Using N1MM+ over RemoteHams with SSB and Data Modes V1

Introduction

Hopefully you have already got N1MM+ talking to the RemoteHams RCForb client and have found that you can run CW from N1MM successfully. If not, then please read the documentation on that and set it up first before continuing with this document.

To run SSB or any of the Data Modes from your PC to the remote station you will need to configure the audio in your PC to send it to where it needs to go. From what I can see, you will unfortunately need to download and install some extra software to do that. I am sure there are various different flavours of software you can use to do this job, but what I describe here is the system that I have stumbled upon and has worked for me.

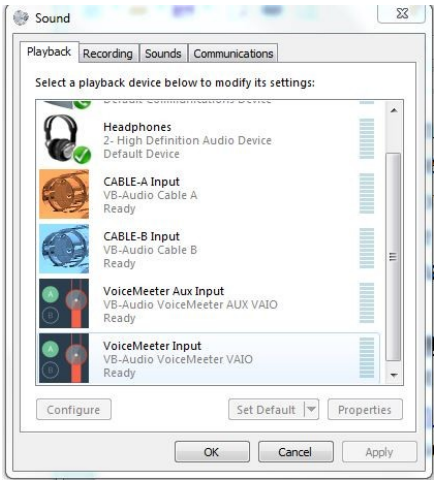
Sound piping and mixing software

There are two lots of software that I employed for this task, one is called ' Voicemeeter Banana' which you can download for free although they do like donations. (it gives a nag window when you start it up, but you can just close that window) This software is used to mix audio together into one output.

The other is called 'VB Cable' and is used to pipe the audio from one place to another. This one is also donation ware, but you can't get it unless you do give a donation. (I paid the minimum as I wasn't sure it was going to work, but I would be happy to pay a bit more now that I know it does indeed work!)

With VB Cable you can either get just the cable set 'A' and 'B', or 'A, B, C and D'. I just got cables A and B.

Once installed and the PC restarted the sound tab (right click sound icon in taskbar and choose playback devices - bottom right of screen) should look something like the image to the right.

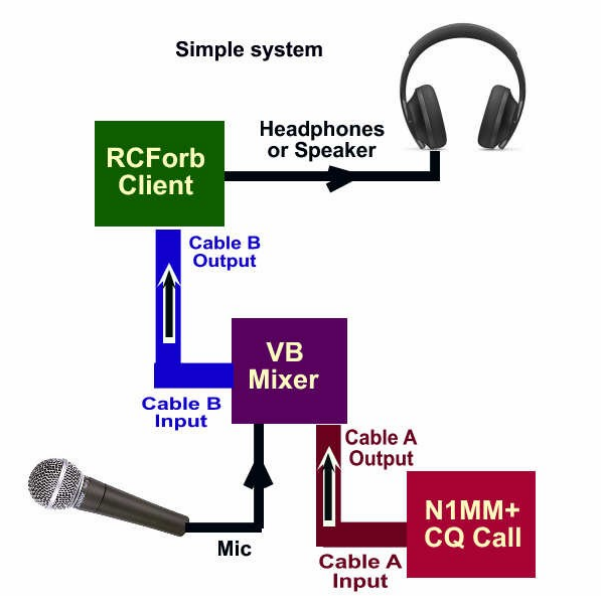


With that software installed we can then work on the audio settings.

SSB - The simple set up

There are two ways of setting up the audio for SSB, the simple method works fine but does not give you monitoring in your headphones of your voice or of the CQ call from N1MM+. If you just use a speaker then that is not an issue, but for most contesters headphones are a must.

The block diagram here gives you a layout of how the system works and hopefully is self explanatory.



The settings on the RCForb client are shown here below.

