Amateur Radio Using Digital Modes

Lab 3: Set up Digital Mode Software

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What you will need

- Successful completion of Lab 2
- Laptop running up to date build of Windows, Linux or Mac OSX
- Radio, USB Sound device, and Baofeng Audio cable from the Amazon Idea List.

Purpose

Installation and setup of the digital mode software.

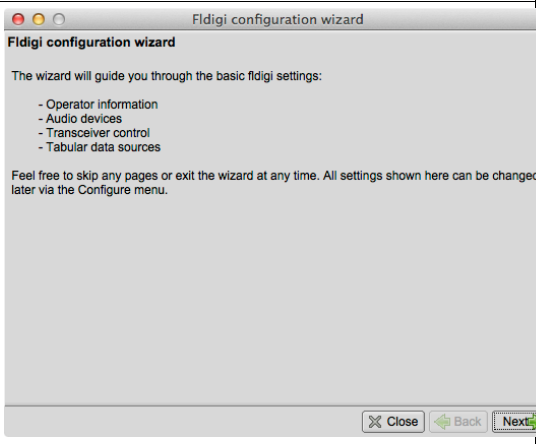
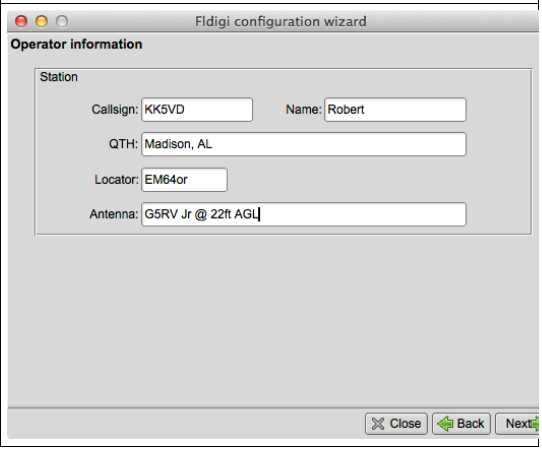
Overview

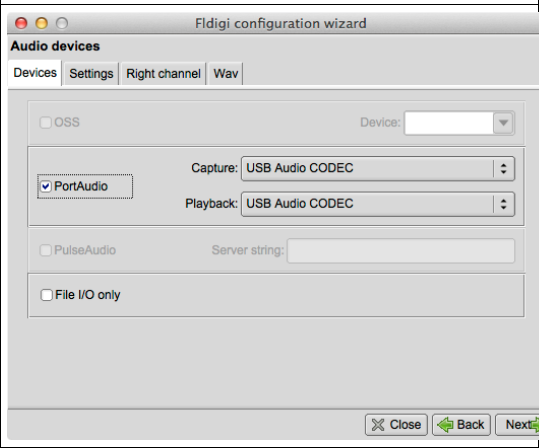
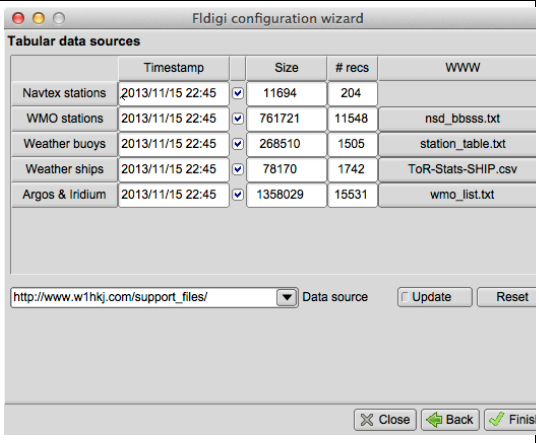
Early days of digital modes required mode-specific dedicated devices like a teletype for RTTY and then progressed to mode-specific dedicated modems connected between the radio and serial port on PCs used as terminals. As PC's developed multimedia capability and the processing power to support it, what was done with mode-specific dedicated modems can now be done with PC's and soundcards. With that has come an explosion of new digital modes and software that supports them with popularity of each changing over time. One digital mode software package that has been consistently growing, free, and cross platform, is Fldigi.

We will download and install Fldigi, familiarize ourselves with its use, setup some macros (aka canned messages), check our audio levels, and make some connections. You will be using your FCC issued callsign. Workshop stations will be configured with the special event callsign.

