



**IUS**  
INSTITUT  
UNIVERSITAIRE  
DES SCIENCES

**FACULTÉ DES SCIENCES ET DES TECHNOLOGIES  
(FST)**

**Troisième année**

**RAPPORT**

**Sur le Travail de Laboratoire N° 8**

**COURS**

**Réseaux II**

**Professeur**

**Ismaël SAINT AMOUR**

**PRÉPARÉ PAR**

**Peterson CHERY**

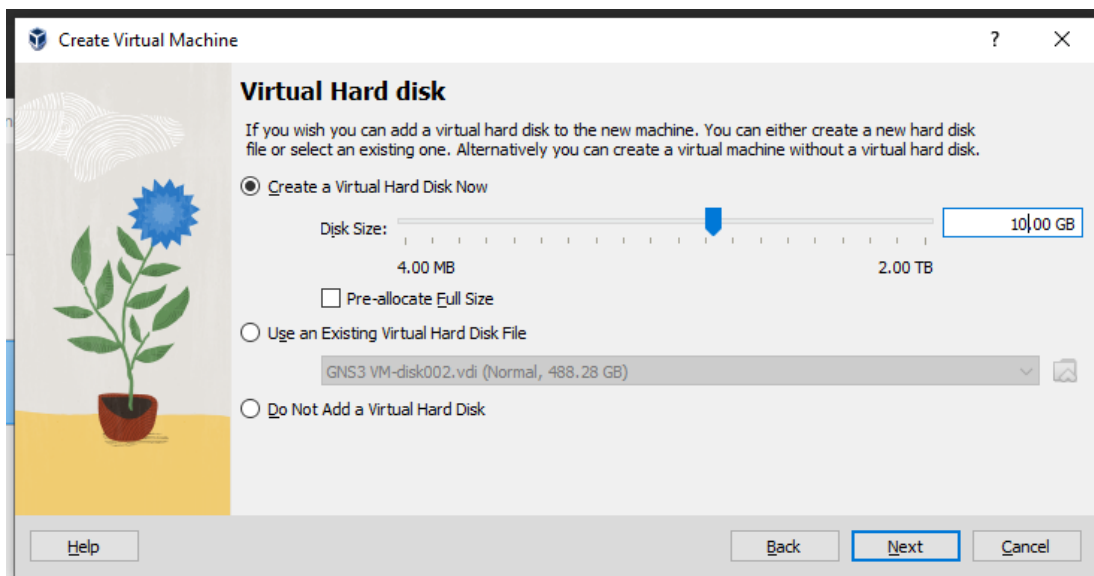
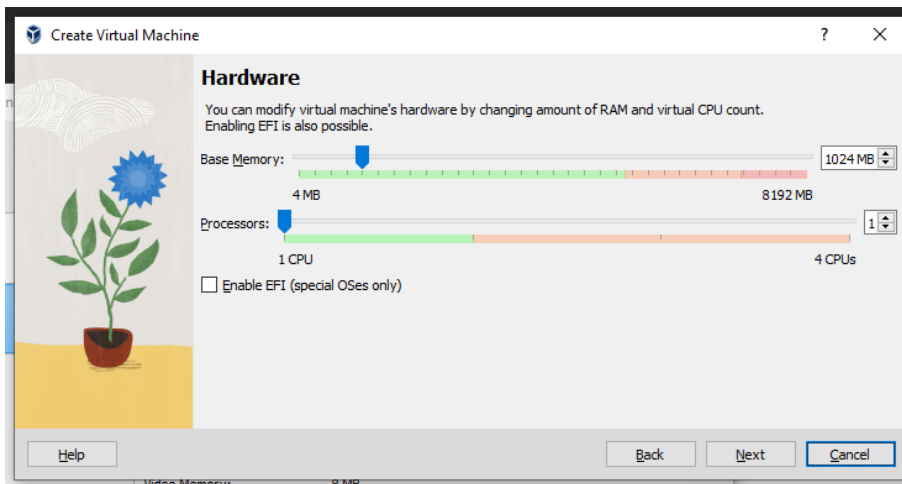
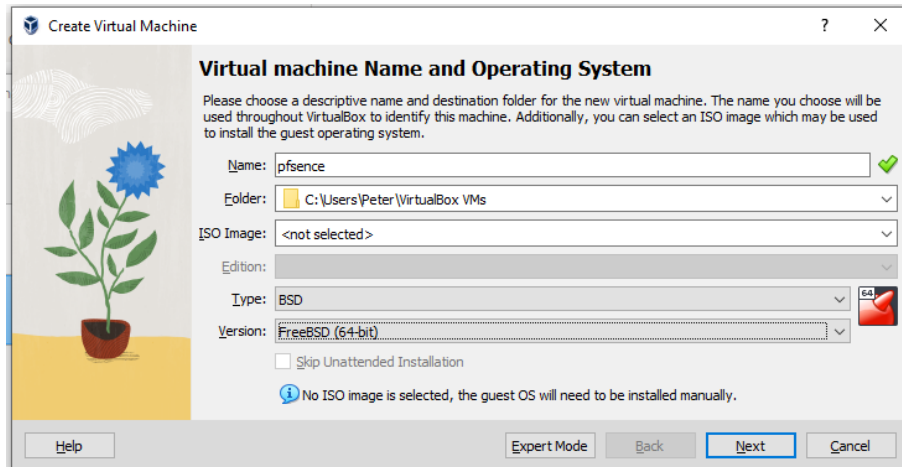
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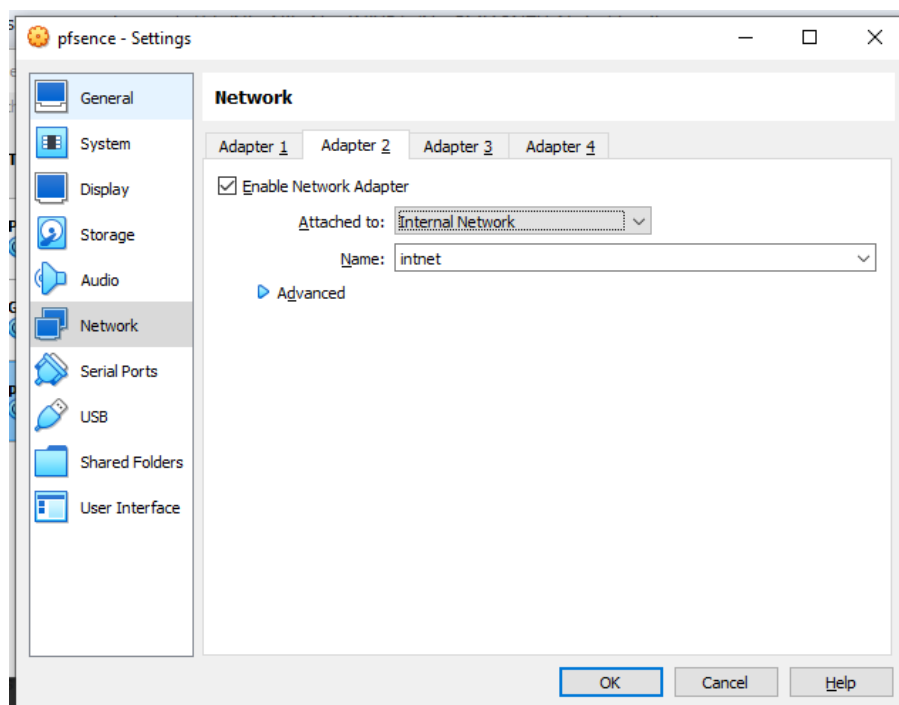
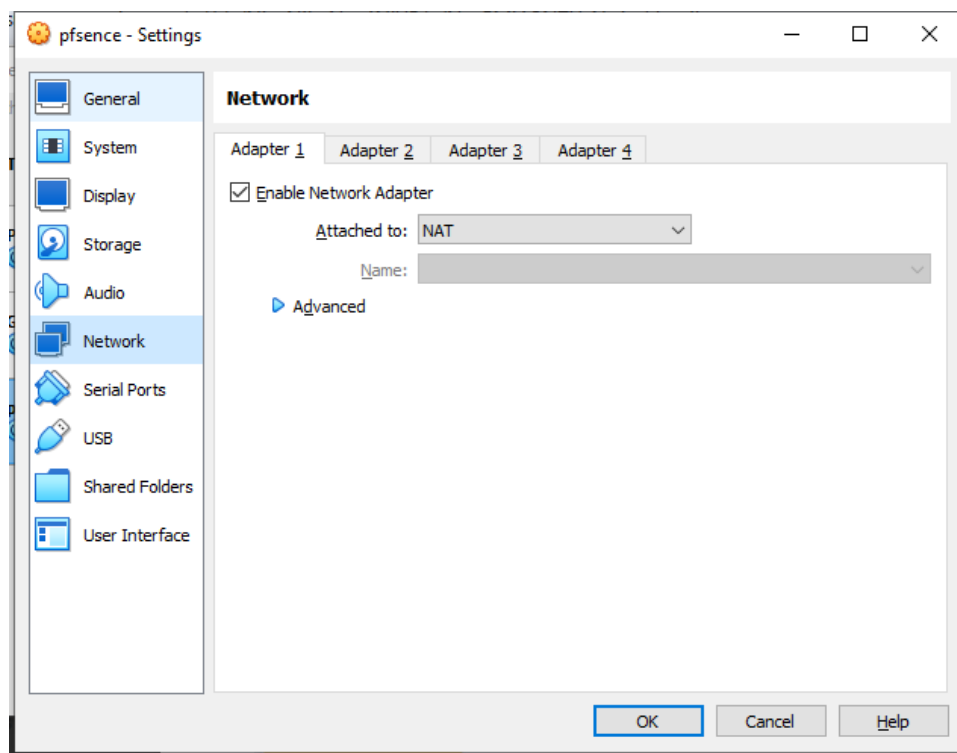
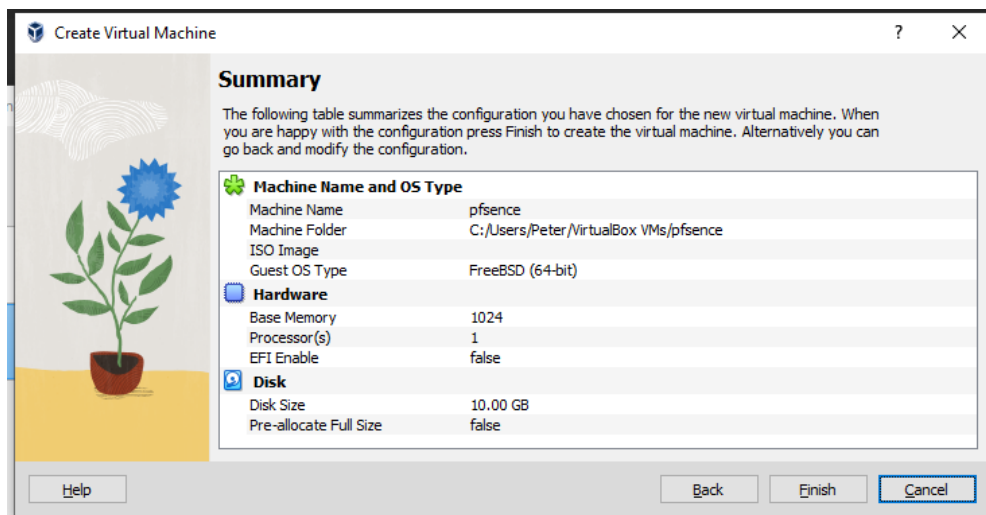
**II**

