

FLDIGI & FLMSG Training Guide Page 1

The screenshot displays the FLDIGI software interface for station WA3SVW. The main window shows a yellow background with a test message: `:msg:04 THIS IS A TEST MESSAGE`, `X THIS IS ONLY A`, `TEST X TO BE USED`, and `FOR DRILL PURPOSES ONLY X`. Below this, station parameters are listed: `:sig:6 WA3SVW`, `:ck:2 20`, `:sta:6 WA3SVW`, `:org:9 SEWELL NJ`, `:svc:1 F`, and `:std:1 T`. A spectrum display at the bottom shows a signal between 1500 and 2000 kHz. An overlaid FLMSG 2.0.4 window shows the message being processed. The window includes fields for ARRL radiogram (file: TEST_01.m2s), Message, and Records. The message content is displayed in the TXT field: `THIS IS A TEST MESSAGE`, `X THIS IS ONLY A`, `TEST X TO BE USED`, and `FOR DRILL PURPOSES ONLY X`. The window also shows fields for SVC (1), NR (ROUTINE), PREC (E), HX (hx), STN ORIG (WA3SVW), and CK (20). Other fields include PLACE OF ORIG (SEWELL NJ), TIME FILED (1432L), and MON DY (OCT 07). The window also has a checkbox for Standard Format and a button for ARL MSG. At the bottom of the window, there are fields for SIG (WA3SVW), OP NOTE, and a checkbox for Comp (base64) with a file type of MT63-2KS and a size of 330 bytes / 21 secs.

FLDIGI & FLMSG Training Guide

Objective:

To supply the radio amateur with a *basic* understanding of FLDIGI & FLMSG (FL Message), in addition, to highlight the unique features of how the two programs work together, sending and receiving an ARES/RACES form, in a semi-automated fashion.

General Operation of FLDIGI appears at the end of this course, and may be covered, if time permits, otherwise it shall be presented at a later date.

FLDIGI Main

File Dropdown Menu (Typical Windows)

Op Mode Menus

Configuration Menus

Tune Button (Transmits)

Menu Bar

Receive Screen (Default Color)

Receive/Transmit Screen Size Adjustment

Xmit Screen (Default Color)

Macro Buttons (Transmits)

Display Area²

Current Display Mode

Current Op Mode

Upper Signal Limit

Signal Dynamic Range

Display Scale

Display Mode

Waterfall Center Frequency

Transmit Level Attenuator

AFC On/Off

Squelch On/Off

Transmit Indicator

Squelch Level

1 - Corresponds To The 12 Function Keys
2 - Expanded To 300 Pixel Height

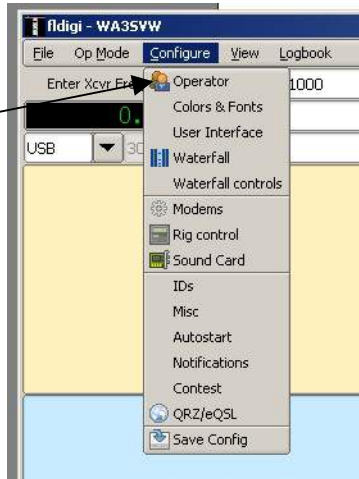
A. Adding Your Call Letters And Other Information:

Before FLDIGI can be used effectively, the operator must enter some basic information that customizes the program for that particular amateur station:

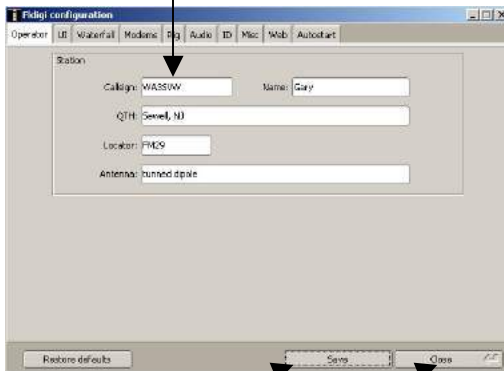
1. Click, along the Top Menu on **Configure**



