

## Basic set-ups for FLDigi/FLMsg/FLAmp

<http://www.w1hkj.com/beginners.html>

(dated but quite useful)

Download FLDigi software from here:

<https://sourceforge.net/projects/fldigi/files/>

There is an intimidation factor when first looking at the Fldigi suite for the first time. So many controls and settings and STUFF. What is it? What are all those other parts of Fldigi? The same will be true for any other digital application that you will want to run in your ham shack.

### DON'T PANIC!

Douglas Adams, The Hitchhiker's Guide to the Galaxy



We are going to talk about some basic controls. I'm going to bring your attention to some safety tips and help you avoid an OO "Pink Slip". We will skim over most of the functions in each program on purpose. There are some great documents and videos online that can help you with more advanced operations. If you do find yourself stuck or stumped on something, ask around! This is certainly not an install and operating manual.

**FLDigi FLMsg FLAmp FLRig** And your **OS**. Let's talk about each.

Everything changes when we switch up our operating modes. Many if not most hams use SSB for rag chewing or checking into nets, or enjoying some great DX. When we switch into a mode like CW, we don't really have to do much except change modes. But if we switch into FM or AM mode, then we need to think about how we set up the radio—did we turn on compression (AKA speech processor)? The same holds true if we move from voice mode to a digital mode. **Compression must be turned off** in digital modes. There is no exception to this rule. You will often find using FM or AM will also need to have some parameters reset. If your compression is turned on during digital modes, it will greatly distort the signal and very likely to cause some major splatter. Speech compression in digital modes will also make it impossible for other stations to decode your signals.

In **SSB** mode: compression **OK**, TX EQ is **OK**, 100% power is **OK**, DSP noise reduction is **OK**

In **Digital** modes: compression **NO**, TX EQ **NO**, 100% power **NO**, DSP **NO**

#### Tip of the day:

My HF rig has two VFO's,; an "A" VFO and a "B" VFO. My simple hack is to use VFO A for SSB voice modes, while VFO B is my digital play ground. I do use my speech processor on voice and mind my ALC since I often use an amplifier. In digital, the speech processor is off and I have narrower filters in use. The only variable I need to check is my power level since both VFO's are not independent of power levels. **Talk about PREAMP & ATT**

## Finding your OS Mixer controls

Most users will likely have Micro\$oft installed on their computer. M\$ is an Operating System like Apple, Linux, or Android. You will need to be able to access both your OUTPUT and INPUT mixer controls (volume) for your interface or radio. Gary [wa6hzt](#) sent me some nice tips and screen shots near the bottom of this document and it may be of use to some of you. I don't know anyone using Apples OS, so I have no help there. Linux users can simply use their mixer on their desktop or a terminal window and run “alsamixer”. Over the years, most users have issues with mixer or hardware assignments with M\$. So the trick is making sure M\$ isn't trying to “Help You” by changing hardware settings. If your system suddenly stops working then check the Control Panel and make sure M\$ hasn't “reassigned” addresses for your hardware. Often users find their digital system isn't putting any power out—Verify that your OS or other application hasn't MUTED your device!

## ALC Metering!

All mode and HF radio operators **must** use their ALC meters to ensure a clean signal is being transmitted. Most radios display an “output power level” and perhaps “swr” level meter. These are great but in digital modes, we need to activate the ALC metering. Obviously each rig will be different, so find your manual and take note of how to toggle the ALC meter so it is active while operating in digital modes. My Kenwoods have a dedicated METER button so activating my ALC meter is a one touch affair.

We don't “adjust” our ALC level. What we do is adjust the audio drive level while monitoring the ALC meter. We either bring up the drive so the meter just begins to move (tickle,) or we turn down the drive level if the meter is high or maxed out. Drive level is critical in all digital operations whether it is FT8, FLDigi, or SSTV. If you are using digital modes, you must activate and monitor your ALC metering.

Interfaces with gain controls for TX and RX are great since you don't need to find a volume control on your computer, just touch up the gain level so your ALC lands into the sweet spot.

Newer rigs that connect direct without an interface require two steps:

- 1-Adjust the TX and RX levels inside the rig using the radio menus. Usually a middle of the road settings.

- 2-Next you need to adjust the computer mixer controls. Usually you will only need to adjust the RX level once, and that rarely changes. However, the TX is much touchier and may need to be adjusted any time you change modes or change the frequency on the Fldigi water fall.