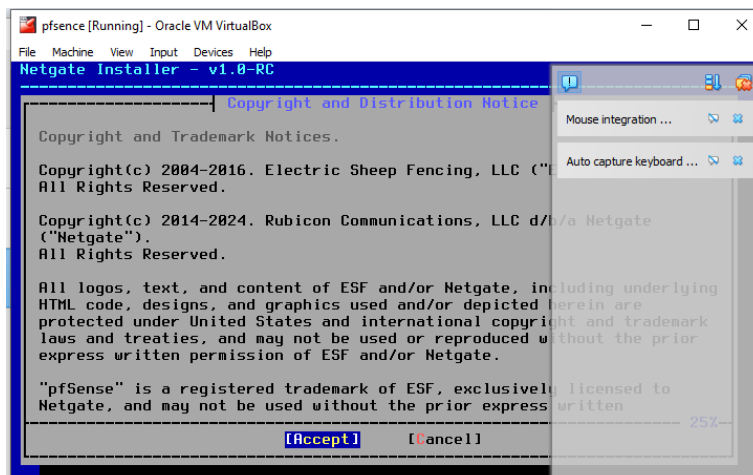
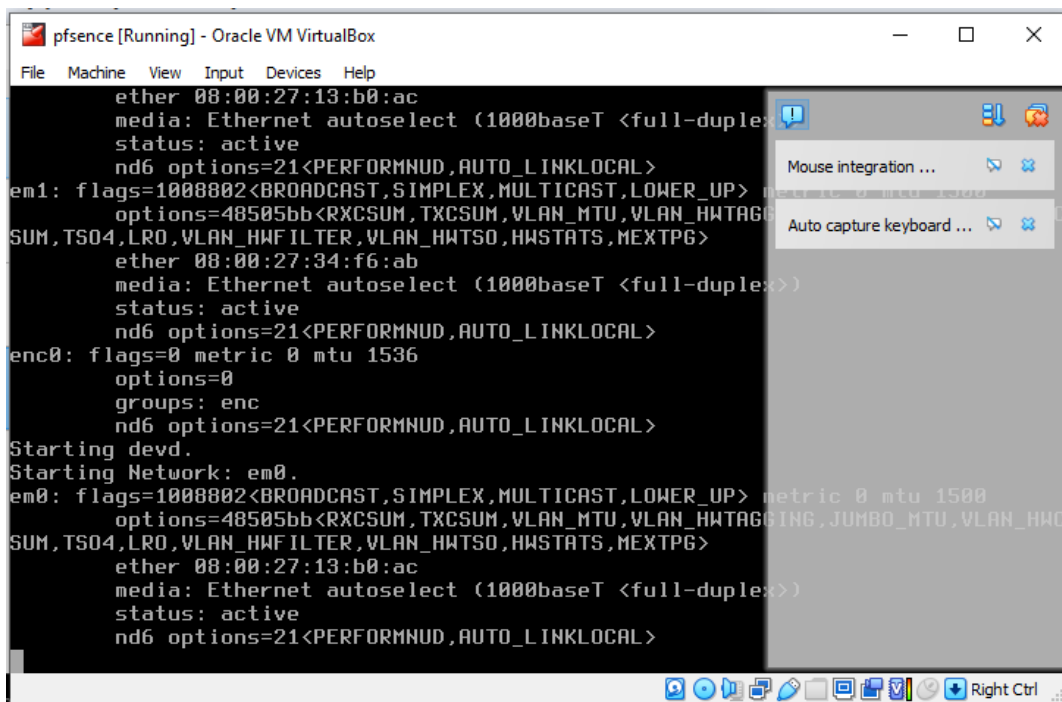
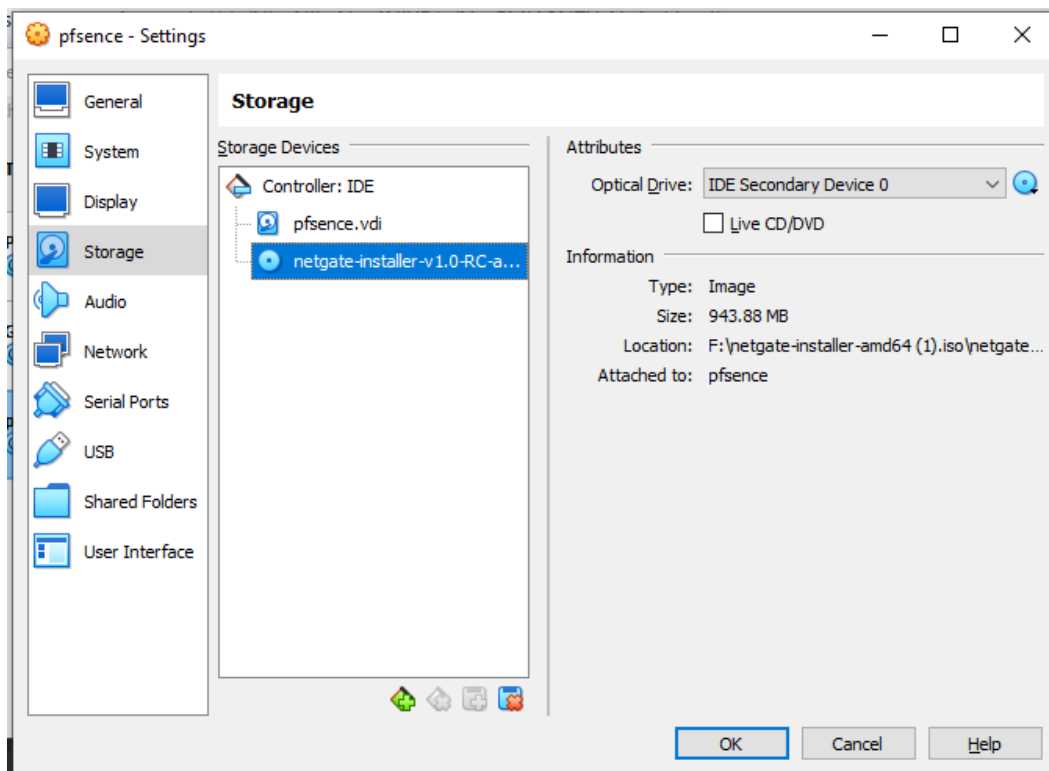
**Le 25/05/2025**

