NBEMS

Narrow Band Emergency Messaging System

------ Utilizing Sound Card Technology ------

Introduction

- Your Name
- Your Call sign
- Your Location

What is NBEMS?

Jack Tsujimura KH6DQ Aug. 2012

- (NBEMS) is an Open Source software suite that allows amateur radio operators to reliably send and receive data using nearly any computer (Windows, Mac, and Linux) and any analog radio without requiring a dedicated digital infrastructure or specialized modem hardware.

- NBEMS works on both VHF/UHF FM.

NBEMS – Where is It Used?

Jack Tsujimura KH6DQ Aug. 2012

- ☐ **HI State CD**

- ☐ **DEM-RACES**

- ☐ **HealthComm**

- ☐ **Disaster**

- ☐ **Exercise**

NBEMS – Programs?

Jack Tsujimura KH6DQ Aug. 2012

- FLDIGI
- FLMSG
- FLWRAP

FLDIGI

Jack Tsujimura KH6DQ Aug. 2012

- **<u>F</u>ast <u>L</u>ight <u>Di</u>gital Modem Application**
- **Is a cross-platform modem program that supports most of the <u>digital modes</u> used on the amateur radio bands.**

NBEMS Modes

Jack Tsujimura KH6DQ Aug. 2012

- CW
- Contestia +
- DominoEX +
- Hell +
- MFSK +
- **MT63 +**
- Olivia +
- PSK +

- QPSK +
- PSKR +
- RTTY +
- Thor +
- Throb +

Where Do I Get NBEMS Software?

Jack Tsujimura KH6DQ Aug. 2012

Software By W1HKJ & Associates

- http://www.w1hkj.com/

- http://www.w1hkj.com/download.html

It's FREE!

NBEMS Emcomm Modes

Jack Tsujimura KH6DQ Aug. 2012

- MT63-500-L (VHF/UHF)

- MT63-1000-L   (VHF/UHF)

- MT63-2000-L (VHF/UHF)

NBEMS Links

- http://groups.yahoo.com/group/NBMS

- http://groups.yahoo.com/group/NBMS-HI

Monthly VHF/UHF Fldigi Net initialing using digital mode MT-63 on the 4th Thursday of every month at 8:00 p.m. to 9:00 p.m.
The following repeaters will be linked via Allstar:
- 147.020 pl 103.5
- 147.040 pl 103.5
- 147.060 pl 103.5
- 444.350 pl 103.5
- 444.325 pl 103.5
- 146.760
- 146.980 pl 88.5

Why Digital EmComm?

Jack Tsujimura KH6DQ Aug. 2012

- ☐ Think back to your last public service event, drill, or deployment.
- ☐ You probably passed a lot of traffic best suited for voice communications but...
- ☐ What if you had been asked to pass:
    - Weather report
    - Red Cross report
    - Roster of evacuees
    - Required prescription medications
    - Directions to a disaster scene

Why Digital EmComm?

Jack Tsujimura KH6DQ Aug. 2012

- ☐ The needs of our Served Agencies have changed.
- ☐ They still need voice communications but...
- ☐ There's an increasing need for data communications.
- ☐ We need to be able to provide more than just voice communications from a ham with an HT.

NBEMS philosophy

Jack Tsujimura KH6DQ Aug. 2012

- ☐ Keep it cheap.
- ☐ Keep it simple.
- ☐ Use Open Source software.
- ☐ **Don't depend upon infrastructure**.
- ☐ Make it fun to use between drills and disasters.
- ☐ Any type of radio

Fldigi

Jack Tsujimura KH6DQ Aug. 2012
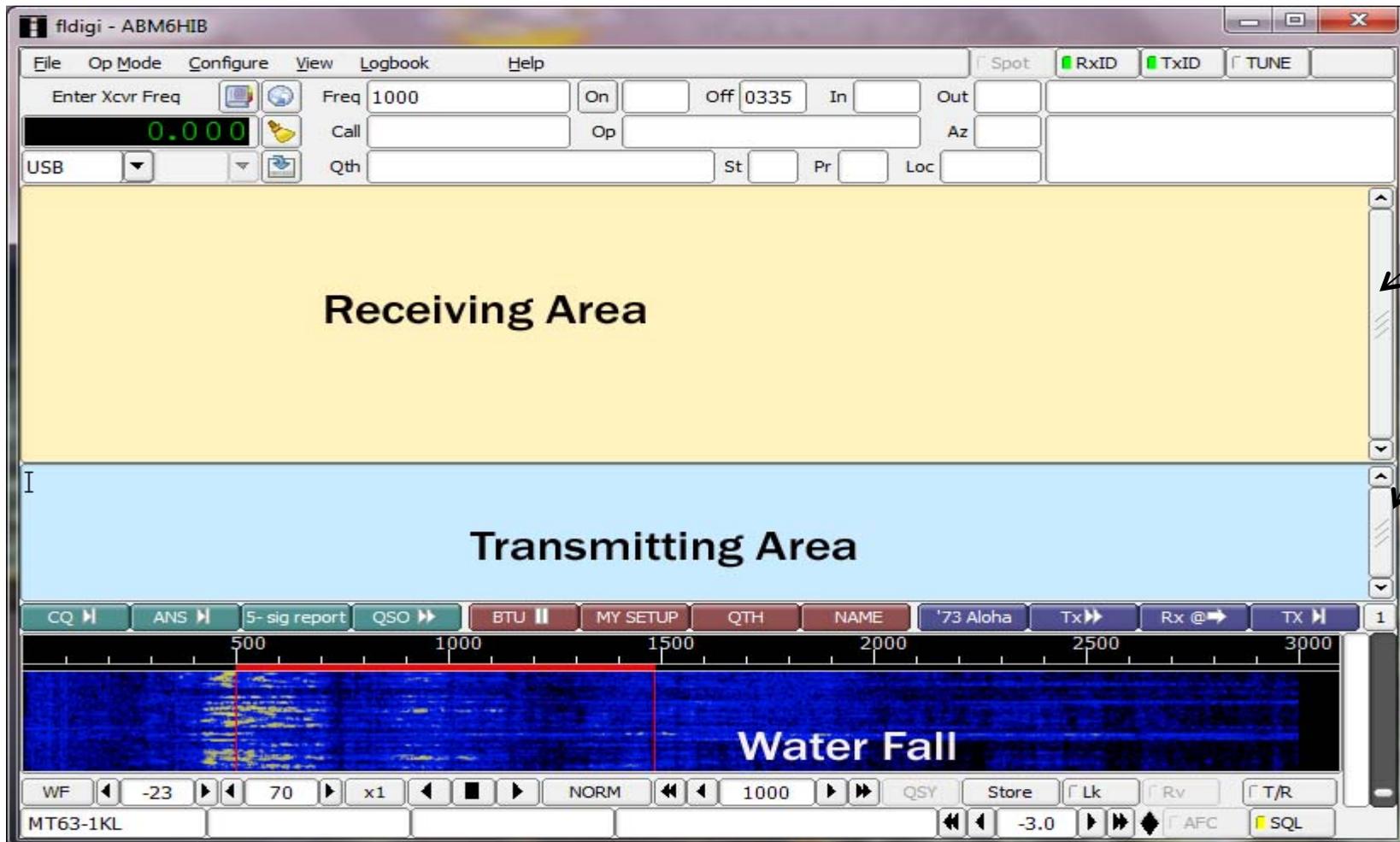
How it works

Jack Tsujimura KH6DQ Aug. 2012

- ☐ Fldigi uses your computer's sound card to generate and decode digital signals.

- ☐ All work is done by your computer, don't need an external Terminal Node Controller (TNC).

- ☐ Audio from your computer speakers go into your radio's mike input for transmission.

