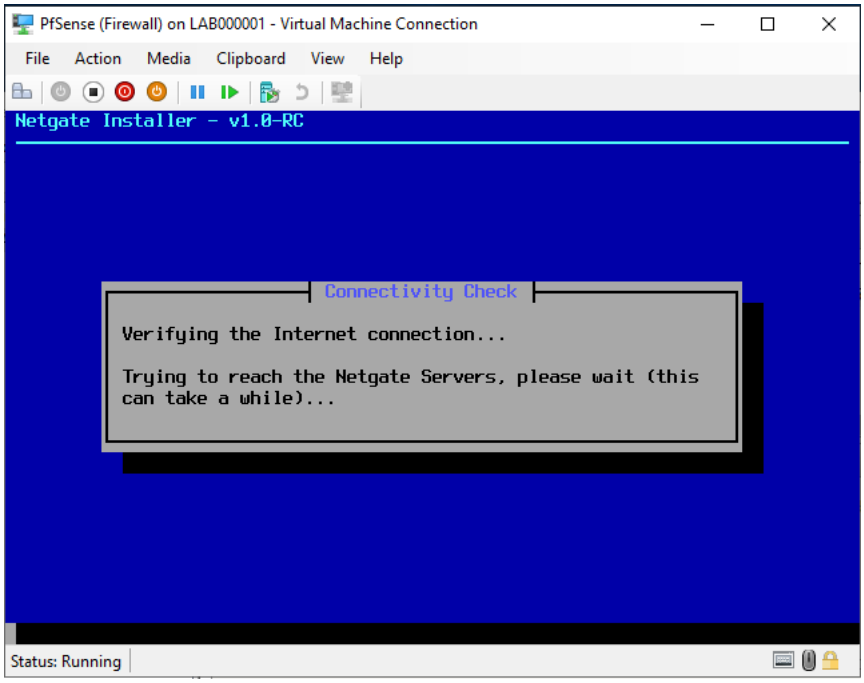


Select **Interface Mode: STATIC** > tab > **Continue** > OK > Enter

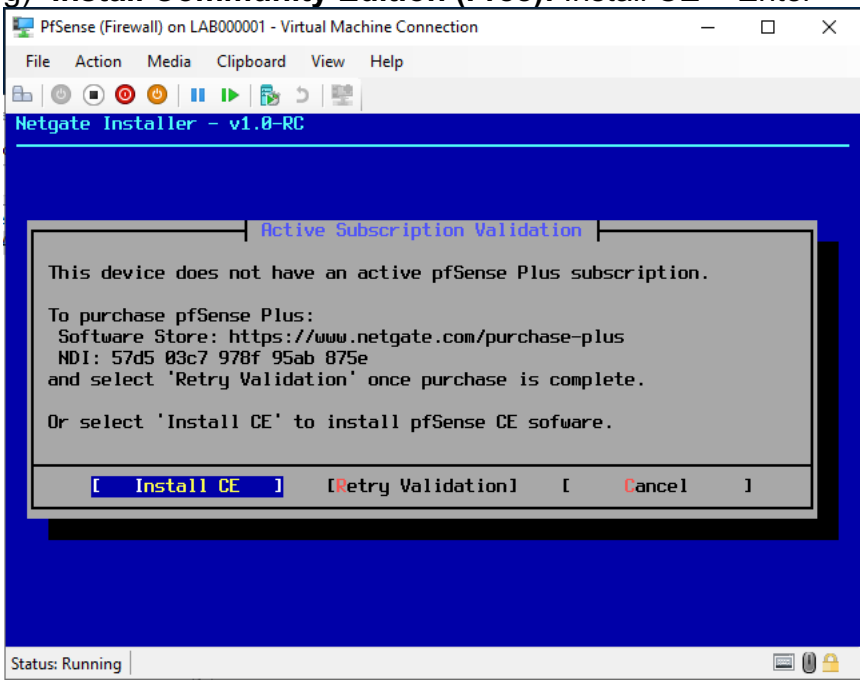


f) **Confirm interface assignment** > Continue > Enter

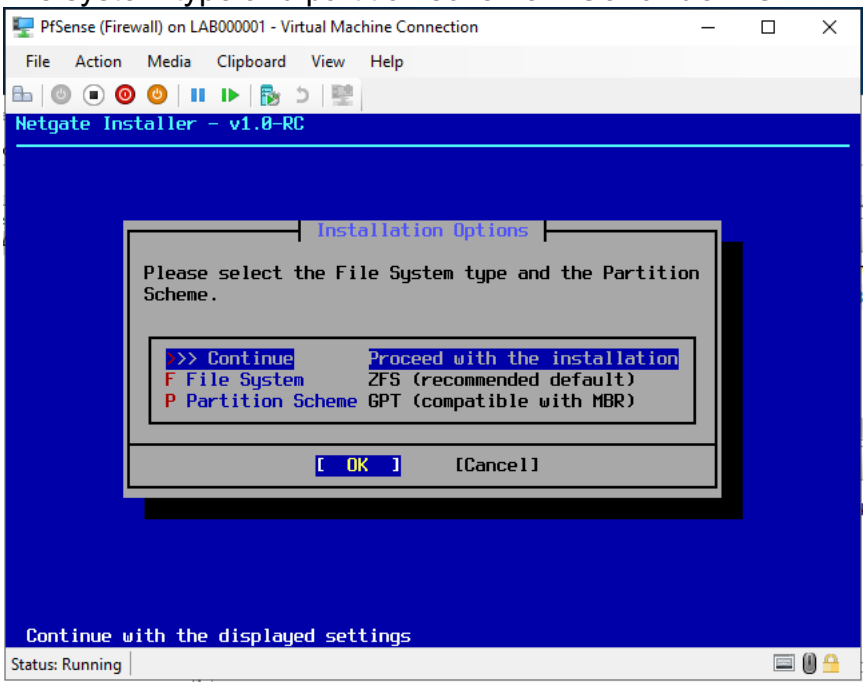




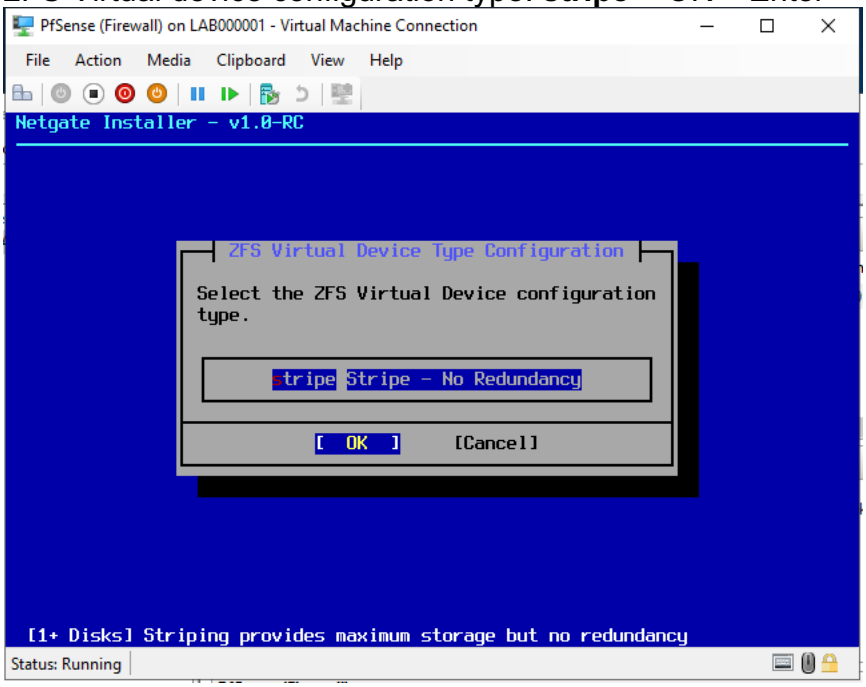
