Zello-Svxlink gateway configuration

Zello settings

Prerequisites

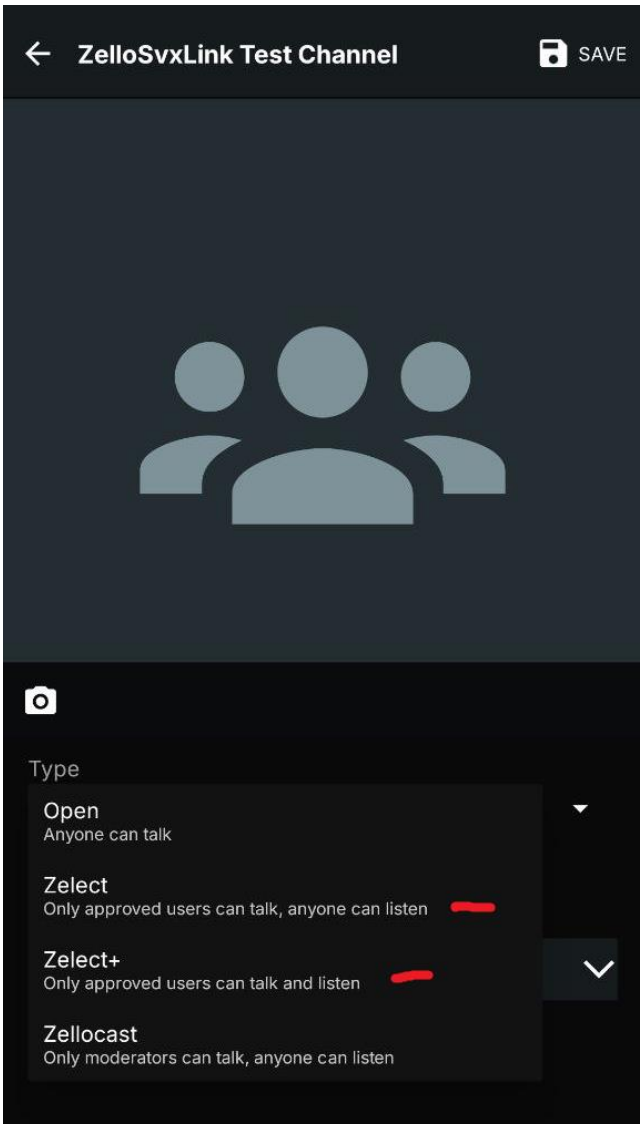
The Gateway admin needs to create:

- A Zello user dedicated to the gateway (Gateway Zello User)
- A Zello channel dedicated to the gateway (Gateway Zello Channel)

Gateway Zello Channel

This channel should not be created (and owned) by the Gateway Zello User. It should be created from the Zello mobile app by a different user, who will be the admin of the group.

The recommended channel type is ‘Zelect’ (everyone can listen, only trusted users can speak, like in ham radio), or ‘Zelect+’ (only trusted users can speak / listen), if the content of the channel is not ham radio.



In this document, we will use a test channel called “ZelloSvxLink Test Channel”.

This is the default you will find configured on the VM image, please change it to your own.

Gateway Zello User

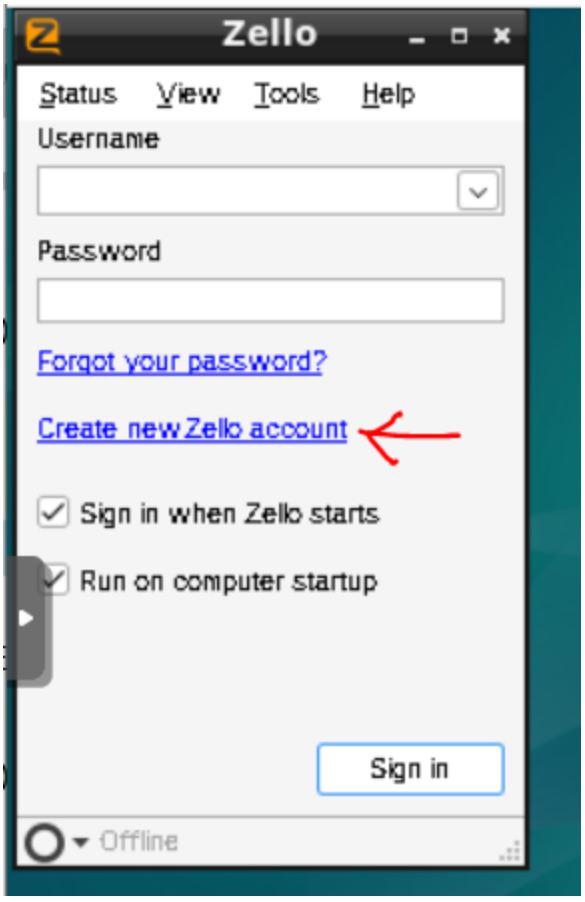
All the audio traffic coming from the svxlink server (reflector) will come in Zello via this user.

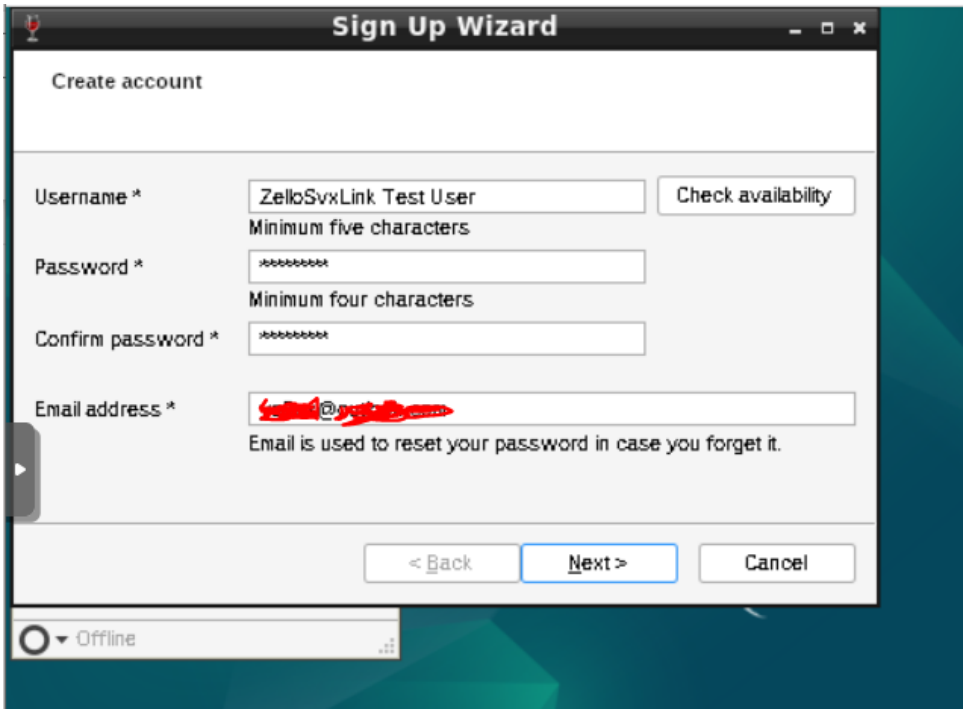
Important: This user should not be an admin or moderator of the channel, but only a ‘trusted’ user. This is important, because new ‘untrusted’ channel joiners can contact moderators, so that traffic WILL go to the reflector if the gateway Zello user is a moderator.

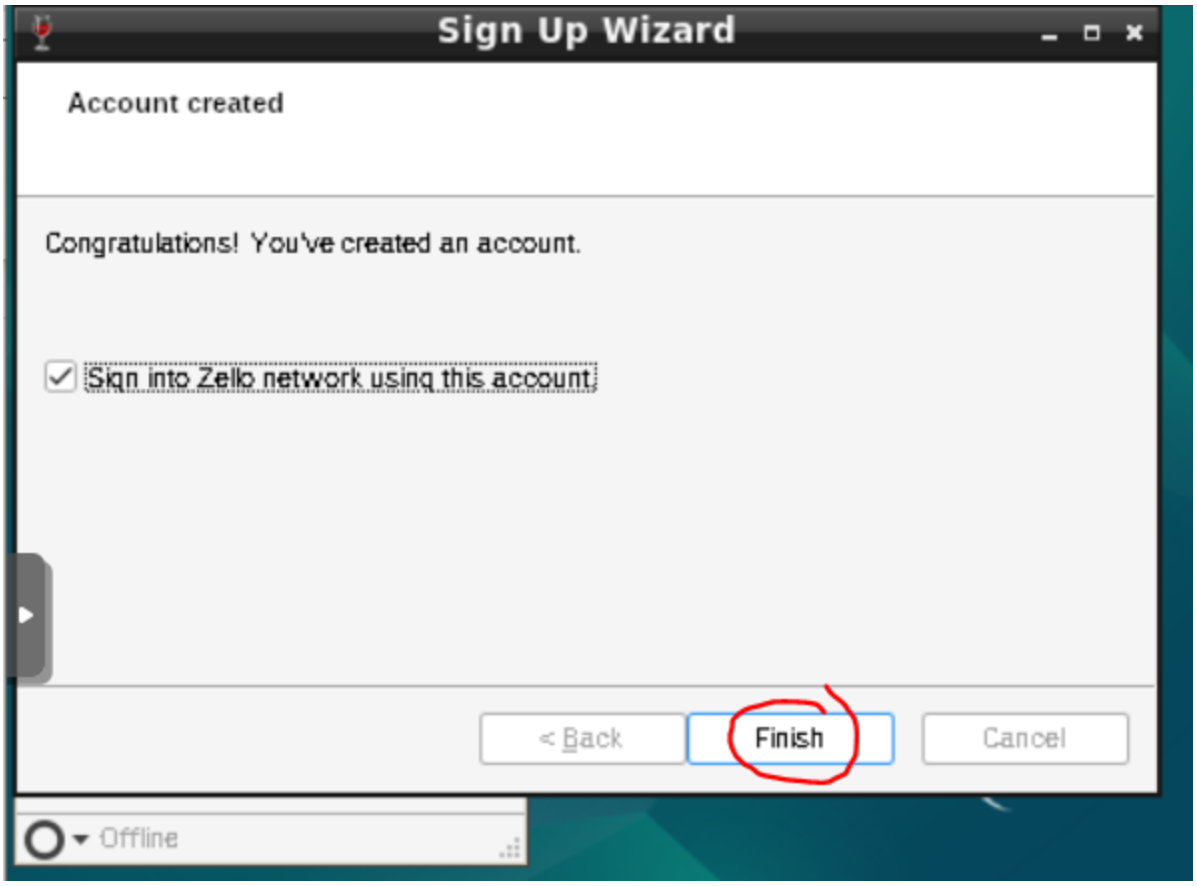
In this document, we will use a test user called “ZelloSvxLink Test User”.

