

# FT-5D Programmer Help

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# FT-5D Programmer Help

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*by RT Systems, Inc.*

*The Programmer is designed to give you the ease and convenience of programming the memories and options of the radio from your PC or your Mac*

*Using the Programmer, you can create separate files for unique applications such as travel, emergency activities, or special events. These files can contain different settings, such as memories, power management features, and DTMF numbers, for each purpose.*

*The Programmer also gives you the ability to read a configuration from the radio, make changes and then with minimal button pushing, send the altered file back to the radio.*

*Some features presented in this Help file are only in the Windows version of the programmer. We are working to build everything into the Mac version but that will take a while.*

*Since the basics (and then some) are working, we wanted you to have the ease of programming your radio without having to pull out that old PC you keep around just for this.*

*Other information such as how options work and how they are set are the same in both versions of the programmer. For the sake of all that information, I offer this Help file.*

## **FT-5D Programmer Help**

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# Foreword

*These help files are offered as reference for the features of the programmer and with some added information about the features and functionality of the radio.*

*The final reference for a feature of the radio is the Users' Manual for that radio. Any error, omission or misrepresentation of a radio's ability is unintentional.*

*The Programmer cannot make the radio do anything that it cannot do from the face of the unit. It makes it easier to set options for the existing functions.*

**Part**



# 1 What Is the Radio Programmer

The Programmer is designed to give you the ease and convenience of programming the memories and options of the radio from your PC. It is not meant to replace your ability to dial to a frequency, find the proper offset and turn on a tone from the face of the radio: you may have to do that in the field at some point. The Programmer eliminates the need to do all that setup by hand for the 500 or more memory channels you want in the radio.

Using the Programmer, you can create separate files for unique applications such as travel, emergency activities, or special events. These files can contain different settings, such as memories, power management features, and DTMF numbers, for each purpose.

Programming files are saved separately to be sent to the radio at any time. When a file is sent to the radio (Communications | Send Data To Radio), it totally replaces what is in the radio. Be sure to put everything into each file as you build it: even if you repeat things in every file.

The Programmer also gives you the ability to copy (Communications | Get Data From Radio) the current configuration of the radio. The configuration would be stored in a file on your computer to be changed easily. Then, with minimal button pushing, you can send the altered file back to the radio.

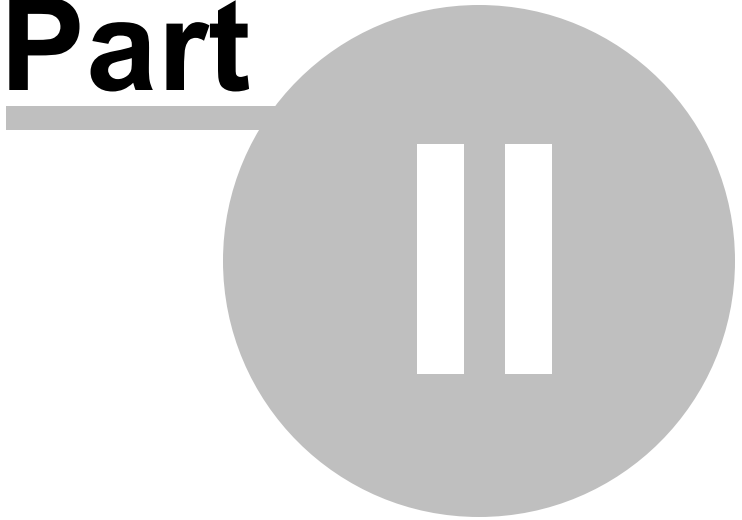
## Hardware Requirements

Hardware requirements for the *RT Systems* Programmers include:

- A PC running Microsoft Windows: Windows 7 (32 or 64 bit), Windows 8/8.1 (full version) and Windows 10. The Programmer will NOT work on Windows 98, ME, NT or 2000. Use of the Programmers on Windows Vista and XP (SP3) is no longer supported although they will work if the operating system is up-to-date.
- Some of the Programmers now are available for MacOS. Check specifics for operating system requirements on the site. Check for availability on your particular radio model on our website.
- The correct RT Systems computer interface cable as shown on our web site ([www.rtsystemsinc.com](http://www.rtsystemsinc.com)) for your particular radio model.

***Note: The RT Systems Programmers (Version 4 or higher) will not recognize any other cable or USB adapter. They do not work through a serial port.***

**Part**



## 2 Getting Started

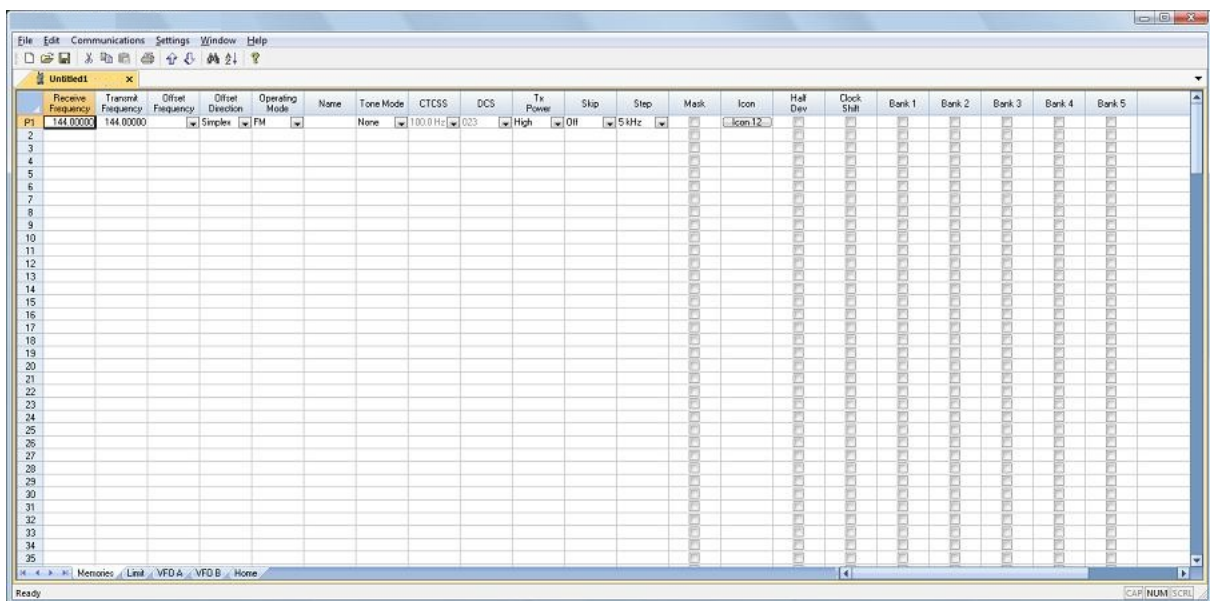
These are the basics for Getting Started with the RT Systems Radio Programmer software. The details presented here are in generalities and while the Programmer for your radio will work in a similar manner, the details may vary for your particular model as all radios are unique.

This section is presented as an overview for use of the Programmer rather than specifics for one particular radio. Those details are covered in other parts of the Help file.

### Creating the file

The Programmer gives you an easy way to access details for memory channels and other settings of the radio.

Open the Programmer by clicking on the icon that was created during installation. The Programmer opens to a default file.



**Note:** The default file contains information on several of the screens (Memories, VFO, Limit, Home, etc. as applies to your particular model). This information is needed by the radio to "fill spaces in its little brain". You can change the default entries that you see; but anything that is completed in the default file cannot be left blank.

***The Programmer will help you be sure your file is complete. If required information is missing, you will be warned of the omission when you try to use the file to program the radio. Simply complete the missing information, save the file and try again to use it to program your radio.***

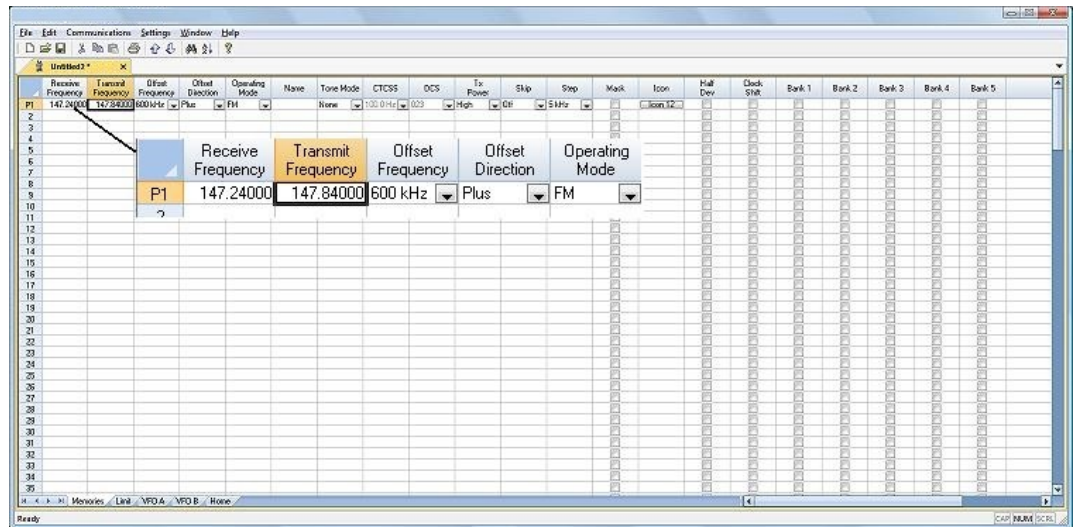
Enter a receive frequency

	Receive Frequency	F
P1	144.00000	
2		
3		
4		
5		

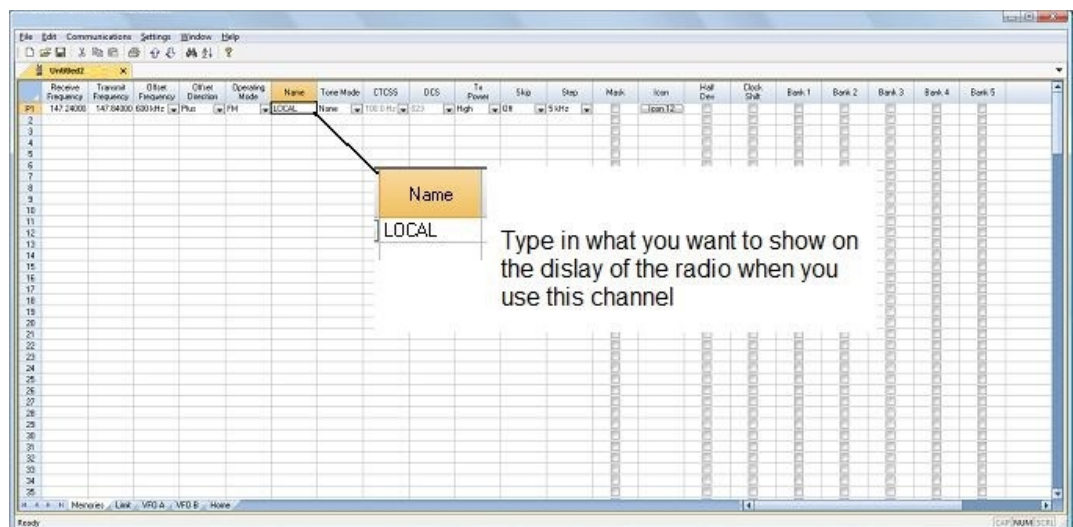
No need to erase.  
Just click in the cell and type

In this example we'll enter 147.240 MHz with standard offset, a Name of Local, and a tone of 100hz.

- Type one four seven period two four zero into the receive frequency column.
- Press Enter.
- The program completes much of the channel information with defaults. Transmit frequency, Offset frequency, Offset Direction and Operating Mode are completed based on a US band plan for the receive frequency. You are in complete control. Make changes to any of this data as needed for your operations.

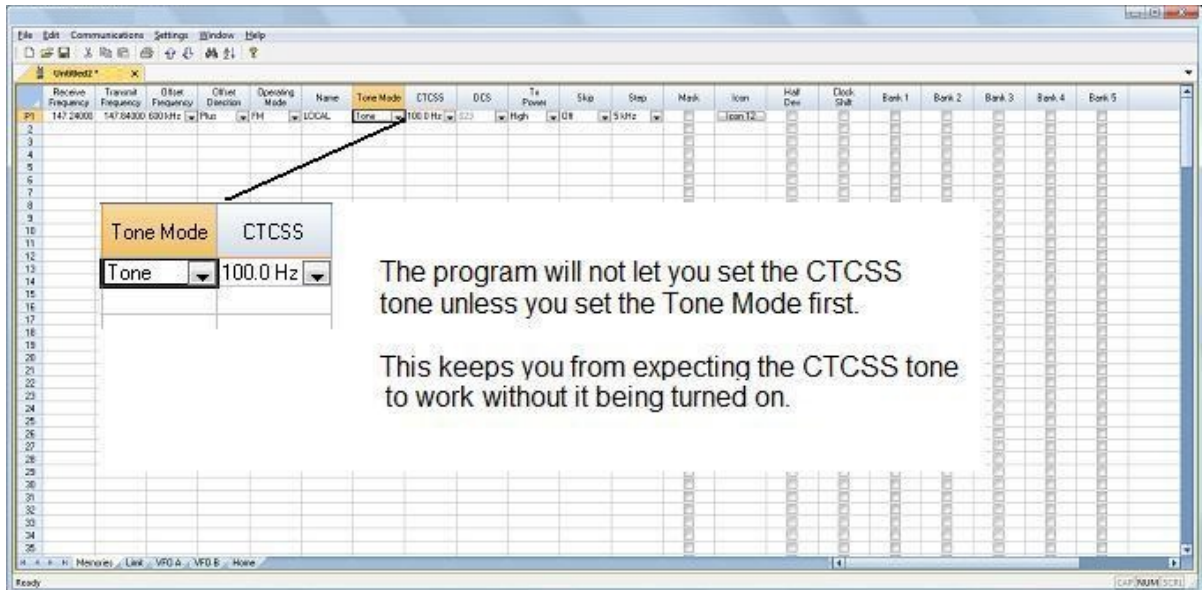


- Press tab or use your mouse to select the Name cell. Type LOCAL. You choose upper or lower case on many radios. On others, only upper case letters are allowed. The Programmer will help you. If a letter or symbol will not work on the radio, you will not be able to enter it here.



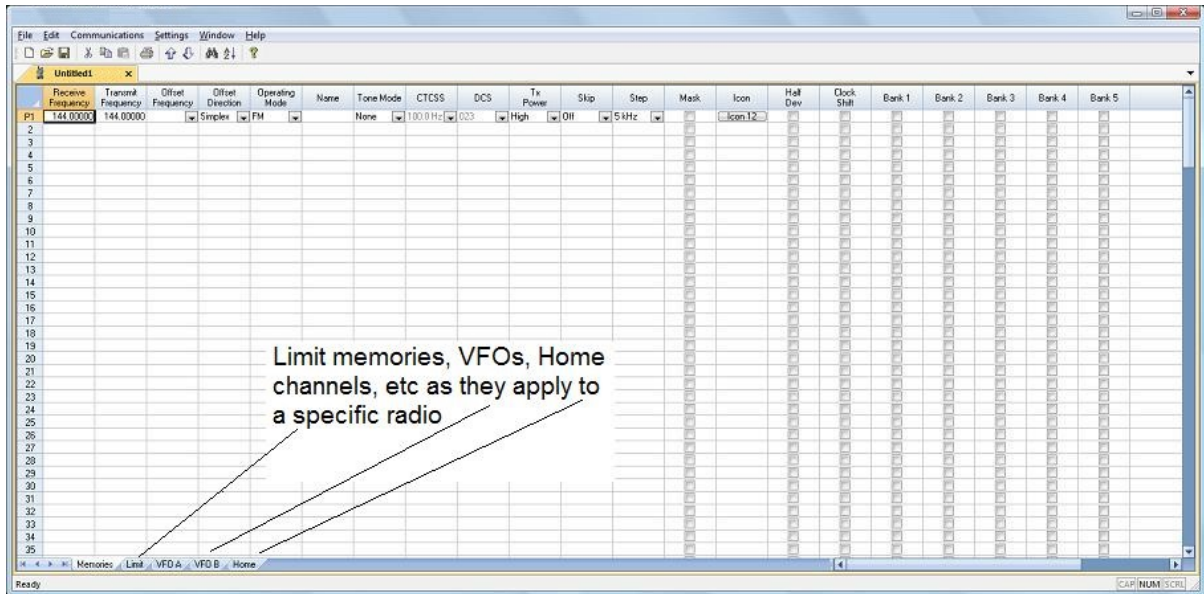
- Press tab to move to the Tone Mode cell. Setting up the tone of 100hz requires TWO steps (just as it would if you were doing this from the face of the radio). Turn on Tone Mode AND then set the 100hz CTCSS tone.





- This channel is ready to use.
- The other columns are set only if you need them for better radio performance. See Regular Memory Channels in this Help and the User's Manual for the radio for details on what these features do and the settings for them.

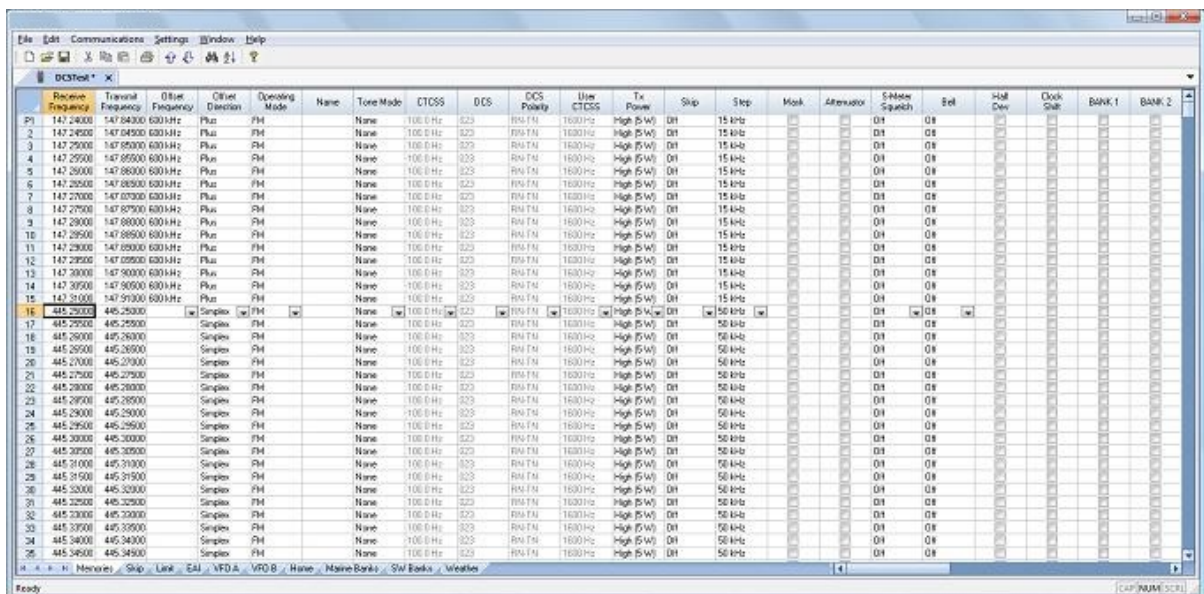
There is more to this radio than just memory channels. So, there is more to the Programmer. Tabs at the bottom of the main screen give you access to Regular Memories, Skip Memories, Limit Memories, VFO, Home, Marine, SW Memories, and Weather Memories, that apply to your radio.



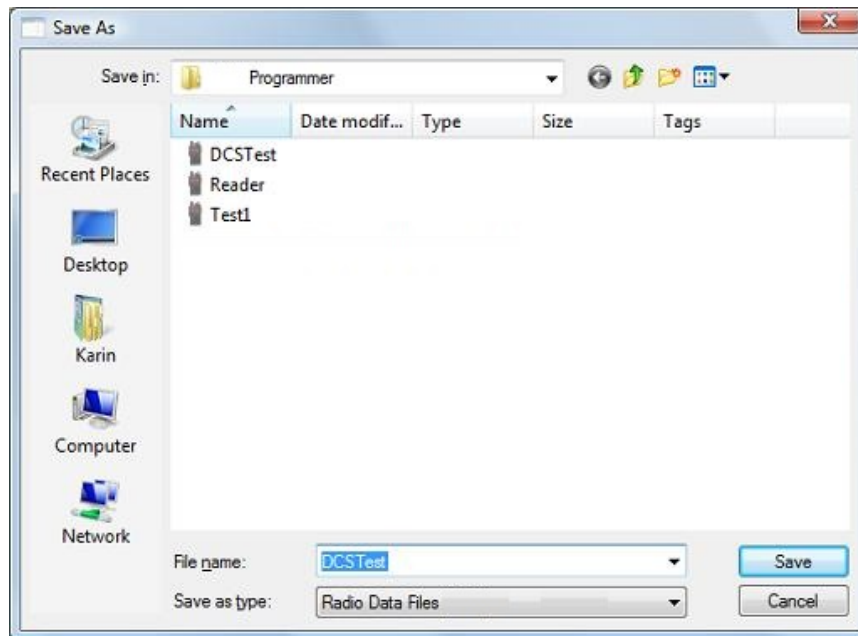
Click a tab. A screen opens with the details that can be entered for these radio functions. You can work with the radio without ever using these tabs. There are default values on these screens that never need to be changed. Make changes for your special activities when you plan to use one of these functions of the radio.

## Save the file

Now that you have the frequencies entered into the memory channels, Save the file.



In the menu, click File | Save As.



Enter a filename. You can be as descriptive as you want. 256 characters including spaces, upper and lower letters, and much more to describe this file. The Programmer will enter the extension so it can find the file later.

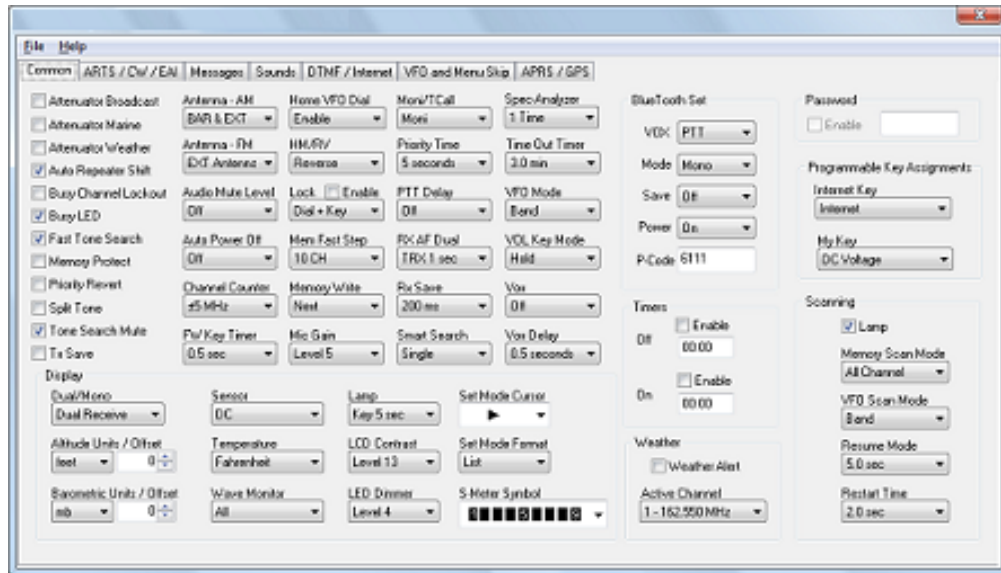
Once you complete this part of the process, the program will open the last file when it starts up.

## Even More Radio Functions

Today's radios can do so much. Many of the features are not a part of the details for a memory channel. These other options are set once for the radio to use no matter what channel you're operating on: Regular Memory channel, Limit Memory, VFO or Home channel.

These options may include, but are not limited to, Lock mode, Display Brightness and Font Color, DTMF memories, Scan Resume options, and many others.

Select Settings | Radio Menu settings from the menu at the top of the main screen to access these options. The Settings screen opens to a page with check boxes, list boxes and edit field. A sample Settings screen would look like this:



Set the options as you need them to get the performance you want from your radio. The settings shown for your radio will correspond to your radio's features.

Once you have the options like you want it, save this file. Yes, this is saved separately from the frequencies in the memory channels.

To save the file, select File | Save from the menu on the Settings page. Enter a name when the window opens. You will not have to set these options again when you start a new file of memory channels.

Once the file is saved, select File | Exit to return to the main screen of the Programmer.

## Sending the file(s) to the radio (programming the radio)

The *RT Systems'* Programmers (version 4 and higher) have no com port setup. Using the *RT Systems'* USB cable, you attach the cable, attach the radio, and get the programming done.

### First: Communications | Get Data From

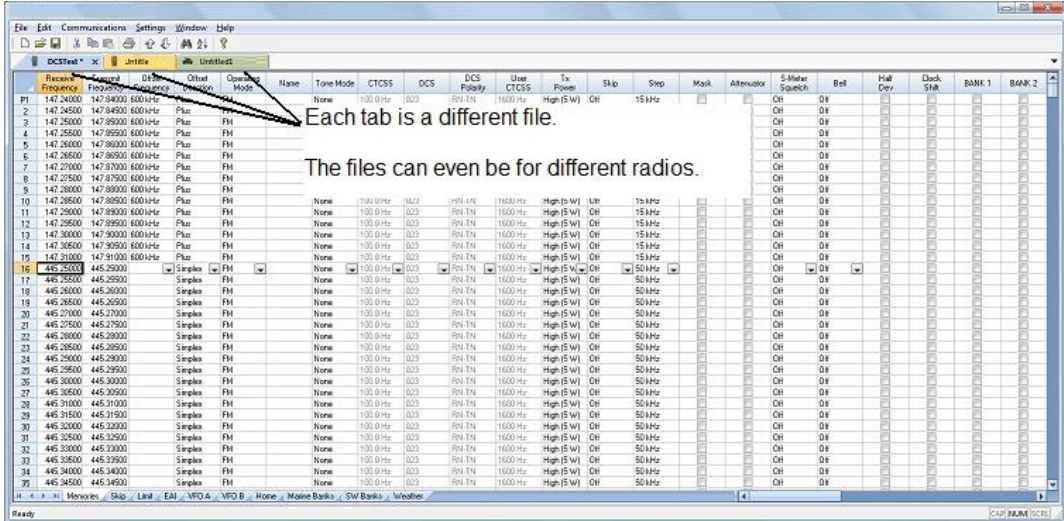
Although you really want to put the details of your file into your new radio so you can use it, doing Get data from with this new radio gets the process started and may help prevent problems sending the file to the radio.

***This process is REQUIRED if your radio has been modified to transmit outside the ham band.***

- From the menu at the top of the main window, select File | New. Open a new file to protect the file that you created.
- Connect the *RT Systems* USB cable to a port on your computer. Wait until the New Hardware Found process completes.
- With the radio off, connect the other end of the cable to the radio.
- From the menu at the top of the main window, select Communications | Get Data From.

***A screen will open with details about this process specific to your radio.***

- Follow these steps carefully until this process is complete.
- Open the file that you created earlier. To open a file select File | Open from the menu at the top. Select your file from those in the list. Or your file may already be open in the other tab.



Each tab is a different file.

The files can even be for different radios.

Recall	Frequency	Offset	Offset	Offset	Name	Tone Mode	CTCSS	DCS	DCS	Use	Tx	Skip	Step	Mask	Attenuator	S-Meter	Bell	Half	Clock	BANK 1	BANK 2
1	147.24000	147.84000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
2	147.24500	147.84500	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
3	147.25000	147.85000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
4	147.25500	147.85500	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
5	147.26000	147.86000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
6	147.26500	147.86500	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
7	147.27000	147.87000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
8	147.27500	147.87500	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
9	147.28000	147.88000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
10	147.28500	147.88500	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
11	147.29000	147.89000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
12	147.29500	147.89500	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
13	147.30000	147.90000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
14	147.30500	147.90500	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
15	147.31000	147.91000	600 Hz	Plus	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	15 Hz			OH	Off				
16	445.25000	445.25000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
17	445.25500	445.25500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
18	445.26000	445.26000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
19	445.26500	445.26500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
20	445.27000	445.27000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
21	445.27500	445.27500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
22	445.28000	445.28000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
23	445.28500	445.28500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
24	445.29000	445.29000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
25	445.29500	445.29500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
26	445.30000	445.30000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
27	445.30500	445.30500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
28	445.31000	445.31000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
29	445.31500	445.31500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
30	445.32000	445.32000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
31	445.32500	445.32500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
32	445.33000	445.33000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
33	445.33500	445.33500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
34	445.34000	445.34000		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				
35	445.34500	445.34500		Simplex	FM	None	100.0 Hz	0023	REL TN	16600 Hz	High (5 W)	Off	50 Hz			OH	Off				

## Second: Communications | Send Data To

- When your file is ready, select Communications | Send Data To from the menu at the top of the main screen.

***A screen will open with details about this process specific to the radio.***

- Follow the steps carefully to complete this process and program the radio. Read the screen carefully. The steps are often different from those used to get data from the radio.
- Turn off the power. Disconnect the programming cable from the radio.

***Your radio may still be in VFO mode after it is programmed. This is a normal mode for the radio. Press the key on the face of the radio as described in the User's Manual for the radio to put the radio into Memory mode and see what you programmed.***

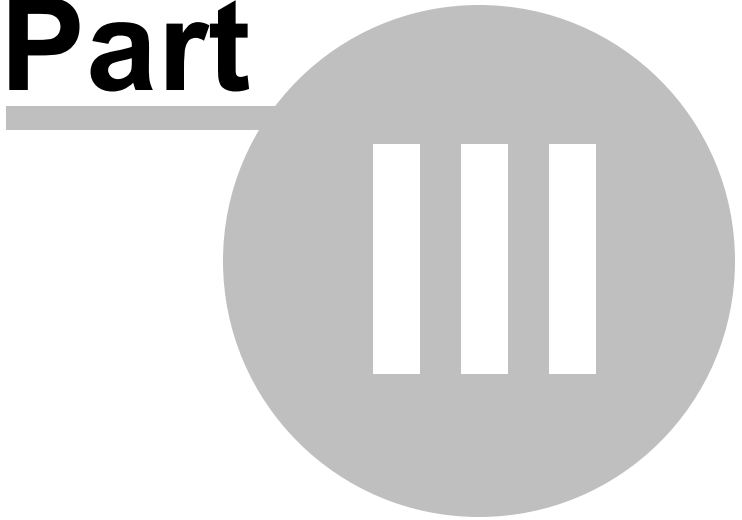
## Hardware Requirements

Hardware requirements for the *RT Systems* Programmers include:

- A PC running Microsoft Windows: Windows 7 (32 or 64 bit), Windows 8/8.1 (full version) and Windows 10. The Programmer will NOT work on Windows 98, ME, NT or 2000. Use of the Programmers on Windows Vista and XP (SP3) is no longer supported although they will work if the operating system is up-to-date.
- Some of the Programmers now are available for MacOS Mavericks (10.9 or higher, 64 bit). Check for availability on your particular radio model on our website.
- The correct RT Systems computer interface cable as shown on our web site ([www.rtsystemsinc.com](http://www.rtsystemsinc.com)) for your particular radio model.

***Note: The RT Systems Programmers (Version 4 or higher) will not recognize any other cable or USB adapter. They do not work through a serial port.***

**Part**



## 3 Using the Programmer - Overview

The Programmer is designed to be used in conjunction with the manual for the radio. The Programmer provides easy feature configuration while the written manual provides an explanation of a feature and its use.

### Working with Programming Files

The radio Programmer has the ability to work on more than one file at a time. These can be files for the same radio or for different radios: even radios from different manufacturers.

You can copy and paste frequencies from one file to another. This added feature makes it even easier to create new files as you take pre-programmed memory information from other files.

The name of the file currently being edited is shown in the title bar at the top of the window. If the file has not yet been named, "Untitled #" appears. The "#" increments when multiple new files are being worked on. ***Note: Untitled #, the default filename, should not be used for permanent file storage. Even if you work in this file, be sure to enter a different filename when you save.*** The file being edited is referred to in this help as the current file.

### Creating a New Programming File

Just like in any other editor, there are several ways to create a new cloning file.

- You can open an existing file, save it with a different filename.
- You can use the File | New command as a starting point for a new "blank" file. This file begins with default information for the radio. The "default" information you see in the file is the same as what was in your radio when you bought it new.
- Another way to create a data file is to upload the contents of the radio with the Communications | Get Data From menu command. After executing this command, the current file will reflect the memory channels and feature settings of the radio. Changes are easily made to these settings and the new file saved.



***Note: Not all the menu settings of the radio are associated with memory channels. Many are "global" settings that affect the radio during memory or VFO operations. These settings are handled in the fields found on the screen accessed under Settings | Radio Menu Settings.***

The global settings will be read from the radio; however, by default, these settings are not saved with the file. Select Settings | Radio Menu Settings to view, change and save these settings. Once saved, these global settings will be sent to the radio every time it is programmed. If they are not saved, default settings will be sent to the radio with the memory programming.

### **To save these Global settings**

- Select Settings | Radio Menu Settings in the menu on the main screen. The Settings screen opens.
- Verify that your settings are as you want them or make changes.
- From the top of this screen, select File | Save. A Save dialog opens into which you enter a filename. Enter the name for this file and click Save.
- Exit the Settings screen by selecting File | Exit.

This settings file is now available for use by any saved file that you send to your radio.

## **Creating and using multiple Global settings files**

There may be global settings of the radio that you want configured differently for different activities. You can make changes to your settings file and save it separately.

To select a settings file for use:

- Select Settings | Radio Menu Settings from the main page of the Programmer.
- From the Radio Menu Settings screen, select File | Open. A list of settings files will be presented.
- Select the file you want to use and click Open.
- Verify that this is the settings file that you want to use. Check also that the proper filename appears in the bar at the top of the Menu Settings window.

- Select File | Exit to close this screen. These settings will be sent to the radio with each memory channel file until you change this file selection again.

Having multiple memory channel files and multiple global setting files gives you the ability to mix and match the features of your radio to suit your needs. This makes it easy to customize the radio for a special event without disturbing the original programming files. Then once the event is over, simply reprogram the radio with the memory channel information and settings that you use everyday.

## Tying Global Settings to a Memory Channel File

The RT Systems Programmers have the option of saving the global settings with the memory channel information. This new feature is not the default for the Programmer; but may be valuable under certain programming circumstances (i.e., programming many radios when you want to be absolutely certain that the settings and the frequencies are properly set for a given activity).

To contrast and compare the two Radio Menu Setting options:

- Use Separate file for menu settings (default)

This is the default for the Programmer.

This option is based on a "Set and Forget" plan. Once the global settings are configured to your liking and saved, you do not have to repeat this process. This configuration does not change with a new memory channel file.

The last settings file saved is the one that will be used when a memory file is sent to the radio.

You can save several different settings files (i.e., one for your radio and a different one for your son's radio). Then easily match the settings to the radio being programmed without having to make changes in the file repeatedly.

- Keep menu settings and frequencies in a single file. (option)

This option is set on the Settings | Preferences screen.

With this option selected, the Radio Menu Settings as assigned on the Settings | Radio Menu Settings screen are assigned ONLY in this file.

With each new file created the Radio Menu Settings return to factory defaults.

---

You have the ability to customize the global settings just as you customize the memory channel file. This would be useful if you are programming each radio uniquely.

No guesswork about the configuration of the global settings. Once they are set, they stay set in this file until you make a change to them.

**Part**



## 4 Viewing and Changing Programming Files

The Programmer begins in a screen displaying memory channel information for the radio. Default information found in a factory fresh radio is contained in the file. Anywhere this information is displayed it can be changed.

Memory information is easily entered in a spreadsheet style layout. You can view, rearrange, eliminate, or edit these entries. Memory channel 1 must be programmed in most radios. VFOs and Home channels must be programmed. Memory channel 1, Limit Memory channels, VFO, and Call channels must each contain a frequency appropriate for the band. The Programmer checks for missing data when Send data to is executed.

Columns not regularly used are easily hidden with the selections under Settings | Preferences. Customize your screen for the information you use most often.

### Radio Menu Settings

Global menu settings which in earlier Programmers occupied the opening screen are now entered on a Settings screen accessed under Settings | Radio Menu Settings. Here options are set for menu settings of the radio that do not change with each memory channel. These settings affect the radio whether it is in memory mode or VFO mode.

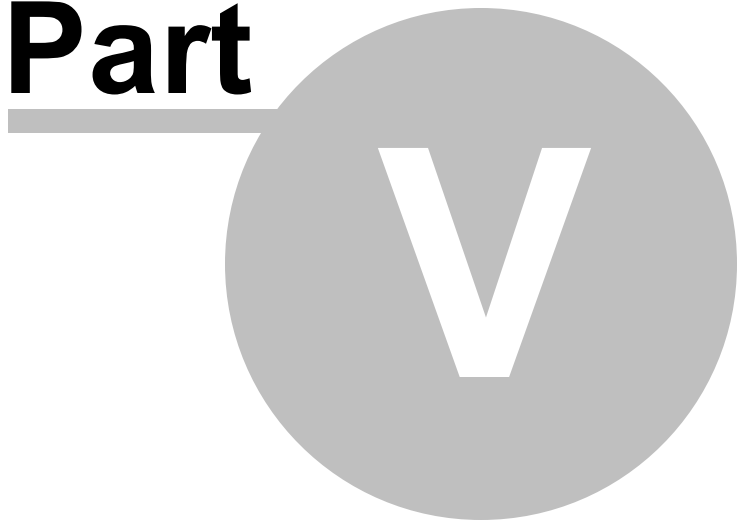
The Radio Menu Settings screens contain check boxes for single click settings and easily filled blanks for personalized options. Once configured, these Settings are saved for use by new files. There is no longer a need to reset the options in each new file or to begin a file from an existing one.

***Note: Radio Option Settings (including Lock, Beeps, etc.) are read from the radio with the Get Data From command. Be sure that settings you have customized are saved in the Programmer. Access the Settings screen and use File | Save to make the options that were taken from the radio permanent for programming the radio later. Once saved, the settings will be repeated with each new file of memory channel details.***

The Programmer has two options for these Settings. Multiple Settings files can be created just as multiple frequency files. Then you can "mix and match" as needed to program a radio for a given situation. Alternately, you can opt to save the Settings as part of an individual file.

You can find more details on these two options under [Using the Programmer - Overview](#) and ***Programming Other Set Menu Items*** in this Help. Using individual and separate settings files is the default.

**Part**



## 5 Easy Editing in the Grid

Many new data management commands are available in the programming software from *RT Systems*.

The commands listed here are available through a right click menu or from the list that opens when you select Edit from the menu at the top of the screen. These commands can be used on any of the spreadsheets in the program.

### Right Click Menu

Select a row to be edited by clicking on the number to the left of that row. You will notice that the entire row is highlighted (not just the Receive Frequency cell). Release the left mouse button. You will notice that the row remains highlighted until you left click someplace else on the screen of the Programmer.

***Note: You can select several rows at once (to copy, delete, etc.) by clicking on the number to the left of the first of the selection then while holding the left mouse button, drag the mouse across the number of each of the channels to be included. This must be a continuous group.***

With the mouse pointing at the highlighted area (anyplace as long as the point of the mouse pointer is within the highlighted area), press the right mouse button. A menu opens with editing options. Release the right mouse button once that menu opens.

Use the mouse to point at the desired command. Left click the mouse to execute that command.

### Edit Menu

Select a row to be edited by clicking on the number to the left of that row. You will notice that the entire row is highlighted (not just the Receive Frequency cell). Release the left mouse button. You will notice that the row remains highlighted until you left click someplace else on the screen of the Programmer.



**Note:** You can select several rows at once (to copy, delete, etc) by clicking on the number to the left of the first of the selection then while holding the left mouse button, drag the mouse across the number of each of the channels to be included. This must be a continuous group.

Holding neither of the mouse buttons, move the mouse pointer to Edit in the menu at the top of the screen. Press the left mouse button to select this menu option.

Holding neither of the mouse buttons, use the mouse pointer to select one of the editing options shown in the menu. Click the left mouse button to execute this command.

## Editing Commands

The examples here will use the Programmers for the Yaesu FT-60 (ADMS-1J) and the Icom IC-91 (WCS-91). You will see by the screen shots that you can copy and paste between files: even files for radios from different manufacturers. The Programmer will take care of the similarities and differences.

**Cut (Ctrl+X)** - Removes the selected entry and leaves the memory channel blank. This feature is designed to work for deletion of all the data in a memory channel rather than data in a specific column.

**Copy (Ctrl+C)** - Copies the selected data.

You can copy two different ways:

Copy **all the details** of a memory channel (one or several at once) or Copy **details within one column** (from one cell to one or many at one time)

- ***In most cases, data can be copied from one tab to another (as in left and right memories).***
- ***It can also be copied from one Programmer to another (when both programs for different radios are installed).***
- ***Data that is not appropriate for where it is to be pasted (i.e., a VHF frequency into a UHF channel) will not be pasted.***

## Copying an entire memory channel or group of channels

Shown here are details for copying within a file. The same actions apply to copy data to another tab of the file or to another Programmer.

Open the file.

The screenshot shows the FT-5D Programmer software interface. The main window displays a large table with columns for various parameters. The columns include: Row, Transmit Frequency, Transmit Power, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tune Mode, CTCSS, DCS, Skip, Step, Clock Shift, Tx Power, Tx Margin, Pager Enable, Bank 1, Bank 2, Bank 3, Bank 4, Bank 5, Bank 6, and Bank 7. Row 13 is highlighted in blue, indicating it is selected.

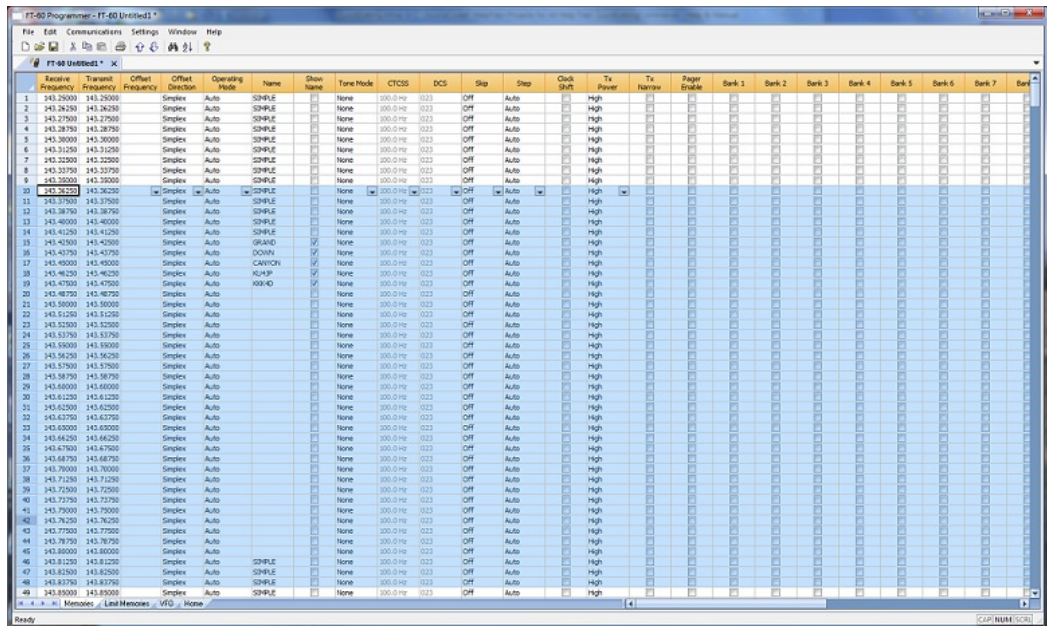
Row	Transmit Frequency	Transmit Power	Offset Frequency	Offset Direction	Operating Mode	Name	Show Name	Tune Mode	CTCSS	DCS	Skip	Step	Clock Shift	Tx Power	Tx Margin	Pager Enable	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	
1	143.25000	143.25000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
2	143.26250	143.26250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
3	143.27500	143.27500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
4	143.28750	143.28750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
5	143.30000	143.30000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
6	143.31250	143.31250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
7	143.32500	143.32500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
8	143.33750	143.33750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
9	143.35000	143.35000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
10	143.36250	143.36250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
11	143.37500	143.37500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
12	143.38750	143.38750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
13	143.40000	143.40000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
14	143.41250	143.41250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
15	143.42500	143.42500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
16	143.43750	143.43750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
17	143.45000	143.45000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
18	143.46250	143.46250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
19	143.47500	143.47500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
20	143.48750	143.48750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
21	143.50000	143.50000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
22	143.51250	143.51250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
23	143.52500	143.52500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
24	143.53750	143.53750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
25	143.55000	143.55000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
26	143.56250	143.56250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
27	143.57500	143.57500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
28	143.58750	143.58750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
29	143.60000	143.60000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
30	143.61250	143.61250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
31	143.62500	143.62500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
32	143.63750	143.63750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
33	143.65000	143.65000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
34	143.66250	143.66250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
35	143.67500	143.67500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
36	143.68750	143.68750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
37	143.70000	143.70000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
38	143.71250	143.71250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
39	143.72500	143.72500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
40	143.73750	143.73750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
41	143.75000	143.75000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
42	143.76250	143.76250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
43	143.77500	143.77500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
44	143.78750	143.78750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
45	143.80000	143.80000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
46	143.81250	143.81250			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
47	143.82500	143.82500			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
48	143.83750	143.83750			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										
49	143.85000	143.85000			Simplex	Auto	SENRLE	None	300.0 Hz	023	OFF	Auto	0	High										

Select the data to be copied.

To select an **entire row**, point your mouse at the number in the blue box at the left of the row. Click and release the left mouse to select that row. The entire row will be highlighted when it is selected.

To select **multiple rows**, point your mouse at the number in the blue box at the left of the first row to be selected. Click and hold the left mouse button as you drag the pointer over the next several channels that you want to copy. The channels must be sequential for multi channel copying. All the selected channels will be highlighted.

To select **all rows**, point your mouse at the number in the blue box at the left of the first row. Left click the mouse. Release the mouse. Press Ctrl A to select all. The entire page will be highlighted. **Note: If you have a lot of channels to select, rather than trying to select them with the mouse, simply select the first one and press Ctrl A. The copy and paste process does not care if blank channels are selected.**



### Copy Command

From the menu at the top of the screen, use your mouse to left click on Edit. From the menu that opens, use the mouse to left click on Copy.

You can also copy by pressing Ctrl C on the keyboard.

Or while pointing at the screen of the Programmer, right click and select Copy from the menu that opens.