g) **Install Community Edition (Free):** Install CE > Enter



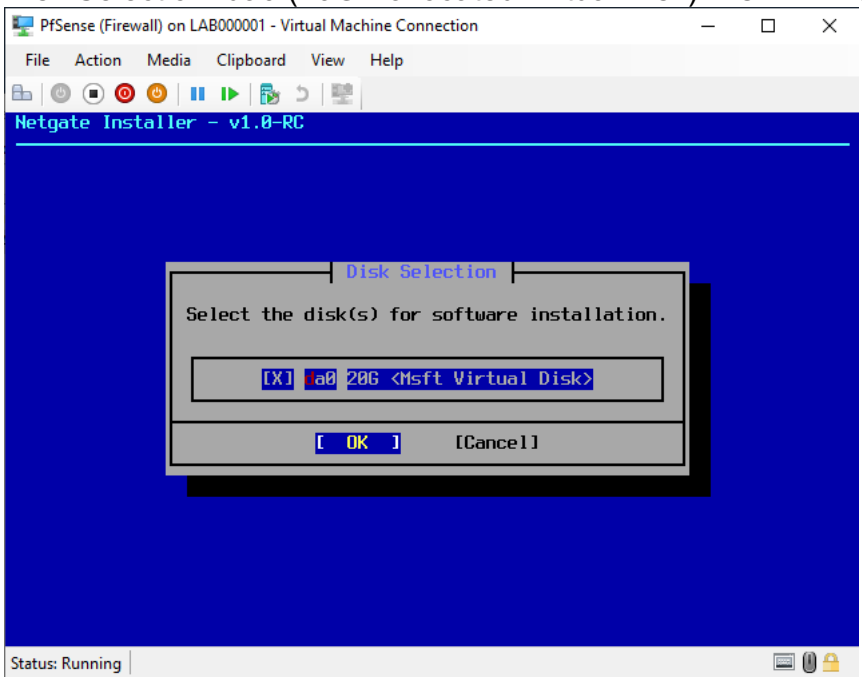
h) File system type and partition scheme > **Continue** > OK > Enter



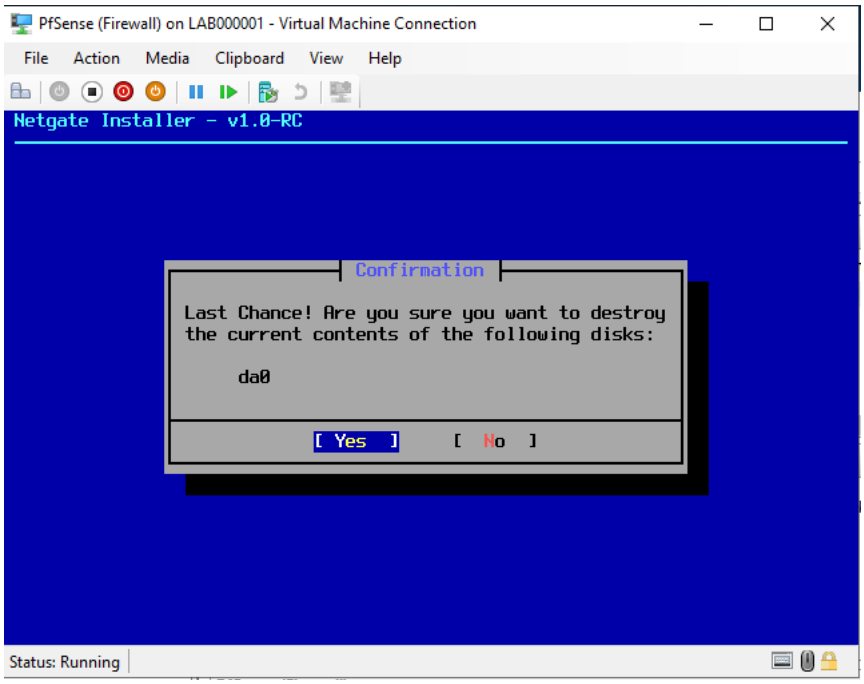
i) 2FS Virtual device configuration type: **stripe** > OK > Enter