This is the default you will find configured on the VM image, please change it to your own.

The Zello user dedicated to the gateway can be created from the VM as follows:


Zello
Status View Tools Help
Username
Password
Forgot your password?
Create new Zello account
Sign in when Zello starts
Run on computer startup
Sign in
Offline


Sign Up Wizard
Create account
Username *
ZelloSvxLink Test User
Check availability
Minimum five characters
Password *
Minimum four characters
Confirm password *
Email address *
Email is used to reset your password in case you forget it.
< Back
Next >
Cancel
Offline



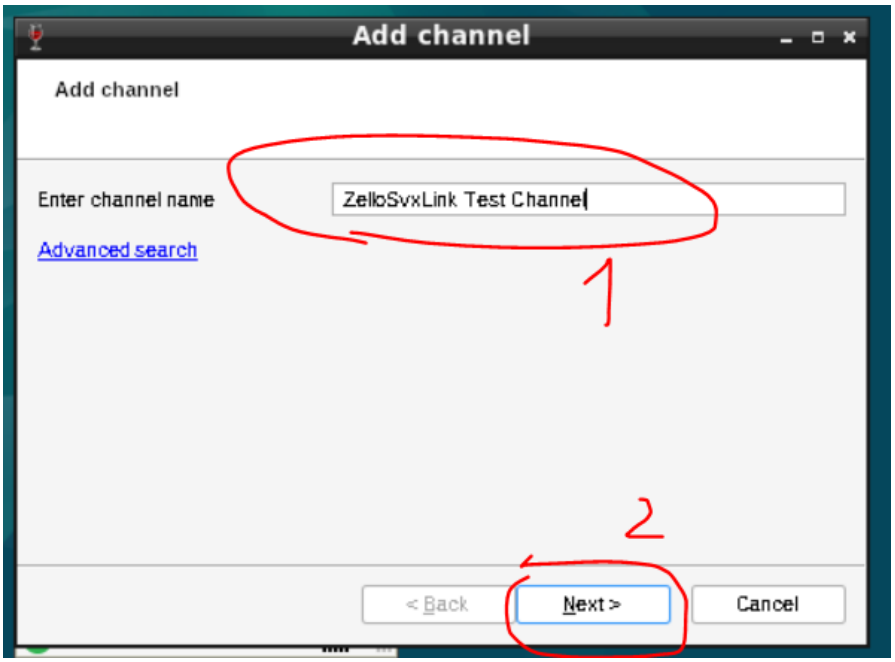
Joining the Gateway Zello Channel with the Gateway Zello User from the VM:

Of course this can be done from any device (logging in with a user to another device will automatically log off that user from all other devices)

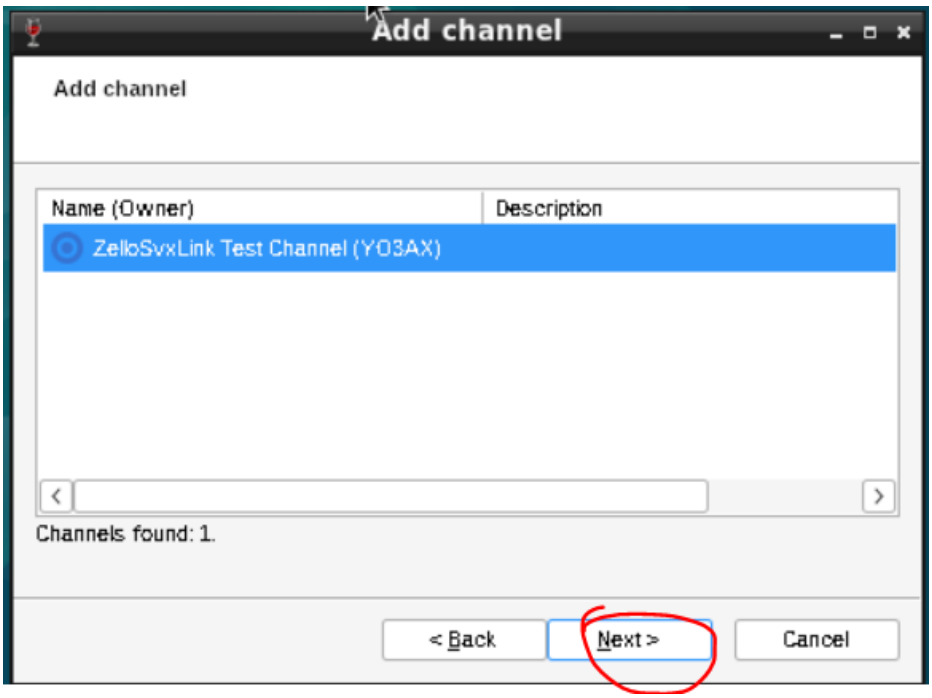
From the VM:

Tools > Add Channel...:

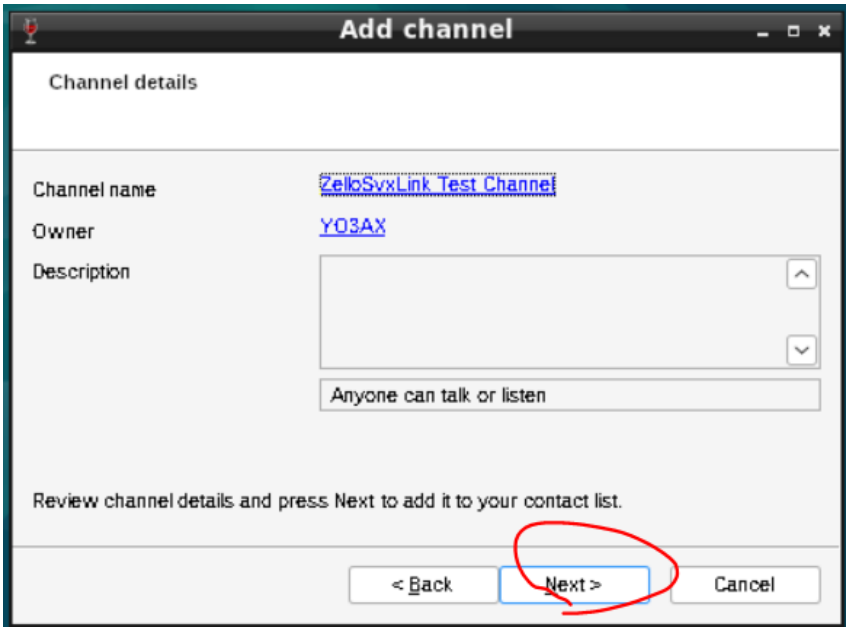
Enter the channel's name and click Next



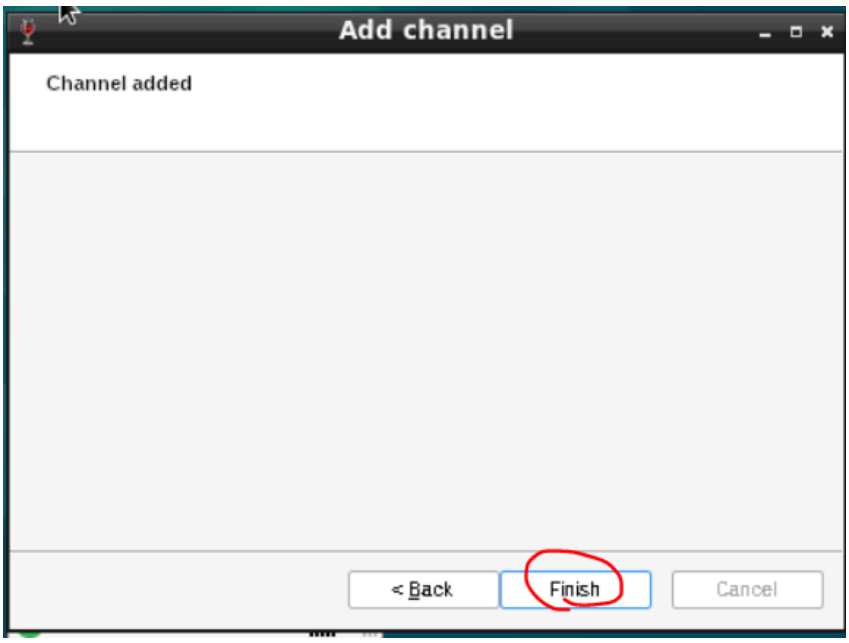
Click again Next



Click again Next

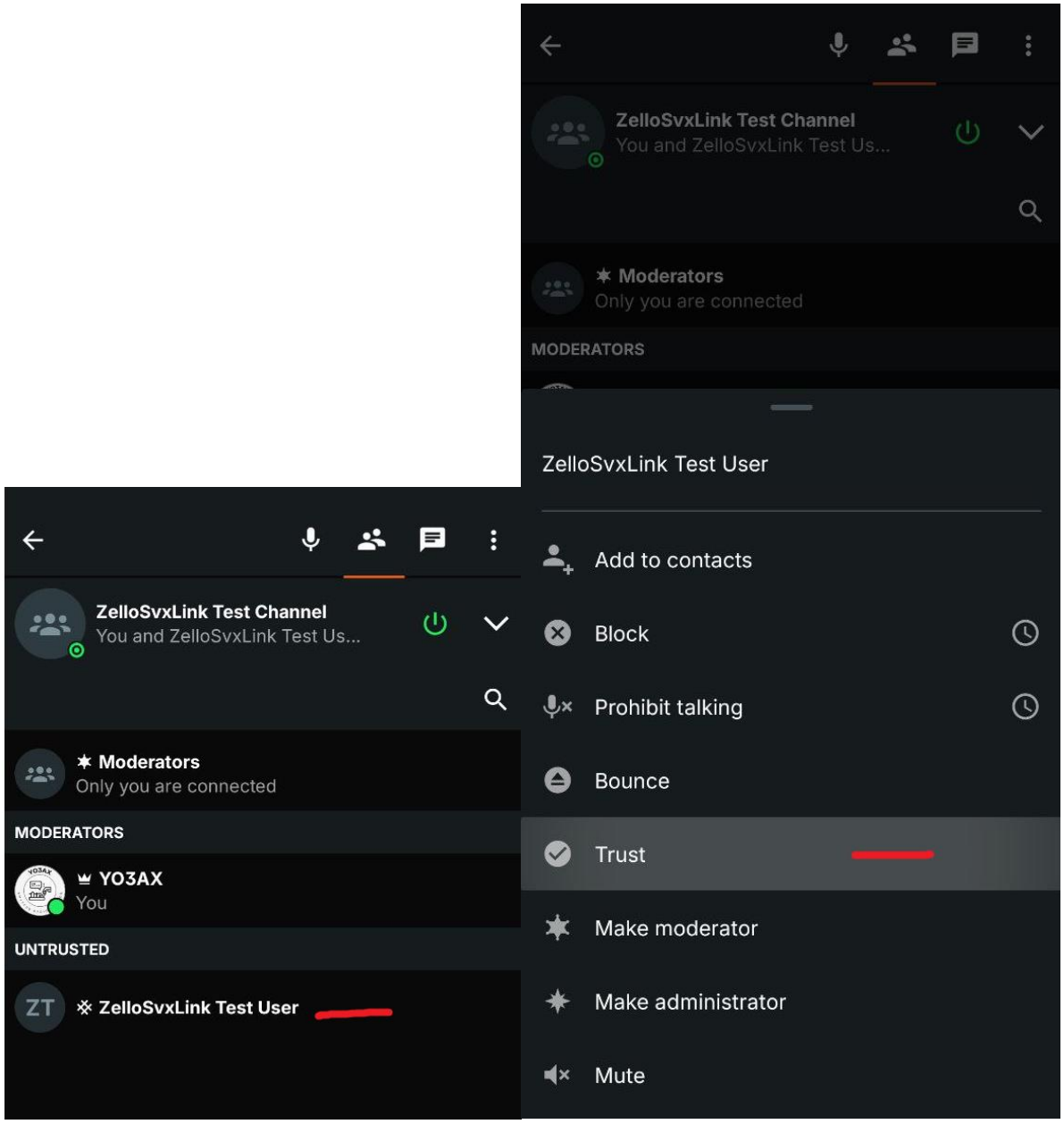


Click Finish

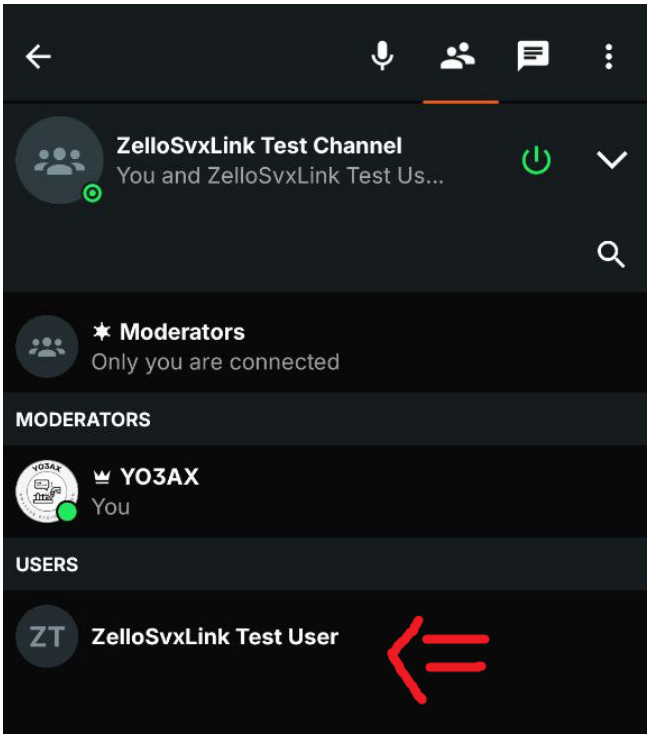


Trusting the Zello gateway user in the channel

From another device, logged in as the Administrator of the group (or as a moderator, if a moderator was defined):


ZelloSvxLink Test Channel
You and ZelloSvxLink Test Us...
Moderators
Only you are connected
MODERATORS
YO3AX
You
UNTRUSTED
ZT
ZelloSvxLink Test User
ZelloSvxLink Test User
Add to contacts
Block
Prohibit talking
Bounce
Trust
Make moderator
Make administrator
Mute

Result:

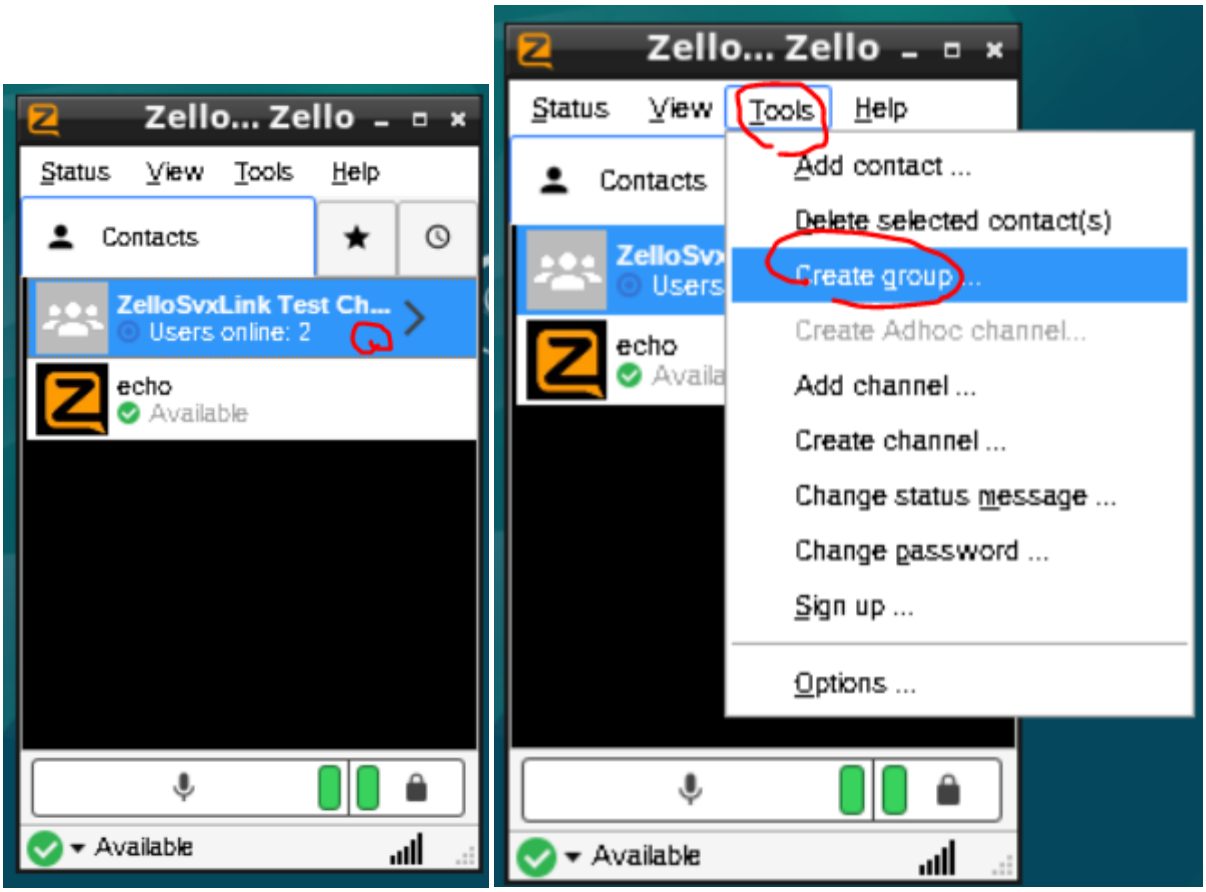


Setting the Gateway Zello Channel as target channel:

In Gateway mode, Zello App will make traffic in a specific target 'group' named **Zello Gateway**

This group can contain one or more channels or contacts. In our case, we will only add to it the desired Zello Gateway Channel.

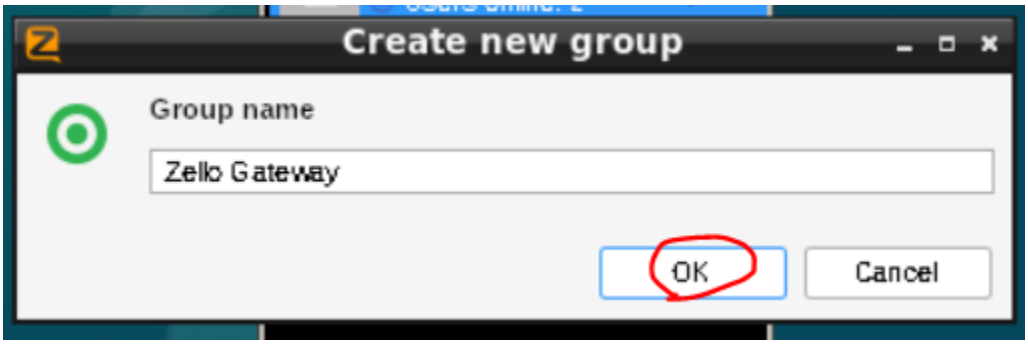
Click on the channel to select it, then click on **Tools** > **Create group...**.



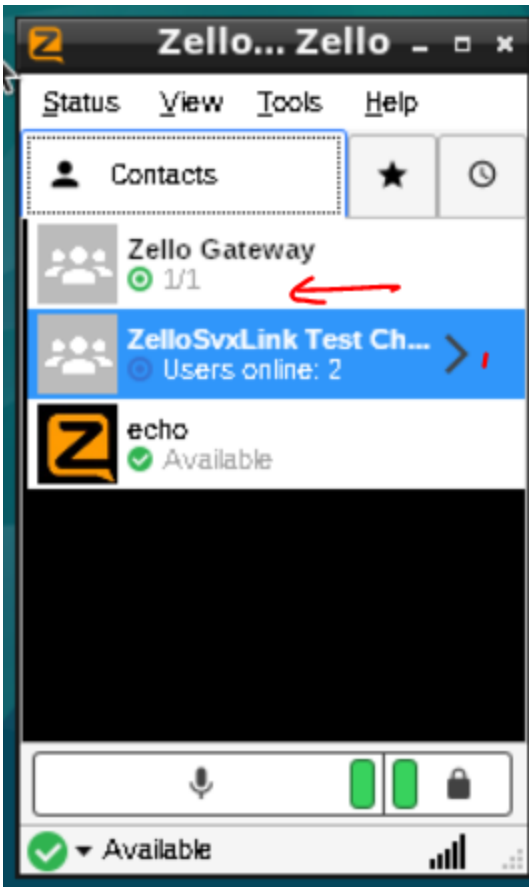
Give the new group exactly this name:

Zello Gateway

Then click OK

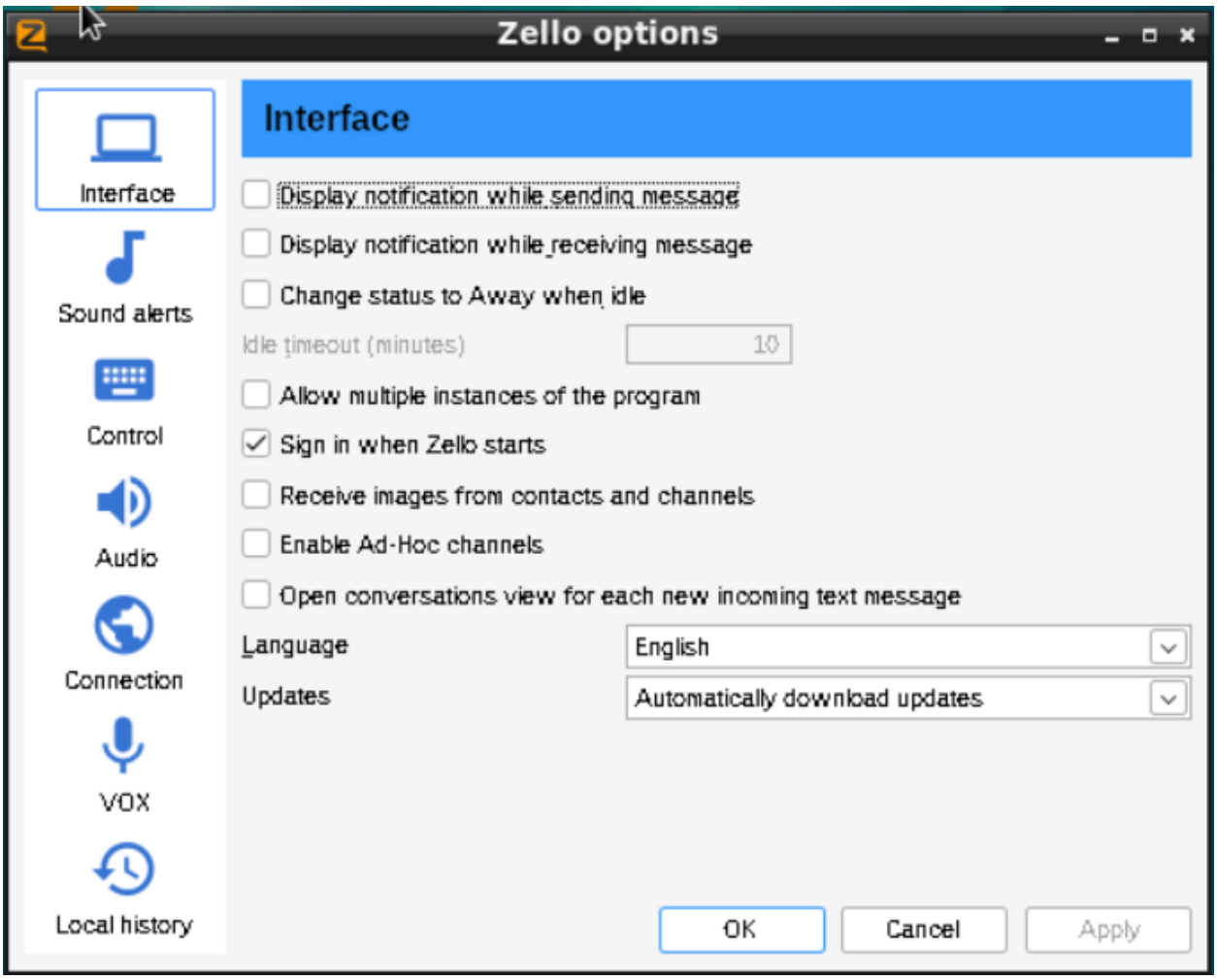


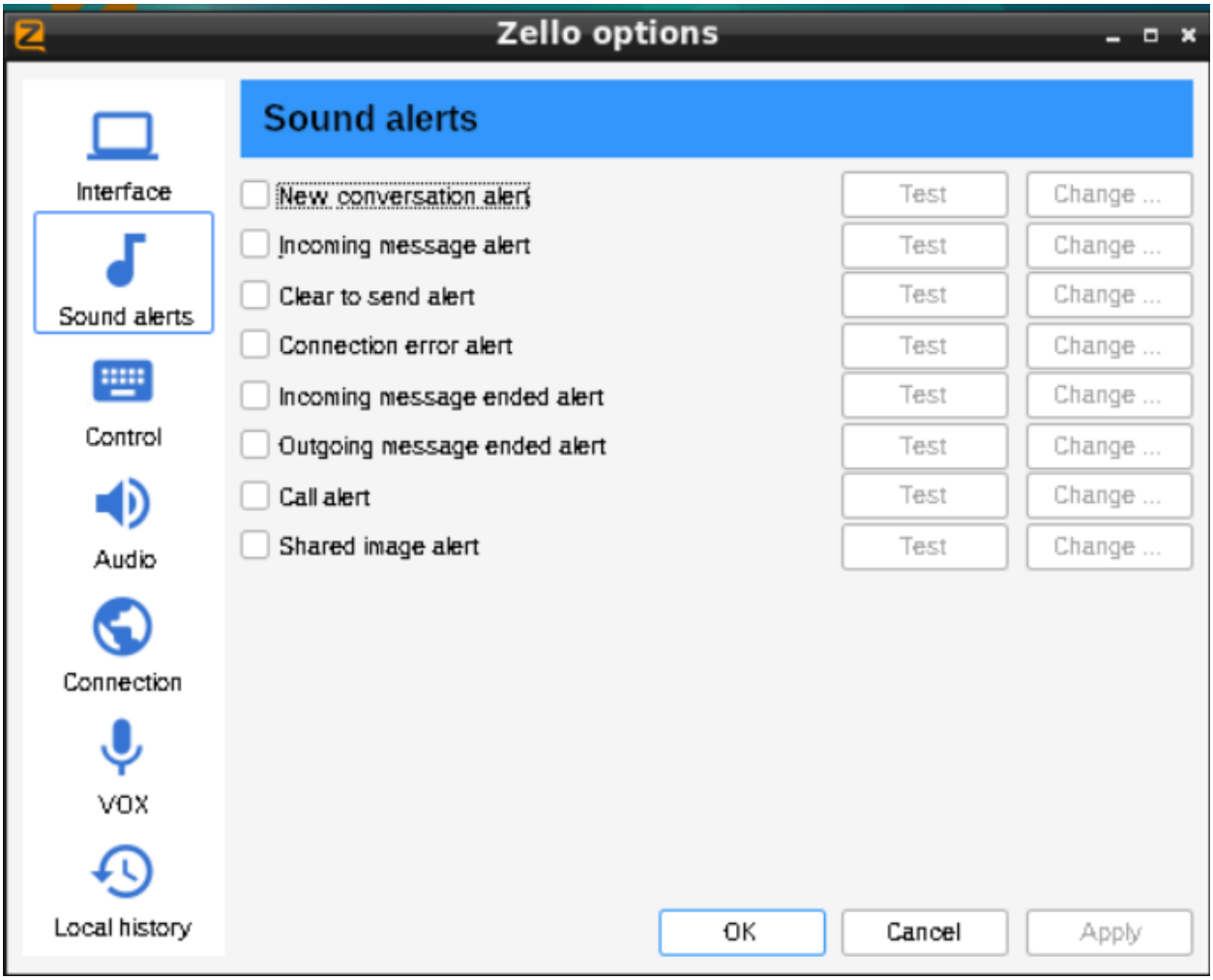
You should then see the new group in the list, with 1/1 members in it:

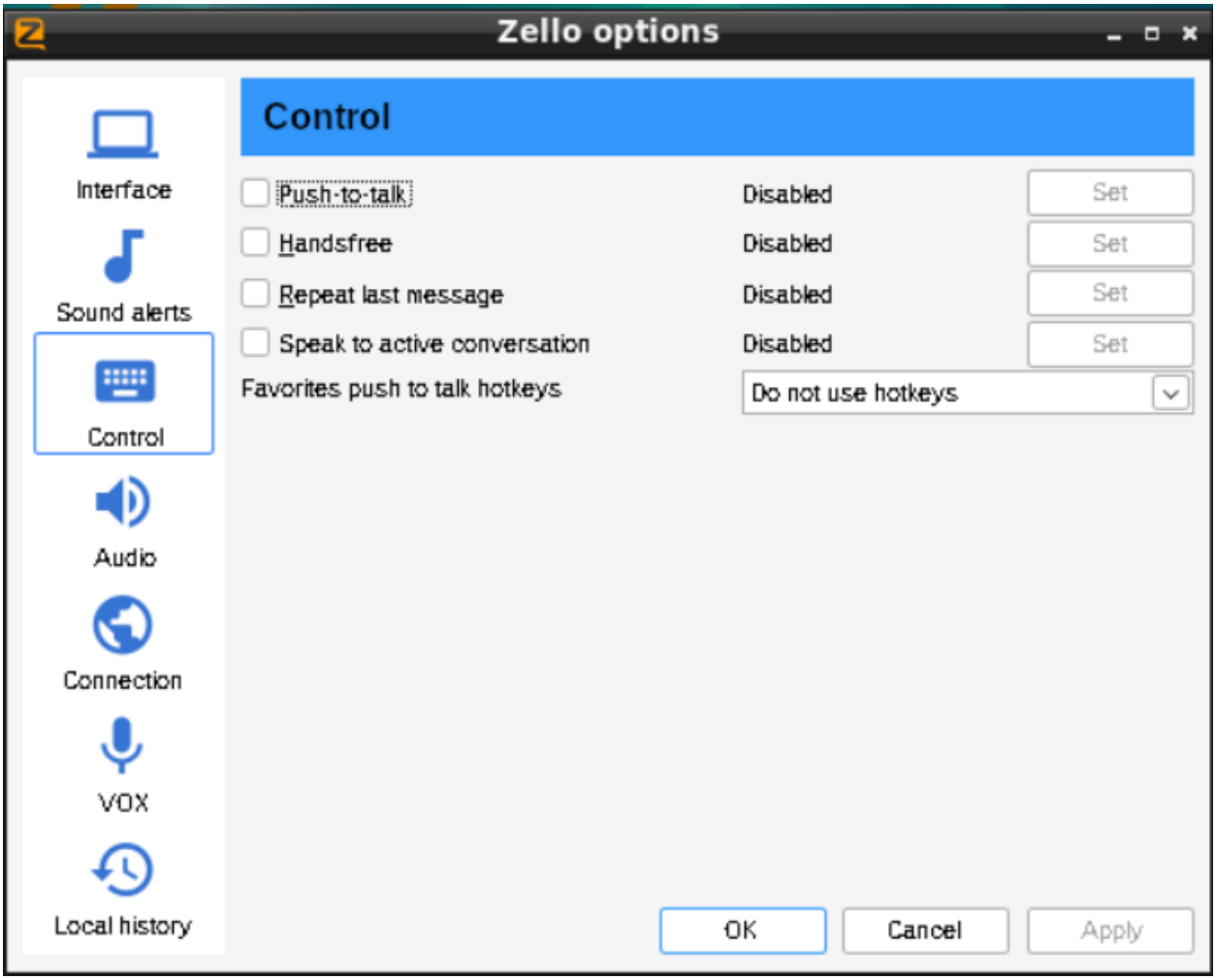


Change Zello settings to turn off all notifications:

Tools > Options, then replicate settings as in the pictures:


Zello options
Interface
Sound alerts
Control
Audio
Connection
VOX
Local history
Interface
Display notification while sending message
Display notification while receiving message
Change status to Away when idle
Idle timeout (minutes)
10
Allow multiple instances of the program
Sign in when Zello starts
Receive images from contacts and channels
Enable Ad-Hoc channels
Open conversations view for each new incoming text message
Language
English
Updates
Automatically download updates
OK
Cancel
Apply


Zello options
Interface
Sound alerts
Control
Audio
Connection
VOX
Local history
Sound alerts
New conversation alert
Incoming message alert
Clear to send alert
Connection error alert
Incoming message ended alert
Outgoing message ended alert
Call alert
Shared image alert
Test
Change ...
OK
Cancel
Apply



Zello Audio and Radio Settings

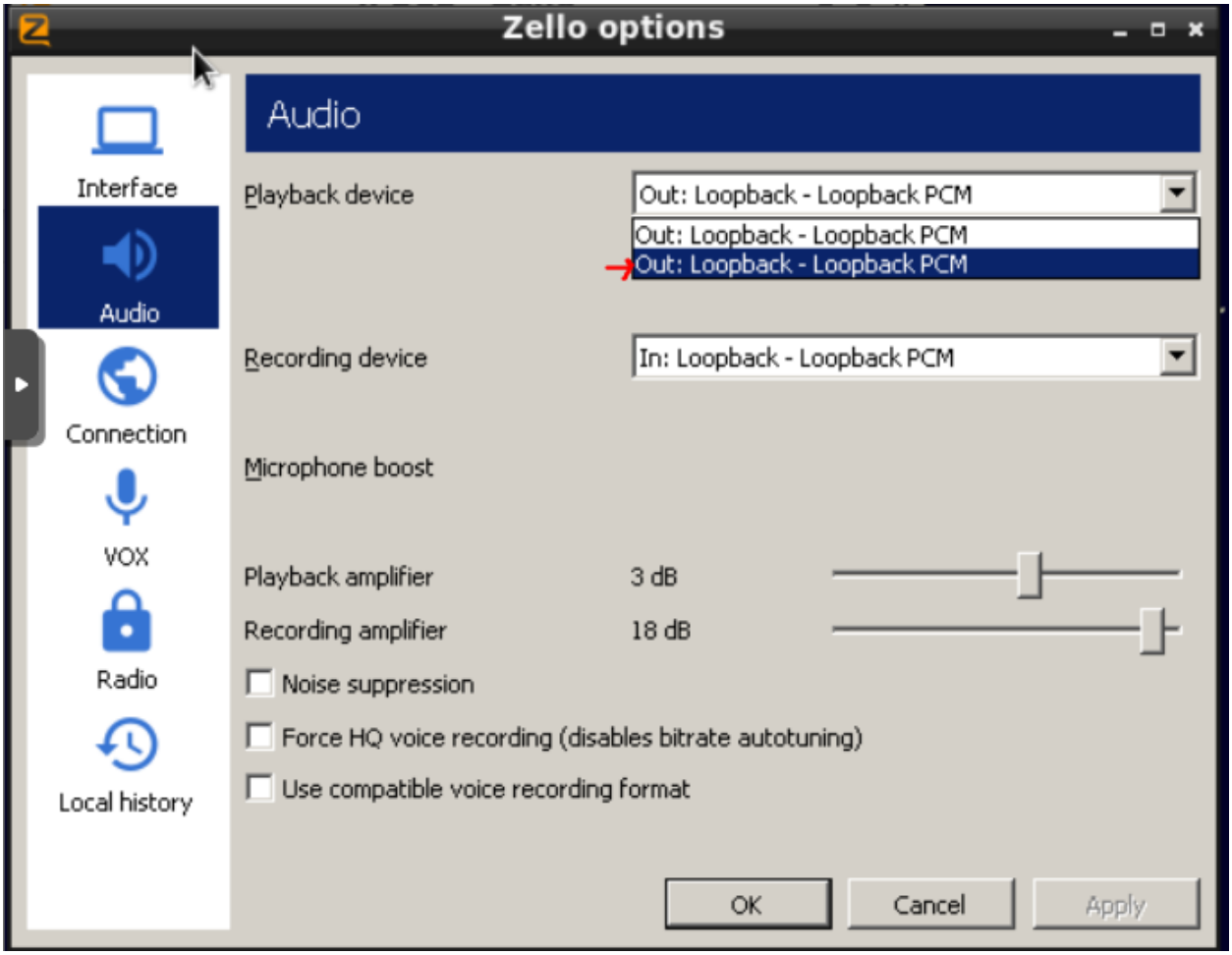
We will change the rest of the settings (Com port for PTT / SQL, Audio card, etc) after returning the app in Gateway mode. Go to the next chapter to see how to do that, then return here**.** Click blue text jump to: **Enabling Gateway mode of the Zello app in the VM**