Offset	Operating Mode	Name	Show Name	Tone Probe	CTCSS	DCS	Skip	Step	Clock Shift	Tx Power	Tx Narrow	Page Enable	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7
1	Simple Mode	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
2	Find...	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
3	Find Next	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
4	Go to Channel...	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
5	Insert Channel	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
6	Delete Channel	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
7	Clear Channel	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
8	Move Up	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
9	Move Down	idex Auto SMPLE		None	100.0 Hz	023	OFF	Auto	High										
10	Add Frequency Range...	idex Auto GRAND		None	100.0 Hz	023	OFF	Auto	High										
11	Set	idex Auto CANYON		None	100.0 Hz	023	OFF	Auto	High										
12	Undo Set	idex Auto KUSH		None	100.0 Hz	023	OFF	Auto	High										
13		idex Auto WIND		None	100.0 Hz	023	OFF	Auto	High										
14	143.48750	143.48750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
15	143.50000	143.50000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
16	143.51250	143.51250	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
17	143.52500	143.52500	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
18	143.53750	143.53750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
19	143.55000	143.55000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
20	143.56250	143.56250	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
21	143.57500	143.57500	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
22	143.58750	143.58750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
23	143.60000	143.60000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
24	143.61250	143.61250	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
25	143.62500	143.62500	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
26	143.63750	143.63750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
27	143.65000	143.65000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
28	143.66250	143.66250	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
29	143.67500	143.67500	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
30	143.68750	143.68750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
31	143.70000	143.70000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
32	143.71250	143.71250	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
33	143.72500	143.72500	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
34	143.73750	143.73750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
35	143.75000	143.75000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
36	143.76250	143.76250	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
37	143.77500	143.77500	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
38	143.78750	143.78750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
39	143.80000	143.80000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
40	143.81250	143.81250	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
41	143.82500	143.82500	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
42	143.83750	143.83750	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						
43	143.85000	143.85000	Simplex	Auto				None	100.0 Hz	023	OFF	Auto	High						

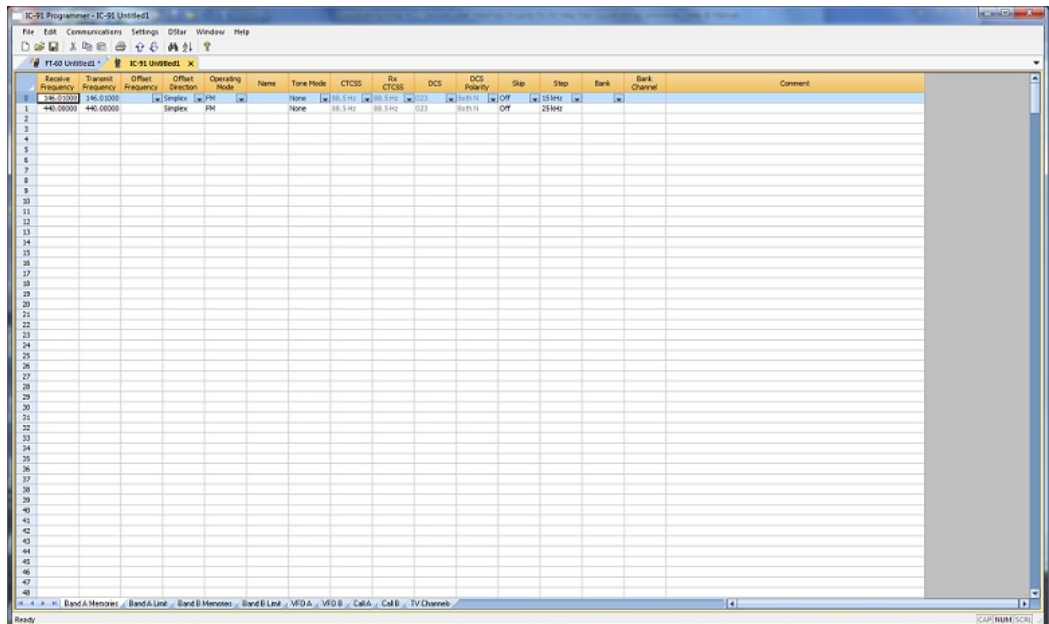
It will appear that nothing has happened. The program in conjunction with built in commands of the operating system of the computer has copied the data. It is waiting for you to Paste it where you want it.

**Paste (Ctrl+V)** - Writes the selected data to the current position of the cursor overwriting the data from that point. The Programmers have the ability to copy and paste data in a single column as well as for an entire row.

### Paste Complete Channels

Use the mouse to select the channel where you want the data to start. This can be in another file for the same radio or one for any radio for which you use an RT Systems Programmer.

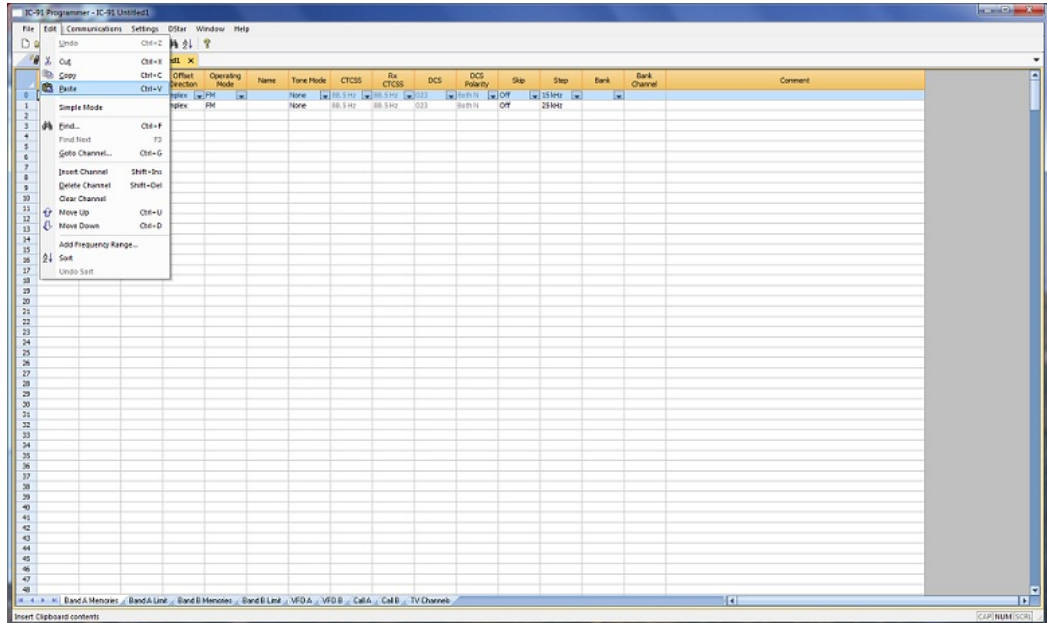
Select the row that is the **first** into which the data is to be pasted. The Paste process will begin in that location with the first copied channel and continue in each channel after that with the rest of the channels that were copied.



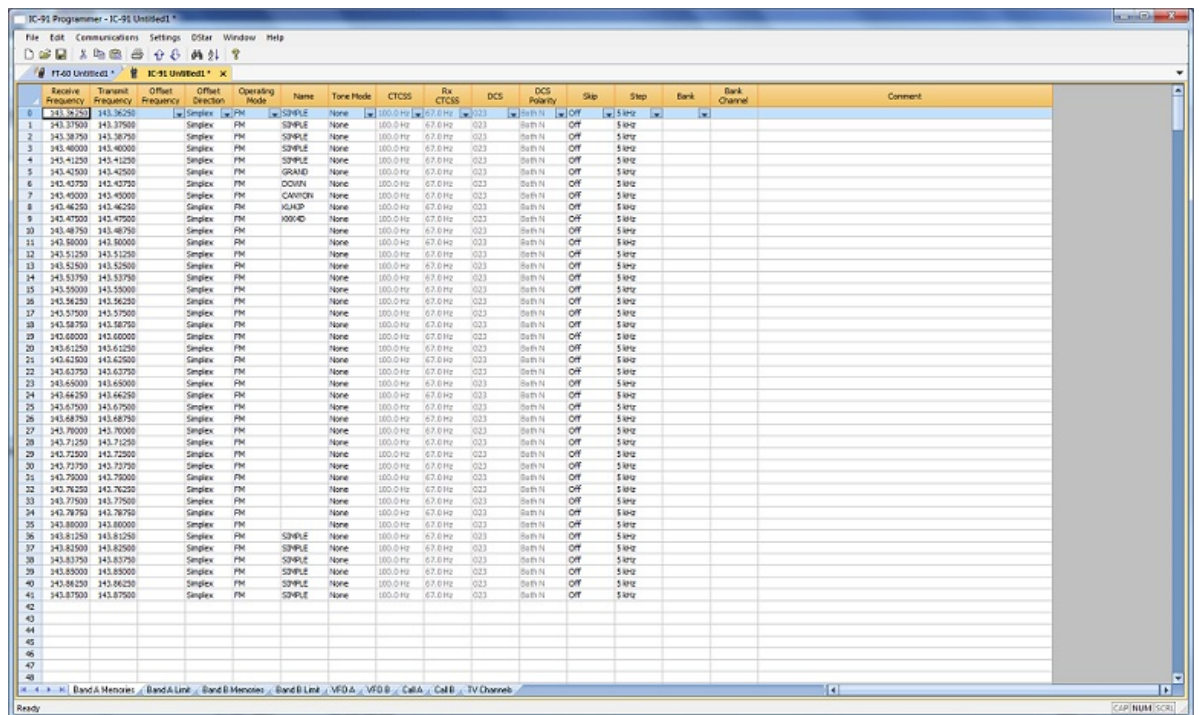
From the menu at the top of the screen, use your mouse to left click on Edit. From the menu that appears, use the mouse to left click on Paste.

You can also paste by pressing Ctrl V with the mouse pointing within the selected area (i.e., just look at where the mouse pointer is on the screen. It must be within the black area on the screen of the Programmer for this keystroke to have any effect.).

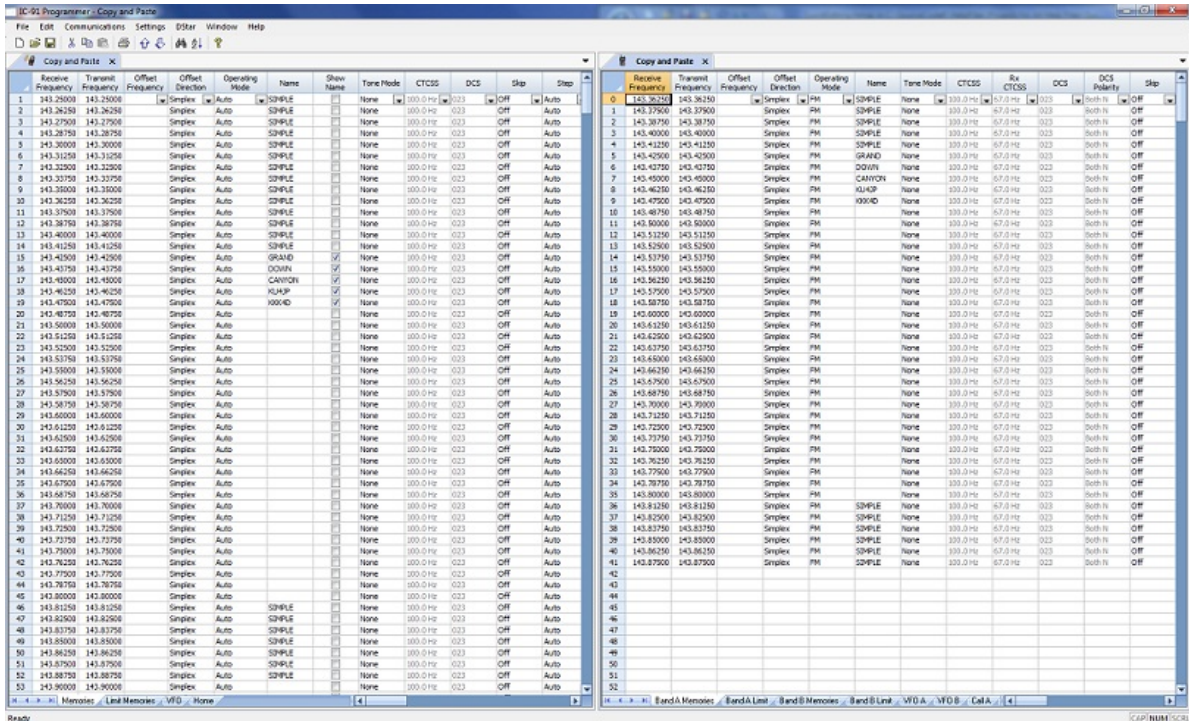
Or while pointing within the highlighted area, right click and select Paste from the menu that opens.



The information is pasted into the selected channels.



You can make this process even easier by splitting the screen into two parts. Select Window New Vertical Tab Group for this result.



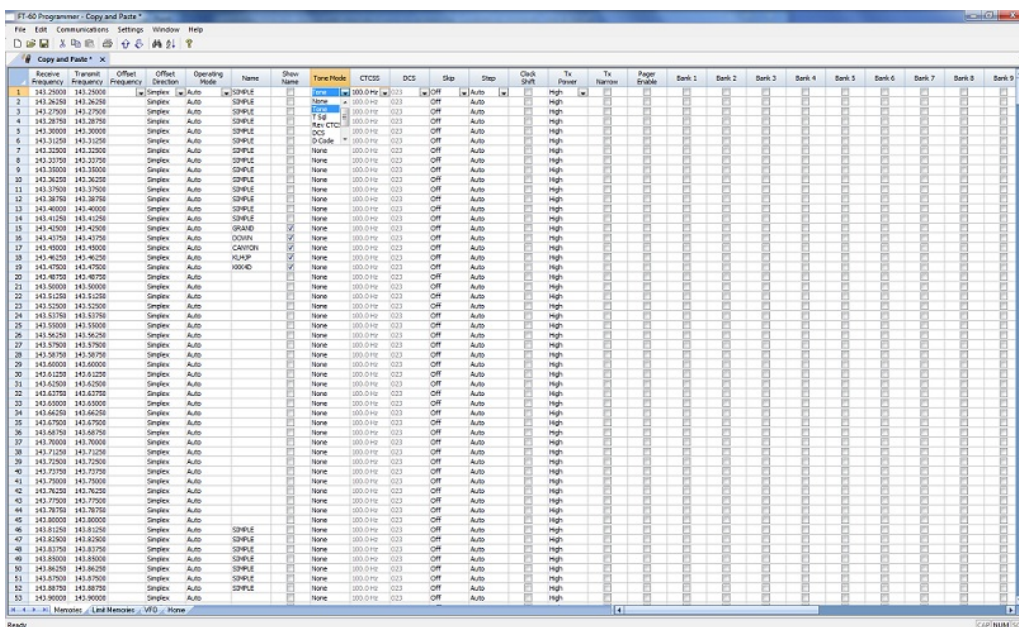
### Copying details from one cell to change many rows at once.

- Column editing:** This editing allows you to change the data in the same column of several rows at once. It works a little differently for columns with text (including those into which you enter text and those that you select text from a list) and check box fields. Each of these scenarios is presented here in an example.

Text Cell Editing - To change Tone Mode to Tone for several channels.

Select the Tone Mode field of the first of the channels to be changed.

Make the change by pulling the drop-down and selecting Tone from the list.



Once the selection is made, the focus will move to the next field. Click back into the Tone Mode field that displays the correct value. When you move back into the field you can copy the information if the field is highlighted with a ring around its border or if the text within is shaded (indicating that it is selected).

Press Ctrl + C, select Edit | Copy from the menu at the top of the screen, or right click and select Copy from the menu that appears. (Just as with row copying in the first example.)

Select the first cell to be changed by pressing Down arrow until that cell is highlighted (the cell will be in the same column so using the Down Arrow key will easily move you to another nearby cell). If you need to move quite a way in the file, move to the first cell to be changed and click the mouse to select that cell.



If several consecutive rows are to be changed, select them all by holding the Shift Key while you Down Arrow through them or hold the Left Mouse Key while you move your mouse over them (normal Windows selection processes). When they are selected, they will be highlighted in a color based on the scheme of your computer.

Press Ctrl + V, select Edit | Paste from the menu at the top of the screen, or Right Click and select Paste from the options in the menu that opens. The copied value will appear in each of the fields.

Column editing will address a selection of consecutive cells all at once or individual cells repeatedly. If the items to be changed are not consecutive, you can select and paste repeatedly until all the cells are addresses. You do not have to copy again. The Programmer retains the copied value.

Check Box Cell Editing - If you want to put several channels into a Bank, there is no reason to do this one row at a time.

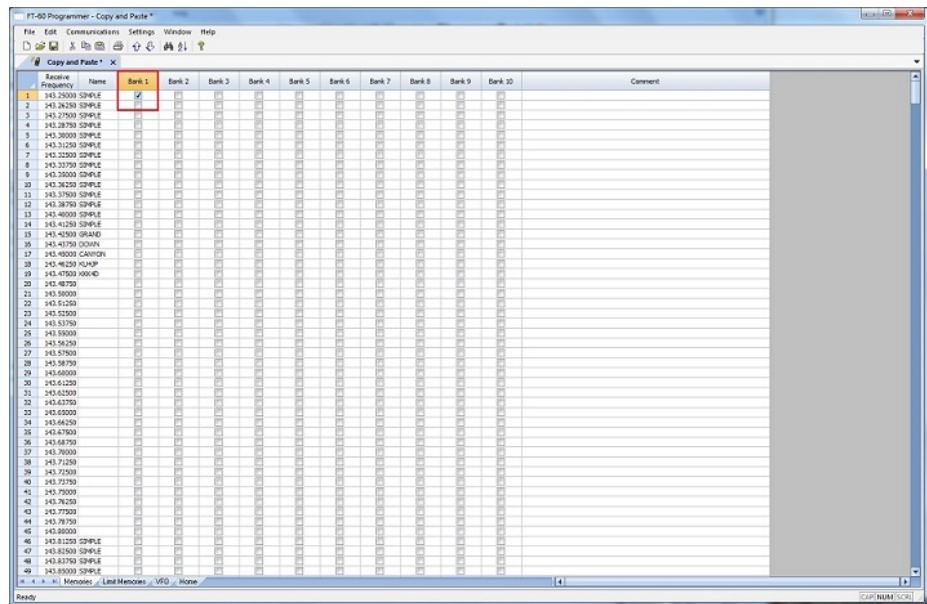
This process varies from the other by how the cells are selected. Check box cells act differently than those that contain text. You can copy from one check box column into another.

In this example, put several channels into Bank 1 without checking the Bank 1 box for each channel.

First, select Settings from the menu at the top of the page. From that menu, select Bank Settings. Several columns of the screen will be hidden leaving only Receive Frequency, Name and Banks. This makes working on the screen easier since you no longer must scroll through several columns that you are not using now.

Relative Frequency	Name	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 10	Comment
1	143.2500 SMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	143.2620 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	143.2760 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	143.2870 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	143.3000 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	143.3120 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	143.3250 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	143.3370 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9	143.3500 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10	143.3620 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11	143.3760 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12	143.3870 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13	143.4000 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14	143.4120 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15	143.4250 GRAND	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16	143.4370 JAZZOP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17	143.4500 CANONN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18	143.4620 KJAZZP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19	143.4760 WESHD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20	143.4870	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21	143.5000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22	143.5120	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23	143.5250	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24	143.5370	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25	143.5500	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26	143.5620	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27	143.5760	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28	143.5870	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29	143.6000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30	143.6120	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31	143.6250	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32	143.6370	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33	143.6500	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34	143.6620	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
35	143.6760	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36	143.6870	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37	143.7000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
38	143.7120	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
39	143.7250	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
40	143.7370	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
41	143.7500	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
42	143.7620	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
43	143.7760	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44	143.7870	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45	143.8000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
46	143.8120 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47	143.8250 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48	143.8370 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
49	143.8500 SMPLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

For Channel 1, put a check in the box under Bank 1.

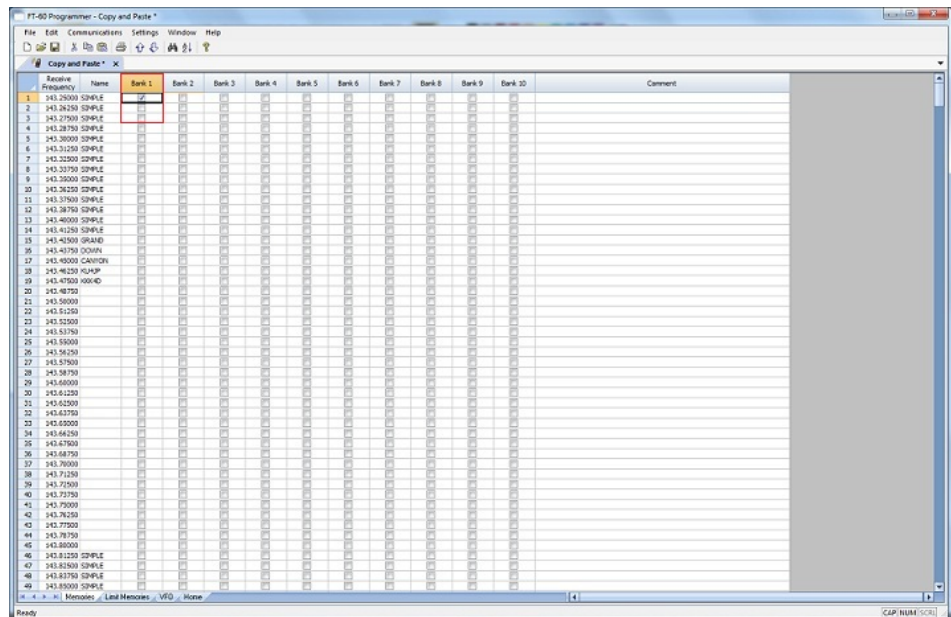


Receive Frequency	Name	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 10	Comment
1	443.25000 SWPFL											
2	443.26250 SWPFL											
3	443.27500 SWPFL											
4	443.28750 SWPFL											
5	443.30000 SWPFL											
6	443.31250 SWPFL											
7	443.32500 SWPFL											
8	443.33750 SWPFL											
9	443.35000 SWPFL											
10	443.36250 SWPFL											
11	443.37500 SWPFL											
12	443.38750 SWPFL											
13	443.40000 SWPFL											
14	443.41250 SWPFL											
15	443.42500 SWPFL											
16	443.43750 SWPFL											
17	443.45000 SWPFL											
18	443.46250 SWPFL											
19	443.47500 SWPFL											
20	443.48750 SWPFL											
21	443.50000 SWPFL											
22	443.51250 SWPFL											
23	443.52500 SWPFL											
24	443.53750 SWPFL											
25	443.55000 SWPFL											
26	443.56250 SWPFL											
27	443.57500 SWPFL											
28	443.58750 SWPFL											
29	443.60000 SWPFL											
30	443.61250 SWPFL											
31	443.62500 SWPFL											
32	443.63750 SWPFL											
33	443.65000 SWPFL											
34	443.66250 SWPFL											
35	443.67500 SWPFL											
36	443.68750 SWPFL											
37	443.70000 SWPFL											
38	443.71250 SWPFL											
39	443.72500 SWPFL											
40	443.73750 SWPFL											
41	443.75000 SWPFL											
42	443.76250 SWPFL											
43	443.77500 SWPFL											
44	443.78750 SWPFL											
45	443.80000 SWPFL											
46	443.81250 SWPFL											
47	443.82500 SWPFL											
48	443.83750 SWPFL											
49	443.85000 SWPFL											
50	443.86250 SWPFL											

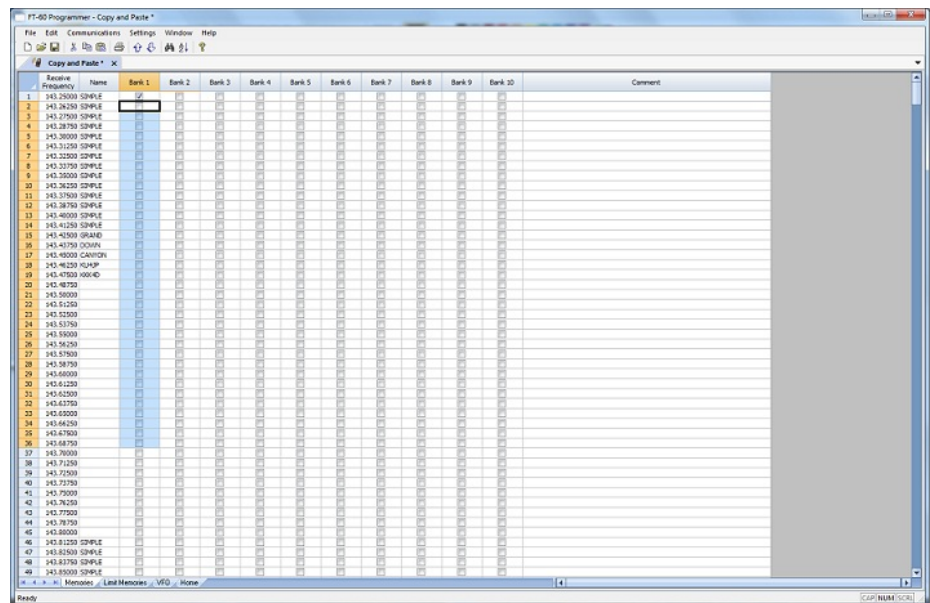
At this point you CANNOT copy this field. Press Tab or Enter to move out of the field.

The process is more easily done now with the keyboard rather than the mouse.

Press Right Arrow to move focus back into the Bank 1 column. Notice that there is now a black border on that cell. The cell is now ready to be copied. Press Ctrl C or select Edit from the menu then copy from the list that opens to copy the cell.



Press and Hold the Shift key while pressing the Down Arrow key to select the rows that will be set with this information.



Press Ctrl V to paste the selecting into the fields.

Receive Frequency	Name	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 20	Comment
1 143.25000	SIMPLE											
2 143.24250	SIMPLE											
3 143.23750	SIMPLE											
4 143.28750	SIMPLE											
5 143.30000	SIMPLE											
6 143.31250	SIMPLE											
7 143.32500	SIMPLE											
8 143.33750	SIMPLE											
9 143.35000	SIMPLE											
10 143.36250	SIMPLE											
11 143.37500	SIMPLE											
12 143.38750	SIMPLE											
13 143.40000	SIMPLE											
14 143.41250	SIMPLE											
15 143.42500	GRAND											
16 143.43750	DUPLEX											
17 143.45000	CAUTION											
18 143.46250	KJHP											
19 143.47500	MODE											
20 143.48750												
21 143.50000												
22 143.51250												
23 143.52500												
24 143.53750												
25 143.55000												
26 143.56250												
27 143.57500												
28 143.58750												
29 143.60000												
30 143.61250												
31 143.62500												
32 143.63750												
33 143.65000												
34 143.66250												
35 143.67500												
36 143.68750												
37 143.70000												
38 143.71250												
39 143.72500												
40 143.73750												
41 143.75000												
42 143.76250												
43 143.77500												
44 143.78750												
45 143.80000												
46 143.81250	SIMPLE											
47 143.82500	SIMPLE											
48 143.83750	SIMPLE											
49 143.85000	SIMPLE											

**Simple Mode:** Hides several of the columns for each memory channel. Those remaining are the ones that are most needed for any memory channel. Those remaining include:

**Receive Frequency -** A channel cannot be programmed without a receive frequency. This is the frequency you listen to.

**Transmit Frequency -** The Programmer will complete this automatically. The column is included in case you need to enter the value other than the default for the receive frequency based on the band plan (i.e., an odd split pair).

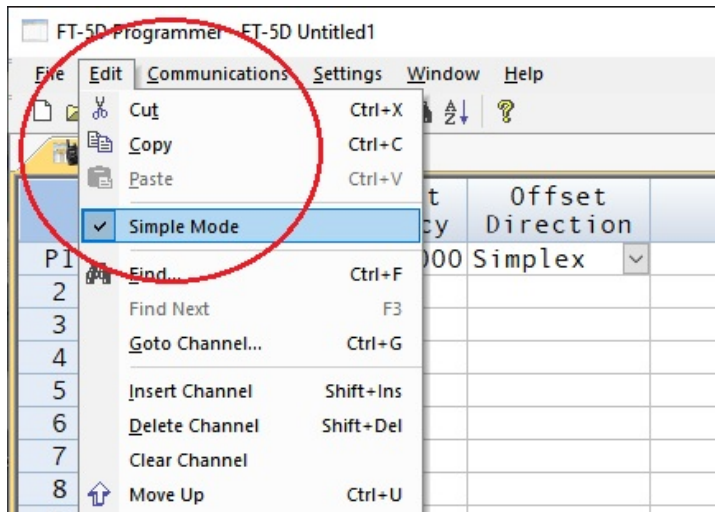
**Offset Direction -** Again, the Programmer will complete this automatically based on the band plan for the receive frequency. However, an occasional repeater will differ from the band plan. Including this column gives you the ability to address that difference.

**Name -** This column is for personalized information to identify the channel.

**Tone Mode -** The repeater operator controls this detail for the repeater. There is nothing standard that can be completed automatically. You need to select the Tone Mode then assign the CTCSS frequency or DCS code as needed for a particular repeater.

**Skip -** Use at your discretion to include or exclude a frequency during memory channel scanning.

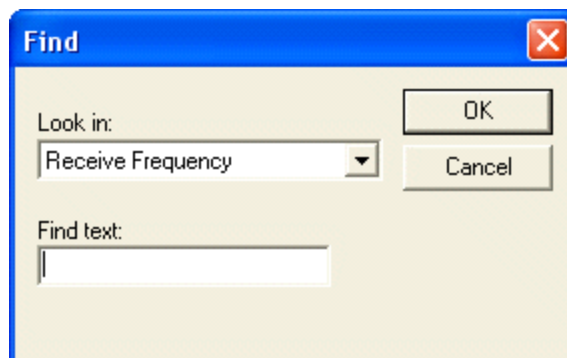
Comment - Personalized notes up to 80 characters. This information remains a part of the file and is not transferred to the radio.



**Note:** While in Simple Mode, you cannot access the Preferences screen (Settings | Preferences). The columns that are hidden in Simple mode are predetermined by the Programmer.

All columns are visible on the screen when you are no longer in Simple Mode. If you want to hide other columns, you can do that through individual selection on the Settings | Preferences page.

**Find (Ctrl+F)** - Finds specific text in a specified column. Once you select this command or press Ctrl+F a screen opens into which you enter the text (or number) to be found.



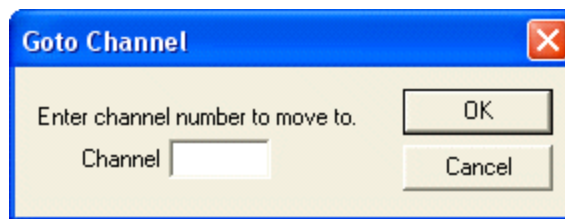
Select the field to be searched (i.e., Receive frequency, Transmit frequency, etc.)

Enter the text (or numbers) to be found.

Click OK to move to the first item found. The search always begins at the top of the list and stops at the end.

**Find Next (F3)** - Use the F3 function key to repeat the specified find and move to the next item. For example: You choose to search for 145 in the Receive Frequency column in a file with 5 channels beginning with 145. OK in the Find box takes you to the first one. F3 takes you to the second; then the third; then the fourth: and so on until you have stopped at each of those that match the criteria.

**Goto Channel (Ctrl+G)** - Moves to the indicated channel number. When this option is selected a screen opens into which you enter the channel number. Enter the number and click OK to move to that memory channel (programmed or not).



**Insert Channel (Shift+Ins)** - Inserts a blank row without deleting information present. The current information and all that follows is "pushed-down" to make room. The number of rows inserted will equal the number of rows selected. This is a great way to slip channel information into a list of channels.

**Note:** *Insertion of rows can result in the loss of data from the bottom of the list. You will be warned if there is danger of data loss and given the opportunity to cancel the process to prevent this loss.*

**Delete Channel (Shift+Del)** - Removes the selected row. All the data following the deleted row is "pulled-up" to eliminate the blank row. Beware!! Deleted data cannot be recovered. Neither the Insert nor the Paste commands write the data to the grid. If you accidentally delete data, exit the Programmer WITHOUT saving. The file will be restored to its condition when you last saved and the last deleted data will be restored. Multiple channels can be deleted by selecting them all at once and selecting delete.

**Clear Channel** - Removes the data from the selected channel without moving all those that follow up to fill this space. Leaves the channel blank.

**Move Up (Ctrl+U)** - The ability to select a channel and have it "change places" with the channel immediately preceding it. Repeat this command on a selected channel to "walk" it into place in your list. Sequential channels can be selected and moved at once. The group will move up one channel at a time. The displaced memory channel will move to the end of the group being moved.

**Move Down (Ctrl+D)** - The ability to select a channel and have it "change places" with the channel immediately following it. Repeat this command on a selected channel to "walk" it into place in your list. Sequential channels can be selected and moved at once. The group will move down one channel at a time. The displaced memory channel will move to the top of the group being moved.

**Add Frequency Range** - A convenient way to add lots of channels at once. This is great for setting up a radio for scanning a certain range of channels. When this option is selected you are presented with a window into which you enter the details of the channels to be entered.



Enter Starting Frequency: The value of the first frequency of the list to be entered. Any allowable frequency of the radio being programmed.

Number of channels - Enter the number of channels to be entered. You can insert as few as 1 to as many as 1000 channels at once. You are not warned if you select more than the number of memory channels. The process just inserts all that it can and ignores the rest.

Frequency Step - Enter the value that will separate each of the frequencies in these channels. Select 5 kHz to 200 kHz.

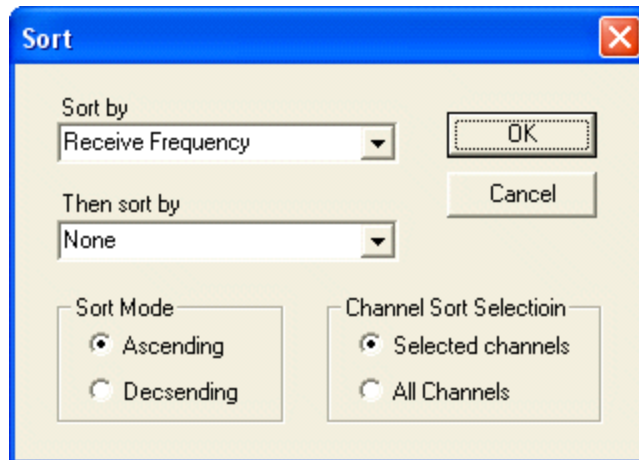


Click OK and watch the screen fill. Or Cancel to exit the process without change to your file.

The channels are inserted beginning at the currently selected channel (i.e., if you have selected channel 40, the first channel will be added at channel 40).

You are warned if a channel will be overwritten and given the ability to not overwrite or to cancel the process. If you choose No to prevent loss of the current channel information, the skipped frequency is entered into the next available space and not lost.

**Sort** - Great for data management or to arrange your channels permanently for a special use. The Programmers have the ability to Undo a sort. You can now sort the list on a given parameter, touch-up a group of entries, then put the list back in its original order with the changes that you made. When this option is selected you are presented with a window for selection of the options.



Sort by - Select a column for the initial sort.

Then Sort By - Select a second column for a secondary sort.

Sort Mode - Ascending for lowest to highest. Descending for highest to lowest.

Channel Sort Selection - Selected Channels to sort only a group from the file. All Channels to sort all the channels in the file.

If the result is not quite what you expected, select the Undo Sort option to return the list to the point you left it last.

Always save your file before you sort. At the very worst you can exit the file without saving to return to the order of that last save.

Blank memory channels are always sorted to the top of bottom of the list based on the Ascending or Descending selection.

Different fields sort differently. If a field is a text field in one Programmer and a drop down list in another, the sort results will be different. It has to do with how the computer interprets the values in these different types of fields. While this was present in the older Programmers, it should not be a problem in the RT Systems Programmers where the fields are consistent between the radio Programmers.

**Unsort** - For use after sorting to return the list to the last saved order. Use Sort and Unsort to easily edit channels with the same info that needs to be changed. Sort to bring those channels together. Edit the details (see cell editing). Then unsort to return the list to the last saved order with the edits in place.

### Quick File Access Commands

**Ctrl 0 (Control zero)** - Open existing file for same radio. Calls the Open dialog for the Programmer being used allowing you to select a file to be opened without having to select the file type first. This is especially helpful when several Programmers are loaded on one system. (i.e., Lets you select another FT-7800 file without having to select that file type first from the open box.)

**Ctrl O (Control letter "O")** - File | Open. Presents the box from which the file type is selected just as File | Open. Select the type of file to be opened. The Programmer will look in the location of that last file for that particular file type. (i.e., you can open an FT-60 file while working with the FT-7800 Programmer as long as you have the RT Systems program for both of these radios. With both open, you can copy and paste between the files or send each to the proper radio without having to close and reopen the Programmers separately.)

**Ctrl M** - Automatically create a new file for the Programmer being used. Eliminates having to select the file type first.

**Ctrl N** - File | New. Presents the box from which the file type is selected just as in File | New in the menu. Select the file type for the Programmer to create a new file for that radio (the same as the one you're working with now or for a different radio for which you have the Programmer.)



**Part**



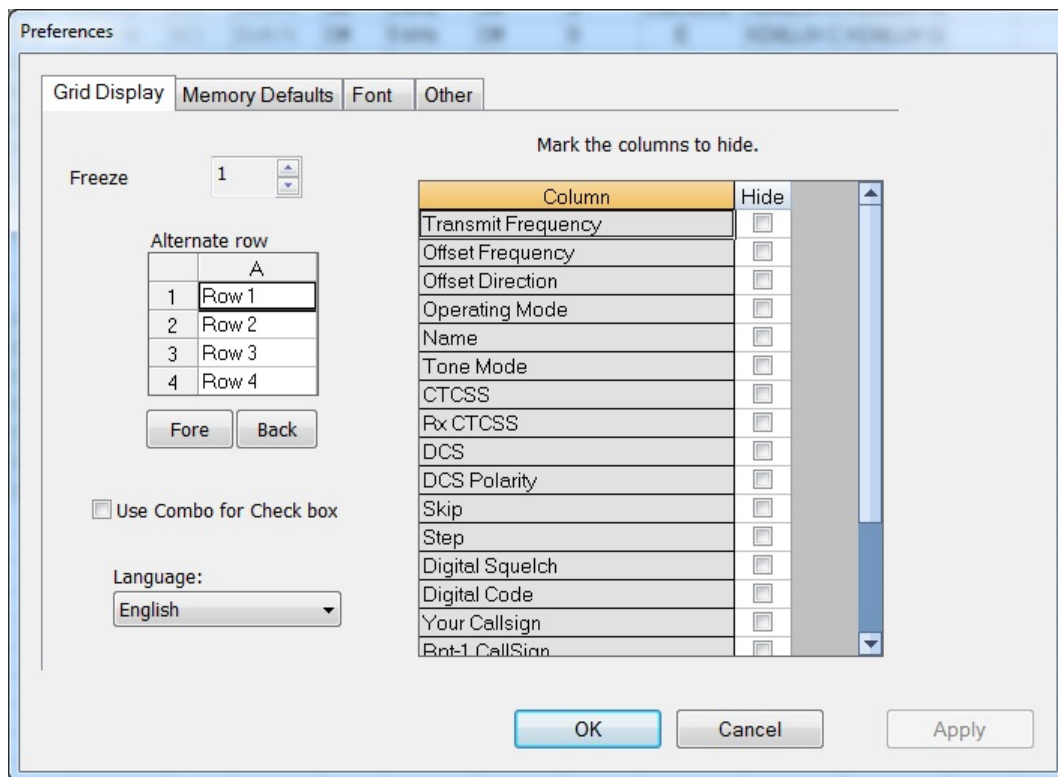
## 6 Screen Appearance and Default Options

This option is currently only in the Windows version of the Programmer.

The screens of the Programmer can be customized to make data entry that much easier. Many other controls for the program are found in the Preference section. The changes made here affect all the RT Systems Programmers installed on this machine.

Options for screen appearance are accessed under Settings | Preferences from the menu on the main screen of the Programmer. This screen appears when that option is selected:

### Grid Display



## Freeze Columns

The option to "freeze" can be applied to any or all columns. Select the number of columns to remain on the screen at all times as you scroll to the right of the spreadsheet.

Having these columns always available for reference can be a great help for identifying the memory channel being edited.

## Hidden Columns (Mark the columns to hide)

Selected columns can be marked as hidden which removes them from the screen display. During editing, these fields are completed with default information for the radio. This option is a global setting and will affect every file, new or existing.

In an existing file the data in these columns is not lost: it is simply not displayed.

In a new file, a hidden column is filled with a default value.

Hidden column data is not printed. Columns can be marked as hidden to customize printed output and then restored for additional data management.

***Note: Several columns are hidden and unhidden with the Simple Mode option found under Edit from the menu of the main screen. Simple mode hides all but the columns required for memory channel operations. When you leave Simple Mode, all columns will again be visible.***

## Alternate row colors

Select a color for the text (Fore) and/or background (Back) for rows 2, 4, 6, etc. This can help the readability of the spreadsheet.

## Use Combo for Check box

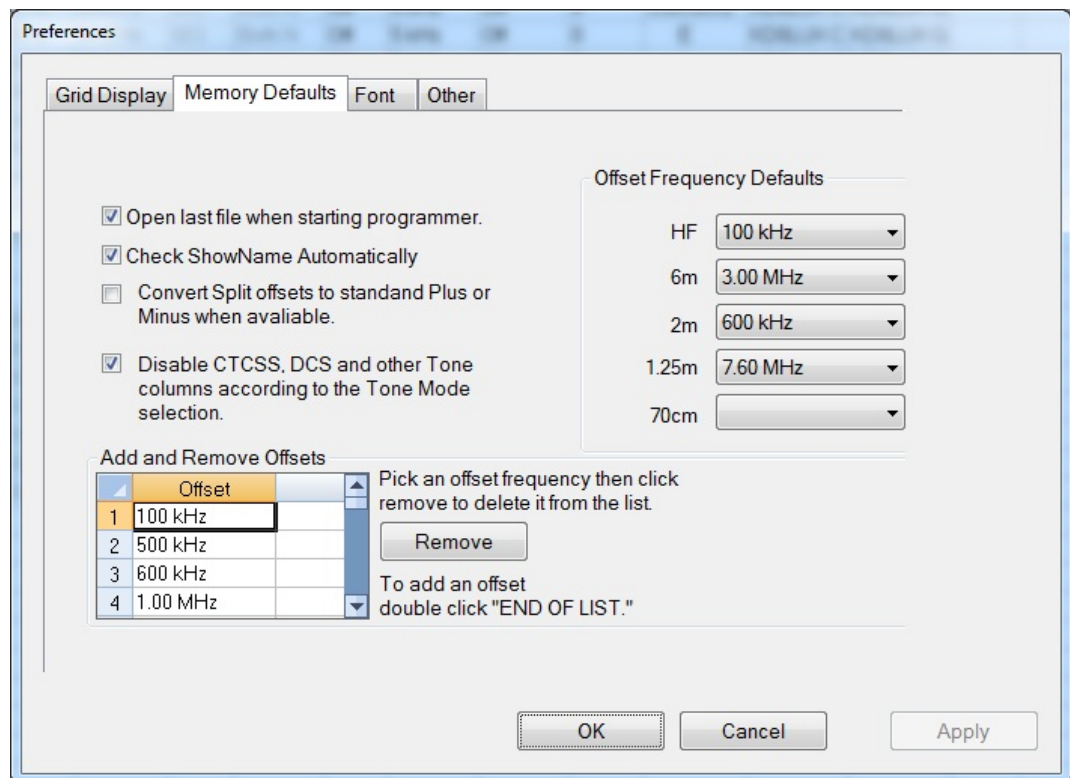
On some systems the checkbox option does not work and you are not able to make selections for banks, show name or other options with check boxes. The check boxes will be missing from the cell.

Select this option to change the cell to a Yes/No combo box rather than a check box. Make your selections by setting the option to Yes where desired. Just as with the checkbox option, the combo box selection can be copied and pasted to other cells in the column.

## Language

Select from several languages for column headers, message boxes and other text in the Programmer.

## Memory Defaults



Memory Defaults let you set options that control the defaults of the memory channels. If you are having to change a certain cell repeatedly for the data you enter, you might want to make that change permanent here.

### Open last file when starting Programmer

By default, the Programmer opens the last file saved. By choice, you can open to a default file for the radio by unchecking this box.

### **Check ShowName Automatically**

By default, the Programmer checks the ShowName column as soon as you enter the first letter of an alpha/numeric tag for the channel. By choice, you can have the Programmer not check this box automatically. When unchecked, the name will not be displayed on the radio. This options affects Programmers that use a ShowName column. Not all do since many handle show name as a global setting rather than in each memory channel.

### **Convert Split offsets to standard Plus or Minus when available**

By default, the Programmer leaves a split pair as a "split" in a radio that can handle a "split" for Offset Direction (i.e., Yaesu radios, for one, handle odd splits this way). With this option engaged (checked), the Programmer will always calculate the Offset Frequency and set the Offset Direction to Plus or Minus when possible (if the math comes out correctly for the design of the radio). The functionality of the radio is the same with either configuration for the frequency pair.

### **Disable CTCSS, DCS and other Tone columns according to the Tone Mode Selection**

By default, the Programmer turns the CTCSS, RX CTCSS, DCS and RX DCS columns on or off as needed for the selected Tone Mode (i.e., if you don't need to set a DCS code for Tone - encode - that column will be disabled and the value displayed in it ignored by the radio). With this option engaged, all the tone selection columns are active regardless of the Tone Mode selected. You will be able to change CTCSS frequencies and DCS codes although the radio may not use your selection for the Tone Mode engaged.

### **Add and Remove Offsets**

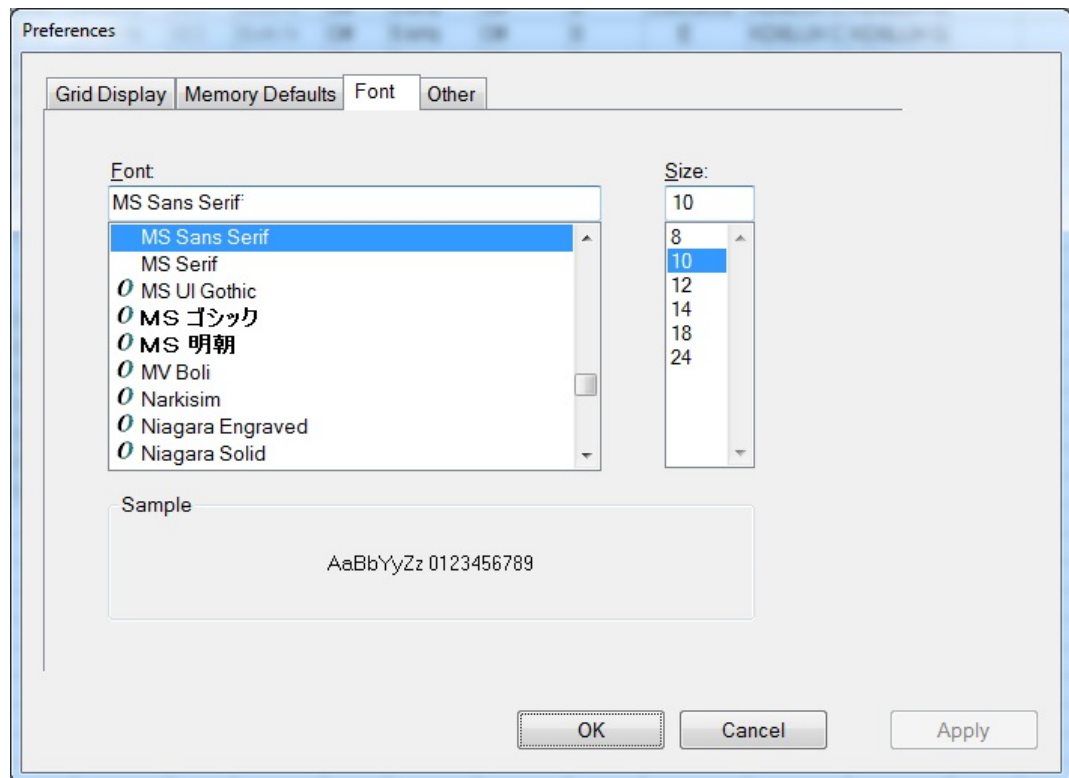
A change to this section affects what you see in the Offset Frequency column when entering memory channels on the screens of the Programmer. It also affects Offset Frequency Defaults found on this page.

### **Offset Frequency Defaults**

Select a value in each field for the Programmer to use when you enter channel information. This value is used for channel information entered into any of the memory channel types (Memory, Limit memories, VFO, Home, etc).

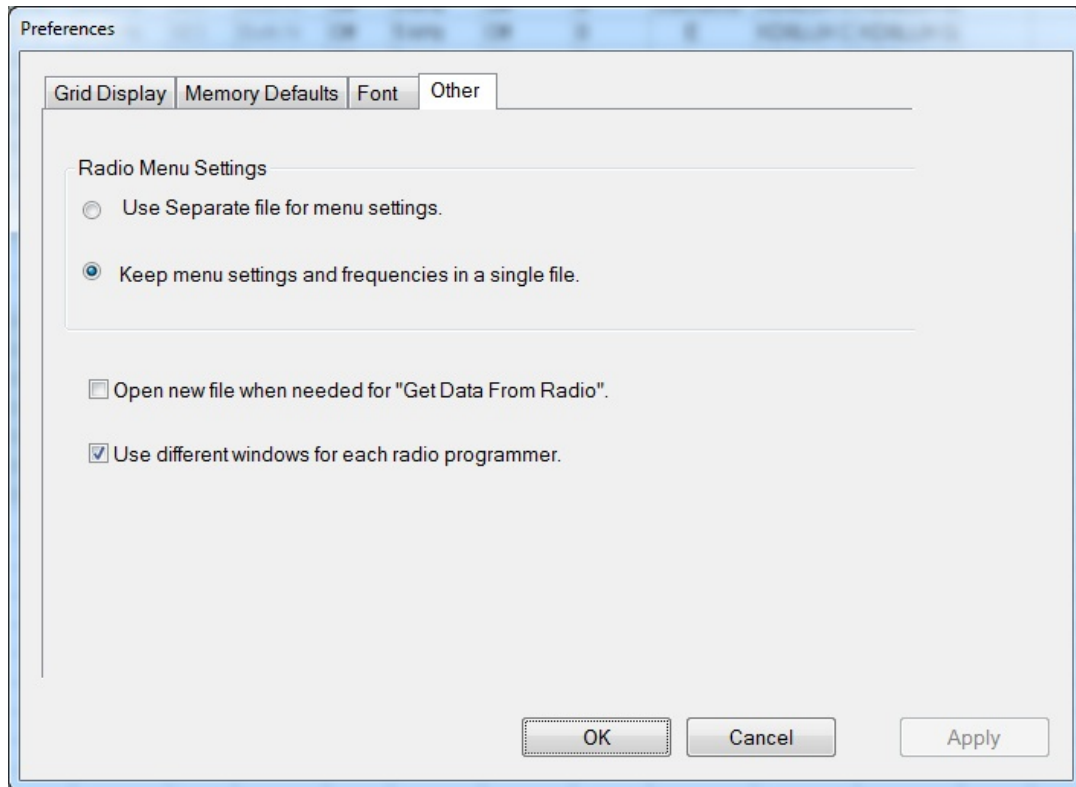
## **Fonts**





The RT Systems Programmers include selection of font and size to control display of headers, messages and item identifiers in the Programmer. Select any font and size available on your system to make the Programmer easier to use.