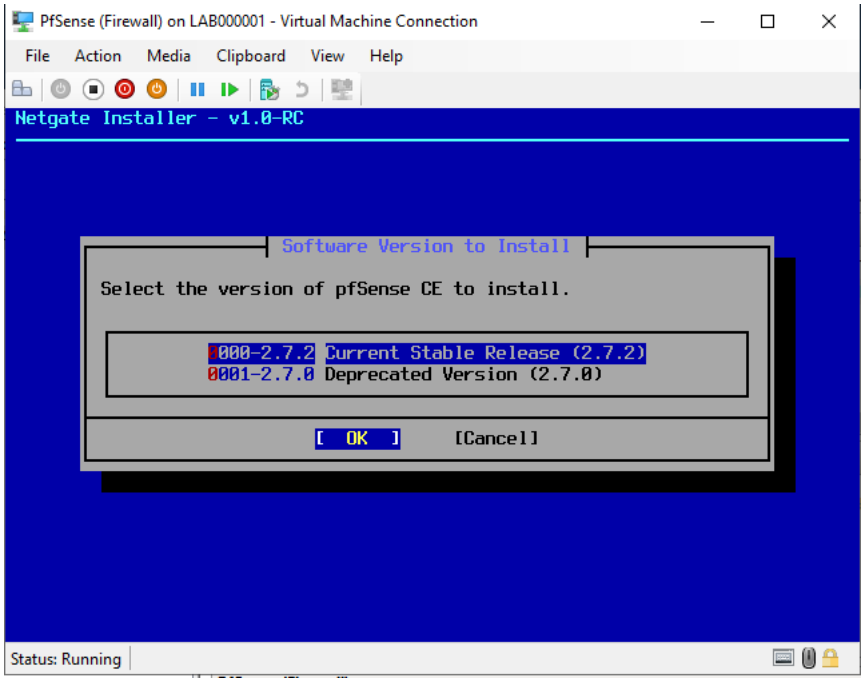
j) Disk Selection: da0 (20GB allocated Virtual Disk) > OK > Enter