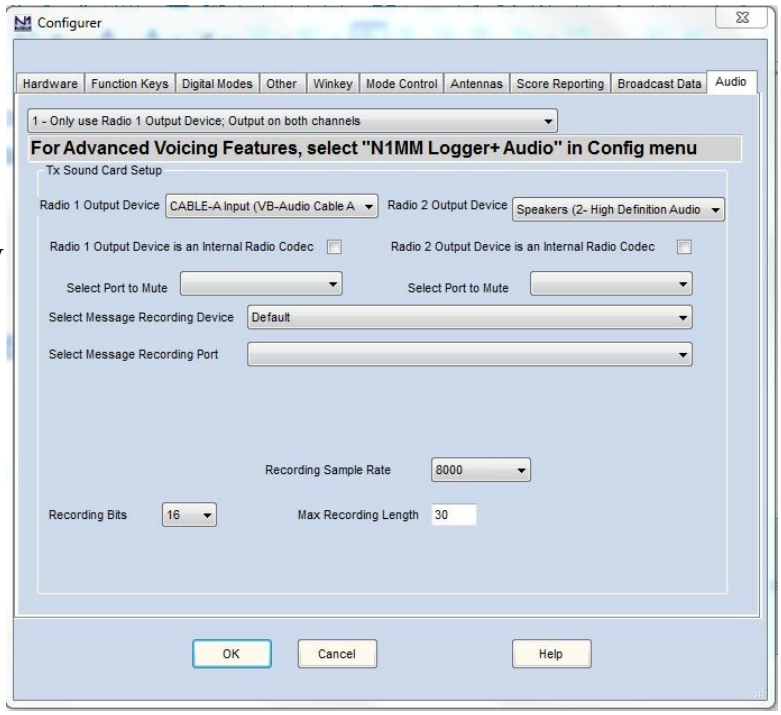
Looking at the block diagram and the settings for the client hopefully you can see the link.

Open up the remote station before starting N1MM+. You need to do this for the connecting com-port to be created, if you don't N1MM won't have anything to connect to!

N1MM+ Audio Settings

In the 'Config' tab, select 'Config Ports, Mode Control, Others...' and select the 'Audio' tab (furthest right tab).

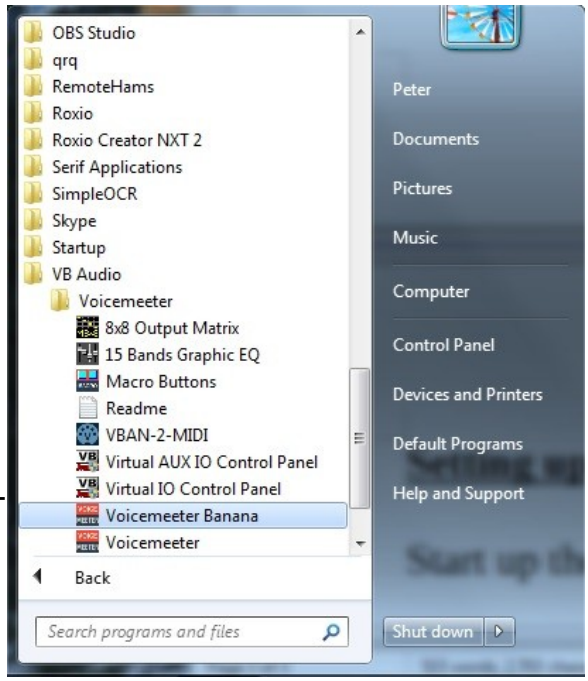
Under 'Radio 1 Output Device, select 'CABLE-A input'.



Again looking at the block diagram above you can follow what is happening.

Press OK until you are back to the start, and that is it for N1MM+ set up.

Setting up the virtual sound mixer



Start up the Voicemeeter Banana application from your start menu, under VB Audio.

Under ‘Hardware Input 1’ select ‘Cable A Output and under ‘Hardware Input 2’ select the Microphone.