## Other



### Radio Menu settings

By default (Use Separate file for menu settings), the Programmer saves your global settings (Settings | Radio Menu Settings) to a separate file. In this arrangement, you must only set these options once. When the file is saved, it is used by the program even if you create a new file with memory channels. No need to touch up these setting just because you created a new list of memories.

The options, Keep menu settings and frequencies in a single file, eliminates this second file. You might want to exercise this option is you are creating files for completely different uses (Ham radio, fire department, etc), where you need the global settings to be different for the file.

### Open new file when needed for "Get Data From Radio"

By default the Programmer warns you when you select Communications | Get Data from Radio and the current file (the one you see on the screen right now)

is not a blank, default file. The Programmer is warning you that if you continue you will lose all the work you have done by replacing the information on the screen with that currently in the radio.

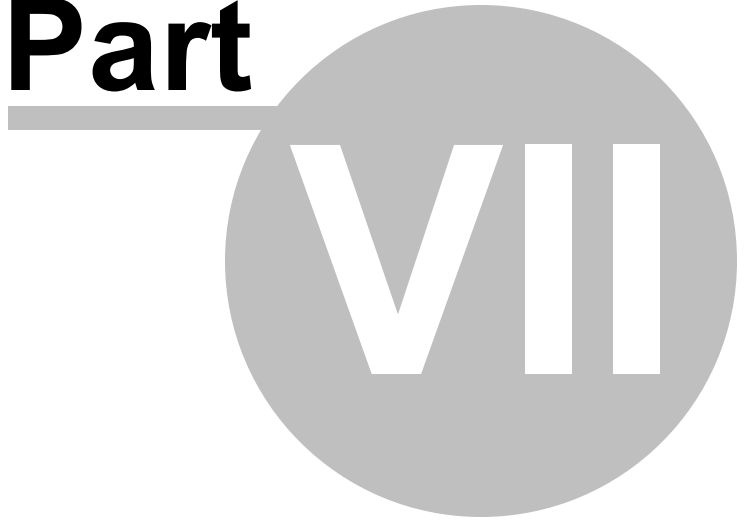
By selecting this option (checking the box), the Programmer will automatically open a blank, default file for you when Communications | Get data from Radio is selected. By completing the Get Data from Radio process into this default file, you will not lose the work you have been doing in the current file.

### **Use different windows for each radio Programmer**

By default the Programmer opens each of the Programmers installed on this machine (Version 4 or 4.5) in the same master window. Each file occupies a separate tab. The titlebar of the main window identifies the Programmer associated with the file in a particular tab. If you name your files as "the radio name" and then "any other identifying information... remember you have 256 characters... don't be cryptic" you can easily tell by the information on the tab which one is for which radio.

When this option is engaged (checking the box), each Programmer will open in a separate "main window". Each tab that opens will be for that particular Programmer. It will be as if the others don't exist unless you start them from the icon. Working between the files with copy and paste will still work even if the files are displayed in two separate windows. There is no loss of functionality. Only a change in how the files are displayed.

**Part**



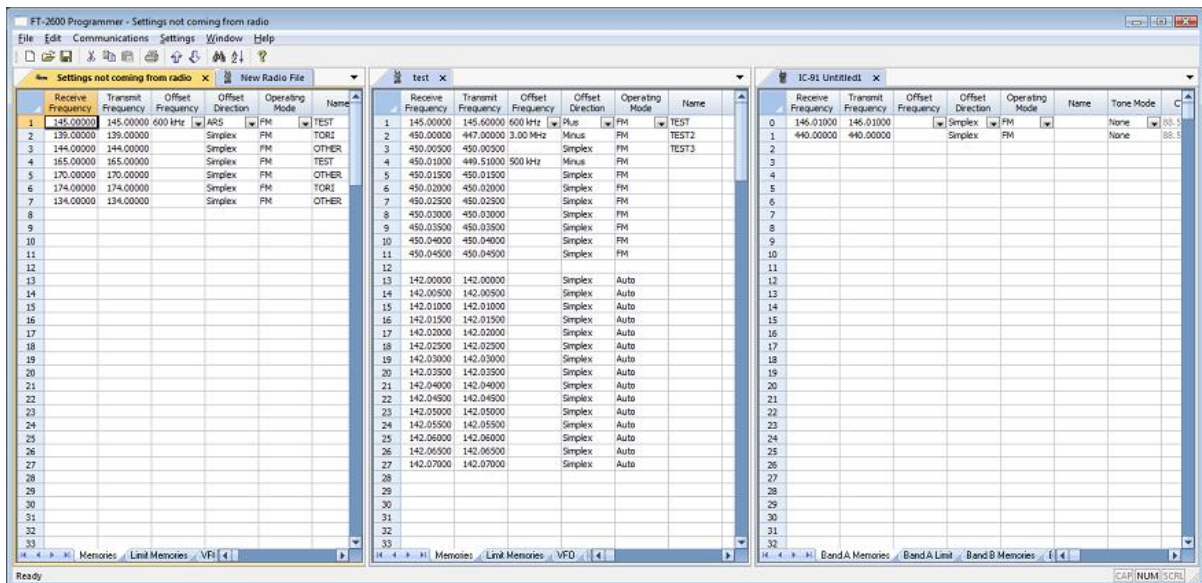
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## 7 Split Screen for Multiple Files

The screen can be split in either the Windows or Mac version of the Programmer. Shown here are details for the Windows version.

On the Mac, the same things can be done by right clicking on the tab with the file name at the top of the screen. The menu that opens will offer you options.

The RT Systems Programmer can display more than one file simultaneously in the Programmer's main window. Opening several files at once makes it even easier to copy and paste between them (even files for different radios from different manufacturers) or just to compare the frequency lists.



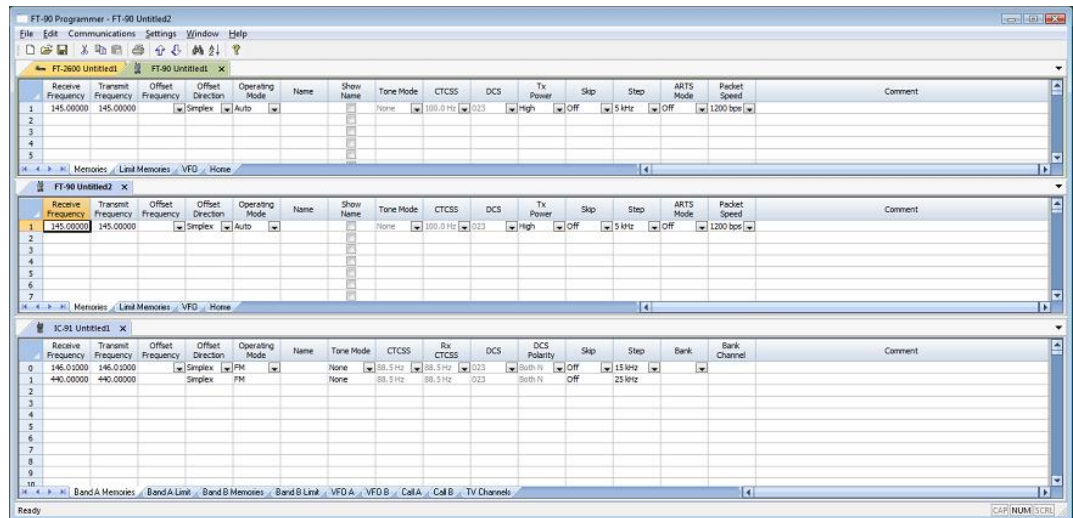
Open the files.

From the menu at the top of the main screen, select Window | New Vertical tab group.

The screen will separate into two parts taking the selected file to the new group.

To work with three as shown above, simply select another file and repeat the process.

A horizontal split is also possible.



Open the files.

From the menu at the top of the main screen, select Window | New Horizontal tab group.

The screen will separate into two parts taking the selected file to the new group.

To work with three as shown above, simply select another file and repeat the process.

**Note: Once you divide the screen horizontally or vertically, the other separation is not available. Selections for vertical and horizontal groups will be enabled and disabled in the menu as necessary.**

**Part**

**VIII**

## 8 File Maintenance

Just as in a word process or other Windows based program, you will create files in the Programmer for use in the radio. You can create as many files as the space on your hard drive will allow.

Remember, erase everything and replace it with the details of the file sent from the Programmer. Be sure everything you want in the radio is in the file that is sent. This is an "all or nothing" process.

From the File menu at the top of the main window, select:

[New](#) - Create a new file in any Version 3 Programmer you have installed.

[Open](#) - Open an existing file in any of the Version 3 Programmers you have installed.

Close - Closes the current file.

[Save](#) - Saves the current file.

[Save As](#) - Saves the current file giving you the opportunity to enter a new name. This creates a copy of the file and saves it with the new name you entered.

Import - Advanced functionality that addresses data from a "flat" ASCII file. Details on this process are found in the Import and Export section of the Help.

Export - Extracts data from the programmer file to a "flat" ASCII file. Details on this process are found in the Import and Export section of the Help.

[Print Preview](#) - Lets you see the formatted information on the screen before it prints.

[Print](#) - Prints the current file.

Send File as E-mail - Sends the current file to *RT Systems'* tech support. This functionality is dependent on the e-mail program of your computer.

Files 1-4 - Up to four files that you last worked in and saved.

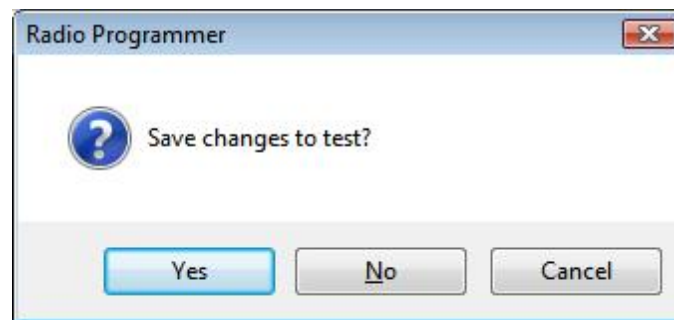
[Exit](#) - Closes the Programmer.



## 8.1 File | Exit

Exits the Programmer.

If files have been changed, you will be prompted to save or cancel the Exit command to avoid data loss in that file.



Yes - Exits the program saving the file.

No - Exits the program without saving any work done in the file since the last time you saved.

Cancel - Halts the Exit option. The program returns to the open file.

## 8.2 File | New

Use this command for setting up a "clean slate" into which you enter memory frequencies. A "clean slate" or default file will often have at least one channel programmed on the memory channel screen. This is a factory default that is in your radio when it is new. The information for this channel can be changed; however, in most radios, channel 1 must be programmed.

***Use the quick key command of Ctrl M for easy access to a new file.***

If you have been working to create a file with memory channels, use File | New before using Communications | Get data from to prevent losing all the work you have done in this file. The Get data from process will replace the information in the open file with what is in the radio.

## Other Radio Menu Settings and a New File

The radio is more than just memory channels. There are features that are controlled once for the radio. They cannot be customized for each memory channel. These features are addressed in the Programmer under Settings | Radio Menu Settings.

The settings for these features that were last saved are used whenever a New file is created. There is no need to reset these features for each new file. If you have not saved a settings file, these radio menu items are set to factory defaults (as if you reset your radio).

***Note: If you radio "acts funny" after you download to it (i.e., keypad beeps are different, squelch is open, Scan resume settings are changed, etc.) you have not yet set these options in the Settings portion of the Programmer. To make these option settings permanent:***

- ***Select Settings | Radio Menu Settings from the menu at the top of the screen.***
- ***Personalize your options just as you did on the radio.***
- ***Select File | Save from the menu on the Settings screen.***
- ***Enter a filename when prompted and click Save.***
- ***Select File | Exit from the menu on the Settings screen.***
- ***You will not have to change these again unless you want them to function differently.***

***The settings file will change only if you read from the radio (Communications | Get data from) and send that file back to the radio (Communications | Send data to) without saving the memory information that you retrieved. This is helpful if you are programming a friend's radio in which he has all these options set up as he wants them.***

The File|New command can be used to open several new files at once. Memory channel information can be copied between these files (even from V3 to V4), regardless of which radio they are for.

## 8.3 File | Open

Just as in a word processor or other Windows programs, the command opens a previously saved file.

You are not limited to one programming file for your radio. Make as many as you want. Then choose the one you want when you open the Programmer.

## 8.4 File | Print

Prints the Memory channel information of the displayed page of the current file (i.e., if you are on the Memories tab, the memory channel information is printed. Similarly, if you are on the VFO tab, the VFO channel information is printed. )

- When this command is selected, a print dialog will give you the opportunity to setup your printer.
- Hidden columns are not printed. A printout can be customized (including increasing type size) by deliberately hiding columns before printing. To hide columns, select Settings | Preferences from the menu of the Programmer.
- Only memory channels that are programmed are printed. Your printout will not include the blank channels in the file.
- Use [Print Preview](#) to see what your printout will look like and how many pages will be included before you send it to the printer. This new option will help save lots of wasted paper.

## 8.5 File | Print Preview

This feature of the Programmers lets you preview the data to be printed before you waste paper sending it to the printer.

With the file open that you want to print, select File | Print Preview.

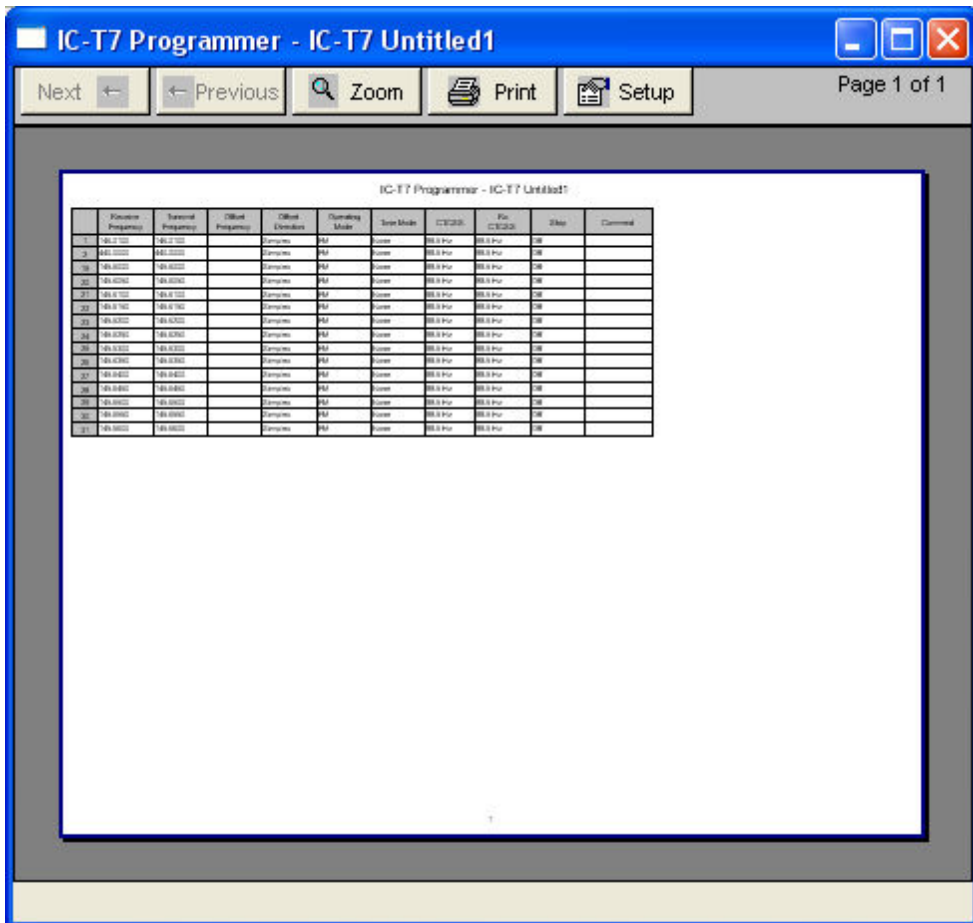
You will notice first that the screen changes. It is filled with the data that will be printed. This is just a temporary change. The order of your channels has not been changed in the file.

Then the screen opens to display the printed output you can expect.

	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Tone Mode	CTCSS	*A CTCSS	Skip	Comment
1	146.0100	146.0100		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
2	146.0000	146.0000		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
18	145.0000	145.0000		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
20	145.0050	145.0050		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
21	145.0100	145.0100		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
22	145.0150	145.0150		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
23	145.0200	145.0200		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
24	145.0250	145.0250		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
25	145.0300	145.0300		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
26	145.0350	145.0350		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
27	145.0400	145.0400		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
28	145.0450	145.0450		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
29	145.0500	145.0500		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
30	145.0550	145.0550		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
31	145.0600	145.0600		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	

Notice at the top of the page you can see that you have "X of X pages". Making small changes can help reduce this number if it is not as you expect.

For example, reduce the size of the Comment column since it is not being used (or hide it completely). This move could save an additional page (or pages) by getting all the columns to fit on one page.



The screenshot shows the 'IC-T7 Programmer - IC-T7 Untitled1' window. The interface includes a toolbar with 'Next', 'Previous', 'Zoom', 'Print', and 'Setup' buttons. The main area displays a table with the following columns: Frequency, Offset, Comment, Channel, Operating Mode, Base Mode, IC#(2), IC#(3), IC#(4), IC#(5), and Comment. The table contains 20 rows of data, each representing a different frequency and offset combination.

Frequency	Offset	Comment	Channel	Operating Mode	Base Mode	IC#(2)	IC#(3)	IC#(4)	IC#(5)	Comment
146.0100	146.0100		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0200	146.0200		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0300	146.0300		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0400	146.0400		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0500	146.0500		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0600	146.0600		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0700	146.0700		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0800	146.0800		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.0900	146.0900		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1000	146.1000		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1100	146.1100		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1200	146.1200		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1300	146.1300		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1400	146.1400		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1500	146.1500		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1600	146.1600		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1700	146.1700		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1800	146.1800		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.1900	146.1900		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		
146.2000	146.2000		Programmer	PS	Normal	80.0 Pwr	80.0 Pwr	DR		

Under Printer setup, change the margins to print on as much of each page of paper as possible. Again, this can make it possible for all the columns to fit on one (or half the number of) page.

Use Zoom to read the data in the preview more easily. Click Zoom again to return to this view.

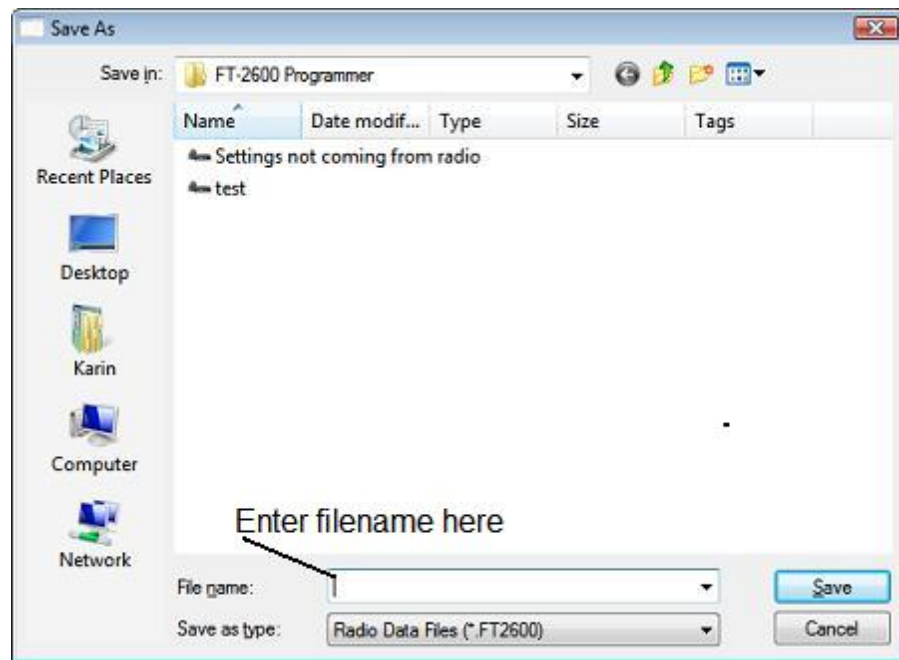




## 8.6 Saving Programming Files

Many different files can be saved to your hard drive for permanent storage giving you the ability to reprogram your radio quickly and easily to suit your current use.

- Files are saved using the [File | Save](#) or [File | Save As](#) command.
- When the window opens for the filename, enter any name up to 256 characters (including spaces) but without a period at the end or an extension. The Programmer will enter that information for you automatically.



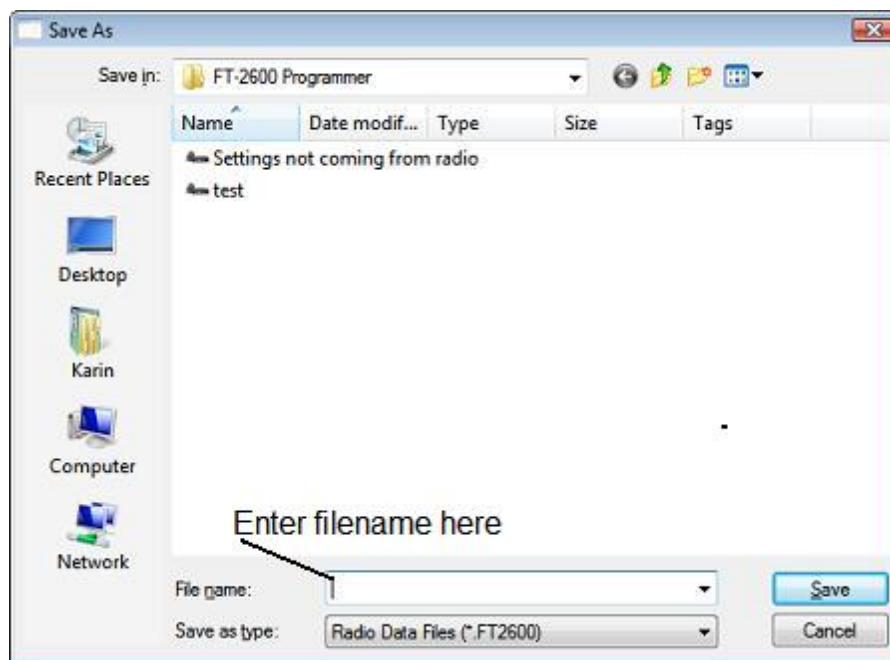
### 8.6.1 File | Save

Saves the current file to your computer hard drive.

If several files are open, the current file (the one on top: the one you are working in) is the one that will be saved. Be sure to save the changes to each of the open files before closing the Programmer.

It is recommended that you save the current file during data input and before sending it to the radio. Just as with a word processor, it's an awful shame to lose everything if something happens to the computer during either of these processes.

If the name of the current file is Untitled (in the main window title bar), you will be presented with a save file dialog and should enter a new filename.



The filename can be any combination of characters and spaces including numbers and letters.

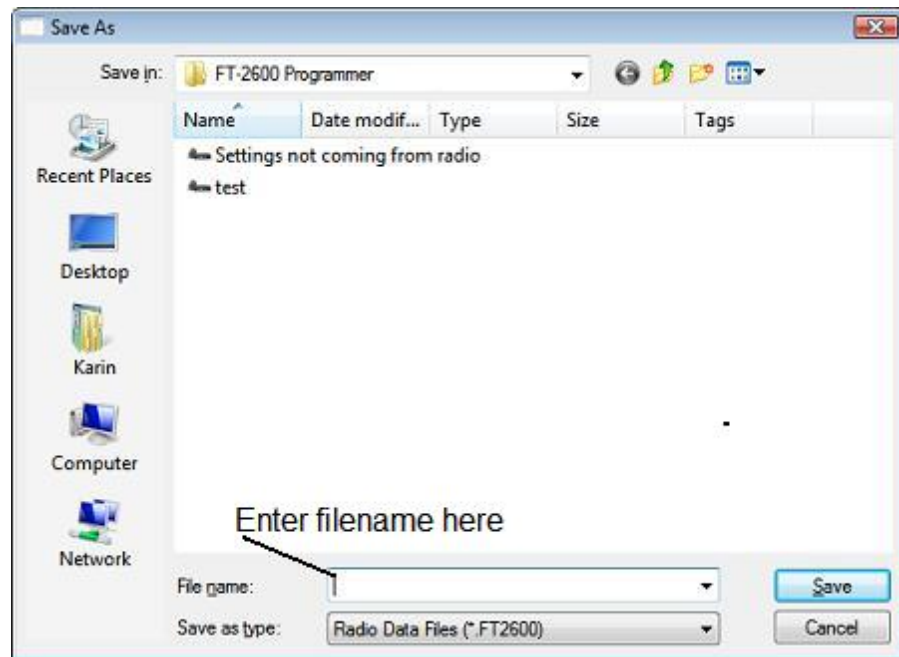
When saving a file, let the Programmer do the work. All you need to enter is the name you want for the file.



## 8.6.2 File | Save As

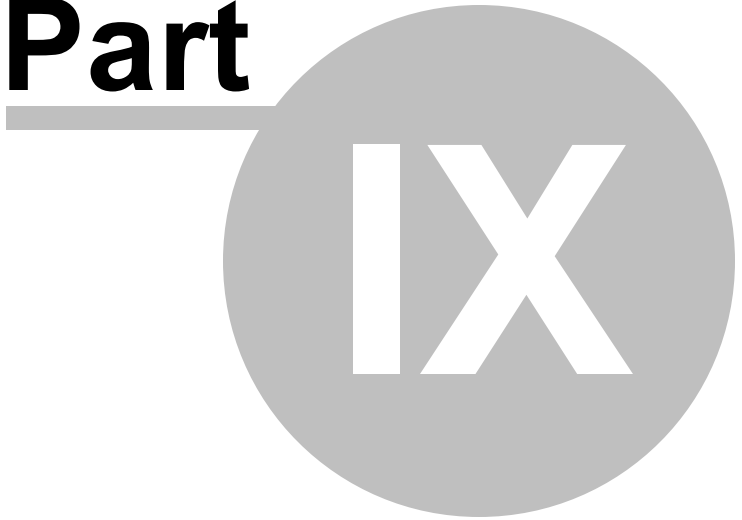
Saves the current file under a new name. Used if you want to make a copy of the file that you're working in to maintain the original without the changes you're making now.

- If several files are open, the one that is active is the current file. This file will be saved with the Save As command.
- This is a good way to start another file for editing. Changes made to this file do not affect the data in the original file.
- When this command is selected, a save file dialog containing a list of existing files is presented. You can either select one of these to be overwritten or enter a new filename. The Programmer will add the extension so you should not enter an extension or a period at the end of the filename.



- The title bar of the window changes to reflect the new filename.
- When saving a file, let the Programmer do the work. All you need to enter is the name you want for the file.

**Part**



**IX**

## 9 Menu Item Cross Reference

The Programmer presents all the options of the radio in grid, check box, list and combo box formats. Most radios these days have so many options that organizing them in the Programmer can be a challenging task.

The location in the Programmer is described as a "path". For example.

Settings | Radio Menu Settings | Common 1 tab | Auto Repeater Shift

- Click on Settings at the top of the screen.
- Select Radio Menu Settings from the menu that opens.
- Select the Common 1 tab.
- The option is named Auto Repeater Shift on the Common 1 tab.

Set Mode		
Menu Item	Programmer Item	
<b>DISPLAY</b>		
1	TARGET LOCATION	Settings   Radio Menu Settings   Common 1   Display   Target Location
2	COMPASS	Settings   Radio Menu Settings   Common 1   Display   Compass
3	BAND SCOPE	Settings   Radio Menu Settings   Common 1   Display   Band Scope
4	LAMP	Settings   Radio Menu Settings   Common 1   Display   Lamp
5	LANGUAGE	Settings   Radio Menu Settings   Common 1   Display   Language
6	LCD BRIGHTNES S	Settings   Radio Menu Settings   Common 1   LCD Brightness
7	DISPLAY COLOR	Settings   Radio Menu Settings   Common 1   Font Color
8	OPENING MESSAGE	Settings   Radio Menu Settings   Messages / Bluetooth   Opening Message
<b>TX / RX</b>		
<b>1 MODE</b>		
1	ANTENNA ATT	Main Screen   Attenuator. This item is set independently for each memory channel.
<b>2 DIGITAL</b>		

1	DIGITAL POPUP	Settings   Radio Menu Settings   Common 2   Digital Popup
2	LOCATION SERVICE	Settings   Radio Menu Settings   Common 2   Location Service
3	STANDBY BEEP	Settings   Radio Menu Settings   Common 2   Standby Beep
4	DIGITAL VW	Settings   Radio Menu Settings   Common 2   Digital VW
5	AUDIO PITCH	Settings   Radio Menu Settings   Common 2   Audio Pitch
<b>3 AUDIO</b>		
1	MIC GAIN	Settings   Radio Menu Settings   Common 2   Mic Gain
2	MUTE	Settings   Radio Menu Settings   Common 2   Mute Level
3	RX AF DUAL	Settings   Radio Menu Settings   Common 2   Rx AF Dual
4	SP SELECT	Settings   Radio Menu Settings   Common 2   Speaker Select
5	VOX	Settings   Radio Menu Settings   Common 1   VOX
6	RECORDING	Settings   Radio Menu Settings   Common 1   Recording
<b>MEMORY</b>		
1	BANK LINK	Settings   Bank Names and Linking
2	BANK NAME	Settings   Bank Names and Linking
3	MEMORY NAME	Main Screen   Name. This item is set independently for each memory channel.
4	MEMORY PROTECT	Settings   Radio Menu Settings   Common 1   Memory   Protect
5	MEMORY SKIP	Main Screen   Skip. This item is set independently for each memory channel.
6	MEMORY WRITE	Settings   Radio Menu Settings   Common 1   Memory   Write
<b>SIGNALING</b>		
1	BELL	Settings   Radio Menu Settings   Common 2   Signaling   Bell Ringer
2	DCS CODE	Main Screen   DCS. This item is set independently for each memory channel.
3	DCS INVERSION	Main Screen   DCS Polarity. This item is set independently for each memory channel.
4	DTMF MODE	Settings   Radio Menu Settings   DTMF / Internet   DTMF Settings
5	DTMF MEMORY	Settings   Radio Menu Settings   DTMF / Internet   DTMF Settings   Code
6	PAGER	Settings   Radio Menu Settings   Common 2   Signaling   Pager
7	PR FREQUENCY	Main Screen   User CTCSS
8	SQL LEVEL	Settings   Radio Menu Settings   Common 2   Signaling   Squelch Level
9	SQL S-METER	Main Screen   S-Meter Squelch. This item is set independently for each memory channel.

11	SQL TYPE	Settings   Radio Menu Settings   Common 2   Signaling   Squelch Level
13	TONE SEARCH	Settings   Radio Menu Settings   Common 2   Signaling   Tone Search Mute
14	WX ALERT	Settings   Radio Menu Settings   Common 2   Signaling   Weather   Weather Alert
<b>SCAN</b>		
1	DW TIME	Settings   Radio Menu Settings   Common 2   Scan   DW Time
2	SCAN LAMP	Settings   Radio Menu Settings   Common 2   Scan   Lamp
3	SCAN RE-START	Settings   Radio Menu Settings   Common 2   Scan   Restart Time
4	SCAN RESUME	Settings   Radio Menu Settings   Common 2   Scan   DW Resume
5	SCAN WIDTH	Settings   Radio Menu Settings   Common 2   Scan   VFO Scan Mode, Memory Scan Mode
6	PRIORITY REVERT	Settings   Radio Menu Settings   Common 2   Scan   Priority Revert
<b>GM</b>		
1	DP-ID LIST	Settings   Radio Menu Settings   Group Monitor / Messaging   DP-ID List
<b>WIRES-X</b>		
1	RPT/WIRES FREQ	Settings   Radio Menu Settings   DTMF / Internet   Internet (Wires) Settings   Rpt/Wires Freq
2	SEARCH SETUP	Settings   Radio Menu Settings   DTMF / Internet   Internet (Wires) Settings   Search Setup
3	EDIT CATEGORY TAG	Settings   Radio Menu Settings   DTMF / Internet   Internet (Wires) Settings
4	REMOVE ROOM/NODE	Settings   Radio Menu Settings   DTMF / Internet   Internet (Wires) Settings
5	DG-ID	Settings   Radio Menu Settings   DTMF / Internet   Internet (Wires) Settings   DG ID
<b>CONFIG</b>		
1	APO	Settings   Radio Menu Settings   Common 1   Config   Auto Power Off
2	BCLO	Settings   Radio Menu Settings   Common 1   Config   Busy Channel Lock Out (checkbox)
3	BEEP	Settings   Radio Menu Settings   Common 1   Config   Beep Select
4	BEEP LEVEL	Settings   Radio Menu Settings   Common 1   Config   Beep Level
5	BUSYLED	Settings   Radio Menu Settings   Common 1   Config   Busy LED (checkbox)
7	GPS LOG	Settings   Radio Menu Settings   Common 1   Config   GPS Log

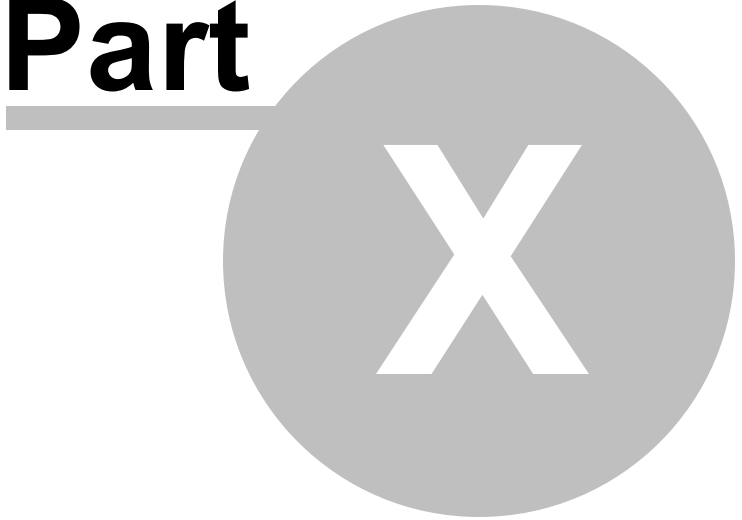


8	HOME VFO	Settings   Radio Menu Settings   Common 1   Config   Home VFO (checkbox)
9	LOCK	Settings   Radio Menu Settings   Common 1   Config   Lock
10	MON/T-CALL	Settings   Radio Menu Settings   Common 1   Config   Moni/T Call
11	TIMER	Settings   Radio Menu Settings   Common 1   Config   Timers
12	PASSWORD	Settings   Radio Menu Settings   Common 1   Config   Password   Enable. This item can be enabled only if an entry is made in the Password edit field (i.e., you cannot have a blank password)
13	PTT DELAY	Settings   Radio Menu Settings   Common 1   Config   PTT Delay
14	RPT ARS	Settings   Radio Menu Settings   Common 1   Config   Auto Repeater Shift (checkbox)
15	RPT SHIFT	Main Screen   Offset Direction
16	RPT SHIFT FREQ	Main Screen   Offset Frequency
17	SAVE RX	Settings   Radio Menu Settings   Common 1   Config   Rx Save
18	STEP	Main Screen   Step. This item is set independently for each memory channel.
19	DATE & TIME ADJ	Settings   Radio Menu Settings   Common 1   Config   Time Signal Alarm (checkbox)
20	TOT	Settings   Radio Menu Settings   Common 1   Config   Time Out Timer
21	VFO MODE	Settings   Radio Menu Settings   Common 1   Config   VFO Mode
22	BAND SELECT	Settings   Radio Menu Settings   Common 1   Config   Band Select
23	DIAL KNOB CHANGE	Settings   Radio Menu Settings   Common 1   Config   Dial Knob Swap
<b>APRS</b>		
1	APRS AF DUAL	Settings   Radio Menu Settings   APRS   Misc   AF Dual
3	APRS FILTER	Settings   Radio Menu Settings   APRS   Pop-Up
4	APRS MODEM	Settings   Radio Menu Settings   APRS   Misc   Modem Speed
5	APRS MSG FLASH	Settings   Radio Menu Settings   Messages / Bluetooth   Message Settings   Message Flash
6	APRS MSG GROUP	Settings   Radio Menu Settings   Messages / Bluetooth   Message Settings   Message Group
7	APRS MSG TEXT	Settings   Radio Menu Settings   Messages / Bluetooth   Message Settings   Message Text
8	APRS MUTE	Settings   Radio Menu Settings   APRS   Misc   B Band Mute
9	APRS POPOP	Settings   Radio Menu Settings   APRS   Pop-Up
10	APRS RINGER	Settings   Radio Menu Settings   APRS   Ringer
11	APRS UNIT	Settings   Radio Menu Settings   APRS   Units

12	APRS TX DELAY	Settings   Radio Menu Settings   APRS   Misc   Tx Delay
13	BEACON INFO	Settings   Radio Menu Settings   APRS Beacon   APRS Beacons   Beacon Info   Ambiguity
14	BEACON INTERVAL	Settings   Radio Menu Settings   APRS Beacon   APRS Beacons   Beacon Interval
15	BEACON STATUS TEXT	Settings   Radio Menu Settings   APRS Beacon   APRS Beacons   Status Text Enable, Status Text Rate
16	BEACON TX	Settings   Radio Menu Settings   APRS Beacon   APRS Beacons   Beacon Transmit
17	COM PORT SETTING	Settings   Radio Menu Settings   APRS Beacon   APRS   Com Port Settings
18	DIGI PATH	Settings   Radio Menu Settings   APRS   Digi Path
19	GPS SETUP	Settings   Radio Menu Settings   GPS   Datum, GPS Pinning, DGPS
20	GPS POWER	Settings   Radio Menu Settings   GPS   Power
21	GPS TIME SET	Settings   Radio Menu Settings   GPS   Time Set
22	GPS UNIT	Settings   Radio Menu Settings   GPS   My Position
23	CALLSIGN (APRS)	Settings   Radio Menu Settings   APRS   Misc   My Callsign
24	MY POSITION	Settings   Radio Menu Settings   GPS   My Position
25	MY SYMBOL	Settings   Radio Menu Settings   APRS   Misc   My Symbols
26	POSITION COMMENT	Settings   Radio Menu Settings   APRS   Misc   Position Comment
27	SmartBeaconing	Settings   Radio Menu Settings   APRS Beacon   Smart Beacons
28	TIME ZONE	Settings   Radio Menu Settings   APRS   Misc   Time Zone
<b>SD CARD</b>		
1	BACKUP	The SD card functions are what the radio uses to address the Card.
2	MEMORY CH	The Programmer can use the data that the radio puts on the SD Card.
3	MEMORY INFO	Communications   Read Data From SD Card or Write Data to SD Card.
4	FORMAT	
<b>OPTION</b>		
1	USB CAMERA	Settings   Radio Menu Settings   Common 1   Option
2	Bluetooth	Settings   Radio Menu Settings   Messages / Bluetooth   Bluetooth   Bluetooth Enable
3	DEVICE LIST	Settings   Radio Menu Settings   Messages / Bluetooth   Bluetooth   Bluetooth Devices

4	Bluetooth Audio	This setting is handled from the radio only to allow complete real time control during use of the attached device.
<b>CALLSIGN</b>		
	CALLSIGN	Settings   Radio Menu Settings   Common 1   Callsign

**Part**



## 10 Narrow Band Operations

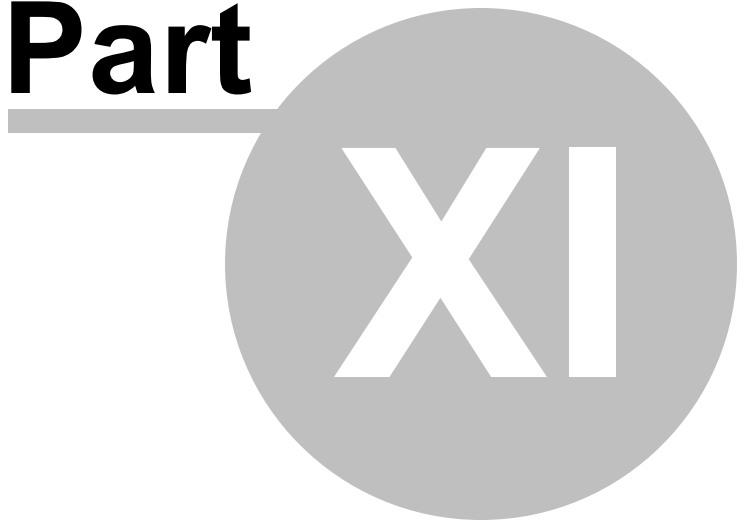
As the airways become increasingly busy, requirements for narrow band operations have been implemented for many activities. These requirements involve deviation and frequency step.

Most amateur radios have an option to change deviation from 5Hz to 2.5Hz which is a part of narrow band operations. This change does not help the radio access a new commercial narrow band frequency on 2.5 kHz steps.

Generally the narrow band commercial frequencies have four significant digits after the decimal. Amateur radios can access only those that end in x.x125, x.x375, x.x625 and x.x875 where the "x" represents any number.

***Note: Notice the pattern of "25" and "75" in the third and fourth digits. Check your frequency carefully. If it does not follow this convention, this radio will not be able to use it.***

**Part**



## 11 External Data - Repeater Lists and other Frequencies

The Programmer has the ability to pull information from commercially maintained frequency information. An Internet connection is required for several of these options. Frequency List is maintained in the Programmer on your computer. The information in that list is always available to you.

To access this information, select

File from the menu at the top of the screen

In the File menu, select External Data

From the list presented, select:

Radio Reference Search - A commercially maintained database of amateur repeater and other commercial frequencies. A subscription is required to use this service. Check the Radio Reference site for details about that subscription.

Repeater Book Search - A commercially maintained database of amateur repeaters in the US and many other countries. This service is free for anyone to use. Check the Repeater Book site for details about support through contributions if you are so inclined.

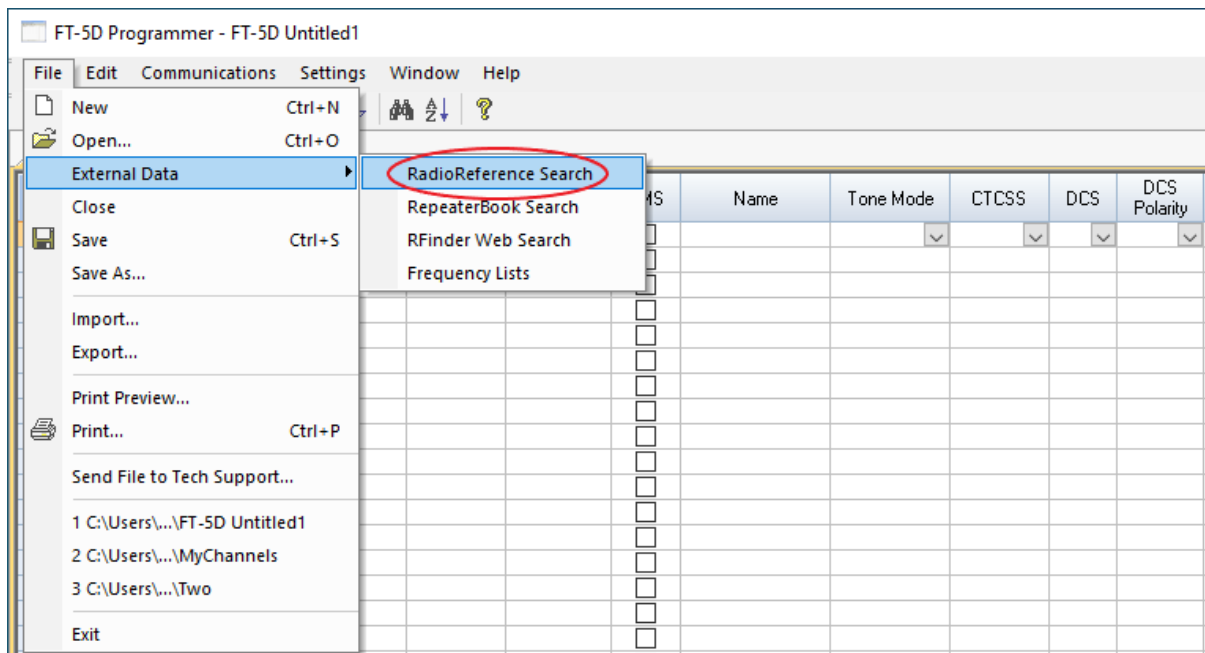
RFinder Web Search - A commercially maintained database of amateur repeaters in the US and other countries worldwide. This search has the best interface with a location and route search available. See detail about its use in the [RFinder Web Search](#) section of this help. A subscription is required to use this service. See the RFinder site for details about that subscription.

Frequency list - A list of commercial and other common frequencies maintained in the Programmer. An Internet connection is not needed to use this list.

## 11.1 RadioReference Search

RadioReference is the largest radio communications data provider in the world. This service features a complete frequency database, trunked radio system information, and FCC license data. Registration and access to the service are free, and advanced features are available to Premium Subscribers of the site.

The Programmer provides easy access to the RadioReference Search interface. From the main screen of the Programmer, go to File | External Data | RadioReference Search.



Once on the RadioReference Search screen, select the State/Province and County information for the frequencies you're searching for, as well as your User ID and Password. If you don't have a User ID and Password yet, go ahead and click on "Click here" to follow the link to RadioReference.com. You will be prompted to complete registration for a free account. After you've created a User ID and Password and entered it into the RadioReference Search screen in the Programmer, your data will be saved by the Programmer. This means that you only have to enter in your account information once. Should you wish to search for frequencies in a new area, just select the appropriate search data from the drop down menus and click OK.



RadioReference Search

Not registered for the RadioReference Service?

Click here

State/Province: Georgia

County: Troup

User ID: rtsystems

Password: ●●●●●●●●

OK Cancel

Based on your selections in the previous screen, you will see a list of channels with returned data from your search.