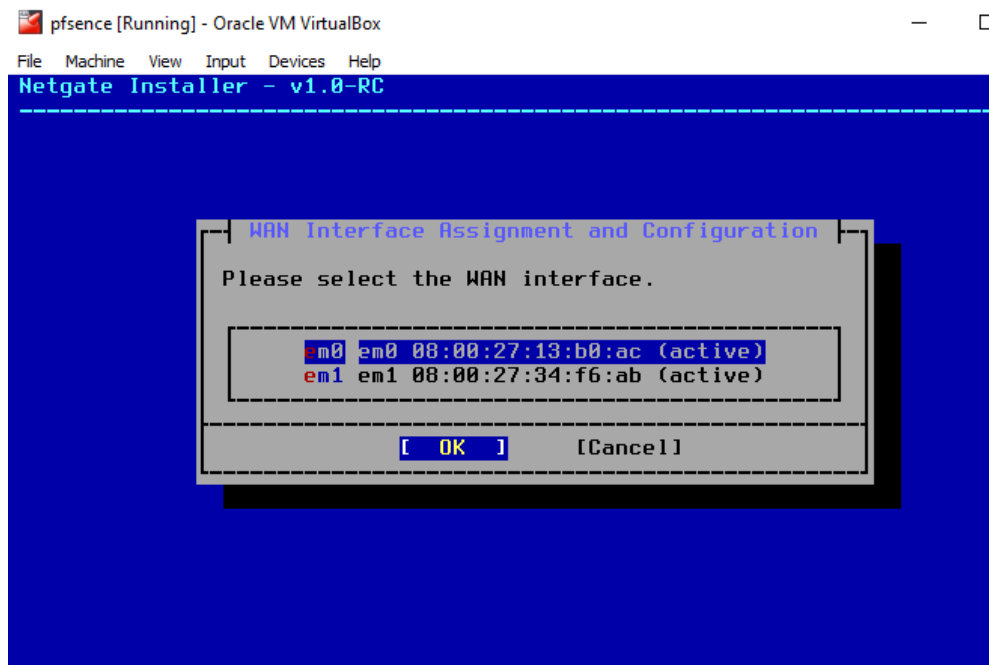
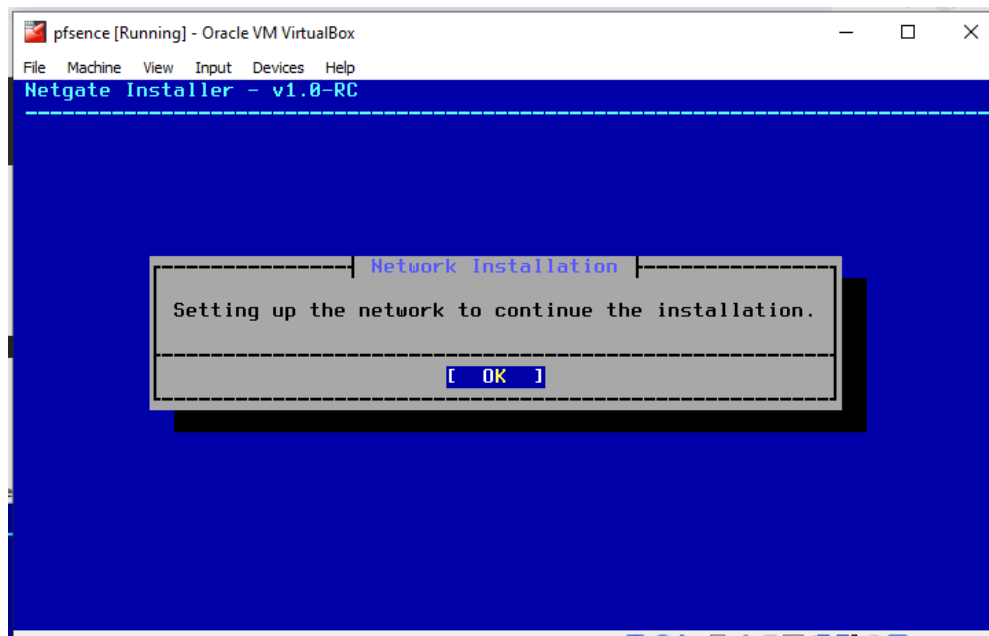
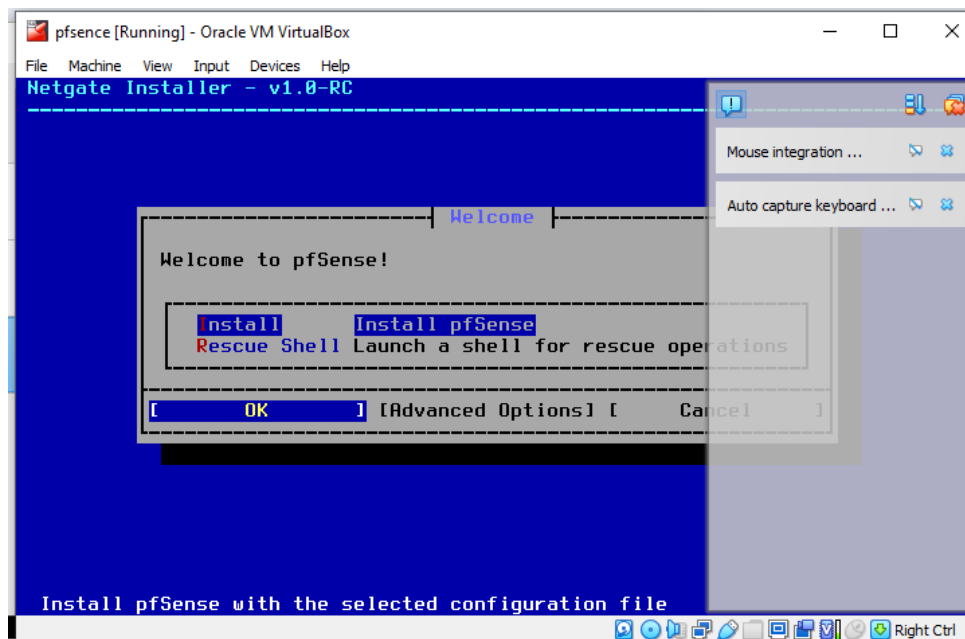
## 1. Installation et Configuration PfSense sur un VM