Once in Gateway mode,

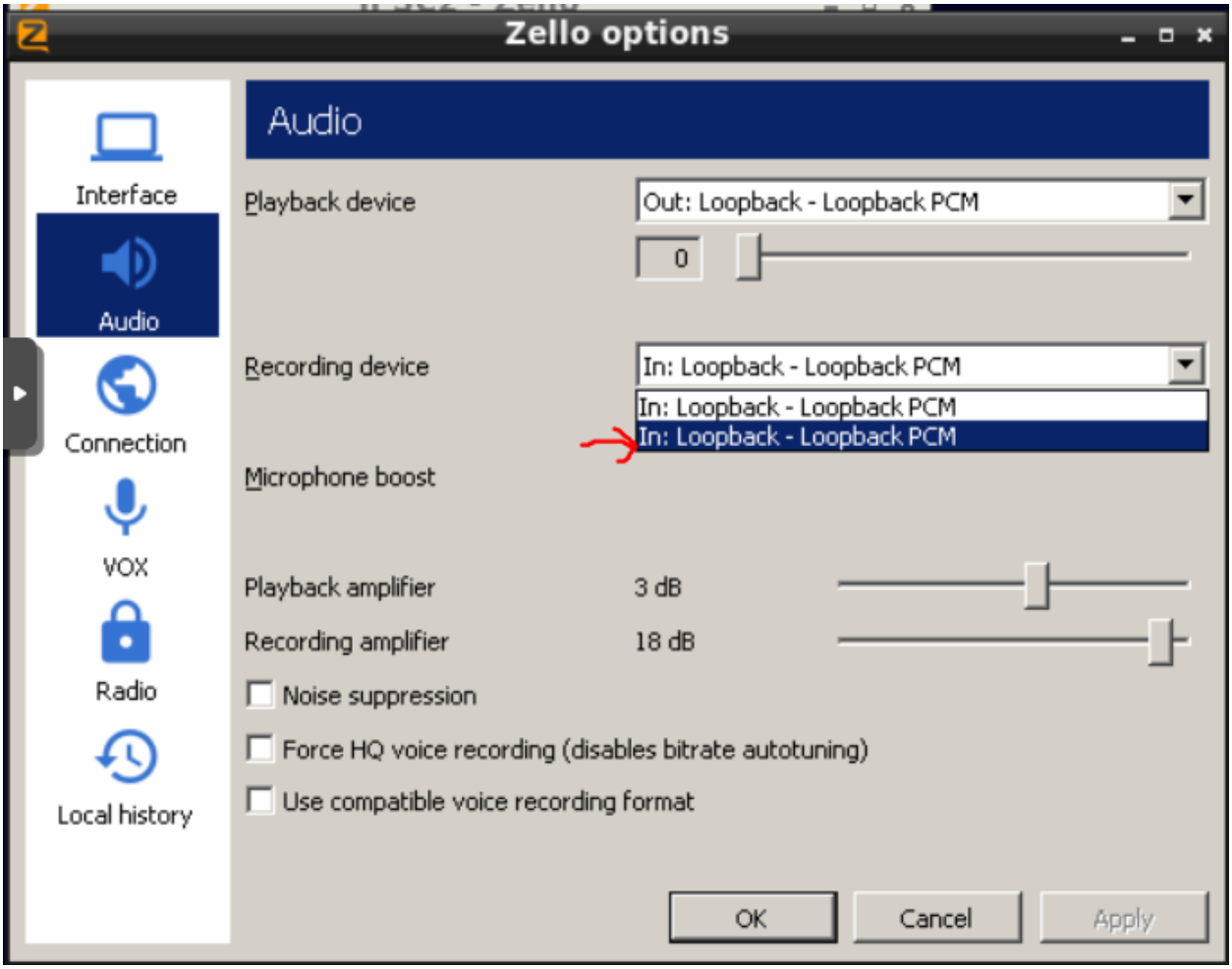
Configure Zello Audio settings

Tools>**Options**>**Audio**

Playback: **Second** device



Recording: **Second** device



Playback Amplifier: +3dB

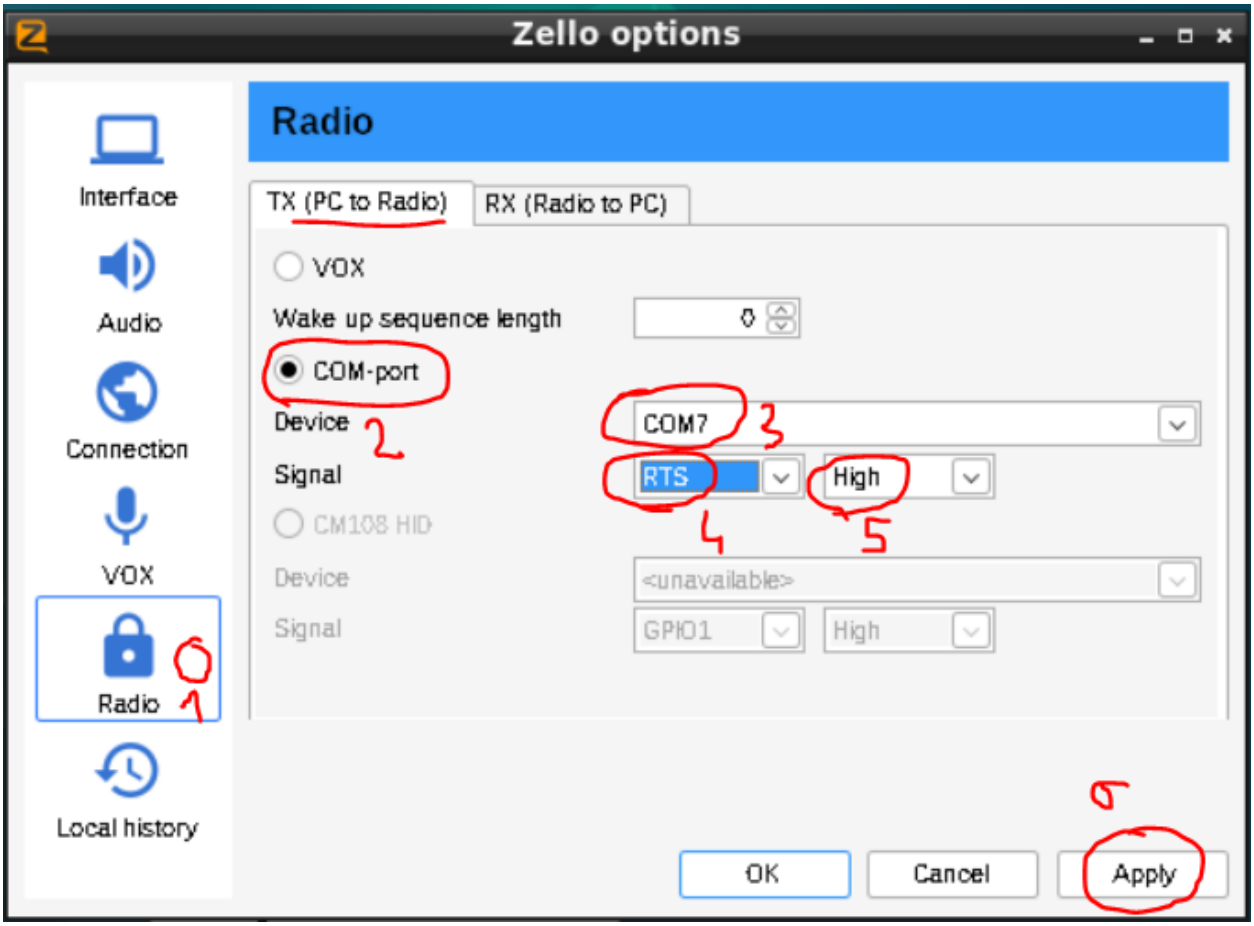
Recording Amplifier: +18dB

(You can later adjust these values as you find more appropriate for your use case).

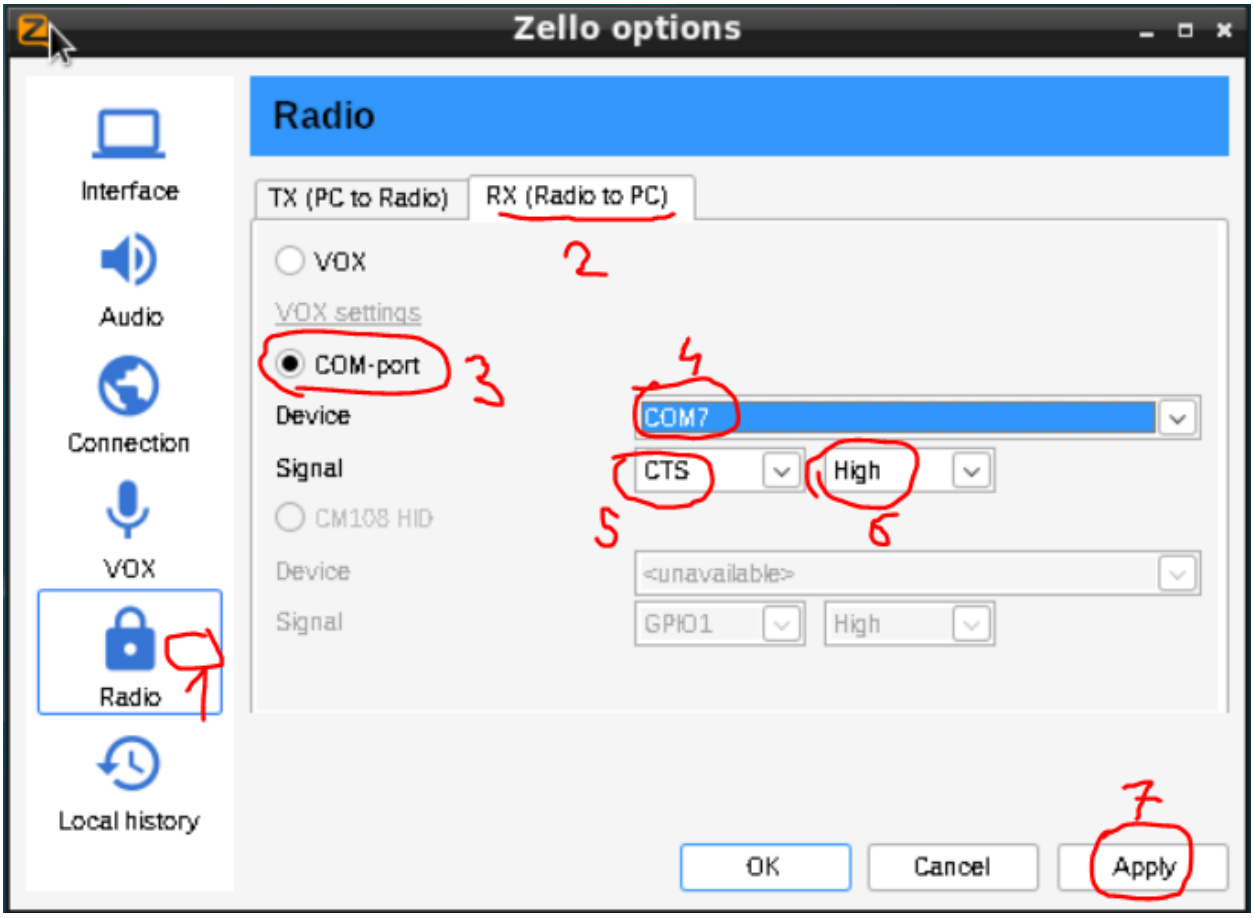
Configure Zello Radio (Gateway control interface)

Tools>**Options**>**Audio**

TX (Zello to Svxlink)



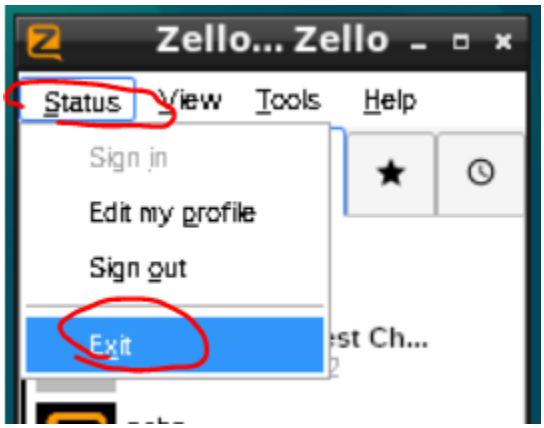
RX (Svxlink to Zello)



Click then OK to close the Options window.

Enabling Gateway mode of the Zello app in the VM

Save all settings in Zello app (Apply>Ok to close Options), Close the app (Status>Exit).



Edit the file:

/home/zgw/PlayOnLinux's virtual drives/Zello/drive_c/users/zgw/AppData/Roaming/ZelloDesktop/Zello.config

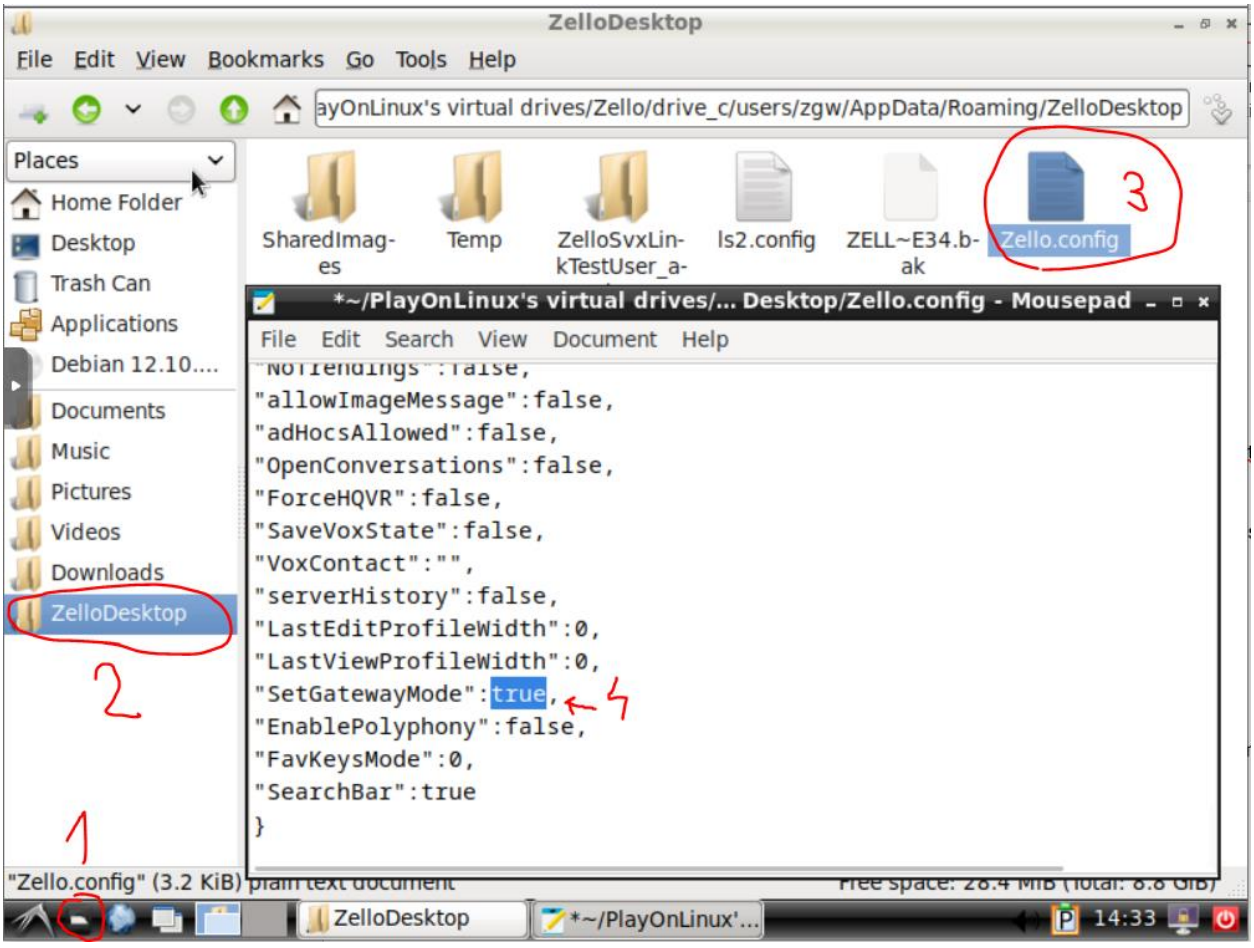
You can do this with the File Manager (second icon in the bar, lower left corner), as explained below, or from the terminal, as you find it easier:

-Navigate to the file location, which you will find already bookmarked as 'ZelloDesktop' on the left side menu of the file manager.