## splatter

Splatter happens when an operator is not paying attention to their ALC meter and they drive the radio beyond the ALC safe working zone. This could be while on SSB, AM and certainly on any digital modes. Splatter takes up excessive bandwidth on the band and can and will interfere with other signals nearby. You won't make friends when you are splattering on the bands, and you misght find your mailbox will contain a notice from our official observers who will admonish you for your oversight.

*Tip: Where possible, use the area above 1200Hz on the waterfall.*

*Below 1200Hz the second harmonic of the transmitted audio will pass through the transmitter filters.*

*When using lower frequency tones, adjust the transmitter and audio level with great care, as the second (and*

even third) harmonic will appear in the transmitter passband, causing excessive signal width.

A narrow (CW) filter in the rig is no help in this regard, as it is only used on receive. When you do use a narrow filter, this will restrict the area over which the receiver and transmitter will operate (without retuning of course). Try adjusting the passband tuning (if available).

Keep the sound card audio level to a minimum and set the transmitter gain to a similar level used for SSB.  
David Freese, W1HKJ

## **WARNING--Digital modes use 100% duty cycle--WARNING**

Using your HF or ALLMODE radio with single side band runs at 50% duty cycle or less. Your radio is designed for this duty cycle and the finals will work as designed at 100% output power level.

When we switch over to the **digital spectrum**, we have to reduce the output power level to half or less. For 100 watt radios, we turn the power down to 50 watts or less, and a 200 watt radio will need to be reduced to 100 watts or less. I had a friend who set up a packet gateway, he failed to reduce power for digital (half power) and departed for work. His radio caught on fire which spread to his drapes and eventually to his bedding.

Driving a radio in digital modes over half power is very likely to burn out your finals as well as cause excessive splatter and distortion on the bands. My point is, you MUST mind your output power in digital modes.

So you have installed your digital software and kind of got things working, now what?

Once you are ready to test things, you will find an external WATT METER is very handy. It will indicate if you are transmitting a signal or not. Since we really need to keep our ALC meter active, the built in power meter might not be able to be displayed. If you don't have an external watt meter, you might have to toggle your onboard meter between output power, swr, then finally back to ALC.

Setting FM radio parameters by getting help from another listening ham or in shack with an HT. Rule of thumb, adjust drive audio until max signal is heard without any distortion, then turn drive level back ~5%--note down this setting for FM use. Also, be aware that many modes work very poorly while the radio is in FM mode, others will function quite well. Try them out and see what works and doesn't work in FM mode. Also note that TxID may not be copied by your RxID control.

Setting up CAT to control rig from Fldigi. This can be a "Hair Loss" moment, but once you get things working, it really makes things a bit easier to control. I strongly recommend NOT setting up FLRig before getting FLDigi fine tuned and fully functional.

Older rigs need two cables, one for audio, one for CAT commands.

Newer rigs use single USB for audio & digital functions.

There are three ways to enable the CAT controls. CAT is Computer Aided Transceiver.

CAT using RigCAT

CAT using HAMLIB

CAT using XmlRpc

To access this configuration screen, Click on Configure, then Rig Control.

Rig CAT requires xml file: <https://sourceforge.net/projects/fldigi/files/xmlls/>

Hamlib requires the hamlib software: <https://sourceforge.net/projects/hamlib/>

Using SigNalinkUSB--great controls on interface

Many after market interfaces have their own built-in sound device, they

also sport drive controls for audio out & in, and often for DELAY. They are fantastic for quick, ON THE FLY adjustments. New radios require the user to manipulate audio drive inside sub-menus & their OS, not very convenient!

Competent digital operators are among some of the most skilled ops--why . . .

As hams, we encounter our new (or used) radios. We have to learn how to use them, adjust their many operational parameters, and learn how they work in the field and when something is not quite right. HF skills very rarely are intuitive--they must be learned by trial and error, and hopefully with assistance from good mentors.

When we venture into the sea of digital operations, the challenge is multiplied by even more complexity. Once we get our feet good and wet by making more and more digital contacts, we are on good ground to start learning NBEMS systems and traffic handling. Adding even more pressure is understanding how nets function and developing your net DISCIPLINE.