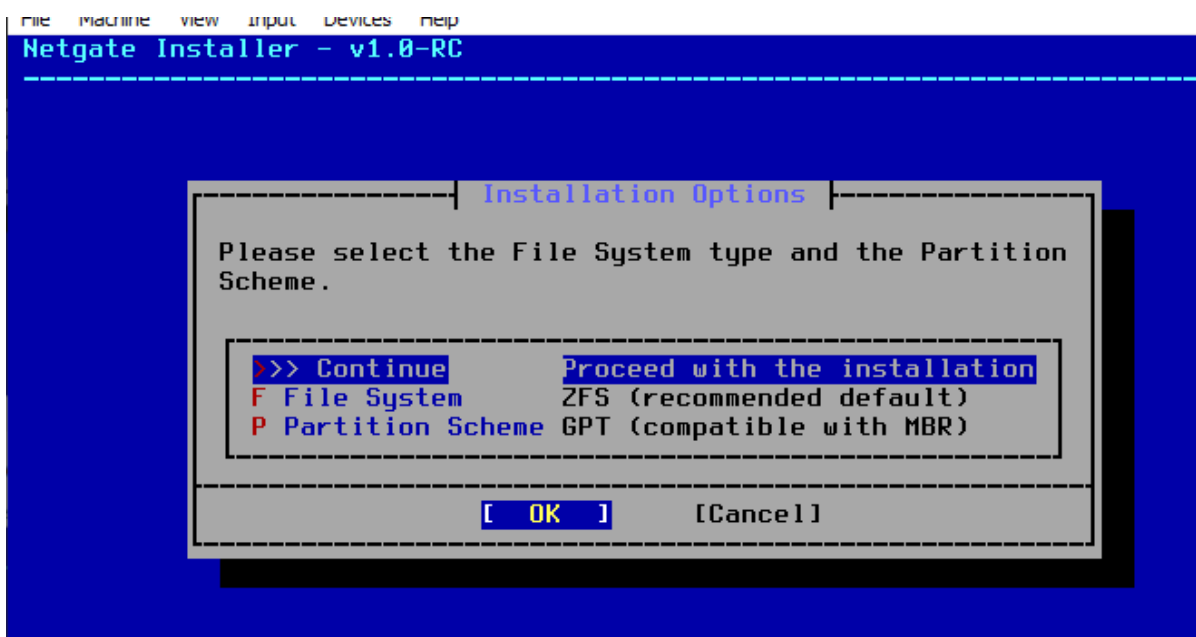
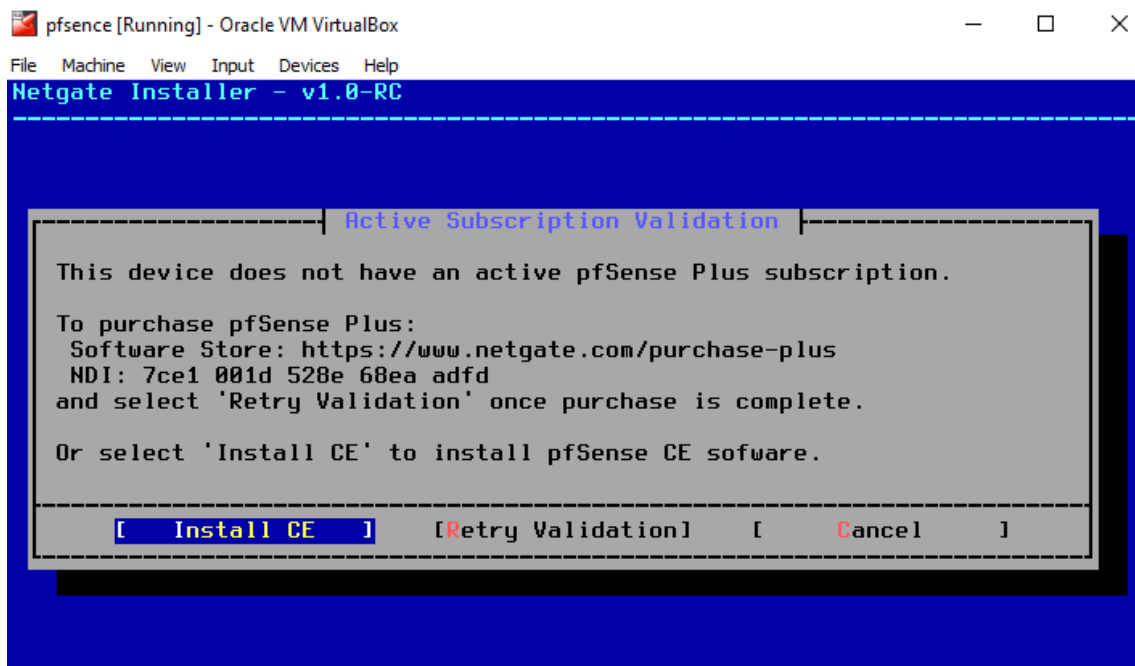
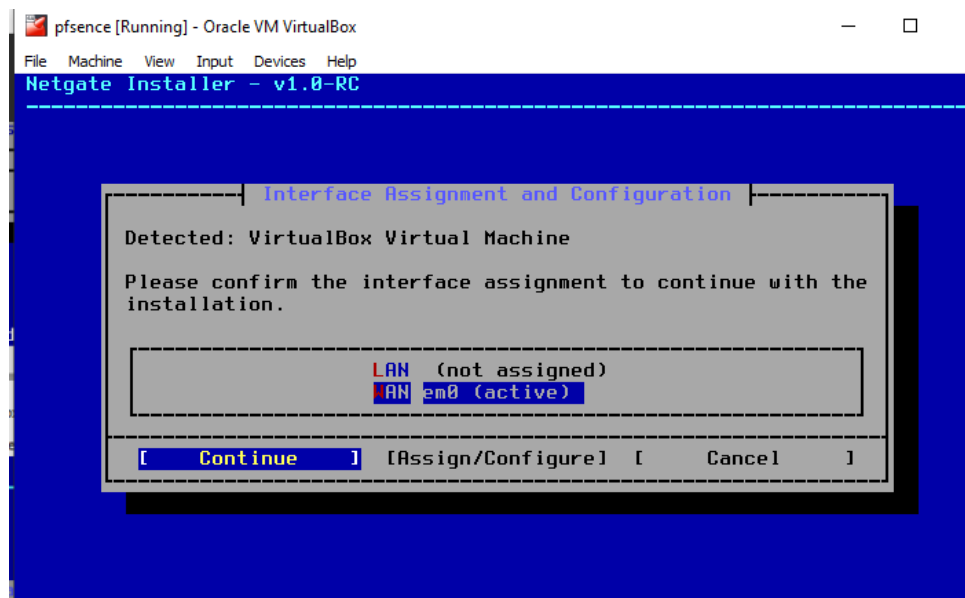
- Création d'une VM Cliente :