FT-5D Programmer

File Edit Communications Settings Window Help

FT-5D Untitled1 RadioReference Search

	Output Frequency	Operating Mode	Name	Type	Tone Mode	CTCSS	DCS	Tag	Description	County	Catagoy/Agency
1	155.49000	FMN	HFD Dispatch	BM	Tone Squelch	146.2		Fire Dispatch	Fire	Troup	Hogansville
2	154.65750	FMN	HFD Dispatch	FM	Tone Squelch	82.5		Law Dispatch	Police	Troup	Hogansville
3	154.41500	FMN	LaGrange Fire PG	B	Tone Squelch	88.5		Fire Dispatch	Fire Dispatch/Pager	Troup	LaGrange
4	852.58750	FM	LaGrange 800	RM	None			Emergency Ops	LaGrange	Troup	LaGrange
5	155.17500	FMN	TCEMS Disp	BM	Tone Squelch	100.0		EMS Dispatch	EMS Dispatch Only	Troup	Troup County
6	154.08500	FMN	TC Marshal	BM	Tone Squelch	156.7		Law Dispatch	Marshal Dispatch/Operations	Troup	Troup County
7	154.75500	FMN	TCSO Disp	RM	Tone Squelch	100.0		Law Dispatch	Sheriff Dispatch	Troup	Troup County
8	153.89000	FMN	TCFD FG	M	Tone Squelch	100.0		Fire-Tac	Fireground	Troup	Troup County
9	154.34000	FMN	TCFD Disp	RM	Tone Squelch	100.0		Fire Dispatch	Fire Dispatch	Troup	Troup County
10	155.49000	FMN	TCSO MRD	BM	Tone Squelch	88.5		Law Talk	Sheriff MRD (Law Net)	Troup	Troup County
11	156.09000	FMN	TCSO A	M	Tone Squelch	100.0		Law Talk	Sheriff	Troup	Troup County
12	158.85000	FMN	TCSO B	M	Tone Squelch	100.0		Law Talk	Sheriff	Troup	Troup County
13	453.17500	FMN	TCSO Jail	BM	None			Corrections	Sheriff - Jail Security	Troup	Troup County
14	460.15000	FMN	TCSO Jail	BM	None			Corrections	Sheriff - Jail Security	Troup	Troup County
15	151.92500	FMN	TC BOE A	RM	None			Schools	Board of Education	Troup	Troup County
16	460.60000	FMN	West Point Fire	RM	Tone Squelch	100.0		Fire Dispatch	Fire	Troup	West Point
17	453.05000	FMN	WestPoint Police	RM	Tone Squelch	88.5		Law Dispatch	Police	Troup	West Point
18	147.33000	FM	147.3300	BM	Tone	100.0		Ham	Skywarn Link	Troup	Amateur Radio
19	146.70000	FM	146.7000	BM	Tone	141.3		Ham	LaGrange Amateur Radio Club	Troup	Amateur Radio
20	122.97500	AM	UNICOM	BM	None			Aircraft	UNICOM	Troup	LaGrange-Callaway Airport (LGC): Air Traffic Control
21	126.32500	AM	WXAWOS-3	B	None			Aircraft	WXAWOS-3	Troup	LaGrange-Callaway Airport (LGC): Air Traffic Control
22	119.25000	AM	Clearance	BM	None			Aircraft	Clearance Delivery	Troup	LaGrange-Callaway Airport (LGC): Air Traffic Control
23	125.50000	AM	App / Dep	BM	None			Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Callaway Airport (LGC): Air Traffic Control
24	126.97500	AM	App / Dep	BM	None			Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Callaway Airport (LGC): Air Traffic Control

Modules: FT-5D Radio Data File

Name: Name Comment Description

Create File For: FT-5D

Selected Bands: 144MHz, General

Select All Unselect All

Ready CAP NUM SCRL

On this screen, you will:

- Check the data in the spreadsheet. Verify that this is the data you expected. A misspelled word can cause the search to return incorrect data.

- Choose one of the options in the Name drop down menu to identify what the channel Name will be. The drop down menu provides options for naming the channel according to Name, Tag, Description, County, or Category/Agency. Although this information will be transferred to the radio, the data might be truncated depending on the number of characters the radio can hold. For example, DENVER might become DENVE.

16	460.60000	FMN	West Point Fire	RM	Tone Squelch	100.0	Fire Dispatch	Fire	Troup	West Point
17	453.05000	FMN	WestPoint Police	RM	Tone Squelch	88.5	Law Dispatch	Police	Troup	West Point
18	147.33000	FM	147.3300	BM	Tone	100.0	Ham	Skywarn Link	Troup	Amateur Rac
19	146.70000	FM	146.7000	BM	Tone	141.3	Ham	LaGrange Amateur Radio Club	Troup	Amateur Rac
20	122.97500	AM	UNICOM	BM	None		Aircraft	UNICOM	Troup	LaGrange-Ce
21	126.32500	AM	WXAWDS-3	B	None		Aircraft	WXAWDS-3	Troup	LaGrange-Ce
22	119.25000	AM	Clearance	BM	None		Aircraft	Clearance Delivery	Troup	LaGrange-Ce
23	125.50000	AM	App / Dep	BM	None		Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Ce
24	126.97500	AM	App / Dep	BM	None		Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Ce

Modules: FT-5D Radio Data File

Create File For: FT-5D

Selected Bands: [ ]

Name: Name

Comment: Description

Select All

Unselect All

Ready

- Use the options in the Comment menu to identify what the channel Comment field will contain. The Comment drop down menu options are Name, Tag, Description, County, or Category/Agency. Comment information isn't transferred to the radio. It simply provides more details about the channel. Should you choose to print a copy of the data for these channels, the Comment section information will be included in that print out.

16	460.60000	FMN	West Point Fire	RM	Tone Squelch	100.0	Fire Dispatch	Fire	Troup	West Point
17	453.05000	FMN	WestPoint Police	RM	Tone Squelch	88.5	Law Dispatch	Police	Troup	West Point
18	147.33000	FM	147.3300	BM	Tone	100.0	Ham	Skywarn Link	Troup	Amateur Rac
19	146.70000	FM	146.7000	BM	Tone	141.3	Ham	LaGrange Amateur Radio Club	Troup	Amateur Rac
20	122.97500	AM	UNICOM	BM	None		Aircraft	UNICOM	Troup	LaGrange-Ce
21	126.32500	AM	WXAWDS-3	B	None		Aircraft	WXAWDS-3	Troup	LaGrange-Ce
22	119.25000	AM	Clearance	BM	None		Aircraft	Clearance Delivery	Troup	LaGrange-Ce
23	125.50000	AM	App / Dep	BM	None		Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Ce
24	126.97500	AM	App / Dep	BM	None		Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Ce

Modules: FT-5D Radio Data File

Create File For: FT-5D

Selected Bands: [ ]

Name: Name

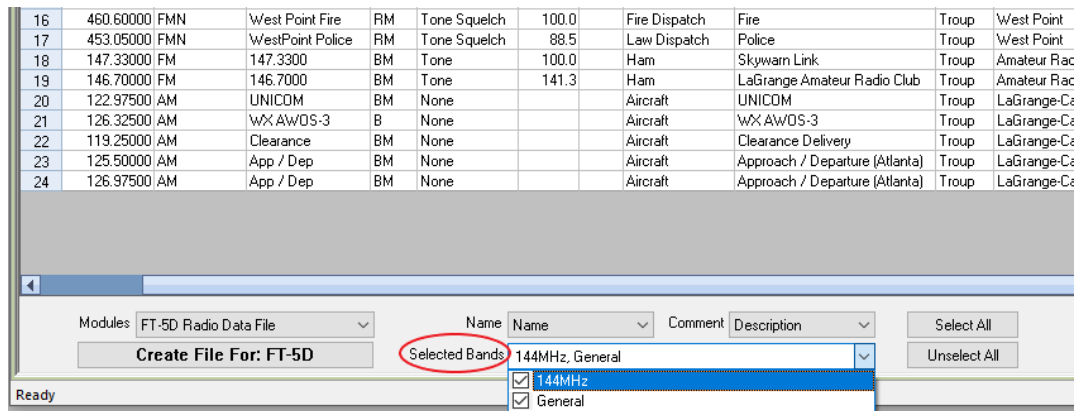
Comment: Description

Select All

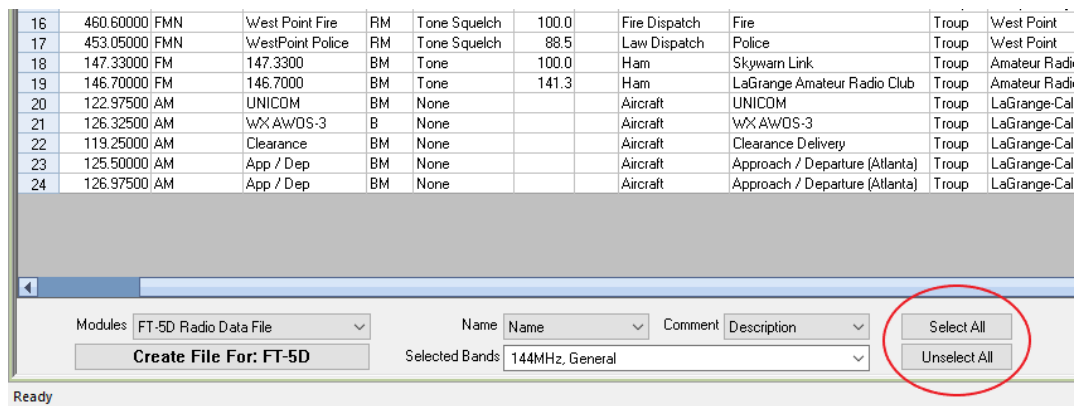
Unselect All

Ready

- The Selected Bands drop down menu controls the frequency band data sent to the radio. Unselect the check mark beside the band name to omit that frequency band from being sent to the radio, and select the check mark beside the band name to include it.



- Use the Select All and Unselect All buttons to fine tune the channels you want to send to the radio.



- From the Modules drop down menu, verify the correct radio is selected. Then, click the Create File For: XXX radio button on the screen to finalize your selections.

16	460.60000	FMN	West Point Fire	RM	Tone Squelch	100.0	Fire Dispatch	Fire	Troup	West Point
17	453.05000	FMN	WestPoint Police	RM	Tone Squelch	88.5	Law Dispatch	Police	Troup	West Point
18	147.33000	FM	147.3300	BM	Tone	100.0	Ham	Skywarn Link	Troup	Amateur Rad
19	146.70000	FM	146.7000	BM	Tone	141.3	Ham	LaGrange Amateur Radio Club	Troup	Amateur Rad
20	122.97500	AM	UNICOM	BM	None		Aircraft	UNICOM	Troup	LaGrange-Ca
21	126.32500	AM	WXAWOS-3	B	None		Aircraft	WXAWOS-3	Troup	LaGrange-Ca
22	119.25000	AM	Clearance	BM	None		Aircraft	Clearance Delivery	Troup	LaGrange-Ca
23	125.50000	AM	App / Dep	BM	None		Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Ca
24	126.97500	AM	App / Dep	BM	None		Aircraft	Approach / Departure (Atlanta)	Troup	LaGrange-Ca

Modules: FT-5D Radio Data File Name: Name Comment: Description Select All

Create File For: FT-5D Selected Bands: 144MHz, General Unselect All

Ready

Use the Modules drop down menu to verify your radio.

Click Create File For: XXX to create the file that you will send to your radio.

- Clicking the Create File For: XXX button results in a new window on the screen with all of the data you've specified in the previous steps.

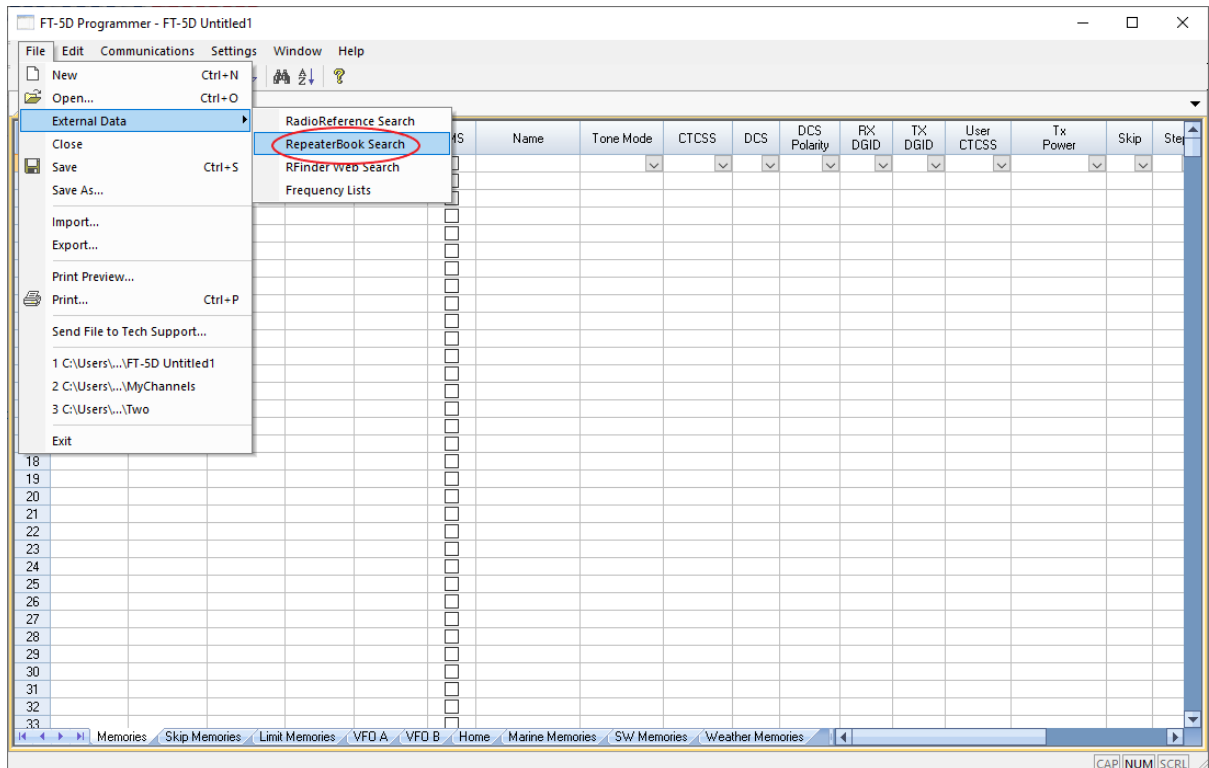
	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	AMS	Name	Tone Mode	CTCSS	DCS	DCS Polarity	RX DGD	TX DGD	User CTCSS	Tx Power	Skip	Step
P1	155.49000	155.49000		Simplex	FM		HFD Dispatch	T Sq	146.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
2	154.41500	154.41500		Simplex	FM		LaGrange Fire PG	T Sq	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
3	852.58750	852.58750		Simplex	FM		LaGrange 800	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	Auto
4	155.17500	155.17500		Simplex	FM		TCEMS Disp	T Sq	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
5	154.08500	154.08500		Simplex	FM		TC Marshal	T Sq	156.7 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
6	154.75500	154.75500		Simplex	FM		TCSO Disp	T Sq	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
7	153.89000	153.89000		Simplex	FM		TCFD FG	T Sq	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
8	154.34000	154.34000		Simplex	FM		TCFD Disp	T Sq	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
9	155.49000	155.49000		Simplex	FM		TCSO MRD	T Sq	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
10	156.09000	156.09000		Simplex	FM		TCSO A	T Sq	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
11	158.89000	158.89000		Simplex	FM		TCSO B	T Sq	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
12	453.17500	453.17500		Simplex	FM		TCSO Jail	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
13	460.15000	460.15000		Simplex	FM		TCSO Jail	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
14	151.92500	151.92500		Simplex	FM		TC BOE A	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
15	460.60000	460.60000		Simplex	FM		West Point Fire	T Sq	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
16	453.05000	453.05000		Simplex	FM		WestPoint Police	T Sq	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
17	122.97500	122.97500		Simplex	AM		UNICOM	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
18	126.32500	126.32500		Simplex	AM		WXAWOS-3	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
19	119.25000	119.25000		Simplex	AM		Clearance	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
20	125.50000	125.50000		Simplex	AM		App / Dep	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
21	126.97500	126.97500		Simplex	AM		App / Dep	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz
22																	
23																	
24																	
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30																	
31																	
32																	
33																	

The only remaining step is to send the data from the Programmer to your radio by going to Communications | Send Data To Radio. To learn more about the details of the Communications process, refer to the [Computer / Radio File Transfer](#) section of this Help.

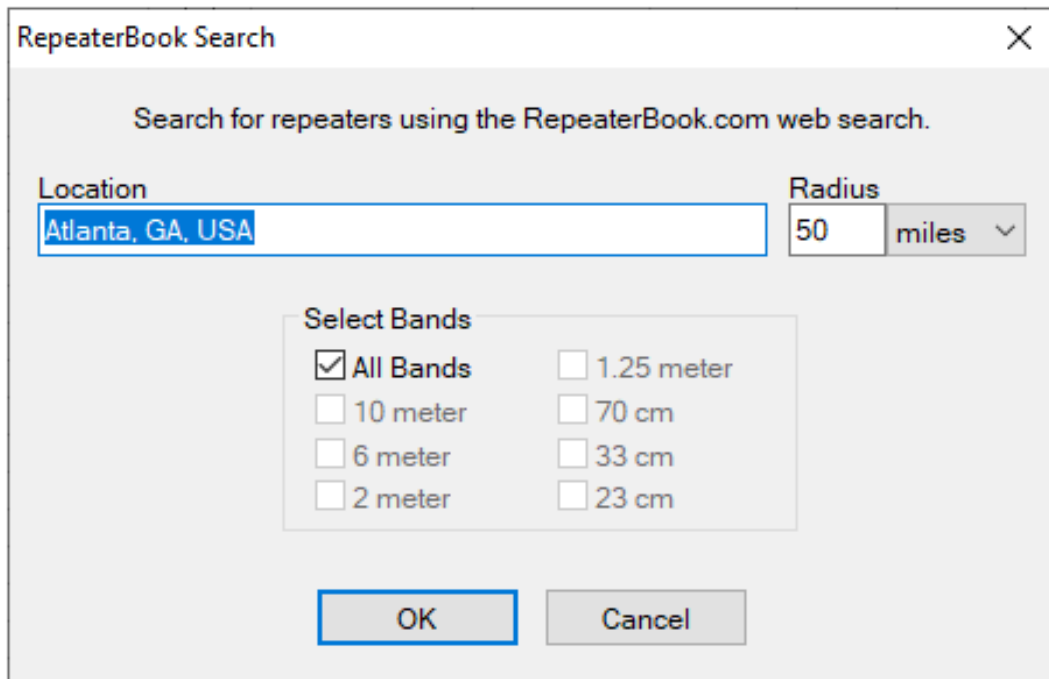


## 11.2 RepeaterBook Search

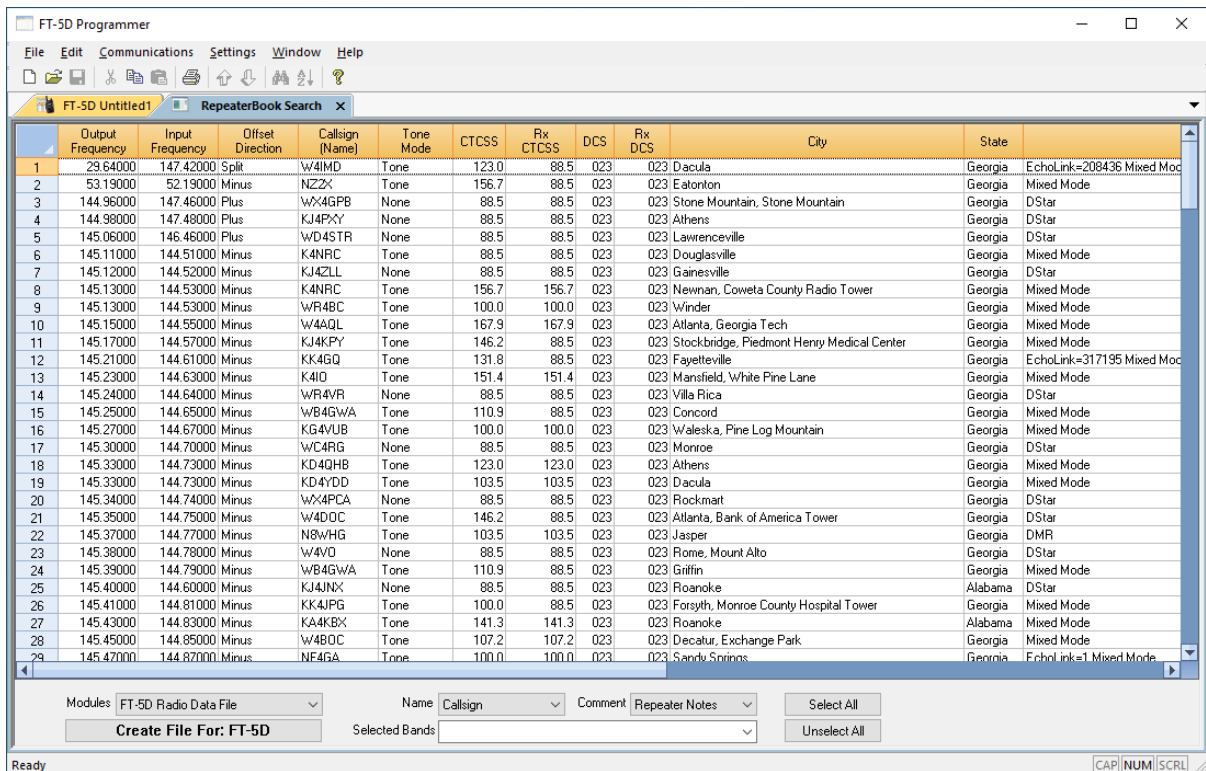
The RepeaterBook Search is amateur radio's most comprehensive global repeater directory. It is free to use and can be accessed right from the main screen of your Programmer by going to File | External Data | RepeaterBook Search.



A new window will pop up. In this window, enter your desired search Location, Radius, and Bands. Click OK to initiate the search.



A new tab will open in the main screen of the Programmer. This tab contains the data returned from the parameters you selected for your search on the previous screen.



On this screen, you will:

- Check the data in the spreadsheet. Verify that this is the data you expected. A misspelled word can cause the search to return incorrect data.
- Choose one of the options in the Name drop down menu to identify what the channel Name will be. The drop down menu provides options for naming the channel according to Callsign, City, State, or Repeater Notes. Although this information will be transferred to the radio, the data might be truncated depending on the number of characters the radio can hold. For example, DENVER might become DENVE.

19	145.33000	144.73000	Minus	KD4YDD	Tone	103.5	103.5	023	023	Dacula
20	145.34000	144.74000	Minus	WX4PCA	None	88.5	88.5	023	023	Rockmart
21	145.35000	144.75000	Minus	W4DOC	Tone	146.2	88.5	023	023	Atlanta, Bank of America Tower
22	145.37000	144.77000	Minus	N8WHG	Tone	103.5	103.5	023	023	Jasper
23	145.38000	144.78000	Minus	W4VO	None	88.5	88.5	023	023	Rome, Mount Alto
24	145.39000	144.79000	Minus	WB4GWA	Tone	110.9	88.5	023	023	Griffin
25	145.40000	144.60000	Minus	KJ4JNX	None	88.5	88.5	023	023	Roanoke
26	145.41000	144.81000	Minus	KK4JPG	Tone	100.0	88.5	023	023	Forsyth, Monroe County Hospital Tower
27	145.43000	144.83000	Minus	KA4KBX	Tone	141.3	141.3	023	023	Roanoke
28	145.45000	144.85000	Minus	W4BOC	Tone	107.2	107.2	023	023	Decatur, Exchange Park
29	145.47000	144.87000	Minus	NF4GA	Tone	100.0	100.0	023	023	Sandy Springs

Modules: FT-5D Radio Data File

Create File For: FT-5D

Name: Callsign (Selected Bands)

Comment: Repeater Notes

Select All

Unselect All

Ready

- Use the options in the Comment menu to identify what the channel Comment field will contain. The Comment drop down menu options are Callsign, City, State, or Repeater Notes. Comment information isn't transferred to the radio. It simply provides more details about the channel. Should you choose to print a copy of the data for these channels, the Comment section information will be included in that print out.

19	145.33000	144.73000	Minus	KD4YDD	Tone	103.5	103.5	023	023	Dacula
20	145.34000	144.74000	Minus	WX4PCA	None	88.5	88.5	023	023	Rockmart
21	145.35000	144.75000	Minus	W4DOC	Tone	146.2	88.5	023	023	Atlanta, Bank of America Tower
22	145.37000	144.77000	Minus	N8WHG	Tone	103.5	103.5	023	023	Jasper
23	145.38000	144.78000	Minus	W4VO	None	88.5	88.5	023	023	Rome, Mount Alto
24	145.39000	144.79000	Minus	WB4GWA	Tone	110.9	88.5	023	023	Griffin
25	145.40000	144.60000	Minus	KJ4JNX	None	88.5	88.5	023	023	Roanoke
26	145.41000	144.81000	Minus	KK4JPG	Tone	100.0	88.5	023	023	Forsyth, Monroe County Hospital Tower
27	145.43000	144.83000	Minus	KA4KBX	Tone	141.3	141.3	023	023	Roanoke
28	145.45000	144.85000	Minus	W4BOC	Tone	107.2	107.2	023	023	Decatur, Exchange Park
29	145.47000	144.87000	Minus	NF4GA	Tone	100.0	100.0	023	023	Sandy Springs

Modules: FT-5D Radio Data File

Create File For: FT-5D

Name: Callsign

Comment: Repeater Notes

Select All

Unselect All

Ready



- The Selected Bands drop down menu controls the frequency band data sent to the radio. Unselect the check mark beside the band name to omit that frequency band from being sent to the radio, and select the check mark beside the band name to include it. It's recommended that you remove any distracting modes from your band selections (you may want to remove DMR or Dstar or P25 repeaters from the list). The Programmer will take care of the rest of the frequencies for you.

19	145.33000	144.73000	Minus	KD4YDD	Tone	103.5	103.5	023	023	Dacula
20	145.34000	144.74000	Minus	WX4PCA	None	88.5	88.5	023	023	Rockmart
21	145.35000	144.75000	Minus	W4DOC	Tone	146.2	88.5	023	023	Atlanta, Bank of America Tower
22	145.37000	144.77000	Minus	N8WHG	Tone	103.5	103.5	023	023	Jasper
23	145.38000	144.78000	Minus	W4V0	None	88.5	88.5	023	023	Rome, Mount Alto
24	145.39000	144.79000	Minus	WB4GWA	Tone	110.9	88.5	023	023	Griffin
25	145.40000	144.80000	Minus	KJ4JNX	None	88.5	88.5	023	023	Roanoke
26	145.41000	144.81000	Minus	KK4JPG	Tone	100.0	88.5	023	023	Forsyth, Monroe County Hospital Tower
27	145.43000	144.83000	Minus	KA4KBX	Tone	141.3	141.3	023	023	Roanoke
28	145.45000	144.85000	Minus	W4BOC	Tone	107.2	107.2	023	023	Decatur, Exchange Park
29	145.47000	144.87000	Minus	NF4GA	Tone	100.0	100.0	023	023	Sandy Springs

Modules: FT-5D Radio Data File

Name: Callsign

Comment: Repeater Notes

Create File For: FT-5D

Selected Bands: 28MHz or Lower, 50MHz, 1.2 GHz, 144MHz, 222MHz, 420MHz, 920MHz, DMR, DStar, P25, Yaesu Fusion System

Select All

Unselect All

Ready

- Next, use the Select All and Unselect All buttons to fine tune the channels you want to send to the radio.

19	145.33000	144.73000	Minus	KD4YDD	Tone	103.5	103.5	023	023	Dacula
24	145.39000	144.79000	Minus	WB4GWA	Tone	110.9	88.5	023	023	Griffin
26	145.41000	144.81000	Minus	KK4JPG	Tone	100.0	88.5	023	023	Forsyth, Monroe County Hospital Tower
27	145.43000	144.83000	Minus	KA4KBX	Tone	141.3	141.3	023	023	Roanoke
28	145.45000	144.85000	Minus	W4BOC	Tone	107.2	107.2	023	023	Decatur, Exchange Park
29	145.47000	144.87000	Minus	NF4GA	Tone	100.0	100.0	023	023	Sandy Springs
31	145.49000	144.89000	Minus	KK4DIO	Tone	107.2	107.2	023	023	Marietta, Fort Street Hill Tower
32	146.46000	146.46000	Simplex	N4RSW	Tone	88.5	88.5	023	023	Emerson, Lake Point
33	146.50000	146.50000	Simplex	KJ4ZZF	Tone	88.5	88.5	023	023	Dallas
34	146.61000	146.01000	Minus	K1KC	None	88.5	88.5	023	023	Conyers
35	146.62500	146.02500	Minus	W44TC	Tone	127.3	88.5	023	023	Braselton
36	146.64000	146.04000	Minus	W4FWD	Tone	131.8	88.5	023	023	Carrollton
37	146.65500	146.05500	Minus	K4EGA	Tone	186.2	100.0	023	023	Eatonton
38	146.68500	146.08500	Minus	W7TJT	Tone	167.9	88.5	023	023	Fairmount
39	146.70000	146.10000	Minus	K4SJR	Tone	123.0	123.0	023	023	Jasper
40	146.71500	146.11500	Minus	KJ4FVI	Tone	146.2	146.2	023	023	McDonough
42	146.76000	146.16000	Minus	W4BOC	Tone	107.2	107.2	023	023	Stone Mountain

Modules: FT-5D Radio Data File    Name: Callsign    Comment: Repeater Notes    **Select All**    **Unselect All**

Create File For: FT-5D    Selected Bands: 28MHz or Lower, 50MHz, 1.2 GHz, 144MHz, 222MHz

Ready

- From the Modules drop down menu, verify the correct radio is selected. Then, click the Create File For: XXX radio button on the screen to finalize your selections.

32	146.46000	146.46000	Simplex	N4RSW	Tone	88.5	88.5	023	023	Emerson, Lake Point
33	146.50000	146.50000	Simplex	KJ4ZZF	Tone	88.5	88.5	023	023	Dallas
34	146.61000	146.01000	Minus	K1KC	None	88.5	88.5	023	023	Conyers
35	146.62500	146.02500	Minus	W44TC	Tone	127.3	88.5	023	023	Braselton
36	146.64000	146.04000	Minus	W4FWD	Tone	131.8	88.5	023	023	Carrollton
37	146.65500	146.05500	Minus	K4EGA	Tone	186.2	100.0	023	023	Eatonton
38	146.68500	146.08500	Minus	W7TJT	Tone	167.9	88.5	023	023	Fairmount
39	146.70000	146.10000	Minus	K4SJR	Tone	123.0	123.0	023	023	Jasper
40	146.71500	146.11500	Minus	KJ4FVI	Tone	146.2	146.2	023	023	McDonough
42	146.76000	146.16000	Minus	W4BOC	Tone	107.2	107.2	023	023	Stone Mountain

Modules: FT-5D Radio Data File    Name: Callsign    Comment: Repeater Notes    **Select All**    **Unselect All**

Create File For: FT-5D    Selected Bands: 28MHz or Lower, 50MHz, 1.2 GHz, 144MHz, 222MHz

Ready

Use the Modules drop down menu to verify your radio.

Click Create File For: XXX to create the file that you will send to your radio.

- Clicking the Create File For: XXX button results in a new window on the screen with all of the data you've specified in the previous steps.

The screenshot shows the FT-5D Programmer software interface. The main window displays a list of repeater settings for 'FT-5D Untitled11'. The table includes columns for Receive Frequency, Transmit Frequency, Offset Frequency, Split, Offset Direction, Operating Mode, AMS, Name, Tone Mode, CTCSS, DCS, DCS Polarity, RX DGID, TX DGID, User CTCSS, Tx Power, Skip, Step, and Attenuator. The list contains 31 entries, each with a unique call sign and specific frequency offsets.

	Receive Frequency	Transmit Frequency	Offset Frequency	Split	Offset Direction	Operating Mode	AMS	Name	Tone Mode	CTCSS	DCS	DCS Polarity	RX DGID	TX DGID	User CTCSS	Tx Power	Skip	Step	Attenuator
P1	29.64000	147.42000						W4IMD	Tone	123.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
2	53.19000	52.19000	1.00 MHz		Minus	FM		NZ2X	Tone	156.7 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
3	145.11000	144.51000	600 kHz		Minus	FM		K4NRC	Tone	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
4	145.13000	144.53000	600 kHz		Minus	FM		K4NRC	Tone	156.7 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
5	145.13000	144.53000	600 kHz		Minus	FM		W4R4BC	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
6	145.15000	144.55000	600 kHz		Minus	FM		W4AQL	Tone	167.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
7	145.17000	144.57000	600 kHz		Minus	FM		KJ4KPY	Tone	146.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
8	145.21000	144.61000	600 kHz		Minus	FM		KK4GQ	Tone	131.8 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
9	145.23000	144.63000	600 kHz		Minus	FM		K4I0	Tone	151.4 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
10	145.25000	144.65000	600 kHz		Minus	FM		W4B4GWA	Tone	110.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
11	145.27000	144.67000	600 kHz		Minus	FM		KG4VUB	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
12	145.33000	144.73000	600 kHz		Minus	FM		KD4QHB	Tone	123.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
13	145.33000	144.73000	600 kHz		Minus	FM		KD4YDD	Tone	103.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
14	145.39000	144.79000	600 kHz		Minus	FM		W4B4GWA	Tone	110.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
15	145.41000	144.81000	600 kHz		Minus	FM		KK4JPG	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
16	145.43000	144.83000	600 kHz		Minus	FM		K44BX	Tone	141.3 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
17	145.45000	144.85000	600 kHz		Minus	FM		W4B0C	Tone	107.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
18	145.47000	144.87000	600 kHz		Minus	FM		NF4GA	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
19	145.49000	144.89000	600 kHz		Minus	FM		KK4OIO	Tone	107.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
20	146.46000	146.46000			Simplex	FM		N4RSW	Tone	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
21	146.50000	146.50000			Simplex	FM		KJ4ZZF	Tone	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
22	146.61000	146.01000	600 kHz		Minus	FM		K1KC	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
23	146.62500	146.02500	600 kHz		Minus	FM		W44TC	Tone	127.3 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
24	146.64000	146.04000	600 kHz		Minus	FM		W4P4VD	Tone	131.8 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
25	146.65500	146.05500	600 kHz		Minus	FM		K4EGA	Tone	166.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
26	146.68500	146.08500	600 kHz		Minus	FM		W7TJT	Tone	167.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
27	146.70000	146.10000	600 kHz		Minus	FM		K45JR	Tone	123.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
28	146.71500	146.11500	600 kHz		Minus	FM		KJ4PVI	Tone	146.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
29	146.76000	146.16000	600 kHz		Minus	FM		W4B0C	Tone	107.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
30	146.79000	146.19000	600 kHz		Minus	FM		K4NRC	Tone	131.8 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
31	146.82000	146.22000	600 kHz		Minus	FM		W4D0IC	Tone	146.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	

The final step is to send the data from the Programmer to your radio. At the top of the main window of the Programmer, Go to Communications | Send Data To Radio. To learn more about the details of the Communications process, refer to the [Computer / Radio File Transfer](#) section of this Help.

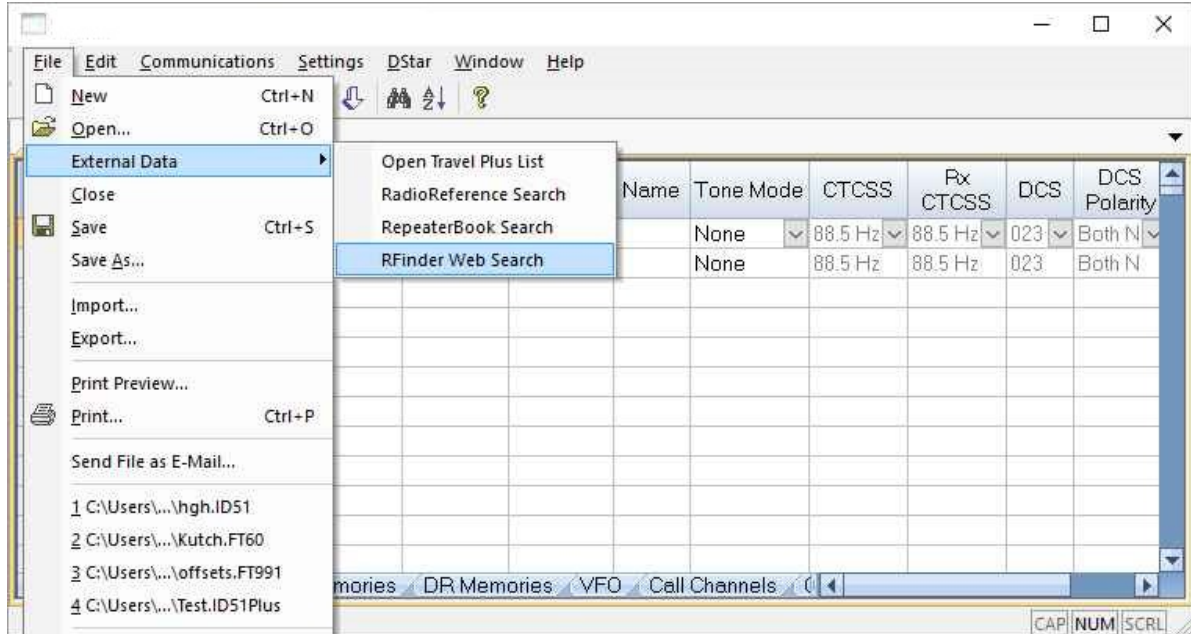
## 11.3 RFinder Web Service

The RFinder (RepeaterFinder) Worldwide Repeater Directory is a steadily growing worldwide repeater database including IRLP and Echolink information. The RT Systems Programmers have an easy to use interface to the RFinder directory right in the Programmer.

Access to the RFinder Worldwide Repeater Directory is available by subscription and can be accessed by licensed users via any version of the RFinder android app, browser interface ([web.rfinder.net](http://web.rfinder.net)), or through third-party applications. A license subscription is required to access the RFinder database through the Programmer. You can purchase that license from the link on the RFinder page in the Programmer.


### Using the RFinder Interface

From the main screen in the Programmer, select File | External Data | RFinder Web Service.



A window opens with options for this service.

RFinder Web Search



User E-Mail

Password

Location

Location

Radius (mile)

Route

Start

End

Route Width

Waypoints

Add

Remove

Remove All

Move Up

Move Down

Map Route

OK

Cancel

Enter Username and Password as assigned on the RFinder site. This information will be saved when you click OK. You complete these fields only once.

RFinder Web Search

User E-Mail Password

Location  
Location Radius (mile)

Route  
Start End Route Width 10

Waypoints Add Remove Remove All Move Up Move Down

Map Route

OK Cancel

Once you have the information from the Rfinder site, enter User E-Mail and Password.

This information will be saved by the programmer when you click OK.

Now the fun begins... Complete your location.

RFinder Web Search

User E-Mail Password

Location  
Location Radius (mile)

Route  
Start End Route Width 10

Waypoints Add Remove Remove All Move Up Move Down

Map Route

OK Cancel

Enter a Location and a radius around it for all the repeaters in that one area.

This is great way to find all the repeaters for your destination city when you are traveling.

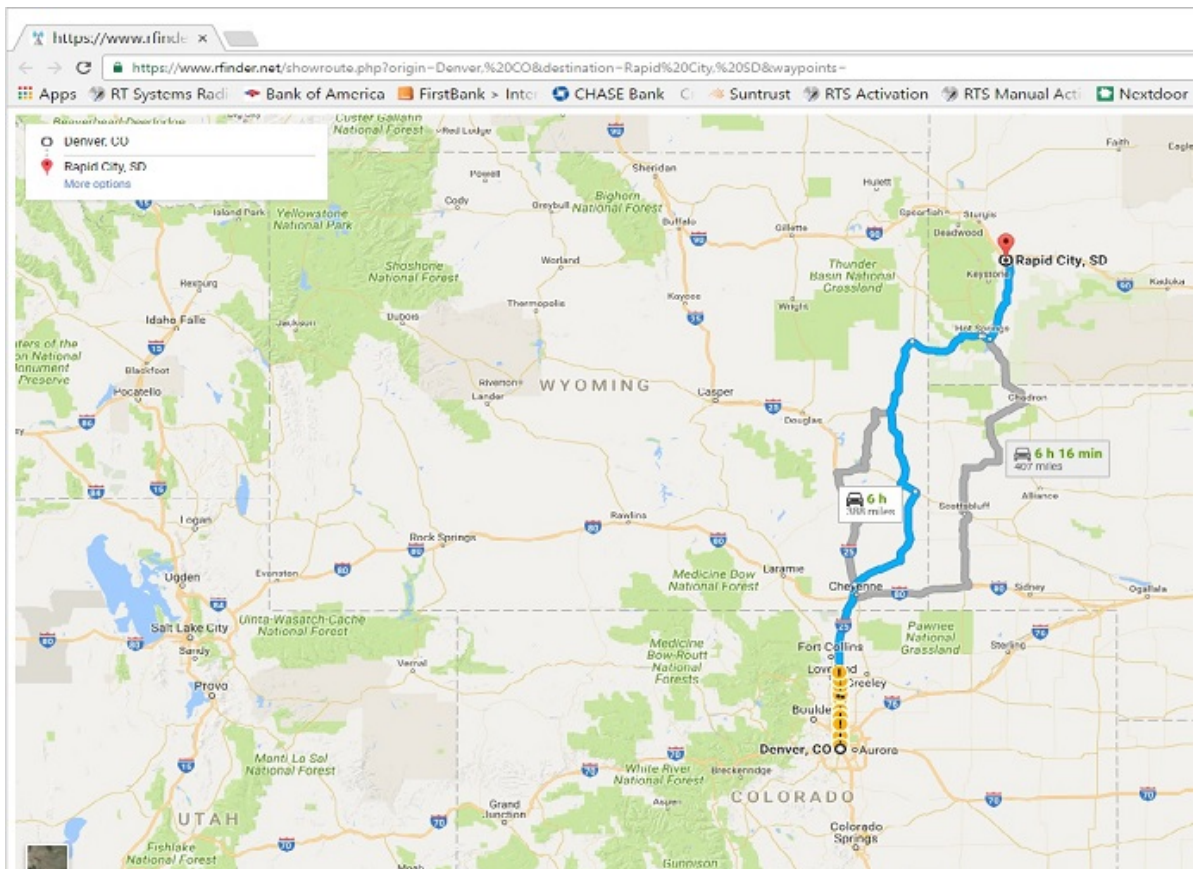
Alternately, you can work with a route to create a list of repeaters that lie along your travels.

The screenshot shows the 'RFinder Web Search' dialog box. It features a search icon at the top left. Below it are input fields for 'User E-Mail' and 'Password'. There are two sections: 'Location' and 'Route'. The 'Location' section has a checkbox, a 'Location' text box, and a 'Radius (mile)' text box. The 'Route' section has a checked checkbox, a 'Start' text box containing 'Denver, CO', an 'End' text box containing 'Rapid City, SD', and a 'Route Width' spinner box set to '10'. Below these are 'Waypoints' text boxes, an 'Add' button, and buttons for 'Remove', 'Remove All', 'Move Up', and 'Move Down'. At the bottom are 'Map Route', 'OK', and 'Cancel' buttons. Three callout lines point to the 'Route Width' spinner, the 'End' text box, and the 'Map Route' button, with accompanying text explaining their functions.

Enter a distance to either side of your route.

Enter a Start and End location.

Click Map Route to see how RFinder tracks between these two cities.



If this is not your desired route, enter waypoints along the route you want to take. RFinder will then track through those cities on the way between the start and end locations.



User E-Mail:  Password:

Location  
Location:  Radius (mile):

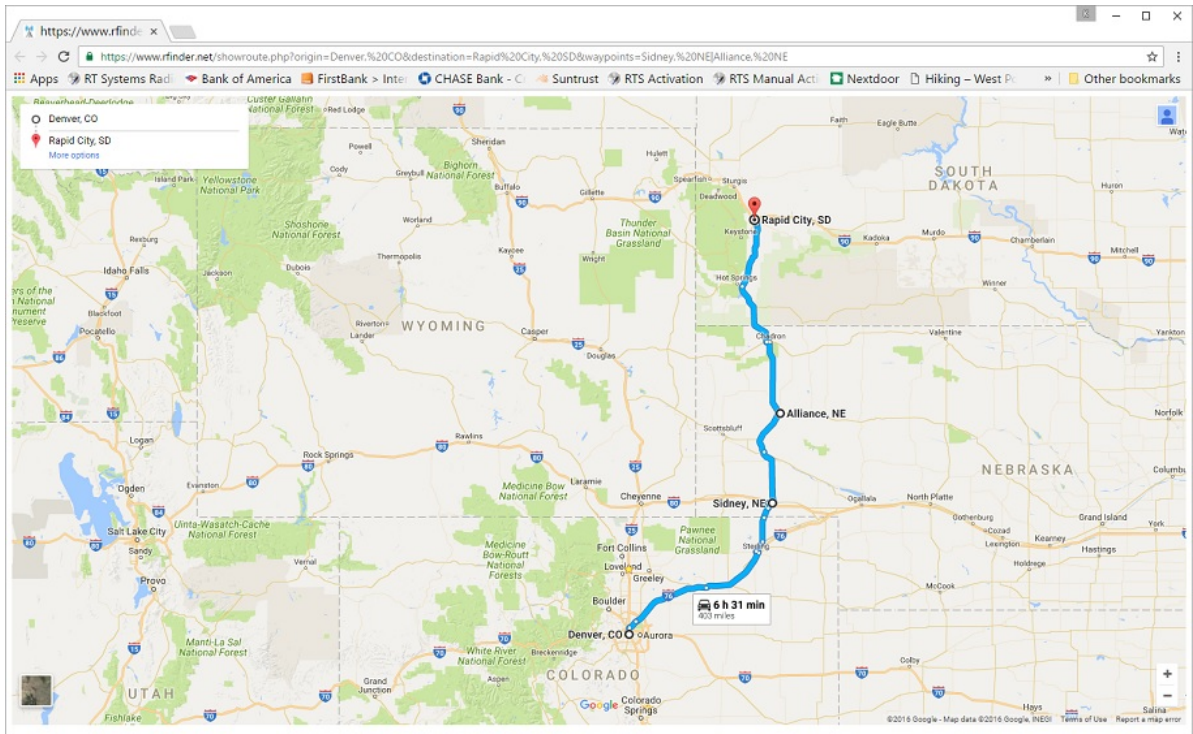
Route  
Start:  End:   
Route Width: 10

Waypoints:

Buttons: Add, Remove, Remove All, Move Up, Move Down, Map Route, OK, Cancel

Enter places you want to pass through along the way.

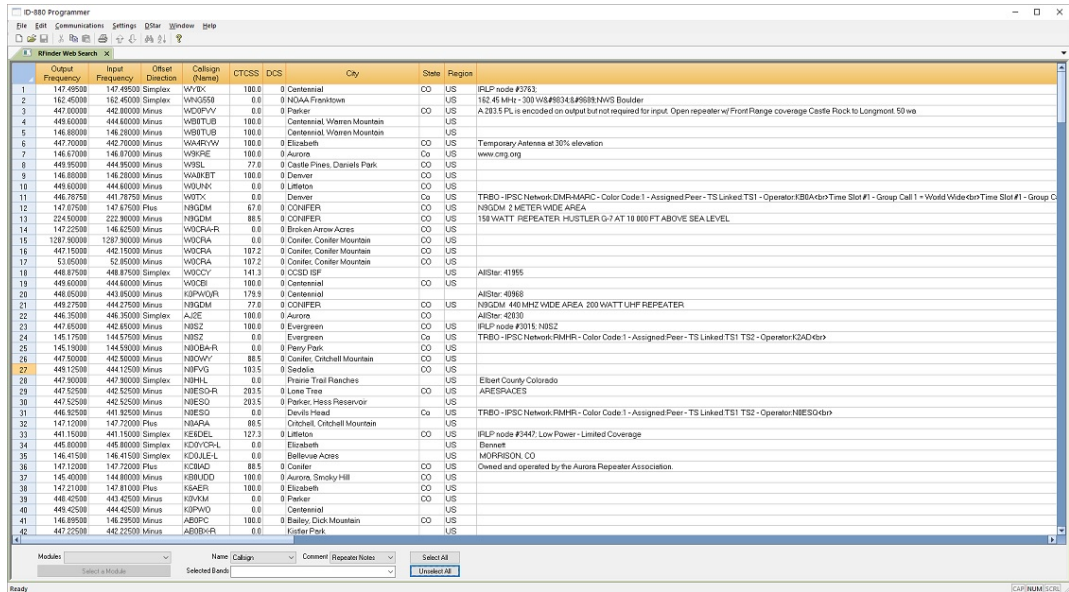
And your route becomes this.



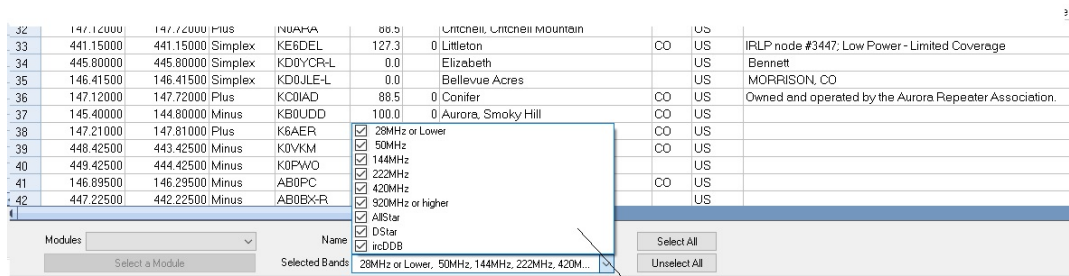
Click OK.

A screen is returned on which you will:

- Check the data returned: maybe you spelled something wrong and did not get the list you expected.



- Use the tools at the bottom of this screen to further refine the list (you may have DMR or Dstar or P25 repeaters in the list that you don't want).