- ☐ Audio from your radio goes into your computer's mike or line-in for decoding.

- ☐ Don't need an extremely powerful new computer, older machines work just fine. (Need a Microphone on your computer).

Acoustic Interface

Jack Tsujimura KH6DQ Aug. 2012

- ☐ Easiest way to interface radio to computer is to...
- ☐ Hold radio mike up to computer speakers.
- ☐ Hold radio speaker up to computer mike.
- ☐ You do PTT manually.
- ☐ Works especially well with VHF/UHF FM.
- ☐ Allows you to easily send data using any radio.
- ☐ Disable all DSP "enhancement" programs on mic.
- ☐ Hams can participate who do not have a soundcard interface.
- ☐ MT63 is sufficiently robust to deal with background noise, even in a noisy Hospital EOC or field site.

Typical Acoustic Interface TRX setup

Acoustic Interface to Receive
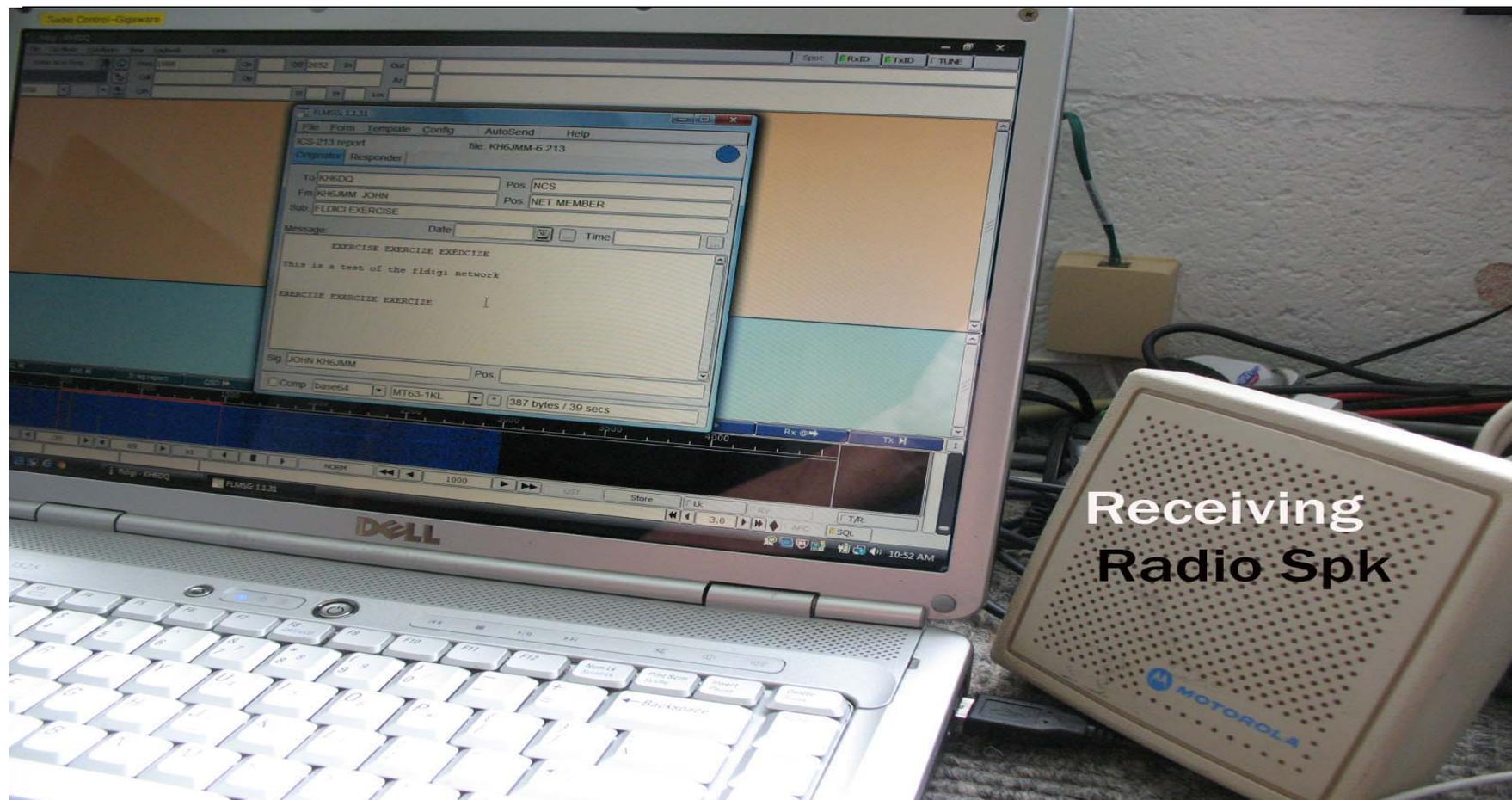
NBEMS STOP Setup Fldigi

Stupid computer
Keeps saying
"you got mail"

Configuring Fldigi

Jack Tsujimura KH6DQ Aug. 2012

- First time through, wizard is run.

- Enter your personal info.

- Also configure soundcard, radio interface, and modems
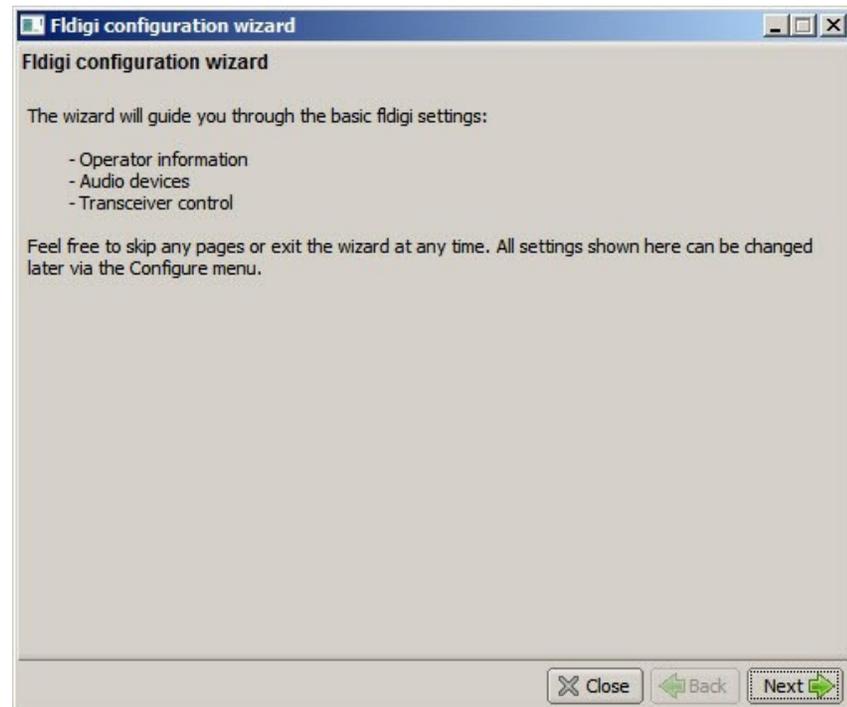
Fldigi Configuration/ Audio

