



Dans cette partie, nous allons créer un vlan et installer notre firewall.

Les objectifs finaux sont les suivants :

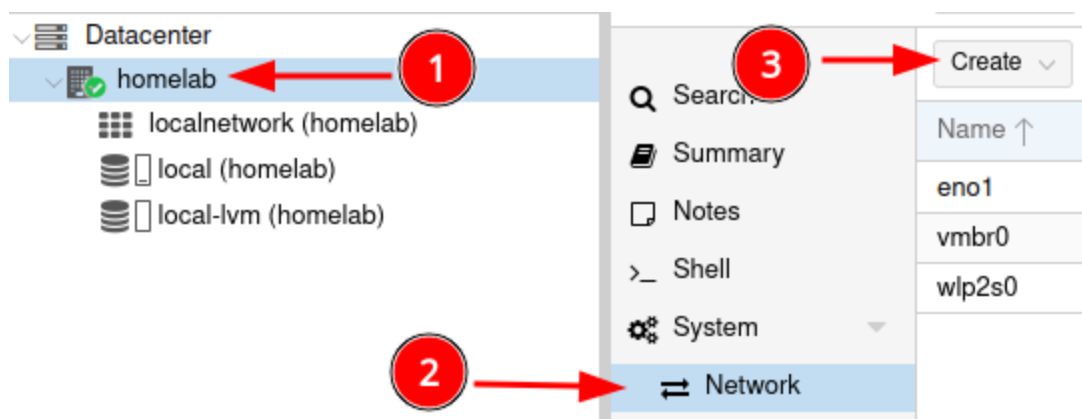
1. Segmenter le réseau en plusieurs VLAN
2. Paramétrer un VM de rebond afin d'administrer mes différents services
3. Configurer le firewall selon les VLAN

## I - Création d'interfaces réseau avec proxmox

Contexte : Je n'ai pas plusieurs carte réseaux sur ma machine physique, or il est recommandé d'en avoir deux pour faire fonction pfsense sur un réseau WAN et sur le LAN.

Nous allons donc créer des interfaces virtuelles sur Proxmox dans un premier temps.

Sur le noeud proxmox, on ajoute un linux bridge depuis la partie réseau :



Create: Linux Bridge

Name:
vmbr1

Autostart:
☒

IPv4/CIDR:

VLAN aware:
☐

Gateway (IPv4):

Bridge ports:

IPv6/CIDR:

Comment:
LAN ADMIN

Gateway (IPv6):

Help

Advanced
☐

Create

On ajoute ensuite la carte à la VM PfSense :

Datacenter
homelab
100 (PfSense)
localnetwork (homelab)
local (homelab)
local-lvm (homelab)

Summary
Hardware
Cloud-Init
Options
Task History
Monitor
Backup
Replication
Snapshots
Firewall
Permissions

Add
Remove
Disk Action
Revert

Memory	2.00 GiB
Processors	2 (1 sockets, 2 cores) [x86-64-v2-AES]
BIOS	Default (SeaBIOS)
Display	Default
Machine	Default (i440fx)
SCSI Controller	VirtIO SCSI single
CD/DVD Drive (ide2)	local:iso/netgate-installer-amd64.iso,media=cdrom,size=966536K
Hard Disk (scsi0)	local-lvm:vm-100-disk-0,iosthread=1,size=20G
Network Device (net0)	virtio=BC:24:11:2E:4B:C8,bridge=vmbr0,firewall=1