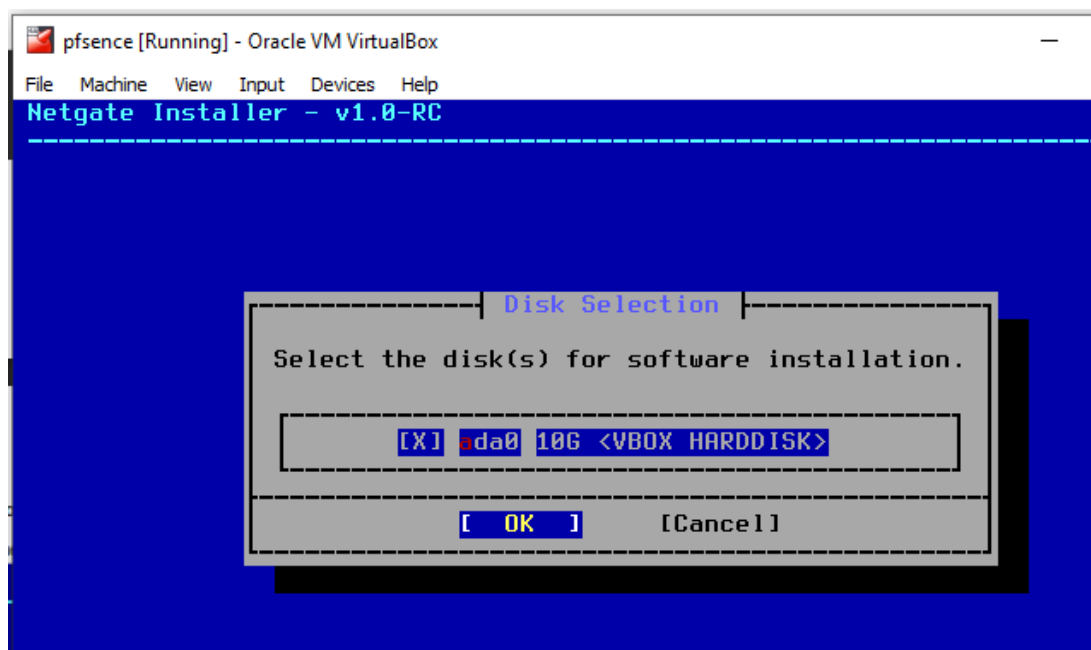
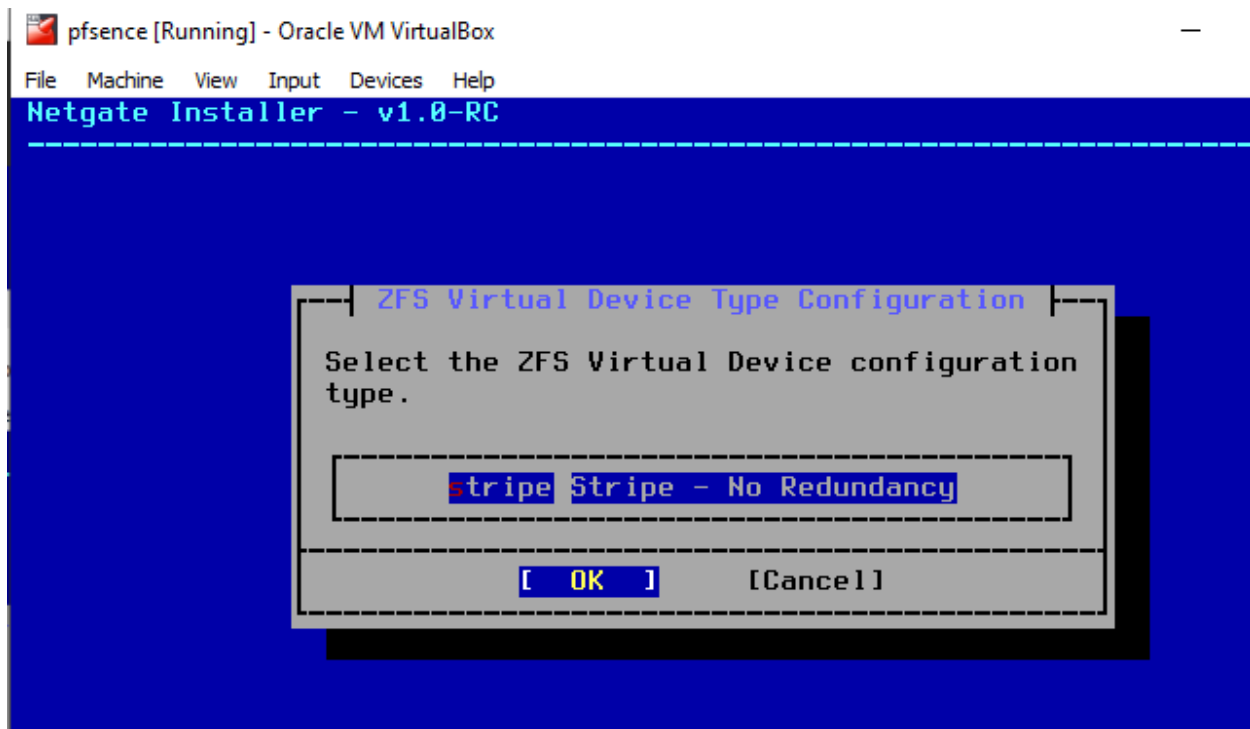




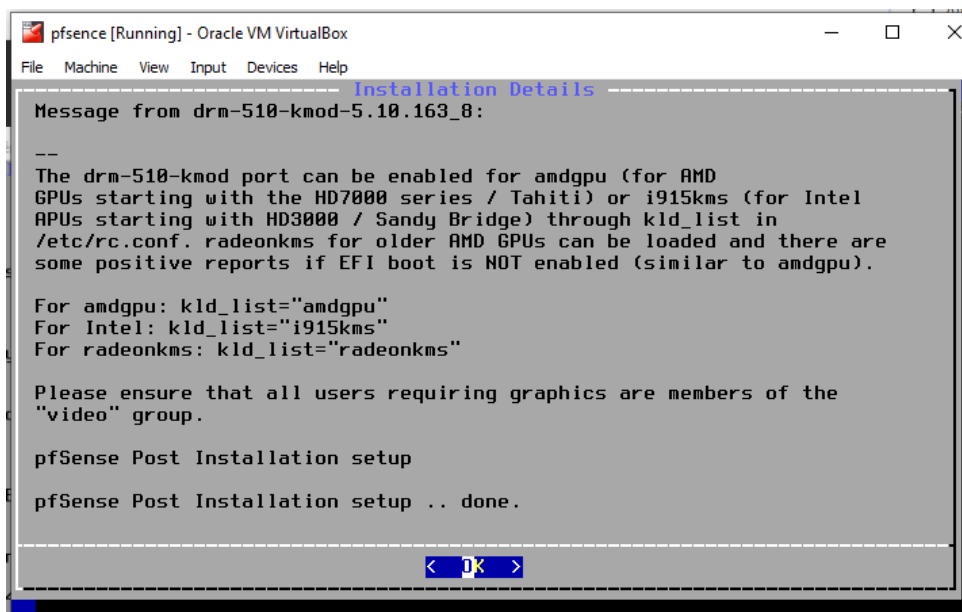
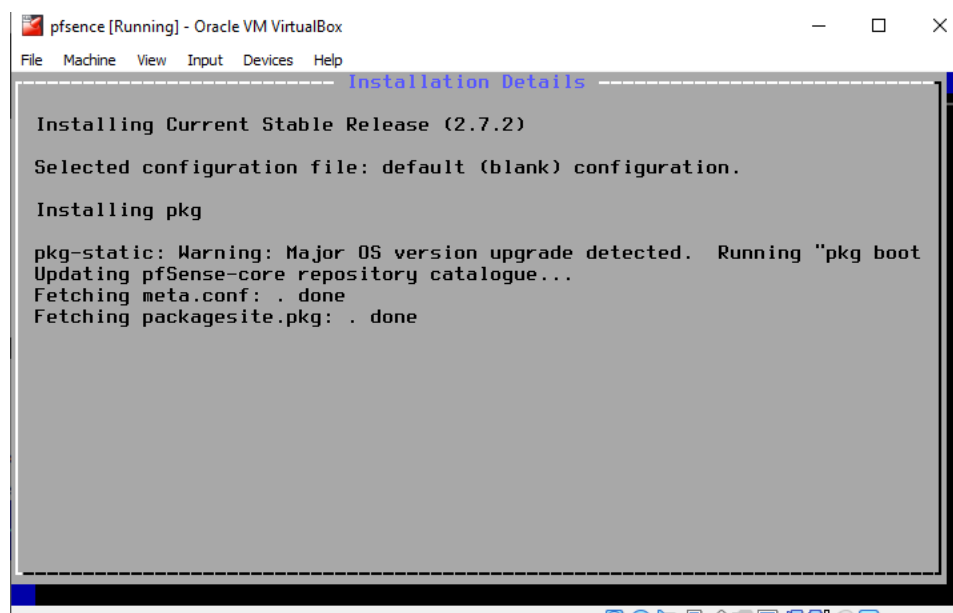
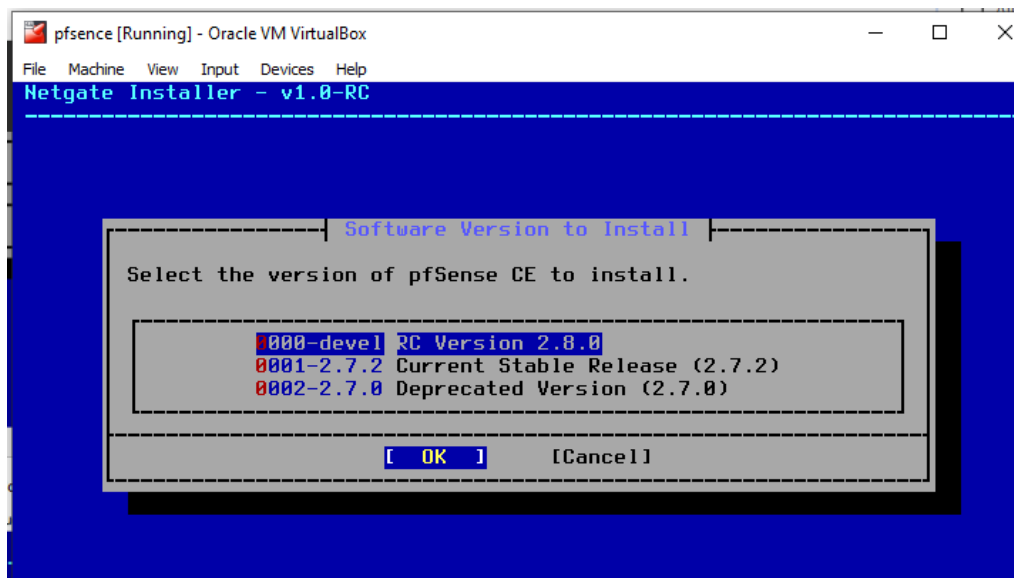






