

Cours Majeur Virtualisation

Nantes Ynov Campus – 2022-2023

Activité Pratique 10

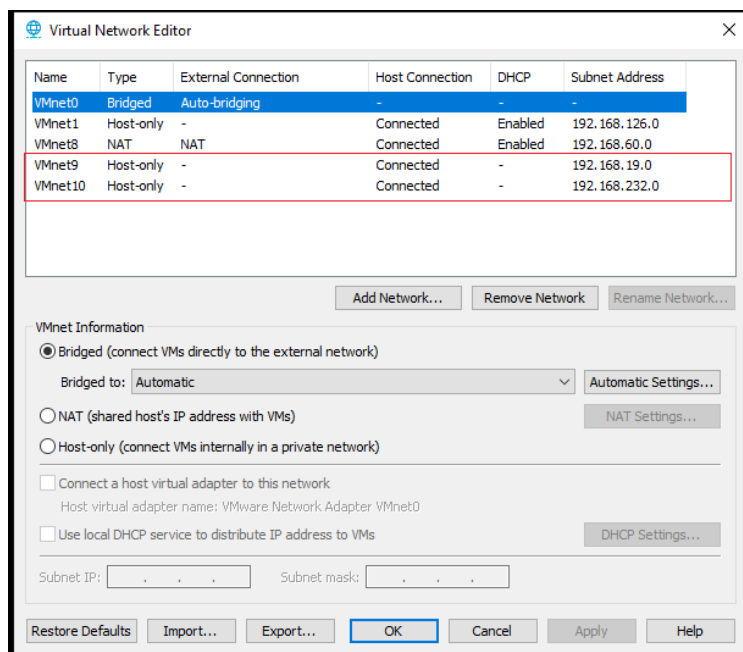
Introduction l'utilisation d'un routeur open source Pfsense

Introduction

Ce document a pour but de s'exercer sur quelques fonctionnalités disponibles sur un routeur open source PfSense.