Add: Network Device

Bridge:
vmbr1

Model:
Intel E1000

VLAN Tag:
no VLAN

MAC address:
auto

Firewall:
☒

Help

Advanced
☐

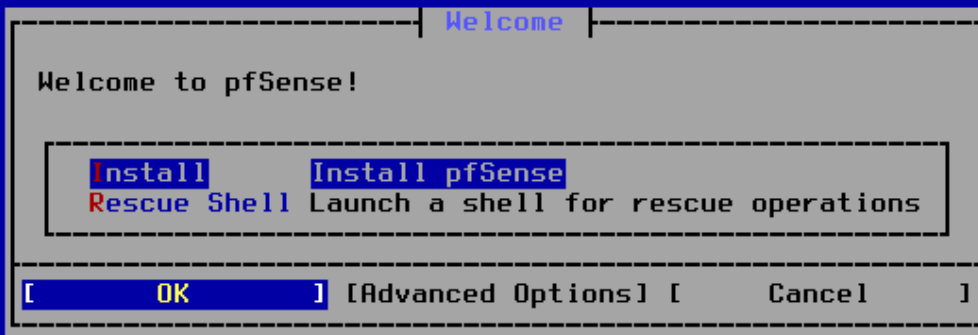
Add

Network Device (net0)	virtio=BC:24:11:2E:4B:C8,bridge=vmbr0,firewall=1
