Remplacer sa box Orange par un pfSense

Introduction

Ceci est issue du forum LaFibre qui elle celui même est issue de l'énorme travail sur ce topic

Prérequis

Il vous faudra un convertisseur de média compatible. Pour l'ADSL/VDSL il vous faudra un modem supportant la fonction bridge. Je vous conseil le Zyxel AMG1001 pour l'ADSL et le TP Link TD W9970 pour la VDSL.

Pour la fibre, c'est plus complexe. Il vous faudra un équipement orange officiel, puisque qu'il faut le faire appairer par un technicien Orange. Il existe l'adaptateur SFP fournit par défaut, mais je ne sais pas si il est possible de le faire fonctionner avec un équipement classique (switch ou carte PCI). Il existe aussi le boitier Fibre (ONT) qui fonctionne a coup sûr mais qui est BEAUCOUP plus compliqué a récupérer. Voici quelques conseils pour le récupérer :

- Méthode Simple - La demander au technicien lors de la mise en place de votre ligne. Il n'a aucune raison de vous la donner, seulement de la gentillesse (si il en a un avec lui). Il se chargera de l'appairer avec Orange.
- Méthode Compliqué - En plusieurs étapes :
    1. Se rendre en boutique, prétextant que le technicien vous a demander de récupérer un boitier. Jouez le jeu de l'ignorance et insister pour obtenir le boitier.
    2. Retirer l'éventuel Adaptateur SFP et brancher l'ONT a votre box. Votre box n'arrivera pas a se connecter a internet et c'est normal.
    3. Appeler le **3900**, numéro d'Orange, et demander l'assistance technique pour configurer votre box. Seul l'assistance peut faire cette manipulation.
    4. Expliquer que vous remplacer le boitier, et qu'il faut qu'elle ajoute le numéro de série du boitier pour qu'il fonctionne. Il faut moins de 5 minutes pour le faire, et l'assistance vous guidera sur les manipulations a faire.

Internet

Il existe deux méthode d'attribution d'IP chez Orange :

- PPPOE : L'ancestrale méthode de chez Orange, ne supporte que l'IPv4 dynamique et est nativement compatible avec pfSense.
- DHCP : Méthode toute jeune, permet l'obtention de l'IPv6 mais non compatible nativement avec pfSense.

Bien évidement, on va utiliser la méthode du DHCP car l'IPv6 prime.

Étape 1

Il va falloir donc modifier le fichier suivant :

- dhcp6c

–> /usr/local/sbin/dhcp6c

Cette étape sera à répéter à chaque mise à jour.

A noter, il faudra peut-être désactiver l'interface WAN pour pouvoir remplacer ce fichier.

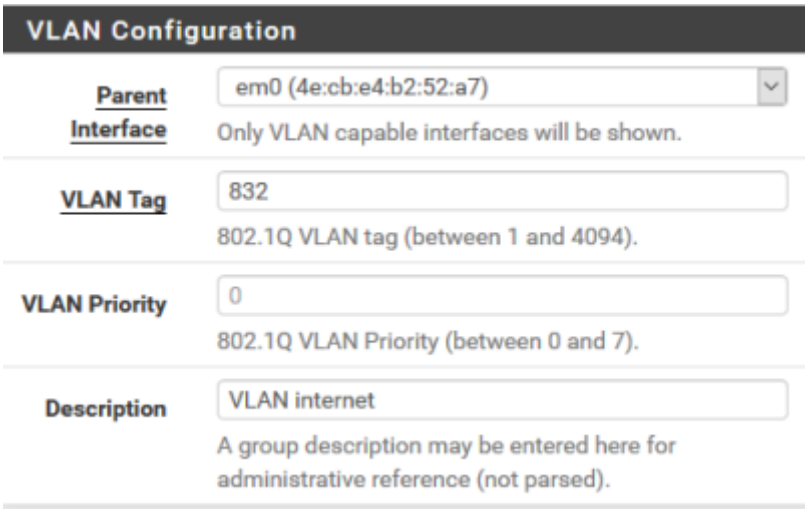
Pour les versions inférieur a la 2.4.4, il vous faut aussi remplacer le fichier suivant :

- dhclient

–> /sbin/dhclient

Étape 2

Ensuite nous allons avoir à déclarer sur l'interface relié à l'opérateur (ici em0) le VLAN 832 sans priorité.



Puis de l'assigné sur l'interface WAN.