- Check on PORTAUDIO/ (MS Sound Mapper)
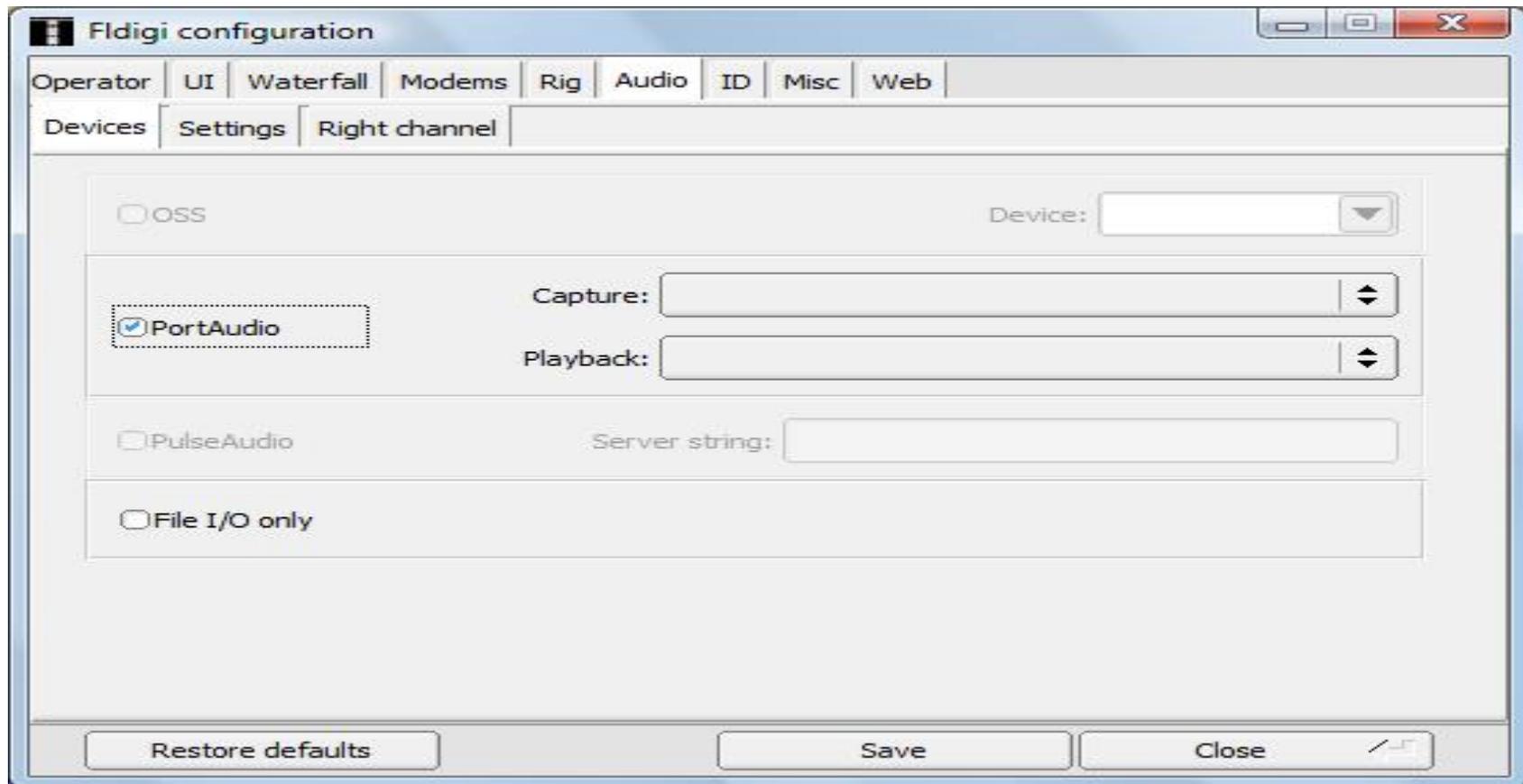
Important MT63 configuration

Jack Tsujimura KH6DQ Aug. 2012

- Be sure to set 64 bit interleave and 8-bit char.

- Provides extra data redundancy.