Network Device (net1)	e1000=BC:24:11:46:85:BD,bridge=vmbr1,firewall=1

## II - Installation PfSense

Installation de la VM PfSense

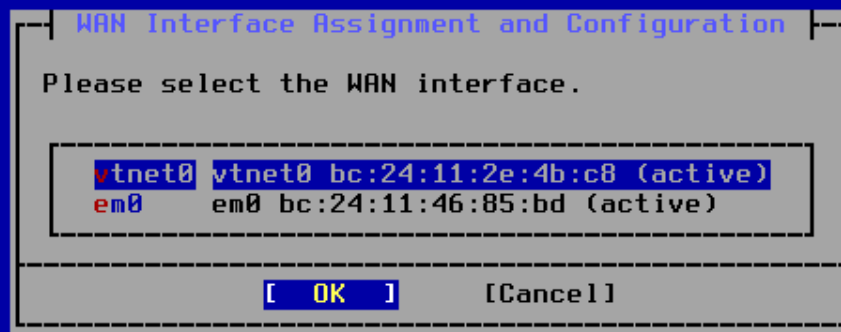
Netgate Installer - v1.0-RC



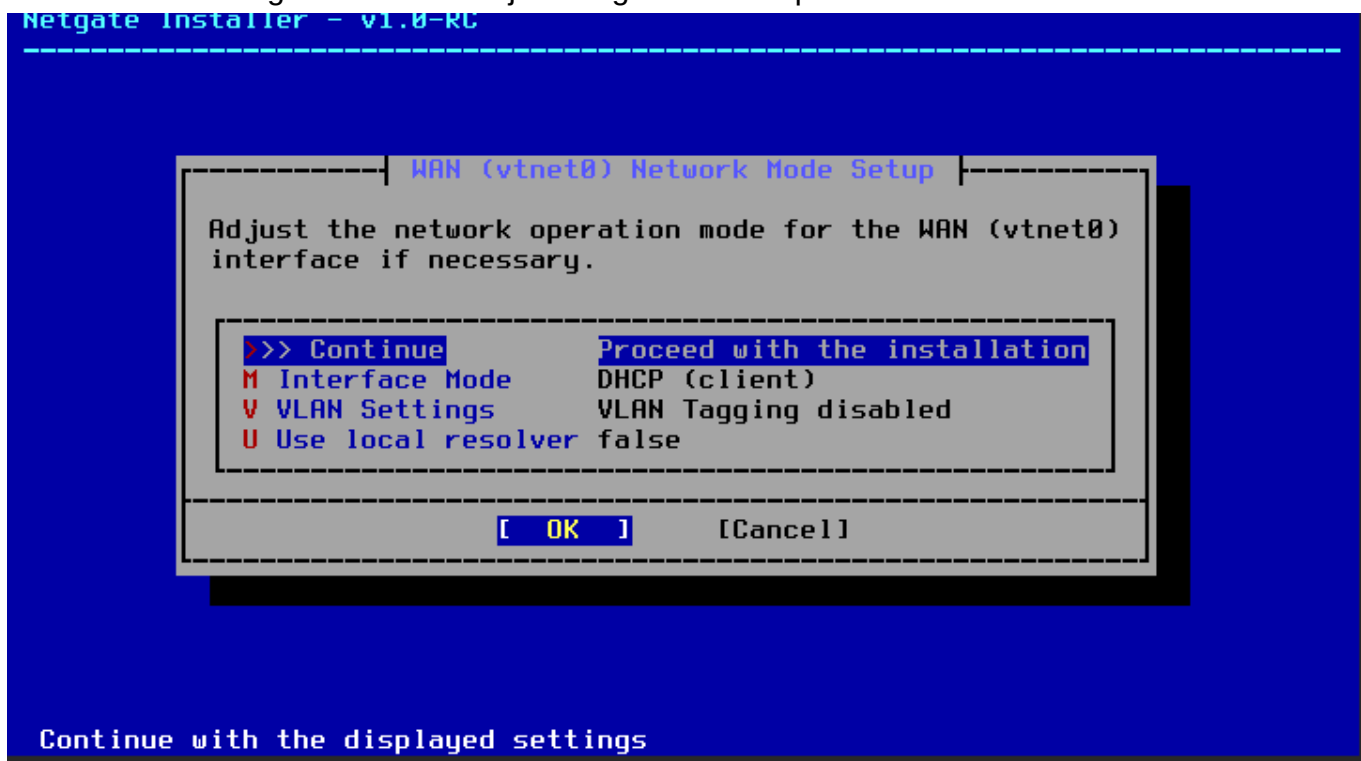
Install pfSense with the selected configuration file

