

# **Cours Virtualisation des réseaux**

Nantes Ynov Campus – 2022-2023

## **Activité Pratique 2**

### **Introduction l'utilisation d'un routeur open source Pfsense**

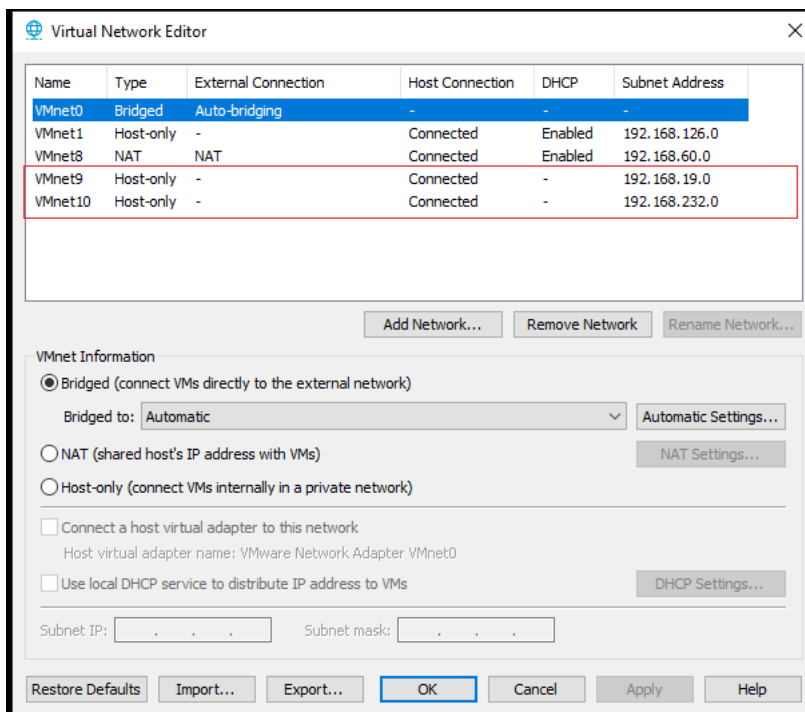
# Introduction

Ce document a pour but de décrire les différentes étapes permettant de configurer les informations de base du routeur Pfsense

## Pré requis

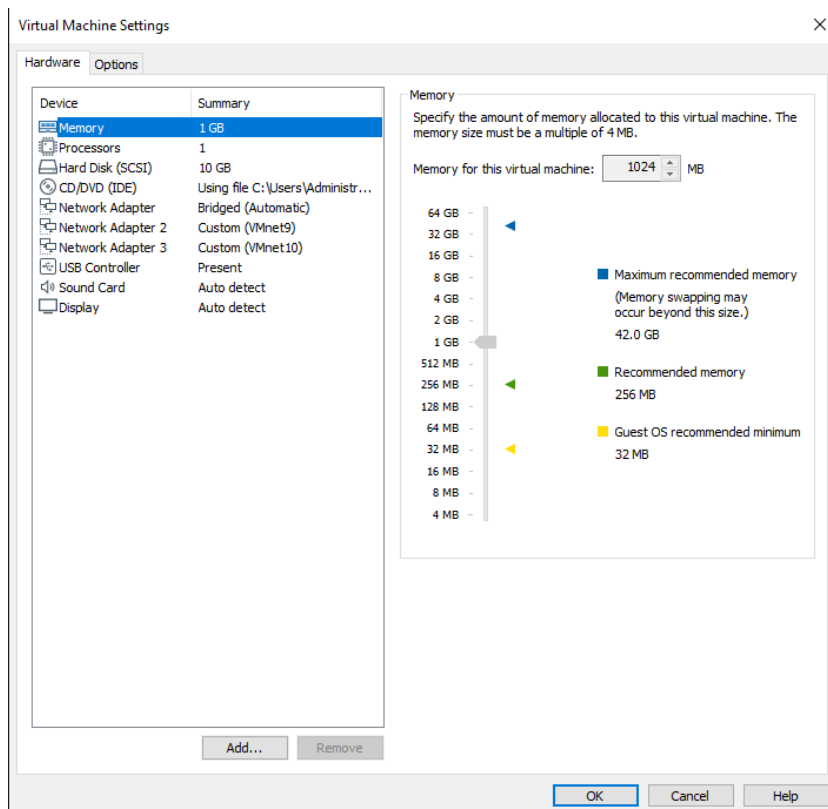
Pour réaliser ce TP, vous aurez besoin de 2 machines et des configurations suivantes :

1 – réseau avec deux Vmnet host-only répondant aux caractéristiques suivantes :