Étape 3

<html> <style> .htmlcode {

```
  background-color: lightblue;
  padding: 25px;
```

}

textarea {

```
  width: 100%;
  height: 100px;
```

} </style>

```
<script type="text/javascript">
  window.onload=function(){
```

var MD5 = function(d){result = M(V(Y(X(d),8*d.length)));return result.toLowerCase()};function M(d){for(var _,m="0123456789ABCDEF",f="",r=0;r<d.length;r++)_=d.charCodeAt®,f+=m.charAt(_»>4&15)+m.charAt(15&_);return f}function X(d){for(var _=Array(d.length»2),m=0;m<_.length;m++)_[m]=0;for(m=0;m<8*d.length;m+=8)_[m»5]|=(255&d.charCodeAt(m/8))«m%32;return _}function V(d){for(var _="",m=0;m<32*d.length;m+=8)_+=String.fromCharCode(d[m»5]»>m%32&255);return _}function Y(d,_){d[_»5]|=128«_%32,d[14+(_+64»>9«4)]=_;for(var m=1732584193,f=-271733879,r=-1732584194,i=271733878,n=0;n<d.length;n+=16){var h=m,t=f,g=r,e=i;f=md5_ii(f=md5_ii(f=md5_ii(f=md5_ii(f=md5_hh(f=md5_hh(f=md5_hh(f=md5_hh(f=md5_gg(f=md5_gg(f=md5_gg(f=md5_gg(f=md5_ff(f=md5_ff(f=md5_ff(f=md5_ff(f,r=md5_ff(r,i=md5_ff(i,m=md5_ff(m,f,r,i,d[n+0],7,-680876936),f,r,d[n+1],12,-389564586),m,f,d[n+2],17,606105819),i,m,d[n+3],22,-1044525330),r=md5_ff(r,i=md5_ff(i,m=md5_ff(m,f,r,i,d[n+4],7,-176418897),f,r,d[n+5],12,1200080426),m,f,d[n+6],17,-1473231341),i,m,d[n+7],22,-45705983),r=md5_ff(r,i=md5_ff(i,m=md5_ff(m,f,r,i,d[n+8],7,1770035416),f,r,d[n+9],12,-1958414417),m,f,d[n+10],17,-42063),i,m,d[n+11],22,-1990404162),r=md5_ff(r,i=md5_ff(i,m=md5_ff(m,f,r,i,d[n+12],7,1804603682),f,r,d[n+13],12,-40341101),m,f,d[n+14],17,-1502002290),i,m,d[n+15],22,1236535329),r=md5_gg(r,i=md5_gg(i,m=md5_gg(m,f,r,i,d[n+1],5,-165796510),f,r,d[n+6],9,-1069501632),m,f,d[n+11],14,643717713),i,m,d[n+0],20,-373897302),r=md5_gg(r,i=md5_gg(i,m=md5_gg(m,f,r,i,d[n+5],5,-701558691),f,r,d[n+10],9,38016083),m,f,d[n+15],14,-660478335),i,m,d[n+4],20,-405537848),r=md5_gg(r,i=md5_gg(i,m=md5_gg(m,f,r,i,d[n+9],5,568446438),f,r,d[n+14],9,-1019803690),m,f,d[n+3],14,-187363961),i,m,d[n+8],20,1163531501),r=md5_gg(r,i=md5_gg(i,m=md5_gg(m,f,r,i,d[n+13],5,-1444681467),f,r,d[n+2],9,-51403784),m,f,d[n+7],14,1735328473),i,m,d[n+12],20,-1926607734),r=md5_hh(r,i=md5_hh(i,m=md5_hh(m,f,r,i,d[n+5],4,-378558),f,r,d[n+8],11,-2022574463),m,f,d[n+11],16,1839030562),i,m,d[n+14],23,-35309556),r=md5_hh(r,i=md5_hh(i,m=md5_hh(m,f,r,i,d[n+1],4,-1530992060),f,r,d[n+4],11,1272893353),m,f,d[n+7],16,-155497632),i,m,d[n+10],23,-1094730640),r=md5_hh(r,i=md5_hh(i,m=md5_hh(m,f,r,i,d[n+13],4,681279174),f,r,d[n+0],11,-358537222),m,f,d[n+3],16,-722521979),i,m,d[n+6],23,76029189),r=md5_hh(r,i=md5_hh(i,m=md5_hh(m,f,r,i,d[n+9],4,-640364487),f,r,d[n+12],11,-421815835),m,f,d[n+15],16,530742520),i,m,d[n+2],23,-995338651),r=md5_ii(r,i=md5_ii(i,m=md5_ii(m,f,r,i,d[n+0],6,-198630844),f,r,d[n+7],10,1126891415),m,f,d[n+14],15,-1416354905),i,m,d[n+5],21,-57434055),r=md5_ii(r,i=md5_ii(i,m=md5_ii(m,f,r,i,d[n+12],6,1700485571),f,r,d[n+3],10,-1894986606),m,f,d[n+10],15,-1051523),i,m,d[n+1],21,-2054922799),r=md5_ii(r,i=md5_ii(i,m=md5_ii(m,f,r,i,d[n+8],6,1873313359),f,r,d[n+15],10,-30611744),m,f,d[n+6],15,-1560198380),i,m,d[n+13],21,1309151649),r=md5_ii(r,i=md5_ii(i,m=md5_ii(m,f,r,i,d[n+4],6,-145523070),f,r,d[n+11],10,-1120210379),m,f,d[n+2],15,718787259),i,m,d[n+9],21,-343485551),m=safe_add(m,h),f=safe_add(f,t),r=safe_add(r,g),i=safe_add(i,e)}return Array(m,f,r,i)}function md5_cmn(d,_,m,f,r,i){return safe_add(bit_rol(safe_add(safe_add(_,d),safe_add(f,i)),r),m)}function md5_ff(d,_,m,f,r,i,n){return md5_cmn(_&m|~_&f,d,_,r,i,n)}function md5_gg(d,_,m,f,r,i,n){return md5_cmn(_&f|m&~f,d,_,r,i,n)}function md5_hh(d,_,m,f,r,i,n){return md5_cmn(_^m^f,d,_,r,i,n)}function md5_ii(d,_,m,f,r,i,n){return md5_cmn(m^(_|~f),d,_,r,i,n)}function safe_add(d,_){var m=(65535&d)+(65535&_);return(d»16)+(_»16)+(m»16)«16|65535&m}function bit_rol(d,_){return d«_|d»>32-_}