La carte em0 est la carte ajoutée pour le LAN ADMIN donc on choisit la carte vtnet0

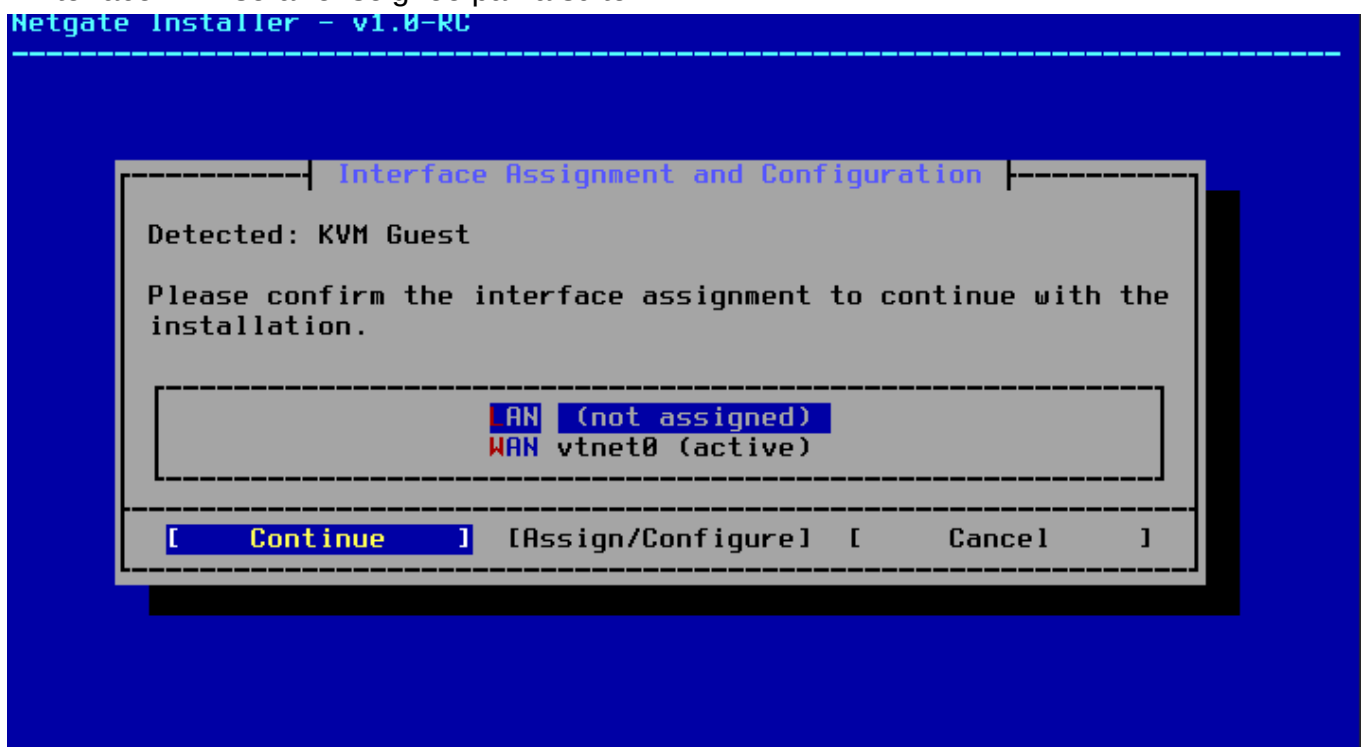
Netgate Installer - v1.0-RC



Je laisse l'adressage en DHCP car je changerai en fixe par la suite.

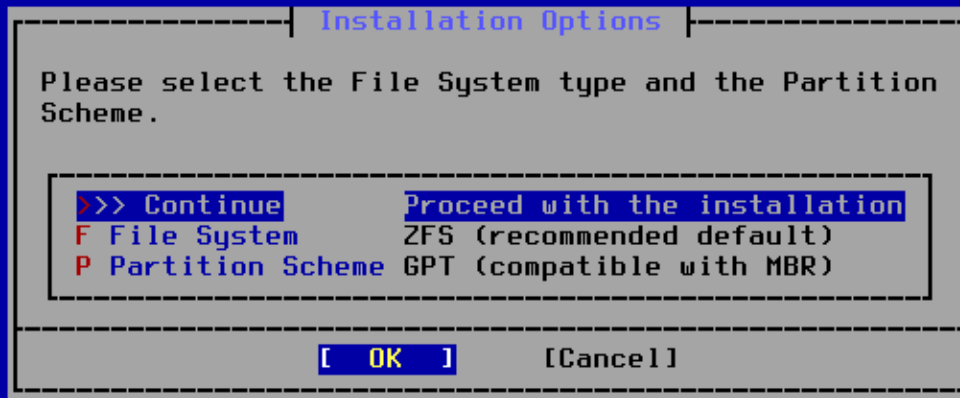


L'interface LAN sera renseignée par la suite :



On continue l'installation :

Netgate Installer - v1.0-RC



Continue with the displayed settings

A la fin de l'installation, nous avons cette interface :

```
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
```

Nous allons assigner nos interfaces :

```
vtnet0 (up) VirtIO Networking Adapter
em0 (up) Intel(R) Legacy PRO/1000 MT 82540EM

Do VLANs need to be set up first?
If VLANs will not be used, or only for optional interfaces, it is typical to
say no here and use the webConfigurator to configure VLANs later, if required.

Should VLANs be set up now [yln]? n
```

```
Enter the WAN interface name or 'a' for auto-detection
(vtnet0 em0 or a): vtnet0
```

```
Enter the LAN interface name or 'a' for auto-detection
NOTE: this enables full Firewalling/NAT mode.
(em0 a or nothing if finished): em0
```

Nous allons ensuite assigner des ip à nos interfaces :

```
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: 2

