

## **LINUX config-HELP**

Our software "Sim\_PSK" can be used now under Linux thanks to the WINE emulator.

Some questions were asked by OMs, indicating that, configuration stays somehow difficult, mainly for those who do not know Linux commands. It's the reason why I decided to describe here the procedure to follow, as clearly as possible, in order to make anyone able to do this installation .

Sim\_PSK was tested with some versions of UBUNTU until 14.04 . On an old PCs, it's running with a light Linux version , such as Xubuntu or Lubuntu.

There are two distinct points to set up:

- 1 - serial ports for PTT and for « CAT » commands
- 2 - choose the audio port and set up the interface and audio level.

### **1 COM ports Configuration - Some cases :**

If you are using an old desktop PC, it certainly has one or two RS232 serial ports that are normally recognized as elements (dev) ttyS0 and ttyS1 ; but that does not mean they could be used directly without some prior settings.

On recent PCs and/or laptops, these serial ports are usually non-existent, it is necessary to use USB ports and converters "USB / RS232" as virtual COM ports .

If you do not use the commands "CAT" , only one serial port is needed to switch the PTT.

The second COM port is only used for the CAT communication between the PC and the transceiver.

For testing, I used two FTDI converters PL2303 Type and it works fine, but at beginning of the installation it was far from being ok ! This is one of the hotspots for virtual com ports which are not directly available under Linux.

The first thing to do is to check what kind of hardware is installed and at what addresses. For this it is necessary to pass some commands from a terminal window.

So let see how to use the COM ports:

For the uninitiated, who know very little or none at all about Linux, you must first open a terminal window. It is a bit like in Windows that allows to enter DOS commands, but here of course commands are those recognized by Linux ...

There are two ways to open this window,

click in the menu to "search for Files on the PC" and enter the key word "terminal" in the search window.

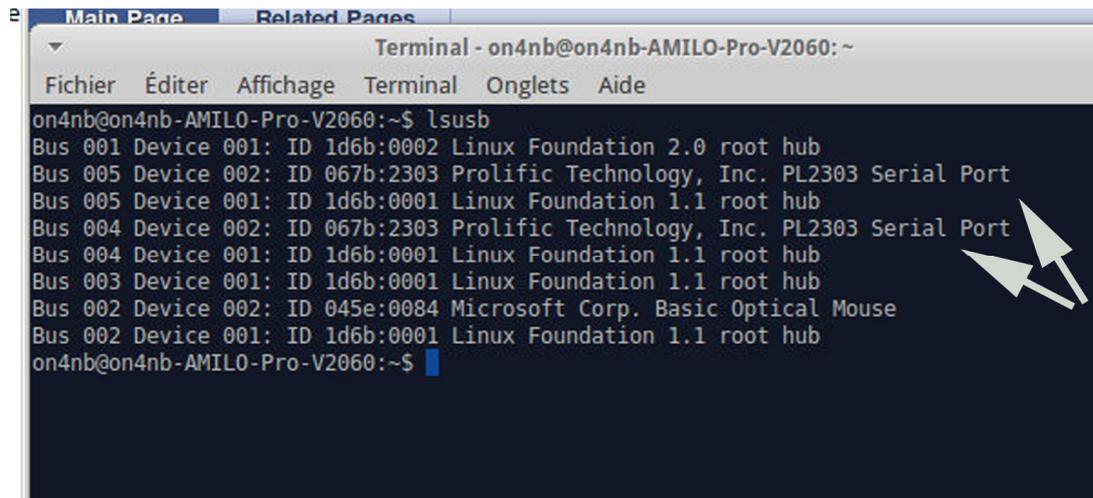
Then click on the icon of the terminal (small black window icon) visible on the screen.