2. Click On **Operator**, From Drop Down Menu



3. Type In Your Information In The **Station** Entry Fields (Call Sign Is Necessary, Other Information Is Optional)

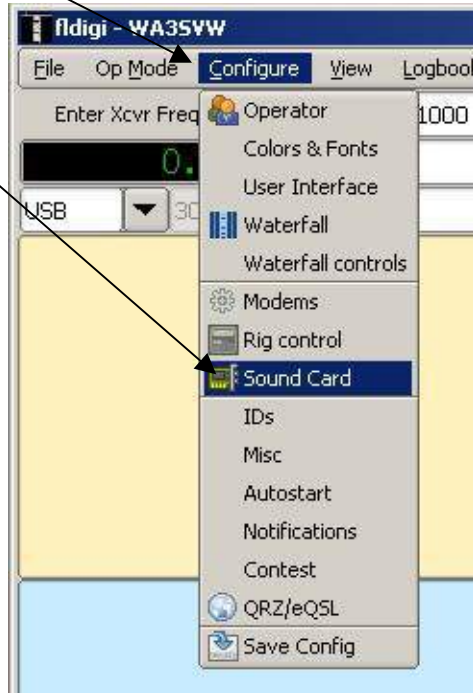
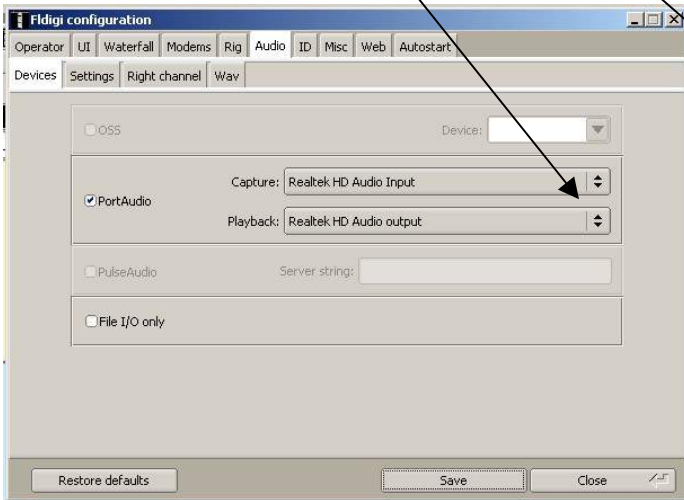


4. Click On **Save**, Then **Close**

B. Setting Up FLDIGI With Your Sound Interface: →

1. Click, along the Top Menu on **Configure**
2. Click On **Sound Card** From Drop down Menu
3. Select **Port Audio**, Click On Double Arrow To Reveal List Of Available Devices.

NOTE: Without A Properly Selected Sound Device, There Will Be No Waveform In The Display Area. (Indicated By Black)
 You Must Select An Operating Mic Input, Internal, External, Or USB Sound Device, To Produce An *Active* Waterfall.
Make Sure Your Device Is Connected, And Active, Before Performing These Steps.



Note: Be Sure To Select A Device For **Both Capture** (Input), And **Playback** (Output), For Example, A Microphone, And Speaker (Either Built In, Or Plug In)

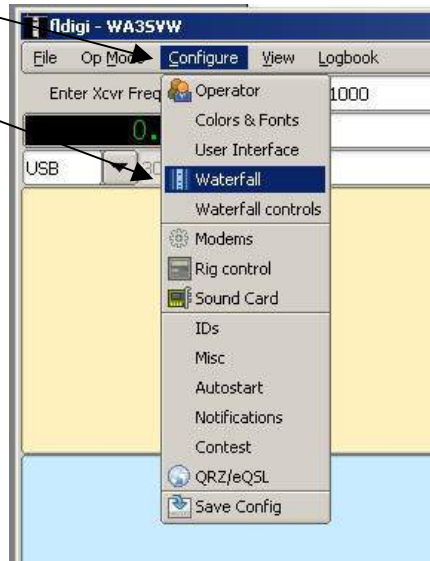
4. Again, Click **Save**, And Then **Close**. You Should See A Trace In The Display Area. If You Have Selected A Direct **Capture** Interface With Your Radio (Like Signalink), Be Sure The Radio Is On, And Connected. The Display Should Be Producing A Waveform That Depicts An Unsquelched Signal, If You Have A Microphone Connected (Internal Or External), The Display Should Produce A Waveform Produced By The Ambient Noise In The Room (Area). The Playback Interface Will Be Connected To Either The PC Speakers, Thus Producing Tones When You Go To The “Tune” Or “Transmit” Modes, Or Place Your Radio In Transmit, If The Device Is Properly Connected. Be Cautious About Placing Activating The “Transmit” Mode To Avoid RF Interference, Or Create An RF Hazardous Situation.