```
1 - WAN (vtnet0 - dhcp, dhcp6)
2 - LAN (em0 - static)
```

Enter the number of the interface you wish to configure: 1

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

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

> . . .

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 WAN IPv4 subnet bit count (1 to 32):

> 24

For a WAN, enter the new WAN IPv4 upstream gateway address.  
For a LAN, press <ENTER> for none:

> . . .

Should this gateway be set as the default gateway? (y/n) y

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

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

> . . .

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):

> .

For a WAN, enter the new LAN IPv4 upstream gateway address.  
For a LAN, press <ENTER> for none:

>

Configure IPv6 address LAN interface via DHCP6? (y/n) n

Enter the new LAN IPv6 address. Press <ENTER> for none:

> n

### III - Machine d'administration

Nous allons maintenant créer une machine permettant d'administrer notre pfSense.

The screenshot shows the Proxmox VE web interface. On the left, a tree view shows the hierarchy: Datacenter > homelab > 100 (PfSense) > 101 (ADMIN). The '101 (ADMIN)' VM is selected. The main panel shows the configuration for this VM. The 'Hardware' tab is active, displaying various hardware settings. A red arrow points to the 'Add' button at the top. Another red arrow points to the 'Hardware' tab in the left sidebar. The hardware settings include:

Component	Value
Memory	2.00 GiB
Processors	2 (1 sockets, 2 cores) [x86-64-v2-AES]
BIOS	Default (SeaBIOS)
Display	Default
Machine	Default (i440fx)
SCSI Controller	VirtIO SCSI single
CD/DVD Drive (ide2)	local:iso/linuxmint-22-xfce-64bit.iso,media=cdrom,size
Hard Disk (scsi0)	local-lvm:vm-101-disk-0,iosthread=1,size=20G
Network Device (net0)	virtio=,bridge=vmbri,firewall=1
Network Device (net1)	virtio=,bridge=vmbri,firewall=1

On configure le réseau sur la machine d'administration :

The screenshot shows the 'Modification de Connexion filaire 2' window. The 'Paramètres IPv4' tab is selected. The 'Méthode' is set to 'Manuel'. The 'Adresses' table shows one entry with IP 10.0.0.1, mask 30, and gateway 10.0.0.1. There are fields for DNS servers, search domains, and DHCP client ID. A checkbox 'Requiert un adressage IPv4 pour que cette connexion fonctionne' is checked. Buttons for 'Ajouter', 'Supprimer', 'Routes...', 'Annuler', and 'Enregistrer' are visible.

Adresse	Masque de réseau	Passerelle