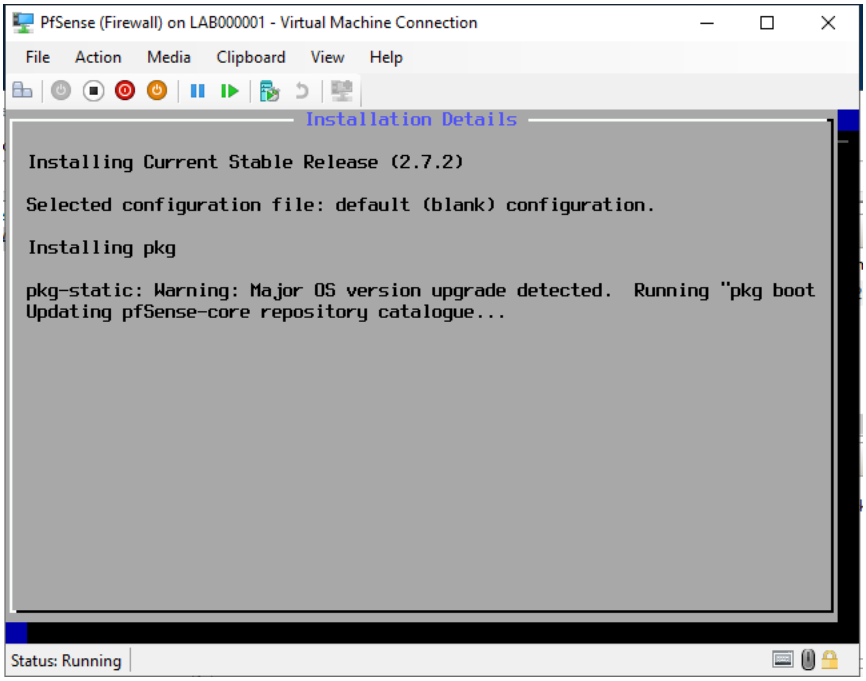
k) **Confirmation** > Yes > Enter

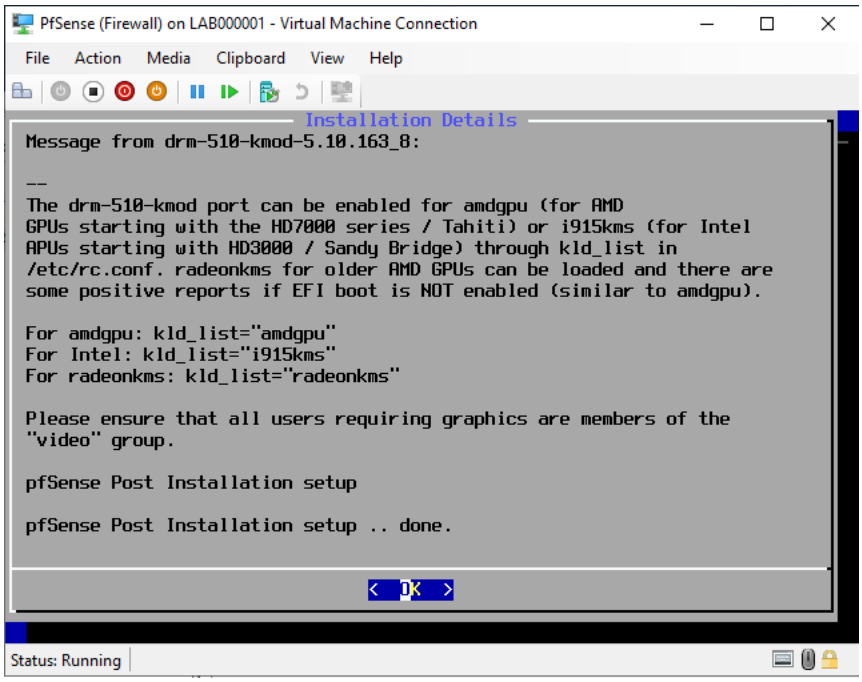


l) **Software Version to install: Current Stable Release (2.7.2)** > OK > Enter



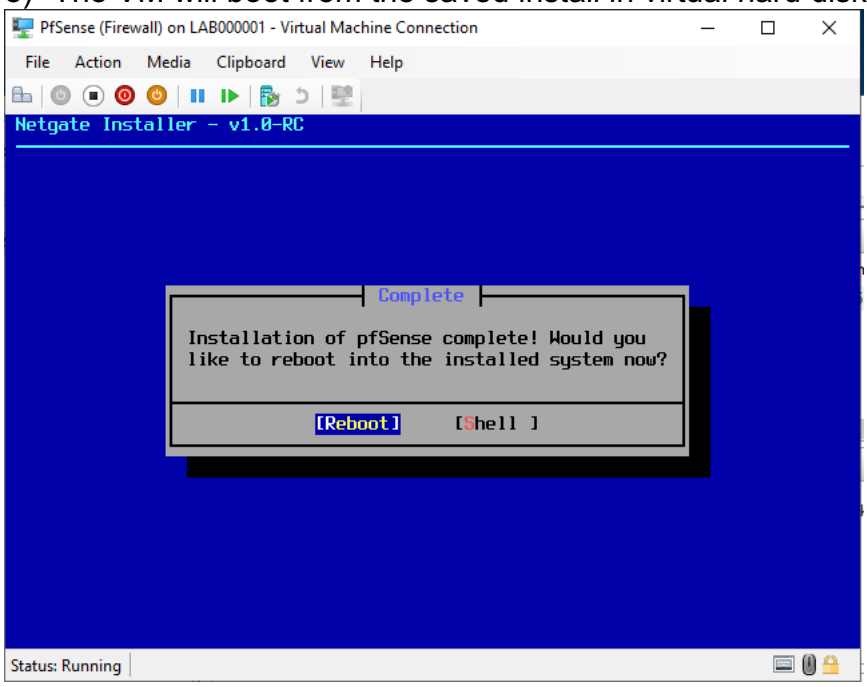
Installation Details





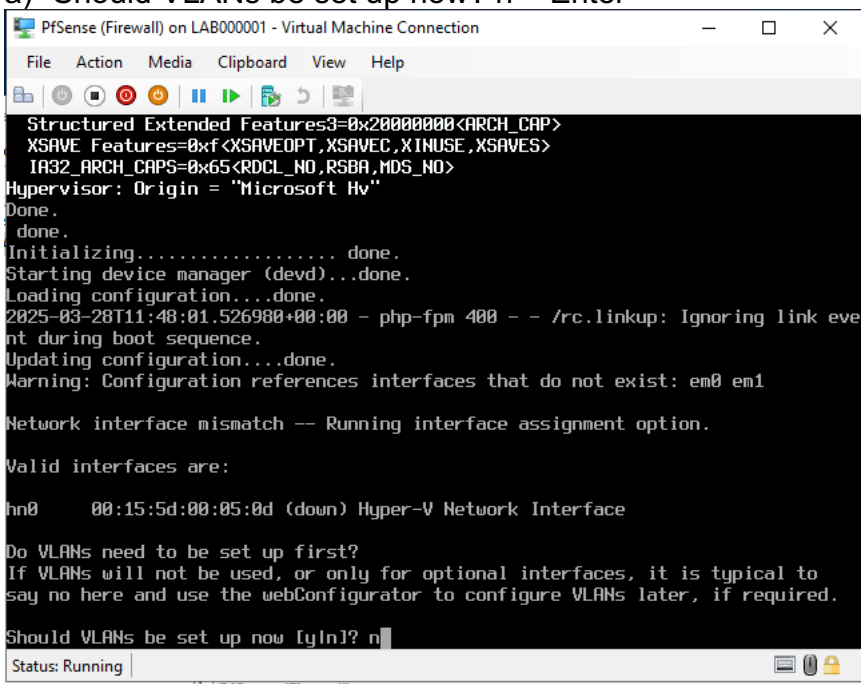
5. Installation Complete:

a) Reboot the PfSense
b) When it starts again, if it shows the accept page again, then close the VM.
c) Go to Hyper-V, Right-click PfSense VM > Settings > Remove Image File from CD/DVD-ROM > Apply > OK
d) Right-click PfSense VM > Connect
e) The VM will boot from the saved install in virtual hard disk