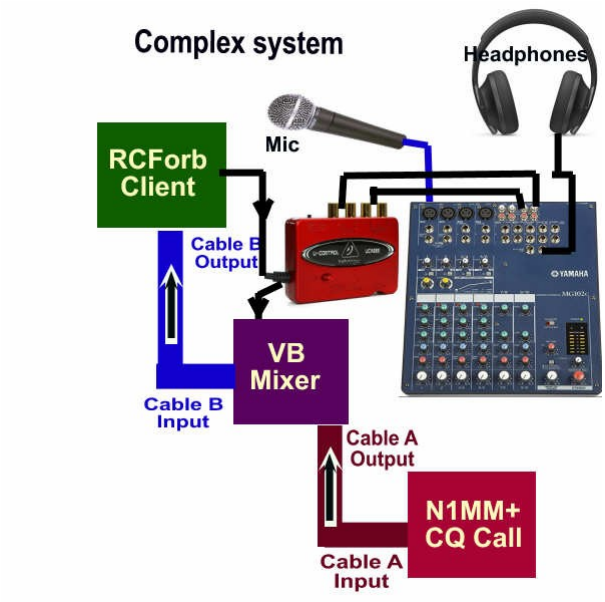
Towards the top right hand side above the cassette tape there are three boxes marked A1, A2 and A3. Click A1 and choose ‘Cable-B Input’.

Again referring to the block diagram you will see the sense in it. With this mixer you will be able to control the audio levels and match them to the same level for the radio.

Be sure that ‘A1’ is selected on both faders (bottom left). They are highlighted in green when they are selected.

And that should do it for the simple set up.

A more complex audio set up



To achieve monitoring in the headphones I used the same software components as previous discussed above, but had to add an external 'real world' mixer and an external soundcard. I guess you could use the soundcard in the PC or laptop, but I much prefer to use an external one!

It maybe that by purchasing virtual Cables C and D (as discussed above) you could do it all in software, but not really sure about that. I tried this first as I'm a cheap skate and I had the mixer and soundcard to hand!

N1MM+ Audio Settings

The same as described earlier in this document.

RCForb client settings

In this set up the RCForb clients 'SPKR' is selected for the 'USB Speaker device' (the external soundcard). As before, the 'Mic' is connected to 'Cable B Output'

External Soundcard and Mixer

The output from the sound external soundcard (in my case it is a Beringer UCA222) is connected to the input of the 'hardware' mixer, and the output of the mixer is connected to the input of the soundcard! The soundcard is connected to the PC via USB.

Both the microphone and the headphones are connected to the mixer, where the audio from the mic is mixed with the audio from the remote radio, which you can then hear in your headphones together. You will also be able to hear the audio of the CQ that is sent from N1MM+, more of that shortly.

VB Mixer settings

The audio is fed from the external mixer via sound card to the VB mixer. As you will see in the following image, 'Hardware Input 1' is still connected to 'Cable A output' (which brings in the CQ from N1MM), but 'Hardware Input 2' is now connected to the audio coming from your USB soundcard. (assuming you have used an external soundcard and not used your PC soundcard). Both those inputs go via 'A1' to the 'Cable B input', which will carry the sound to the remote.

Also ‘Hardware Input 3’ listens to the output of ‘Cable B’, this is fed via ‘A2’ to the input to the soundcard. The level on this channel wants to be kept as low as possible, whilst still being able to hear it in the headphones, to prevent sound echo (turn it up and you’ll see what I mean!!) This is the channel that allows you to hear the output from N1MM+ when it is sending out your CQ call.

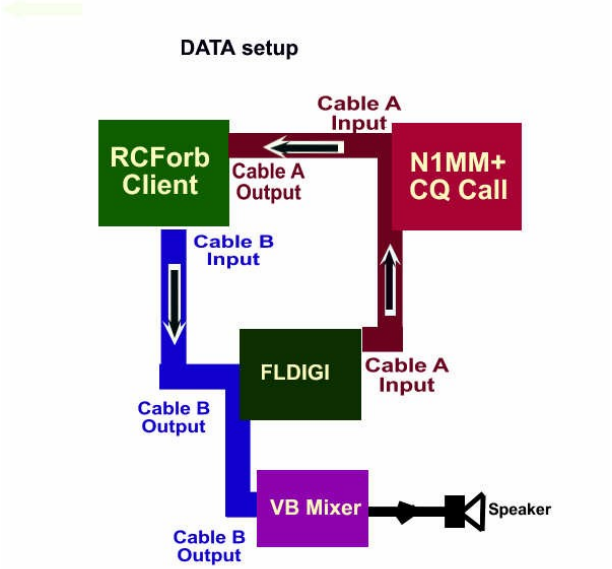
This is my first implementation of this system to allow monitoring of transmitted audio. As yet I have not tried it in anger – or in a contest for that matter!! I still need to look at how to create a foot switch input, manually using a mouse on the TX button is not an option in a contest. VOX is a possibility and that can be accessed from the RCForb client software under the Audio tab near the top of it’s window.