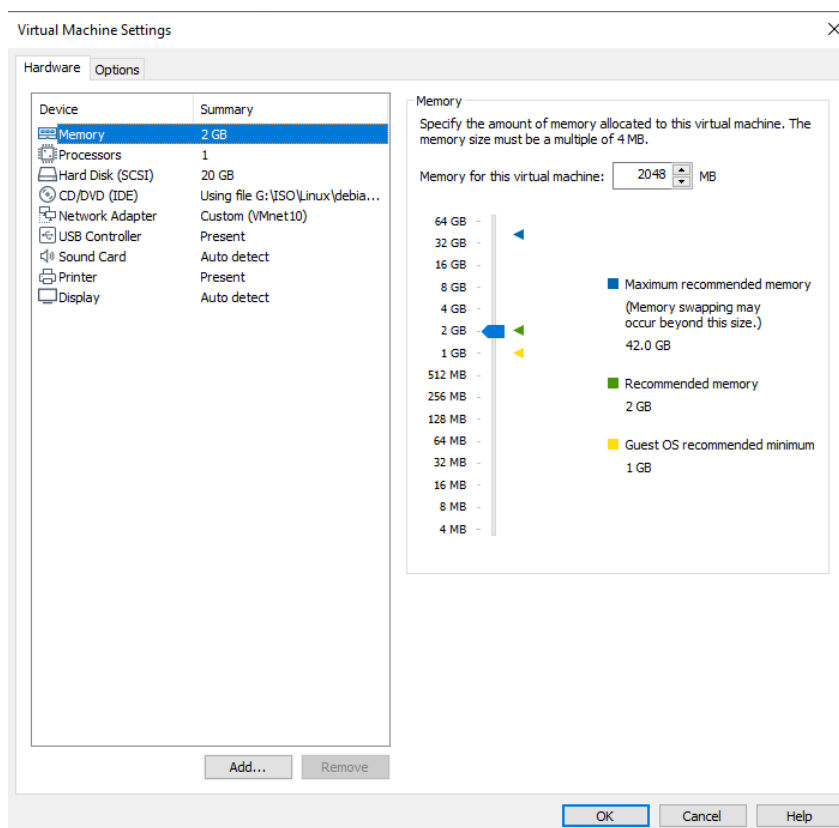


Vous êtes libre de choisir les plages d'adresses selon vos possibilités

2 – Une VM qui fera office de routeur avec une carte principale configurée en bridge afin d'avoir l'accès internet et une carte sur chaque sous réseau



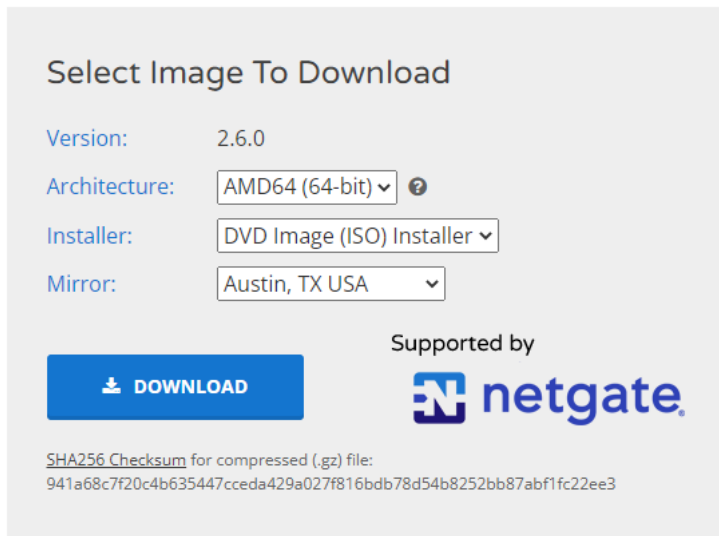
### 3 - Une VM Linux



# Partie 1 : Installation du routeur

Pour commencer nous allons télécharger le routeur qui sera à installer sur la machine VM Routeur.

Se rendre sur le site : <https://www.pfsense.org/download/> et télécharger l'ISO



Select Image To Download


Version: 2.6.0

Architecture: AMD64 (64-bit) ?

Installer: DVD Image (ISO) Installer

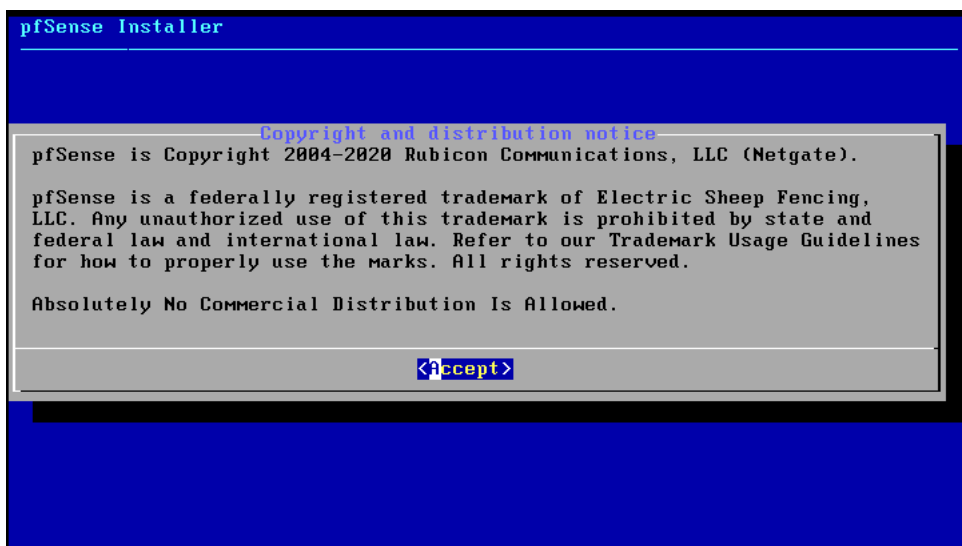
Mirror: Austin, TX USA

Supported by

 netgate

SHA256 Checksum for compressed (.gz) file:  
941a68c7f20c4b635447cceda429a027f816bdb78d54b8252bb87abf1fc22ee3