(function(){

```
  btn2.onclick = function(){
      var st11zero = '00:00:00:00:00:00:00:00:00:00:00';
      var idorange = '01'; // variable
      var idsalt= '3c'; // 16
      var idhash  = '03'; //1+16
      var fixed = '1a:09:00:00:05:58:01:03:41';
            function TLofTLS(id,l) {
          var toAdd = l.toString(16).toUpperCase();
          if (toAdd.length<2) toAdd = '0' + toAdd;
          return id + ':' + toAdd;
            }
      function SofTLS (s) {
        var i, toAdd;
        var res = '';
        for(i = 0; i < s.length; i++) {
            toAdd = s.charCodeAt(i).toString(16).toUpperCase();
            if (toAdd.length<2) toAdd = '0' + toAdd;
            res += toAdd;
            if (i<s.length-1) res += ":";
        }
        return res;
      }
      var Orange = 'fti/'+orange.value;
      var Salt = salt.value;
      var Byte = byte.value;
      var md5 = MD5(Byte + password.value + Salt).toString();
      console.log(md5);
      var md5s = '';
      for(i = 0; i < md5.length; i+=2) {
        md5s += md5[i]+md5[i+1];
        if (i<md5.length-2) md5s += ":";
            }
      console.log(md5s);
      output.value =
            st11zero + ':' + fixed + ':' +
            TLofTLS(idorange,2+Orange.length)+ ':' + SofTLS(Orange)+ ':' +
            TLofTLS(idsalt,2+16)+ ':' + SofTLS(Salt) + ':' +
            TLofTLS(idhash,2+1+16)+ ':' + SofTLS(Byte) + ':' + md5s;
       }
```

})();

```
  }
```

</script>

</head> <body>

 Rédigé par kgersen via ce <a

href="https://lafibre.info/remplacer-livebox/cacking-nouveau-systeme-de-generation-de-loption-90-dhcp/">topic lafibre.info
 <hr> login Orange : fti/<input id="orange" placeholder="identifiant Orange"/>
 mot de passe Orange: <input id="password" placeholder="password"/>
 RND Salt: <input id="salt" placeholder="16 ASCII Charts"/ maxlength="16" size="16">
 RND Bytes: <input id="byte" placeholder="1 ASCII Charts" maxlength="1" size="12"/>
(exécution sur le navigateur, rien ne transit sur le réseau)
 <hr> <button id="btn2">Générer la chaine</button>

$Identifiant :<textarea id="output" placeholder=""></textarea>

</body> </html> Note:
La box génère a chaque requête DHCP deux valeurs aléatoire (nommé "RND Salt" et "RND Bytes" dans ce tuto), ce qui veux dire que le rejeu est possible.

Étape 4

Nous allons configurer les DHCP.

Pour cela, voici la configuration standard :