C. Configuring The Display Area:

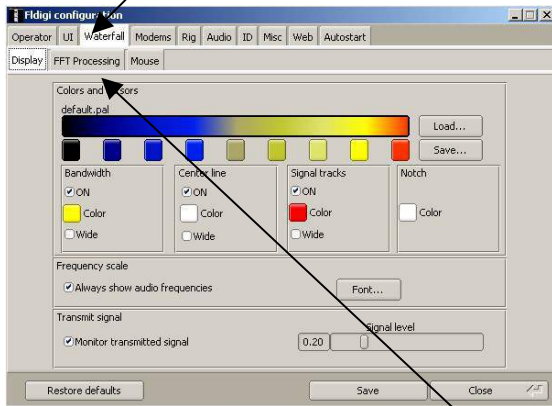
The FLDIGI Display Area Is Where You Observe The “Waterfall”, And Other Graphic Information. It Can Be Customized To Personal Preferences.

1. Click On **Configure** From The FLDIGI Top Menu

2. Click On **Waterfall**, On The Drop Down Menu. A Configuration Screen Is Displayed:

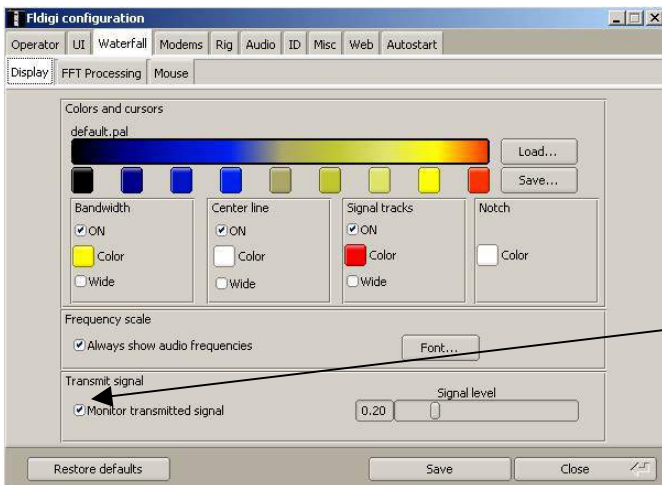


The Waterfall Tab Is Activated



This Allows Access To The Three Control Tabs, For The Waterfall (Display Area)¹ Display, FFT (Fast Fourier Transform Filter), And Mouse.

We Shall Concern Ourselves With Just The First Two Tabs (Display & FFT), At This Time.



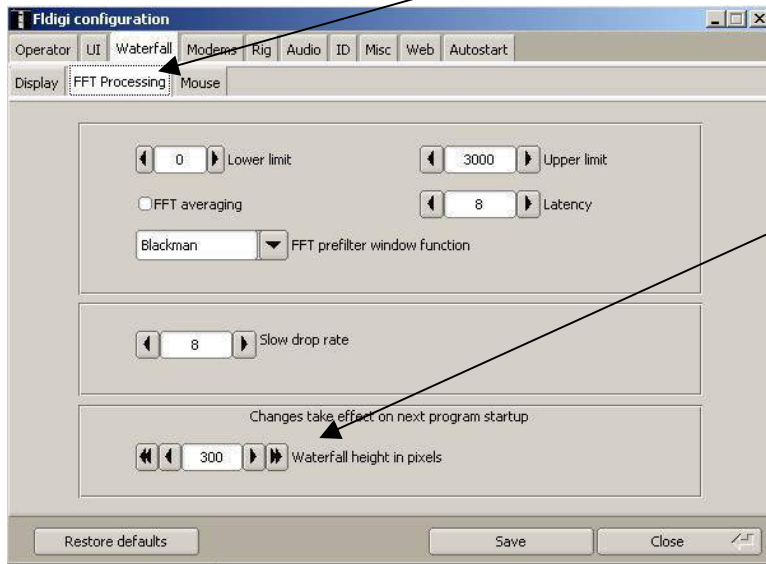
The Display Tab Allows You To Choose What Colors Indicate Different Signal Energy Levels (Black For Very Low, Blue & Yellow for Midrange, Red For Very High) The Default Choices Work For Me, You Can Change, If You Wish.