Up next Data Modes…

Data modes through N1MM+

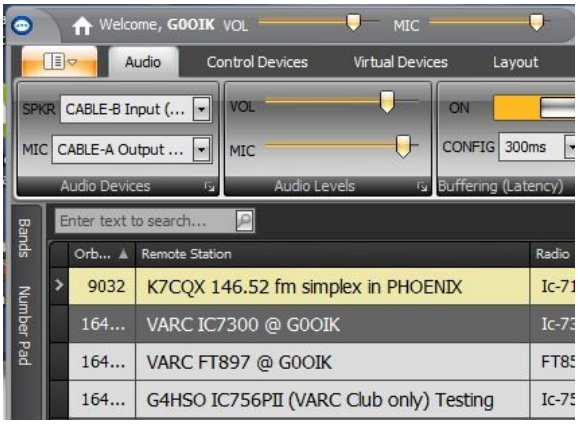
Here I will assume that you are familiar with running fldigi and or One Tone through N1MM+. So you will set N1MM up in exactly the same way as you would for running these programs for digital modes through a normal radio set up.

Here the block diagram is a bit different from that used in SSB, but is easier than it looks!



RCForb client

In this set up the 'Mic' input is connected to 'Cable A Output', and the 'Spkr' is connected to 'Cable B Input).



N1MM+ Audio Settings

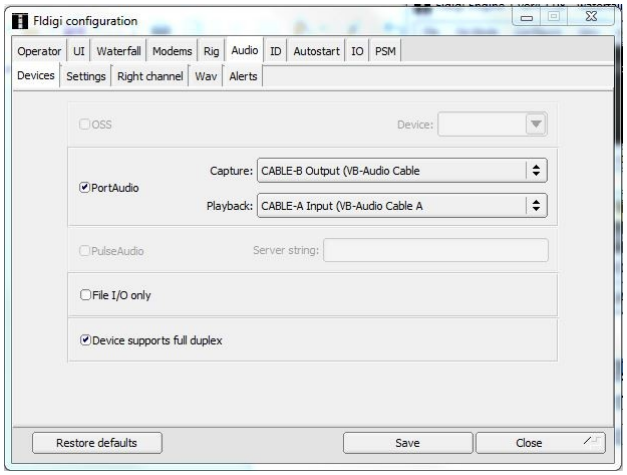
The audio setting remains the same as those described in detail towards the beginning of this document with 'Cable A input' as 'Radio 1 Output Device'

FLDIGI settings

You will need to run FLDIGI from N1MM+ as you would do in a contest. To do that you will have to tell N1MM that you are setting up for a Data contest and then run FLDIGI by clicking on the 'Digital Interface' option from the Window tab in N1MM.

You should then see the usual N1MM digital interface along with the slimmed down version of FLDIGI. From the 'Configure' drop down of the FLDIGI window select 'Sound Card'.

Under 'Capture' select 'Cable B Output' and under Playback 'Cable A Input'. Save and then close.



VB Mixer

The sole job of the mixer on this occasion is to provide feed to your speakers. In digital modes it is not be absolutely necessary, but it seems odd not to hear what is going on!

As described earlier in this document, start up the VB Mixer client.

Set ‘Hardware Input 1’ to ‘Cable B Output’ and ‘A1’ to your speakers.

All being well that should be it and from the little time on air I have spent with it, everything seems to work very well.

Conclusion

This is likely to be a work in progress, and may not be the very best way to do things? If you have any ideas or improvement that would help or make it simpler to set up, then please do let me know.

73 for now,

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