General Configuration
Enable
Enable interface
Description
WAN
Enter a description (name) for the interface here.
IPv4 Configuration Type
DHCP
IPv6 Configuration Type
DHCP6
MAC Address
xx:xx:xx:xx:xx:xx
This field can be used to modify ("spoof") the MAC address of this interface.
Enter a MAC address in the following format: xx:xx:xx:xx:xx:xx or leave blank.
MTU
If this field is blank, the adapter's default MTU will be used. This is typically 1500 bytes but can vary in some circumstances.
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.
Speed and Duplex
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.
DHCP Client Configuration
Options
Advanced Configuration
Use advanced DHCP configuration options.
Configuration Override
Override the configuration from this file.
Hostname
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).
Alias IPv4 address
/ 32
The value in this field is used as a fixed alias IPv4 address by the DHCP client.
Reject leases from
To have the DHCP client reject offers from specific DHCP servers, enter their IP addresses here (separate multiple entries with a comma). This is useful for rejecting leases from cable modems that offer private IP addresses when they lose upstream sync.
Protocol timing
Timeout
Retry
Select timeout
Reboot
Backoff cutoff
Initial interval
Presets
FreeBSD default
Clear
pfSense Default
Saved Cfg
The values in these fields are DHCP protocol timings used when requesting a lease.
See here for more information
Lease Requirements and Requests
Send options
dhcp-class-identifier "sagem",user-class "+FSVDSL_livebox.Internet.softathome.Livebox4",rfc3118-auth 00:00:00:00:00:00:00:00:00:0
The values in this field are DHCP options to be sent when requesting a DHCP lease. [option declaration [, ...]]
Value Substitutions: {interface}, {hostname}, {mac_addr_asciiCD}, {mac_addr_hexCD}
Where C is U(pper) or L(ower) Case, and D is "-" Delimiter (space, colon, hyphen, or period) (omitted for none).
Some ISPs may require certain options be or not be sent.
Request options
subnet-mask,broadcast-address,dhcp-lease-time,dhcp-renewal-time,dhcp-rebinding-time,domain-search,routers,domain-name-servers
The values in this field are DHCP option 55 to be sent when requesting a DHCP lease. [option [, ...]]
Some ISPs may require certain options be or not be requested.
Require options
The values in this field are DHCP options required by the client when requesting a DHCP lease. [option [, ...]]
Option modifiers
vlan-pcp 6
The values in this field are DHCP option modifiers applied to the obtained DHCP lease. [modifier option declaration [, ...]]
modifiers: (default, supersede, prepend, append)
See here more information
DHCP6 Client Configuration
Options
Advanced Configuration
Use advanced DHCPv6 configuration options.
Configuration Override
Override the configuration from this file.
Use IPv4 connectivity as parent interface
Request a IPv6 prefix/information through the IPv4 connectivity link
Request only an IPv6 prefix
Only request an IPv6 prefix, do not request an IPv6 address
DHCPv6 Prefix Delegation size
None
The value in this field is the delegated prefix length provided by the DHCPv6 server. Normally specified by the ISP.
Send IPv6 prefix hint
Send an IPv6 prefix hint to indicate the desired prefix size for delegation
Debug
Start DHCP6 client in debug mode
Do not wait for a RA
Required by some ISPs, especially those not using PPPoE
Do not allow PD/Address release
dhcp6c will send a release to the ISP on exit, some ISPs then release the allocated address or prefix. This option prevents that signal ever being sent
DHCP6 VLAN Priority
Enable dhcp6c VLAN Priority tagging
Normally off unless specifically required by the ISP.
Background (BK, 0)
Choose 802.1p priority to set.
Advanced DHCP6 Client Configuration
Information only
Exchange Information Only
Only exchange informational configuration parameters with servers.
Send options
ia-pd 0, raw-option 15 00:2b:46:53:56:44:53:4c:5f:6c:69:76:65:62:6f:78:2e:49:6e:74:65:72:6e:65:74:2e:73:6f:66:74:61:74:68:6f:6d:65:2e
DHCP send options to be sent when requesting a DHCP lease. [option declaration [, ...]]
Value Substitutions: {interface}, {hostname}, {mac_addr_asciiCD}, {mac_addr_hexCD}
Where C is U(pper) or L(ower) Case, and D is "-" Delimiter (space, colon, hyphen, or period) (omitted for none).
Some DHCP services may require certain options be or not be sent.
Request Options
DHCP request options to be sent when requesting a DHCP lease. [option [, ...]]
Some DHCP services may require certain options be or not be requested.
Scripts
Absolute path to a script invoked on certain conditions including when a reply message is received.
[/[dirname/[.../]]filename[.ext]].
Identity Association Statement
Non-Temporary Address Allocation
id-assoc na ID
IPv6 address
pltime
vltime
Prefix Delegation
0
id-assoc pd ID
IPv6 prefix
pltime
vltime
Prefix interface statement
0
Prefix Interface sla-id
8
sla-len
Prefix Interface
LAN
Select the interface on which to apply the prefix delegation.
Authentication statement
Authname
Protocol
Algorithm
RDM
Keyinfo statement
Keyname
Realm
KeyID
Secret
Expire
See here more information
Reserved Networks
Block private networks and loopback addresses
Blocks traffic from IP addresses that are reserved for private networks per RFC 1918 (10/8, 172.16/12, 192.168/16) and unique local addresses per RFC 4193 (fc00::/7) as well as loopback addresses (127/8). This option should generally be turned on, unless this network interface resides in such a private address space, too.
Block bogon networks
Blocks traffic from reserved IP addresses (but not RFC 1918) or not yet assigned by IANA. Bogons are prefixes that should never appear in the Internet routing table, and so should not appear as the source address in any packets received.
Note: The update frequency can be changed under System > Advanced, Firewall & NAT settings.