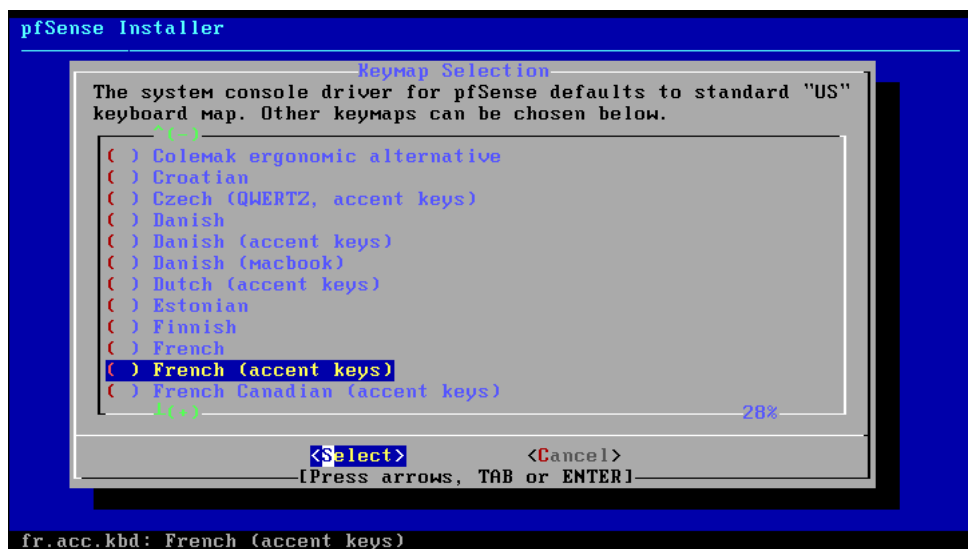
Créer la VM et lancer l'installation



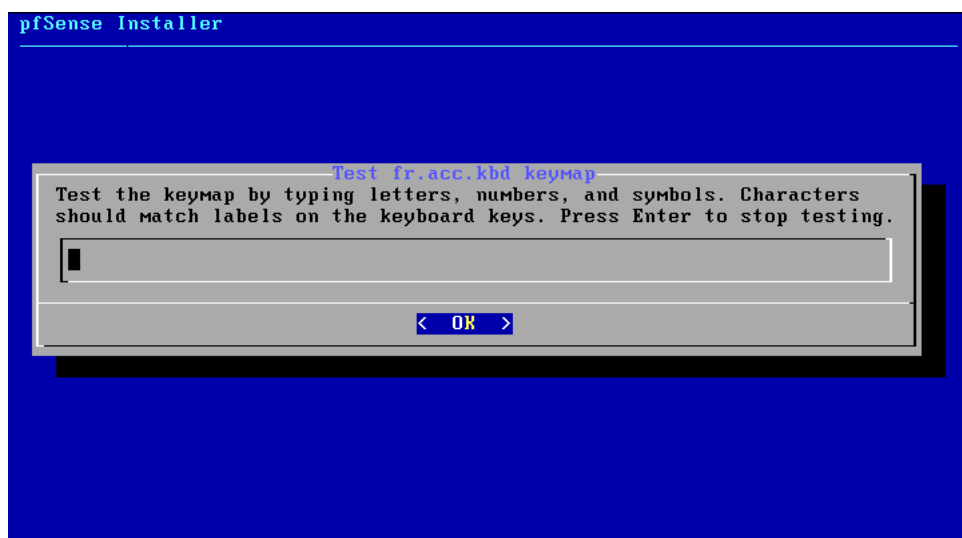
Accepter et valider l'installation



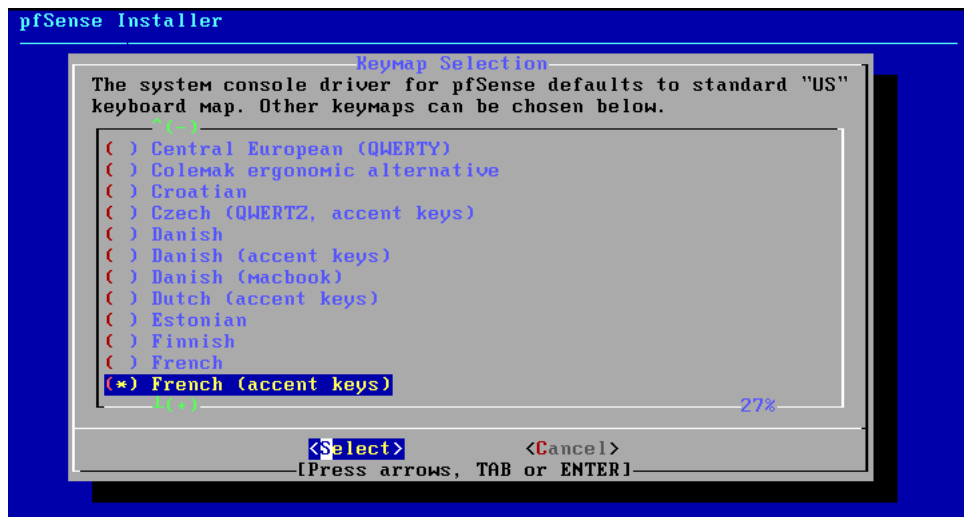
Sélectionner la langue du clavier



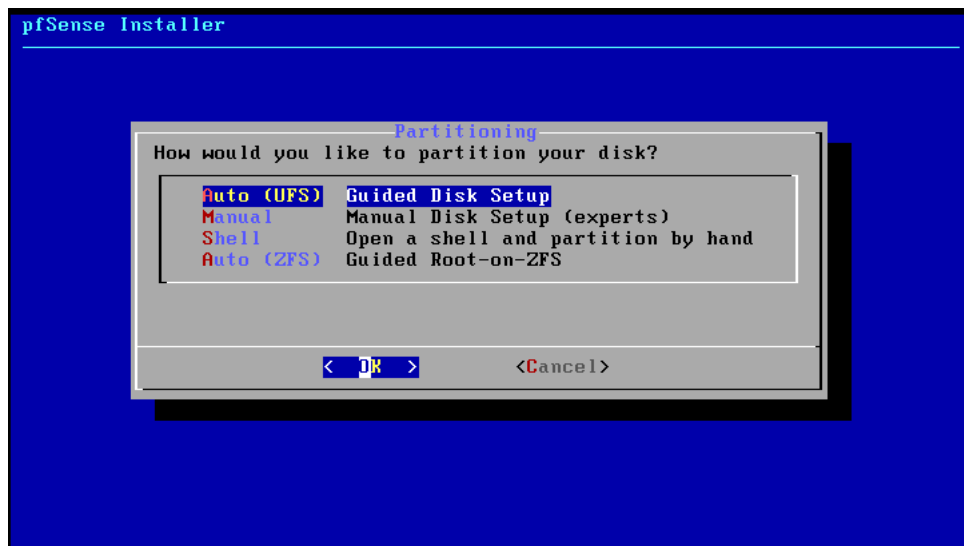
Vérifier que le clavier est bien reconnu



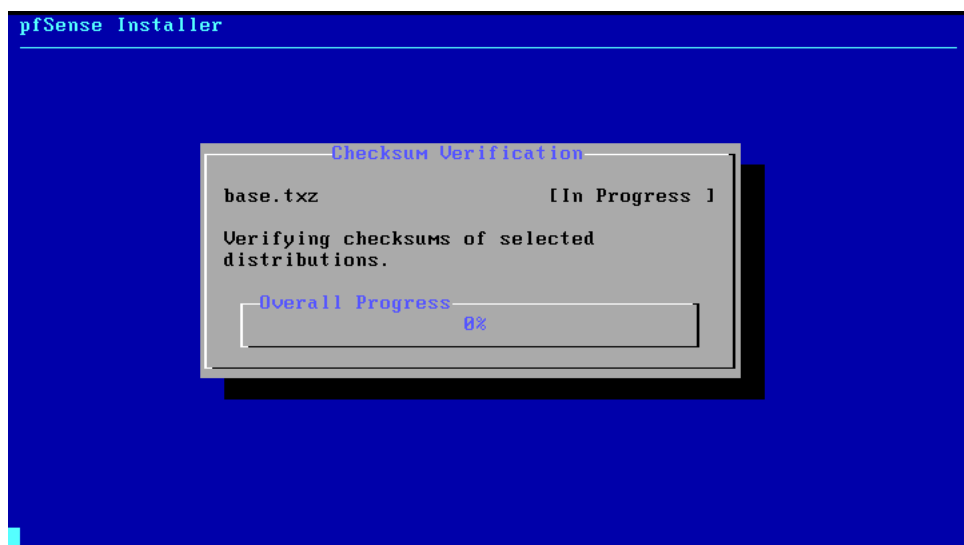
Valider



La validation de la langue vous remonte au-dessus puis sélectionner l'option « continuer »



Valider le type de partition et l'installation se lance



Refuser la modification de l'installation par défaut



A la fin de l'installation la machine va redémarrer automatiquement et vous devriez être redirigé vers l'écran d'accueil ci-dessous à ce niveau il n'est pas possible pour l'instant de voir vos 3 cartes :

```
Starting syslog...done.
Starting CRON... done.
pfSense 2.4.5-RELEASE (Patch 1) amd64 Tue Jun 02 17:51:17 EDT 2020
Bootup complete

FreeBSD/amd64 (pfSense.localdomain) (ttyv0)

VMware Virtual Machine - Netgate Device ID: 34a0a0ebee19e3d63fff

*** Welcome to pfSense 2.4.5-RELEASE-p1 (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4/DHCP4: 192.168.1.35/24
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: 1
```

Sélectionner l'option 1 pour démarrer la configuration des cartes.

```
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: 1

Valid interfaces are:

em0      00:0c:29:dc:b6:c3   (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em1      00:0c:29:dc:b6:cd   (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em2      00:0c:29:dc:b6:d7   (down) Intel(R) PRO/1000 Legacy Network Connection 1.

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 [y|n]? n
```

Choisir l'interface réseau à configurer en premier ici em0. Attention il arrive assez souvent que le clavier se retrouve en qwerty mais cela n'est pas bien grave pour les prochaines manipulations. Refuser sur l'écran ci-dessus la création de VLANs

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

Enter an option: 1

Valid interfaces are:

em0      00:0c:29:dc:b6:c3    (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em1      00:0c:29:dc:b6:cd    (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em2      00:0c:29:dc:b6:d7    (down) Intel(R) PRO/1000 Legacy Network Connection 1.

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 [y:n]? n

If the names of the interfaces are not known, auto-detection can
be used instead. To use auto-detection, please disconnect all
interfaces before pressing 'a' to begin the process.