- Both stations must have same interleave setting

- Don't check (allow manual tuning)
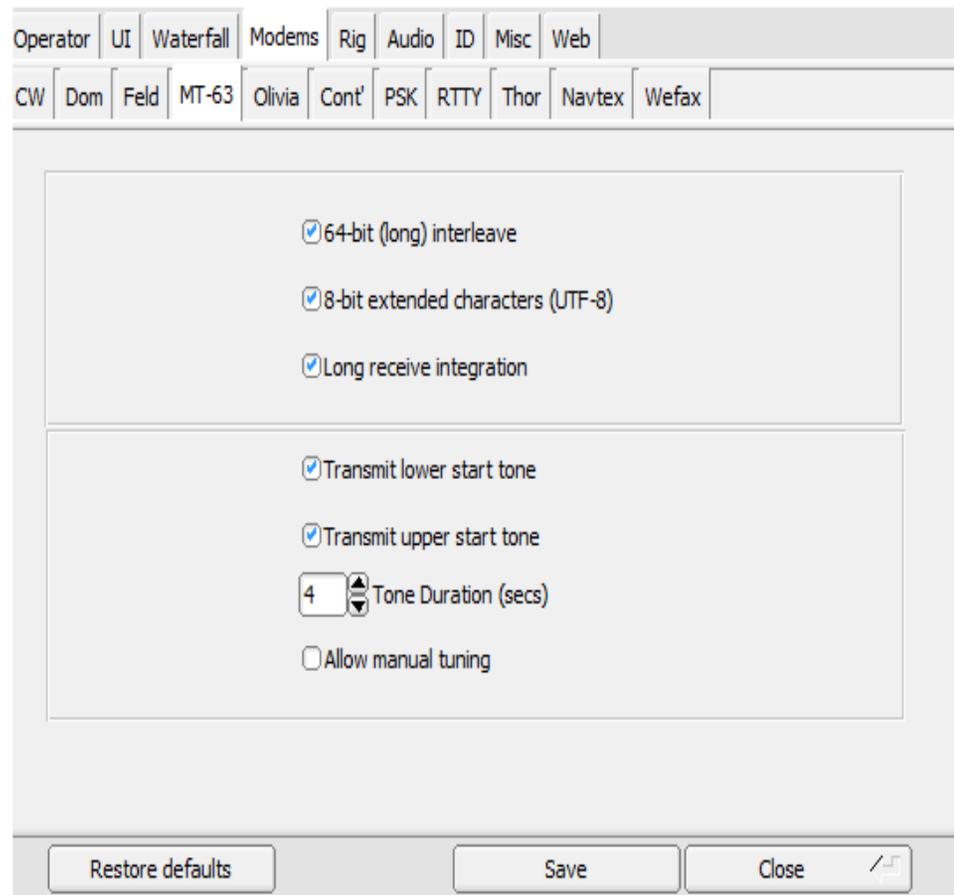
Your ID- RsID
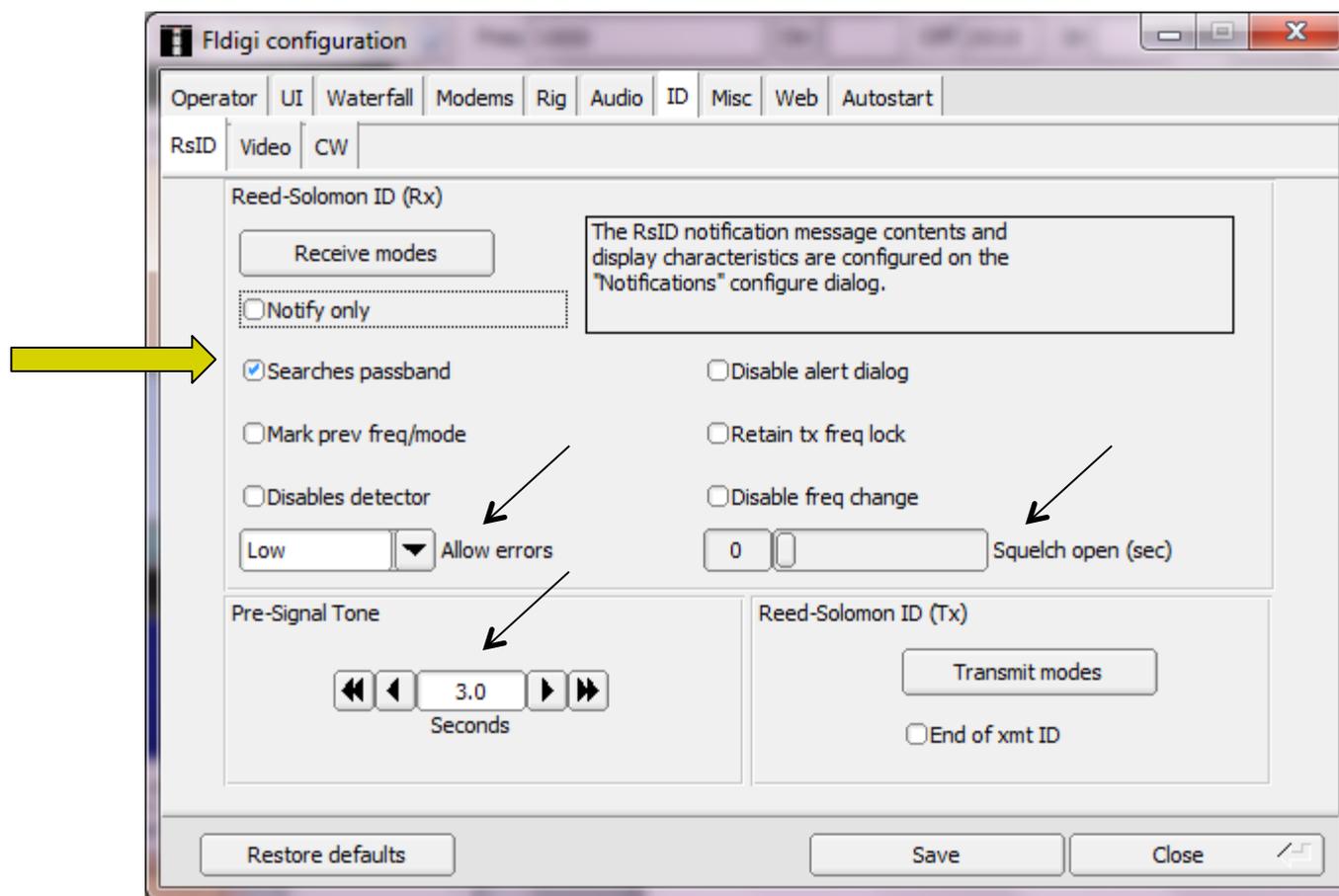
Your CW ID at end of your TX
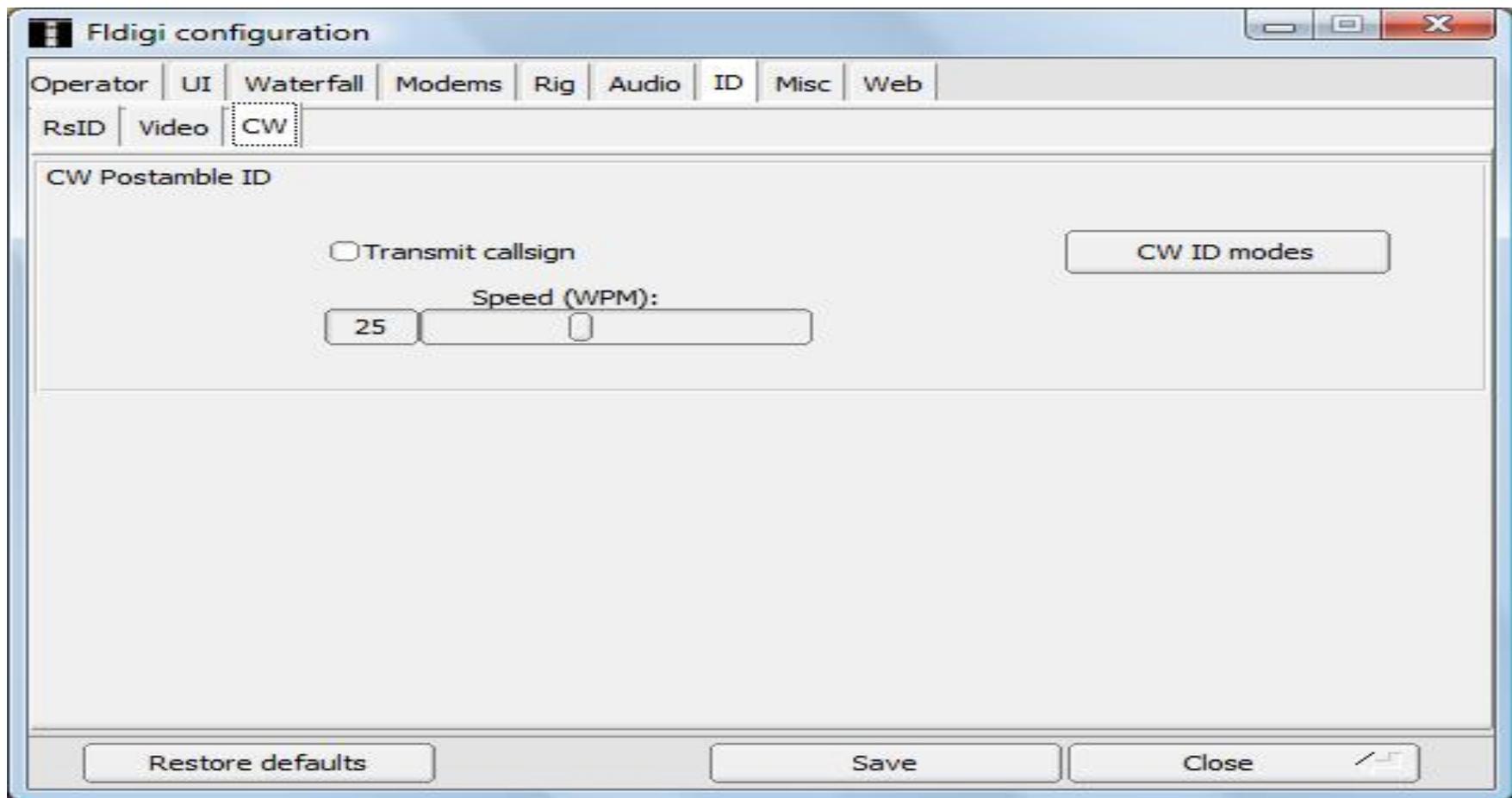
Configure fldigi to extract data