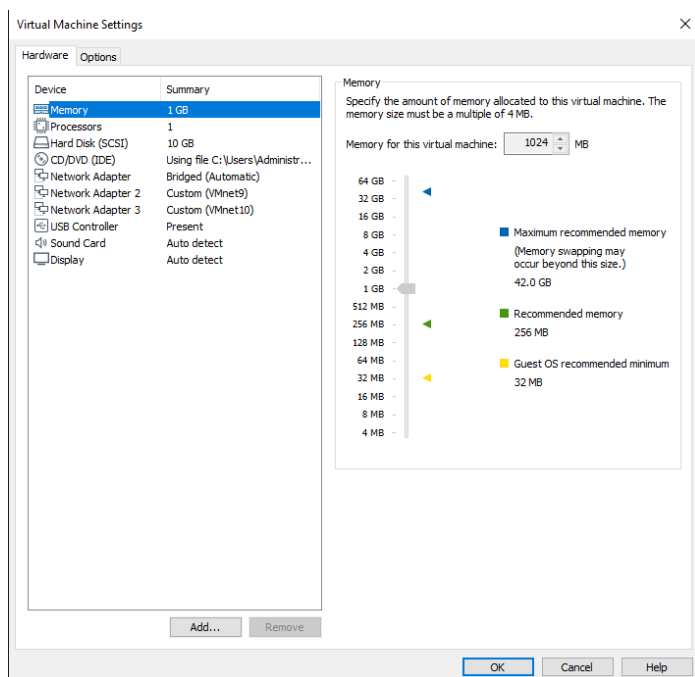
Pré requis

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



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

2 – 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



Partie 1 : Installation du routeur

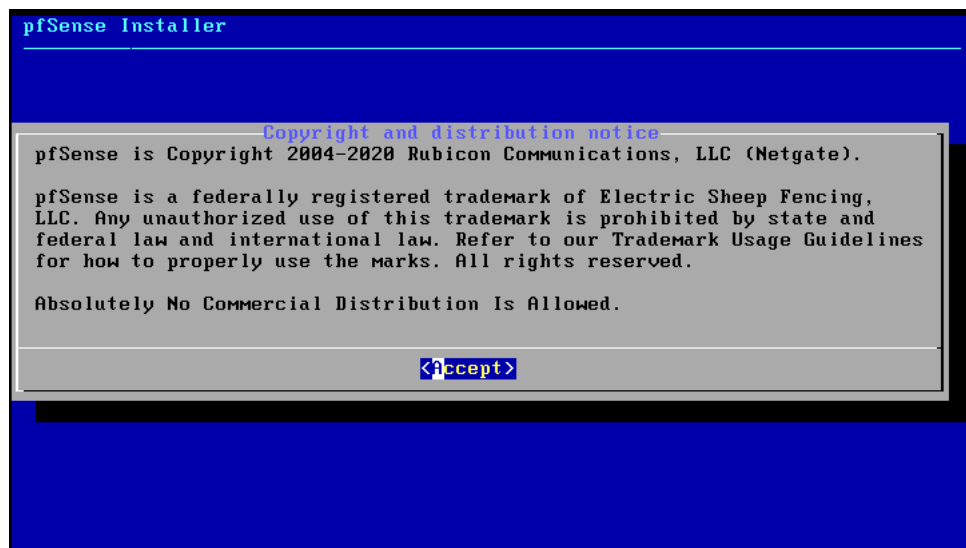
Pour commencer nous allons télécharger le routeur qui sera à installer sur la machine VM Routeur.

Se rendre sur le site : <https://www.pfsense.org/download/> et télécharger l'ISO qui est aussi disponible dans le répertoire de téléchargement de vos TP (dossier ISO)



The screenshot shows the 'Select Image To Download' section of the pfSense website. It includes a 'Version' field set to '2.6.0', an 'Architecture' dropdown menu set to 'AMD64 (64-bit)', an 'Installer' dropdown menu set to 'DVD Image (ISO) Installer', and a 'Mirror' dropdown menu set to 'Austin, TX USA'. Below these fields is a blue 'DOWNLOAD' button with a download icon. To the right of the button, it says 'Supported by' followed by the Netgate logo. At the bottom, there is a SHA256 checksum for the compressed file: 941a68c7f20c4b635447cceda429a027f816bdb78d54b8252bb87abf1fc22ee3.