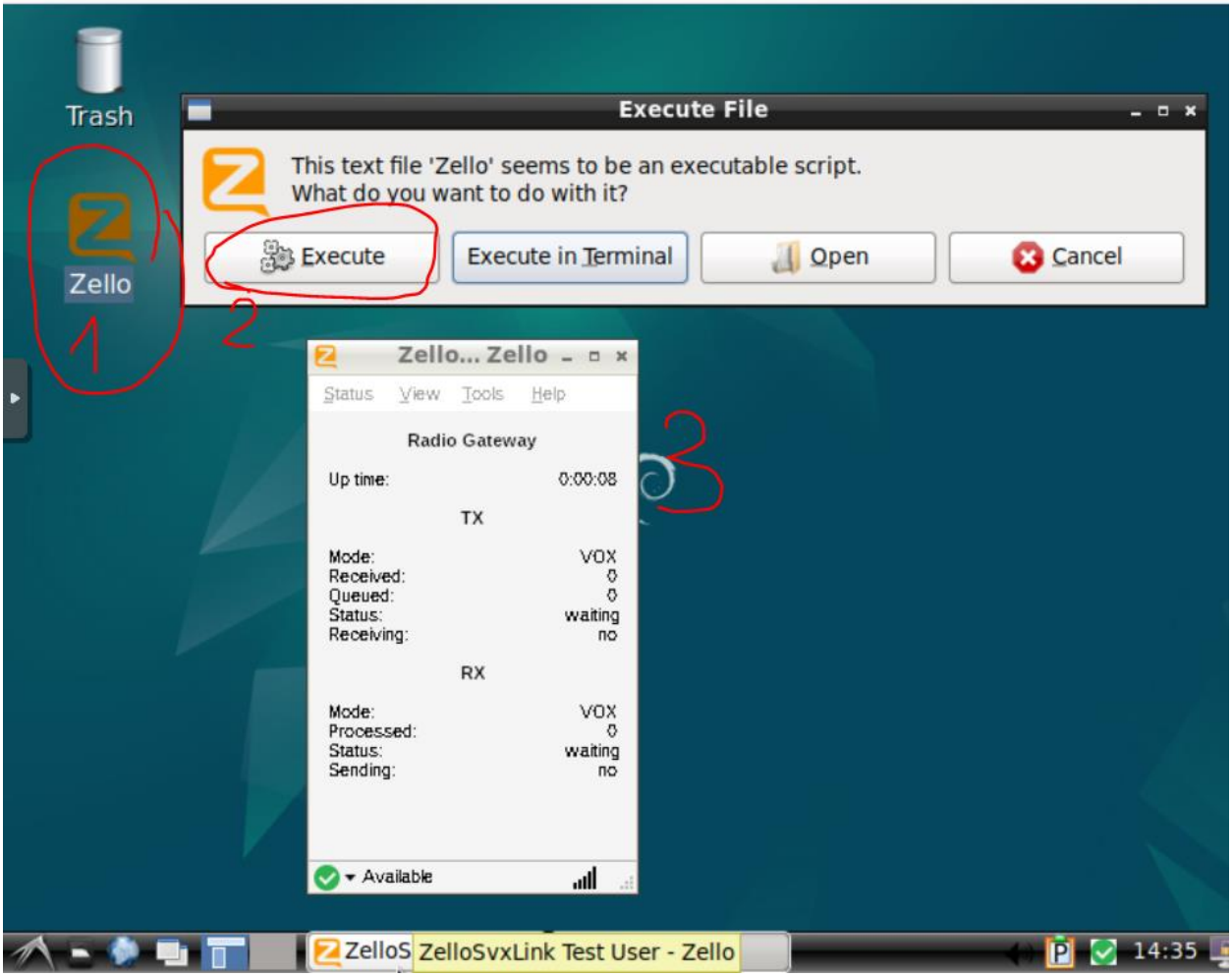
-Once there, right click the Zello.config file, then choose 'Mousepad' to edit with this tool.

-Scroll down to the bottom of the file, find the line with "SetGatewayMode", change the word **false** to **true**.

-Save and close the file.



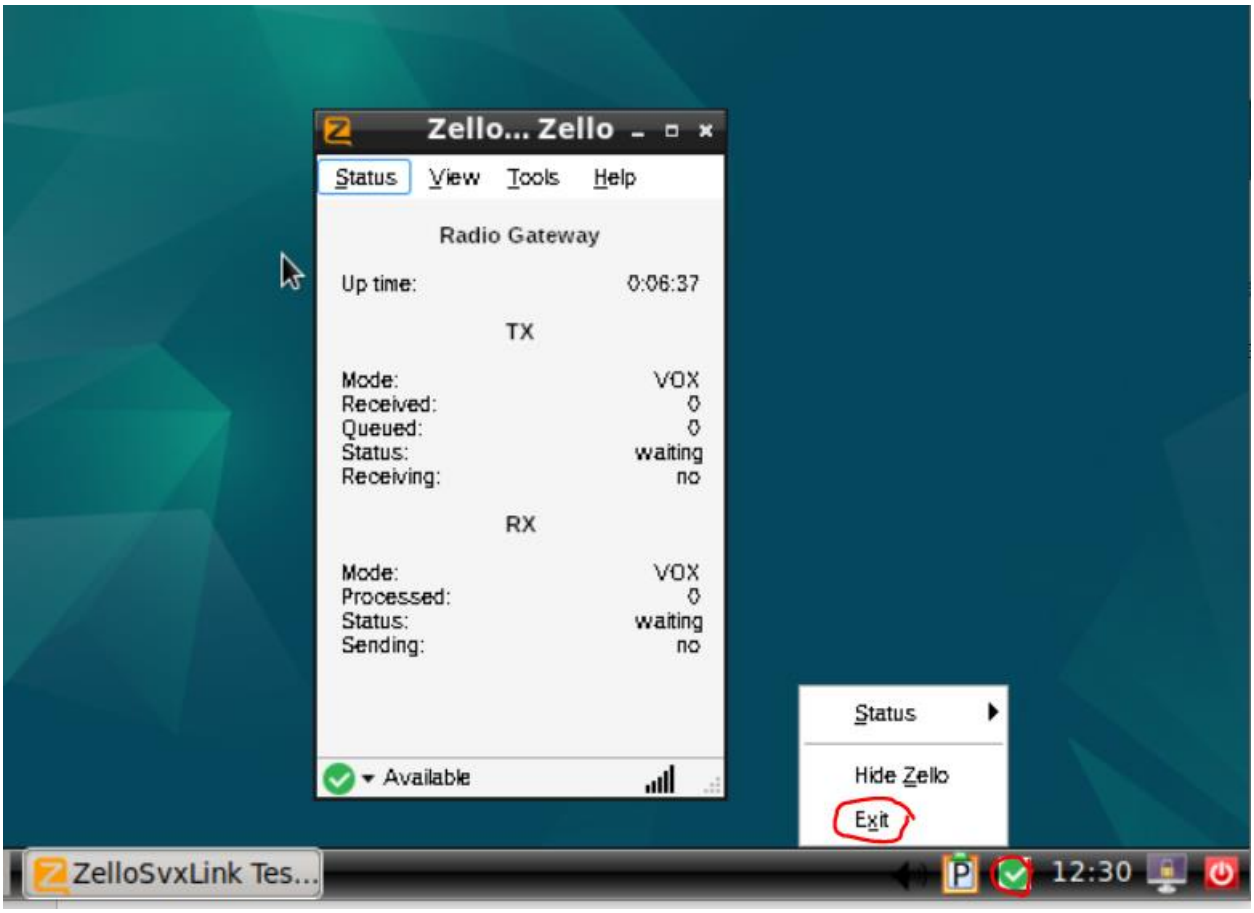
-Start again the Zello app from the deskop icon, (or by restarting the VM it will automatically start), and you should find the app in 'Normal' (non gateway) mode:



(If you arrived here from "**Zello Audio and Radio Settings**", click the blue text to jump back.)

Disabling Gateway mode of the Zello app in the VM

Stop and close the Zello app (right click icon in status bar > Exit):



Edit the file:

/home/zgw/PlayOnLinux's virtual drives/Zello/drive_c/users/zgw/AppData/Roaming/ZelloDesktop/Zello.config