OR

Use the 3 keys **CTRL + ALT + T**

In the Terminal window that opens, enter the command **lsusb**

It should list the FTDI ports connected to the PC as shown by white arrows hereunder:



```
Terminal - on4nb@on4nb-AMILO-Pro-V2060: ~
Fichier Éditer Affichage Terminal Onglets Aide
on4nb@on4nb-AMILO-Pro-V2060:~$ lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 005 Device 002: ID 067b:2303 Prolific Technology, Inc. PL2303 Serial Port
Bus 005 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 004 Device 002: ID 067b:2303 Prolific Technology, Inc. PL2303 Serial Port
Bus 004 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 003 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 002 Device 002: ID 045e:0084 Microsoft Corp. Basic Optical Mouse
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
on4nb@on4nb-AMILO-Pro-V2060:~$
```

Optionally, you can compare the results by first entering this command without connecting the converters, and then do the same with converters connected.

The detected devices on USB will probably be available as follows:

ttyUSB0 for virtual port COM1

ttyUSB1 for virtual port COM2

The needed steps :

- Establish the link between ttyUSB0 and COM1  
between ttyUSB1 and COM2
- Add COM ports ( dialout ) to user group  
( on my PC group = on4nb )
- Make the two ports accessible under / .wine
- Give the correct permissions to allow access to the tty files from the current user group.

Note: Some commands must be entered twice, once for each COM port.

Beware to respect uppercase / lowercase. They must be used in the commands exactly as they are shown !

Indeed, if I type the command **setserial /dev/ttyS0** that's ok, I see com 1 linked to the address 3f8 and IRQ4

BUT

, if I type the command **setserial /dev/ttys0** that will not work because the S in ttyS0 should be in uppercase !!!  
Linux as Unix are sensitive to upper / lower case...

The first thing to do is record the details of the equipment listed by **lsusb** for virtual ports and by **lspci** if the ports are installed in the PC ( on motherboard or a PCI card )

Here, the two converters have a chipset "Prolific" and as shown by the white arrows on the screenshot above, the ID parameters to be used are manufacturer ID 067b and type of product 2303.

Once this informations are known and memorized, type the following commands ( adapted to YOUR devices ) :

```
sudo modprobe usbserial vendor=0x067b product=0x2303  
setserial /dev/ttyS0  
setserial /dev/ttyS1  
sudo chmod o+rw /dev/ttyS0  
sudo chmod o+rw /dev/ttyS1
```

You should see that

ttyS0 is linked to the com port 1 (address 03F8 IRQ4)  
ttyS1 is linked to the com port 2 (address 02F8 IRQ3)

Note:

if you have more than 2 COM ports there may be a conflict because the IRQ for ports COM1 and COM2 are shared with COM 3 (03E8 IRQ4) and COM 4 (02E8 IRQ3)

Remember to adapt the vendor and product parameters according to those indicated by lsusb in the window on your PC when entering it in modprobe or you will receive an error message !

For example,  
if your FTDI component is not a PL2303 but a FT232,  
Instead of ID 0x067b : 0x2303  
you will have 0x0403 : 0x6010

Next: check if the COM ports are accessible from the current user group ; Originally they are in the Dialout group and so Dialout must also be accessible to the user.

We can know it by typing  
**groups**

The response will be more or less as shown below

`on4nb adm sudo ...`

This response shows that the Dialout group is not yet available in the on4nb group.

to add it, type the command **sudo adduser on4nb dialout**

The dialout group can now be used from the group on4nb

Then: make ports accessible from the WINE emulator

To link serial ports com1 and com2 to Wine you must enter the following command twice : once for com1 and then for com2

**In -s /dev/ttyUSB0 ~/.wine/dosdevices/com1**

**In -s /dev/ttyUSB1 ~/.wine/dosdevices/com2**

Then reboot the machine with the command:

**sudo reboot**

Normally you can now use your serial communication ports

## **2 Configuration of audio interface**

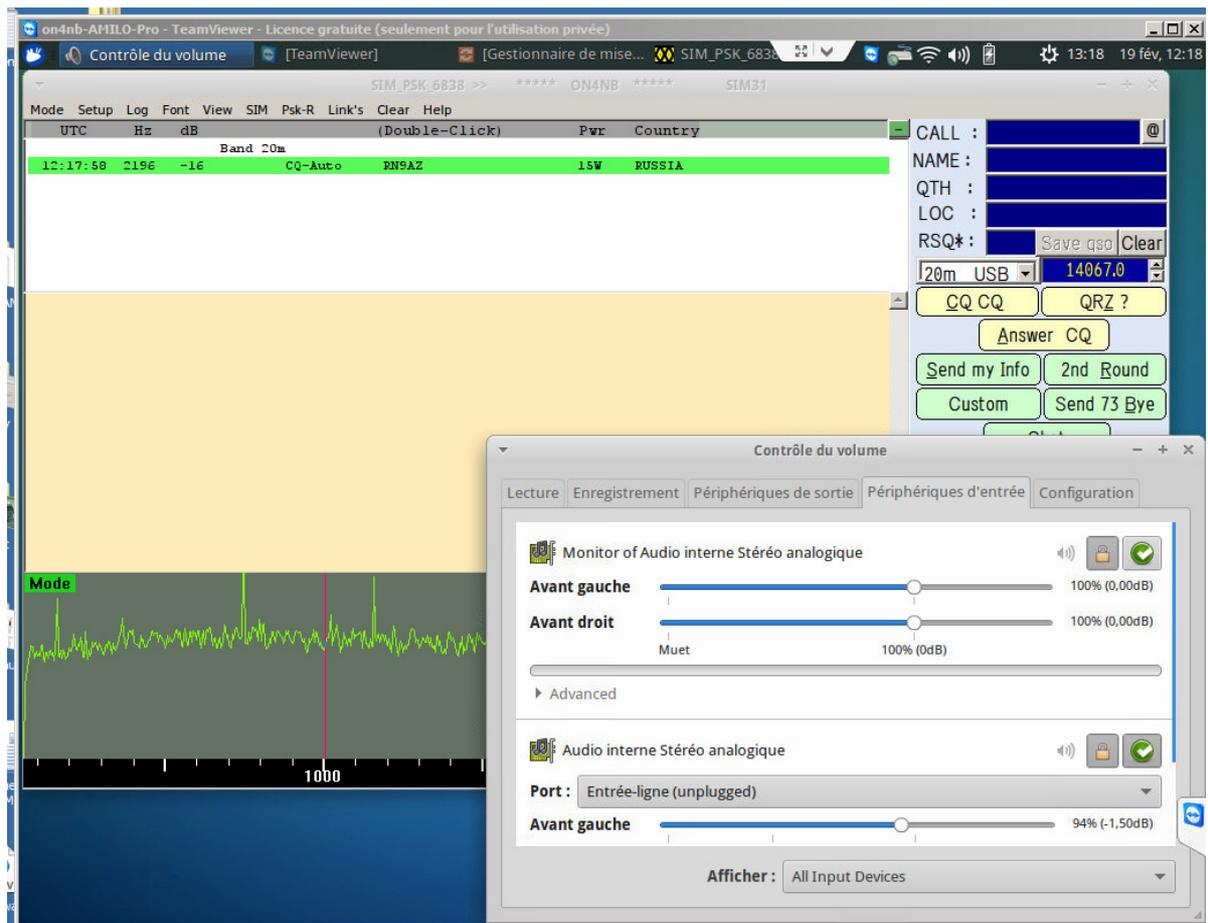
By default the ( old linux ) audio interface is Pulse Audio. I tried ALSA, but when both ALSA and PULSE AUDIO drivers are present on the PC, sim\_psk only sees only pulse\_audio ... (I have not tried uninstalling pulse-audio)

Each time, when starting the program, I have no sound on the input of sim\_psk; I have first to click on the speaker,

In the window that opens I select the audio input tab, then display all audio, and I select the line input as shown on the picture hereunder.

I guess we should add the option "use MIC input" in an audio configuration file to avoid having to repeat each time the choice

- It remains to be tested.



There is still another small problem to solve (any advice is welcome)  
 The two INPUT and OUTPUT buttons provided in sim\_PSK to adjust the volume of input and output do not allow to set volume control. Two cursors appear but do not seem to act ...

I have to make the sound settings by a right clic on the speaker icon ; and from the mixer window, adjust the input levels and audio output, outside of sim\_psk.

If you have useful information, missing in this explanation, Thank you to send it to me by e-mail, I will publish them for everyone to take some advantage.

73's

Dany, **ON4NB**

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15/02/2015