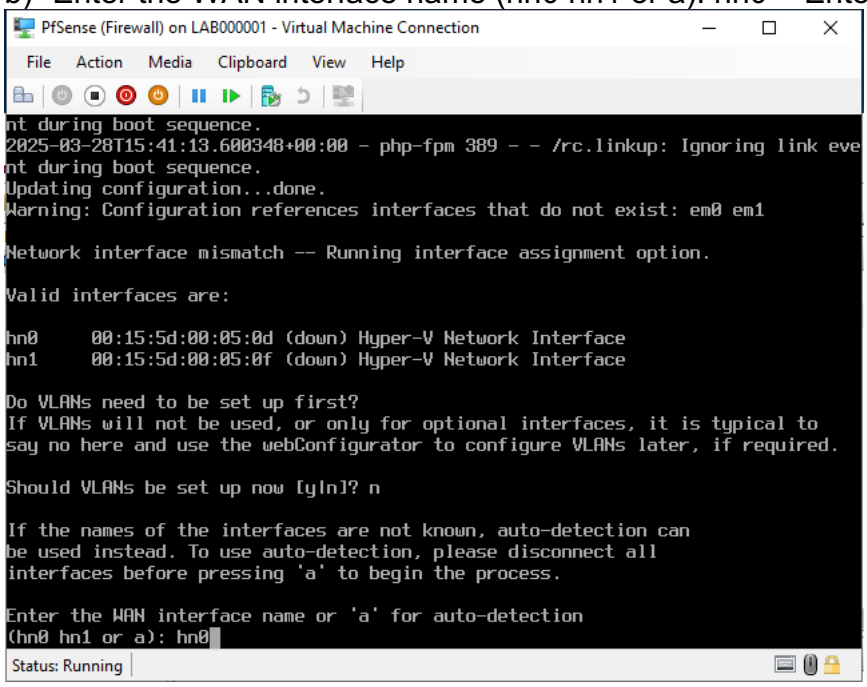


6. Post-Installation of PfSense:

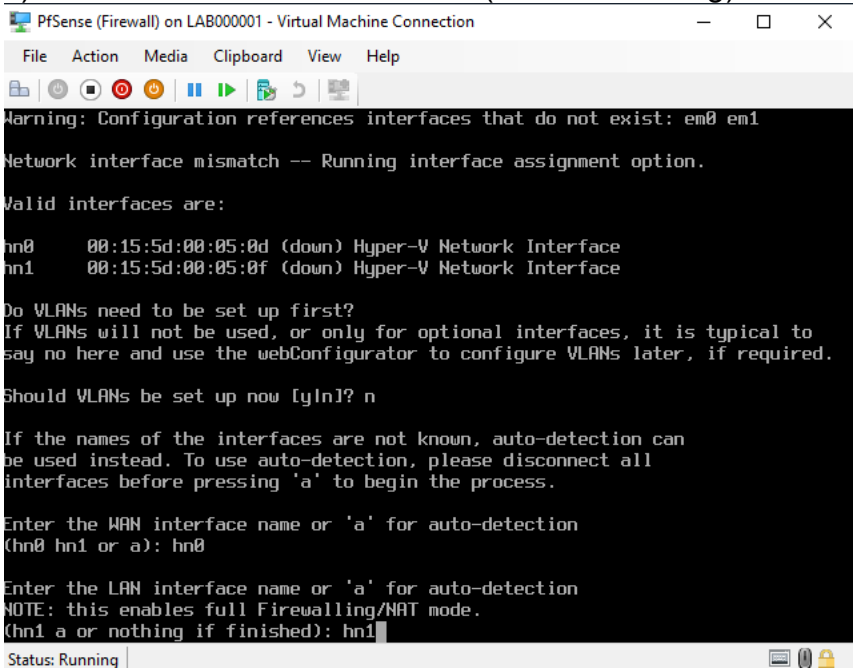
a) Should VLANs be set up now? n > Enter