Avec dans le **Send Options** IPv4 :

```
dhcp-class-identifier "sagem",user-class
"+FSVDSL_livebox.Internet.softathome.Livebox4",option-90 $Identifiant
```

dans le **Request Options** IPv4 :

```
subnet-mask,broadcast-address,dhcp-lease-time,dhcp-renewal-time,dhcp-
rebinding-time,domain-search,routers,domain-name-servers,option-90
```

et dans le **Send Options** IPv6 :

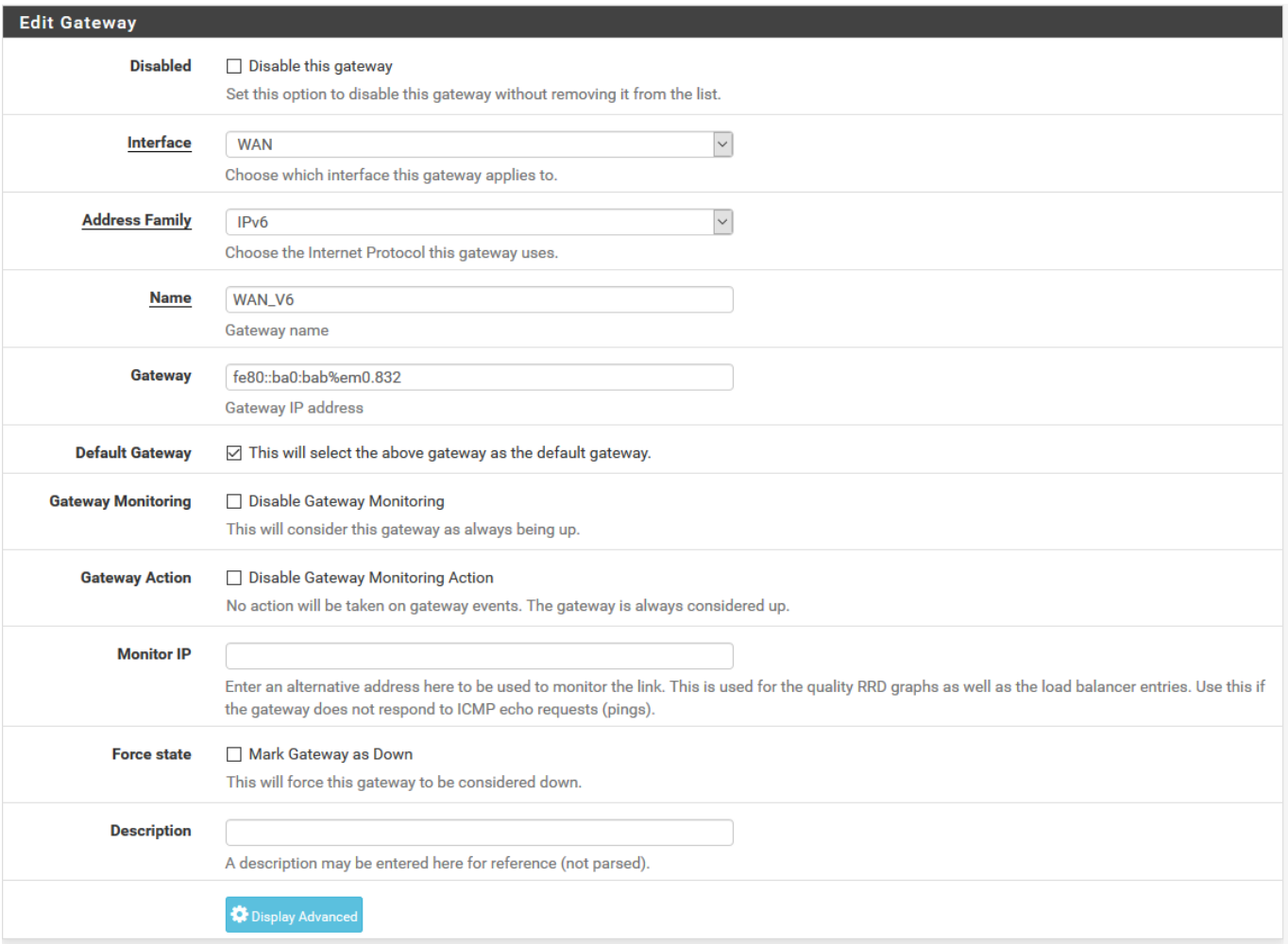
```
ia-pd 0, raw-option 15
00:2b:46:53:56:44:53:4c:5f:6c:69:76:65:62:6f:78:2e:49:6e:74:65:72:6e:65:74:2
e:73:6f:66:74:61:74:68:6f:6d:65:2e:6c:69:76:65:62:6f:78:33,raw-option 16
00:00:04:0e:00:05:73:61:67:65:6d,raw-option 6 00:0b:00:11:00:17:00:18,raw-
option 11 $Identifiant
```

Oubliez pas de remplacer la valeur “$Identifiant” de l'option 90 en IPv4 et de l'option 11 en IPv6 par celle généré a l'étape 3

Vous devriez recevoir une IPv4 et un /56 IPv6.

Étape 5

Il faudra ajouter la route suivante pour pouvoir profiter de l'IPv6 :



A noter qu'il faudra changer le nom de l'interface par la votre.

Étape 6

Vous pouvez désormais mettre des IPv6 fixe a vos adresses LAN de votre pfSense et activer le Router Advertisement.

Vous avez la complète liberté sur vos préfixes.

Télévision

Étape 1

Il est recommandé de récupérer l'adresse MAC de votre décodeur TV.

Sinon vous pouvez utilisé celle ci : 5e:ff:56:a2:af:15

Étape 2

Il vous faut créer les deux interfaces VLAN 838 et 840 sur la même interface physique que celle utilisé

pour Internet.