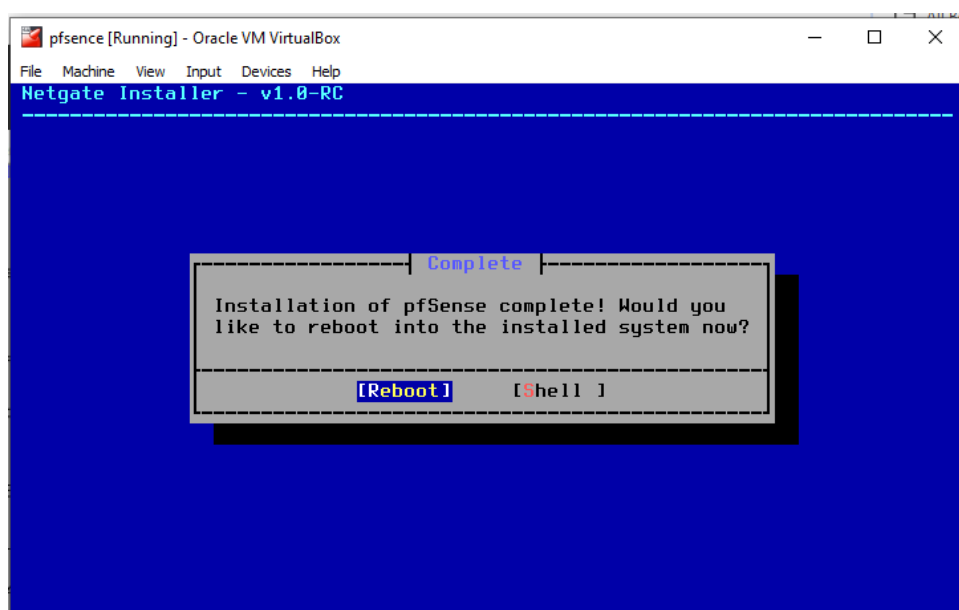


## J'ai choisi la version Stable (2.7.2)





## J'ai retiré le disque du lecteur virtuel à savoir le netgate



```
Starting CRON... done.
pfSense 2.7.2-RELEASE amd64 20240304-1953
Bootup complete

FreeBSD/amd64 (pfSense.home.arpa) (ttyv0)

VirtualBox Virtual Machine - Netgate Device ID: bf8d410af6a1e25e2a04

*** Welcome to pfSense 2.7.2-RELEASE (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4/DHCP4: 10.0.2.15/24
                -> v6/DHCP6: fd00::a00:27ff:feaa:2a15/64
LAN (lan)      -> em1      -> v4: 192.168.1.1/24

0) Logout (SSH only)          9) pfTop
1) Assign Interfaces          10) Filter Logs
2) Set interface(s) IP address 11) Restart webConfigurator
3) Reset webConfigurator password 12) PHP shell + pfSense tools
4) Reset to factory defaults  13) Update from console
5) Reboot system              14) Enable Secure Shell (sshd)
6) Halt system                15) Restore recent configuration
7) Ping host                  16) Restart PHP-FPM
8) Shell

Enter an option: 
```

```
*** Welcome to pfSense 2.7.2-RELEASE (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4/DHCP4: 10.0.2.15/24
                -> v6/DHCP6: fd00::a00:27ff:feaa:2a15/64
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6) Halt system                15) Restore recent configuration
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8) Shell

Enter an option: 2

Available interfaces:

1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)

Enter the number of the interface you wish to configure: 
```

```

6) Halt system
7) Ping host
8) Shell
15) Restore recent configuration
16) Restart PHP-FPM

Enter an option: 2

Available interfaces:

1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)

Enter the number of the interface you wish to configure: 2

Configure IPv4 address LAN interface via DHCP? (y/n) n

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.2.1

Subnet masks are entered as bit counts (as in CIDR notation) in pfSense.
e.g. 255.255.255.0 = 24
     255.255.0.0   = 16
     255.0.0.0     = 8

Enter the new LAN IPv4 subnet bit count (1 to 32):
> 24

```

```

The IPv4 LAN address has been set to 192.168.2.1/24

The IPv6 LAN address has been set to dhcp6

Press <ENTER> to continue.
VirtualBox Virtual Machine - Netgate Device ID: bf8d410af6a1e25e2a04

*** Welcome to pfSense 2.7.2-RELEASE (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4/DHCP4: 10.0.2.15/24
                -> v6/DHCP6: fd00::a00:27ff:feaa:2a15/64
LAN (lan)      -> em1      -> v4: 192.168.2.1/24

8) Logout (SSH only)
1) Assign Interfaces
2) Set interface(s) IP address
3) Reset webConfigurator password
4) Reset to factory defaults
5) Reboot system
6) Halt system
7) Ping host
8) Shell
9) pfTop
10) Filter Logs
11) Restart webConfigurator
12) PHP shell + pfSense tools
13) Update from console
14) Enable Secure Shell (sshd)
15) Restore recent configuration
16) Restart PHP-FPM

Enter an option:

```

- **Maintenant on va dans Control Panel**

Adjust your computer's settings

View by: [Category](#) ▼



### System and Security

Review your computer's status  
Save backup copies of your files with File History  
Backup and Restore (Windows 7)



### Network and Internet

View network status and tasks



### Hardware and Sound

View devices and printers  
Add a device  
Adjust commonly used mobility settings



### Programs

Uninstall a program



### User Accounts

Change account type



### Appearance and Personalization



### Clock and Region

Change date, time, or number formats



### Ease of Access

Let Windows suggest settings  
Optimize visual display



## Network and Sharing Center

[View network status and tasks](#)[Connect to a network](#)[View network computers and devices](#)

## Internet Options

[Change your homepage](#)[Manage browser add-ons](#)[Delete browsing history and cookies](#)

Network and Sharing Center

Control Panel > Network and Internet > Network and Sharing Center

Control Panel Home

Change adapter settings

Change advanced sharing settings

Media streaming options

### View your basic network information and set up connections

View your active networks

**IUS\_University**  
Public network

Access type: Internet

Connections: Wi-Fi (IUS\_University)

### Change your networking settings

[Set up a new connection or network](#)  
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.

[Troubleshoot problems](#)  
Diagnose and repair network problems, or get troubleshooting information.



Ethernet  
Network cable unplugged  
Realtek PCIe FE Family Controller



Wi-Fi  
IUS\_University  
Qualcomm Atheros AR9485 Wirel...



Ethernet 2  
Enabled  
VirtualBox Host-Only Ethernet Ad...



VMware Network Adapter VMnet1  
Enabled  
VMware Virtual Ethernet Adapter ...



VMware Network Adapter VMnet8  
Enabled  
VMware Virtual Ethernet Adapter ...