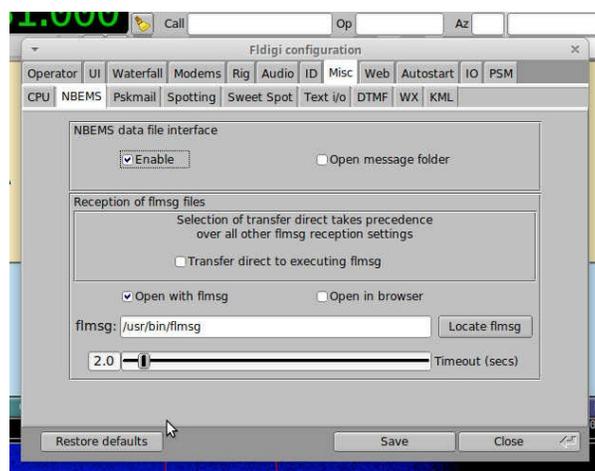
New NBEMS ops need to focus and master their understanding of net discipline as each net may operate wildly different than another net, even though the nets focus on the same target--traffic handling. Digital operators MUST focus on net PREAMBLES. The preamble will contain exact instructions for each net participant. Knowing the structure allows the net to flow seamlessly, without needing to take time out to educate or admonish a net participant.

My advice is to enjoy making many digital contacts "in the wild" on your own and try to cover a few bands like 80m, 40m & 20m. Use several modes like psk31, mfsk32, olivia etc. They are fun and each adds to your working understanding of digital modes and why one mode may work far better than another mode. While you are at it, busy calling CQ, mark down a time to check in and MONITOR traffic nets (QNX). A few monitoring sessions will prepare you for your first few goes on NBEMS nets.

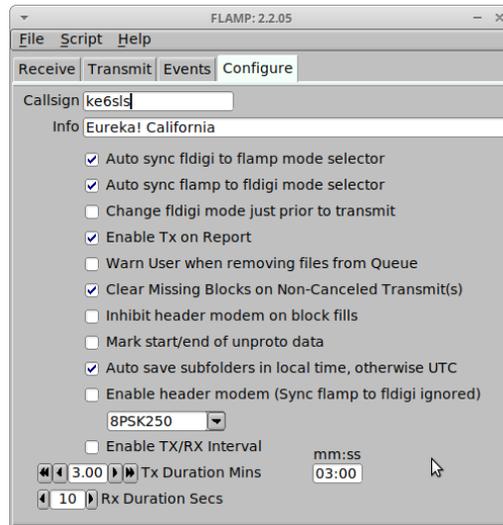
Video ID: <http://orcadigitalnet.com/macros/>

Use the above link so you can set up on VidID for your station. When you send the VID, it moves up or down in frequency and sends your call sign. Great for breaking into a net with causing any interference. Just make sure you don't send your VID while NCS is transmitting. VidID config.

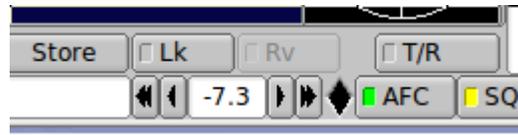
### NBEMS CONFIGURATION SCREEN SHOT



## FLAMP CONFIGURATION SCREEN SHOT



## Transmit & Receive on FLDigi TX/RX



On Fldigi look at the bottom right hand corner. The button labeled T/R will toggle between Receive & Transmit. There will also be dedicated TX and RX macro buttons on the macro bar. You can also use the keyboard short cuts which I like: **CTRL+T** for transmit and **CTRL+R** for receive. Also, here is a TIP for new users. If you are in a digital net, lock your frequency to NCS then click on the LK button which will lock FLDigi's transmit frequency even if your waterfall frequency changes. Also note that you rarely use AFC for modes like MFSK, MTx & Olivia. AFC works great on modes like PSK31 and will track the signal very well. AFC is Automatic Frequency Control.

Using the **TUNE button** on the top right of FLDigi:

When checking into any net where there is a good chance that you could DOUBLE with another station, use your TUNE button and press it for 1-2 seconds then stop it and look at the waterfall and listen for another other TUNE signals for a few seconds. If nothing is heard then press the TUNE button again then begin to check in by pressing the TX button or keyboard shortcut which will automatically cancel the TUNE and put FLDigi into transmit mode.

Briefly discuss the **TXiD** & **RXiD** buttons. When NOT to use TXiD.

