

# WAN Configuration

## MikroTik RB260GS

The Switch must be flashed with [firmware 2.2](#) (as 2.7 suffers from a bug that prevents the TV from working).

### List of rules

- VLAN 832 needs to be isolated between SFP and port 3 (Orange WAN)
- VLAN 832 needs to be isolated between ports 2 and 4 (Fake WAN/Livebox)
- DHCP requests sent to SFP needs to be set to priority 6
- VLAN 838 and VLAN 840 needs to be sent to Livebox directly

### Link

Set the following names :

- **Port 2** : Livebox
- **Port 3** : pfSense
- **Port 4** : FakeWAN
- **Port 5** : LAN
- **SFP** : Orange

### Forwarding

Set the columns as follows :

- **Livebox** : From Fake WAN and Orange
- **pfSense WAN** : From Orange
- **Fake WAN** : From Livebox
- **LAN** : Nothing
- **Orange** : From Livebox and pfSense WAN

### VLAN

- **Livebox** : mode strict, receive only tagged
- **pfSense** : mode strict, receive only tagged
- **FakeWAN** : mode strict, receive only tagged
- **LAN** : mode optional, receive only untagged
- **Orange** : mode strict, receive only tagged

### VLANs

- **VLAN 832** : Livebox, pfSense, FakeWAN and Orange set as leave as is
- **VLAN 838** : Livebox and Orange set as leave as is
- **VLAN 840** : Livebox and Orange set as leave as is

### ACL

Create the following rules, while keeping the order (especially for line 2) :

- **From FakeWAN** : Ethertype 806, VLAN present and VLAN ID 832, redirect to Livebox with VLAN ID 832
- **From pfSense** : IP Src " : 68 " and IP Dst " : 67 ", redirect to Orange with VLAN ID 832 and priority 6
- **From pfSense** : VLAN present and VLAN ID 832, redirect to Orange with VLAN ID 832
- **From Livebox** : VLAN present and VLAN ID 832, redirect to FakeWAN with VLAN ID 832
- **From Orange** : VLAN present and VLAN ID 832, redirect to pfSense with VLAN ID 832

## pfSense

### Preparation

1. Create a VLAN 832 on WAN interface
2. Create a VLAN 832 on Fake WAN interface
3. Assign them to WAN and FWAN

## Get fti id as hex

You can either use this JavaScript tool : <https://jsfiddle.net/kgersen/45zudr15/embedded/result/> or this PowerShell script :

```
$opt90 = "fti/xxxxxx"
"Valeur encodee:\n$opt90\n" + ("00:"*(22 - ($opt90.Length))) +
(($opt90.ToCharArray() | % { "{0:x2}" -f ([int]$_)}) -join ":") + "`n"
```

## WAN IPv4 Configuration

1. Set IPv4 Configuration Type to DHCP
2. In DHCP Client Configuration, check Advanced Configuration
3. Select pfSense Default in Presets
4. In Send options set: dhcp-class-identifier "sagem", user-class "+FSVDSL\_livebox.Internet.softathome.Livebox4", option-90 <auth\_id>, where <auth\_id> is your fti login encoded as hex
5. In Request options set: subnet-mask, broadcast-address, dhcp-lease-time, dhcp-renewal-time, dhcp-rebinding-time, domain-search, routers, domain-name-servers, option-90

You should have an IPv4 on WAN interface now.

## WAN IPv6 Configuration

Replace your dhcp6c binary located in /usr/local/sbin by this one : [dhcp6c](https://github.com/pfsense/pfsense/commit/6b8680a.patch). Install System Patches package and add this patch (by URI) : <https://github.com/pfsense/pfsense/commit/6b8680a.patch>

1. Set IPv6 Configuration Type to DHCP6
2. In DHCP6 Client Configuration, check Advanced Configuration
3. Check Request only an IPv6 prefix
4. Set DHCPv6 Prefix Delegation size to 64
5. Check Do not wait for a RA
6. Check Do not allow PD/Address release
7. Check DHCP6 LAN Priority to IC, 6
8. In Advanced DHCP6 Client Configuration, set Send options to :

```
ia-pd 0, raw-option 6 00:0b:00:11:00:17:00:18, raw-option 15
00:2b:46:53:56:44:53:4c:5f:6c:69:76:65:62:6f:78:2e:49:6e:74:65:72:6
e:65:74:2e: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 11
<id>
```

9. Check Prefix Delegation and set id-assoc pd ID to 0
10. Set Prefix Interface sla-id to 0 and sla-len to 8
11. Set Prefix Interface to LAN

## Livebox Emulation (Fake WAN)

1. Set IPv4 Configuration Type to Static IPv4
2. Set IPv4 Address to an unused subnet
3. Go to Services DHCP Server
4. In FWAN Interface, enable DHCP server
5. Set range to something unused
6. Set Gateway to FWAN IP Address
7. Set Domain name to orange.fr
8. In Additional BOOTP/DHCP Options, add the following options :

```
90,  
string, 00:00:00:00:00:00:00:00:00:00:00:64:68:63:70:6c:69:76:65:62  
:6f:78:66:72:32:35:30  
120,  
string, 00:06:73:62:63:74:33:67:03:4c:41:47:06:61:63:63:65:73:73:11  
:6f:72:61:6e:67:65:2d:6d:75:6c:74:69:6d:65:64:69:61:03:6e:65:74:00  
125, string, 00:00:05:58:0c:01:0a:00:00:00:00:00:ff:ff:ff:ff:ff
```

9. Add a static mapping :

- a. Set MAC Address to the LB4 Mac Address
- b. Set IP Address to an address (outside of the DHCP range)
- c. Set DNS Servers to your DNS servers (from Wireshark dump between LB4 and SFP)
- d. Set Gateway to FWAN interface IP Address

10. Reboot your Livebox, it should get an IP and provide access to TV