b) Enter the WAN interface name (hn0 hn1 or a): hn0 > Enter

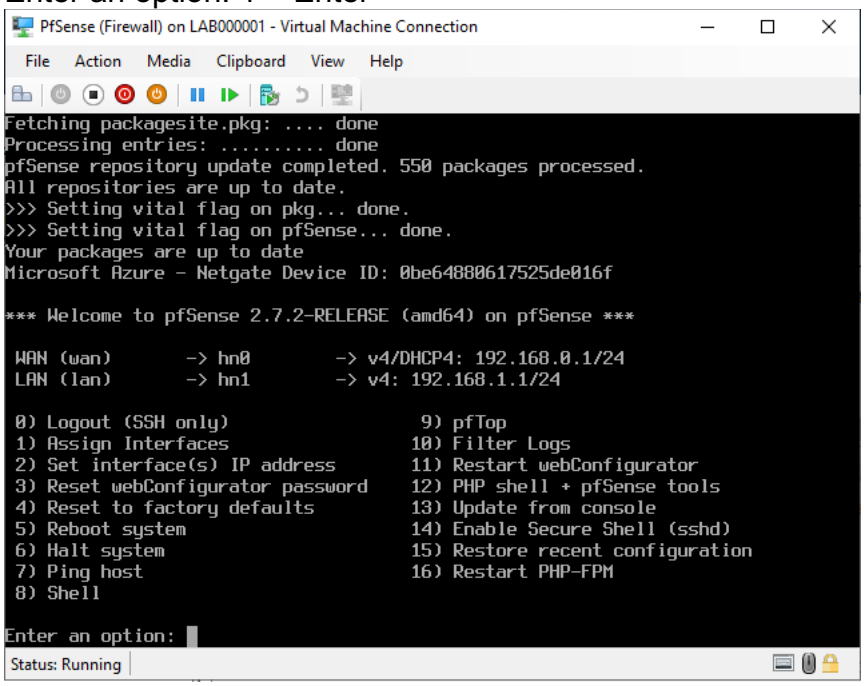


c) Enter the LAN interface name (hn1 a or nothing): hn1 > Enter

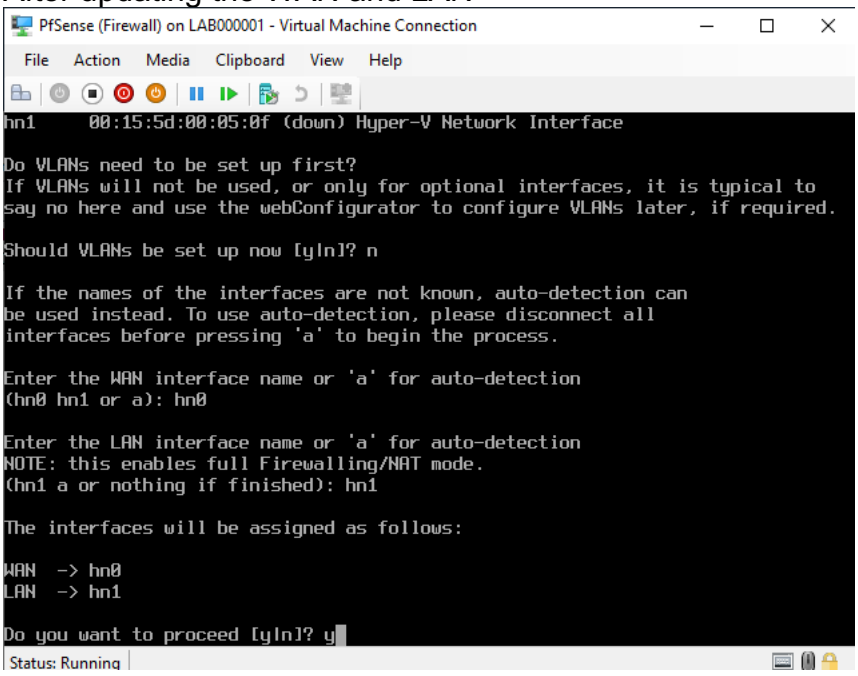


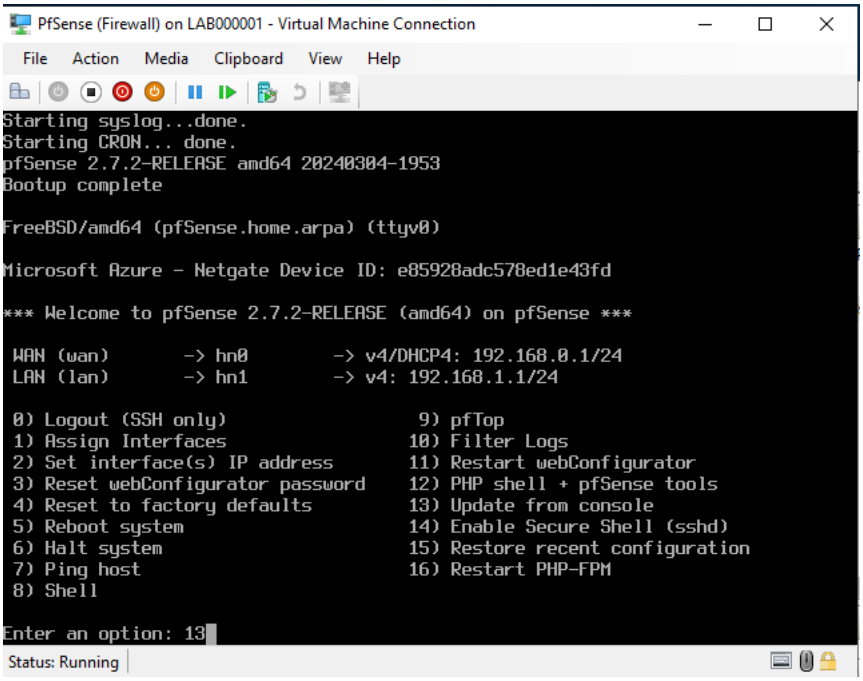
7. Test Setup Completion:

Enter an option: 1 > Enter



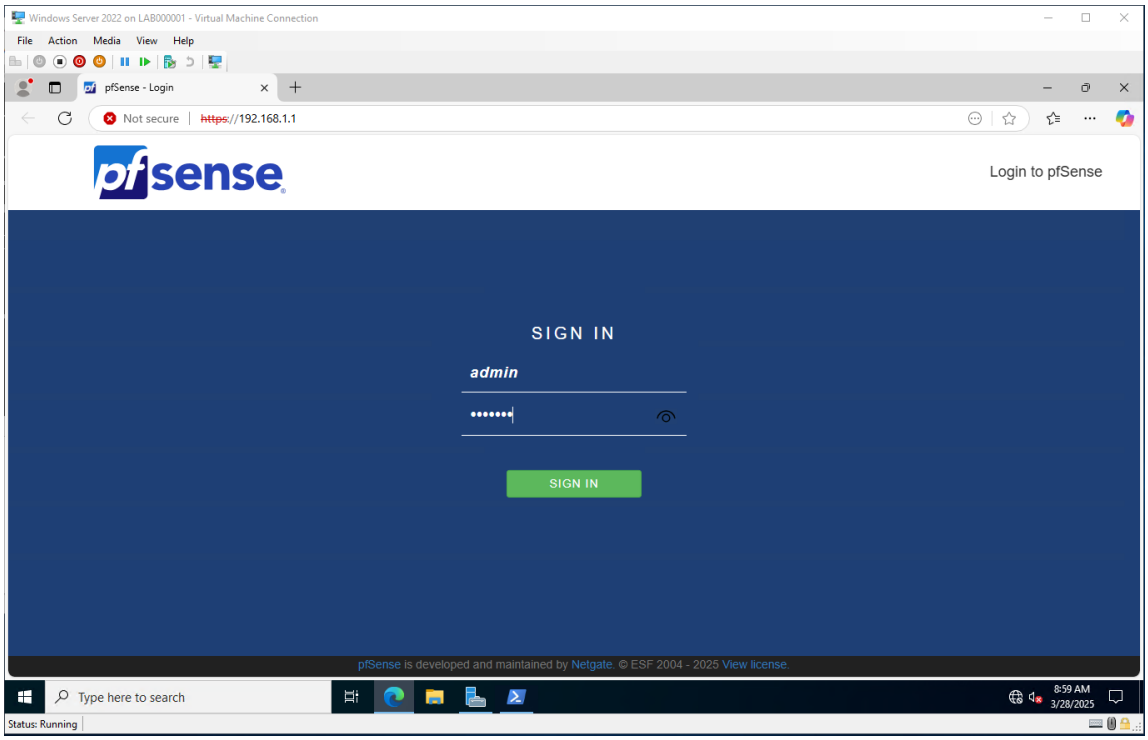
After updating the WAN and LAN



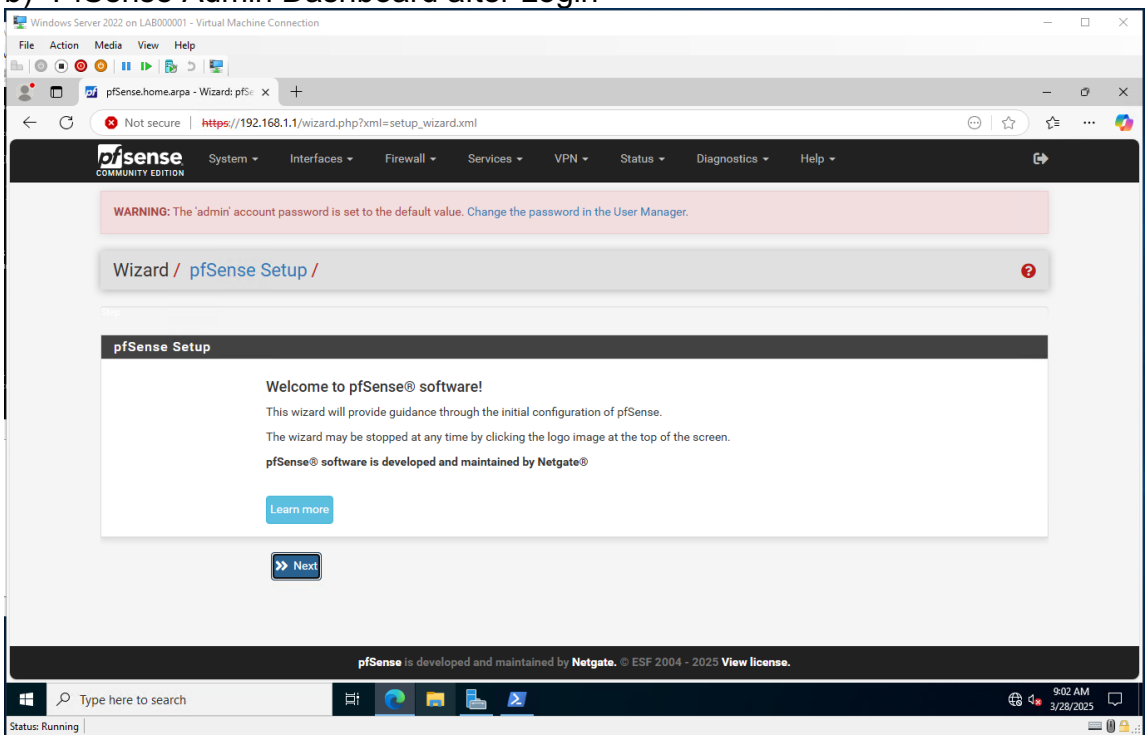


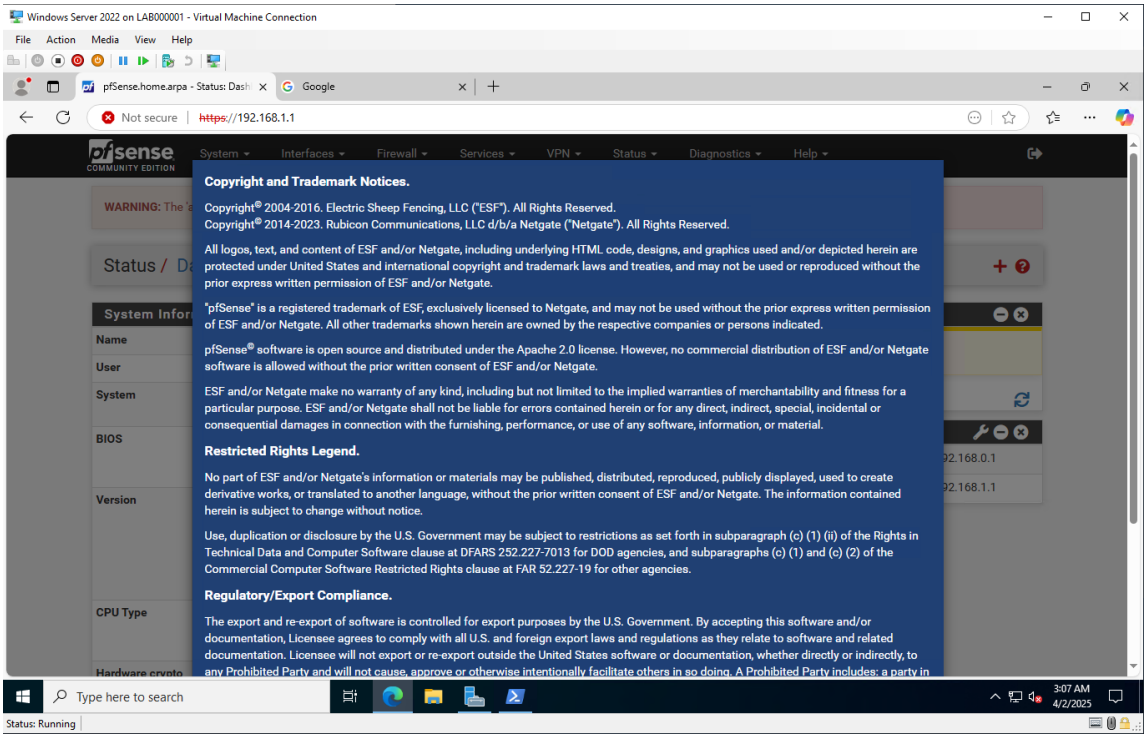
8. Test PfSense Connection by visiting PfSense Web Page from another VM (Windows Server 2022):

a) Login with default admin credentials:



b) PfSense Admin Dashboard after Login




Windows Server 2022 on LAB000001 - Virtual Machine Connection
File Action Media View Help
pfSense.home.arpa - Status: Dash
Google
Not secure https://192.168.1.1
pfsense COMMUNITY EDITION
System Interfaces Firewall Services VPN Status Diagnostics Help
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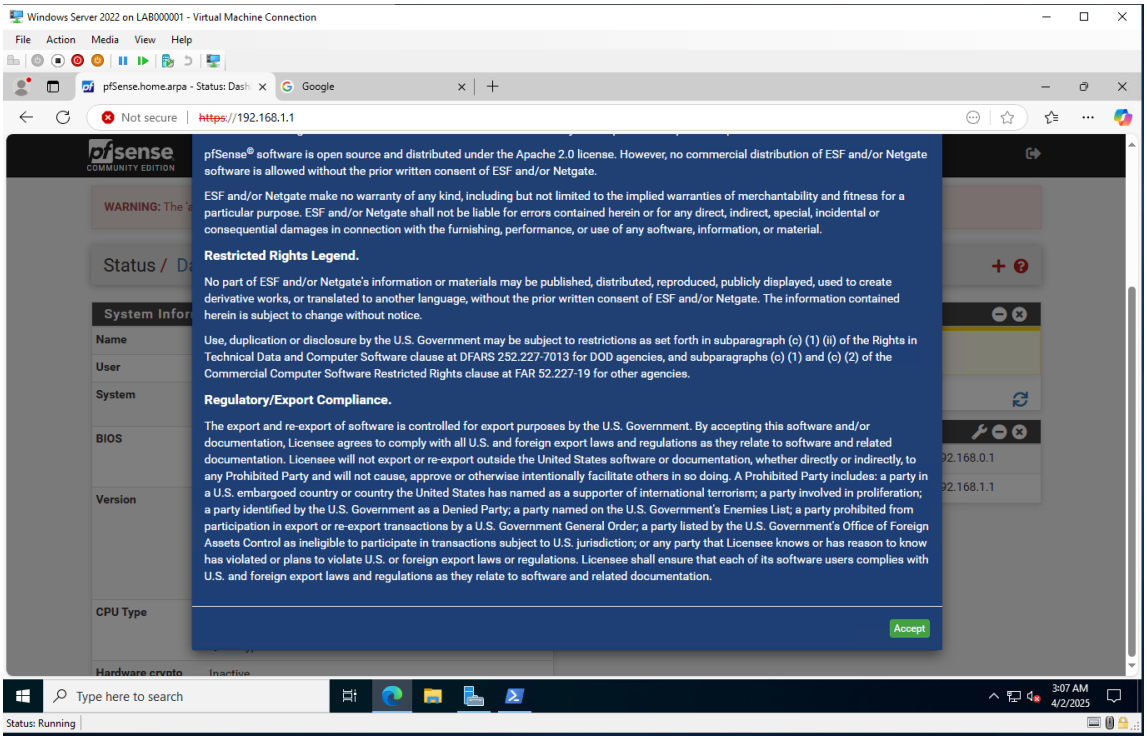
Status / D
System Infor
Name
User
System
BIOS
Version
CPU Type
Type here to search
3:07 AM
4/2/2025
Status: Running