10.0.0.1	30	10.0.0.1

Première connexion :

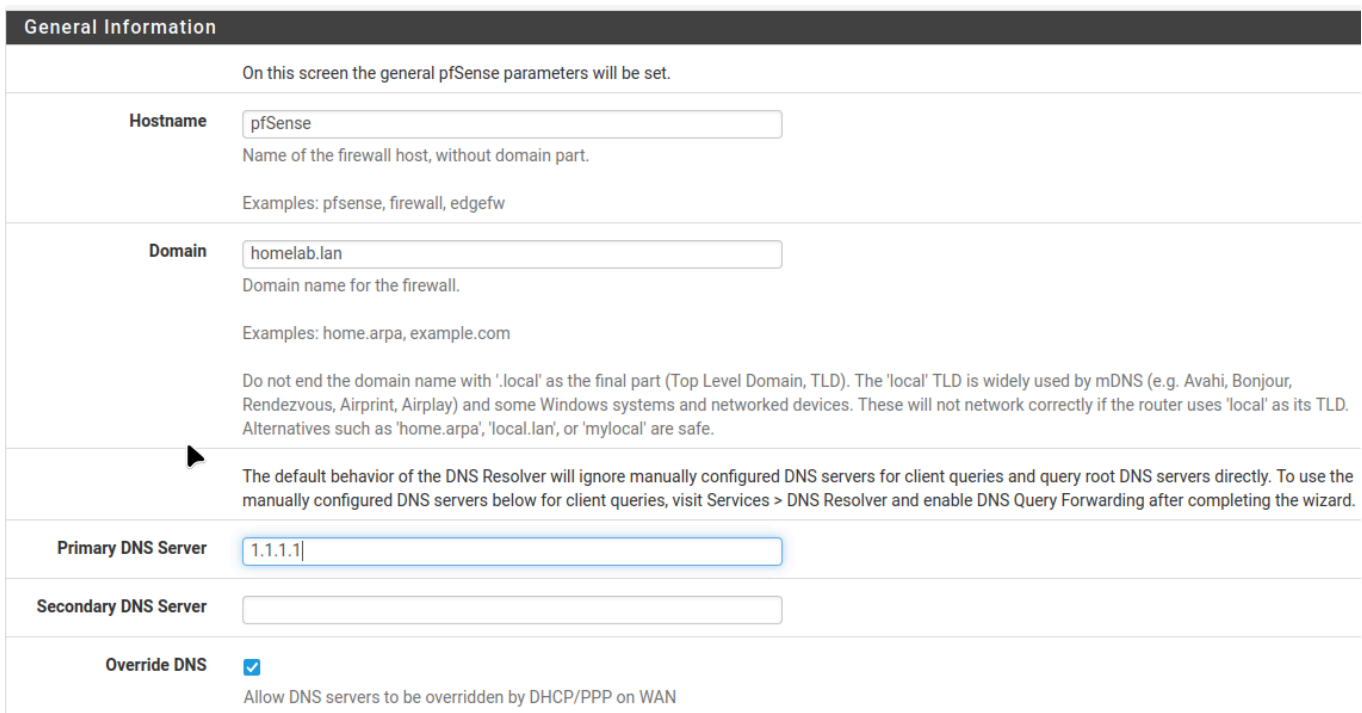
login : admin

mot de passe : pfsense

**A noter:** changez immédiatement le mot de passe par défaut.



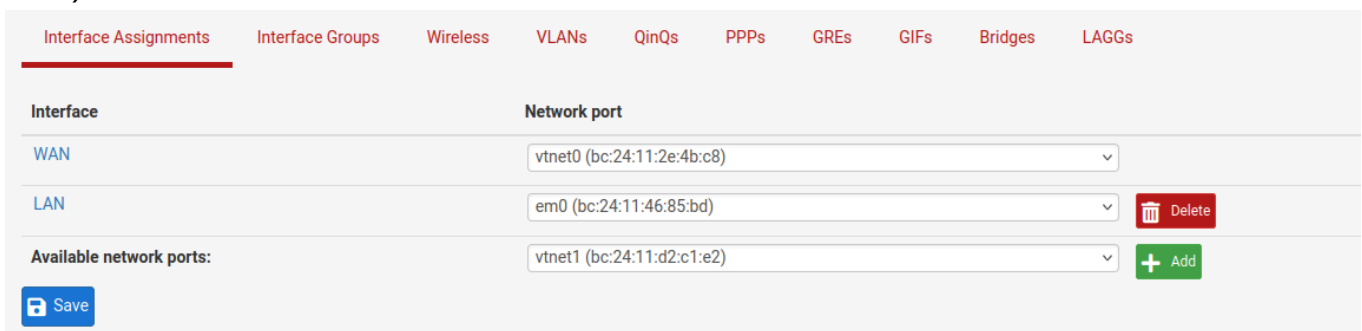
The image shows the pfSense login interface. It has a dark blue background with the text "SIGN IN" at the top. Below it, the username "admin" is entered in a white text box. The password field is masked with dots. At the bottom, there is a green "SIGN IN" button.



The image shows the "General Information" screen in pfSense. It has a dark header with the title "General Information". Below the header, there is a section titled "On this screen the general pfSense parameters will be set." The form contains several fields: "Hostname" (pfSense), "Domain" (homelab.lan), "Primary DNS Server" (1.1.1.1), and "Secondary DNS Server" (empty). There is also a checkbox for "Override DNS" which is checked. A mouse cursor is pointing at the "Primary DNS Server" field. A warning message is displayed below the DNS fields, stating that 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.

## IV - Création du VLAN SERVER

Le Vlan server va comprendre l'intégralité de mes serveurs (monitoring, vpn, Windows serveur, DNS)



The image shows the "Interface Assignments" screen in pfSense. It has a dark header with the title "Interface Assignments". Below the header, there is a table with two columns: "Interface" and "Network port". The table has three rows: "WAN" (vtnet0 (bc:24:11:2e:4b:c8)), "LAN" (em0 (bc:24:11:46:85:bd)), and "Available network ports:" (vtnet1 (bc:24:11:d2:c1:e2)). There is a "Delete" button next to the "LAN" row and an "Add" button next to the "Available network ports:" row. A "Save" button is at the bottom left.



Interfaces / **OPT1 (vtnet1)**

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**General Configuration**

Enable ☐ Enable interface

---

Description

Enter a description (name) for the interface here

## V - Création de VLAN dans Proxmox et PfSense

Nous créons ensuite un vlan dans proxmox.

The screenshot shows the Proxmox VE web interface. On the left, the 'Datacenter' tree has 'homelab' selected. A red arrow points to it. In the center, the 'Network' menu item is highlighted with a red circle and arrow labeled '2'. At the top right, the 'Create' button is highlighted with a red circle and arrow labeled '3'. Below the menu, a table lists network devices:

Name ↑	Type	Active