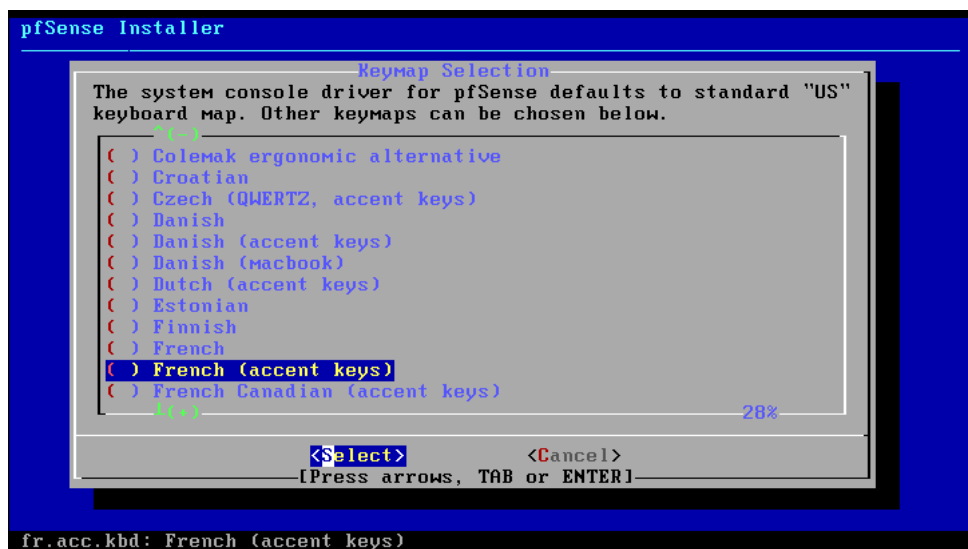
Créer la VM et lancer l'installation



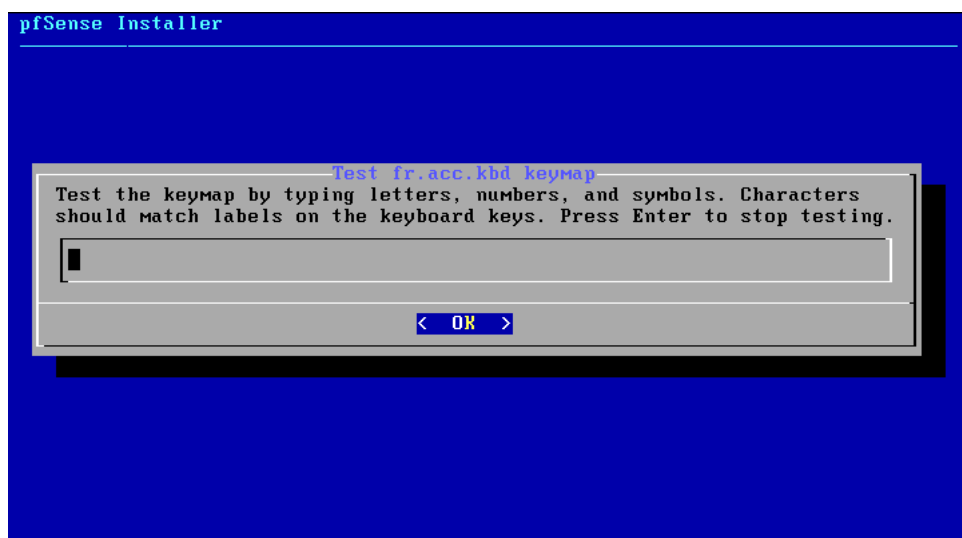
Accepter et valider l'installation