Enter the WAN interface name or 'a' for auto-detection
(em0 em1 em2 or a): em0
```

Entrer ensuite le nom de l'interface LAN associé à l'une des cartes

```
Enter an option: 1

Valid interfaces are:

em0      00:0c:29:dc:b6:c3    (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em1      00:0c:29:dc:b6:cd    (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em2      00:0c:29:dc:b6:d7    (down) Intel(R) PRO/1000 Legacy Network Connection 1.

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 [y:n]? n

If the names of the interfaces are not known, auto-detection can
be used instead. To use auto-detection, please disconnect all
interfaces before pressing 'a' to begin the process.

Enter the WAN interface name or 'a' for auto-detection
(em0 em1 em2 or a): em0

Enter the LAN interface name or 'a' for auto-detection
NOTE: this enables full Firewalling/NAT mode.
(em1 em2 a or nothing if finished): em1
```

Puis la dernière carte optionnelle



```

Valid interfaces are:

em0      00:0c:29:dc:b6:c3   (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em1      00:0c:29:dc:b6:cd   (up) Intel(R) PRO/1000 Legacy Network Connection 1.
em2      00:0c:29:dc:b6:d7   (down) Intel(R) PRO/1000 Legacy Network Connection 1.

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 [y!n]? n

If the names of the interfaces are not known, auto-detection can
be used instead. To use auto-detection, please disconnect all
interfaces before pressing 'a' to begin the process.

Enter the WAN interface name or 'a' for auto-detection
(em0 em1 em2 or a): em0

Enter the LAN interface name or 'a' for auto-detection
NOTE: this enables full Firewalling/NAT mode.
(em1 em2 a or nothing if finished): em1

Enter the Optional 1 interface name or 'a' for auto-detection
(em2 a or nothing if finished): em2

```

## Valider la procédure

```

say no here and use the webConfigurator to configure VLANs later, if required.

Should VLANs be set up now [y!n]? n

If the names of the interfaces are not known, auto-detection can
be used instead. To use auto-detection, please disconnect all
interfaces before pressing 'a' to begin the process.

Enter the WAN interface name or 'a' for auto-detection
(em0 em1 em2 or a): em0

Enter the LAN interface name or 'a' for auto-detection
NOTE: this enables full Firewalling/NAT mode.
(em1 em2 a or nothing if finished): em1

Enter the Optional 1 interface name or 'a' for auto-detection
(em2 a or nothing if finished): em2

The interfaces will be assigned as follows:

WAN   -> em0
LAN   -> em1
OPT1  -> em2

Do you want to proceed [y!n]? y

```

Ensuite il va falloir fixer les adresses sur chaque carte pour cela sélectionner le choix 2

```

*** Welcome to pfSense 2.4.5-RELEASE-p1 (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4/DHCP4: 192.168.1.92/24
LAN (lan)      -> em1      -> v4: 192.168.1.1/24
OPT1 (opt1)    -> em2      ->

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

```

Sélectionner la première carte à configurer

```

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

Available interfaces:

1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

```

Pas de DHCP pour cette adresse vous devrez la fixer en fonction de votre réseau

```

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

Available interfaces:

1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

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

```

Saisir la nouvelle adresse IP

```

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

Available interfaces:

```

1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)
3 - OPT1 (em2)

```

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:

> 192.168.1.92

Choisir le masque associé

```

Available interfaces:

1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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:
> 192.168.1.92

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 31):
> 24

```

Indiquer l'adresse de la passerelle de votre routeur

```

Available interfaces:

1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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:
> 192.168.1.92

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 31):
> 24

For a WAN, enter the new WAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
> 192.168.1.254

```

On ne souhaite pas configurer de DHCP6 pour nos utilisations

```
1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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:
> 192.168.1.92

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 31):
> 24

For a WAN, enter the new WAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
> 192.168.1.254

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

Laisser l'emplacement vide puis appuyer sur la touche « Entree »

```
3 - OPT1 (em2)

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:
> 192.168.1.92

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 31):
> 24

For a WAN, enter the new WAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
> 192.168.1.254

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

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

La question posée ici est de savoir si nous souhaitons configurer notre routeur sur l'interface WAN.  
Répondre non

```

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:
> 192.168.1.92

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 31):
> 24

For a WAN, enter the new WAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
> 192.168.1.254

Configure IPv6 address WAN interface via DHCP6? (y/n) n
Enter the new WAN IPv6 address. Press <ENTER> for none:
>

Do you want to revert to HTTP as the webConfigurator protocol? (y/n) n

```

Vous devriez maintenant avoir terminé de configurer votre interface WAN

```

For a WAN, enter the new WAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
> 192.168.1.254

Configure IPv6 address WAN interface via DHCP6? (y/n) n
Enter the new WAN IPv6 address. Press <ENTER> for none:
>

Do you want to revert to HTTP as the webConfigurator protocol? (y/n) n

Please wait while the changes are saved to WAN...
Reloading filter...
Reloading routing configuration...
DHCPD...

The IPv4 WAN address has been set to 192.168.1.92/24

Press <ENTER> to continue.