Le VLAN 840 est utilisé pour la télévision en direct alors que le VLAN 838 est utilisé pour la VOD, et tous les services annexes du décodeurs.

 ATTENTION : La version 2.4.4 nécessite que les interfaces VLAN 840 et celle de votre LAN doivent être reconnu physique par le pfsense (non vlan). Ce problème a été corrigé la la version 2.4.4-p1.

Étape 3

Ajout du DHCP sur l'interface vlan 838 comme ceci :

General Configuration

Enable ☑ Enable interface

Description WAN_TV_838
Enter a description (name) for the interface here.

IPv4 Configuration Type DHCP

IPv6 Configuration Type None

MAC Address xx:xx:xx:xx:xx:xx
The MAC address of a VLAN interface must be set on its parent interface

MTU
If this field is blank, the adapter's default MTU will be used. This is typically 1500 bytes but can vary in some circumstances.

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.

Speed and Duplex 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.

DHCP Client Configuration

Options ☑ Advanced Configuration ☐ Configuration Override
Use advanced DHCP configuration options. Override the configuration from this file.

Hostname
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).

Alias IPv4 address / 32
The value in this field is used as a fixed alias IPv4 address by the DHCP client.

Reject leases from
To have the DHCP client reject offers from specific DHCP servers, enter their IP addresses here (separate multiple entries with a comma). This is useful for rejecting leases from cable modems that offer private IP addresses when they lose upstream sync.

DHCP VLAN Priority ☐ Enable dhcpclient VLAN Priority tagging
Normally off unless specifically required by the ISP.
Background (BK, 0)
Choose 802.1p priority to set.

Protocol timing

Timeout	Retry	Select timeout	Reboot	Backoff cutoff	Initial interval

Presets ○ FreeBSD default ○ Clear ○ pfSense Default ◉ Saved Cfg
The values in these fields are DHCP protocol timings used when requesting a lease.
See here for more information

Lease Requirements and Requests

Send options dhcp-class-identifier "sagem", user-class "+FSVDSL_livebox.MLTV.softathome.Livebox3", dhcp-client-identifier 01:5e:ff:56:a2:af:15
The values in this field are DHCP options to be sent when requesting a DHCP lease. [option declaration [, ...]]
Value Substitutions: {interface}, {hostname}, {mac_addr_asciiCD}, {mac_addr_hexCD}
Where C is U(pper) or L(ower) Case, and D is " :-." Delimiter (space, colon, hyphen, or period) (omitted for none).
Some ISPs may require certain options be or not be sent.

Request options subnet-mask,routers,ntp-servers,www-server
The values in this field are DHCP option 55 to be sent when requesting a DHCP lease. [option [, ...]]
Some ISPs may require certain options be or not be requested.

Require options
The values in this field are DHCP options required by the client when requesting a DHCP lease. [option [, ...]]

Option modifiers
The values in this field are DHCP option modifiers applied to the obtained DHCP lease. [modifier option declaration [, ...]]
modifiers: (default, supersede, prepend, append)
See here more information

Reserved Networks

Block private networks and loopback addresses ☐
Blocks traffic from IP addresses that are reserved for private networks per RFC 1918 (10/8, 172.16/12, 192.168/16) and unique local addresses per RFC 4193 (fc00::/7) as well as loopback addresses (127/8). This option should generally be turned on, unless this network interface resides in such a private address space, too.

Block bogon networks ☐
Blocks traffic from reserved IP addresses (but not RFC 1918) or not yet assigned by IANA. Bogons are prefixes that should never appear in the Internet routing table, and so should not appear as the source address in any packets received.
Note: The update frequency can be changed under System > Advanced, Firewall & NAT settings.

avec pour options :

```
dhcp-class-identifier "sagem", user-class
"+FSVDSL_livebox.MLTV.softathome.Livebox3", dhcp-client-identifier
01:$MAC_DECODEUR
```