Briefly discuss the **SQL** (squelch) button on the lower right and the level bar.

Briefly discuss the MACRO bar and how many. How do edit macros. How to make a VIDI macro.  
<http://orcadigitalnet.com/macros/> Agn, tnx k7ky & w7zap

Take questions and do some on air tests.

great online HELP for FLdigi suite

Doug k7ky & Mindy w7zap put together a great starter resource for their digital net:  
<http://orcadigitalnet.com/quick-start/>

Once the page opens, there will be several tabs for each operation.

Also check out their FAQ page: <http://orcadigitalnet.com/faq/>

Far more information about using FLDigi:

<http://www.w1hkj.com/FLdigiHelp>

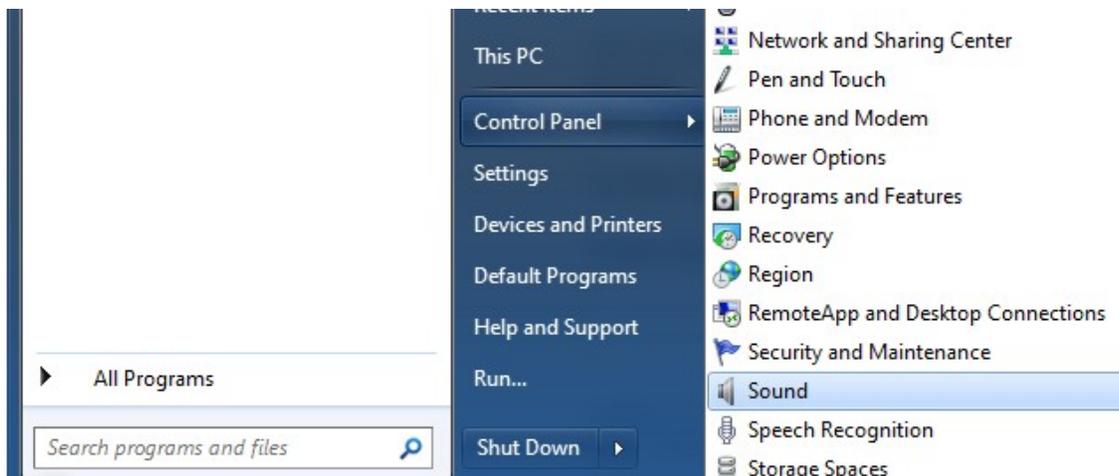
Here are annotated screenshots. Feel free to snip as needed. Standard disclaimer that what my Windows OS looks like may differ from others but the underlying navigation should be the same... \*should\*... ;-)

Lemme know if you need anything else...

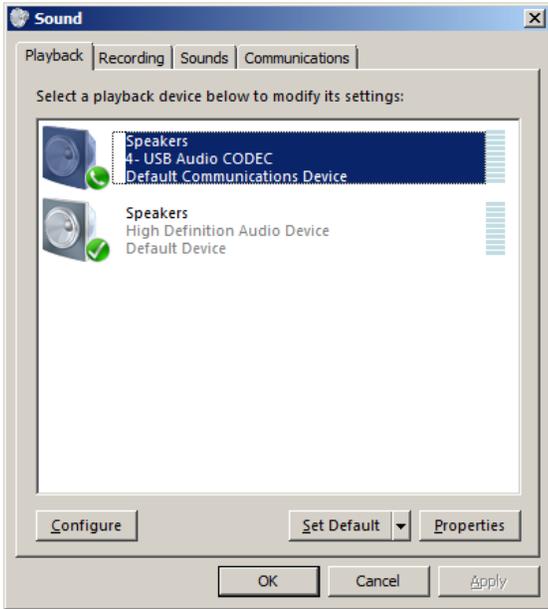
73!