Jack Tsujimura KH6DQ Aug. 2012

- Set the Fldigi configuration setting and Wrapped data will be automatically extracted!
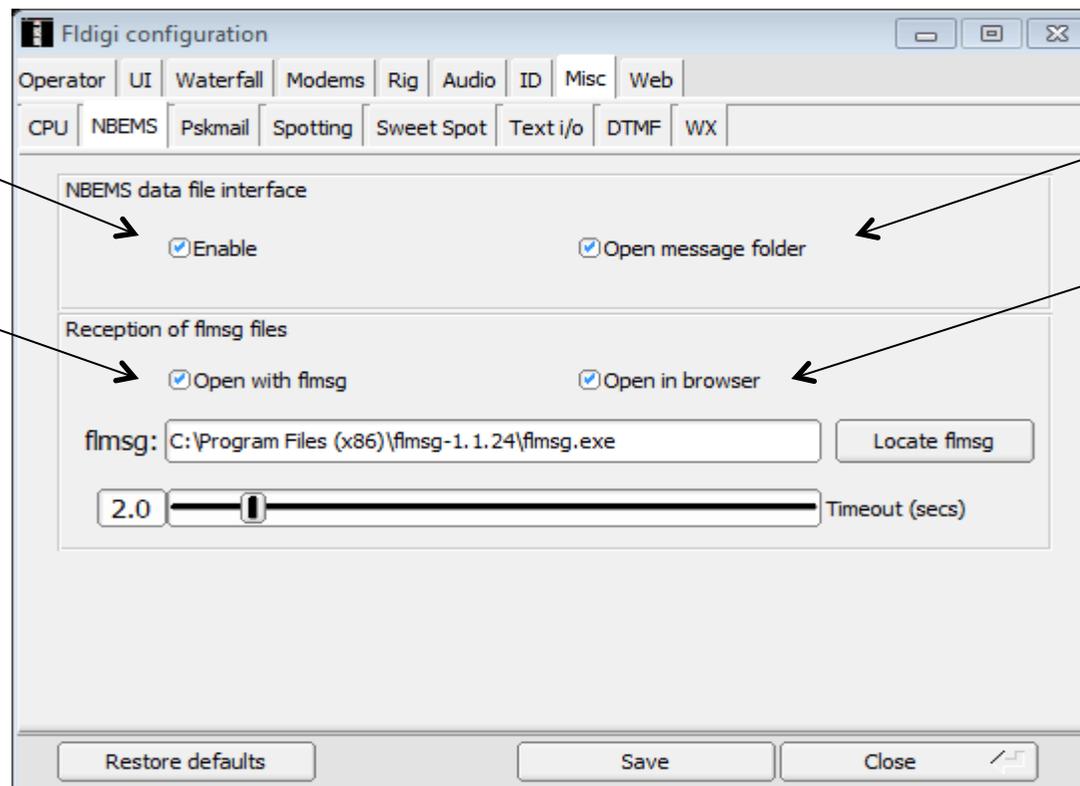
Set up Message to Automatically Unwrapped

Flmsg setup for **System 7**

C:\Program Files (x86)\flmsg-1.1.xx
\flmsg.exe

C:\

Program files(x86)\

flmsg-1.1.xx\

flmsg.exe

****

Flmsg setup for **Vista**

C:\Program Files\flmsg-1.1.xx
\flmsg.exe

C:\

Program files\

flmsg-1.1.xx\

flmsg
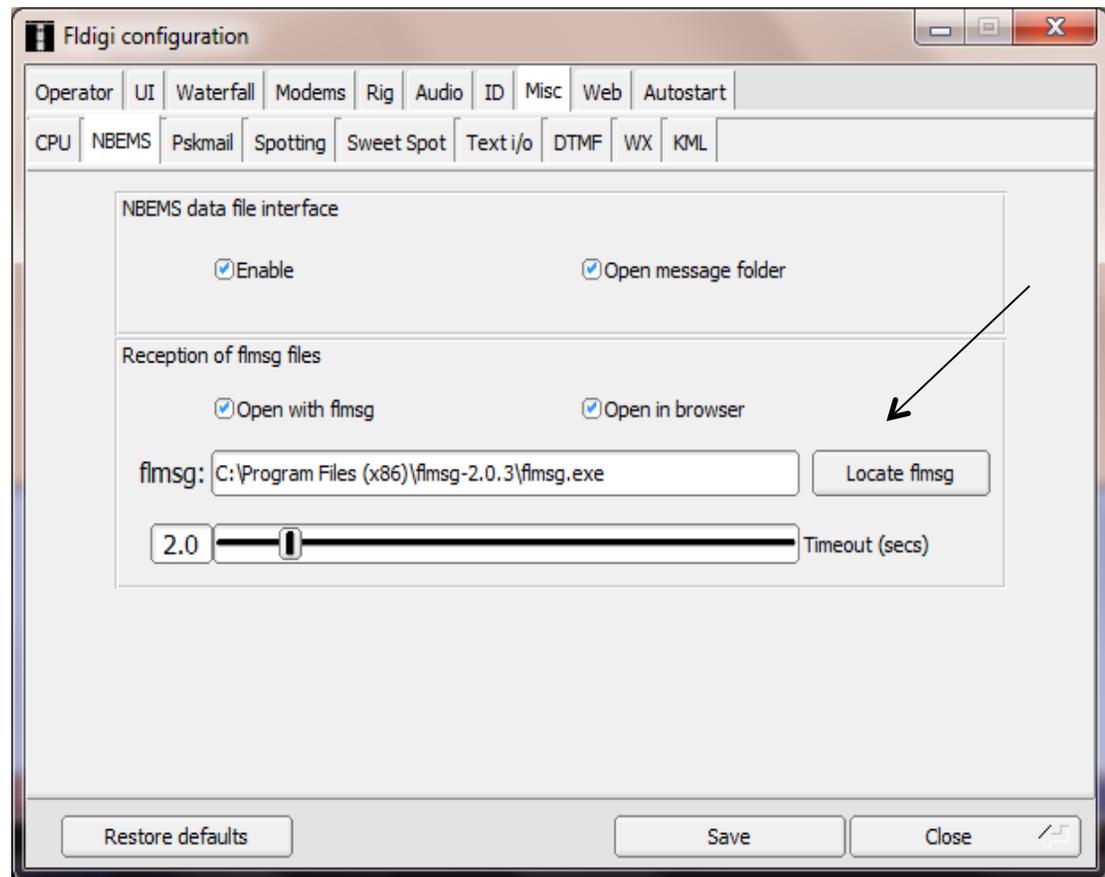
NBEMS= Open message Folder
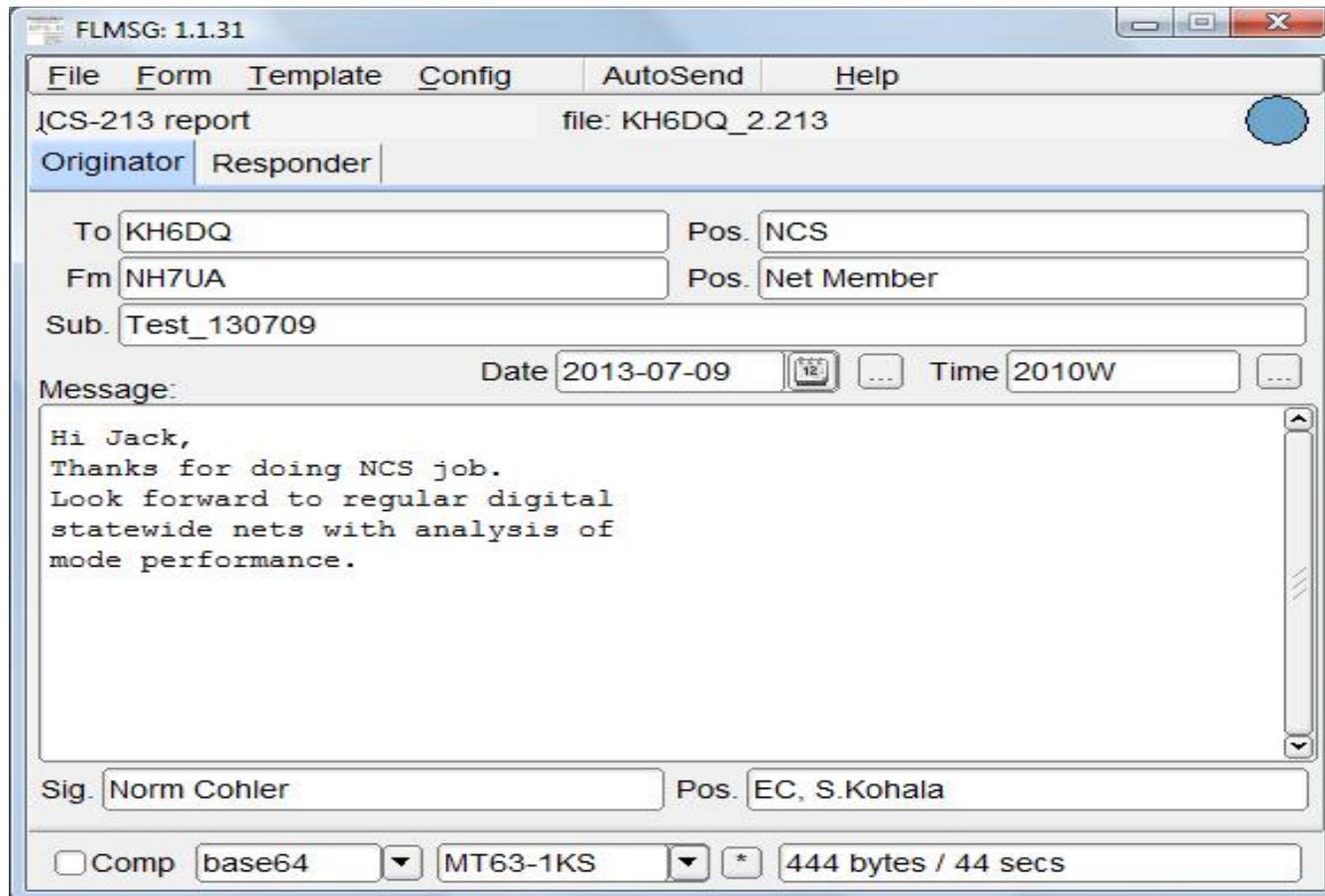
Reception = Open in browser
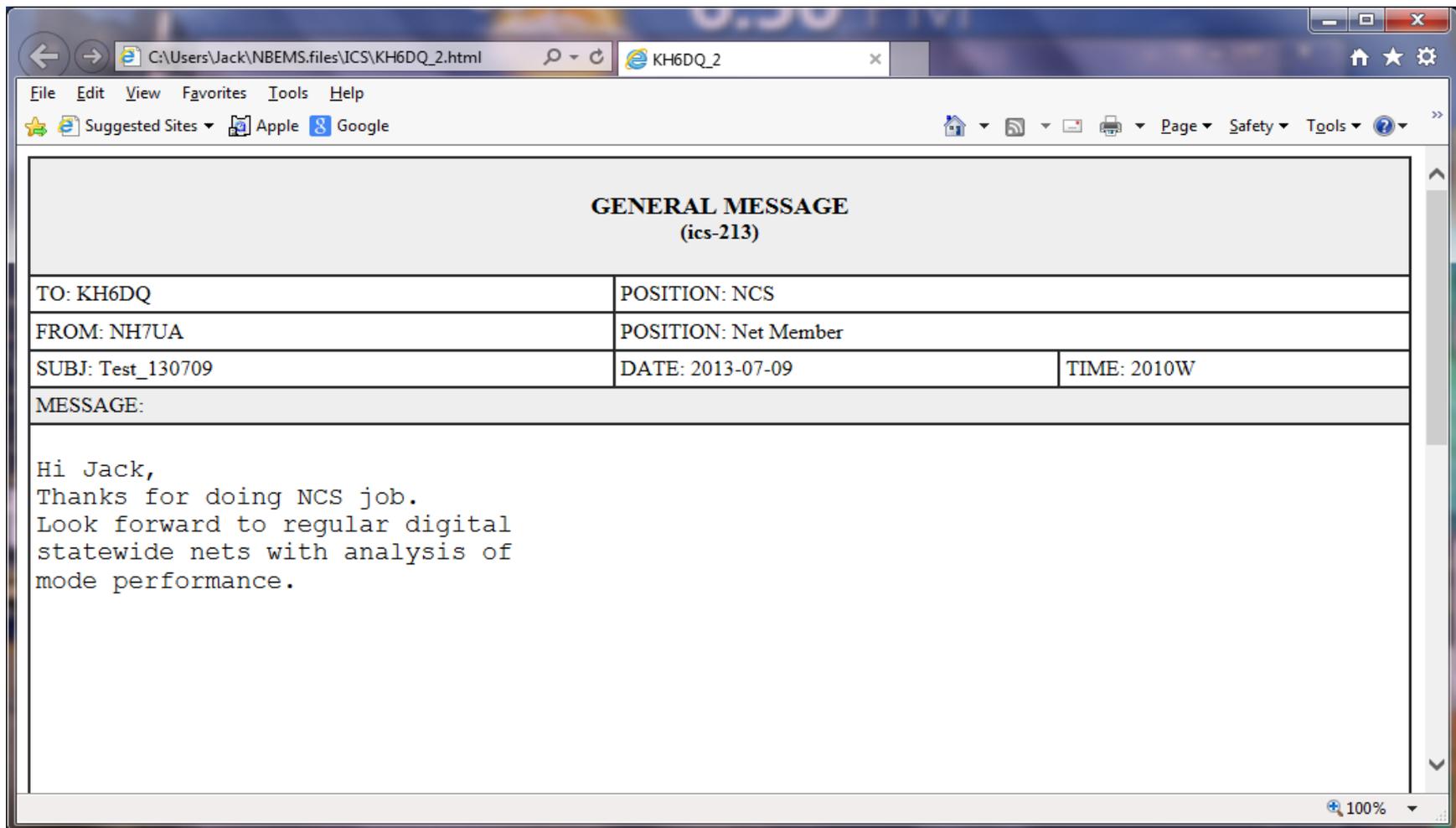
MT63-500-L Waterfall