```

Reprendre la procédure maintenant pour configurer l'interface LAN em1

```

*** Welcome to pfSense 2.4.5-RELEASE-p1 (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4: 192.168.1.92/24
LAN (lan)      -> em1      -> v4: 192.168.1.1/24
OPT1 (opt1)    -> em2      ->

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

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

```

Choisir l'adresse IP du nouveau réseau LAN

```
LAN (lan)      -> em1      -> v4: 192.168.1.1/24
OPT1 (opt1)    -> em2      ->

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

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.19.5
```

Indiquer le masque de sous réseau

```
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

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.19.5

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 31):
> 24
```

Nous ne sommes plus dans la configuration d'un LAN donc nous pouvons laisser cette section vide

```

Enter an option: 2

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.19.5

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 31):
> 24

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

```

Pas de configuration IPV6 pour ce réseau

```

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.19.5

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 31):
> 24

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

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

```

Activer le DHCP sur ce sous réseau

```

1 - WAN (em0 - static)
2 - LAN (em1 - static)
3 - OPT1 (em2)

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

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.19.5

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 31):
> 24

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

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

Do you want to enable the DHCP server on LAN? (y/n) y

```

Indiquer la plage du nouveau sous réseau

```
3 - OPT1 (em2)

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

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.19.5

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 31):
> 24

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

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

Do you want to enable the DHCP server on LAN? (y/n) y
Enter the start address of the IPv4 client address range: 192.168.19.128
Enter the end address of the IPv4 client address range: 192.168.19.230
```

Autoriser la configuration du routeur sur ce réseau

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

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 192.168.19.5

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 31):
> 24

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

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

Do you want to enable the DHCP server on LAN? (y/n) y
Enter the start address of the IPv4 client address range: 192.168.19.128
Enter the end address of the IPv4 client address range: 192.168.19.230
Disabling IPv6 DHCPD...
Do you want to revert to HTTP as the webConfigurator protocol? (y/n) y
```

Votre nouveau réseau LAN est maintenant créé

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

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

Do you want to enable the DHCP server on LAN? (y/n) y
Enter the start address of the IPv4 client address range: 192.168.19.128
Enter the end address of the IPv4 client address range: 192.168.19.230
Disabling IPv6 DHCPD...
Do you want to revert to HTTP as the webConfigurator protocol? (y/n) y

Please wait while the changes are saved to LAN...
Reloading filter...
Reloading routing configuration...
DHCPD...
Restarting webConfigurator...

The IPv4 LAN address has been set to 192.168.19.5/24
You can now access the webConfigurator by opening the following URL in your web
browser:
    http://192.168.19.5/

Press <ENTER> to continue.
```



Reprendre cette procédure pour votre 3<sup>ème</sup> carte. Vous devriez maintenant avoir la visibilité sur vos 3 cartes avec leurs adresses.

```
*** Welcome to pfSense 2.4.5-RELEASE-p1 (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4: 192.168.1.92/24
LAN (lan)      -> em1      -> v4: 192.168.19.5/24
OPT1 (opt1)    -> em2      -> v4: 192.168.232.6/24

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: █
```

Afin de vérifier que votre routeur reçoit bien internet, sélectionner l'option 7 pour effectuer un ping sur une adresse internet.

```
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: 7

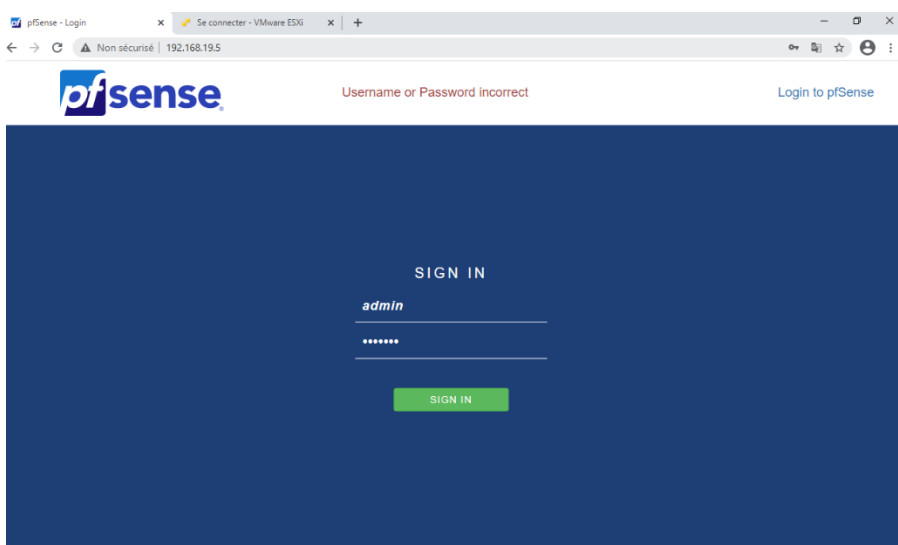
Enter a host name or IP address: 8.8.8.8

PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: icmp_seq=0 ttl=115 time=9.007 ms
64 bytes from 8.8.8.8: icmp_seq=1 ttl=115 time=11.411 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=115 time=7.091 ms

--- 8.8.8.8 ping statistics ---
3 packets transmitted, 3 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 7.091/9.170/11.411/1.767 ms

Press ENTER to continue.
█
```

Maintenant devez-vous connecter sur l'interface graphique disponible à l'adresse de votre LAN pour finaliser le paramétrage. Identifiant : admin/pfsense



Cliquer sur next

pfSense  
COMMUNITY EDITION

System ▾ Interfaces ▾ Firewall ▾ Services ▾ VPN ▾ Status ▾ Diagnostics ▾ Help ▾

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

Wizard / pfSense Setup /

pfSense Setup

Welcome to pfSense® software!

This wizard will provide guidance through the initial configuration of pfSense.