Ethernet Properties

Networking | Sharing

Connect using:

Realtek PCIe FE Family Controller

[Configure...](#)

This connection uses the following items:

- ☒ VirtualBox NDIS6 Bridged Networking Driver
- ☒ Npcap Packet Driver (NPCAP)
- ☒ QoS Packet Scheduler
- ☒ Internet Protocol Version 4 (TCP/IPv4)
- ☐ Microsoft Network Adapter Multiplexor Protocol
- ☒ Microsoft LLDP Protocol Driver
- ☒ Internet Protocol Version 6 (TCP/IPv6)

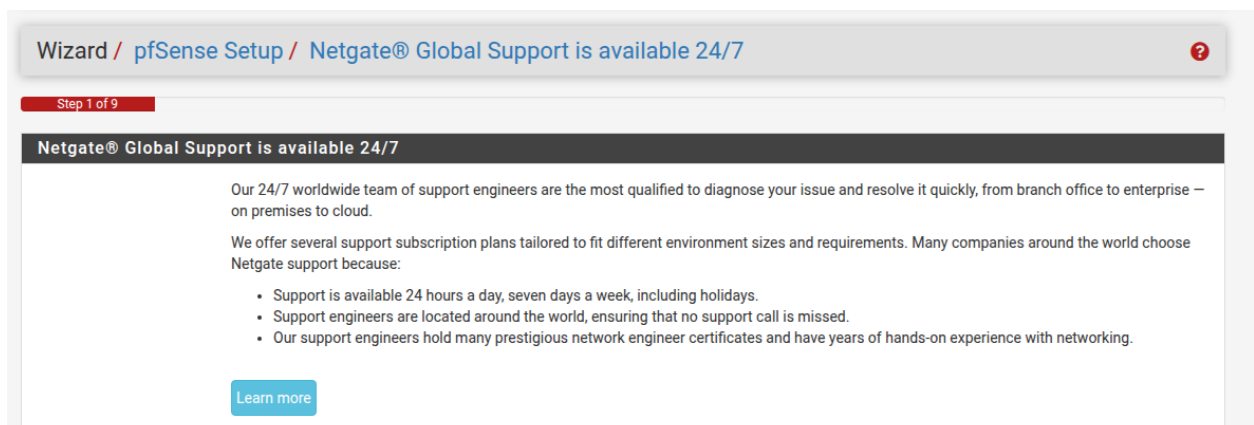
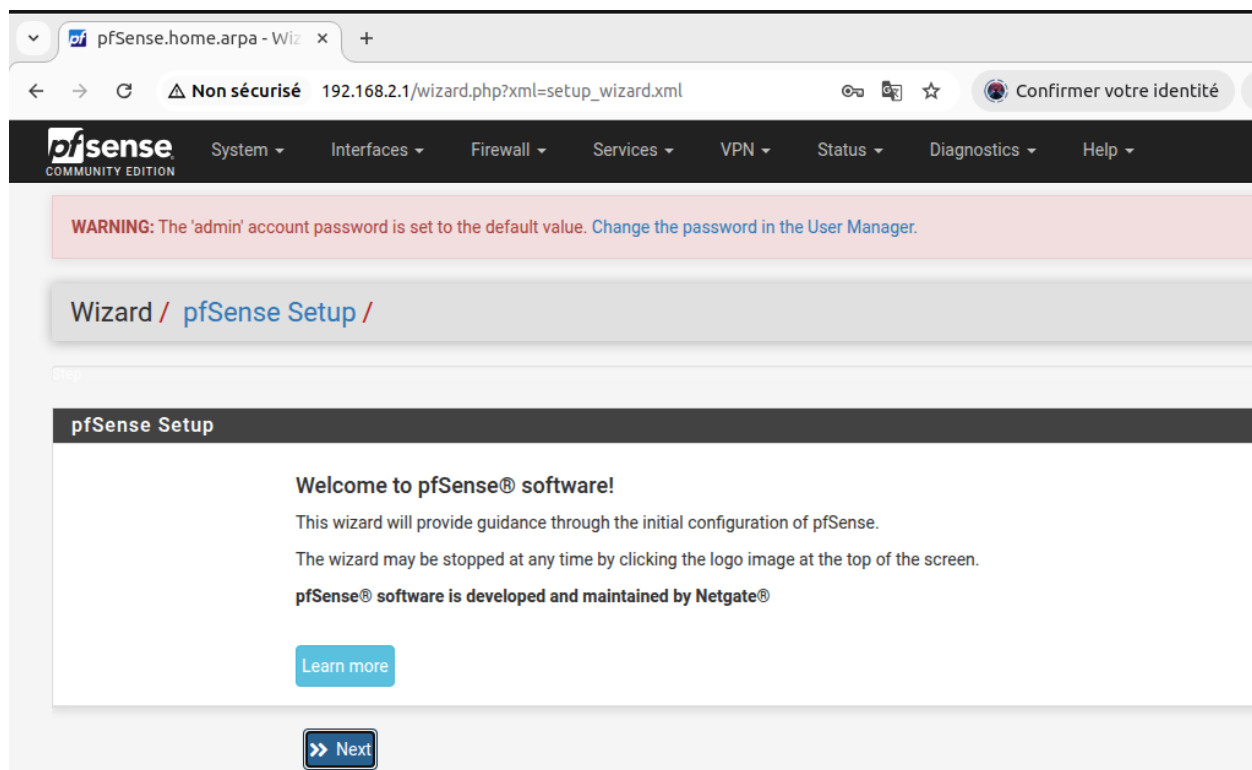
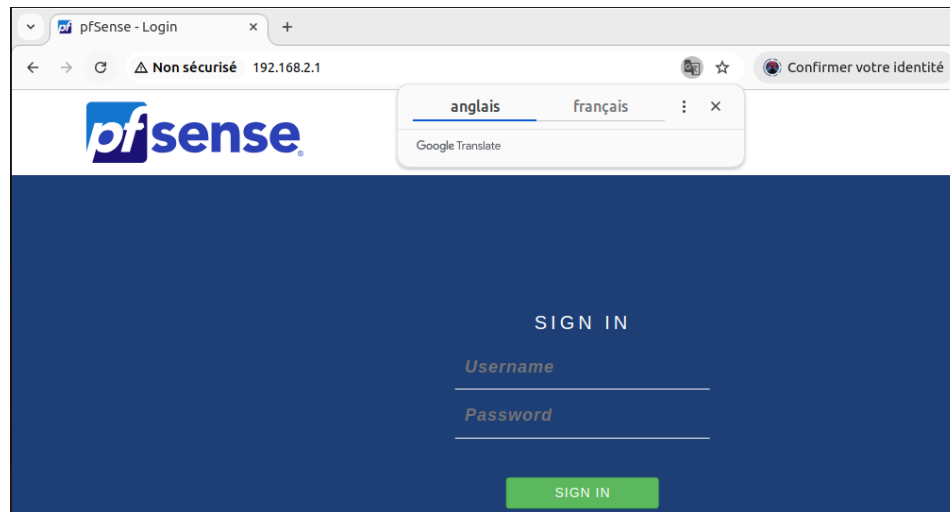
[Install...](#) [Uninstall](#) [Properties](#)

Description

Allows your computer to access resources on a Microsoft network.

OK Cancel

## 2. Maintenant accès à l'interface Web



## General Information

On this screen the general pfSense parameters will be set.

Hostname

Name of the firewall host, without domain part.

Examples: pfsense, firewall, edgefw

Domain

Domain name for the firewall.

Examples: home.arpa, example.com

Do not end the domain name with '.local' as the final part (Top Level Domain, TLD). The 'local' TLD is widely used by mDNS (e.g. Avahi, Bonjour, Rendezvous, Airprint, Airplay) and some Windows systems and networked devices. These will not network correctly if the router uses 'local' as its TLD. Alternatives such as 'home.arpa', 'local.lan', or 'mylocal' are safe.

The default behavior of the DNS Resolver will ignore manually configured DNS servers for client queries and query root DNS servers directly. To use the manually configured DNS servers below for client queries, visit Services > DNS Resolver and enable DNS Query Forwarding after completing the wizard.

Primary DNS Server

Secondary DNS Server

Override DNS



Allow DNS servers to be overridden by DHCP/PPP on WAN

## Wizard / pfSense Setup / Time Server Information

Step 3 of 9

### Time Server Information

Please enter the time, date and time zone.