Uncheck here to eliminate these channels from the list without having to search through to find them.

- Assign information for the Name field: this can be Callsign, City, State, Region, Repeater Notes or Sponsor. Remember, the radio will truncate your selection to the number of characters it can hold. So in some of the older radios, DENVER would become DENVE.

32	147.12000	147.72000	Plus	N0ARA	88.5		Critchell, Critchell Mountain		US	
33	441.15000	441.15000	Simplex	KE6DEL	127.3	0	Littleton	CO	US	IRLP node #3447; Low Power - Limited
34	445.80000	445.80000	Simplex	KD0YCR-L	0.0		Elizabeth		US	Bennett
35	146.41500	146.41500	Simplex	KD0JLE-L	0.0		Bellevue Acres		US	MORRISON, CO
36	147.12000	147.72000	Plus	KC0IAD	88.5	0	Conifer	CO	US	Owned and operated by the Aurora Re
37	145.40000	144.80000	Minus	KB0UDD	100.0	0	Aurora, Smoky Hill		CO	US
38	147.21000	147.81000	Plus	K6AER	100.0	0	Elizabeth		CO	US
39	448.42500	443.42500	Minus	K0VKM	0.0	0	Parker		CO	US
40	449.42500	444.42500	Minus	K0PWO	0.0		Centennial		US	
41	146.89500	146.29500	Minus	AB0PC	100.0	0	Bailey, Dick Mountain		CO	US
42	447.22500	442.22500	Minus	AB0BX-R	0.0		Kistler Park		US	

This option lets you select what information will be used in the Name field. This is your label for the channel.

- Assign information for the Comment field: this is information that will not be transferred to the radio. It provides more details about a certain channel. You can select Callsign, City, State, Region, Repeater Notes or Sponsor for this field.

18	448.87500	448.87500	Simplex	W0CCY	141.3	0	CCSD ISF		US	AllStar: 41955
19	449.60000	444.60000	Minus	W0CBI	100.0	0	Centennial	CO	US	
20	448.05000	443.05000	Minus	K0PWO/R	179.9	0	Centennial			AllStar: 40968
21	449.27500	444.27500	Minus	N9GDM	77.0	0	CONIFER	CO	US	N9GDM 440 MHZ WIDE AREA 200 WATT UHF REP
22	446.35000	446.35000	Simplex	AJ2E	100.0	0	Aurora	CO	US	AllStar: 42030
23	447.65000	442.65000	Minus	N0SZ	100.0	0	Evergreen	CO	US	IRLP node #3015; N0SZ
24	145.17500	144.57500	Minus	N0SZ	0.0		Evergreen	Co	US	TRBO - IPSC Network:RMHR - Color Code:1 - Assigne
25	145.19000	144.59000	Minus	N00BA-R	0.0	0	Perry Park		CO	US
26	447.50000	442.50000	Minus	N0OWY	88.5	0	Conifer, Critchell Mountain		CO	US
27	449.12500	444.12500	Minus	N0FVG	103.5	0	Sedalia		CO	US
28	447.90000	447.90000	Simplex	N0HLL	0.0		Prairie Trail Ranches		US	Elbert County Colorado

This option lets you select what information will be used in the Comment field of the program.

This information is not transferred to the radio. It is in the file to give you more details about the channel.

- Once you finish refining the list, click Modules. Then click Create File for: xxx radio.

20	448.05000	443.05000	Minus	K0PWO/R	179.9	0	Centennial										AllStar: 40968
21	449.27500	444.27500	Minus	N9GDM	77.0	0	CONIFER				CO	US					N9GDM 440 MHz WIDE
22	446.35000	446.35000	Simplex	AJ2E	100.0	0	Aurora				CO	US					AllStar: 42030
23	447.65000	442.65000	Minus	N0SZ	100.0	0	Evergreen				CO	US					IRLP node #3015; N0SZ
24	145.17500	144.57500	Minus	N0SZ	0.0		Evergreen				CO	US					TRBO - IPSC Network:R
25	145.19000	144.59000	Minus	N0OBA-R	0.0	0	Perry Park				CO	US					
26	447.50000	442.50000	Minus	N0OWY	88.5	0	Conifer, Critchell Mountain				CO	US					
27	449.12500	444.12500	Minus	N0FVG	103.5	0	Sedalia				CO	US					
28	447.90000	447.90000	Simplex	N0HLL	0.0		Prairie Trail Ranches					US					Elbert County Colorado

Modules: ID-880 Radio Data File Name: CallSign Comment: Repeater Notes Select All

Create File For: ID-880 Selected Bands: 28MHz or Lower, 50MHz, 144MHz, 222MHz, 420M... Unselect All

Use Modules to select your radio.

Click Create File For XXX to created the file that you will send to your radio.

The programming file for your radio is created.

The screenshot shows the ID-880 Programmer software interface. The main window displays a list of radio channels with the following columns: Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Tone Mode, CTCSS, Rv CTCSS, DCS, DCS Polarity, Skip, Step, Digital Squelch, Digital Code, Your CallSign, Rpt1 CallSign, Rpt2 CallSign, Bank, Channel Number, and Comment. The interface includes a menu bar (File, Edit, Communications, Settings, DStar, Window, Help) and a toolbar with various icons. The status bar at the bottom shows 'Ready' and 'CAP NUM | CTRL'.

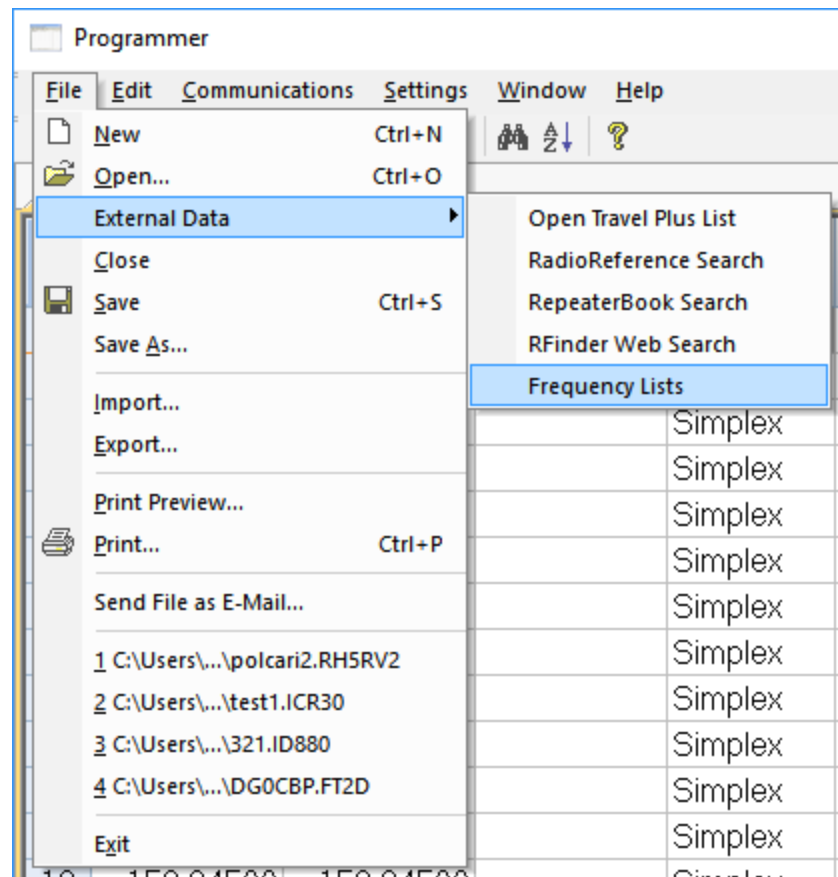
A complete programming file with having to type only the location you want!



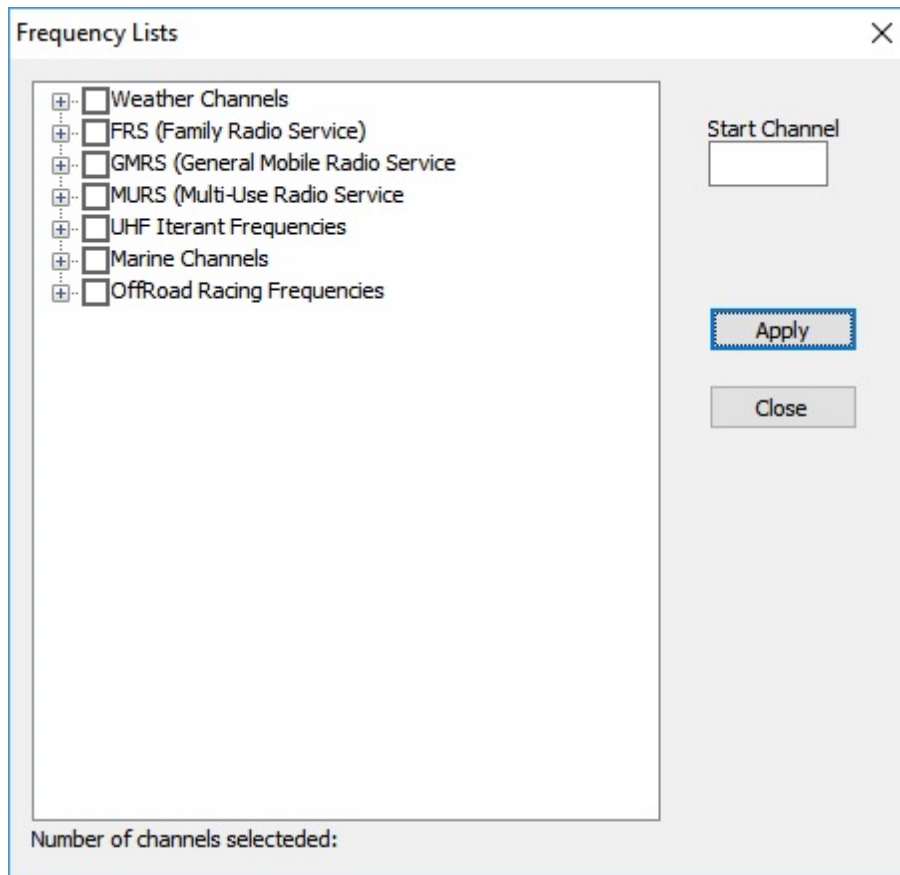
## 11.4 Frequency Lists

RT Systems' Programmers have a built in list of frequencies for you to use when making a file. It takes only a few mouse clicks to have your radio programmed with the frequencies that you need to use.

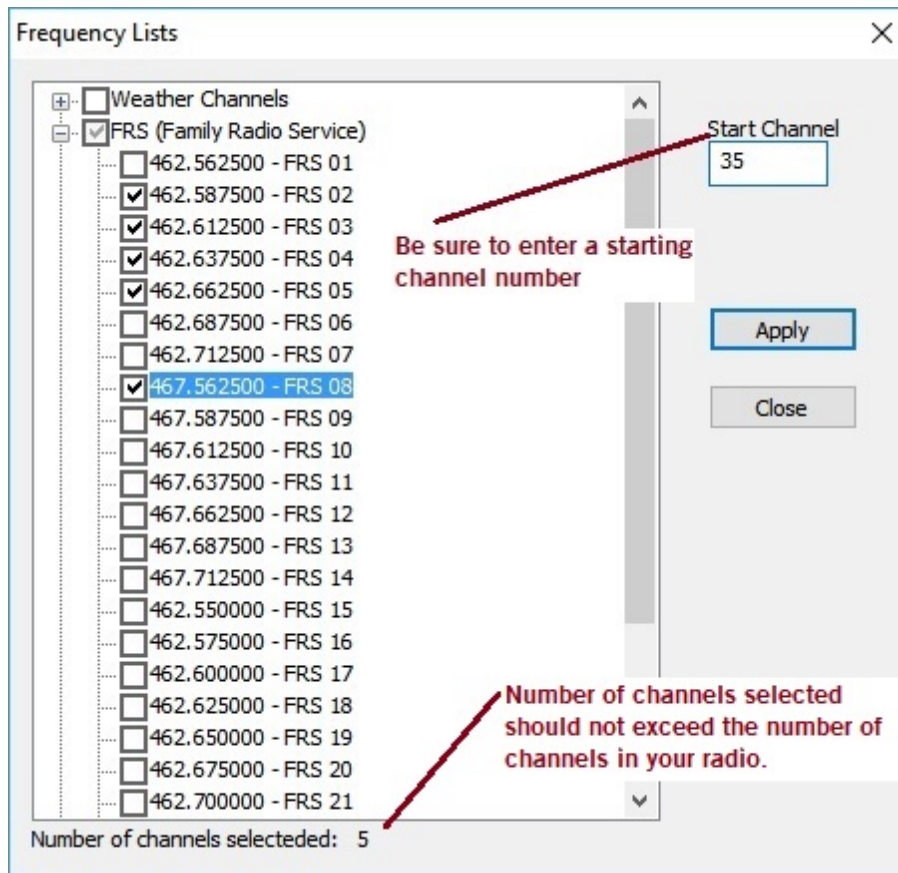
In the Programmer, select File | External Data | Frequency Lists.



The screen opens with list options.



Click the + to expand the list. Here the FRS list is expanded.



Make your selections from the list or click the box next to FRS to select all in that list.

**Note:** Check that the number of channels selected does not exceed the number of channels in your radio (especially the 16 channel models). The program will process the list from the top down and lose any extras.

**The number will continue to increment as you make selections from other groups in the list of frequencies.**

Click Apply. The channels are entered automatically into the open file for the frequency range of the radio.

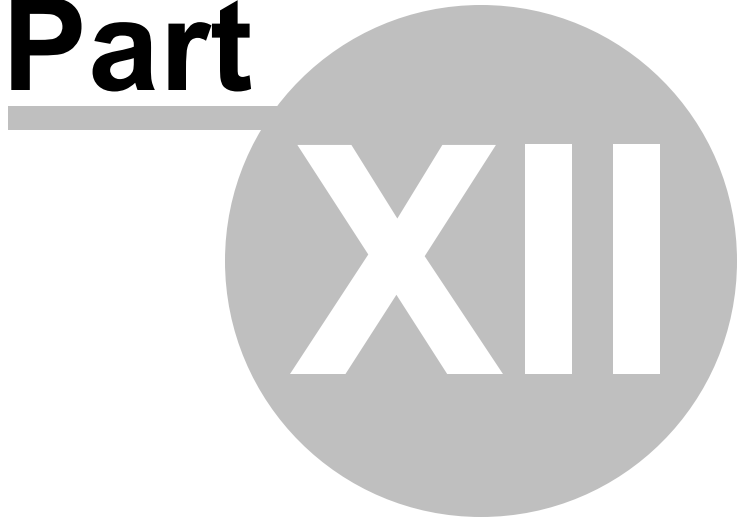
**Note:** The Programmer will not allow you to use this tool to enter frequencies that are in operating bands that a particular radio does not use.



	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Tone Mode	CTCSS	Rx CTCSS	DCS	Rx DCS	DCS Polarity	Optional Signaling	Tx Power	Scan Add	Busy Channel Lockout
10	153.39500	153.39500		Simplex	FM Narrow	BFGPIT	None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
11	153.38000	153.38000		Simplex	FM Narrow	MAG 7	None	67.0 Hz	67.0 Hz	023	023	Both N	None	Low	Scan	Off
12	155.16000	155.16000		Simplex	FM Narrow	RESCUE	None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
13	153.24500	153.24500		Simplex	FM Narrow	CORE	None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
14	151.77500	151.77500		Simplex	FM Narrow	LOCOMO	None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
15	151.49000	151.49000		Simplex	FM Narrow	BITD	None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
16	154.51500	154.51500		Simplex	FM Narrow	PCIRLY	None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
17																
18																
19																
20																
21	445.35000	440.35000	5.00 MHz	Minus	FM		None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
22	435.00000	435.00000		Simplex	FM		None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
23	147.35000	147.95000	600 kHz	Plus	FM		None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
24	154.50000	154.50000		Simplex	FM Narrow		None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
25	174.00000	174.00000		Simplex	FM		None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
26	450.00000	450.00000		Simplex	FM		None	67.0 Hz	67.0 Hz	023	023	Both N	None	High	Scan	Off
27																
28																
29																
30																
31																
32																
33																
34																
35	462.58750	462.58750		Simplex	FM Narrow	FRS 02	None	67.0 Hz	67.0 Hz	023	023	Both N	None	Low	Scan	Off
36	462.61250	462.61250		Simplex	FM Narrow	FRS 03	None	67.0 Hz	67.0 Hz	023	023	Both N	None	Low	Scan	Off
37	462.63750	462.63750		Simplex	FM Narrow	FRS 04	None	67.0 Hz	67.0 Hz	023	023	Both N	None	Low	Scan	Off
38	462.66250	462.66250		Simplex	FM Narrow	FRS 05	None	67.0 Hz	67.0 Hz	023	023	Both N	None	Low	Scan	Off
39	467.56250	467.56250		Simplex	FM Narrow	FRS 08	None	67.0 Hz	67.0 Hz	023	023	Both N	None	Low	Scan	Off
40																
41																
42																
43																

Do Communications | Send data to radio. Once that process is complete, these channels will be programmed in the radio.

**Part**



## 12 Programming Memory Channels

Now that you have that radio, you want to save the frequencies for the local repeaters to memory so they are easy to use. Let's look first at entering details for a memory channel. We will discuss what all these fields are later. For now, we just want to be able to use them.

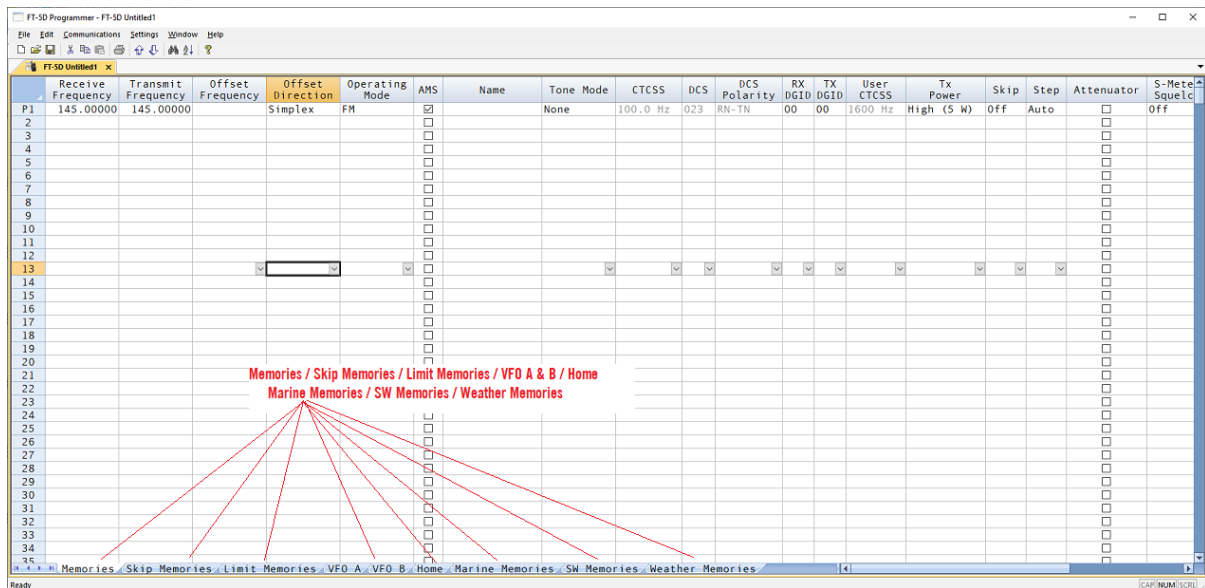
If you find information about a repeater (from friends, the Internet, the ARRL Repeater Directory... there are a lot of sources), that information will include a frequency (say 146.94), a + or -, and maybe another number with a decimal (like 67.0 Hz). This is all you need to enter this channel through the Programmer. Let me explain:

- Receive Frequency: 146.94 (type it into the Receive Frequency field just as you see it here. Put a period for the decimal.)
- Offset Direction: This is the + or - shown in your information. The Programmer has probably set this field correctly already. Check that Offset Direction is Plus or Minus to match your information.
- Tone Mode: Tone (no this was not specifically given, but it is implied by that other number in your information: that 67.0 Hz).
- CTCSS: 67.0 Hz (Be sure to find the value in the CTCSS list. If it is not there, the radio cannot use what you were given. Check your information.)

This is all you need for the radio to hear and let you talk through the repeater. The other columns on the screen are for extra options that you don't need right now.

For more information on these and all the columns you see on the main screen of the Programmer, see the [Main Page Navigation](#) section in this help.

The radio has different types of memory channels. In the Programmer, these all program in a spreadsheet dedicated to that "type" of memory.



Use the links to access details for any one of these:

- [Regular Memories](#) - The several hundred all radios have these days. These are the ones you will use most often. This screen includes Primary Memory Groups (PMG) and Channel Activity Monitor Groups (CAM).
- [Skip Memories](#) - Enter frequencies to be skipped during VFO scanning.
- [Limit Memories](#) - These channels control the top and bottom range of scanning when you begin Programmable Memory Scanning on one of these.
- [VFO Memories](#) - Settings for VFO operations when the file is first sent to the radio. This channel has no one button recall on the radio and will change when the tuning knob is used. To be able to recall details at any time, use the Regular Memory Channels.
- [Home Channels](#) - These are special memory channels that have one button access from the face of the radio.
- [Marine Memories](#) - These channels contain preset frequencies for international VHF marine radio. These presets can't be changed.
- [SW Memories](#) - These channels contain preset frequencies for Short Wave stations around the world. These presets can't be changed.
- [Weather Memories](#) - These channels contain preset frequencies for VHF Weather Broadcast stations. These presets can't be changed.

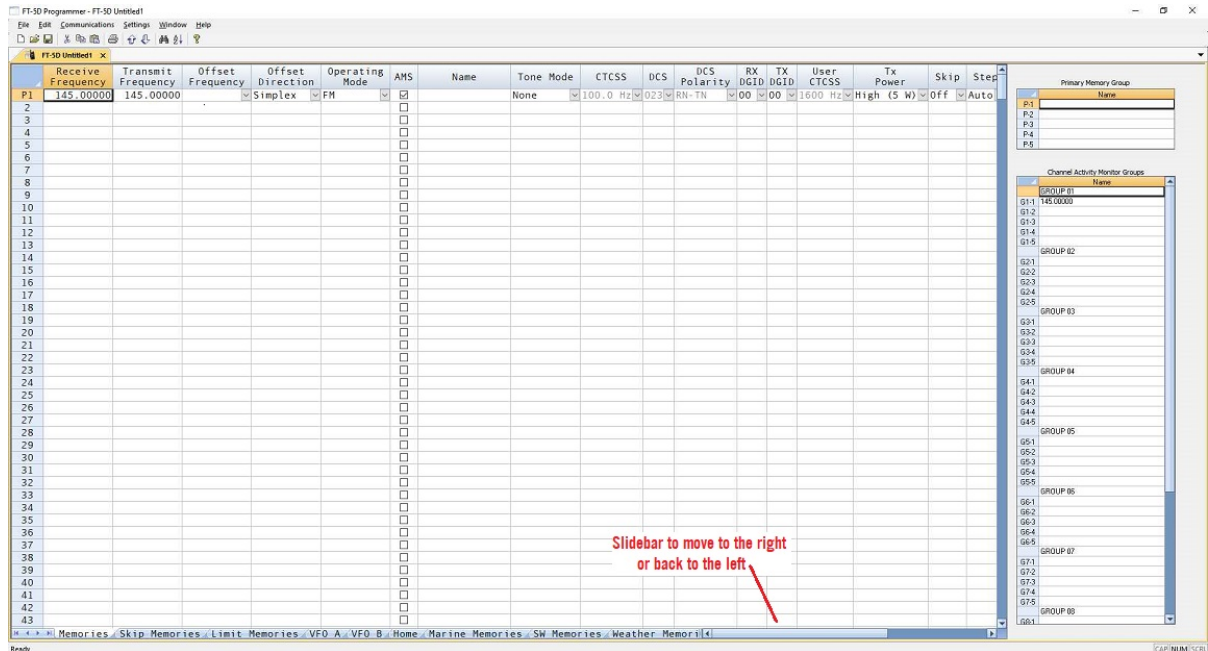
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Details on the special editing abilities of the Programmer are included in the [Easy Editing in the Grid](#) section of this Help. Review these details to make data entry even easier.

At any time, these topics are available from the Table of Contents at the left.

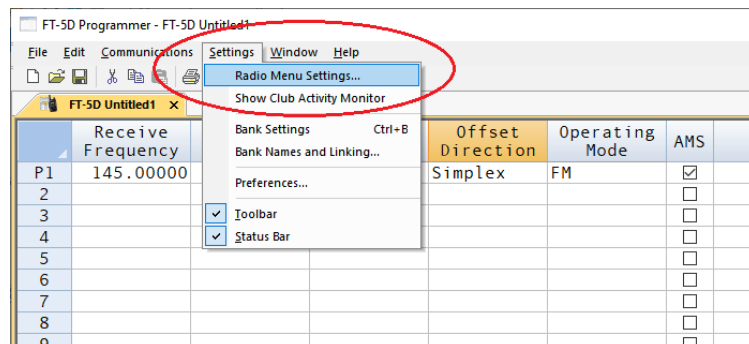
## 12.1 Main Page Navigation

The FT-5D Programmer opens to this screen. The columns for memory channel programming are displayed along with the Primary Memory Group and Cam Group lists.

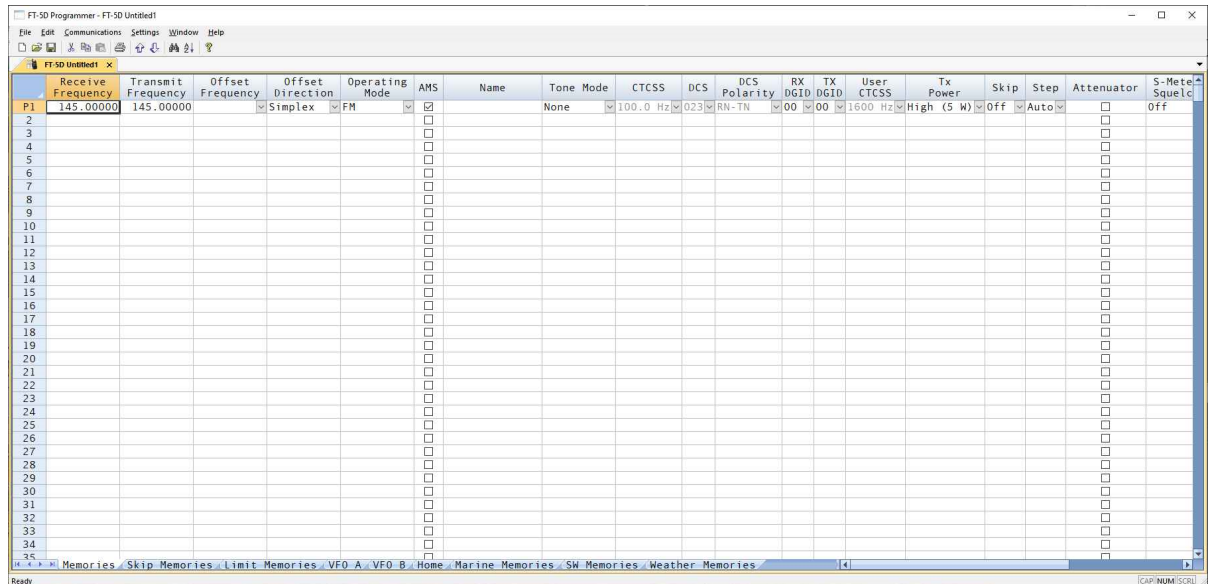


Columns for memory channel details extend off to the right. A slide bar at the bottom right (as indicated in the figure above) is available to move rapidly or you can tab or enter across column by column.

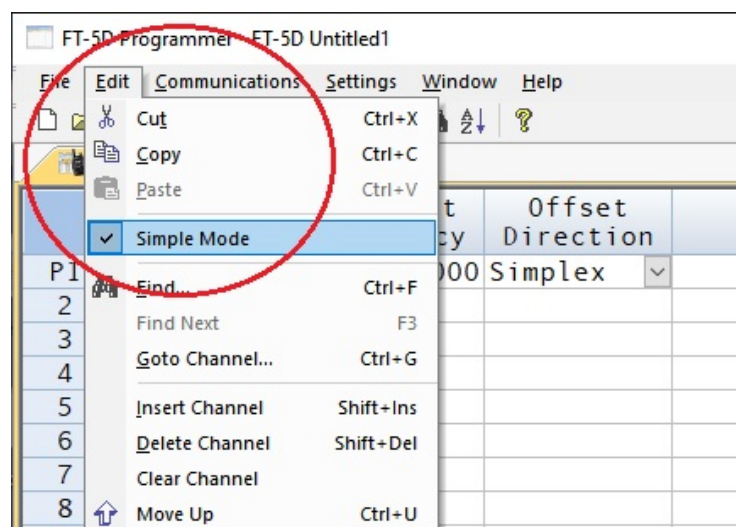
Close the "groups" panel to see more of the options for memory channels. From the Menu at the top, click Settings then uncheck Show Club Activity Monitor.



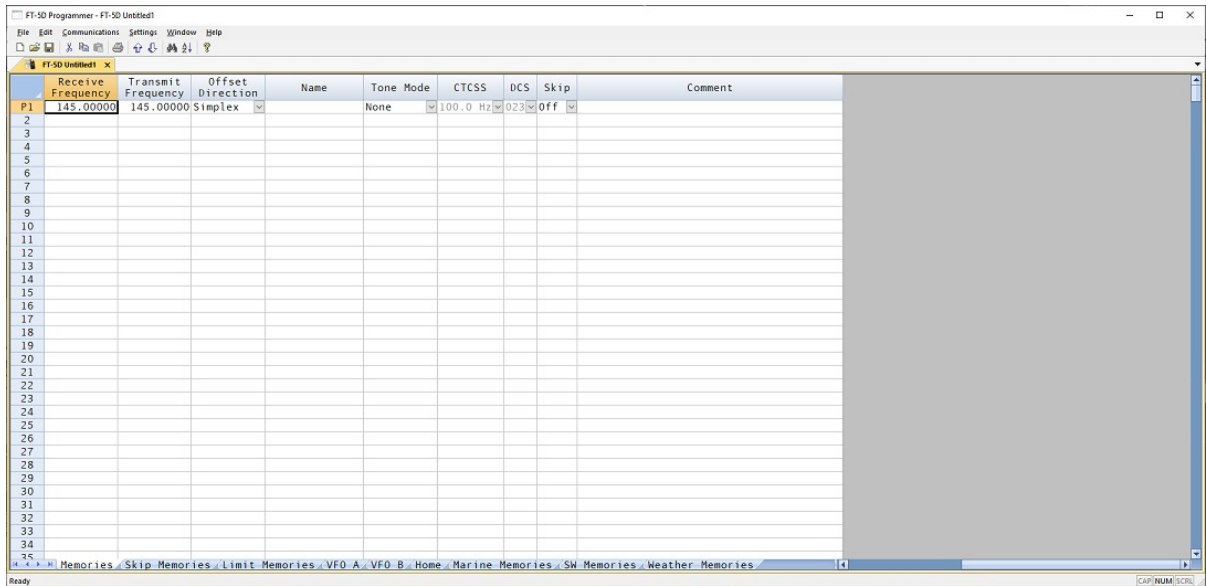
The main screen displays more options for memory channel programming.



To make memory channel programming even easier, the Programmer offers Simple Mode that hides many of the options from the screen. These options are for more advanced activities. Generally, they are not needed for basic memory channel programming. To access Simple Mode, select Simple Mode from the Edit menu at the top of the screen.

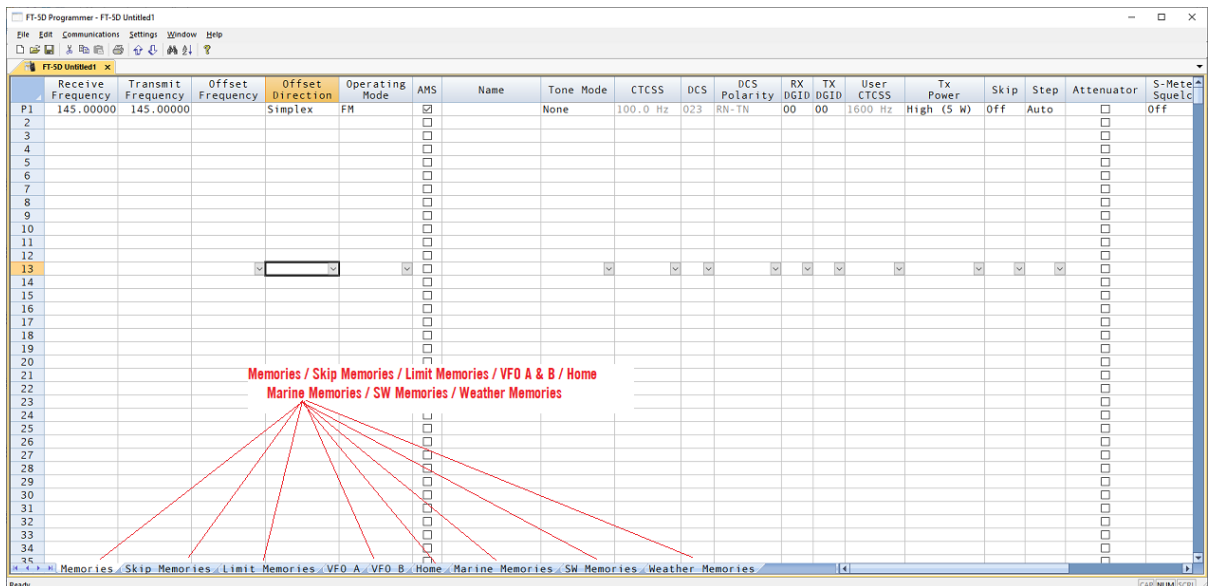


The Simple Mode screen hides the extra columns. These are filled with defaults to satisfy the radio.



To return the columns to the screen, select Edit | Simple Mode from the menu at the top.

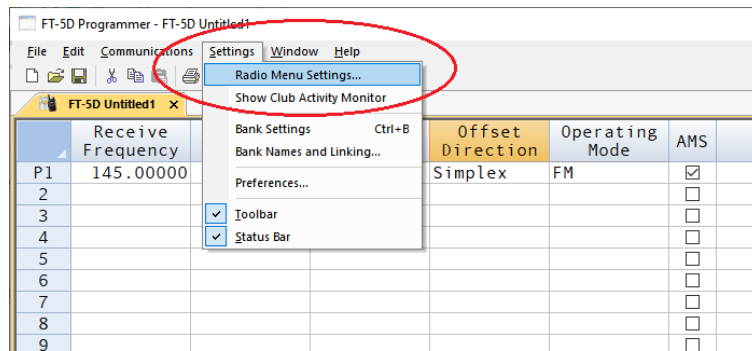
Other "types" of memories are accessed from the tabs at the bottom of the screen.



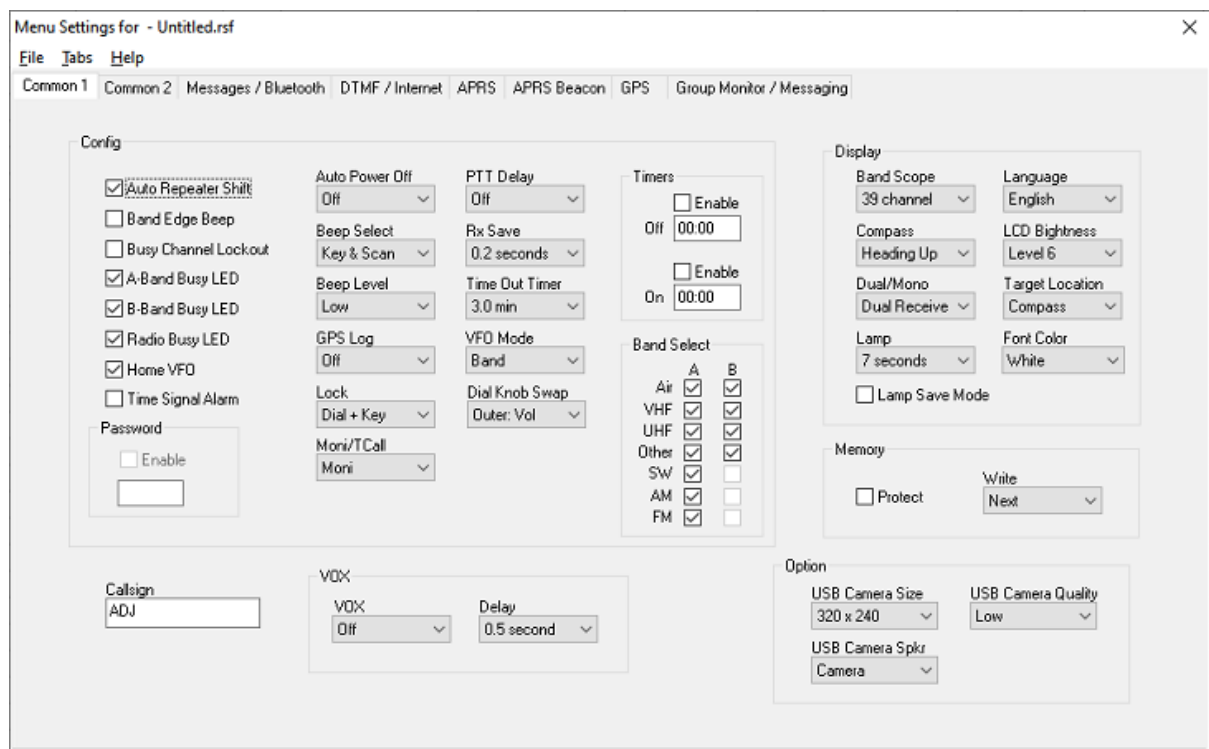
These "types" of memories are each described in their own section of this help. See the Table of Contents at the left.

Programming for all the other features of the radio are found in the Settings file accessed from Settings | Radio Menu Settings in the menu at the top of the screen.





This opens other screens with other options for your radio that you may want to customize.



These options are covered in the [Programming Other Set Menu Items](#) section of this Help.

There is so much to the program because there is so much to your radio.

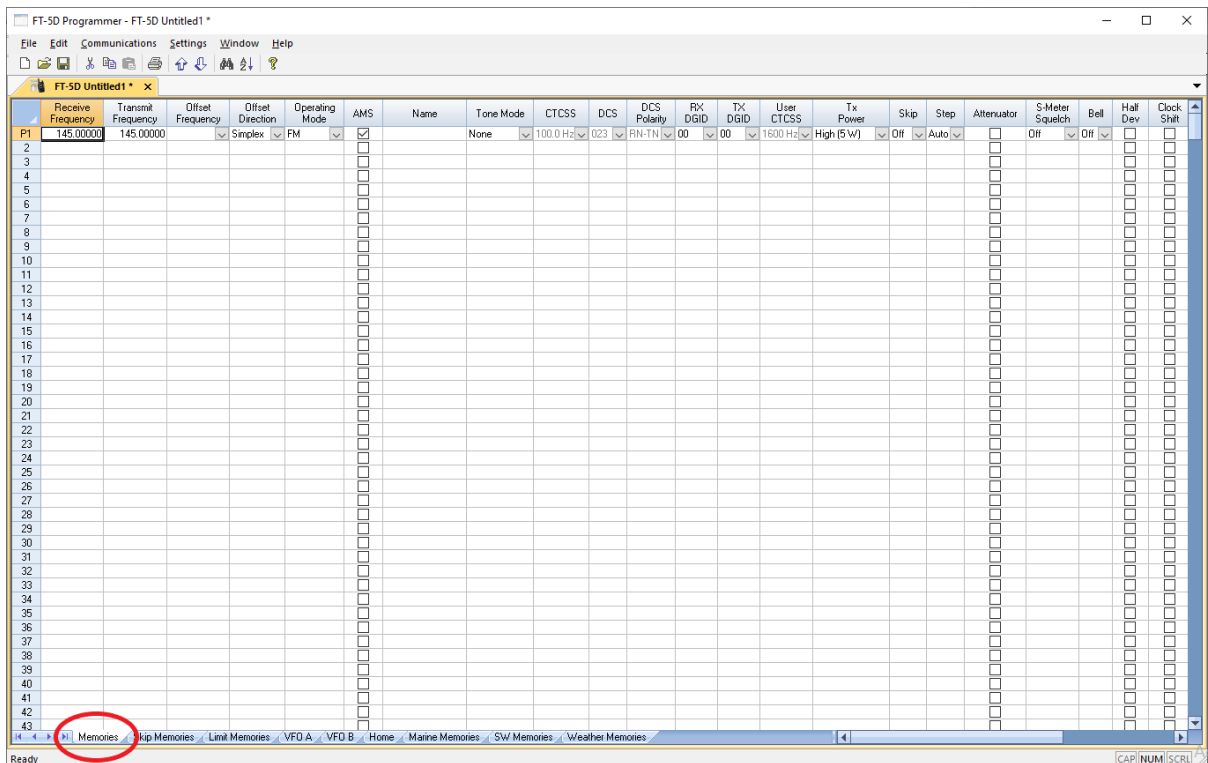
## 12.2 Regular Memories

The Memories tab is located at the bottom of the main Programmer screen. The Programmer opens to this screen.

"Regular" Memories are memory channels with frequencies and related data that you set with the Programmer. The information stored in these channels can be altered depending on your preferences.

On this page, you will find a detailed list of the many functions programmable in the Regular Memories Channel. The names of the functions listed on this page correspond with the names of the columns in the Memories tab in the main window of the Programmer.

Refer to the [Main Page Navigation](#) page of this Help for more details about the main window of the Programmer.



### Details to be entered for Memory Channel functions

**Receive Frequency** - Enter a receive frequency for the memory channel. The receive frequency is the frequency that you will listen on. It is often referred to as the output frequency of a repeater. Unacceptable frequencies cannot be entered into the

Programmer. Cellular frequencies are blocked. Memory channels can store any acceptable frequency in any order (i.e., UHF can follow VHF can follow Air or any other band order). The first memory channel must be programmed.

**Transmit Frequency** - Enter a specific transmit frequency or let the Programmer calculate this frequency based on a general plan for the band. The transmit frequency field is always available; however the transmit frequency must be entered manually only for an "odd split". Usually, this field is completed properly by the Programmer based on defaults for the radio.

***Note: In the Programmer you can enter details for frequencies outside the transmission abilities of the radio. However, the software will not enable transmission on these frequencies. Transmission will be possible only if the radio has been properly modified.***

**Entering an "Odd Split"** - When you are given information to program your radio, you may be given a "pair" of frequencies (one for receive and a different one for transmit).

If the difference between the two frequencies (subtract the receive and transmit frequencies) is not divisible by 50 (divide the result of the subtraction by 50), this pair is referred to as an "odd split".

Once you have entered the receive and transmit frequencies you were given, if the difference (subtract the receive and transmit frequencies) is divisible by 50 (divide the result of the subtraction by 50). The Programmer will calculate the Offset frequency and set the Offset Direction properly for working this repeater.

***Note: If the Programmer completes the channel automatically based on defaults and the value that appears in the Transmit Frequency column is correct, do not make changes to Offset Direction or Offset Frequency. The Programmer knows how to set the channel details for the best performance from the radio.***

To enter the details for a "split pair":

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you monitor while awaiting a call. This will be the frequency of the repeater.
- Press Enter. The Programmer will fill the remaining columns with default information which may or may not be right for your particular situation.
- The Transmit field will be active as indicated by the dark border. Enter the Transmit Frequency from the information you have. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)

- Press Enter. Notice that the Offset Direction is set to Split.

***Note: The Programmer may set the Offset Direction to Plus or Minus. If it does and the Receive and Transmit frequencies are what you entered, leave it as it is shown. This combination will give you the same performance on the repeater with more efficient workings of the radio.***

You are finished with this entry unless you want to enter Name, Tone or other details for this memory channel.

**Offset Frequency** - The mathematical difference between the receive and transmit frequencies.

Yaesu radios can use an Offset Frequency of any value in 50 kHz steps (i.e., any value ending in .x00 or .x50 where x is any digit from 0 to 9) with a Plus or Minus Offset Direction. This gives you the ability to use the Reverse function of the radio although your frequency pair is not separated by a standard offset value.

A **nonstandard Offset Frequency** value is entered by typing it into the Offset Frequency field after the Receive Frequency has been entered. Then select Plus or Minus in the Offset Direction column and watch the Programmer calculate the Transmit Frequency.

Values should be entered as an exact value including the decimal to denote kHz. For example, given the pair 146.650 and 147.300, the Offset Frequency entered would be .650 (decimal – six – five – zero) with a Plus Offset Direction. Without the decimal, an error is raised in the Programmer that a valid Offset Frequency should be entered.

As another example, given the pair 147.255 and 145.940 could not be entered with an Offset Frequency and an Offset Direction. The resulting offset for this pair is 1.315 MHz, which is not on a 50 kHz step. This pair requires entry of both the Receive and Transmit frequency with the Offset Direction set to Split.

**Offset Direction** - The direction of the difference between the receive and transmit frequencies.

Simplex - transmit and receive frequencies are the same

Minus - the offset is subtracted from the receive frequency

Plus - the offset frequency is added to the receive frequency

Split - for a non-standard offset. Enter both the receive and transmit frequencies.

**Operating Mode** - Assign appropriate FM, AM, DN or VW signal for the type of transmission on the frequency. If you are not sure or you have been told the repeater is "Mixed Mode - usually both FM and digital), set the Operating Mode to FM and be sure AMS is checked for this channel. This will let your radio work digital or FM depending on the signal heard. You won't miss the conversation that way and you won't cut someone out who maybe does not have the latest equipment.

**AMS** - Check this box to have the radio automatically select FM, AM, DN or VW depending on the signal last received by the radio.

**Name** - Enter an Alpha/Numeric tag (up to 16 characters) for a memory channel to provide an easy reminder of the function of a particular channel.

**Note: The Alpha tag is displayed on the radio automatically when the frequency is in small text. To toggle between large and small text, touch the display of the radio.**

**Tone Mode** - Use of the tone systems of the radio allow for silent monitoring until a call is received with a corresponding tone. Tone mode also allows access to repeaters that are made private with a tone requirement. The radio has CTCSS (Continuous Tone Coded Squelch System) or DCS (Digital Coded Squelch) to be tailored to your particular needs.

**The FT-5D radio does not have the ability to do a different CTCSS transmit and receive tones (Split tones).**

Use of either of the tone systems requires two steps:

- 1) turning on the Tone Mode with the Tone Mode setting and
- 2) selecting the CTCSS tone or DCS code to be used by the radio with the selections in the next two columns.

The **Tone Modes** include:

None - No tone system activated. Values in CTCSS and DCS columns are not in use by the radio when Tone Mode is set to none.

Tone - CTCSS tone generator is activated for **transmission only** (this mode is used for many if not most repeater operations). With Tone selected as the Tone Mode, the value that appears in the DCS code column is ignored by the radio.

TSql - CTCSS tone squelch (TSql) is activated for **both transmission and reception** (only signals "encoded" with the matching tone will open the squelch: your radio will remain silent otherwise). With TSql selected as the Tone Mode, the value that appears in the DCS code column is ignored by the

radio. The radio uses the frequency set in the CTCSS column for both transmission and reception.

DCS - Digital Coded Squelch mode is activated for **transmission and reception**. With DCS selected as the Tone Mode, the value that appears in the CTCSS tone column is ignored by the radio. The radio uses the DCS Code for both transmission and reception.

Rev. CTCSS - Reverse CTCSS **mutes** the receiver when a matching tone is received.

User CTCSS - User CTCSS **mutes** the radio's audio when a signal with a matching CTCSS tone is received. The tone signal frequency is set in the User CTCSS column at 100 Hz intervals.

Pager - Make this selection to engage the Enhanced CTCSS Paging and Code Squelch function for the selected memory channel. Other options for the Pager function are set in the Pager section on the Settings screen.

***Note: The design of the radio allows for only one set of Transmitting and Receiver Pager Codes for all paging operations. These are set in the Setting file of the Programmer. Access the Pager section under Settings | Radio Menu Settings | Common 2 Tab | Pager for the options for this feature.***

D Code - Digital Coded Squelch mode is activated for **transmission only**. With D Code selected as the Tone Mode, the value that appears in the CTCSS Tone column is ignored by the radio. The radio uses the DCS Code set in the DCS code column for transmissions only. Reception is open for any signal.