What Is Really Important, On This Screen Is Be Sure The **Monitor transmitted signal** Box Is Checked. This Assures That The Display Will Produce A Trace During Times You Transmit, Confirming The Op Mode & Center Frequency You Planned To Use. **Very Important!**

1 – This Area Displays The Waterfall *Only* If **WF** Is Selected By The Display Mode Button (See Page 2)

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3. After Assuring The **Monitor transmitted signal** Button Is Checked, Click On The **FFT Processing** Tab.



Again, The Default Values For The Fast Fourier Filter Work Just Fine. What We Want To Concentrate On Is The **Waterfall height in pixels** Control.

The Default Value Is O.K., However, I Chose To Increase The Display Height To 300 Pixels, To Allow More Room For The Active Display. You Can See More Of The Receive And Transmitting Signals, For Easier Analogy. Set (or keep the default) To Your Preferences. *The Arrow Controls Work The Same As The Center Frequency Buttons On Page 2, Except Instead Of Hz, The Units Are Pixels.*

4. Click **Save** And Then **Close** (if You Made Any Changes To The Default Values) Otherwise Click Just **Close**.

There Is No Need To Click On The **Mouse** Tab, Unless You Want To Play With The FLDIGI Mouse Function Menu. Mouse Function Menu Items Are Not Part Of This Course.

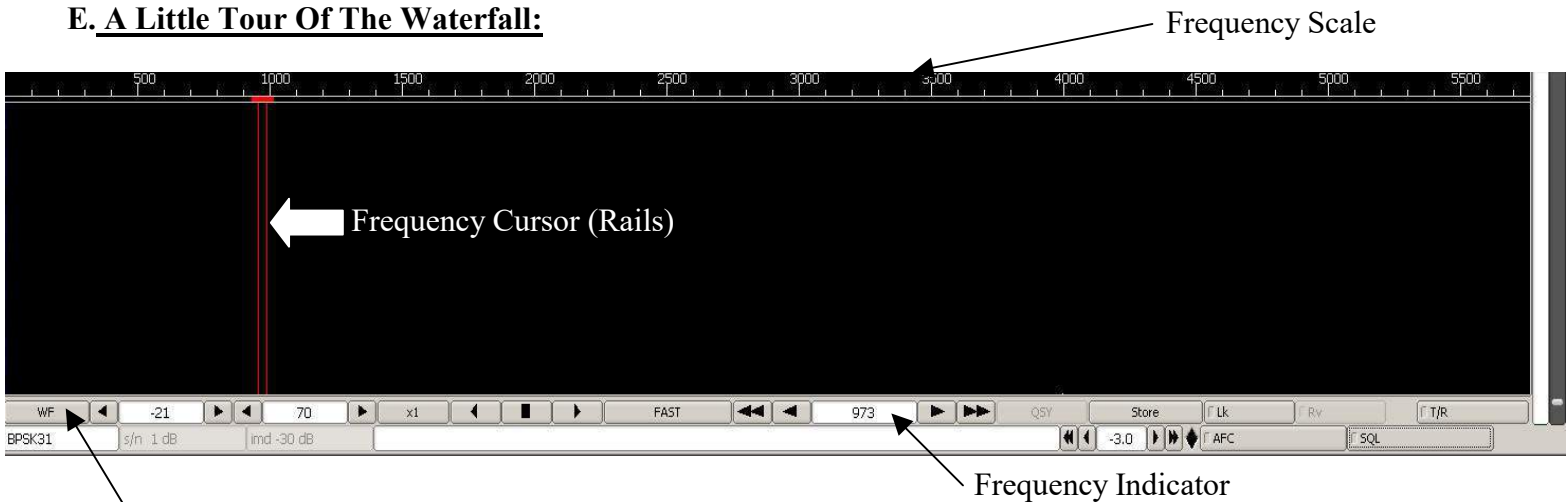
D. Final Words On Setup:

It Is Advised To *Disable* (Grey Out) The AFC Function On The Display, So FLDIGI Doesn't Try To Override Your Center Frequency Setting. Simply Click On The **AFC** Button (See Page 2), To Grey It Out.