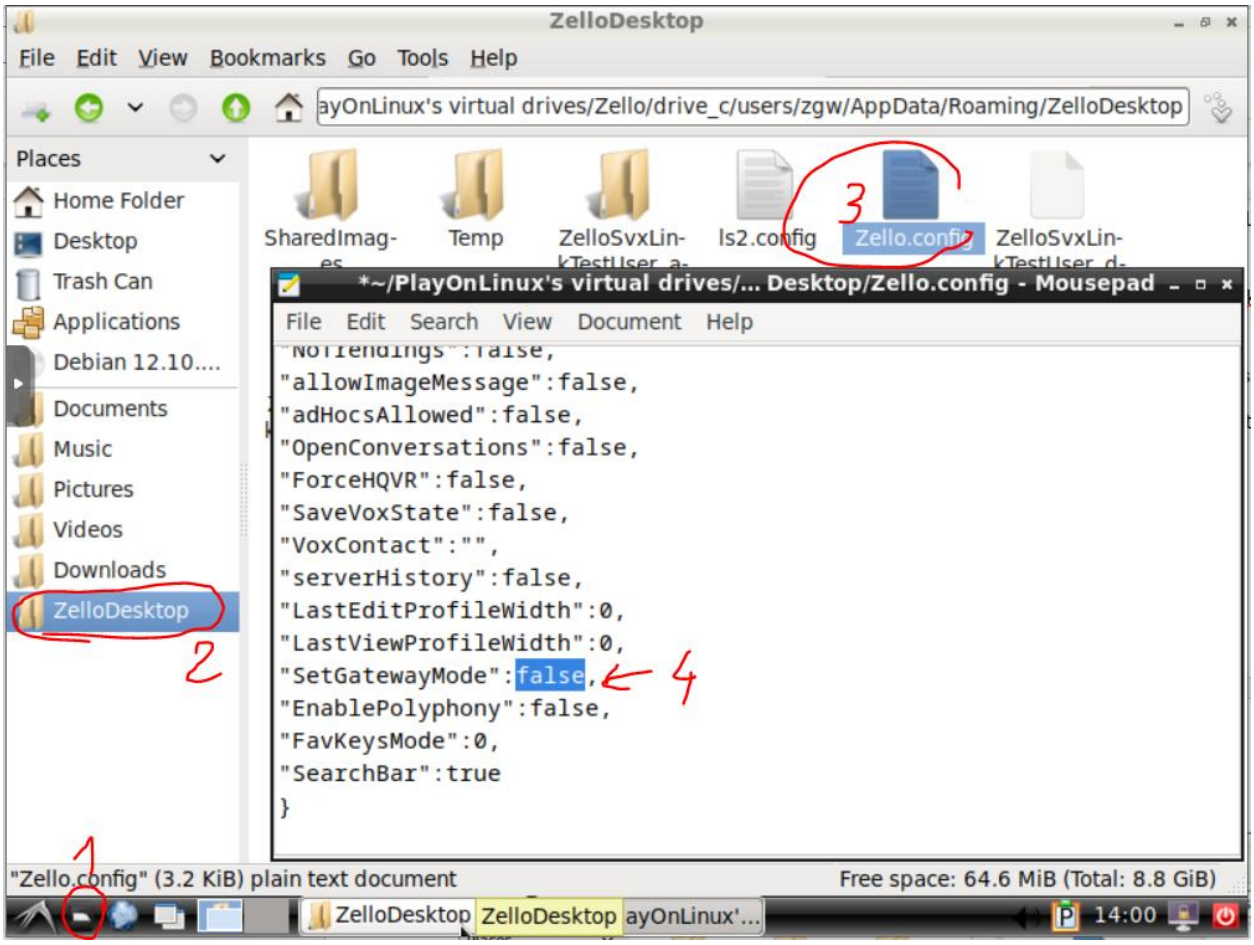
You can do this with the File Manager (second icon in the bar, lower left corner), as explained below, or from the terminal, as you find it easier:

-Navigate to the file location, which you will find already bookmarked as ‘ZelloDesktop’ on the left side menu of the file manager.

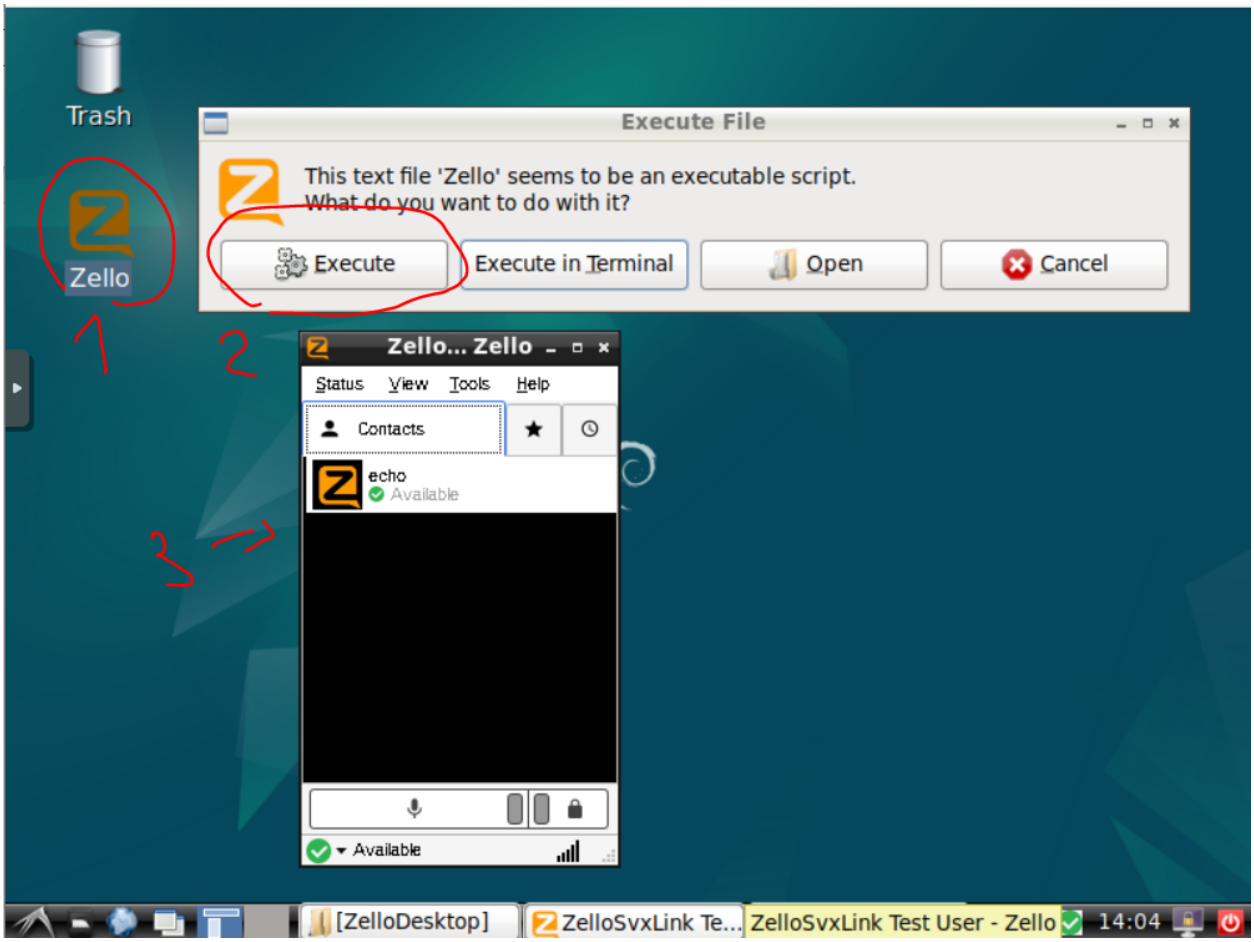
-Once there, right click the Zello.config file, then choose ‘Mousepad’ to edit with this tool.

-Scroll down to the bottom of the file, find the line with “SetGatewayMode”, change the word **true** to **false**.

-Save and close the file.



-Start again the Zello app from the deskop icon, (or by restarting the VM it will automatically start), and you should find the app in ‘Normal’ (non gateway) mode:



Changing Zello settings on the VM

SVXlink settings

Svxlink.config

Find below an example of svxlink.config file.

This can be found at location: /etc/svxlink/svxlink.conf and can be edited:

- in the terminal using command: sudo nano /etc/svxlink/svxlink.conf
- from file manager, same as we did for the Zello.config file in the chapters:
    - Enabling Gateway mode of the Zello app in the VM
    - Disabling Gateway mode of the Zello app in the VM

Example config:

Replace reflector details and talkgroup information as needed:

```
### Reflector ###
HOSTS=reflector.address.example
HOST_PORT=5300
CALLSIGN="svxlink_username"
AUTH_KEY="svxlink_pass"
DEFAULT_TG=226
MONITOR_TGS=226++
```

Other settings

ALSA audio levels

Set up ALSA audio levels as shown at point 16 in the file:

https://github.com/YO3AX/ZelloSvxLink/blob/main/ZelloSvxLink.pdf

To open the alsa audio control panel use command:

alsamixer

(press **F5** to show all cards, playback and capture, as in the document)

To store settings use:

sudo alsactl store

Troubleshooting:

Virtual com ports problems

A common problem after updating the Debian OS kernel version is losing the tty0tty virtual com ports.

The result is that although there is activity in reflector or in Zello, it does not pass on the other side.

To know if you have this issue run command **ls /dev/tnt*** and it should not return any device.

To solve this issue, we need to be repeat several steps of point 14) in the document https://github.com/YO3AX/ZelloSvxLink/blob/main/ZelloSvxLink.pdf:

The steps (and commands we need to run) are:

cd tty0tty/module

make

sudo cp tty0tty.ko /lib/modules/$(uname -r)/kernel/drivers/misc

sudo depmod

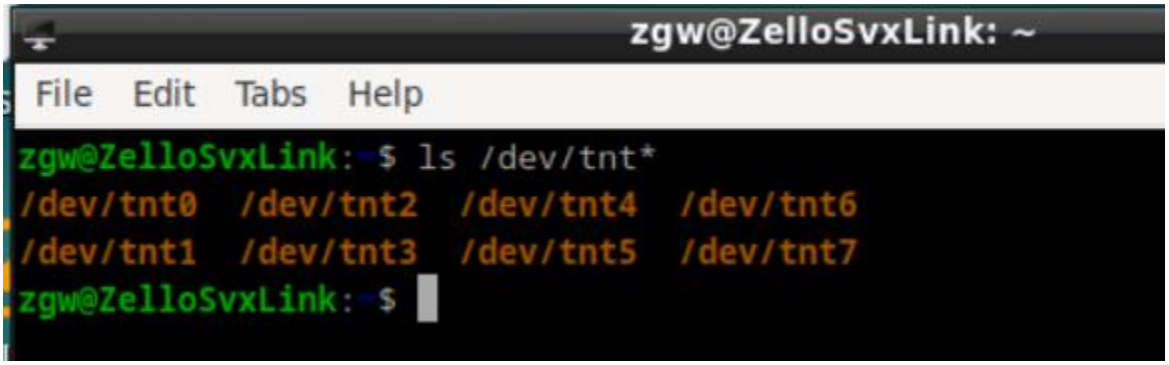
sudo modprobe tty0tty

ls /dev/tnt*

sudo chmod 666 /dev/tnt*

ls /dev/tnt*

The last command should now show the /dev/tnt... virtual com ports, used between Zello and Svxlink for PTT / SQL control:



To make sure everything works as expected even after a reboot, reboot the machine using command **sudo reboot** and once the VM has rebooted retest the gateway.

Gateway audio problems

When we have one way audio only or no audio at all

Make sure in Zello the selected audio card in Tools>Options>Audio is the second one in the list with the same name (OUT: Loopback – Loopback PCM), for both playback and recording devices.

This (second/last item in the list) corresponds to **alsa:plughw:0,1** which is the end corresponding to Zello.

The other end is **alsa:plughw:0,0** and is used by svxlink (configured in svxlink.conf TX and RX sections).

By the way Alsa Loopback works, whatever is recorded in 0,0 is played in 0,1 and vice-versa.

In case you see an additional card (containing *__default__* in the name), check the Virtual com ports problems, fix the com port issue if found, restart the VM and redo the audio settings.