The wizard may be stopped at any time by clicking the logo image at the top of the screen.

pfSense® software is developed and maintained by Netgate®

[Learn more](#)

» Next

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

Wizard / pfSense Setup / Netgate® Global Support is available 24/7

Step 1 of 9

Netgate® Global Support is available 24/7

Our 24/7 worldwide team of support engineers are the most qualified to diagnose your issue and resolve it quickly, from branch office to enterprise – on premises to cloud.

We offer several support subscription plans tailored to fit different environment sizes and requirements. Many companies around the world choose Netgate support because:

- Support is available 24 hours a day, seven days a week, including holidays.
- Support engineers are located around the world, ensuring that no support call is missed.
- Our support engineers hold many prestigious network engineer certificates and have years of hands-on experience with networking.

[Learn more](#)

» Next

Saisir l'adresse IP de votre routeur en DNS

Wizard / pfSense Setup / General Information

Step 2 of 9

General Information

On this screen the general pfSense parameters will be set.

Hostname: pfSense  
EXAMPLE: myserver

Domain: ynov.lab  
EXAMPLE: mydomain.com

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: 192.168.1.254

Secondary DNS Server: 8.8.8.8

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

» Next

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](#)

## Rappel sur les informations de configuration

connection of the link is delayed until qualifying outgoing traffic is detected.

PPTP idle timeout

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 ☒ 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 ☒ 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.

[» Next](#)

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](#)

## Saisir le nouveau mot de passe

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

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](#)

Cliquer sur recharger pour valider votre nouvelle configuration

Wizard / pfSense Setup / Reload configuration ?

Step 7 of 9

**Reload configuration**

Click 'Reload' to reload pfSense with new changes.

[» Reload](#)

Wizard / pfSense Setup / Reload in progress ?

Step 8 of 9

**Reload in progress**

A reload is now in progress. Please wait.

The wizard will redirect to the next step once the reload is completed.

Cliquer sur « finish »

**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](#)

S'affiche un petit rappel sur les droits et remerciements

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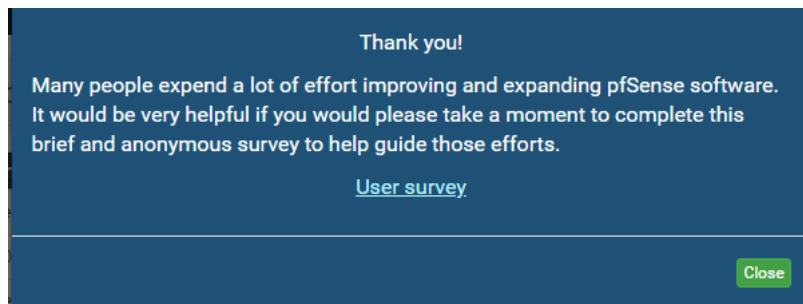
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[Accept](#)

Netgate and elected Community Support



Votre routeur est maintenant prêt

Status / [Dashboard](#)

### System Information

Name	pfSense.ynov.lab
User	admin@192.168.19.13 (Local Database)
System	VMware Virtual Machine Netgate Device ID: ae1883295b0aeb442141
BIOS	Vendor: <b>Phoenix Technologies LTD</b> Version: <b>6.00</b> Release Date: <b>Thu Feb 27 2020</b>
Version	<b>2.4.5-RELEASE-p1</b> (amd64) built on Tue Jun 02 17:51:17 EDT 2020 FreeBSD 11.3-STABLE  The system is on the latest version. Version information updated at Thu Jan 7 20:45:06 CET 2021
CPU Type	Intel(R) Xeon(R) CPU E5620 @ 2.40GHz AES-NI CPU Crypto: Yes (inactive)
Kernel PTI	Enabled
MDS Mitigation	Inactive
Uptime	01 Hour 01 Minute 36 Second
Current date/time	Thu Jan 7 20:47:33 CET 2021
DNS server(s)	• 127.0.0.1 • 192.168.1.254

### Netgate Services And Support

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

#### NETGATE AND pfSense COMMUNITY SUPPORT RESOURCES

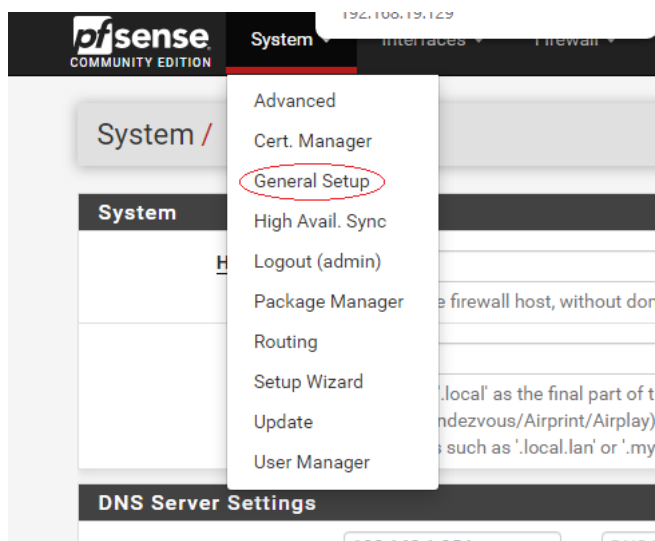
If you purchased your pfSense gateway firewall appliance from Netgate and elected **Community Support** at the point of sale or installed pfSense on your own hardware, you have access to various community support resources. This includes the [NETGATE RESOURCE LIBRARY](#).

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 support [here](#).