T-DCS – CTCSS encode (tone squelch) is activated for **transmission** and Digital Coded Squelch for **reception**. With T-DCS selected as the Tone Mode, the values that appear in the CTCSS and DCS Code columns are both used by the radio. The CTCSS selection is used for transmissions while the DCS Code selection is used for reception. Be sure that you set both the CTCSS and the DCS Code once this option is selected.

D - Tone – DCS is activated for **transmission** and CTCSS tone generation is activated for **reception**. The CTCSS and DCS columns become active to set the tone values for this function.

**CTCSS** - Select one of 50 tone frequencies to be used in the Tone or D Tone modes. This value is set independently for each memory channel. This field is active only if the Tone Mode is set in a mode that uses a CTCSS tone. A value that appears in this field is ignored if one of the tone modes that uses CTCSS is not activated.

**DCS Code** - Select one of the 104 codes available for use when the radio is in DCS mode. This value is set independently for each memory channel. This field is active only when a Tone Mode for DCS is selected. A value that appears in this field is ignored if one of the tone modes that uses DCS is not activated.

**DCS Polarity** - DCS polarity is another part of the DCS code. Options include those for Normal and Inverted functionality for transmission and reception.

*If you are given a DCS code for a repeater with no mention of Polarity, leave Polarity set to RN-TN (Receive Normal - Transmit Normal). This is at times referred to as Both Normal. This is the default used unless another is specified as in use by the repeater.*

**RX DGID** - The Receiver Digital Group ID (RX DGID) number is digital signaling that enables station filtering. It keeps the radio silent until the correct signal is transmitted. RX DGID 00 can hear any transmission. RX DGID 01-99 can be selected for whatever use needed for communications.

**TX DGID** - The Transceiver Digital Group ID number (TX DGID)

**User CTCSS** - Set a squelch frequency to be used for User CTCSS function. The radio mutes its audio when receiving a signal containing a CTCSS tone matching the value set here.

**Tx Power** - The transceiver output power can be set individually for each memory channel to address the exact needs of each operation. Select from High - 5W; Low 1 - 0.5W; Low 2 - 1W; or Low 3 - 2.5W.

**Skip** - Marks selected memory channel to be skipped or specified during scanning. Skipped channels remain available for manual selection. Options in this column include:

Off - Normal memory channels will cycle during scanning.

Skip - The channel is skipped during scanning of memory channels.

Select - Only designated memory channels are selected during scanning.

**Step** - The frequency being used by the radio changes by the value of the step when tuning manually. This value is used by the radio in Memory Tune mode. This value is not critical in memory mode since the original memory channel frequency can be retrieved by exiting Memory Tune mode. In VFO, this value could keep you from returning to your original frequency. Select from 5/6.25/10/12.5/15/20/25/50 or 100 kHz steps as needed.

**Attenuator** - Reduces signal interference if a signal is too strong or if there is a strong signal nearby.

**S-Meter Squelch** - Emits audio only when receiving a signal as strong as or stronger than the S-meter Squelch level. S-Meter Squelch can be turned off or set from Level 1 to Level 10.

**Bell** - When function is activated, a bell will ring when receiving calls from another station.

**Half Dev** - Check to engage for TX Narrow (+2.5). Sets the FM deviation to half its usual level.

**Clock Shift** - Shifts the internal reference frequency slightly to eliminate "birdies" that interfere on other channels.

**Bank 1-24** - Banks are groups of memory channels that are associated with a common activity or theme. Use Banks to register channels for designated purposes (e.g. one Bank can be used for channels you frequently use for camping, another Bank can be used for channels you frequently use for driving, etc).

- Check the box to assign a memory channel to a given Bank. A memory channel can be assigned to all Banks by checking all of the columns, or it can be omitted completely by not checking a box at all. When the radio is operated in Memory Bank Mode, only those channels assigned to the selected Bank will be available for use and scanning.
- Banks can also be assigned a Name to reflect its designated purpose. Go to Settings | Bank Names and Linking to rename a Bank. Selecting the Link box beside the Bank Name sets the memory Bank Link. This option links multiple registered memory banks for immediate recall of frequently used Banks.

**Comment** - An identifying comment up to 80 characters. This information is not transferred to the radio.



## 12.2. .1 Using Memory Banks

Memory banks offer a way to organize your channels for specialized operations. A simple scenario of this organization might include:

- Putting all your VHF and UHF ham repeaters into Bank 1. If you use your radio mainly for "hamming" you would operate in Bank 1 most of the time so you can scan without having to listen to all the other traffic.
- Then put your Fire and Rescue channels into Bank 2. When you're on the scene of an emergency, you would operate in Bank 2 to eliminate interference from the amateur traffic.
- If you travel for business to one other location repeatedly, put the channels for that location into Bank 3. When you are there, you operate in Bank 3. Then when you scan for activity, you scan 10 channels instead of the 100 you now have in memory. Remember, if one of these repeaters is the same as one in your "home" group, including Tone mode and value, there is no need to program that repeater into another memory channel. Simply include it in both Banks 1 and 3 to have it available in both locations.

This is a simple example. The types of activities may not even apply to you; but the concept is the same no matter what the activities.

## Memory Bank Assignments

To assign a memory channel to a bank, check the box for that channel under the column for the Bank. Keep this in mind as you do your assignments:

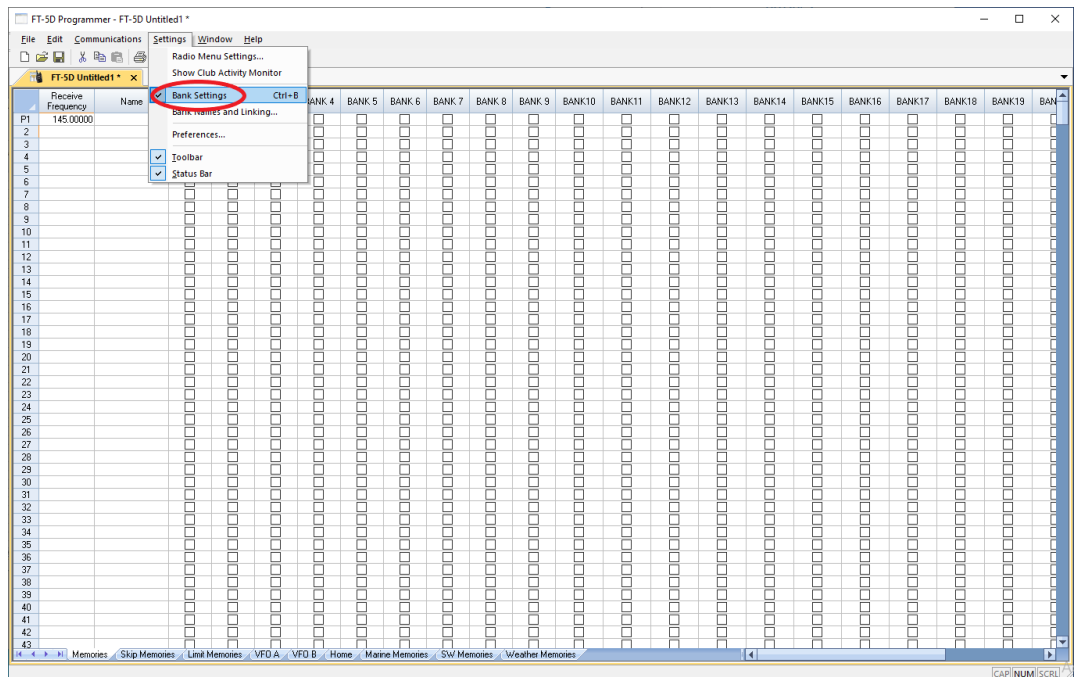
A channel can be included in no bank.

A channel can be included in all banks.

A channel can be included and not included as needed in the organization of your channels.

Use Settings | Bank Settings from the menu at the top of the main screen to make the process of assigning channels to banks easier. When Bank Settings is engaged, several columns are removed from the screen automatically. This makes it easy to work with the spreadsheet without having to scroll across so many columns.

Bank assignment and use are different. You will need to know how to put the radio into Bank mode and select the bank to be used from the face of the radio after the radio is programmed with this file. (See the Memory Channel Recall section below for more details. )



## Memory Bank Recall

The Programmer can be used to set up the memory bank assignments. It cannot, however, tell the radio which memory bank to use. That function is done through the keys on the face of the radio.

To access the memory banks from the face of the radio.

If the radio is not in memory mode, press [V/M] on the radio's face. The rest of this won't work if the radio is not in memory mode. Also, when you press the [V/M] key, it is a quick press. If you hold it too long the radio will start the process for memory channel programming.

Now that you are in Memory mode with all your channels, Press the [F MENU] key and then [BANK]. If you don't see [BANK] in the MENU, touch [BACK] to change the list of options displayed in the menu. Once [BANK] is displayed, press it (just like it's a button) to put the radio into Bank mode. The radio will automatically begin with Bank 1 as evident with the B 1 at the upper left of the screen above the frequency. When the word "All" appears at the upper left, the radio is working All memories and is no longer in Bank mode.

Scroll through your channels using the KNOB at the top of the radio.

To change to a different memory bank, press the [BAND] key then turn the KNOB on top to select the bank you want to use. The name of the bank as entered under Settings | Bank Names and Linking (see below) appears to help you make your selection. Once you find the one you want, press the [BAND] key again to save the selection. If you want to be sure your selection was saved, press the [V/M] key to go to VFO mode, then the [V/M] key again to return to memory mode. When you return to memory mode the radio will display the B # indicating the current bank.

So, that is a lot to sort through. Briefly, your key presses are...

[V/M] to be sure you are in memory mode.

[F menu] briefly to access menu

[Bank] selection of the menu

[Back] button from radio's face to exit menu.

Once in bank mode, to change the current bank

Press [BAND]

Turn KNOB to select the bank you want.

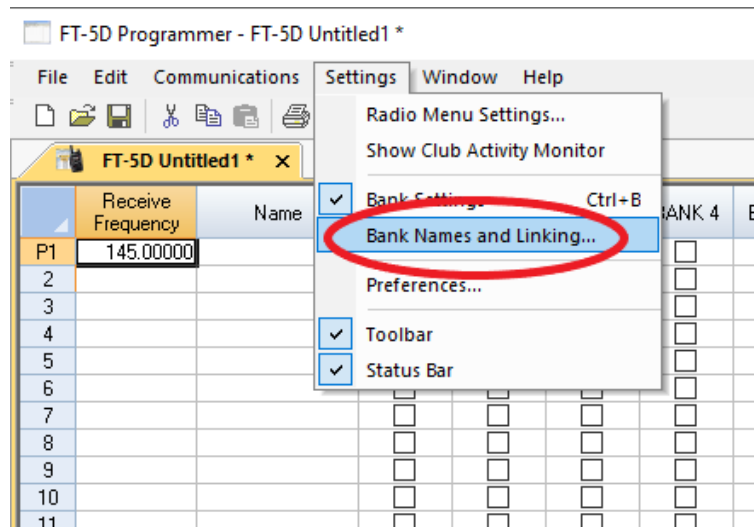
Press [BAND] again to save.

The radio will now operate as if it were programmed with only the channels in that memory bank.

## Bank Names and Linking

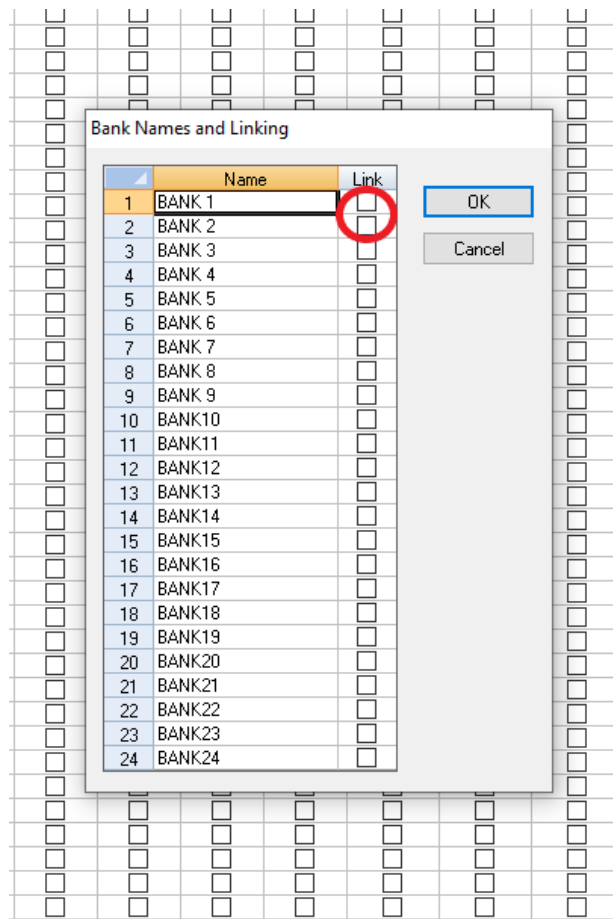
The banks can be labeled to help you with your organization. These names appear on the radio when you are selecting the bank to be used and on the appropriate bank column in the Programmer.

To access the Bank Names and Linking settings, go to Settings | Bank Names and Linking at the top of the main window.



Check the box to "join" banks for scanning. When scanning is begun on any one of the banks in the linked group, all the channels of these banks will be included.

- **Bank linking is only for scanning. When tuning manually in a bank, only the memory channels in that bank will be available.**
- **When you are selecting a bank, one with a capitol "B" indicator is not linked. A linked bank has a lower case "b" indication.**
- **You can have only one linked combination...so choose carefully.**
- **Remember, if you begin scanning on a bank that is not linked, you will scan only the channels in that one bank.**



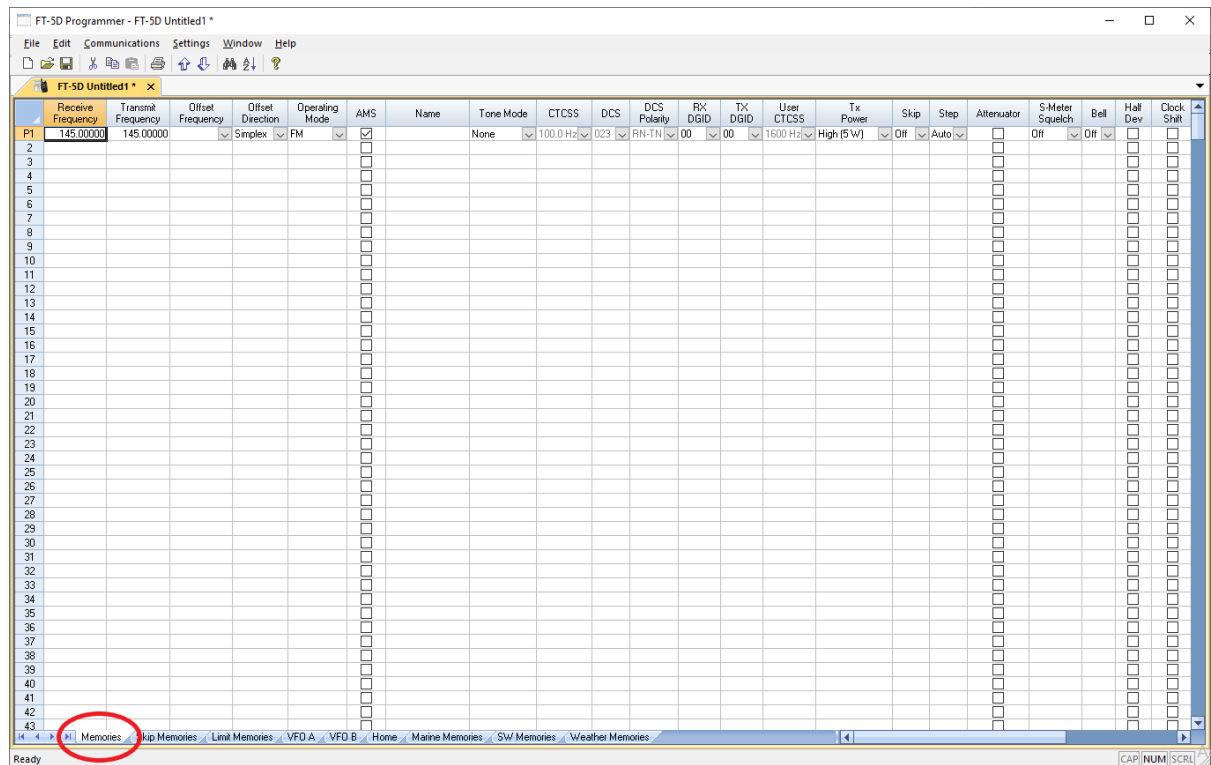
## 12.2.2 Clock Shift

The Memories tab is located at the bottom of the main Programmer screen. The Programmer opens to this screen.

"Regular" Memories are memory channels with frequencies and related data that you set with the Programmer. The information stored in these channels can be altered depending on your preferences.

On this page, you will find a detailed list of the many functions programmable in the Regular Memories Channel. The names of the functions listed on this page correspond with the names of the columns in the Memories tab in the main window of the Programmer.

Refer to the [Main Page Navigation](#) page of this Help for more details about the main window of the Programmer.



## Details to be entered for Memory Channel functions

**Receive Frequency** - Enter a receive frequency for the memory channel. The receive frequency is the frequency that you will listen on. It is often referred to as the output frequency of a repeater. Unacceptable frequencies cannot be entered into the

Programmer. Cellular frequencies are blocked. Memory channels can store any acceptable frequency in any order (i.e., UHF can follow VHF can follow Air or any other band order). The first memory channel must be programmed.

**Transmit Frequency** - Enter a specific transmit frequency or let the Programmer calculate this frequency based on a general plan for the band. The transmit frequency field is always available; however the transmit frequency must be entered manually only for an "odd split". Usually, this field is completed properly by the Programmer based on defaults for the radio.

***Note: In the Programmer you can enter details for frequencies outside the transmission abilities of the radio. However, the software will not enable transmission on these frequencies. Transmission will be possible only if the radio has been properly modified.***

**Entering an "Odd Split"** - When you are given information to program your radio, you may be given a "pair" of frequencies (one for receive and a different one for transmit).

If the difference between the two frequencies (subtract the receive and transmit frequencies) is not divisible by 50 (divide the result of the subtraction by 50), this pair is referred to as an "odd split".

Once you have entered the receive and transmit frequencies you were given, if the difference (subtract the receive and transmit frequencies) is divisible by 50 (divide the result of the subtraction by 50). The Programmer will calculate the Offset frequency and set the Offset Direction properly for working this repeater.

***Note: If the Programmer completes the channel automatically based on defaults and the value that appears in the Transmit Frequency column is correct, do not make changes to Offset Direction or Offset Frequency. The Programmer knows how to set the channel details for the best performance from the radio.***

To enter the details for a "split pair":

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you monitor while awaiting a call. This will be the frequency of the repeater.
- Press Enter. The Programmer will fill the remaining columns with default information which may or may not be right for your particular situation.
- The Transmit field will be active as indicated by the dark border. Enter the Transmit Frequency from the information you have. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)

- Press Enter. Notice that the Offset Direction is set to Split.

***Note: The Programmer may set the Offset Direction to Plus or Minus. If it does and the Receive and Transmit frequencies are what you entered, leave it as it is shown. This combination will give you the same performance on the repeater with more efficient workings of the radio.***

You are finished with this entry unless you want to enter Name, Tone or other details for this memory channel.

**Offset Frequency** - The mathematical difference between the receive and transmit frequencies.

Yaesu radios can use an Offset Frequency of any value in 50 kHz steps (i.e., any value ending in .x00 or .x50 where x is any digit from 0 to 9) with a Plus or Minus Offset Direction. This gives you the ability to use the Reverse function of the radio although your frequency pair is not separated by a standard offset value.

A **nonstandard Offset Frequency** value is entered by typing it into the Offset Frequency field after the Receive Frequency has been entered. Then select Plus or Minus in the Offset Direction column and watch the Programmer calculate the Transmit Frequency.

Values should be entered as an exact value including the decimal to denote kHz. For example, given the pair 146.650 and 147.300, the Offset Frequency entered would be .650 (decimal – six – five – zero) with a Plus Offset Direction. Without the decimal, an error is raised in the Programmer that a valid Offset Frequency should be entered.

As another example, given the pair 147.255 and 145.940 could not be entered with an Offset Frequency and an Offset Direction. The resulting offset for this pair is 1.315 MHz, which is not on a 50 kHz step. This pair requires entry of both the Receive and Transmit frequency with the Offset Direction set to Split.

**Offset Direction** - The direction of the difference between the receive and transmit frequencies.

Simplex - transmit and receive frequencies are the same

Minus - the offset is subtracted from the receive frequency

Plus - the offset frequency is added to the receive frequency

Split - for a non-standard offset. Enter both the receive and transmit frequencies.



**Operating Mode** - Assign appropriate FM, AM, DN or VW signal for the type of transmission on the frequency. If you are not sure or you have been told the repeater is "Mixed Mode - usually both FM and digital), set the Operating Mode to FM and be sure AMS is checked for this channel. This will let your radio work digital or FM depending on the signal heard. You won't miss the conversation that way and you won't cut someone out who maybe does not have the latest equipment.

**AMS** - Check this box to have the radio automatically select FM, AM, DN or VW depending on the signal last received by the radio.

**Name** - Enter an Alpha/Numeric tag (up to 16 characters) for a memory channel to provide an easy reminder of the function of a particular channel.

**Note: The Alpha tag is displayed on the radio automatically when the frequency is in small text. To toggle between large and small text, touch the display of the radio.**

**Tone Mode** - Use of the tone systems of the radio allow for silent monitoring until a call is received with a corresponding tone. Tone mode also allows access to repeaters that are made private with a tone requirement. The radio has CTCSS (Continuous Tone Coded Squelch System) or DCS (Digital Coded Squelch) to be tailored to your particular needs.

**The FT-5D radio does not have the ability to do a different CTCSS transmit and receive tones (Split tones).**

Use of either of the tone systems requires two steps:

- 1) turning on the Tone Mode with the Tone Mode setting and
- 2) selecting the CTCSS tone or DCS code to be used by the radio with the selections in the next two columns.

The **Tone Modes** include:

None - No tone system activated. Values in CTCSS and DCS columns are not in use by the radio when Tone Mode is set to none.

Tone - CTCSS tone generator is activated for **transmission only** (this mode is used for many if not most repeater operations). With Tone selected as the Tone Mode, the value that appears in the DCS code column is ignored by the radio.

TSql - CTCSS tone squelch (TSql) is activated for **both transmission and reception** (only signals "encoded" with the matching tone will open the squelch: your radio will remain silent otherwise). With TSql selected as the Tone Mode, the value that appears in the DCS code column is ignored by the

radio. The radio uses the frequency set in the CTCSS column for both transmission and reception.

DCS - Digital Coded Squelch mode is activated for **transmission and reception**. With DCS selected as the Tone Mode, the value that appears in the CTCSS tone column is ignored by the radio. The radio uses the DCS Code for both transmission and reception.

Rev. CTCSS - Reverse CTCSS **mutes** the receiver when a matching tone is received.

User CTCSS - User CTCSS **mutes** the radio's audio when a signal with a matching CTCSS tone is received. The tone signal frequency is set in the User CTCSS column at 100 Hz intervals.

Pager - Make this selection to engage the Enhanced CTCSS Paging and Code Squelch function for the selected memory channel. Other options for the Pager function are set in the Pager section on the Settings screen.

***Note: The design of the radio allows for only one set of Transmitting and Receiver Pager Codes for all paging operations. These are set in the Setting file of the Programmer. Access the Pager section under Settings | Radio Menu Settings | Common 2 Tab | Pager for the options for this feature.***

D Code - Digital Coded Squelch mode is activated for **transmission only**. With D Code selected as the Tone Mode, the value that appears in the CTCSS Tone column is ignored by the radio. The radio uses the DCS Code set in the DCS code column for transmissions only. Reception is open for any signal.

T-DCS – CTCSS encode (tone squelch) is activated for **transmission** and Digital Coded Squelch for **reception**. With T-DCS selected as the Tone Mode, the values that appear in the CTCSS and DCS Code columns are both used by the radio. The CTCSS selection is used for transmissions while the DCS Code selection is used for reception. Be sure that you set both the CTCSS and the DCS Code once this option is selected.

D - Tone – DCS is activated for **transmission** and CTCSS tone generation is activated for **reception**. The CTCSS and DCS columns become active to set the tone values for this function.

**CTCSS** - Select one of 50 tone frequencies to be used in the Tone or D Tone modes. This value is set independently for each memory channel. This field is active only if the Tone Mode is set in a mode that uses a CTCSS tone. A value that appears in this field is ignored if one of the tone modes that uses CTCSS is not activated.

**DCS Code** - Select one of the 104 codes available for use when the radio is in DCS mode. This value is set independently for each memory channel. This field is active only when a Tone Mode for DCS is selected. A value that appears in this field is ignored if one of the tone modes that uses DCS is not activated.

**DCS Polarity** - DCS polarity is another part of the DCS code. Options include those for Normal and Inverted functionality for transmission and reception.

*If you are given a DCS code for a repeater with no mention of Polarity, leave Polarity set to RN-TN (Receive Normal - Transmit Normal). This is at times referred to as Both Normal. This is the default used unless another is specified as in use by the repeater.*

**RX DGID** - The Receiver Digital Group ID (RX DGID) number is digital signaling that enables station filtering. It keeps the radio silent until the correct signal is transmitted. RX DGID 00 can hear any transmission. RX DGID 01-99 can be selected for whatever use needed for communications.

**TX DGID** - The Transceiver Digital Group ID number (TX DGID)

**User CTCSS** - Set a squelch frequency to be used for User CTCSS function. The radio mutes its audio when receiving a signal containing a CTCSS tone matching the value set here.

**Tx Power** - The transceiver output power can be set individually for each memory channel to address the exact needs of each operation. Select from High - 5W; Low 1 - 0.5W; Low 2 - 1W; or Low 3 - 2.5W.

**Skip** - Marks selected memory channel to be skipped or specified during scanning. Skipped channels remain available for manual selection. Options in this column include:

Off - Normal memory channels will cycle during scanning.

Skip - The channel is skipped during scanning of memory channels.

Select - Only designated memory channels are selected during scanning.

**Step** - The frequency being used by the radio changes by the value of the step when tuning manually. This value is used by the radio in Memory Tune mode. This value is not critical in memory mode since the original memory channel frequency can be retrieved by exiting Memory Tune mode. In VFO, this value could keep you from returning to your original frequency. Select from 5/6.25/10/12.5/15/20/25/50 or 100 kHz steps as needed.

**Attenuator** - Reduces signal interference if a signal is too strong or if there is a strong signal nearby.

**S-Meter Squelch** - Emits audio only when receiving a signal as strong as or stronger than the S-meter Squelch level. S-Meter Squelch can be turned off or set from Level 1 to Level 10.

**Bell** - When function is activated, a bell will ring when receiving calls from another station.

**Half Dev** - Check to engage for TX Narrow (+2.5). Sets the FM deviation to half its usual level.

**Clock Shift** - Shifts the internal reference frequency slightly to eliminate "birdies" that interfere on other channels.

**Bank 1-24** - Banks are groups of memory channels that are associated with a common activity or theme. Use Banks to register channels for designated purposes (e.g. one Bank can be used for channels you frequently use for camping, another Bank can be used for channels you frequently use for driving, etc).

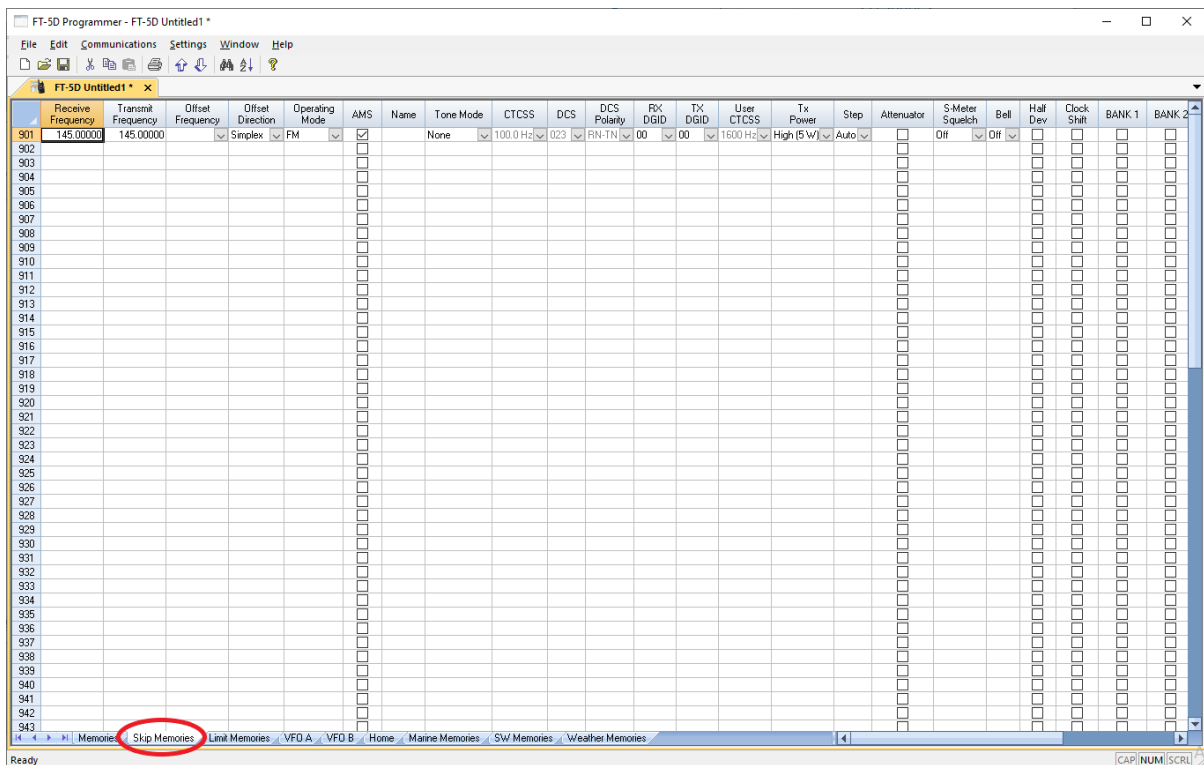
- Check the box to assign a memory channel to a given Bank. A memory channel can be assigned to all Banks by checking all of the columns, or it can be omitted completely by not checking a box at all. When the radio is operated in Memory Bank Mode, only those channels assigned to the selected Bank will be available for use and scanning.
- Banks can also be assigned a Name to reflect its designated purpose. Go to Settings | Bank Names and Linking to rename a Bank. Selecting the Link box beside the Bank Name sets the memory Bank Link. This option links multiple registered memory banks for immediate recall of frequently used Banks.

**Comment** - An identifying comment up to 80 characters. This information is not transferred to the radio.

## 12.3 Skip Memories

Skip Memory channel frequencies are skipped during VFO scanning. These channels can be used for additional regular memory storage if you don't use VFO scanning.

Skip Memory channels are entered on the Skip Memories page on the tab of the same name at the bottom of the screen.



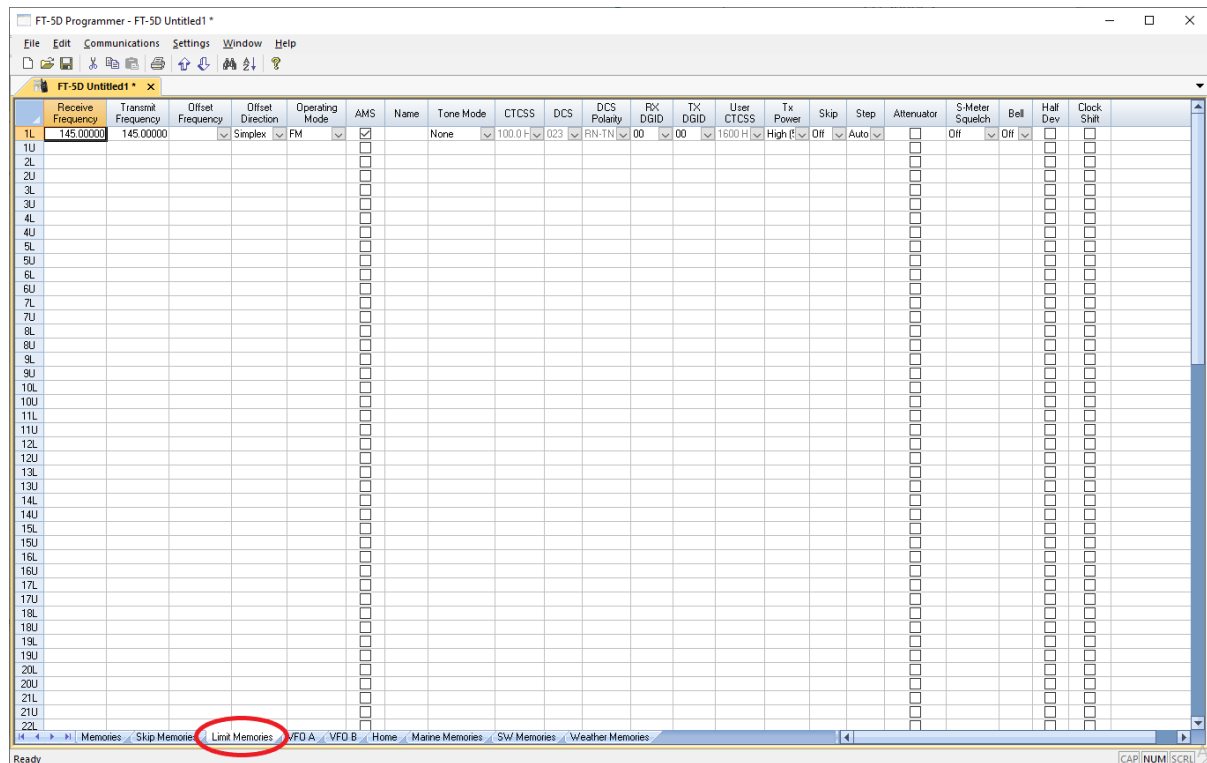
The same information entered for Regular Memories is entered for Skip Memories. Refer to the [Regular Memories](#) section in the Programming Memory Channels book of this Help for the details about the information to be entered.

## 12.4 Limit Memories

This feature allows you to set sub-band limits for either scanning or manual VFO operation.

For example, you might wish to set up a limit (in North America) of 144.300 MHz to 148.000 MHz so as to prevent encroachment into the SSB/CW "Weak Signal" portion of the band below 144.300 MHz. Then when you scan using this limit pair, you will begin scanning at 144.300 and continue to scan up to 148.000 before returning to 144.300 to begin the cycle again.

The Limit Memory channels are entered on the Limit Memories page accessed through the tab of the same name at the bottom of the screen.



The same information as that entered for any memory channel is entered for these. See the [Regular Memories](#) section in the Programming Memory Channels book of this Help for the details about the information to be entered. In the Limit Memory channels, Step becomes much more important since you plan to begin scanning from one of these channels. Remember, scanning will increment the frequency by the value in the Step field. Choose your value to be sure you do not miss channels in your range.

Some options for scanning can be set from the Programmer. These are global items that are accessed from Settings | Radio Menu Settings from the menu at the top of the

screen. Once on the Settings screen, scanning functions are found on the first screen that opens, the Common 1 screen.

## 12.5 VFO

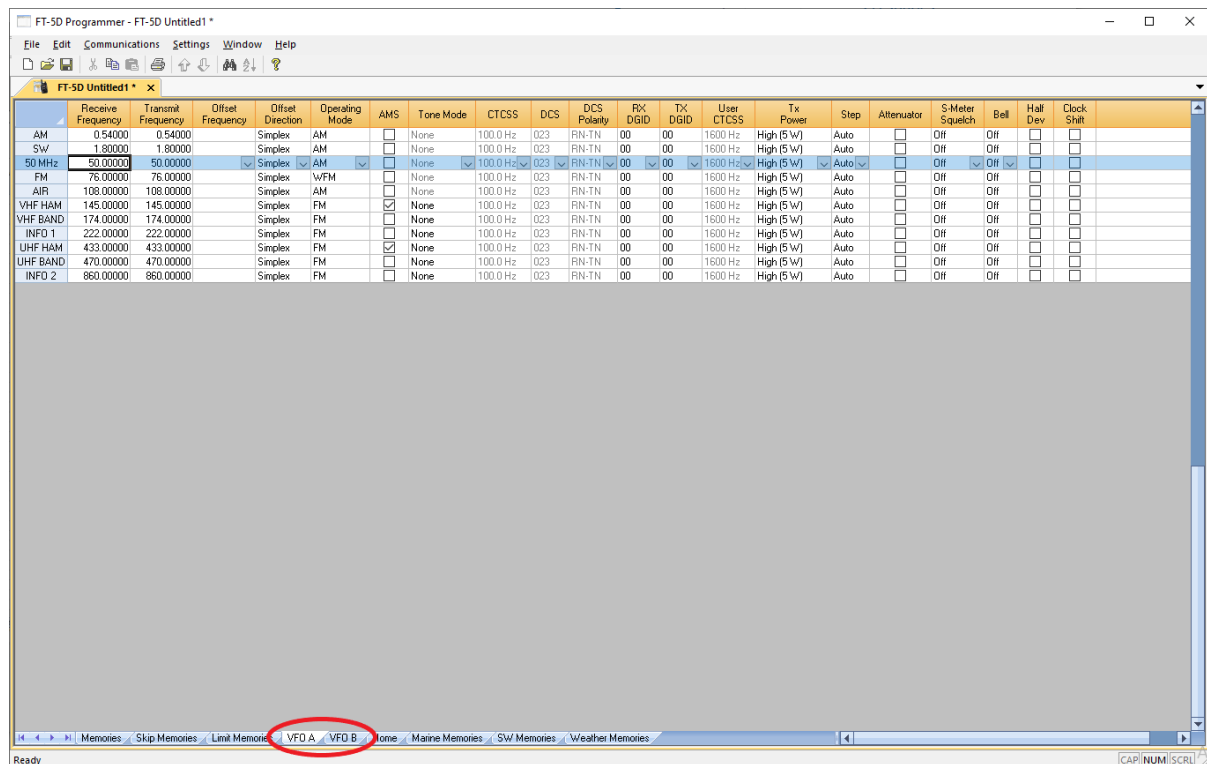
The VFO Memories provide "temporary" memory channels for quick access. The VFO memory is temporary since it is lost when the radio is tuned while in VFO mode.

**Note: Remember, the VFO memory is temporary. The programmed frequencies appear immediately after the file is sent to the radio. When the radio is manually tuned in VFO mode, the programmed frequency cannot be recalled as a memory channel frequency will be.**

Programming the VFO memory from the Programmer can be particularly helpful for reoccurring events for which the details of this channel are needed along with other memory channels.

Memories do not have to be programmed into VFO before being programmed into the memory channels when entering details in the Programmer. Memory channels are programmed directly into the spreadsheet that appears when the Programmer opens.

To program VFO Memories, select one of the the VFO tabs at the bottom of the screen.



Enter a frequency that is appropriate for the band. The details that you enter will replace the default of the radio. Simply type over the information shown to make the changes.



---

These channels must contain a frequency appropriate for the band. They cannot be blank.

The information to be entered is the same as that for regular Memories **except that the VFOs do not have an alpha label available to be programmed.** See the [Regular Memories](#) section of the Programming Memory Channels book in this Help for details of the fields. In VFO mode, **Step** is important to ensure that you can tune manually to a certain frequency. Pay careful attention to this column when programming the VFOs.

## 12.6 Home

The Home channel memory provides convenient, one-touch access to your most often used frequency in each band.

Home channel memories are programmed on the Home tab at the bottom of the Programmer screen.

	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	AMS	Name	Tone Mode	CTCSS	DCS	DCS Polarity	RX DGID	TX DGID	User CTCSS	Tx Power	Step	Attenuator	S-Meter Squelch	Bell	Half Dev	Clock Shift
AM	0.54000	0.54000		Simplex	AM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
SW	1.80000	1.80000		Simplex	AM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
50 MHz	50.00000	50.00000		Simplex	AM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
FM	76.00000	76.00000		Simplex	VFM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
AIR	108.00000	108.00000		Simplex	AM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
VHF HAM	146.52000	146.52000		Simplex	FM	<input checked="" type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
VHF BAND	174.00000	174.00000		Simplex	FM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
INFO 1	222.00000	222.00000		Simplex	FM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
UHF HAM	446.00000	446.00000		Simplex	FM	<input checked="" type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
UHF BAND	470.00000	470.00000		Simplex	FM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>
INFO 2	860.00000	860.00000		Simplex	FM	<input type="checkbox"/>		None	100.0 Hz	023	RN-TN	00	00	1600 Hz	High (5 W)	Auto	<input type="checkbox"/>	Off	Off	<input type="checkbox"/>	<input type="checkbox"/>

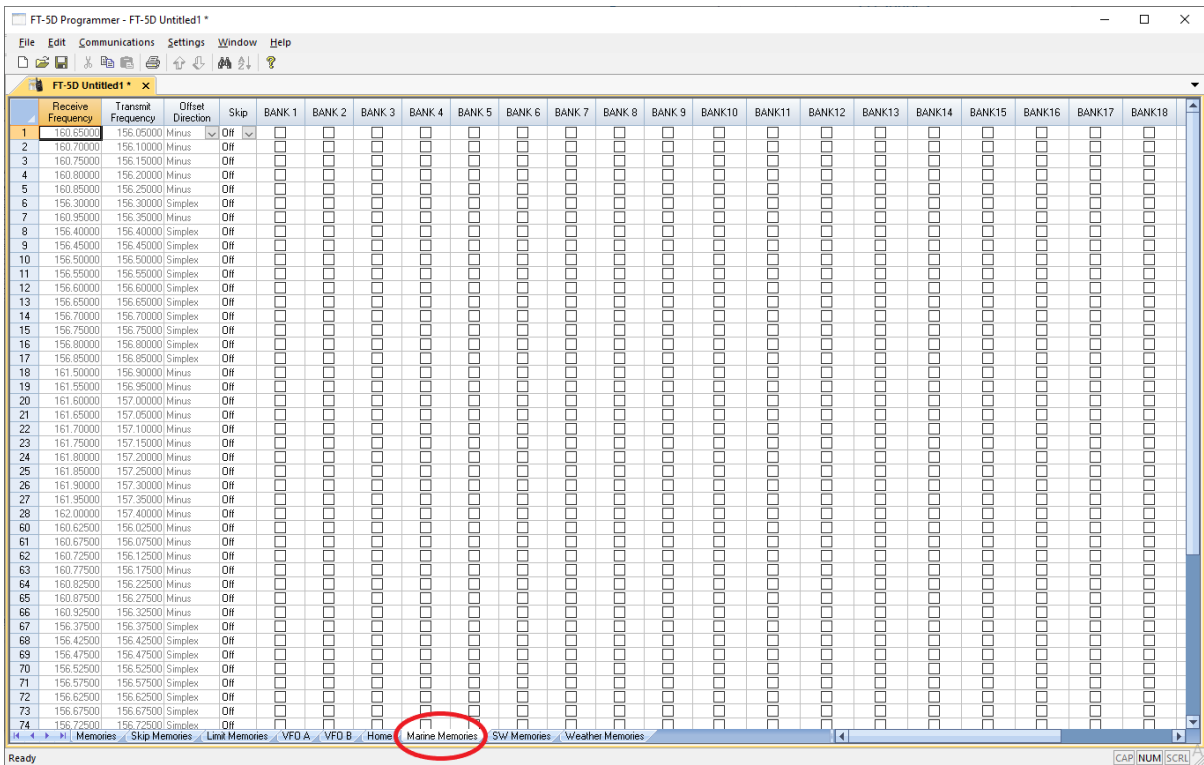
The information to be programmed for the Home Channels is the same as that for the Regular Memories. See [Regular Memories](#) under Programming Memory Channels in this Help for the details of each item to be programmed.

Once programmed and sent to the radio, the Home channels are recalled by pressing the [F MENU] key and then [HOME] while operating in either VFO or Memory Mode.

## 12.7 Marine Memories

The Marine Memory channels contain preset frequencies where International VHF stations are registered.

Navigate to the bottom of the screen and click on the Marine Memories tab to enter information in these channels.



The Programmer provides options for skipping these channels during scanning and placing these channels in memory banks for easy recall during scanning. Comments can also be added as an identifying element of the selected channel. See [Regular Memories](#) under Programming Memory Channels in this Help for details about the Skip and Bank features in the Programmer.

The Marine channels are recalled by pressing the [A/B] key. This sets the A-band as the operating frequency. Next, press [F MENU], and then touch [P.RCVR]. If [P.RCVR] isn't on the screen, press [BACK]. After selecting [P.RCVR], press the [BAND] key until you see the preset receiver band for the Marine channels. The band is listed as "INTVHF" at the top of the screen when you press the [BAND] key.

## 12.8 SW Memories

SW Memory channels contain preset frequencies for international shortwave broadcast stations.

These channels can be accessed at the bottom of the screen within the tab of the same name.

Receive Frequency	Name	BANK 1	BANK 2	BANK 3	BANK 4	BANK 5	BANK 6	BANK 7	BANK 8	BANK 9	BANK 10	BANK 11	BANK 12	BANK 13	BANK 14	BANK 15	BANK 16	BANK 17	BANK 18	BANK 19	BANK 20
6.03000	VDA																				
6.16000	VDA																				
9.76000	VDA																				
11.96500	VDA																				
9.95500	CANADA																				
9.66000	CANADA																				
11.71500	CANADA																				
11.96500	CANADA																				
6.19500	BBC																				
9.41000	BBC																				
12.09500	BBC																				
15.31000	BBC																				
6.09000	FRANCE																				
9.79000	FRANCE																				
11.67000	FRANCE																				
15.19500	FRANCE																				
6.00000	DW																				
6.07500	DW																				
9.65000	DW																				
9.73500	DW																				
9.99000	ITALY																				
9.57500	ITALY																				
9.67500	ITALY																				
17.78000	ITALY																				
7.17000	TURKEY																				
7.27000	TURKEY																				
9.56000	TURKEY																				
11.69000	TURKEY																				
9.66000	VATICAN																				
11.62500	VATICAN																				
11.83000	VATICAN																				
15.23500	VATICAN																				
5.96500	NDELND																				
6.02000	NDELND																				
9.89500	NDELND																				
11.66500	NDELND																				
5.96500	CZECH																				
6.10500	CZECH																				
9.45500	CZECH																				
11.86000	CZECH																				
9.78000	PORTGL																				
11.63000	PORTGL																				
15.55000	PORTGL																				

**Note: Depending on time zone or signal strength, these broadcasts may not be received. The broadcast station frequency may be changed, off air or discontinued. There are also broadcast stations other than the ones listed that can be received. For the most up-to-date information, refer to a commercially available frequency list.**

Like with other memory channels, these channels can be stored in memory banks and identifying comments can be added. See [Regular Memories](#) under Programming Memory Channels in this Help for instructions about setting the Bank and Comments features in your Programmer.

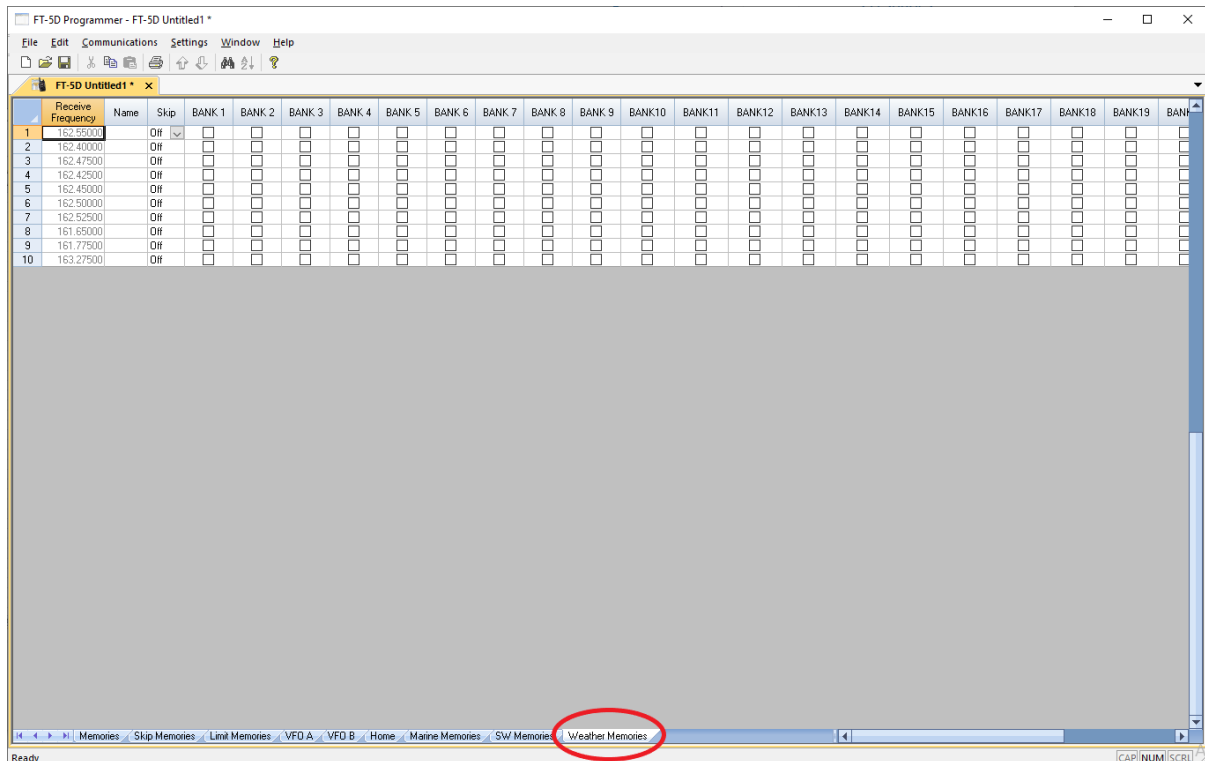
The SW channels are recalled by pressing the [A/B] key. This sets the A-band as the operating frequency. Next, press [F MENU], and then touch [P.RCVR]. If [P.RCVR] isn't on the screen, press [BACK]. After selecting [P.RCVR], press the [BAND] key until you

see the preset receiver band for the SW channels. The band is listed as "SW" at the top of the screen when you press the [BAND] key.