eno1	Network Device	Yes
vmbr0	Linux Bridge	Yes
vmbr1	Linux Bridge	Yes
vmbr2	Linux Bridge	Yes
wlp2s0	Unknown	No

Create: Linux VLAN

Name:  Autostart: ☒

IPv4/CIDR:  Vlan raw device:

Gateway (IPv4):  VLAN Tag:

IPv6/CIDR:  Comment:

Gateway (IPv6):

Either add the VLAN number to an existing interface name, or choose your own name and set the VLAN raw device (for the latter ifupdown1 supports vlanXY naming only)

☐ Advanced

Nous assignons ensuite le vlan proxmox dans notre pfsense

## VLAN Interfaces

Interface	VLAN tag	Priority	Description	Actions
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 Add

## VLAN Configuration

Parent Interface

vtnet1 (bc:24:11:d2:c1:e2) - opt1 ▾

Only VLAN capable interfaces will be shown.

VLAN Tag

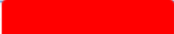
10

802.1Q VLAN tag (between 1 and 4094).


VLAN Priority

0

802.1Q VLAN Priority (between 0 and 7).

DescriptionVLAN 10 - 

A group description may be entered here for administrative reference (not parsed).

 Save

<b>Description</b>	<input type="text" value="VLAN10SERVER"/> Enter a description (name) for the interface here.	
<b>IPv4 Configuration Type</b>	<input type="text" value="Static IPv4"/>	
<b>IPv6 Configuration Type</b>	<input type="text" value="None"/>	
<b>MAC Address</b>	<input type="text" value="xx:xx:xx:xx:xx:xx"/> The MAC address of a VLAN interface must be set on its parent interface	
<b>MTU</b>	<input type="text"/> If this field is blank, the adapter's default MTU will be used. This is typically 1500 bytes but can vary in some circumstances.	
<b>MSS</b>	<input type="text"/> If a value is entered in this field, then MSS clamping for TCP connections to the value entered above minus 40 for IPv4 (TCP/IPv4 header size) and minus 60 for IPv6 (TCP/IPv6 header size) will be in effect.	
<b>Speed and Duplex</b>	<input type="text" value="Default (no preference, typically autoselect)"/> Explicitly set speed and duplex mode for this interface. WARNING: MUST be set to autoselect (automatically negotiate speed) unless the port this interface connects to has its speed and duplex forced.	
<b>Static IPv4 Configuration</b>		
<b>IPv4 Address</b>	<input type="text" value="192."/>	<input type="text" value="24"/>
<b>IPv4 Upstream gateway</b>	<input type="text" value="None"/>	<input type="button" value="+ Add a new gateway"/>

**A noter :** il est nécessaire de redémarrer proxmox pour que le VLAN soit pris en compte

Nos Vlan sont désormais fonctionnels.