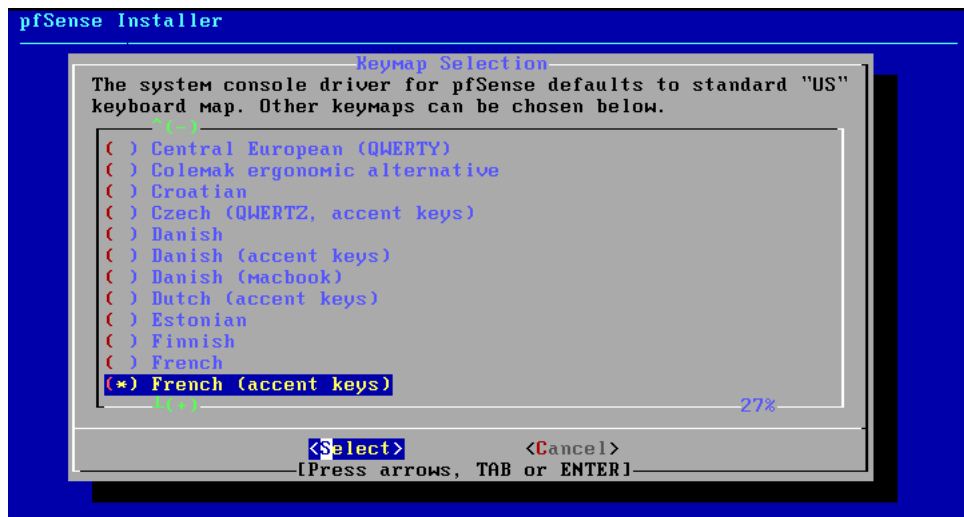
Sélectionner la langue du clavier



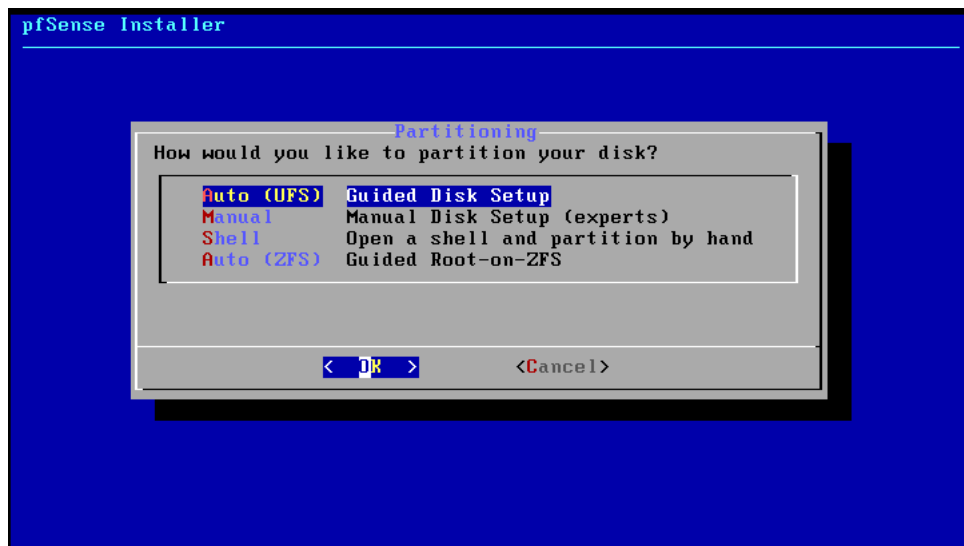
Vérifier que le clavier est bien reconnu