It Is Also Advised To *Disable* The Digital **Squelch** Function Button (See Page 2) So You Don't Miss Any Data That's Transmitted, By Having The Squelch Control Set Too high (Also See Page 2, For Location).

Note: *With The Squelch Disabled, The Receive Screen May Fill Up With "Garbage" If There Is No Signal Present, Because Of Radio (Audio Interface), Or Ambient Room (Acoustic Coupling) Noise. This Is Normal, And Does Not Affect An Incoming Signal, Once Transmission Has Started, And You Are Properly Receiving, And Decoding, The Signal.*

E. A Little Tour Of The Waterfall:



Make Sure WF Is Selected Here

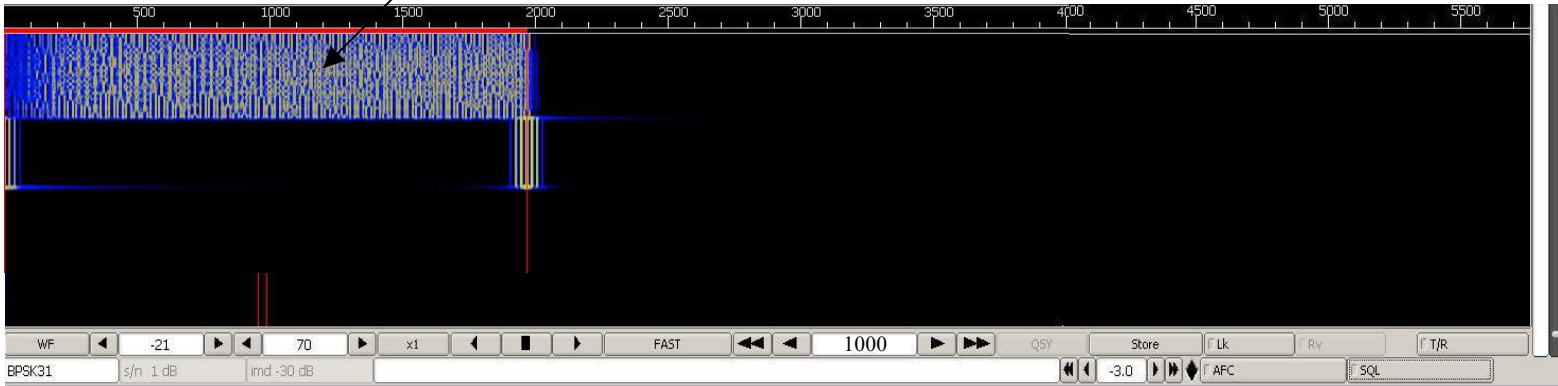
This Is My Preferred Setup For Displaying The Waterfall. If Your PC Monitor Is Large Enough, Frequencies Up To 5500Hz + Can Be Represented. The **Frequency Scale** Is Visible, Just Above The Display Area. Within The Waterfall display (Active Or Inactive) There Is A Red Cursor (Rails) Indicator, For Setting The Receiving & **Transmitting** Center Frequency For The Current Operational Mode Of FLDIGI. The “Rails” Mark The Lower And Upper Limits Of The Current Mode Bandwidth. The Display Sample Above, Represents A BPSK31 (PSK31) Mode, With Very Narrow Bandwidth. Other Modes Have A Cursor Display That Is much Wider. To Set Your Current Center Frequency, Place Your Mouse Pointer (Arrow) Anywhere On The Active Waterfall Area, This Will Generate A Yellowish “Floating” Cursor. Move Your mouse To Place The Cursor To The Center Frequency You Desire, Or Close To It, And *Left* Click. FLDIGI Places The Red cursor At That Point, Indicating The Operating (Receive/Transmit) Frequency. If You Have Not Placed The Cursor On The Desired Exact Frequency, You Can Use The Trim Controls To Adjust The Cursor So It Is Precisely Where You Want It. Moving Your Mouse Pointer Off Of The Waterfall Removes The “Ghost” Cursor. You May Also Type The Frequency You Desire (In Hz), Directly Into The **Frequency Indicator** Window, Between The Arrow Sets.