Vous pouvez maintenant changer la langue en allant dans la rubrique System> General Setup



Modifier la ligne pour choisir la langue française

**Localization**

**Timezone** Europe/Paris  
Select a geographic region name (Continent/Location) to determine the timezone for the firewall.  
Choose a special or "Etc" zone only in cases where the geographic zones do not properly handle the clock offset required for this firewall.

**Timeservers** fr.pool.ntp.org  
Use a space to separate multiple hosts (only one required). Remember to set up at least one DNS server if a host name is entered here!

**Language** English  
Choose a language for the webConfigurator

Cliquer tout en bas sur le bouton « Save » pour enregistrer vos modifications et recharger la page.

Par défaut la carte optionnelle (em3) ne dispose d'aucune règle de pare-feu et donc n'est pas accessible. Afin de palier à ce problème copier les règles du réseau LAN vers OPT1.

**Pare-feu / Règles / OPT1**

Flottant(e) WAN LAN OPT1

**Règles (Faire glisser pour changer l'ordre)**

Aucune règle n'est définie pour cette interface  
Toute connexion entrante vers cette interface sera bloquée jusqu'à ce que des règles de passage soient ajoutées. Cliquez sur le bouton pour ajouter une nouvelle règle.

Ajouter Ajouter Supprimer Enregistrer Séparateur

Copier les règles à partir de cet endroit

**Pare-feu / Règles / LAN**

Flottant(e) WAN LAN OPT1

**Règles (Faire glisser pour changer l'ordre)**

États	Protocole	Source	Port	Destination	Port	Passerelle	File d'attente	Ordonnement	Description	Actions
✓ 4 / 1.49 MiB	*	*	*	LAN Address	80	*	*		Règle anti-blocage	⚙️
✓ 0 / 916 B	IPv4 *	LAN net	*	*	*	*	aucun		Default allow LAN to any rule	📌 📄 🗑️
✓ 0 / 0 B	IPv6 *	LAN net	*	*	*	*	aucun		Default allow LAN IPv6 to any rule	📌 📄 🗑️

Ajouter Ajouter Supprimer Enregistrer Séparateur

Modifier les sections suivantes :

**Modifier la règle de Pare-Feu**

**Action** Autoriser  
 Choisissez que faire des paquets qui correspondent aux critères ci-dessous.  
 Aide : La différence entre bloquer et rejeter est qu'avec 'Rejeter', un paquet (TCP, RST ou ICMP port unreachable pour UDP) est retourné à l'expéditeur, alors qu'avec 'Bloquer', le paquet est supprimé silencieusement. Dans tous les cas, le paquet est supprimé.

**Désactivé** ☐ Désactiver cette règle  
 Choisissez cette option pour désactiver cette règle sans la supprimer de la liste.

**Interface** OPT1  
 Choisissez l'interface d'où les paquets doivent provenir pour correspondre à cette règle.

**Famille d'adresse** IPv4  
 Choisissez la version du protocole IP à laquelle cette règle s'applique.

**Protocole** Tous  
 Choisissez quel protocole IP cette règle devrait correspondre.

**Source**

**Source** ☐ Invert match OPT1 net Source Address /

**Destination**

**Destination** ☐ Invert match tout Destination Address /

**Options additionnelles**

Appliquer les règles du changement

La configuration de la règle de pare-feu a été modifiée.  
 Ces modifications doivent être appliquées pour prendre effet.

✓ Appliquer les modifications

Flottant(e) WAN LAN **OPT1**

**Règles (Faire glisser pour changer l'ordre)**

	États	Protocole	Source	Port	Destination	Port	Passerelle	File d'attente	Ordonnement	Description	Actions
<input type="checkbox"/>	✓	0/0 B	IPv4 *	OPT1 net	*	*	*	*	aucun	Default allow LAN to any rule	<a href="#">Ajouter</a> <a href="#">Ajouter</a> <a href="#">Supprimer</a> <a href="#">Enregistrer</a> <a href="#">Séparateur</a>

Les modifications ont été appliquées avec succès. Les règles du pare-feu sont en cours de rechargement en arrière-plan.  
 Surveiller le rechargement des filtres.

Flottant(e) WAN LAN **OPT1**

**Règles (Faire glisser pour changer l'ordre)**

	États	Protocole	Source	Port	Destination	Port	Passerelle	File d'attente	Ordonnement	Description	Actions
<input type="checkbox"/>	✓	0/0 B	IPv6 *	OPT1 net	*	*	*	*	aucun	Default allow OPT1 IPv6 to any rule	<a href="#">Ajouter</a> <a href="#">Ajouter</a> <a href="#">Supprimer</a> <a href="#">Enregistrer</a> <a href="#">Séparateur</a>
<input type="checkbox"/>	✓	0/0 B	IPv4 *	OPT1 net	*	*	*	*	aucun	Default allow OPT1 to any rule	<a href="#">Ajouter</a> <a href="#">Ajouter</a> <a href="#">Supprimer</a> <a href="#">Enregistrer</a> <a href="#">Séparateur</a>

## Partie 2 : Installation des VM

- 1 - Maintenant vous devez procéder à l'installation de la VM qui devra être attachée votre interface LAN. Assurez-vous qu'un serveur ssh est installé sur votre des machines.
- 2 - Vérifier que chacune de vos VM est bien identifiée sur le réseau et dispose d'un accès internet.
- 3 - Configurer le serveur ssh pour accéder à votre machine pour qu'elles puissent communiquer