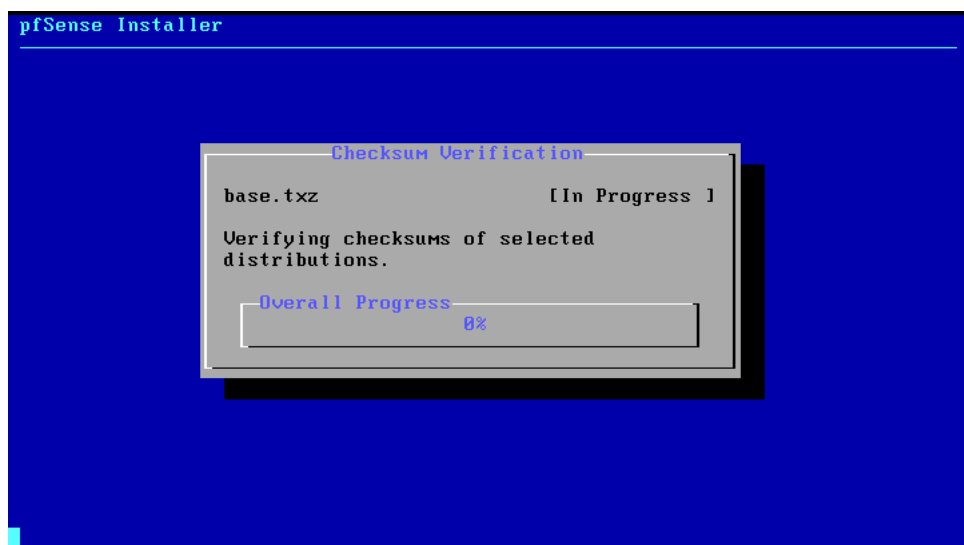
Valider



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 « Entrée »

```
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^{ème} 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

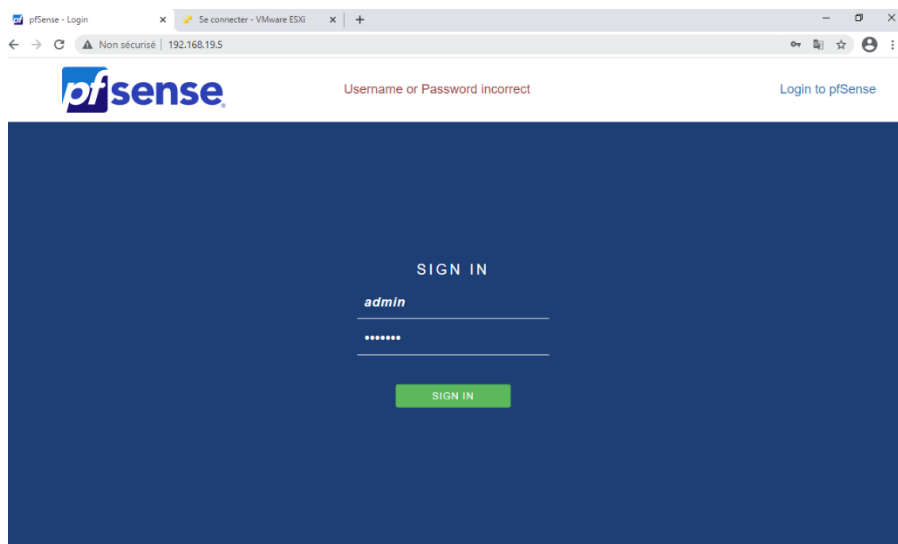
PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: icmp_seq=0 ttl=115 time=9.007 ms
64 bytes from 8.8.8.8: icmp_seq=1 ttl=115 time=11.411 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=115 time=7.091 ms

--- 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

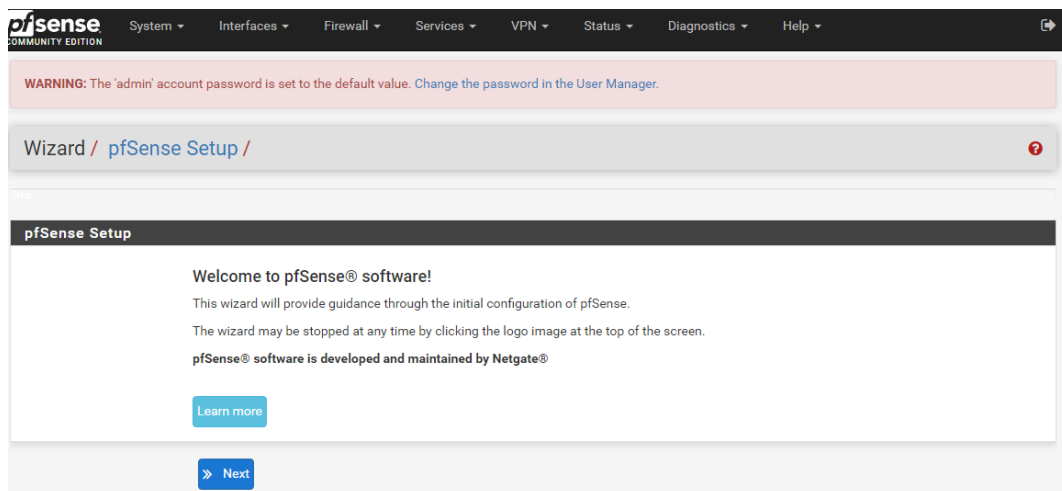
Press ENTER to continue.

```

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



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
EXAMPLE: myserver

Domain
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

Secondary DNS Server

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

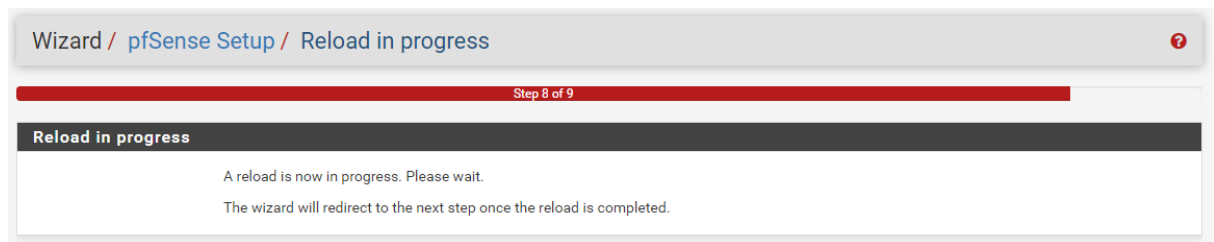
Wizard / [pfSense Setup](#) / [Reload configuration](#) ?