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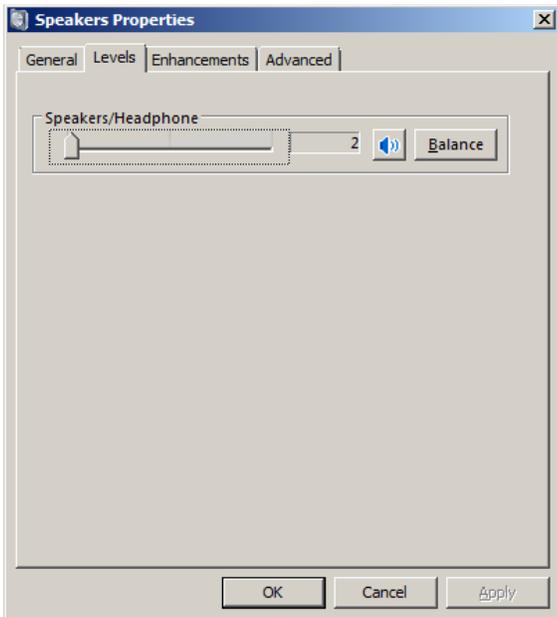
Open Sound within Control Panel



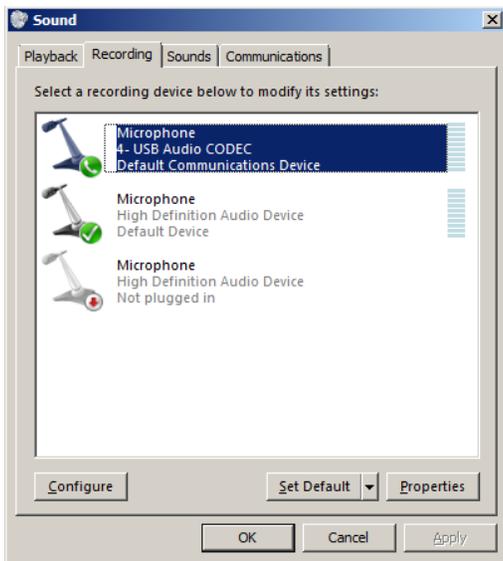
Start by selecting the correct audio device on the Playback tab and clicking on Properties. In this case the device is an Icom CODEC for an IC-7100.



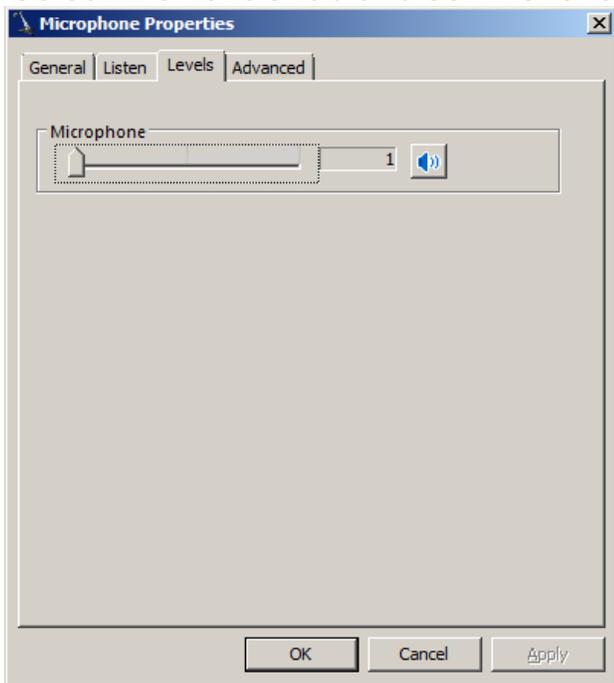
Select the Levels tab and set the level using the slider, then click OK.



Next select the Recording tab, select the correct audio device and click Properties.



Select the Levels tab and set the level using the slider , then click OK.



Close Sound and Control Panel.

## How can I use FLDigi without and radio??

We can use a short jumper cable and an online SDR! In FLDigi click on CONFIGURE, then down to SOUND CARD, Then Devices. Change the Capture to your normal PC or laptop sound card. Save and close your configure window. Now you can visit <http://rx.linkfanel.net/> and select one of the SDR receivers. Change the frequency to your interested frequency and make sure the mode is in USB. Now the neat trick; once you hear the audio playing use a 1/8" mono to mono or stereo to stereo jumper cable and plug it into the MIC INPUT of your computer and the other end to the PHONE or OUT of your sound card. Now you should see a nice signal on FLDigi's waterfall. Click on the signal of interest and enjoy copying digital HF without a radio! This can also be very handy if you are having problems hearing the stations you are interested as many of the SDR's have very good antennas and are often in quiet locations.



1/8" or 3.5mm jumper cable.

EasyPacket <http://www.w1hkj.com/EasyPacket.html>

You can use your radio to enjoy packet AX25. I haven't tested it yet but looks like it might be a lot of fun for hams without hardware TNC's.