Notice The Above Example Has The Frequency Set To 973Hz. Clicking On The Single Right Facing Arrow 7 Times, Will “Bump” It Up To 1000Hz (See Detailed Description Of This Function On Page 2).

Let’s Take A Look At An *Active* Waterfall (Next Page)...

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Audio Energy From ~ 0 To Just Below 2000Hz. Black To Blue: Low Level
Blue To Yellow: Medium Level Yellow To Red: High Level



The Waterfall Display Is A Virtual Audio Spectrum Analyzer, With The Vertical Axis (Top To Bottom) Displaying Time (Not Scaled), The Horizontal Axis Is Frequency (Scaled In Hz), And The Z Axis (Intensity) Is The Amplitude (Not Scaled, Except for Arbitrary Colors).

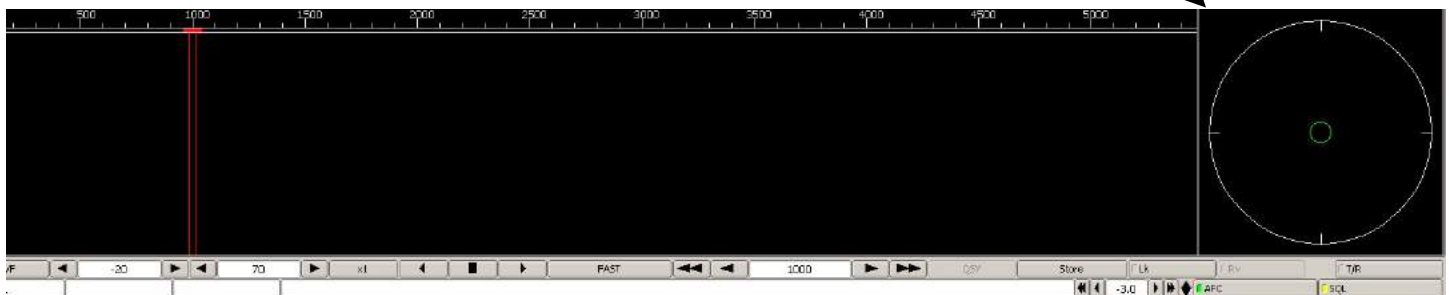
There Are A Total Of *Three* Display Modes, Controlled By The Lower Most Left Button:

1. **“WF”** (WaterFall), (The Current Display Function Choice)
2. **“FFT”** (Fast Fourier Transform Filter) Which Displays The Audio Energy Much Like A Standard Spectrum Analyzer. The Horizontal Axis Depicting Frequency (Like The Waterfall), But The Vertical Axis Is Now Amplitude.
3. **“Signal”** Displays The Waveform Of The Audio Energy, Much Like A Standard Oscilloscope Trace.

Feel Free To Experiment With These Modes, And Find Your Preferences. Different Modes Are Useful, Depending On What Op Mode You Are In, At The Time.