## 12.9 Weather Memories

Weather Memories are used for VHF Weather Broadcast Stations.

Enter information in these channels by accessing the Weather Memories tab at the bottom of the screen.



**Note: Should an extreme weather disturbance occur, like a storm or a hurricane, the National Oceanic and Atmospheric Administration (NOAA) will send a weather alert accompanied by a 1050 Hz tone. Following that, there will be a weather report on one of the NOAA weather channels. See the [Programming Other Set Menu Items | Common 2](#) section of this Help to program the Weather Alert feature of your radio.**

While the data in this channel's Receive Frequency column can't be altered, the Name, Skip, Bank, and Comment features can be changed. For help with these settings, refer to [Regular Memories](#) under Programming Memory Channels in this Help.

The Weather channels are recalled by pressing the [A/B] key. This sets the A-band as the operating frequency. Next, press [F MENU], and then touch [P.RCVR]. If [P.RCVR] isn't on the screen, press [BACK]. After selecting [P.RCVR], press the [BAND] key until

you see the preset receiver band for the Weather channels. The band is listed as "WX CH" at the top of the screen when you press the [BAND] key.

**Part**

**XIII**



## 13 Programming Club Activity Monitor

The Club Activity Monitor panel provides options for storing frequently used memory channels.

To access the Club Activity Monitor in the Programmer, go to Settings | Show Club Activity Monitor at the top of the main window.

### Entering Club Activity Monitor Details

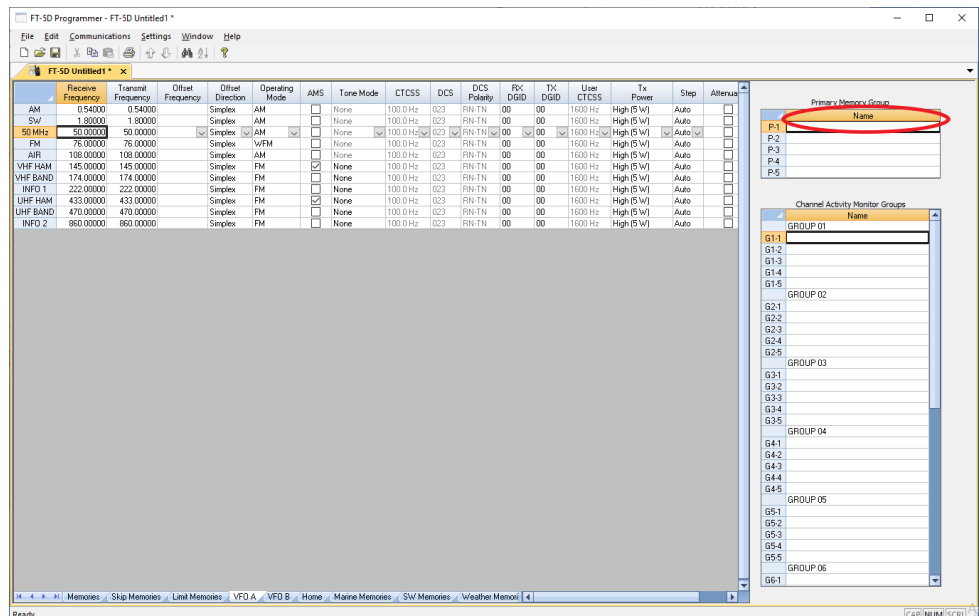
#### Primary Memory Group

The Primary Memory Group (PMG) function can register VFO frequencies and memory channels.

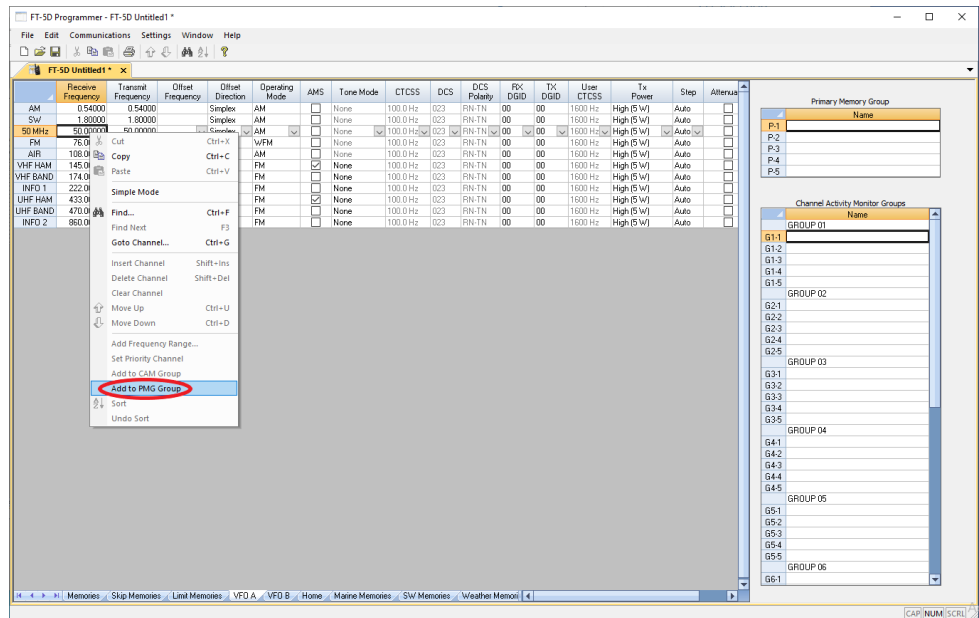
**Note: The AM, SW, and INFO 2 presets can't be added to a PMG.**

To add a frequency to a PMG channel:

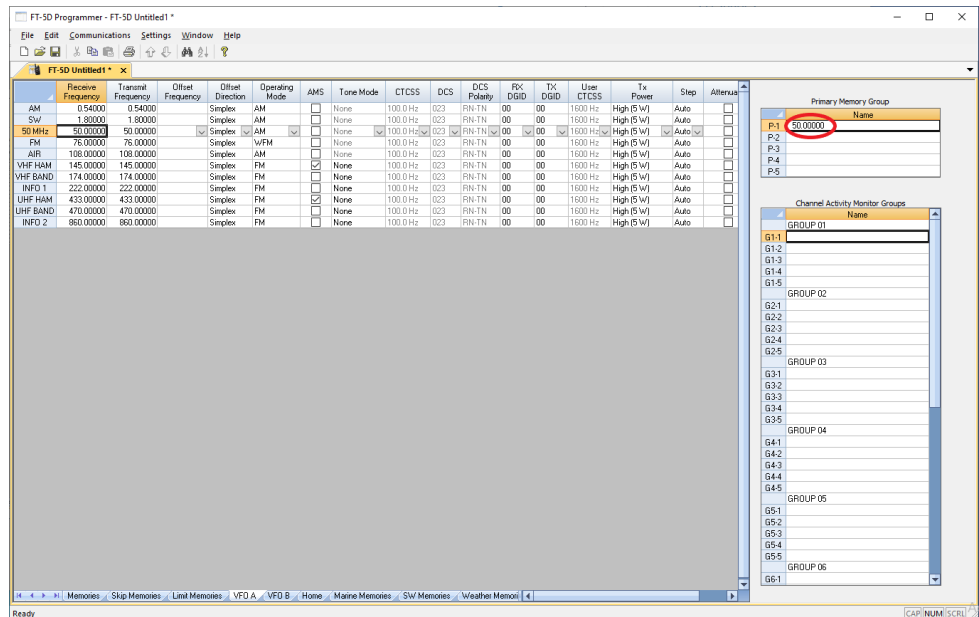
- With the Club Activity Monitor panel open, go to the Primary Memory Group section and click on an empty cell under the Name column.



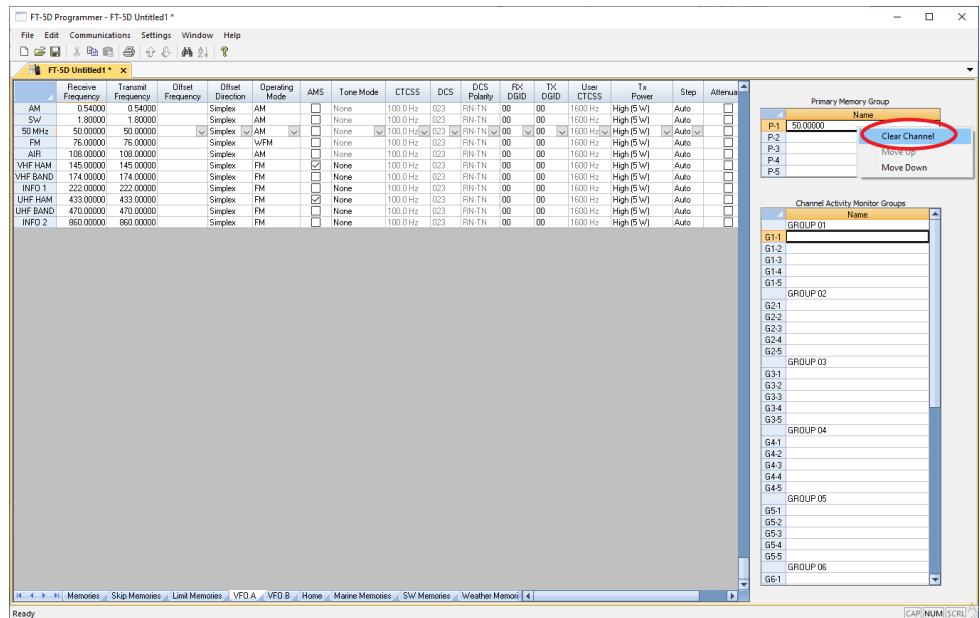
- Choose a frequency from a memory channel in the main window of the Programmer, right-click on any cell on the frequency's row, and go to Add to PMG Group in the drop-down menu.



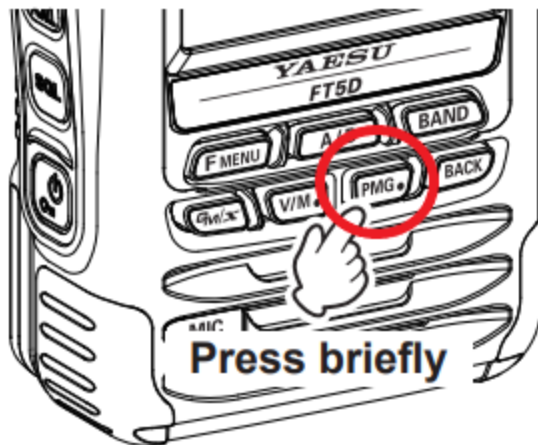
- The frequency will be listed in the cell you selected.



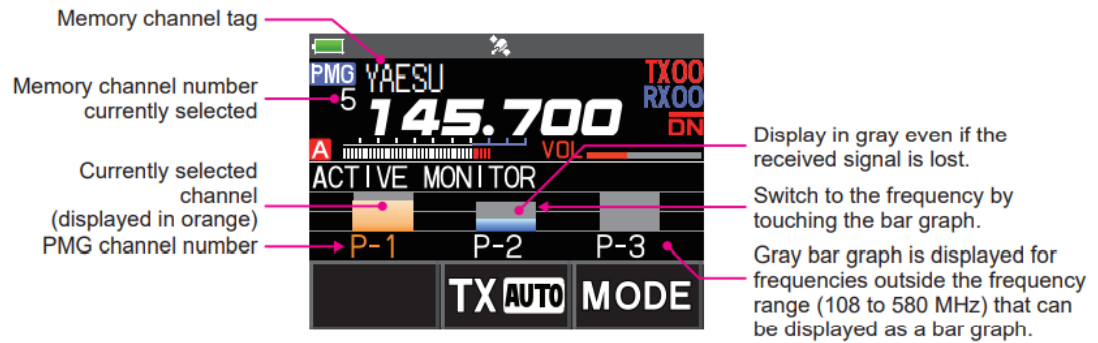
- To remove a frequency, right-click on the PMG cell where the frequency is stored and go to Clear Channel.



Recall a frequency stored in a PMG by touching the [PMG] key on the radio.



Up to 5 frequencies in Primary Memory Group Activity Monitor are displayed.



Changes made to the Regular Memories or Home channels will automatically be reflected in the PMG. VFO frequencies won't change until a new VFO frequency is assigned to the PMG.

## Channel Activity Monitor Groups

Only memory channels can be assigned to Channel Activity Monitor (CAM) groups. These groups can't be left empty.

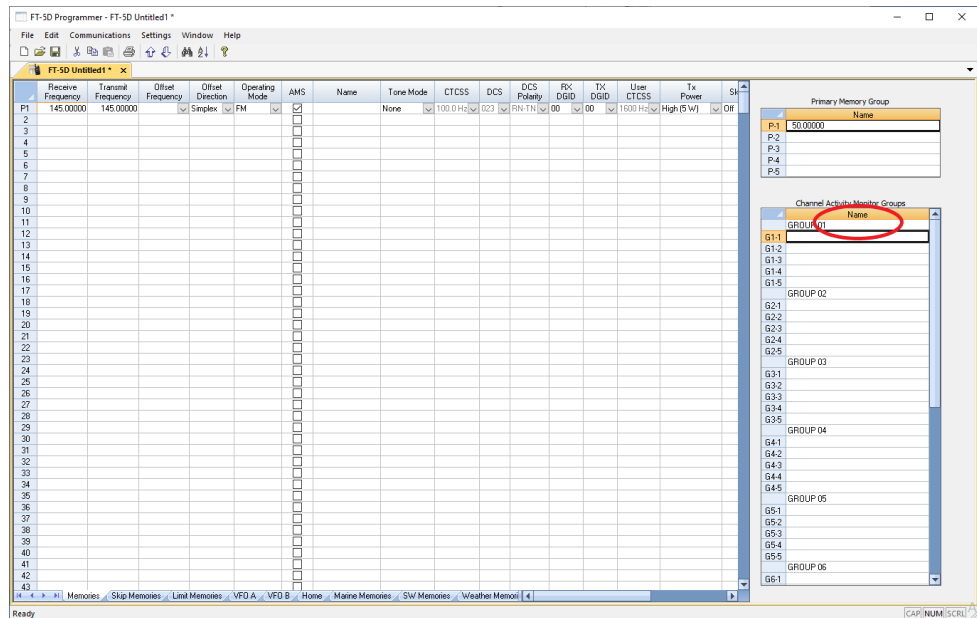
**Note:** While earlier versions of the Programmer (Version 5.00.13 or lower) did allow for empty CAM groups, empty groups cause the radio to malfunction. Regularly check for updates to the Programmer through [Help | Check for Updates in the Programmer](#) or by going to the [RT Systems website](#).

**G1-1 - G0-5** - Register up to 5 memory channels into one group.

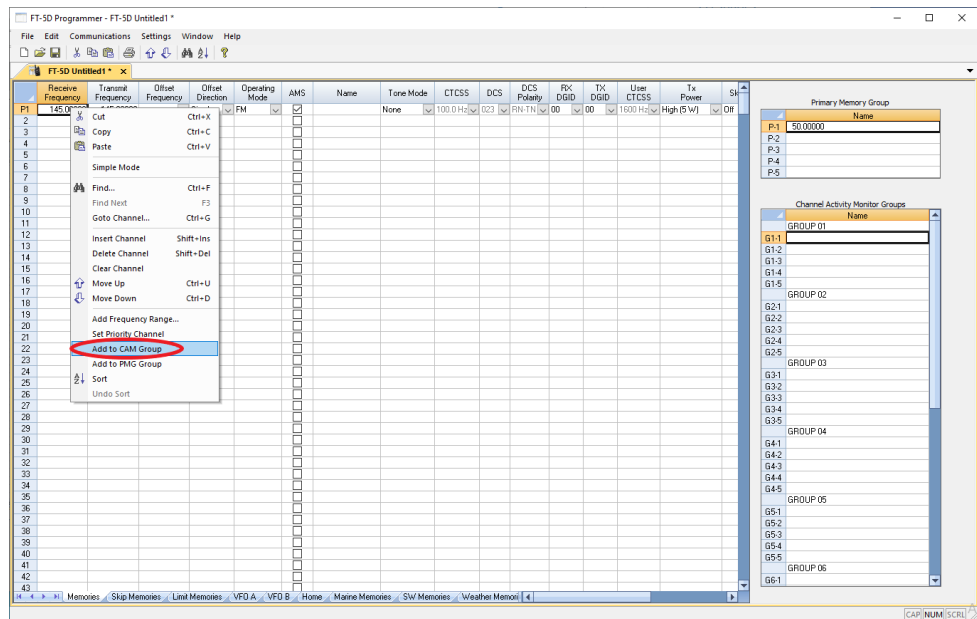
**Group 01 - Group 10** - These groups are where the memory channels are stored. Store up to 5 channels in up to 10 groups.

To add a frequency to a CAM channel:

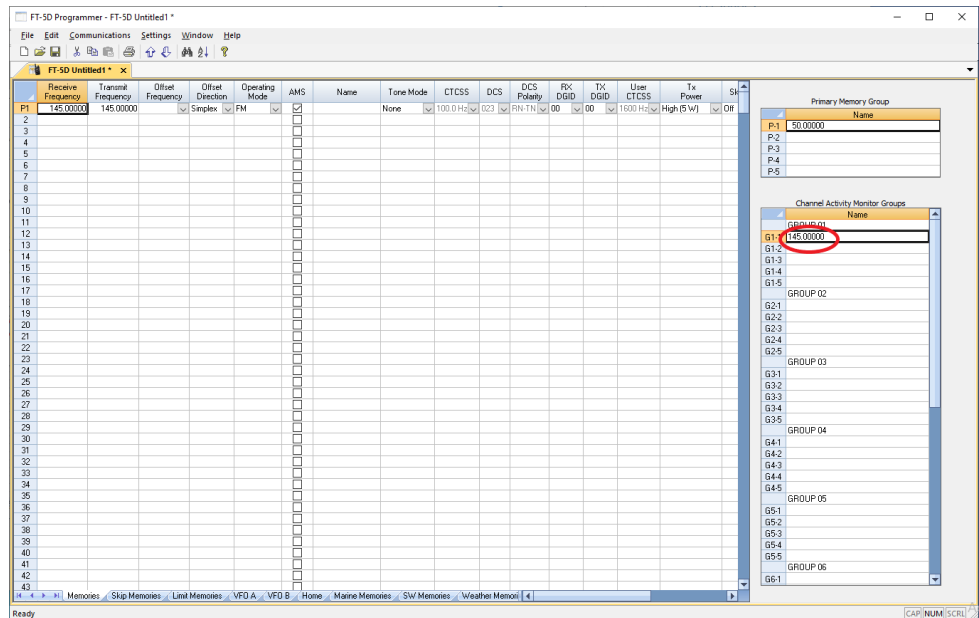
- With the Club Activity Monitor panel open, go to the Channel Activity Monitor Groups section and click on an empty cell under the Name column.



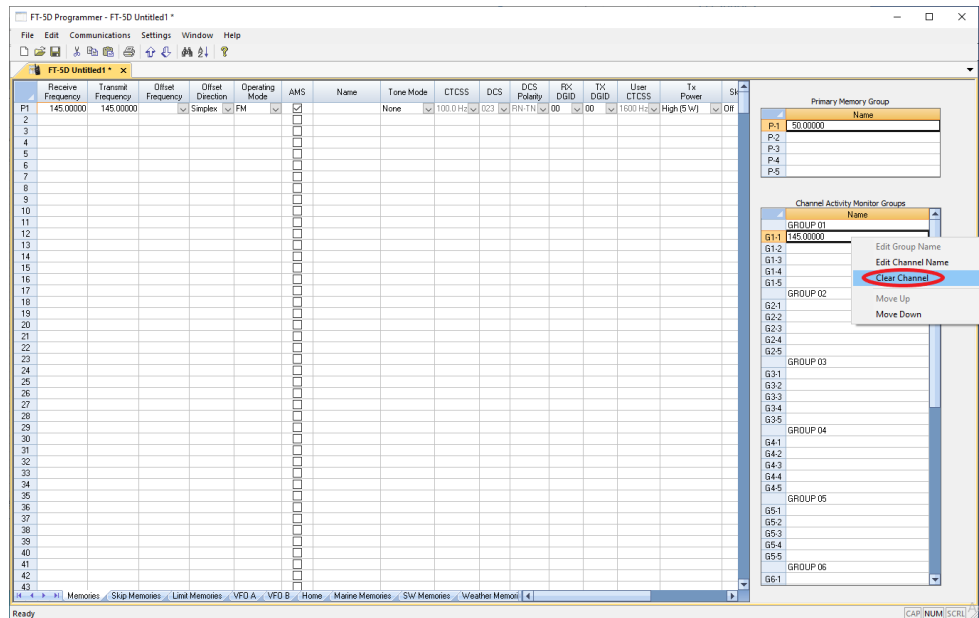
- Choose a frequency from a memory channel in the main window of the Programmer, right-click on any cell on the frequency's row, and go to Add to CAM Group in the drop-down menu.



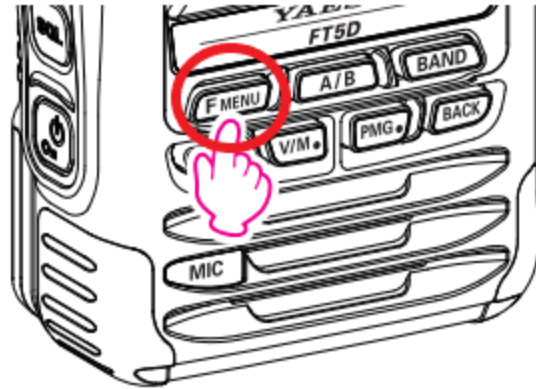
- The frequency will be listed in the cell you selected.



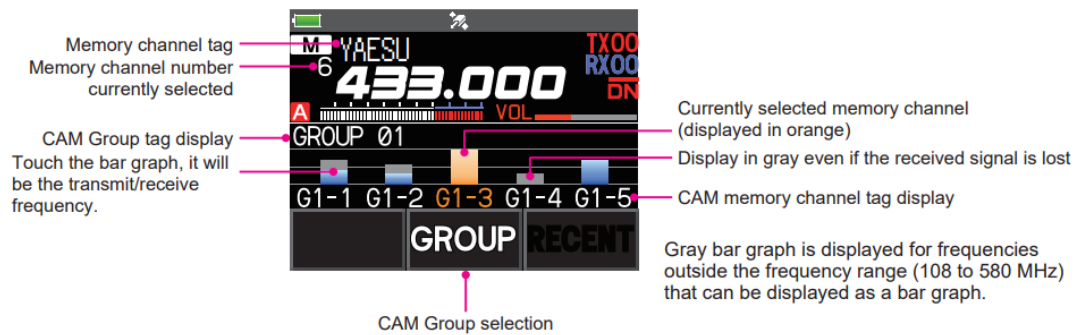
- To remove a frequency, right-click on the CAM cell where the frequency is stored and go to Clear Channel.



Recall a frequency stored in the CAM channel by pressing the [F Menu] key on the radio, and then [CAM] on the face of the radio.



Up to 10 groups, with up to 5 memory channels each, can be registered in each group.



**Part**

**XIV**

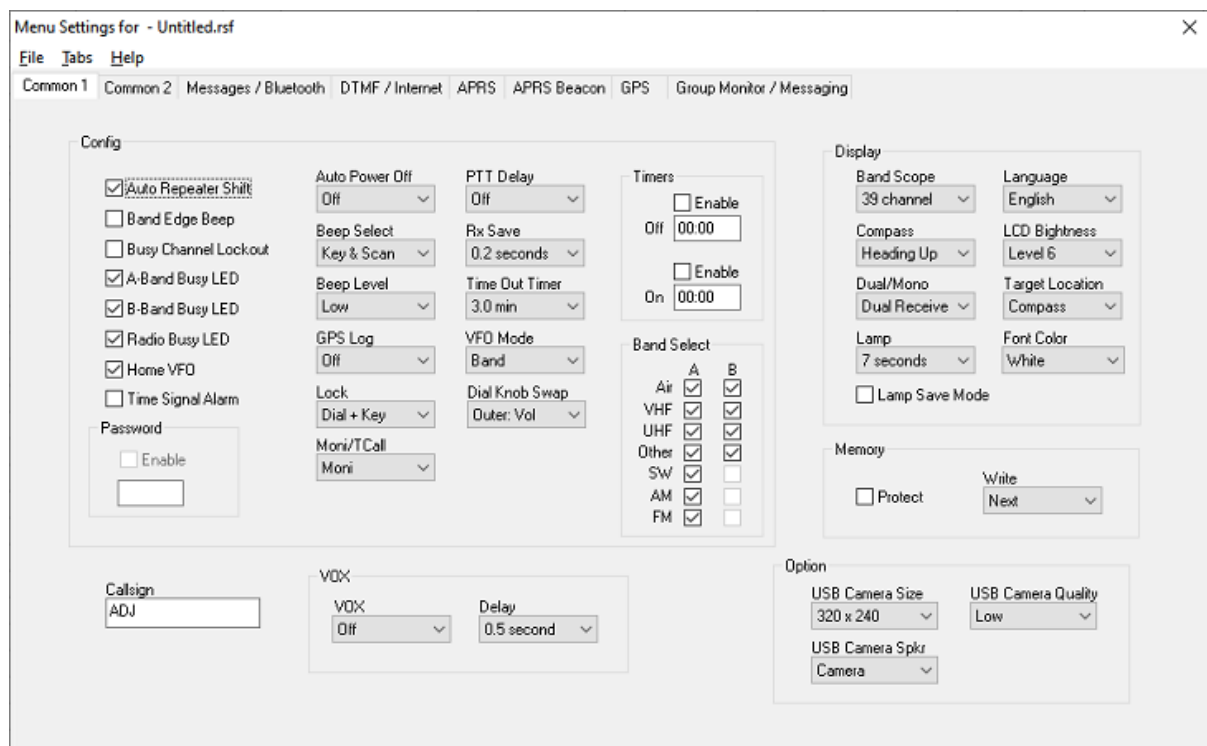


## 14 Programming Other Set Menu Items

There is a lot more to this radio than just the memory channel. The radio has other menu items that are not associated with each memory channel. These menu items are "global" to the radio's functionality. The radio uses these settings no matter what memory channel you're on, what frequency of operation you're in, or if you're in VFO or memory.

Things like Beep Level, Squelch Level, and Lock, just to name a few, are set for the radio to use whenever it is being operated . . . no matter the channel or mode (VFO or memory).

These features and more are set from the Radio Menu Settings screen in the main window of the Programmer. At the top of the screen, select Settings | Radio Menu Settings. Refer to the [Main Page Navigation](#) section of this Help for guidance getting to the Radio Menu Settings screen.



**Note:** If your radio "acts funny" once it is programmed with a file of memory channels, check the settings file (Settings | Radio Menu Settings) to be sure things are set correctly. Then be sure to save the settings file so your personal touches will go to the radio with every file (Settings | Radio Menu Settings | File | Save). The settings file

*then works in conjunction with the memory channel file to program your radio.*

The Programmer offers three options for managing the global settings:

Set and forget - The Radio Menu Settings screens are there for you to easily customize your radio to suit your use. Once you make your selections and save them, you don't have to do it again, even if you start a new frequency file.

Create and use multiple global settings files - This might be the best option if you program the frequencies for several different people. You can customize the Radio Menu functions for the individual without having to recreate the frequency file.

Save the settings as part of the file with the memory information - This might be best if you are programming different frequencies AND different global settings for different groups. You might even want to use this option if you travel. How you use your radio at home may differ from how it should function on the same frequency in another city. Then each time you travel, simply load the corresponding file into the radio to have frequency and global settings that you need for where you're going.

The three options are discussed in detail below. Once you decide, set the Programmer for the option that you want on the Preferences screen (Settings | Preferences) in the Programmer.

## Set and Forget

- This is the default of the Programmer.
- Not using the Radio Menu Settings (Settings | Radio Menu Settings) settings can result in your radio "acting funny" every time you program it. That's because something is getting reset in the radio by a setting in this file.
- From the main screen of the Programmer, select Settings | Radio Menu Settings. Explore these screens. If you fear you have made changes you don't want, click the "X" at the upper right of the Settings screen. Answer No to the prompt to discard changes. Then click the "X" again to close. The screen will close without saving anything you have done.
- Details for the options on this page are found on several pages of this Help. Each tab on the Radio Menu Settings screen is listed in the Table of Contents to the left. The information in these pages contain the details for the options on

that page. The information there can help you decide how best to customize a setting.

- Once you complete your Radio Menu Settings selections:
  - Click File | Save
  - If you are working in a default file (Untitled.rsf), you will be prompted for a filename.
  - Enter a name for this file. This can be the same as the name you're using for the memory channel information or it can be a name unique to these settings. If you're at a loss, use "Settings".
  - Click Save to close the Save dialog.
  - Click File | Exit to close the Settings screen.
- The Programmer will make sure these customized settings go to the radio along with the memory channel information.

## Creating and using multiple global settings files

- There may be global settings of the radio that you want configured differently for different activities. You can make changes to your settings file and save it separately.
- Having multiple memory channel files (."radio name") and multiple global setting files (.rsf) gives you the ability to mix and match the features of your radio to suit your needs. This makes it easy to customize the radio for a special event without disturbing the original programming files. Then once the event is over, simply reprogram the radio with the memory channel information and settings that you use everyday.
- When a new file is begun, the **same settings used in the last settings file saved** will be used automatically. You need not re-enter the settings each time, nor are you forced to always begin a new file by renaming an existing file. You need only enter memory channel details.

### To select a settings file for use:

- Select Settings | Radio Menu Settings from the main page of the Programmer.
- From the Radio Menu Settings screen, select File | Open. A list of settings files will be presented. Do not change the Files of Type

selection at the bottom. The Programmer presents appropriate files to choose from.

- Select the file you want to use and click Open.
- Verify that this is the settings file that you want to use. Check also that the proper filename appears in the title bar at the top of the Menu Settings window.
- Click File | Save to reset the Programmer to use this file.
- Select File | Exit to close this screen. These settings will be sent to the radio with the memory channel file until you change this file selection again.

## **Save the settings as part of the file with the memory information**

- The Programmer provides the option of saving the Radio Menu Settings with the memory channel information.
- This feature is good two ways. First, if you think that you'll always use only one file for programming and you are more comfortable knowing that EVERYTHING that is going to the radio is in this one file, select this option. Second, if you are programming similar, but not identical, memory channel information for people who use their radios very differently, keeping Radio Menu Settings in the file with the memory channel information would reduce the chance of programming a radio incorrectly.

### **Keep menu settings and frequencies in a single file. (option)**

- From the main screen of the Programmer, select Settings | Preferences | Other | Keep menu settings and frequencies in a single file.
- Click OK to close this screen.
- From the main screen of the Programmer, select Settings | Radio Menu Settings.
- Make changes as needed.
- Click Close | Apply changes and close (if you want to save) or Discard all changes and close (if you think you've made mistakes and need to return to the last time you saved this file) | Select Yes (if you want to save), No (if you think you've made mistakes and need to

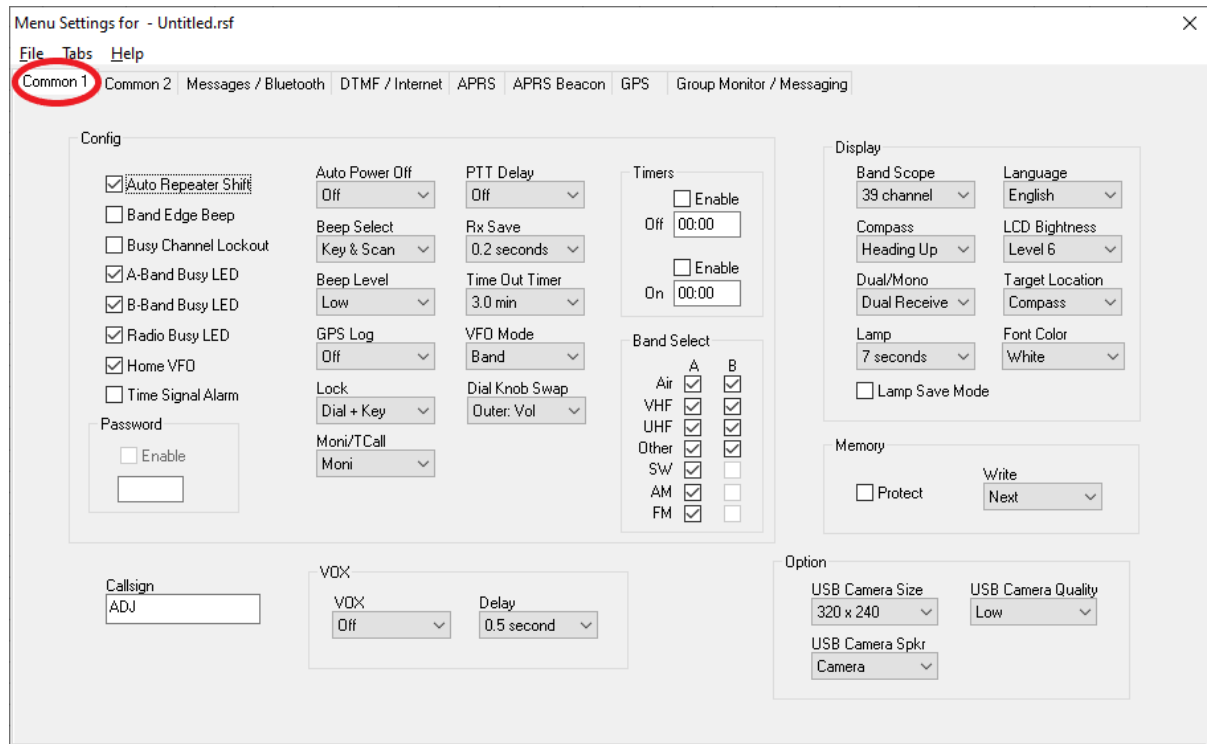
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return to the last time you saved this file), or Cancel (to close the box and return to the Radio Menu Settings screen).

- Remember, with each new file created, the Radio Menu Settings return to factory defaults. You must set these options for EACH memory channel file created.
- Another feature of this option is the ability to use the settings from a settings file that you already created.
  - From the Menu Settings screen, select External Setting Files
  - From that menu select Open.
  - Select a settings file from the list presented. The settings file must be for the same radio.
  - To set these to be used in this file, select Close | Apply changes and close.
- The settings from the other file will be saved to this file and sent to the radio with this memory channel programming.

## 14.1 Common 1

The Common 1 tab is the first tab on the screen after navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



This tab contains options for personalizing your radio's Config, Display, Memory, Optional USB camera, Callsign, and automatic voice transmission (VOX) settings.

### Entering Common 1 Details

**A-Band Busy LED** - Controls the A-Band LED that lights indicating signal reception. Disengaging this option will help to conserve battery life.

**Auto Power Off** - Set the time after which the transceiver will automatically shut off. Default is Off.

**Auto Repeater Shift** - The Auto Repeater Shift (ARS) option automatically sets the offset for any frequency you tune to manually. While this option is useful while in VFO or memory tune (any time you tune the radio manually), it does not affect the functionality of the Programmer nor the radio's functionality on a memory channel. The option is On by default.

**B-Band Busy LED** - Controls the B-Band LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**Band Edge Beep** - Enable / disable an audible indication that you have reached the edge of a frequency band when you are tuning the radio with the DIAL knob.

**Band Scope** - Set the number of search channels for band scope. This feature allows you to view a spectrum of frequencies above and below the set frequency of your current channel. Band scope is visible on the face of the radio, directly below your channel.

**Band Select** - Individually set the frequency band for A-Band and B-Band. Stored memory channels can be recalled regardless of this setting.

**Beep Level** - The beep volume setting can be set to Low or High.

**Beep Select** - Select the functions that will invoke a sound or set the radio for silent operations. Selections include:

Off - Silent operations

Key - A sound is emitted when a key is pressed.

Key & Scan - A sound is emitted when a key is pressed or when the radio stops on a signal during scanning.

**Busy Channel Lockout** - This feature stops the radio from transmitting if a signal is being received.

**Callsign** - Set a call sign.

**Compass** - Set the compass display of the smart navigation function.

**Dial Knob Swap** - Swaps the VOL and DIAL knob functions.

**Dual/Mono** - Use Dual Receive to receive signals in the operating band and subband at the same time. Use Mono Receive to receive signals in just the operating band.

**Font Color** - Set desired font color.

**GPS Log** - Options for setting the GPS log recording time interval.

**Home VFO** - Enables or disables VFO transmission in the Home Channel.

**Lamp** - Set the duration time of the back light and keys to be lit.

**Lamp Save Mode** - Save lamp settings.

**Language** - Option to choose between English or Japanese for your preferred language.

**LCD Brightness** - Set the level of brightness of the LCD back light and numeric keypad light.

**Lock** - Select the combination of radio functions that are locked when the lock function is engaged. Combinations control keys, the tuning dial, and the PTT switch. Select an option to engage the lock.

**Note:** *The radio CANNOT BE PROGRAMMED FROM THE COMPUTER if the lock is engaged on the radio. It will turn on in the main menu; however, the send and receive buttons will report LOCK when pressed and the process will not continue.*

**Press the power button briefly (not enough to turn it off) to unlock the radio.**

**MoniT Call** - Set the function of the [MONI] key (the one just below the [PTT] key). When that button is pressed the radio will complete one of the following options. The default is Moni.

Moni - Opens the squelch to allow weak signals to be heard.

T Call - Activates a 1750-Hz burst tone used for repeater access in many countries.

**Password** - A feature that helps keep your radio from being used inappropriately. Details about this function are found in the [Password Settings](#) section of this Help.

**Protect** - Memory setting that, when selected, protects a memory channel from being overwritten with new details intended for another channel.

**PTT Delay** - Set the PTT delay time. This is the time that the actual transmission is delayed when the PTT is pressed.

**Note:** *If someone tells you that your transmission is clipped and they missed your first words or part thereof, check this setting. This is a very special setting that is used only on a repeater that needs it and for which you have been instructed that it should be used.*

**Radio Busy LED** - Controls the Radio LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.



**RX Save** - Set the receive-mode battery saver interval that controls the "sleep" function. This battery saver mode puts the radio to "sleep" at times of little activity. The radio then "wakes" at a given interval to listen for activity.

**Target Location** - Set what to display when using the smart navigation function. Options are

- Compass - Displays the compass
- Numeric - Displays latitude and longitude

**Time Out Timer** - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1 to 30 minutes and Off. The default is 6 minutes.

**Time Signal Alarm** - Toggles an alarm that goes off every hour on the hour.

**Timers** - Set timers that automatically turn the radio off and back on. Check Enable and enter a time for each action.

**USB Camera Quality** - Choose between Low, Medium, or High Quality for the camera's images.

**USB Camera Size** - Set camera image size.

**USB Camera Spkr** - Option to choose between the internal speaker or the MH-85A11U speaker.

**VFO Mode** - Provides options for the frequency selection range in VFO mode.

Band - Operates only in the current band.

All - Operates in all the bands available to the radio (Remember, the Band A and Band B cover different VFO frequency ranges. Before you think something is wrong because you can't access a desired frequency band, check which Band (A or B) you're in.

**VOX** - Set options for the VOX function including turning on the function and setting the delay.

**Write** - Set the automatic channel number increment when saving details to a memory channel. With this engaged, the radio selects the next available memory channel for storage. This keeps the radio from overwriting a programmed channel.

#### 14.1.4 Auto Range Transponder System

The Automatic Range Transponder System (ARTS) uses DCS signaling to inform you and another ARTS-equipped station that they are within range for communication. You need not have two matching radios to use this function. Any two radios equipped with the ARTS function can be used.

ARTS is used in simplex mode. The radio must receive on the same frequency as that transmitted by the other radio.

When setting up a channel for ARTS (VFO or memory),

- Enter the receive frequency
- Set the Offset Direction to SIMPLEX,
- Set Tone Mode to DCS,
- Set the DCS code to the same value in each radio.

Besides its value in search and rescue operations, ARTS makes a great "did you hear me" feature. As long as the two radios show "IN RANGE", you can be sure that the radio received your audio. Presuming that the volume on the receiving radio is sufficient, you can be sure that your signal was heard. Especially when driving, the other operator may not be able to respond immediately to your communication. If ARTS remains successful, you can be sure that the voice transmission was heard (just as the ARTS signal is heard).

During the ARTS function, your radio will transmit a signal every 15 (or 25) seconds. This transmission includes the DCS tone. The receiving radio will hear only the signal with the tone. An extraneous signal that lacks the tone will not interfere with the ARTS functionality between these two radios.

The other radio does the same in a comparable time period. As long as the two remain within range, the displays will show "IN RANGE". Should one of the radios move too far from the other, three beeps will sound and the display changes to "OUT RANGE". Once with radios are again within range, a single beep will sound and the display will change to "IN RANGE". Whether or not you talk, the ARTS function continues until you deactivate it.

During ARTS operation, it is impossible to change the operating frequency or other settings of the radio. This prevents accidental loss of contact. You must terminate ARTS operations to resume normal operations including access to menu settings on the radio. The radio can be turned off even with ARTS engaged. This will cause an out-of-range situation for other radios.

Options for ARTS operations are entered on the General tab of the Settings screen of the Programmer. Access this by selecting Settings | Radio Menu Settings from the main page of the Programmer. Then select the Common tab once the settings screen opens. Customize the settings. Select File | Save from the menu at the top of the settings screen. Enter a name for the settings file (if you are working in an existing settings file this action will appear to do nothing; but, your changes will be saved. You will not be prompted for another filename.). Click Save. Click File | Exit to close the Settings screen.

## The ARTS options include:

**CW ID** - Transmissions during the ARTS function, whether or not accompanied by voice transmissions, require that you ID every 10 minutes to satisfy FCC identification requirements. This identification can be done manually with verbal ID during a conversation or automatically by the radio with your call sign transmitted via CW. This automatic ID option is especially useful if you are using ARTS without voice transmission. To activate the CW ID, check the box and enter your call sign in the space provided.

**ARTS Mode** - The ARTS function can operate either silently or audibly. Silently, the display shows the IN RANGE or OUT RANGE condition of the transceivers. The beep alerts you to the location status of the radios. The available options include

OFF - for silent operations.

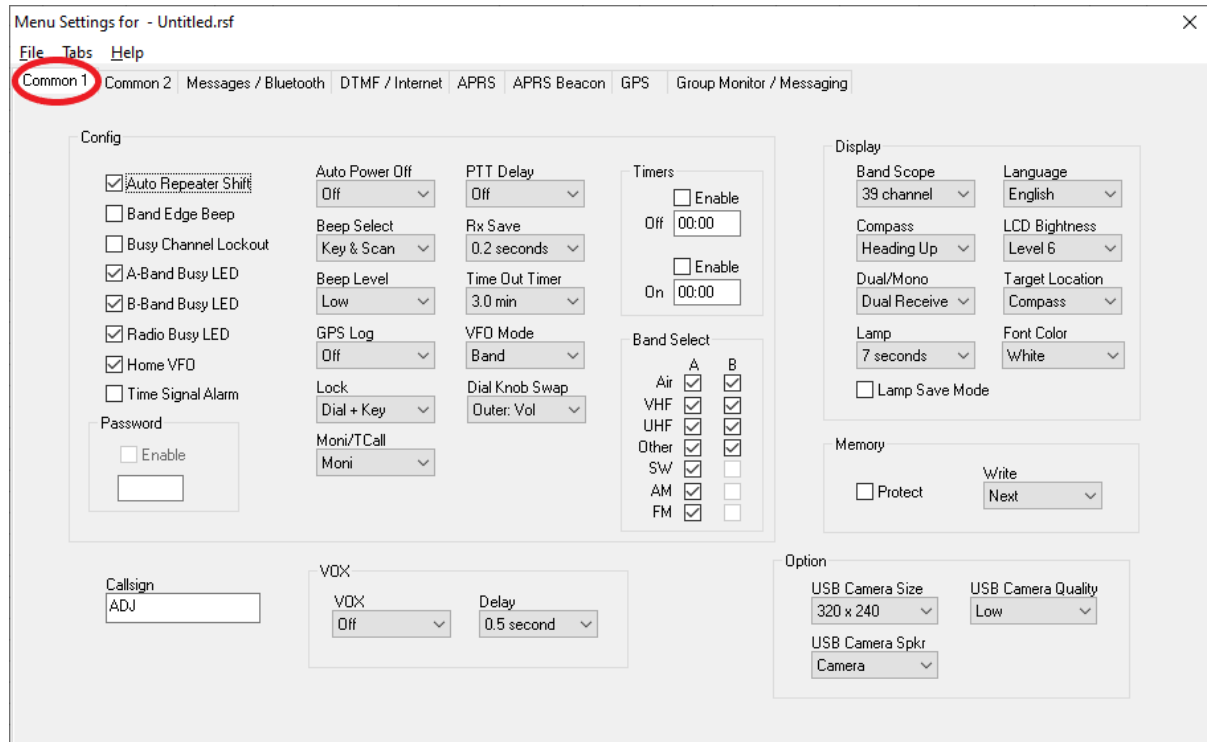
IN RANGE - for a beep only when the radios first confirm that you are within range. The radios then remain silent as long as you remain within range.

ALWAYS - for a beep to sound every time a polling transmission is received from the other station.

**ARTS Interval** - Set the frequency for ARTS polling. Available options are 25 seconds for maximum battery conservation or 15 seconds for extra security.

### 14.1.5 Auto Repeater Shift

The Common 1 tab is the first tab on the screen after navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



This tab contains options for personalizing your radio's Config, Display, Memory, Optional USB camera, Callsign, and automatic voice transmission (VOX) settings.

## Entering Common 1 Details

**A-Band Busy LED** - Controls the A-Band LED that lights indicating signal reception. Disengaging this option will help to conserve battery life.

**Auto Power Off** - Set the time after which the transceiver will automatically shut off. Default is Off.

**Auto Repeater Shift** - The Auto Repeater Shift (ARS) option automatically sets the offset for any frequency you tune to manually. While this option is useful while in VFO or memory tune (any time you tune the radio manually), it does not affect the functionality of the Programmer nor the radio's functionality on a memory channel. The option is On by default.

**B-Band Busy LED** - Controls the B-Band LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**Band Edge Beep** - Enable / disable an audible indication that you have reached the edge of a frequency band when you are tuning the radio with the DIAL knob.

**Band Scope** - Set the number of search channels for band scope. This feature allows you to view a spectrum of frequencies above and below the set frequency of your current channel. Band scope is visible on the face of the radio, directly below your channel.

**Band Select** - Individually set the frequency band for A-Band and B-Band. Stored memory channels can be recalled regardless of this setting.

**Beep Level** - The beep volume setting can be set to Low or High.

**Beep Select** - Select the functions that will invoke a sound or set the radio for silent operations. Selections include:

Off - Silent operations

Key - A sound is emitted when a key is pressed.

Key & Scan - A sound is emitted when a key is pressed or when the radio stops on a signal during scanning.

