# Midcoast NBEMS Digital Net Quick Start

The following is tailored for the new user who will be using a sound card interface (e.g. SignaLink) or audio coupling for the VHF digital net and only contains the minimum required information to get up and running. There are a fair number of steps but anyone who is familiar with the steps of installing a simple application and using files and folders should not have any difficulty.

The instructions are the same for HF operation with the exception that audio coupling is not recommended and the modes used will vary from MT63-2000.

## Download and install the Fldigi NBEMS software.

- Go to http://www.w1hkj.com/download.html
- Download Fldigi/Flarq (they come together), Flwrap and Flmsg. These programs are written for Linux, Windows (XP and later) and Mac OS. Most if not all will be using the Windows versions.
- When you begin the download you can select “Run” or “Save.” Select “Run” and the software will install with its defaults.

## Configure Fldigi

- Upon install you should get several screens in which to enter your personal data (call sign, name, QTH, grid locator). If you skip this on install you can do it later. Open Fldigo, go to Configure-Operator and enter your information. Click “Save” and “Close.”
- Set your sound card information. With audio coupling you will use your PC’s internal soundcard. On the Fldigi screen go to Configure – Sound Card – Devices Tab and under “Port Audio” select your computer’s sound card. Now click the Settings tab and click the drop down box for both capture and playback and select the sample rate that has the word "native" next to it. Click “Save,” then “Close.”
- On the Fldigi screen go to Configure – Misc – Text Capture Tab and verify that there is a check in the box for "Enable detection and extraction.” Click “Save,” then “Close.”
- On the Fldigi screen go to Configure – Modems – MT63 Tab and check “64-bit (long) interleave” and “8-bit extended characters.” Also ensure that “Transmit lower start tone” and “Transmit upper start tone” are selected. The tone duration should be 4 seconds (default). Click “Save,” then “Close.”
- On the Fldigi screen go to Configure – Waterfall – Display Tab and select “Always show audio frequencies.” Click “Save,” then “Close.”
- For the VHF net we will only use MT63-2000. On the Fldigi screen go to Op Mode - MT63 and select MT63-2000.
- For miscellaneous files we will be using Flwrap, a subsidiary program that “encapsulates” text files and applies a check sum to ensure accuracy. Read and follow the instructions at http://www.midcoastdigiham.belljar.net/flwrap_guide.pdf. Print out a copy and have it nearby when you are operating. This document has some specific instructions on how to configure your screen while operating. This arrangement will save a lot of confusion. You can practice using Fldigi and Flwrap on your PC without a radio.
- You should also read the simplified Fldigi Beginner’s Guide at http://www.w1hkj.com/downloads/fldigi/fldigi-beginners-3.20.pdf.

- Type some text in the lower (blue) transmit panel and click the "TX" button in the set of macro tabs just above the waterfall. You will hear the somewhat raucous sound of MT63. The tones at the beginning are the upper and lower start tones. Data transmission begins when the whole 2k Hz wide band fills up. MT63 has forward error correction (FEC) so there is a several second lag in the text showing up at the station receiving data. Never begin a transmission before the waterfall has cleared. Your transmitted text will appear in red in the upper (receive) panel. Any text received from another station will appear in regular black font.
- You also have to end a transmission, otherwise you will just be transmitting data-free tones after the actual message has been sent. A good habit is to click the "RX" macro button immediately after you start your transmission. This places a ^r character at the end of your text. This tells your software to go back to receive mode.
- You will want to learn about macros at some point and those are covered in the Beginner's Guide.

**Sound Card Calibration**

- You should calibrate your soundcard. This process corrects for errors in your card's sample rate. There is a very complete procedure at http://panbems.org/fldigi_calibration.htm. Just follow the steps. There is also a video showing how to do it. Sound card calibration applies whether you are using audio coupling with your PC's internal sound card or if you are using a sound card interface such as a SignaLink or Rigblaster.

**PC Set Up for Audio Coupling**

- Turn off your Windows sounds. You don't want Bill Gates' bleeps and burbles to go out over the air. Go to Control Panel – Sounds and Audio Devices – Sounds and select "No Sounds."
- While you are in there set your mic and speaker audio levels to "typical" positions. You don't want the MT63 tones screeching at you. Have the PC speaker adjusted to about the volume that your normally speak when transmitting. When you hold the radio's mic about the same distance from your speaker as you have your mouth then you should be ok. For receiving, if your radio's speaker is some distance (a few ft) from the computer's mic, turn off your squelch and turn up your computer's record level to the point where you see the noise clearly on Fldigi's waterfall. You don't want to overdrive. Copy will be much better at low audio levels. You will have to experiment to find the correct settings for consistent copy and transmission.

**Using Flmsg**

Flmsg went through a period of rapid evolution toward the end of 2010. It makes the sending and reception of ICS, NTS and generic messages very simple. As of this writing, Flmsg 1.1.1 is the current stable version.

To compose and send a message with Flmsg:

- Open Flmsg
- Using the tabs across the top, select the message format that you wish to use. Please note that there are several ICS forms.
- Compose your message by filling in the blank fields. Add the date and time stamps.
- To send your message, select File – Wrap – Autosend. You will receive a prompt to save the message if it has not already been saved. When the message has been saved Fldigi will proceed to send the message in wrap format.

To open a transmitted message:

- The received message will appear in the “recv” folder.
- Open the “DnD” tab in Flmsg. This will display the “Drop and Drag” box.
- Drag your received file from the recv folder to the DnD box.
- Your message will open in the proper message format.

The full Flmsg Help can be viewed at http://www.w1hkj.com/flmsg-help/index.html

**Operating Procedure for the VHF Net using Audio Coupling**

Now the easy part. In the VHF net we use a mix of voice and data. The net opens with a preamble and check ins using voice. We will then practice sending and receiving files using MT63-2000 with Flwap and Flmsg. At the beginning of each data transmission the sending station will send a tone using the “Tune” button at the top right of the Fldigi screen. The tone should be seen at the 1500 Hz marker on the waterfall.

- Arrange your radio and PC have mics and speakers that are in reasonable proximity to each other.
- Turn off your Windows sounds from Control Panel. Don't want that stuff to go over the air.
- Adjust your volume control settings to the approx middle position to start. MT63 is forgiving as far as levels are concerned. We can do on air checks of each set up to tweak if needed.
- To receive, place your PC mic near your radio's speaker. Fldigi will decode.
- To transmit, place your radio's mic near your PC's speaker. Press the mic PTT and then click "TX" on the Fldigi screen. Click “RX” after you begin transmitting to be sure that the transmission ends when all of the data has been sent.

Steve Hansen
KB1TCE
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