Amateur Radio Using Digital Modes

Lab 3: Set up Digital Mode Software



prepared by Joe Cupano, NE2Z

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 <u>next.</u>	Fidigi configuration wizard Fidigi configuration wizard The wizard will guide you through the basic fidigi settings: Operator information Audio devices Transceiver control Tabular data sources Feel free to skip any pages or exit the wizard at any time. All settings shown here can be changed later via the Configure menu. Keel Market Configure Configure Market Configure Market Configure Market Configure Configure Configure Market Configure Configur
 For <i>callsign</i>, 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 For <u>QTH</u> enter <u>St Johns University, Queens, NY</u> For <u>locator</u> enter <u>FN30cr</u> For Antenna enter HT 	Fldigi configuration wizard Operator information Station Callsign: KK5VD Name: Robert QTH: Madison, AL Locator: EM64or Antenna: G5RV Jr @ 22tt AGL
	Close Aback Next

7 Check PortAudio and select USB Audio for Canture and Playback	000	Fldigi	i configuratior	n wizard	
7. Check rollAddio and select osb Addio for capture and ridyback	Audio devices				
	Devices Settings	Right channel Wa	av		
	OSS			Dev	ice:
		Captur	e: USB Audio C	ODEC	•
	PortAudio			0050	
		Playbac		ODEC	
		Sei	rver string:		
	File I/O onl	у			
8. Click update then Finish	O O Tabular data sou	Fldigi I rces	i configuratior	n wizard	
		Timestamp	Size	# recs	www
	Navtex stations	2013/11/15 22:45	♥ 11694	204	
	WMO stations	2013/11/15 22:45	761721	11548	nsd_bbsss.txt
	Weather buoys	2013/11/15 22:45	268510	1505	station_table.txt
	Weather ships	2013/11/15 22:45	78170	1742	I OR-Stats-SHIP.csv
	Argos & Indium	2013/11/15 22:45	1356029	10031	wmo_list.txt
	http://www.w1hkj.c	com/support_files/		ata source	CUpdate Reset
				×	Close 🖂 🍓 Back 🗹 Finis

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.

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. <u>Right-click</u> on the button that says "<u>CQ</u>".

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



Illustration 1: Fldigi Main Screen

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. <u>Close</u> the macro window and return to the main screen.

Click on <u>Op Mode</u> 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.

Macro Text		Select Tag	
<tx></tx>	<freq></freq>	my frequency	-
CO CO CO do ZMYCALLS ZMYCALLS ZMYCALLS	<mode></mode>	mode	
CQ CQ CQ de CMICALL> CMICALL> CMICALL>	<mycall></mycall>	my call	1
CQ CQ CQ de <mycall> <mycall> <mycall> pse k</mycall></mycall></mycall>	<myloc></myloc>	my locator	
<rx></rx>	<myname></myname>	my name	
5000	<myqth></myqth>	my QTH	
	<myrst></myrst>	my RST	
	<myclass></myclass>	my FD class	
	<mysection></mysection>	my FD section	
	<antenna></antenna>	my antenna	
	<band></band>	operating band	
	<ver></ver>	Fldigi version	
	<digi></digi>	digital mode (adif)	
	<call></call>	other call	
	<inf01></inf01>	S/N etc.	
	<info2></info2>	IMD etc.	
	<loc></loc>	other locator	
	<name></name>	other name	
	<qth></qth>	other QTH	
	<rst></rst>	other RST	
	<osonbr></osonbr>	# OSO recs	
	<nxtnbr></nxtnbr>	next OSO rec #	
	<mapit></mapit>	map on google	
	<mapit:adr lat="" loc<="" td=""><td>> map by value</td><td></td></mapit:adr>	> map by value	
Macro Button Label CQ @>	Ap	oply Close	

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. <u>D</u>	Download the HOPE workshop macros	File is <u>HOPE_fldigi.mdf</u>
2. Ir m	n fldigi, select <u>Files</u> , then <u>Macros</u> , then <u>Open</u> the downloaded nacro file.	

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

- <u>CQ</u> Sent when looking to connect with any stations.
- <u>ANS</u> When you hear someone, enter their callsign in the Call window at the top of the screen and then click this macro.
- <u>QSO</u> Content for a conversation
- <u>END</u> 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.
- \underline{TX} Transmit on
- <u>RX</u> Receive On, Transmit off.
- <u>TEST</u> 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.