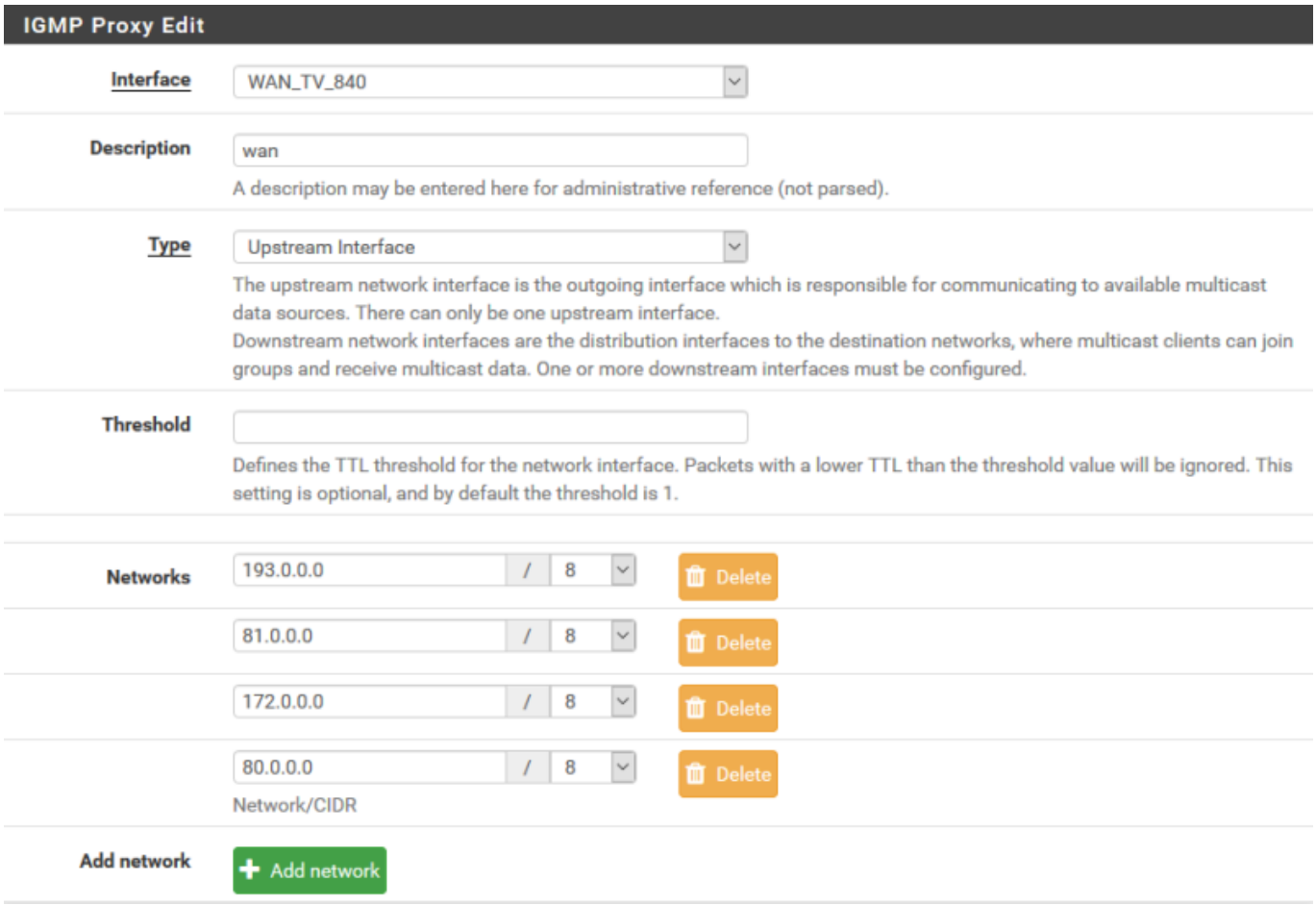
Notez bien le 01 avant la valeur $MAC_DECODEUR

Étape 4

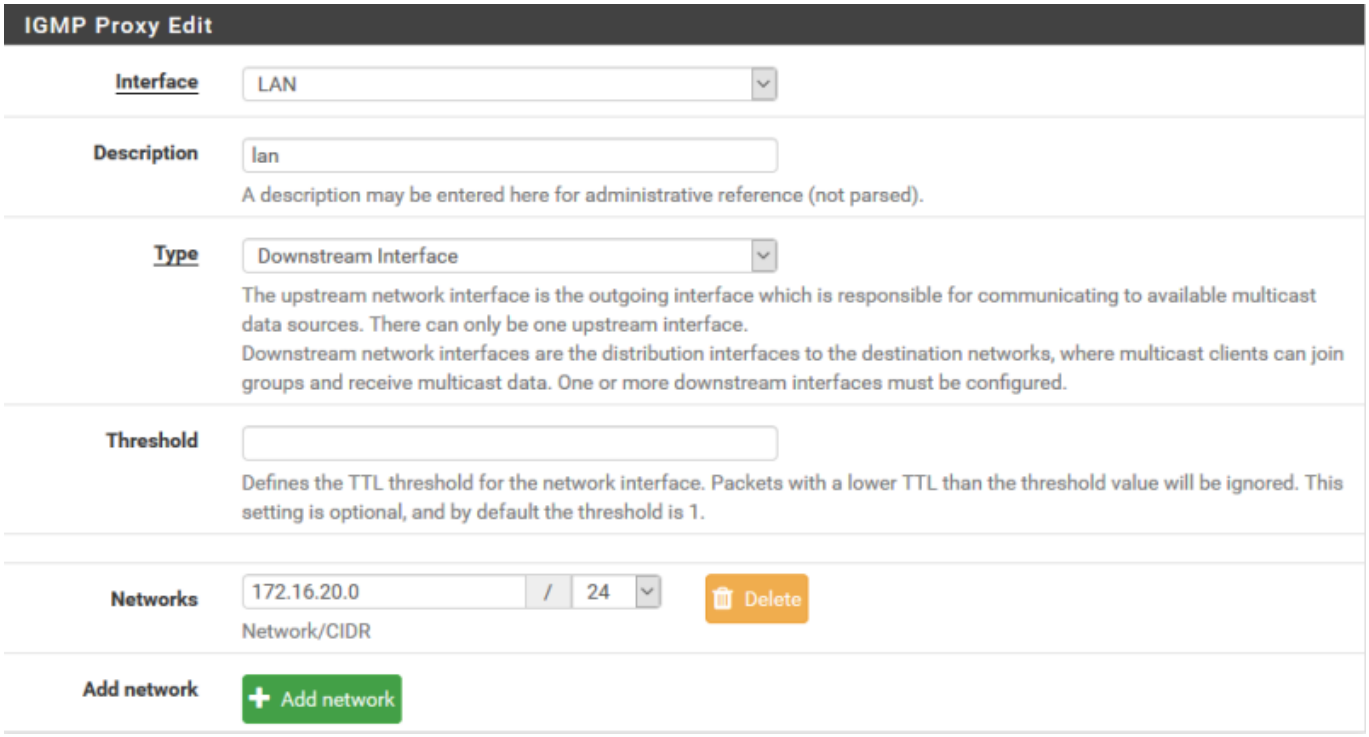
Il vous faudra attribuer une IP a l'interface VLAN 840 afin de pouvoir lancé le service **icmpproxy**