Step 7 of 9

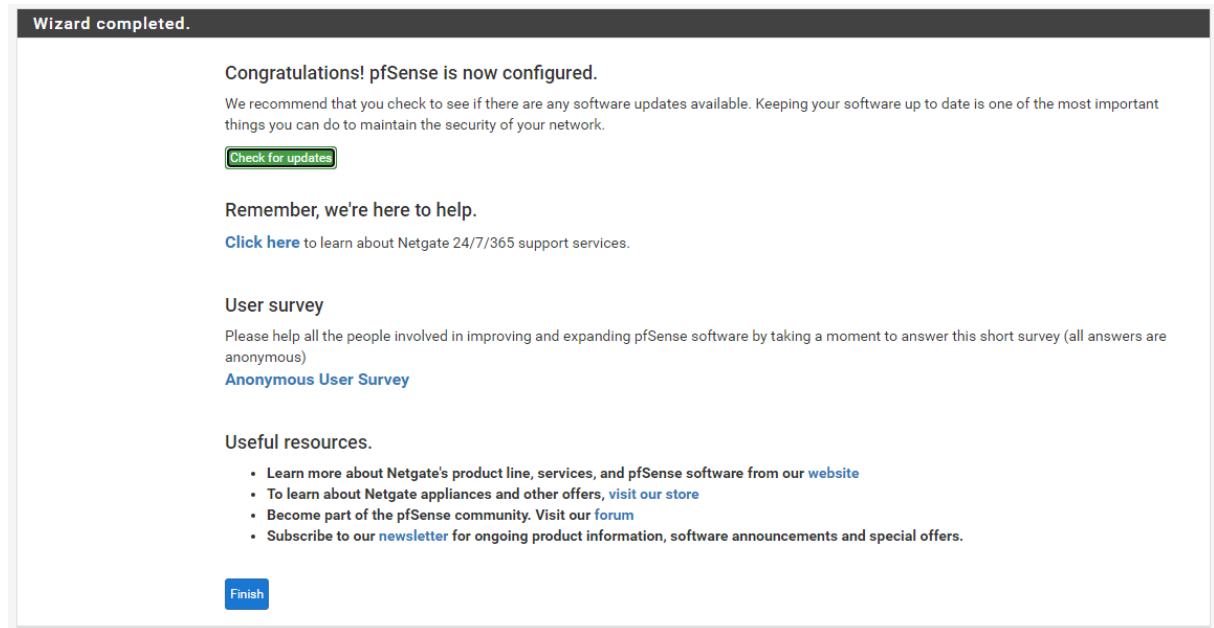
Reload configuration

Click 'Reload' to reload pfSense with new changes.

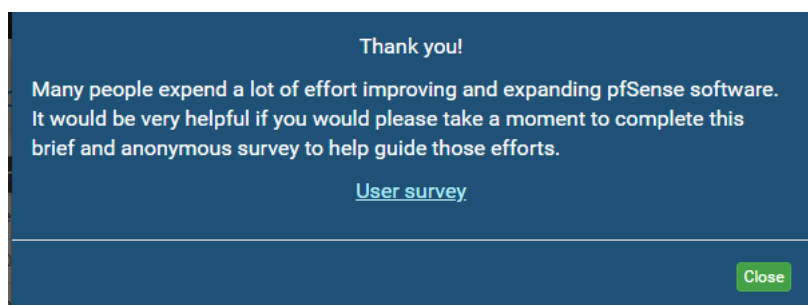
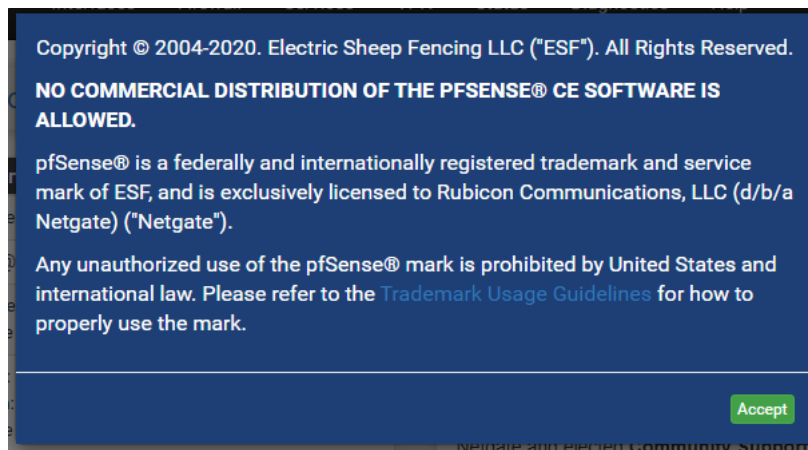
[» Reload](#)