*Jack Tsujimura KH6DQ Aug. 2012*
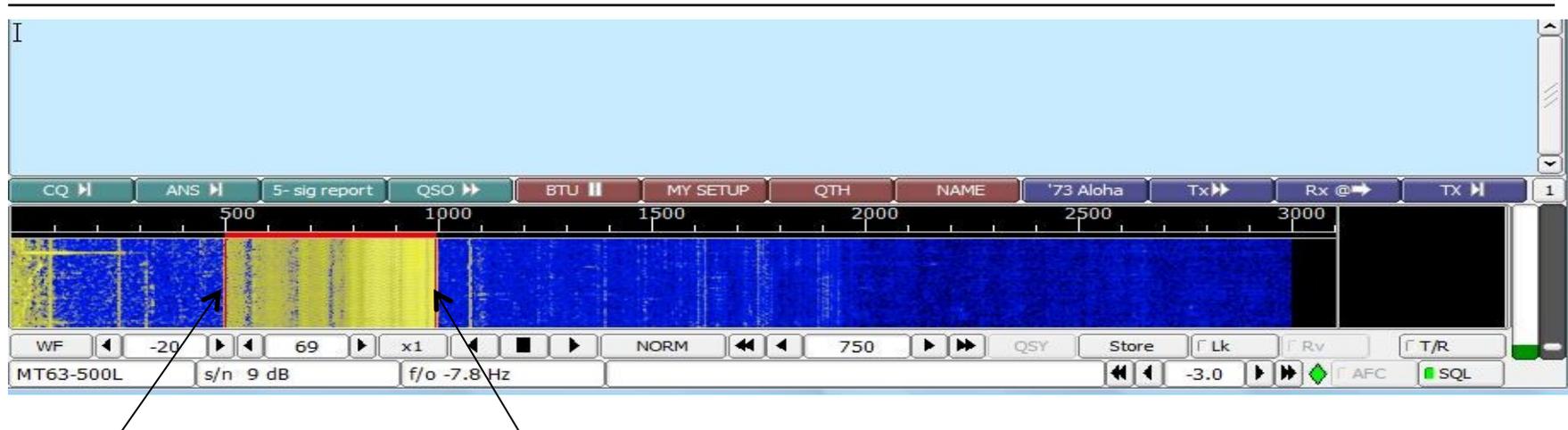
- Signal width is 500 Hz