Time server hostname

Enter the hostname (FQDN) of the time server.

Timezone

>> Next

## Wizard / pfSense Setup / Configure WAN Interface

Step 4 of 9

### Configure WAN Interface

On this screen the Wide Area Network information will be configured.

SelectedType

### General configuration

MAC Address

This field can be used to modify ("spoof") the MAC address of the WAN interface (may be required with some cable connections). Enter a MAC address in the following format: xx:xx:xx:xx:xx:xx or leave blank.

MTU

Set the MTU of the WAN interface. If this field is left blank, an MTU of 1492 bytes for PPPoE and 1500 bytes for all other connection types will be assumed.

MSS

If a value is entered in this field, then MSS clamping for TCP connections to the value entered above minus 40 (TCP/IP header size) will be in effect. If this field is left blank, an MSS of 1492 bytes for PPPoE and 1500 bytes for all other connection types will be assumed. This should match the above MTU value in most all cases.

### Static IP Configuration

IP Address

Static IP Configuration	
IP Address	<input type="text"/>
Subnet Mask	<input type="text" value="32"/>
Upstream Gateway	<input type="text"/>
DHCP client configuration	
DHCP Hostname	<input type="text"/>
The value in this field is sent as the DHCP client identifier and hostname when requesting a DHCP lease. Some ISPs may require this (for client identification).	
PPPoE configuration	
PPPoE Username	<input type="text"/>
PPPoE Password	<input type="text"/>
Show PPPoE password	<input type="checkbox"/> Reveal password characters
PPPoE Service name	<input type="text"/>
Hint: this field can usually be left empty	
PPPoE Dial on demand	<input type="checkbox"/> Enable Dial-On-Demand mode
This option causes the interface to operate in dial-on-demand mode, allowing a virtual full time connection. The interface is configured, but the actual	

Show PPTP password	<input type="checkbox"/> Reveal password characters
PPTP Local IP Address	<input type="text"/>
pptplocalsubnet	<input type="text" value="32"/>
PPTP Remote IP Address	<input type="text"/>
PPTP Dial on demand	<input type="checkbox"/> Enable Dial-On-Demand mode
This option causes the interface to operate in dial-on-demand mode, allowing a virtual full time connection. The interface is configured, but the actual connection of the link is delayed until qualifying outgoing traffic is detected.	
PPTP Idle timeout	<input type="text"/>
If no qualifying outgoing packets are transmitted for the specified number of seconds, the connection is brought down. An idle timeout of zero disables this feature.	
RFC1918 Networks	
Block RFC1918 Private Networks	<input type="checkbox"/> Block private networks from entering via WAN
When set, this option blocks traffic from IP addresses that are reserved for private networks as per RFC 1918 (10/8, 172.16/12, 192.168/16) as well as loopback addresses (127/8). This option should generally be left turned on, unless the WAN network lies in such a private address space, too.	
Block bogon networks	
Block bogon networks	<input type="checkbox"/> Block non-Internet routed networks from entering via WAN
When set, this option blocks traffic from IP addresses that are reserved (but not RFC 1918) or not yet assigned by IANA. Bogons are prefixes that should never appear in the Internet routing table, and obviously should not appear as the source address in any packets received.	
<a href="#">Next</a>	

**WARNING:** The 'admin' account password is set to the default value. [Change the password in the User Manager.](#)

## Wizard / pfSense Setup / Configure LAN Interface

Step 5 of 9

### Configure LAN Interface

On this screen the Local Area Network information will be configured.

LAN IP Address

Type dhcp if this interface uses DHCP to obtain its IP address.

Subnet Mask

[Next](#)

## Wizard / pfSense Setup / Set Admin WebGUI Password

Step 6 of 9

### Set Admin WebGUI Password

On this screen the admin password will be set, which is used to access the WebGUI and also SSH services if enabled.

Admin Password

\*\*\*\*\*

Admin Password AGAIN

\*\*\*\*\*

>> Next

**WARNING:** The 'admin' account password is set to the default value. [Change the password in the User Manager.](#)

## Wizard / pfSense Setup / Reload configuration

Step 7 of 9

### Reload configuration

Click 'Reload' to reload pfSense with new changes.

>> Reload

Step 9 of 9

Wizard completed.

**Congratulations! pfSense is now configured.**

We recommend that you check to see if there are any software updates available. Keeping your software up to date is one of the most important things you can do to maintain the security of your network.

[Check for updates](#)

Remember, we're here to help.

[Click here](#) to learn about Netgate 24/7/365 support services.

#### User survey

Please help all the people involved in improving and expanding pfSense software by taking a moment to answer this short survey (all answers are anonymous)

[Anonymous User Survey](#)

#### Useful resources.

- Learn more about Netgate's product line, services, and pfSense software from our [website](#)
- To learn about Netgate appliances and other offers, [visit our store](#)
- Become part of the pfSense community. Visit our [forum](#)
- Subscribe to our [newsletter](#) for ongoing product information, software announcements and special offers.

Finish



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Status / [Dashboard](#)



### System Information

Name	pfSense.localdomain
User	admin@192.168.2.3 (Local Database)
System	VirtualBox Virtual Machine Netgate Device ID: 7ce1001d528e68eaadfd
BIOS	Vendor: innotek GmbH Version: VirtualBox Release Date: Fri Dec 1 2006
Version	2.7.2-RELEASE (amd64) built on Mon Mar 4 14:53:00 EST 2024 FreeBSD 14.0-CURRENT  Unable to check for updates
CPU Type	Intel(R) Core(TM) i5-4210U CPU @ 1.70GHz AES-NI CPU Crypto: Yes (inactive) QAT Crypto: No
Hardware crypto	Inactive
Kernel PTI	Enabled
MDS Mitigation	Inactive
Uptime	00 Hour 28 Minutes 05 Seconds
Current date/time	Sun May 25 17:38:45 EDT 2025

### Netgate Services And Support

Contract type **Community Support**  
**Community Support Only**

#### NETGATE AND pfSense COMMUNITY SUPPORT RESOURCES

If you purchased your pfSense gateway firewall appliance from Netgate and elected **Community Support** at the point of sale or installed pfSense on your own hardware, you have access to various community support resources. This includes the [NETGATE RESOURCE LIBRARY](#).

You also may upgrade to a Netgate Global Technical Assistance Center (TAC) Support subscription. We're always on! Our team is staffed 24x7x365 and committed to delivering enterprise-class, worldwide support at a price point that is more than competitive when compared to others in our space.

- [Upgrade Your Support](#)
- [Community Support Resources](#)
- [Netgate Global Support FAQ](#)
- [Official pfSense Training by Netgate](#)
- [Netgate Professional Services](#)
- [Visit Netgate.com](#)

If you decide to purchase a Netgate Global TAC Support subscription, you **MUST** have your **Netgate Device ID (NDI)** from your firewall in order to validate support for this unit. Write down your NDI and store it in a safe place. You can purchase TAC supports [here](#).



MDS MitigationInactive

Uptime00 Hour 28 Minutes 29 Seconds

Current date/timeSun May 25 17:39:09 EDT 2025

DNS server(s)

- 127.0.0.1
- 192.168.1.1
- 1.1.1.1

Last config changeSun May 25 17:35:29 EDT 2025

State table size0% (179/96000) [Show states](#)

MBUF Usage0% (3556/1000000)

Load average0.70, 0.63, 0.61

CPU usage

17%

Memory usage

29% of 962 MiB

SWAP usage0% of 1024 MiB

Disks

Mount	Used	Size	Usage
> /	955M	7.1G	<div>13% of 7.1G (zfs)</div>

If you decide to purchase a Netgate Global TAC Support subscription, you **MUST** have your **Netgate Device ID (NDI)** from your firewall in order to validate support for this unit. Write down your NDI and store it in a safe place. You can purchase TAC supports [here](#).

Interfaces

WAN	↑	1000baseT <full-duplex>	10.0.2.15
LAN	↑	1000baseT <full-duplex>	192.168.2.1

## CONCLUSION :

J'ai appris les compétences nécessaires pour installer et configurer le Pfsense sur virtualBox