Cliquer sur « finish »



S'affiche un petit rappel sur les droits et remerciements



Votre routeur est maintenant prêt

The screenshot shows the 'Status / Dashboard' page of pfSense. It is divided into two main sections: 'System Information' and 'Netgate Services And Support'.

System Information:

Name	pfSense.ynov.lab
User	admin@192.168.19.13 (Local Database)
System	VMware Virtual Machine Netgate Device ID: ae1883295b0aeb442141
BIOS	Vendor: Phoenix Technologies LTD Version: 6.00 Release Date: Thu Feb 27 2020
Version	2.4.5-RELEASE-p1 (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

The screenshot shows the pfSense web interface. The 'System' menu is open, and 'General Setup' is highlighted with a red circle. The menu options are: Advanced, Cert. Manager, General Setup, High Avail. Sync, Logout (admin), Package Manager, Routing, Setup Wizard, Update, and User Manager.

Modifier la ligne pour choisir la langue française

The screenshot shows the 'Localization' settings page in pfSense. The 'Language' dropdown menu is highlighted with a red circle and is currently set to 'English'. Below the dropdown, it says 'Choose a language for the webConfigurator'.

Localization

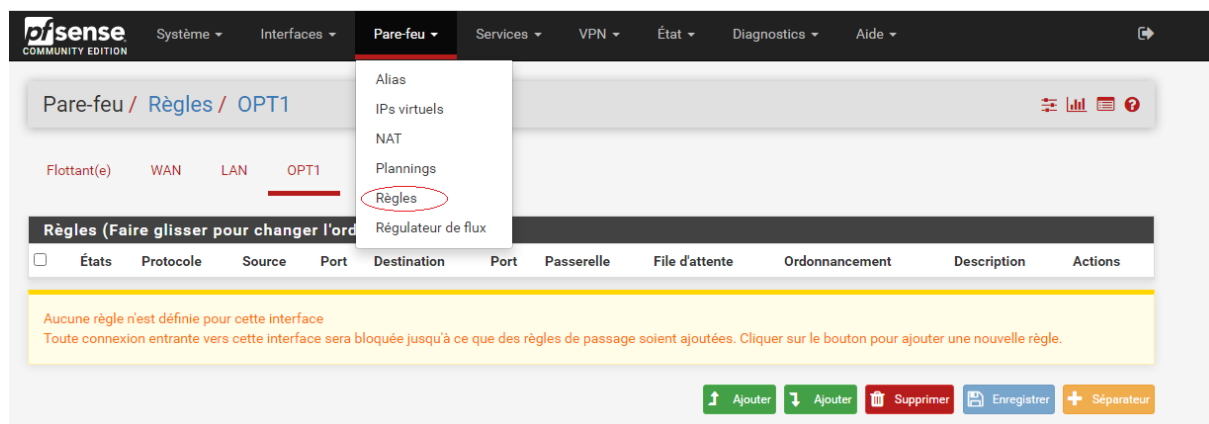
Timezone: Europe/Paris
Select a geographic region name (Continent/Location) to determine the timezone for the firewall.
Choose a special or "Etc" zone only in cases where the geographic zones do not properly handle the clock offset required for this firewall.

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!