- Offset frequency is usually fixed at 750 Hz

- Fixed low frequency eliminates tuning errors

MT63-1000-L Waterfall

Jack Tsujimura KH6DQ Aug. 2012
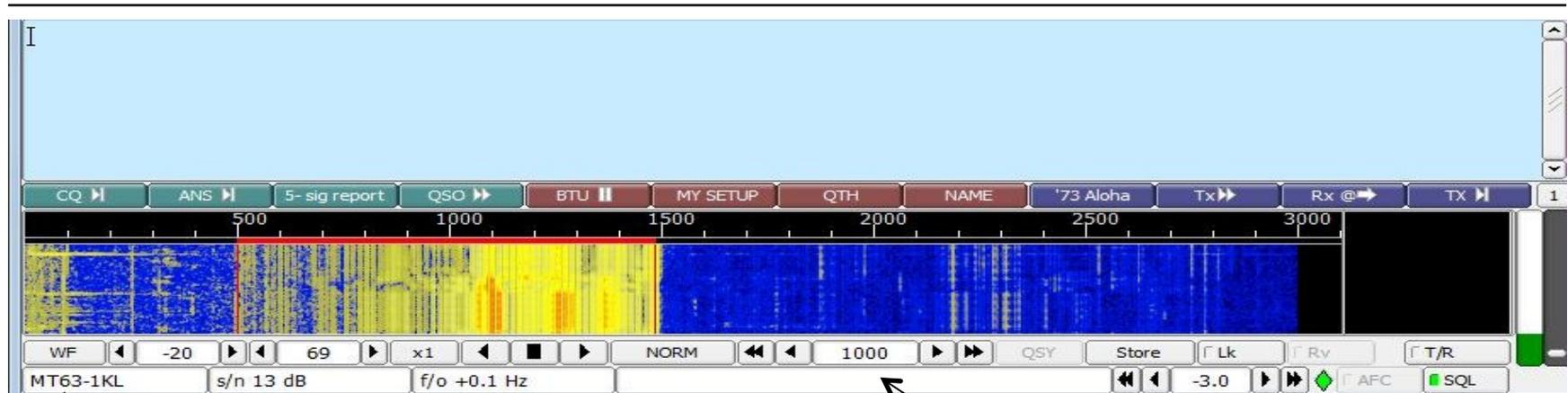
- Signal width is 1000 Hz

- Offset frequency is usually fixed at 1000 Hz

- Fixed low frequency eliminates tuning errors

MT63-2000-L Waterfall

Jack Tsujimura KH6DQ Aug. 2012
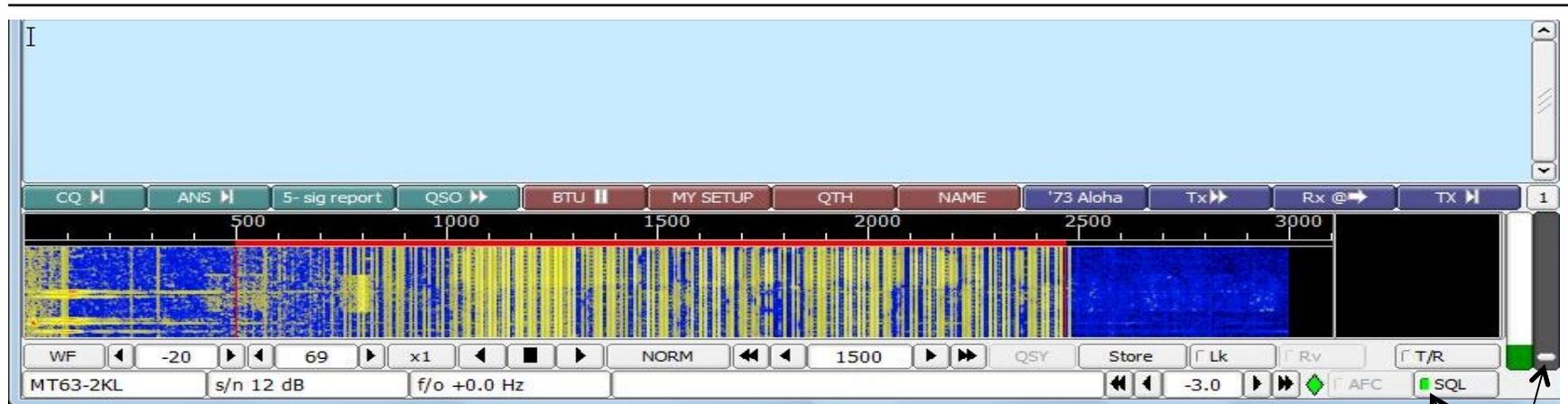
- Signal width is 2000 Hz
- Offset frequency is usually fixed at 1500 Hz
- Fixed low frequency eliminates tuning errors
- Sounds like a giant buzzsaw

Fldigi-/RxID/TxID/Macros
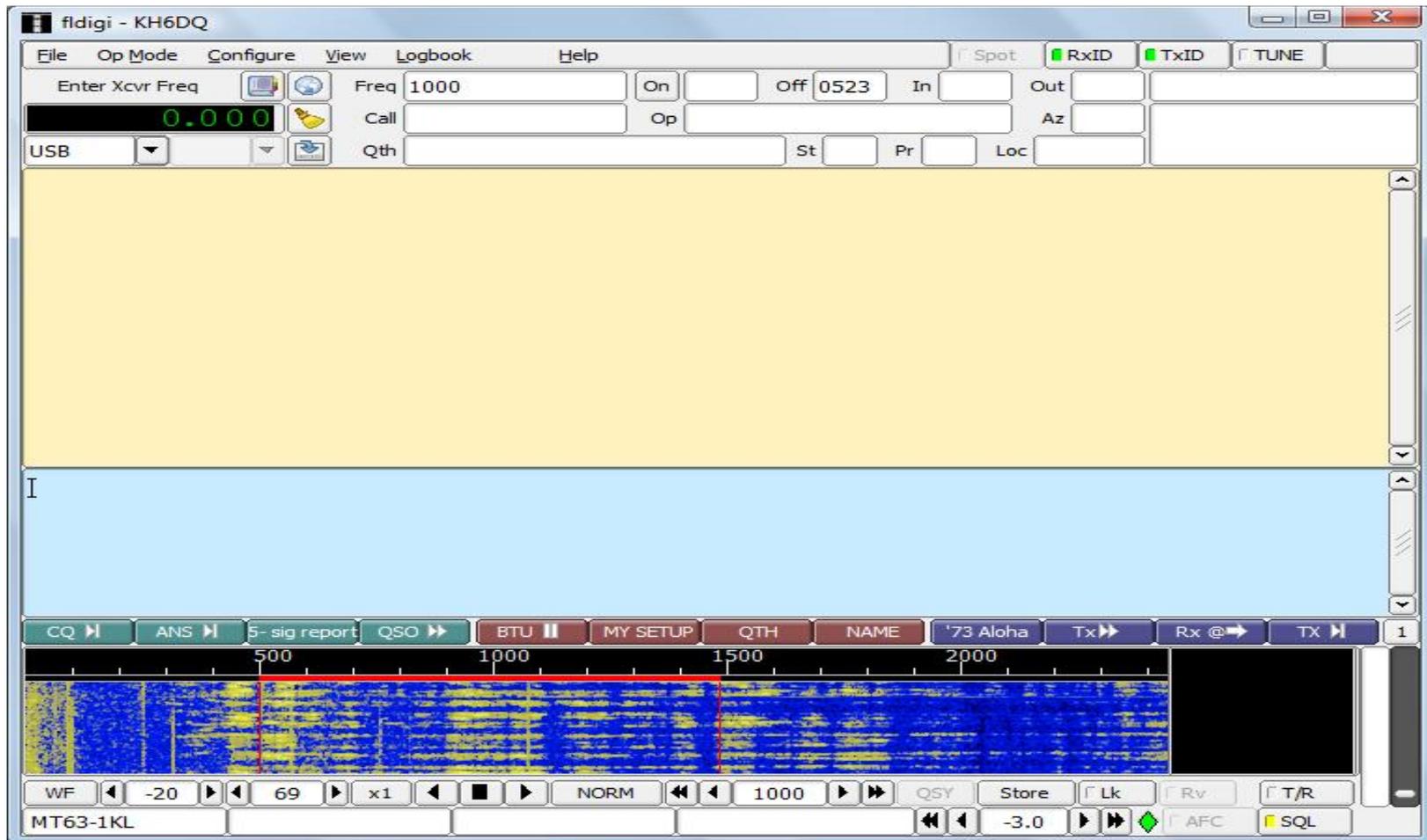
NBEMS STOP Next Flmsg
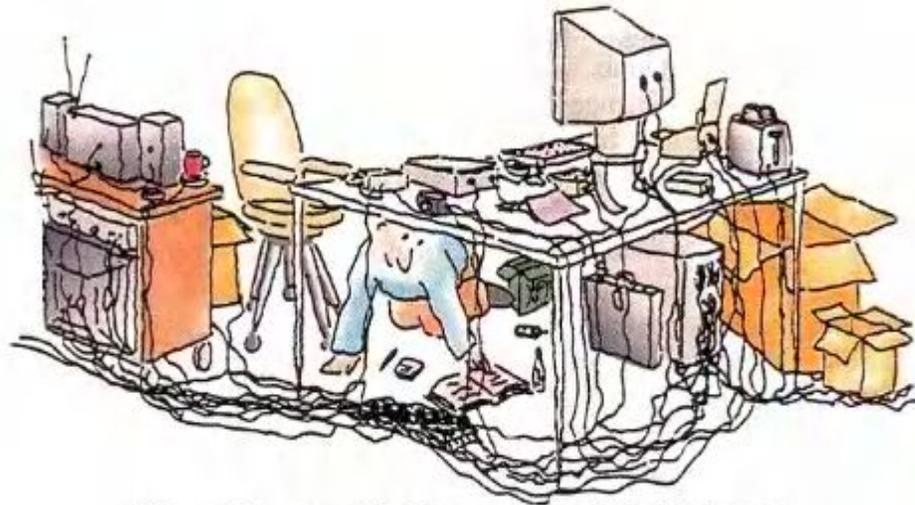
"Now, if you can find the power switch, flip it on."