Windows Server 2022 on LAB000001 - Virtual Machine Connection
File Action Media View Help
pfSense.home.arpa - Status: Dash
Google
Not secure https://192.168.1.1
pfsense COMMUNITY EDITION
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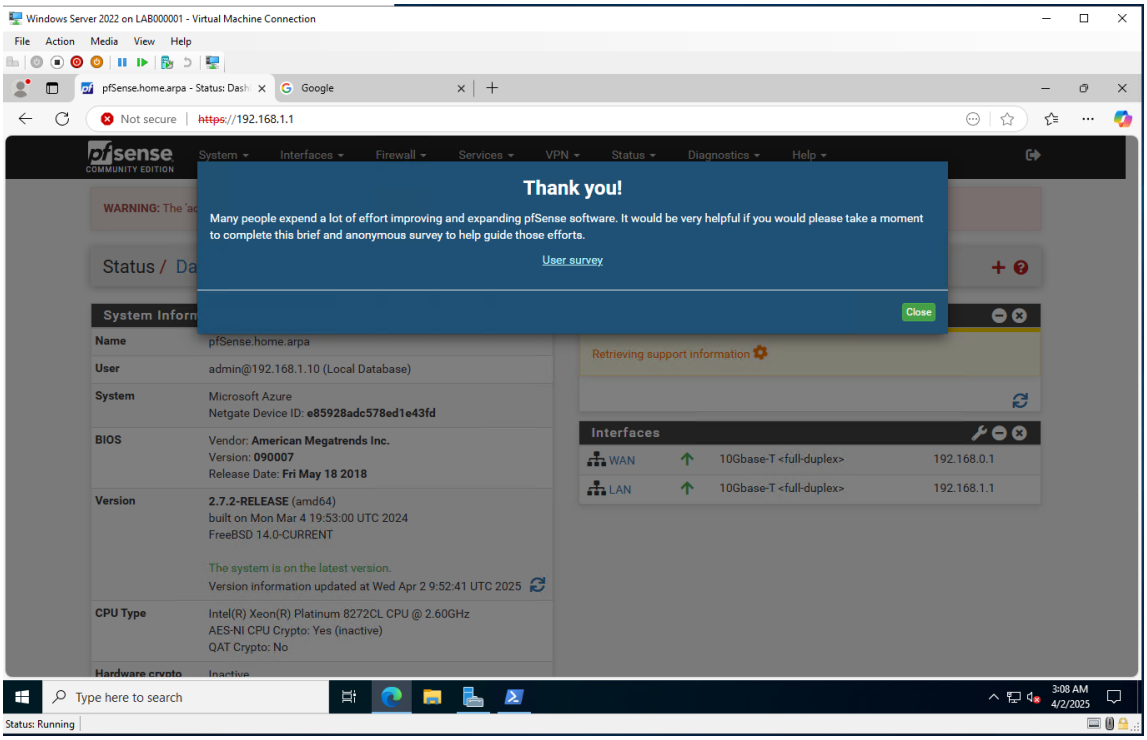
Accept
Status / D
System Infor
Name
User
System
BIOS
Version
CPU Type
Type here to search
3:07 AM
4/2/2025
Status: Running


Windows Server 2022 on LAB000001 - Virtual Machine Connection
File Action Media View Help
pfSense.home.arpa - Status: Dash
Google
Not secure https://192.168.1.1
pfsense COMMUNITY EDITION
System Interfaces Firewall Services VPN Status Diagnostics Help
Thank you!
Many people expend a lot of effort improving and expanding pfSense software. It would be very helpful if you would please take a moment to complete this brief and anonymous survey to help guide those efforts.
User survey
Close
Status / Da
System Inform
Name pfSense.home.arpa
User admin@192.168.1.10 (Local Database)
System Microsoft Azure
Netgate Device ID: e85928adc578ed1e43fd
BIOS Vendor: American Megatrends Inc.
Version: 090007
Release Date: Fri May 18 2018
Version 2.7.2-RELEASE (amd64)
built on Mon Mar 4 19:53:00 UTC 2024
FreeBSD 14.0-CURRENT
The system is on the latest version.
Version information updated at Wed Apr 2 9:52:41 UTC 2025
CPU Type Intel(R) Xeon(R) Platinum 8272CL CPU @ 2.60GHz
AES-NI CPU Crypto: Yes (inactive)
QAT Crypto: No
Hardware crypto Inactive
Retrieving support information
Interfaces
WAN 10Gbase-T <full-duplex> 192.168.0.1
LAN 10Gbase-T <full-duplex> 192.168.1.1
Type here to search
3:08 AM
4/2/2025
Status: Running