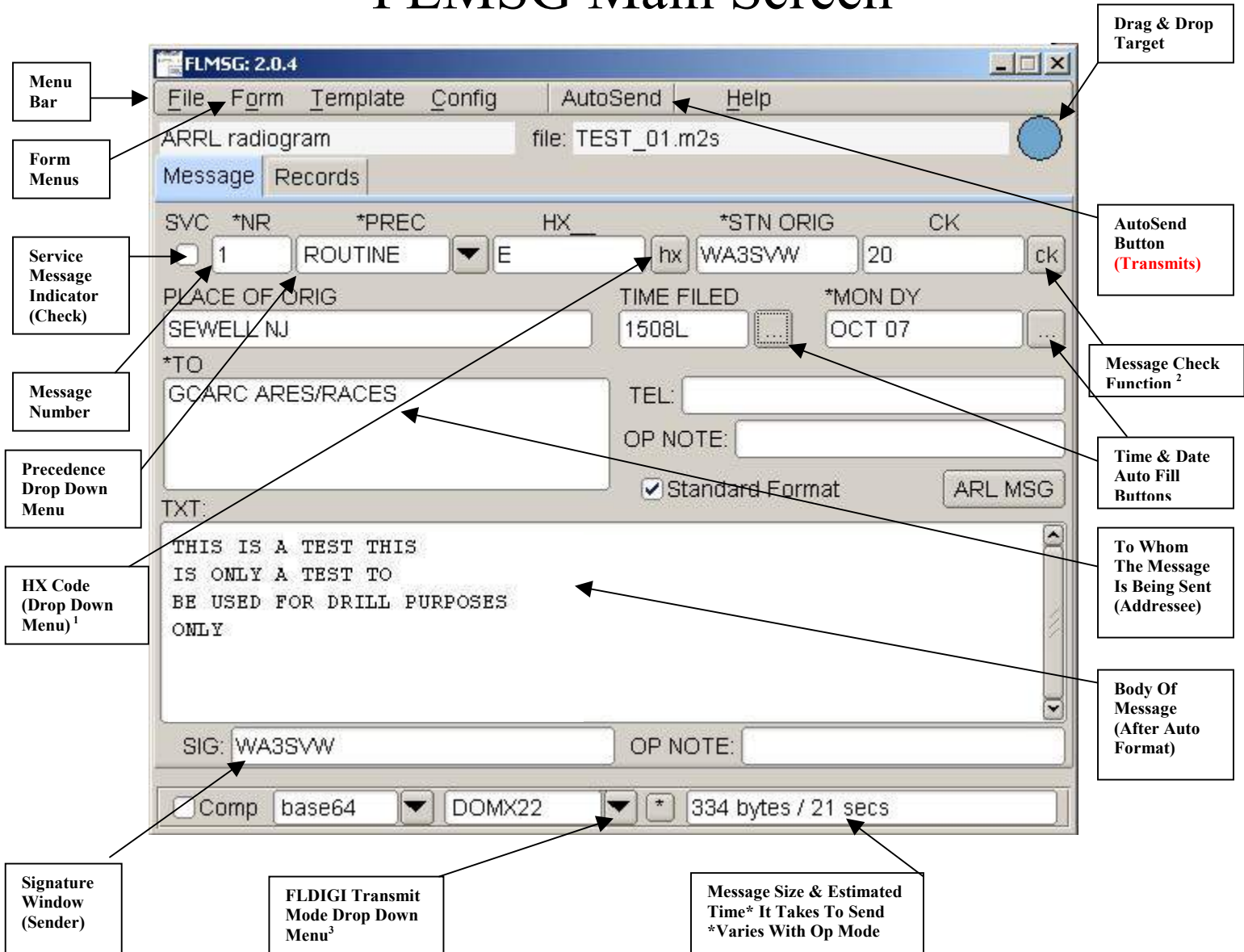
Selecting **View** From The Top Menu, Then **Waterfall**, Then Checking **Docked Scope**, Places A Virtual Waveform Monitor On The Far Right side Of The Waterfall Display Area. You May Find It Useful For Some Of The FIDIGI Modes, As Well.

The Scope Functions Come & Go With The Changing Of Op Modes. If You Don't Like It, Repeat The Previous Steps & Uncheck It.



F. Introduction To FL Message (FLMSG) Main Screen:
 (For FLMSG To Open When An FLMSG File Is Received, See FLMSG Auto Handout Sheet)

FLMSG Main Screen



¹Click On **hx** Button, Read List, Manually Enter Appropriate Code Letter

²Clicking On **ck** Button Auto Counts The Words, And Formats The Text (Five Words On Each Line, Etc.)

³Clicking On This Arrow Displays A List Of Available FLDIGI Op Modes

Choosing An Op Mode, Auto Sets FLDIGI To Same Mode!