FLMSG ver. 1.1.3X

Jack Tsujimura KH6DQ Aug. 2012

# *Flmsg – configuration*

Jack Tsujimura KH6DQ Aug. 2012

- ☐ Click on Config menu.
- ☐ Enter your preferences and info.
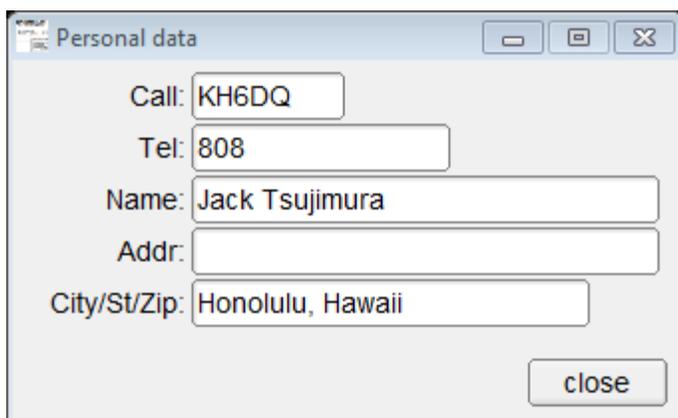
Personal data

Call: KH6DQ
Tel: 808
Name: Jack Tsujimura
Addr:
City/St/Zip: Honolulu, Hawaii

close

Configure date/time

- ◉ YYYY-MM-DD   ◉ hhmmL
- ◯ YYYY-DD-MM   ◯ hh:mmL
- ◯ MM/DD/YY   ◯ hhmmZ
- ◯ DD/MM/YY   ◯ hh:mmZ
- ◯ hhmm UTC
- ◯ hh:mm UTC

close
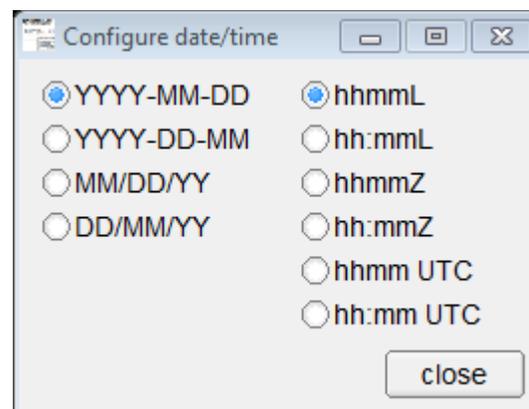
Flmsg – send forms

Jack Tsujimura KH6DQ Aug. 2012

- Flmsg used to send formatted messages:
- ICS forms like ICS-203, 205, 206, 213, 214, 216, 309
- Weather Report like Hurricane, Severe Wx, Storm report
- ARRL Radiograms
- Blank text
- Automates use of Flwrap.
- Starts transmission automatically.
- Eases importing and checksum verification of incoming message

Data verification with Flwrap

Jack Tsujimura KH6DQ Aug. 2012

- ❑ Flwrap allows you to be 100% sure your message was received accurately.
- ❑ Checksum is inserted into a file.
- ❑ Receiving station computes the checksum on the incoming file and...
- ❑ If the two checksums are identical, the file was received without error.
- ❑ Allows multiple stations to receive and confirm data 100%.
- ❑ Great for bulletins like situation updates, weather reports, road closures, lists of contact info

Flwrap – example

Jack Tsujimura KH6DQ Aug. 2012

- ☐ This is an example of a "wrapped" file:

- ☐ [WRAP:beg][WRAP:crlf][WRAP:fn example.txt]This is an example of a wrapped file.

- ☐ Here's what happens when we wrap something. [WRAP:chksum 7CE9]**[WRAP:end]**

- ☐ Note the WRAP beg and end delimiters

- ☐ Also note the checksum, it's **7CE9**.

- ☐ Easy to import wrapped file...just drag into Fldigi transmit window.

Flmsg – Autosend

Jack Tsujimura KH6DQ Aug. 2012

Flmsg setup HELP on THUMB Drive

- Check on your information from the thumb drive.
- HealthComm FSR (2 type)
- How to Send Spreadsheeet CSV file
- Flmsg setup HELP
- For MAC users that is HELP
- Powerpoint for NBEMS

Next steps

Jack Tsujimura KH6DQ Aug. 2012

- ☐ Our strength is the ability to turn amateur activities into powerful emcomm tools.

- ☐ If you're ready for your daily hamming, you're more prepared for emergency than you think.

- ☐ Be active, and on the month HealthComm net you're needed, you'll feel right at home with fldigi program.

- ☐ **PRACTICE, PRACTICE, AND PRACTICE**

NBEMS Nets

☐ **HealthComm Digital net- after the main net**

☐ http://groups.yahoo.com/group/NBMS-HI

Monthly VHF/UHF Fldigi Net initialing using digital
mode MT-63 on the 4th Thursday of every month at
8:00 p.m. to 9:00 p.m.
The following repeaters will be linked via Allstar:
- 147.020 pl 103.5
- 147.040 pl 103.5
- 147.060 pl 103.5
- 444.350 pl 103.5
- 444.325 pl 103.5
- 146.760
- 146.980 pl 88.5

Thanks!

- Narrow Band Emergency Yahoo group