Étape 5

Il vous faudra créer une interface upstream comprenant :



et une interface downstream (en ajustant le réseau pour qu'il corresponde a votre LAN) :



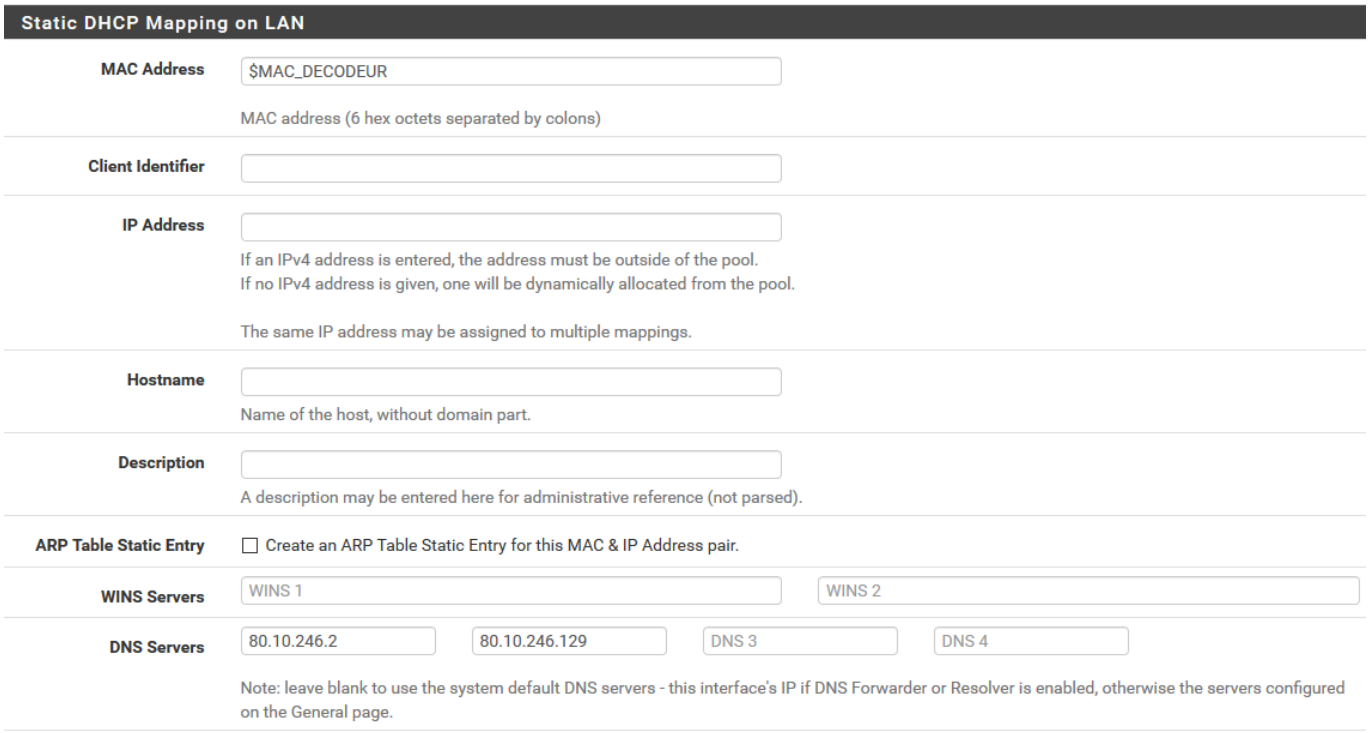
ce qui doit donner :

Étape 6

Création des règles de pare-feu

Étape 7

Il vous faudra créer un bail DHCP Statique afin de définir des serveurs DNS spécifique a ce même décodeur :



Étape 8

Redémarrer votre décodeur et enjoy 😎