Exercise

Installation

STEPS		NOTES
1. (Windows and OSX) Download and install Fldigi for your platform. (Linux) To ensure we are using a 4.X version of Fldigi, we need to install from a Fldigi repository supported by one of the Debian Ham maintainers: sudo add-apt-repository ppa:kamalmostafa/fldigi sudo apt-get update sudo apt-get install fldigi If you do not wish to add the repository, you can use the 3.X version from your default repository run. sudo apt-get install fldigi		
2. First run of Fldigi will start a configuration wizard. Click next.		
3. For *callsign,* US Amateurs, enter your callsign with /2 appended. For example W2BBB/2 (The /2 indicates you are portable in call area 2) All others enter W2H with -X appended. X is a number 1-15 that will be assigned by the instructor 4. For QTH enter St Johns University, Queens, NY 5. For locator enter FN30cr 6. For Antenna enter HT		

7. Check PortAudio and select USB Audio for Capture and Playback	
8. Click update then Finish	

Quick Tour

Once the wizard is complete you will be launched into Fldigi

The big yellow window is where received signals are decoded. The blue window is where you you type in text to be sent. At the bottom of the screen is the "waterfall" showing all signals heard. Notice the scale is from 0 to 4000 Khz reflecting the audio spectrum range. Remember we are using AFSK.

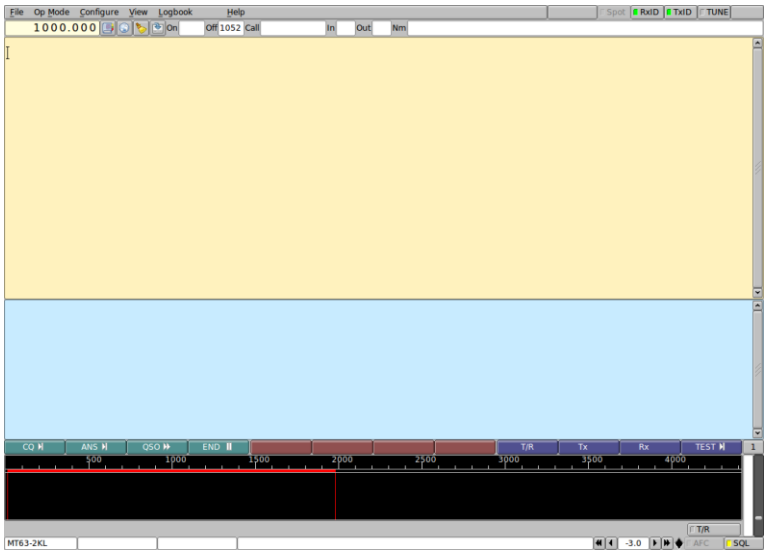


Illustration 1: Fldigi Main Screen

Between the Blue screen and the waterfall is a bar with different colored buttons some saying CQ, ANS etc. These are macro buttons that can be programmed with canned text used in sending messages. Right-click on the button that says "CQ".

A window will pop open with a split screen with one side for "Macro Text" and the other side "Select Tag." Tags are variables that can be called in macros. In this macro <TX> begins transmission, <MYCALL> is replaced with your callsign during transmission, and <RX> stops transmission and puts the software back into receive mode. Close the macro window and return to the main screen.

Click on Op Mode and you will see the range of digital modes Fldigi supports. If you click through a couple of modes, you will notice in the waterfall window a pair of red lines varies in gap for each mode. This window not only shows how much bandwidth a signal uses but is also your "targeting" for tuning in a specific signal. The bottom left corner of the main screen will tell you what digital mode you are set for.

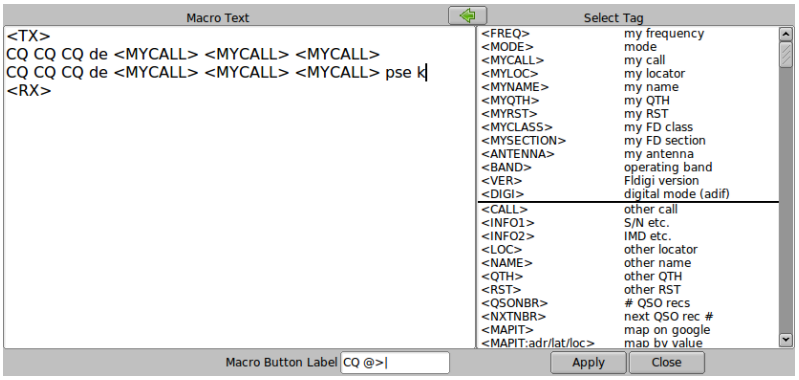


Illustration 2: Viewing the CQ Macro

Setting up Macros

To get you comfortable in making contacts quickly, a set of macros have been created for the workshop.

STEPS		NOTES
1. Download the HOPE workshop macros		File is HOPE_fldigi.mdf
2. In fldigi, select Files, then Macros, then Open the downloaded macro file.		

You will see some from the main screen some of the macro names have changed. Go ahead and right-click each macro to see the details. We will use them as follows:

- CQ - Sent when looking to connect with any stations.
- ANS - When you hear someone, enter their callsign in the Call window at the top of the screen and then click this macro.
- QSO - Content for a conversation
- END - When you are done and would like to end the conversation.

Other macros include:

- T/R - Toggles transmit and receive. Uses when you are manually entering text in the blue screen.
- TX - Transmit on
- RX - Receive On, Transmit off.
- TEST - Send a test message without looking for a response. Use to set sound levels.

With the radio configured and Fldigi installed, we are ready make a contact.