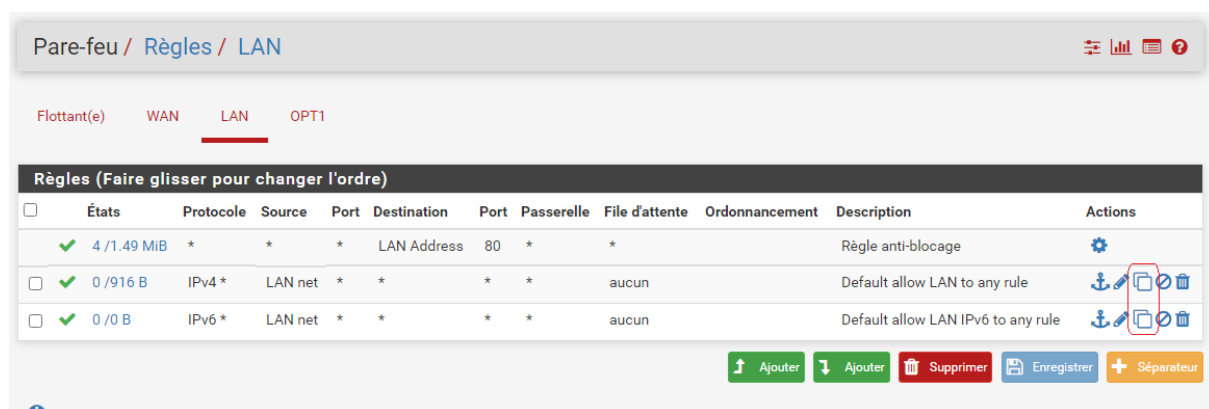
Language: English
Choose a language for the webConfigurator

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.



Copier les règles à partir de cet endroit



Modifier les sections suivantes :

Modifier la règle de Pare-Feu

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

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

Protocole
Choisissez quel protocole IP cette règle devrait correspondre.

Source
☐ Invert match /

Destination
☐ Invert match /

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	Ordonnancement	Description	Actions
<input type="checkbox"/>	✓	0 / 0 B	IPv4 *	OPT1 net	*	*	*	*	aucun	Default allow LAN to any rule	

Ajouter Ajouter Supprimer Enregistrer Séparateur

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	Ordonnancement	Description	Actions
<input type="checkbox"/>	✓	0 / 0 B	IPv6 *	OPT1 net	*	*	*	*	aucun	Default allow OPT1 IPv6 to any rule	
<input type="checkbox"/>	✓	0 / 0 B	IPv4 *	OPT1 net	*	*	*	*	aucun	Default allow OPT1 to any rule	

Ajouter Ajouter Supprimer Enregistrer Séparateur

Partie 2 : Installation des VM

1 - Maintenant vous devez procéder à l'installation de 2 VM (debian) chacune d'elle devra être attachée à l'une des cartes du réseau. Assurez-vous qu'un serveur ssh est installé sur chacune des machines. Exemple de configuration ci-dessous :

Virtual Machine Settings

Hardware Options

Device Summary

Device	Summary
Memory	2 GB
Processors	1
Hard Disk (SCSI)	16 GB
CD/DVD (IDE)	Using file C:\Users\Administr...
Network Adapter	Custom (VMnet9)
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Add... Remove

Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine: 2048 MB

64 GB -
32 GB -
16 GB -
8 GB -
4 GB -
2 GB -
1 GB -
512 MB -
256 MB -
128 MB -
64 MB -
32 MB -
16 MB -
8 MB -
4 MB -

Maximum recommended memory
(Memory swapping may occur beyond this size.)
42.0 GB

Recommended memory
2 GB

Guest OS recommended minimum
1 GB

OK Cancel Help

- 2 - Vérifier que chacune de vos VM est bien identifiée sur le réseau et dispose d'un accès internet.
- 3 - Configurer le serveur ssh sur chacune des machines pour qu'elles puissent communiquer
- 4 – Installer un serveur Web sur l'une de vos machines et vérifier que vous y avez accès depuis l'autre