**Busy Channel Lockout** - This feature stops the radio from transmitting if a signal is being received.

**Callsign** - Set a call sign.

**Compass** - Set the compass display of the smart navigation function.

**Dial Knob Swap** - Swaps the VOL and DIAL knob functions.

**Dual/Mono** - Use Dual Receive to receive signals in the operating band and subband at the same time. Use Mono Receive to receive signals in just the operating band.

**Font Color** - Set desired font color.

**GPS Log** - Options for setting the GPS log recording time interval.

**Home VFO** - Enables or disables VFO transmission in the Home Channel.

**Lamp** - Set the duration time of the back light and keys to be lit.

**Lamp Save Mode** - Save lamp settings.

**Language** - Option to choose between English or Japanese for your preferred language.

**LCD Brightness** - Set the level of brightness of the LCD back light and numeric keypad light.

**Lock** - Select the combination of radio functions that are locked when the lock function is engaged. Combinations control keys, the tuning dial, and the PTT switch. Select an option to engage the lock.

**Note: The radio CANNOT BE PROGRAMMED FROM THE COMPUTER if the lock is engaged on the radio. It will turn on in the main menu; however, the send and receive buttons will report LOCK when pressed and the process will not continue.**

**Press the power button briefly (not enough to turn it off) to unlock the radio.**

**MoniT Call** - Set the function of the [MONI] key (the one just below the [PTT] key). When that button is pressed the radio will complete one of the following options. The default is Moni.

Moni - Opens the squelch to allow weak signals to be heard.

T Call - Activates a 1750-Hz burst tone used for repeater access in many countries.

**Password** - A feature that helps keep your radio from being used inappropriately. Details about this function are found in the [Password Settings](#) section of this Help.

**Protect** - Memory setting that, when selected, protects a memory channel from being overwritten with new details intended for another channel.

**PTT Delay** - Set the PTT delay time. This is the time that the actual transmission is delayed when the PTT is pressed.

**Note: If someone tells you that your transmission is clipped and they missed your first words or part thereof, check this setting. This is a very special setting that is used only on a repeater that needs it and for which you have been instructed that it should be used.**

**Radio Busy LED** - Controls the Radio LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**RX Save** - Set the receive-mode battery saver interval that controls the "sleep" function. This battery saver mode puts the radio to "sleep" at times of little activity. The radio then "wakes" at a given interval to listen for activity.

**Target Location** - Set what to display when using the smart navigation function. Options are

- Compass - Displays the compass
- Numeric - Displays latitude and longitude

**Time Out Timer** - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1 to 30 minutes and Off. The default is 6 minutes.

**Time Signal Alarm** - Toggles an alarm that goes off every hour on the hour.

**Timers** - Set timers that automatically turn the radio off and back on. Check Enable and enter a time for each action.

**USB Camera Quality** - Choose between Low, Medium, or High Quality for the camera's images.

**USB Camera Size** - Set camera image size.

**USB Camera Spkr** - Option to choose between the internal speaker or the MH-85A11U speaker.

**VFO Mode** - Provides options for the frequency selection range in VFO mode.

Band - Operates only in the current band.

All - Operates in all the bands available to the radio (Remember, the Band A and Band B cover different VFO frequency ranges. Before you think something is wrong because you can't access a desired frequency band, check which Band (A or B) you're in.

**VOX** - Set options for the VOX function including turning on the function and setting the delay.

**Write** - Set the automatic channel number increment when saving details to a memory channel. With this engaged, the radio selects the next available memory channel for storage. This keeps the radio from overwriting a programmed channel.

### 14.1.19 DCS Code Inversion

The DCS system was first introduced in the commercial LMR (Land Mobile Radio) service, where it is now in widespread use. DCS is sometime referred to by its different proprietary names, such as DPL® (Digital Private Line®, a registered trademark of Motorola, Inc.).

DCS uses a codeword consisting of a 23-bit frame, transmitted (subaudible) at a data rate of 134.4 bps (bit/sec). Occasionally, signal inversion can result in the complement of a code being sent or received. This prevents the receiver's squelch from opening with DCS enabled, since the decoded bit sequence would not match that selected for the channel.

Typical situations that might cause inversion to occur are:

- Connection of an external receiver preamplifier.
- Operating through a repeater.
- Connection of an external linear amplifier.

***Note that code inversion does not mean that any of the above listed equipment is defective!***

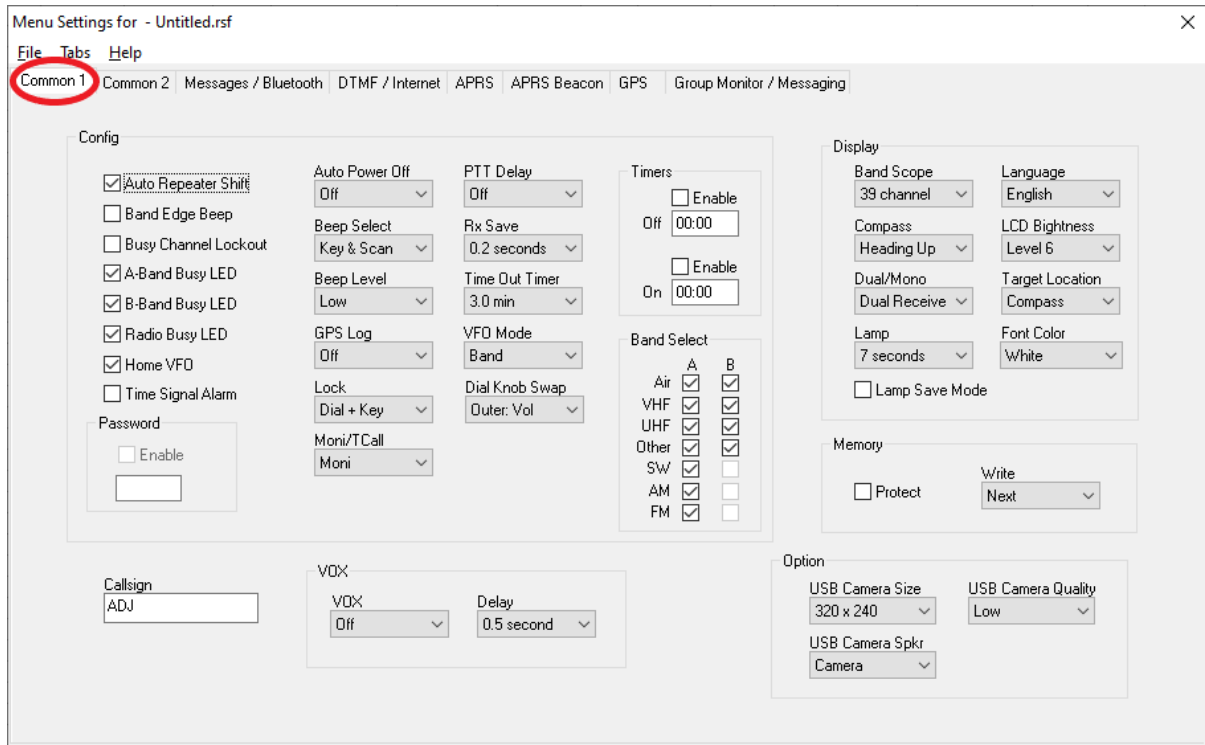
In certain amplifier configurations, the output signal (phase) is inverted from the input. Small signal or power amplifiers having an odd number (1, 3, 5, etc.) of amplification stages may result in inversion of a transmitted or received DCS code.

While under most circumstances this should not occur (amplifier designs and industry standards take this into account), if you find that your receiver squelch does not open when both you and the other station are using a common DCS code, you OR the other station (but not both) should try setting DCS priority to something other than "normal" (T/Rx N)



## 14.1.20 DCS N/R

The Common 1 tab is the first tab on the screen after navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



This tab contains options for personalizing your radio's Config, Display, Memory, Optional USB camera, Callsign, and automatic voice transmission (VOX) settings.

## Entering Common 1 Details

**A-Band Busy LED** - Controls the A-Band LED that lights indicating signal reception. Disengaging this option will help to conserve battery life.

**Auto Power Off** - Set the time after which the transceiver will automatically shut off. Default is Off.

**Auto Repeater Shift** - The Auto Repeater Shift (ARS) option automatically sets the offset for any frequency you tune to manually. While this option is useful while in VFO or memory tune (any time you tune the radio manually), it does not affect the functionality of the Programmer nor the radio's functionality on a memory channel. The option is On by default.

**B-Band Busy LED** - Controls the B-Band LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**Band Edge Beep** - Enable / disable an audible indication that you have reached the edge of a frequency band when you are tuning the radio with the DIAL knob.

**Band Scope** - Set the number of search channels for band scope. This feature allows you to view a spectrum of frequencies above and below the set frequency of your current channel. Band scope is visible on the face of the radio, directly below your channel.

**Band Select** - Individually set the frequency band for A-Band and B-Band. Stored memory channels can be recalled regardless of this setting.

**Beep Level** - The beep volume setting can be set to Low or High.

**Beep Select** - Select the functions that will invoke a sound or set the radio for silent operations. Selections include:

Off - Silent operations

Key - A sound is emitted when a key is pressed.

Key & Scan - A sound is emitted when a key is pressed or when the radio stops on a signal during scanning.

**Busy Channel Lockout** - This feature stops the radio from transmitting if a signal is being received.

**Callsign** - Set a call sign.

**Compass** - Set the compass display of the smart navigation function.

**Dial Knob Swap** - Swaps the VOL and DIAL knob functions.

**Dual/Mono** - Use Dual Receive to receive signals in the operating band and subband at the same time. Use Mono Receive to receive signals in just the operating band.

**Font Color** - Set desired font color.

**GPS Log** - Options for setting the GPS log recording time interval.

**Home VFO** - Enables or disables VFO transmission in the Home Channel.

**Lamp** - Set the duration time of the back light and keys to be lit.

**Lamp Save Mode** - Save lamp settings.

**Language** - Option to choose between English or Japanese for your preferred language.

**LCD Brightness** - Set the level of brightness of the LCD back light and numeric keypad light.

**Lock** - Select the combination of radio functions that are locked when the lock function is engaged. Combinations control keys, the tuning dial, and the PTT switch. Select an option to engage the lock.

**Note:** *The radio CANNOT BE PROGRAMMED FROM THE COMPUTER if the lock is engaged on the radio. It will turn on in the main menu; however, the send and receive buttons will report LOCK when pressed and the process will not continue.*

**Press the power button briefly (not enough to turn it off) to unlock the radio.**

**MoniT Call** - Set the function of the [MONI] key (the one just below the [PTT] key). When that button is pressed the radio will complete one of the following options. The default is Moni.

Moni - Opens the squelch to allow weak signals to be heard.

T Call - Activates a 1750-Hz burst tone used for repeater access in many countries.

**Password** - A feature that helps keep your radio from being used inappropriately. Details about this function are found in the [Password Settings](#) section of this Help.

**Protect** - Memory setting that, when selected, protects a memory channel from being overwritten with new details intended for another channel.

**PTT Delay** - Set the PTT delay time. This is the time that the actual transmission is delayed when the PTT is pressed.

**Note:** *If someone tells you that your transmission is clipped and they missed your first words or part thereof, check this setting. This is a very special setting that is used only on a repeater that needs it and for which you have been instructed that it should be used.*

**Radio Busy LED** - Controls the Radio LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**RX Save** - Set the receive-mode battery saver interval that controls the "sleep" function. This battery saver mode puts the radio to "sleep" at times of little activity. The radio then "wakes" at a given interval to listen for activity.

**Target Location** - Set what to display when using the smart navigation function. Options are

- Compass - Displays the compass
- Numeric - Displays latitude and longitude

**Time Out Timer** - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1 to 30 minutes and Off. The default is 6 minutes.

**Time Signal Alarm** - Toggles an alarm that goes off every hour on the hour.

**Timers** - Set timers that automatically turn the radio off and back on. Check Enable and enter a time for each action.

**USB Camera Quality** - Choose between Low, Medium, or High Quality for the camera's images.

**USB Camera Size** - Set camera image size.

**USB Camera Spkr** - Option to choose between the internal speaker or the MH-85A11U speaker.

**VFO Mode** - Provides options for the frequency selection range in VFO mode.

Band - Operates only in the current band.

All - Operates in all the bands available to the radio (Remember, the Band A and Band B cover different VFO frequency ranges. Before you think something is wrong because you can't access a desired frequency band, check which Band (A or B) you're in.

**VOX** - Set options for the VOX function including turning on the function and setting the delay.

**Write** - Set the automatic channel number increment when saving details to a memory channel. With this engaged, the radio selects the next available memory channel for storage. This keeps the radio from overwriting a programmed channel.

### 14.1.22 Enhanced Paging and Coded Squelch

The radio includes an Enhanced CTCSS tone encoder/decoder and a dedicated microprocessor providing paging and selective calling features. This allows you to place a call to a specific station (Paging), and to receive calls of your choice directed only to you (Code Squelch).

The paging and code squelch systems use two pairs of CTCSS tones which are stored in the pager memories. Basically, your receiver remains silent until it receives the CTCSS tone pair that matches those stored in the Receiving Pager Memory.

When the "pair" is received, the squelch opens so the call is heard and the paging ringer sounds (optional). When you respond to the caller, the CTCSS tone pair that is stored in the Transmitting Pager Memory is transmitted automatically. This allows you to open the squelch on the other radio and be heard.

On the ***paged (receiving)*** radio, the Coded Squelch will cease automatically after the incoming page ends. In other words, the tone squelch is temporarily disabled. This allows you to talk to others on the same frequency regardless of the tone abilities of the receiving radio (this person should have no tone mode set for the channel).

Meanwhile, on the ***paging (transmitting)*** radio, the Coded Squelch will be disabled when the PTT is released after the initial paging transmission. Conversation can continue between all parties on the frequency regardless of the tone abilities of the receiving radio (again, this person should have no tone mode set for the channel).

***Note: If there are others in the group without the Enhanced Paging and Coded Squelch system, they cannot initiate a call since they cannot transmit the tones needed to open the squelch on the radios with this feature. They can participate in a conversation only once it has begun.***

The Coded Squelch is reactivated after about 20 seconds of silence. When the Coded Squelch feature is activated, the "P" notation will appear at the 100 MHz digit of the frequency display. When the Coded Squelch is open, the "P" will flash on the display. This gives you a visual indication of your ability to receive calls from all persons in your group.

If you want to have your radio remain silent until a call is received from anyone in your group, use TSql (Tone Squelch) as the tone mode rather than the Enhanced Paging and Coded Squelch system to allow for those who do not have this feature. It is safe to say that of today's radios, all have Tone Squelch available while few have the Enhanced Paging and Coded Squelch system.

To setup the Enhanced Paging and Coded Squelch system in the Programmer.

1) **Enter the memory channel information for the frequency to be used.**

***Note: Most repeaters do not pass tone. Unless you are sure of the repeater's ability to complete this part of the transmission, this feature should be used for simplex (radio to radio) transmissions.***

2) **On this memory channel, set Tone Mode to "Pager".** You will notice that none of the tone frequency fields become available on the main screen when this option is selected. This is normal functionality for the Programmer since tone frequencies for this function are not set here.

3) **From the menu at the top of the screen, select Settings | Radio Menu Settings.** The Menu Settings screen opens.

4) **In the "Pager" section on the Common tab, set the CTCSS tones for Receive and Transmit Codes.** Both the number of the selection and the tone to be used are shown in the Programmer.

5) **Check the box for Answer Back to have the radio respond automatically to the received call** (optional) Contingent on FCC rules governing automatic transmissions.

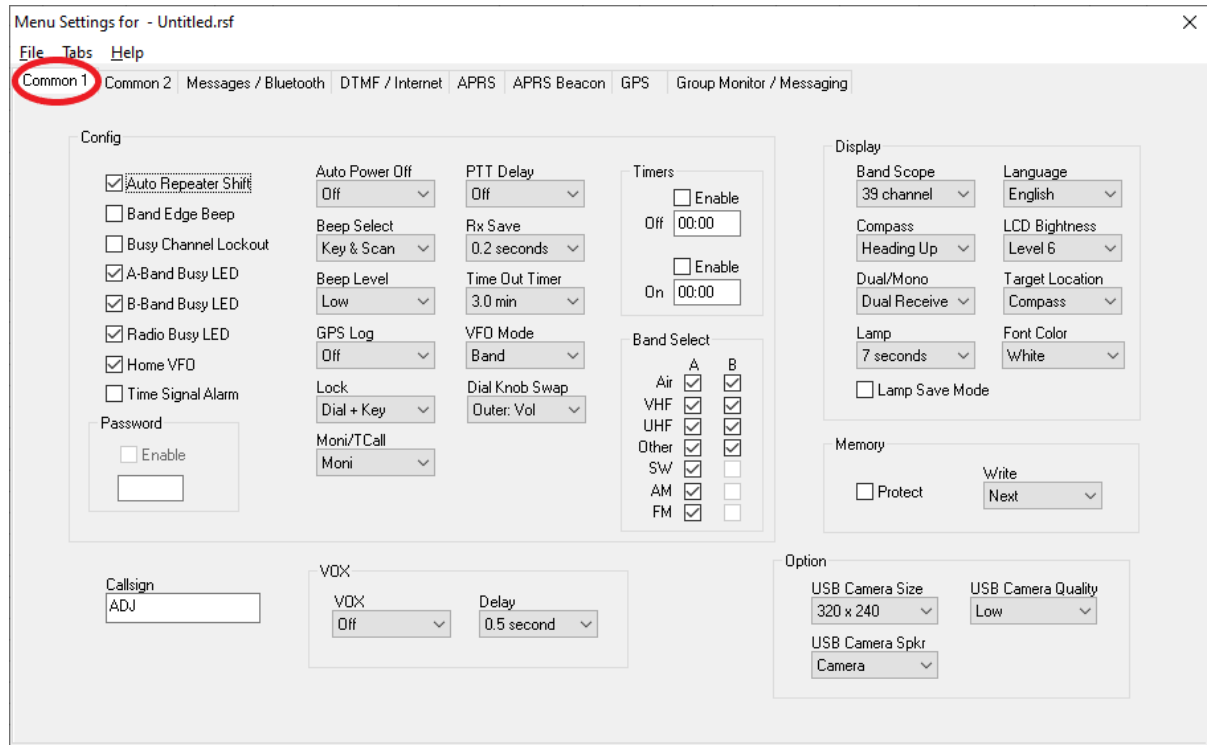
6) **Set the option for Bell Ringer (Common tab| Left Side and Right Side settings) to the number of rings or Continuous.**

7) **Select File | Save to save the changes to the settings made on the Menu Settings screen.** If you are working in Untitled.rsf, you will be prompted for a filename. Enter a name to complete the process.

8) **Select File | Exit to close this screen** and return to the main screen of the Programmer.

### 14.1.23 Font Color

The Common 1 tab is the first tab on the screen after navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



This tab contains options for personalizing your radio's Config, Display, Memory, Optional USB camera, Callsign, and automatic voice transmission (VOX) settings.

## Entering Common 1 Details

**A-Band Busy LED** - Controls the A-Band LED that lights indicating signal reception. Disengaging this option will help to conserve battery life.

**Auto Power Off** - Set the time after which the transceiver will automatically shut off. Default is Off.

**Auto Repeater Shift** - The Auto Repeater Shift (ARS) option automatically sets the offset for any frequency you tune to manually. While this option is useful while in VFO or memory tune (any time you tune the radio manually), it does not affect the functionality of the Programmer nor the radio's functionality on a memory channel. The option is On by default.

**B-Band Busy LED** - Controls the B-Band LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**Band Edge Beep** - Enable / disable an audible indication that you have reached the edge of a frequency band when you are tuning the radio with the DIAL knob.

**Band Scope** - Set the number of search channels for band scope. This feature allows you to view a spectrum of frequencies above and below the set frequency of your current channel. Band scope is visible on the face of the radio, directly below your channel.

**Band Select** - Individually set the frequency band for A-Band and B-Band. Stored memory channels can be recalled regardless of this setting.

**Beep Level** - The beep volume setting can be set to Low or High.

**Beep Select** - Select the functions that will invoke a sound or set the radio for silent operations. Selections include:

Off - Silent operations

Key - A sound is emitted when a key is pressed.

Key & Scan - A sound is emitted when a key is pressed or when the radio stops on a signal during scanning.

**Busy Channel Lockout** - This feature stops the radio from transmitting if a signal is being received.

**Callsign** - Set a call sign.

**Compass** - Set the compass display of the smart navigation function.

**Dial Knob Swap** - Swaps the VOL and DIAL knob functions.

**Dual/Mono** - Use Dual Receive to receive signals in the operating band and subband at the same time. Use Mono Receive to receive signals in just the operating band.

**Font Color** - Set desired font color.

**GPS Log** - Options for setting the GPS log recording time interval.

**Home VFO** - Enables or disables VFO transmission in the Home Channel.

**Lamp** - Set the duration time of the back light and keys to be lit.

**Lamp Save Mode** - Save lamp settings.



**Language** - Option to choose between English or Japanese for your preferred language.

**LCD Brightness** - Set the level of brightness of the LCD back light and numeric keypad light.

**Lock** - Select the combination of radio functions that are locked when the lock function is engaged. Combinations control keys, the tuning dial, and the PTT switch. Select an option to engage the lock.

**Note:** *The radio CANNOT BE PROGRAMMED FROM THE COMPUTER if the lock is engaged on the radio. It will turn on in the main menu; however, the send and receive buttons will report LOCK when pressed and the process will not continue.*

**Press the power button briefly (not enough to turn it off) to unlock the radio.**

**MoniT Call** - Set the function of the [MONI] key (the one just below the [PTT] key). When that button is pressed the radio will complete one of the following options. The default is Moni.

Moni - Opens the squelch to allow weak signals to be heard.

T Call - Activates a 1750-Hz burst tone used for repeater access in many countries.

**Password** - A feature that helps keep your radio from being used inappropriately. Details about this function are found in the [Password Settings](#) section of this Help.

**Protect** - Memory setting that, when selected, protects a memory channel from being overwritten with new details intended for another channel.

**PTT Delay** - Set the PTT delay time. This is the time that the actual transmission is delayed when the PTT is pressed.

**Note:** *If someone tells you that your transmission is clipped and they missed your first words or part thereof, check this setting. This is a very special setting that is used only on a repeater that needs it and for which you have been instructed that it should be used.*

**Radio Busy LED** - Controls the Radio LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**RX Save** - Set the receive-mode battery saver interval that controls the "sleep" function. This battery saver mode puts the radio to "sleep" at times of little activity. The radio then "wakes" at a given interval to listen for activity.

**Target Location** - Set what to display when using the smart navigation function. Options are

- Compass - Displays the compass
- Numeric - Displays latitude and longitude

**Time Out Timer** - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1 to 30 minutes and Off. The default is 6 minutes.

**Time Signal Alarm** - Toggles an alarm that goes off every hour on the hour.

**Timers** - Set timers that automatically turn the radio off and back on. Check Enable and enter a time for each action.

**USB Camera Quality** - Choose between Low, Medium, or High Quality for the camera's images.

**USB Camera Size** - Set camera image size.

**USB Camera Spkr** - Option to choose between the internal speaker or the MH-85A11U speaker.

**VFO Mode** - Provides options for the frequency selection range in VFO mode.

Band - Operates only in the current band.

All - Operates in all the bands available to the radio (Remember, the Band A and Band B cover different VFO frequency ranges. Before you think something is wrong because you can't access a desired frequency band, check which Band (A or B) you're in.

**VOX** - Set options for the VOX function including turning on the function and setting the delay.

**Write** - Set the automatic channel number increment when saving details to a memory channel. With this engaged, the radio selects the next available memory channel for storage. This keeps the radio from overwriting a programmed channel.

### 14.1.40 Password Settings

The radio provides a password feature which can minimize the chance that your transceiver could be used by an unauthorized party. When the password feature is activated, the radio will ask for the four digit password to be entered when the radio is first turned on. You must enter the four digit password from the keypad. If the wrong password is entered, the microprocessor will shut down the radio automatically.

#### Entering and activating the password

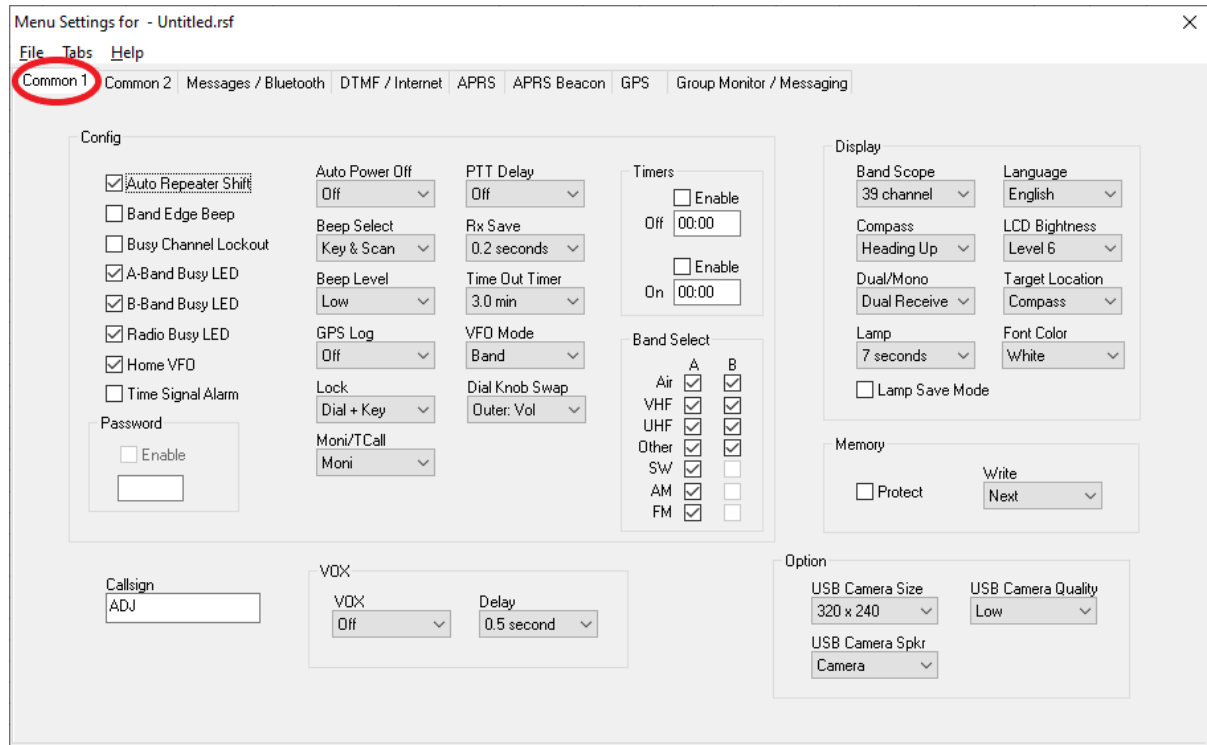
- In the Password section of the Settings screen, enter a password of up to 4 alpha-numeric characters. Acceptable entries are 0-9, A, B, C, D, E, and F.
- Once the password has been entered, the Enable button will become available. Check the Enable button to put the password into use.

***Note: Your radio can be used without the password; however, the user will have to do a complete reset prior to use. The password, all memories, and other settings will be returned to factory defaults. The password provides more against misuse rather than theft and subsequent non-use.***

***Also: The radio cannot be addressed with the ADMS Programmer if the password is engaged. Once engaged, the radio cannot be put into CLONE mode on startup without performing a full processor reset.***

### 14.1.41 Priority Revert

The Common 1 tab is the first tab on the screen after navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



This tab contains options for personalizing your radio's Config, Display, Memory, Optional USB camera, Callsign, and automatic voice transmission (VOX) settings.

## Entering Common 1 Details

**A-Band Busy LED** - Controls the A-Band LED that lights indicating signal reception. Disengaging this option will help to conserve battery life.

**Auto Power Off** - Set the time after which the transceiver will automatically shut off. Default is Off.

**Auto Repeater Shift** - The Auto Repeater Shift (ARS) option automatically sets the offset for any frequency you tune to manually. While this option is useful while in VFO or memory tune (any time you tune the radio manually), it does not affect the functionality of the Programmer nor the radio's functionality on a memory channel. The option is On by default.

**B-Band Busy LED** - Controls the B-Band LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**Band Edge Beep** - Enable / disable an audible indication that you have reached the edge of a frequency band when you are tuning the radio with the DIAL knob.

**Band Scope** - Set the number of search channels for band scope. This feature allows you to view a spectrum of frequencies above and below the set frequency of your current channel. Band scope is visible on the face of the radio, directly below your channel.

**Band Select** - Individually set the frequency band for A-Band and B-Band. Stored memory channels can be recalled regardless of this setting.

**Beep Level** - The beep volume setting can be set to Low or High.

**Beep Select** - Select the functions that will invoke a sound or set the radio for silent operations. Selections include:

Off - Silent operations

Key - A sound is emitted when a key is pressed.

Key & Scan - A sound is emitted when a key is pressed or when the radio stops on a signal during scanning.

**Busy Channel Lockout** - This feature stops the radio from transmitting if a signal is being received.

**Callsign** - Set a call sign.

**Compass** - Set the compass display of the smart navigation function.

**Dial Knob Swap** - Swaps the VOL and DIAL knob functions.

**Dual/Mono** - Use Dual Receive to receive signals in the operating band and subband at the same time. Use Mono Receive to receive signals in just the operating band.

**Font Color** - Set desired font color.

**GPS Log** - Options for setting the GPS log recording time interval.

**Home VFO** - Enables or disables VFO transmission in the Home Channel.

**Lamp** - Set the duration time of the back light and keys to be lit.

**Lamp Save Mode** - Save lamp settings.

**Language** - Option to choose between English or Japanese for your preferred language.

**LCD Brightness** - Set the level of brightness of the LCD back light and numeric keypad light.

**Lock** - Select the combination of radio functions that are locked when the lock function is engaged. Combinations control keys, the tuning dial, and the PTT switch. Select an option to engage the lock.

**Note: The radio CANNOT BE PROGRAMMED FROM THE COMPUTER if the lock is engaged on the radio. It will turn on in the main menu; however, the send and receive buttons will report LOCK when pressed and the process will not continue.**

**Press the power button briefly (not enough to turn it off) to unlock the radio.**

**MoniT Call** - Set the function of the [MONI] key (the one just below the [PTT] key). When that button is pressed the radio will complete one of the following options. The default is Moni.

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T Call - Activates a 1750-Hz burst tone used for repeater access in many countries.

**Password** - A feature that helps keep your radio from being used inappropriately. Details about this function are found in the [Password Settings](#) section of this Help.

**Protect** - Memory setting that, when selected, protects a memory channel from being overwritten with new details intended for another channel.

**PTT Delay** - Set the PTT delay time. This is the time that the actual transmission is delayed when the PTT is pressed.

**Note: If someone tells you that your transmission is clipped and they missed your first words or part thereof, check this setting. This is a very special setting that is used only on a repeater that needs it and for which you have been instructed that it should be used.**

**Radio Busy LED** - Controls the Radio LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**RX Save** - Set the receive-mode battery saver interval that controls the "sleep" function. This battery saver mode puts the radio to "sleep" at times of little activity. The radio then "wakes" at a given interval to listen for activity.

**Target Location** - Set what to display when using the smart navigation function. Options are

- Compass - Displays the compass
- Numeric - Displays latitude and longitude

**Time Out Timer** - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1 to 30 minutes and Off. The default is 6 minutes.

**Time Signal Alarm** - Toggles an alarm that goes off every hour on the hour.

**Timers** - Set timers that automatically turn the radio off and back on. Check Enable and enter a time for each action.

**USB Camera Quality** - Choose between Low, Medium, or High Quality for the camera's images.

**USB Camera Size** - Set camera image size.

**USB Camera Spkr** - Option to choose between the internal speaker or the MH-85A11U speaker.

**VFO Mode** - Provides options for the frequency selection range in VFO mode.

Band - Operates only in the current band.

All - Operates in all the bands available to the radio (Remember, the Band A and Band B cover different VFO frequency ranges. Before you think something is wrong because you can't access a desired frequency band, check which Band (A or B) you're in.

**VOX** - Set options for the VOX function including turning on the function and setting the delay.

**Write** - Set the automatic channel number increment when saving details to a memory channel. With this engaged, the radio selects the next available memory channel for storage. This keeps the radio from overwriting a programmed channel.

### 14.1.42 Programmable Key Settings

Default Set Mode Items have been assigned (at the factory) to the [7(P1)] and [8(P2)] keys. These may be changed by the user, if you wish to assign another Set Mode Item to either or both of these keys.

To change the Set Mode item assigned to either of these keys, make your selection from the list in the P1 and P2 fields of the Programmable Key Assignments section of the Settings screen.

The following Set Mode Items may not be assigned to the [7(P1)] and [8(P2)] keys and do not appear in the list for selection.

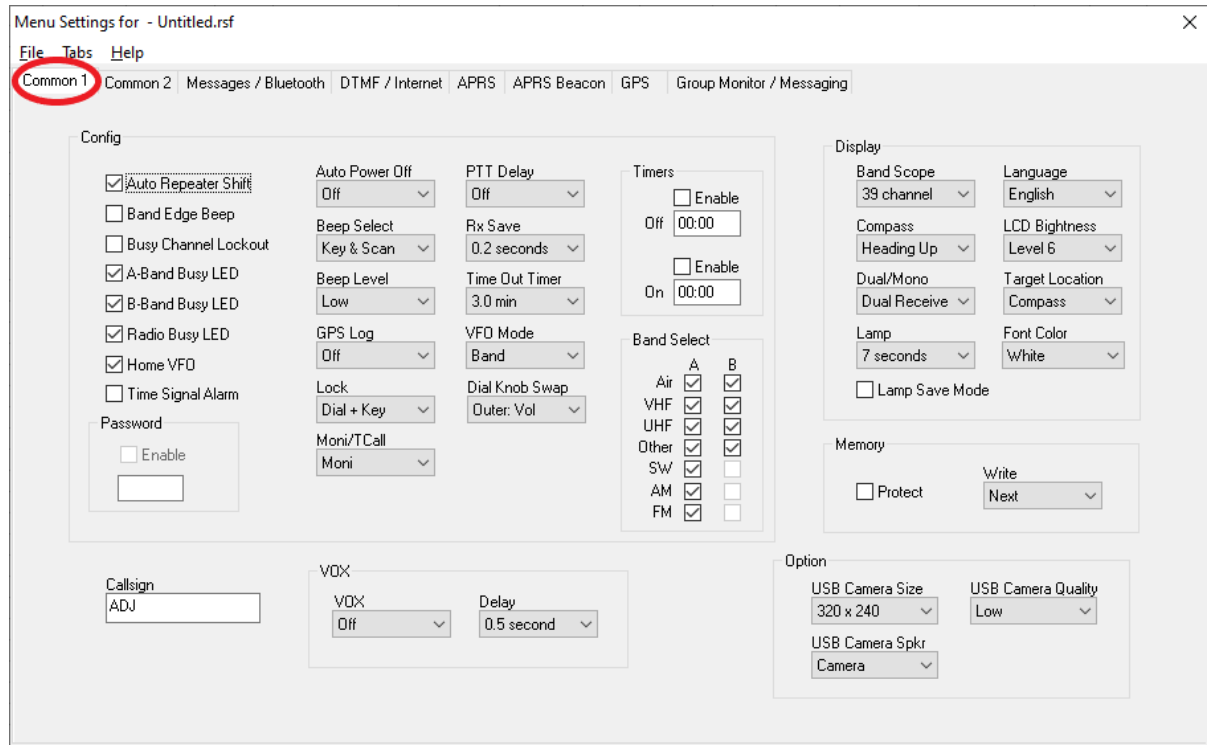
- Set Mode Item 11: CW WRT
- Set Mode Item 17: DT WRT
- Set Mode Item 33: PSWD W

Other features associated with enabling or disabling CW ID or password and DTMF settings are included as they are allowed.



### 14.1.43 Programmable Keys

The Common 1 tab is the first tab on the screen after navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



This tab contains options for personalizing your radio's Config, Display, Memory, Optional USB camera, Callsign, and automatic voice transmission (VOX) settings.

## Entering Common 1 Details

**A-Band Busy LED** - Controls the A-Band LED that lights indicating signal reception. Disengaging this option will help to conserve battery life.

**Auto Power Off** - Set the time after which the transceiver will automatically shut off. Default is Off.

**Auto Repeater Shift** - The Auto Repeater Shift (ARS) option automatically sets the offset for any frequency you tune to manually. While this option is useful while in VFO or memory tune (any time you tune the radio manually), it does not affect the functionality of the Programmer nor the radio's functionality on a memory channel. The option is On by default.

**B-Band Busy LED** - Controls the B-Band LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**Band Edge Beep** - Enable / disable an audible indication that you have reached the edge of a frequency band when you are tuning the radio with the DIAL knob.

**Band Scope** - Set the number of search channels for band scope. This feature allows you to view a spectrum of frequencies above and below the set frequency of your current channel. Band scope is visible on the face of the radio, directly below your channel.

**Band Select** - Individually set the frequency band for A-Band and B-Band. Stored memory channels can be recalled regardless of this setting.

**Beep Level** - The beep volume setting can be set to Low or High.

**Beep Select** - Select the functions that will invoke a sound or set the radio for silent operations. Selections include:

Off - Silent operations

Key - A sound is emitted when a key is pressed.

Key & Scan - A sound is emitted when a key is pressed or when the radio stops on a signal during scanning.

**Busy Channel Lockout** - This feature stops the radio from transmitting if a signal is being received.

**Callsign** - Set a call sign.

**Compass** - Set the compass display of the smart navigation function.

**Dial Knob Swap** - Swaps the VOL and DIAL knob functions.

**Dual/Mono** - Use Dual Receive to receive signals in the operating band and subband at the same time. Use Mono Receive to receive signals in just the operating band.

**Font Color** - Set desired font color.

**GPS Log** - Options for setting the GPS log recording time interval.

**Home VFO** - Enables or disables VFO transmission in the Home Channel.

**Lamp** - Set the duration time of the back light and keys to be lit.

**Lamp Save Mode** - Save lamp settings.

**Language** - Option to choose between English or Japanese for your preferred language.

**LCD Brightness** - Set the level of brightness of the LCD back light and numeric keypad light.

**Lock** - Select the combination of radio functions that are locked when the lock function is engaged. Combinations control keys, the tuning dial, and the PTT switch. Select an option to engage the lock.

**Note:** *The radio CANNOT BE PROGRAMMED FROM THE COMPUTER if the lock is engaged on the radio. It will turn on in the main menu; however, the send and receive buttons will report LOCK when pressed and the process will not continue.*

**Press the power button briefly (not enough to turn it off) to unlock the radio.**

**MoniT Call** - Set the function of the [MONI] key (the one just below the [PTT] key). When that button is pressed the radio will complete one of the following options. The default is Moni.

Moni - Opens the squelch to allow weak signals to be heard.

T Call - Activates a 1750-Hz burst tone used for repeater access in many countries.

**Password** - A feature that helps keep your radio from being used inappropriately. Details about this function are found in the [Password Settings](#) section of this Help.

**Protect** - Memory setting that, when selected, protects a memory channel from being overwritten with new details intended for another channel.

**PTT Delay** - Set the PTT delay time. This is the time that the actual transmission is delayed when the PTT is pressed.

**Note:** *If someone tells you that your transmission is clipped and they missed your first words or part thereof, check this setting. This is a very special setting that is used only on a repeater that needs it and for which you have been instructed that it should be used.*

**Radio Busy LED** - Controls the Radio LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**RX Save** - Set the receive-mode battery saver interval that controls the "sleep" function. This battery saver mode puts the radio to "sleep" at times of little activity. The radio then "wakes" at a given interval to listen for activity.

**Target Location** - Set what to display when using the smart navigation function. Options are

- Compass - Displays the compass
- Numeric - Displays latitude and longitude

**Time Out Timer** - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1 to 30 minutes and Off. The default is 6 minutes.

**Time Signal Alarm** - Toggles an alarm that goes off every hour on the hour.

**Timers** - Set timers that automatically turn the radio off and back on. Check Enable and enter a time for each action.

**USB Camera Quality** - Choose between Low, Medium, or High Quality for the camera's images.

**USB Camera Size** - Set camera image size.

**USB Camera Spkr** - Option to choose between the internal speaker or the MH-85A11U speaker.

**VFO Mode** - Provides options for the frequency selection range in VFO mode.

Band - Operates only in the current band.

All - Operates in all the bands available to the radio (Remember, the Band A and Band B cover different VFO frequency ranges. Before you think something is wrong because you can't access a desired frequency band, check which Band (A or B) you're in.

**VOX** - Set options for the VOX function including turning on the function and setting the delay.

**Write** - Set the automatic channel number increment when saving details to a memory channel. With this engaged, the radio selects the next available memory channel for storage. This keeps the radio from overwriting a programmed channel.

### 14.1.50 Scan Settings

The radio allows you to scan just the memory channels, the entire operating band, or a portion of that band. It will halt on signals encountered, so you can talk to the station(s) on that frequency, if you like. Scanning operations are basically the same in each of the above modes.

Before you begin, take a moment to select the way in which you would like the scanner to resume scanning after it halts on a signal.

The scanner will stop when it receives a signal strong enough to break through the Squelch threshold. The radio will then hold on that frequency according to the setting of the Resume field on the Settings screen of the Programmer.

Pressing the PTT switch momentarily cancels scanning. This only stops the scan; it does not cause transmission to occur.

**Scan Lamp** - Enable (checked) / Disable (unchecked) the lamp while scanning is paused. The default is Enabled (checked).

**Mode** - Select the Memory Scan channel-selection mode. Available values are Only and Memory as described below. The default is Memory.

Only: The scanner will only scan memory channels that are flagged for Preferential Scan on the main screen of the Programmer

Memory: The scanner will scan all the the memory channels that are not flagged for Skip on the main screen of the Programmer.

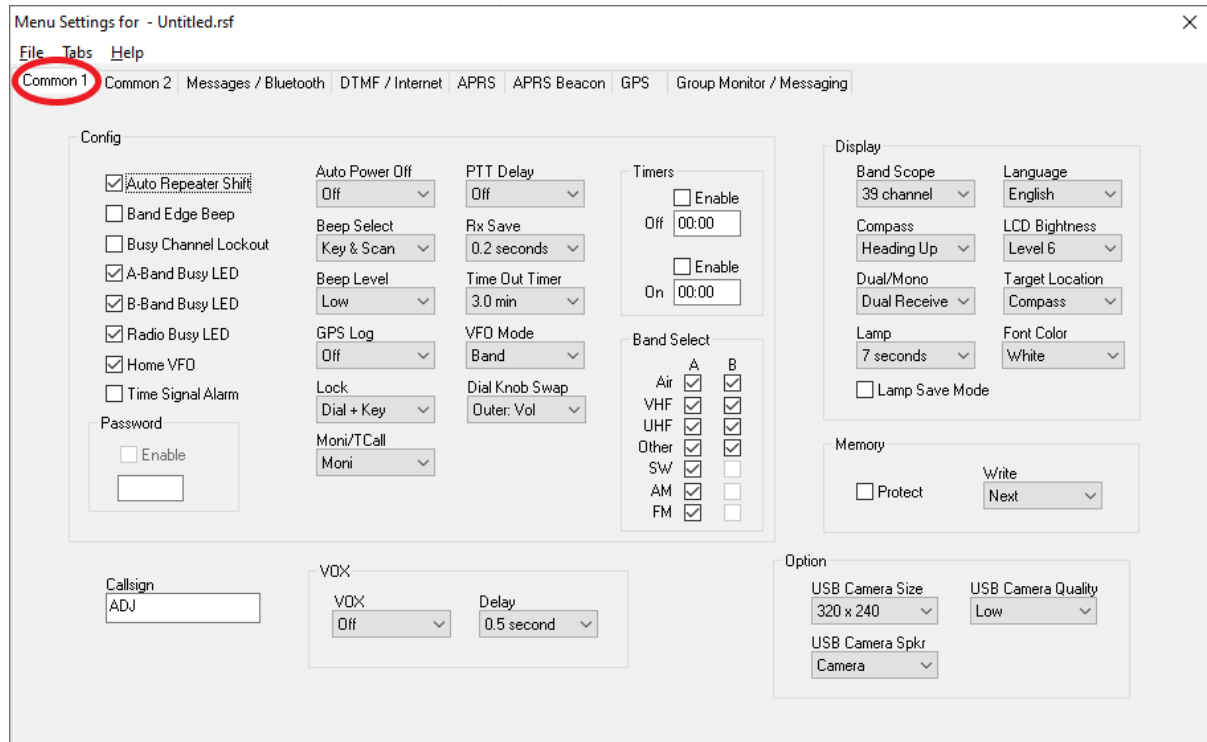
**Resume** - Selects the Scan Resume mode. Available values are BUSY, HOLD, and TIME as described below. The default is BUSY.

Busy/Hold: The scanner will hold until the signal disappears, then will resume when the carrier drops.

TIME: The scanner will hold for the five seconds, then resume whether or not the other station is still transmitting.

### 14.1.51 Smart Search

The Common 1 tab is the first tab on the screen after navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



This tab contains options for personalizing your radio's Config, Display, Memory, Optional USB camera, Callsign, and automatic voice transmission (VOX) settings.

## Entering Common 1 Details

**A-Band Busy LED** - Controls the A-Band LED that lights indicating signal reception. Disengaging this option will help to conserve battery life.

**Auto Power Off** - Set the time after which the transceiver will automatically shut off. Default is Off.

**Auto Repeater Shift** - The Auto Repeater Shift (ARS) option automatically sets the offset for any frequency you tune to manually. While this option is useful while in VFO or memory tune (any time you tune the radio manually), it does not affect the functionality of the Programmer nor the radio's functionality on a memory channel. The option is On by default.

**B-Band Busy LED** - Controls the B-Band LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.

**Band Edge Beep** - Enable / disable an audible indication that you have reached the edge of a frequency band when you are tuning the radio with the DIAL knob.

**Band Scope** - Set the number of search channels for band scope. This feature allows you to view a spectrum of frequencies above and below the set frequency of your current channel. Band scope is visible on the face of the radio, directly below your channel.

**Band Select** - Individually set the frequency band for A-Band and B-Band. Stored memory channels can be recalled regardless of this setting.

**Beep Level** - The beep volume setting can be set to Low or High.

**Beep Select** - Select the functions that will invoke a sound or set the radio for silent operations. Selections include:

Off - Silent operations

Key - A sound is emitted when a key is pressed.

Key & Scan - A sound is emitted when a key is pressed or when the radio stops on a signal during scanning.

**Busy Channel Lockout** - This feature stops the radio from transmitting if a signal is being received.

**Callsign** - Set a call sign.

**Compass** - Set the compass display of the smart navigation function.

**Dial Knob Swap** - Swaps the VOL and DIAL knob functions.

**Dual/Mono** - Use Dual Receive to receive signals in the operating band and subband at the same time. Use Mono Receive to receive signals in just the operating band.

**Font Color** - Set desired font color.

**GPS Log** - Options for setting the GPS log recording time interval.

**Home VFO** - Enables or disables VFO transmission in the Home Channel.

**Lamp** - Set the duration time of the back light and keys to be lit.

**Lamp Save Mode** - Save lamp settings.

**Language** - Option to choose between English or Japanese for your preferred language.

**LCD Brightness** - Set the level of brightness of the LCD back light and numeric keypad light.

**Lock** - Select the combination of radio functions that are locked when the lock function is engaged. Combinations control keys, the tuning dial, and the PTT switch. Select an option to engage the lock.

**Note:** *The radio CANNOT BE PROGRAMMED FROM THE COMPUTER if the lock is engaged on the radio. It will turn on in the main menu; however, the send and receive buttons will report LOCK when pressed and the process will not continue.*

**Press the power button briefly (not enough to turn it off) to unlock the radio.**

**MoniT Call** - Set the function of the [MONI] key (the one just below the [PTT] key). When that button is pressed the radio will complete one of the following options. The default is Moni.

Moni - Opens the squelch to allow weak signals to be heard.

T Call - Activates a 1750-Hz burst tone used for repeater access in many countries.

**Password** - A feature that helps keep your radio from being used inappropriately. Details about this function are found in the [Password Settings](#) section of this Help.

**Protect** - Memory setting that, when selected, protects a memory channel from being overwritten with new details intended for another channel.

**PTT Delay** - Set the PTT delay time. This is the time that the actual transmission is delayed when the PTT is pressed.

**Note:** *If someone tells you that your transmission is clipped and they missed your first words or part thereof, check this setting. This is a very special setting that is used only on a repeater that needs it and for which you have been instructed that it should be used.*

**Radio Busy LED** - Controls the Radio LED that lights indicating signal receptions. Disengaging this option will help to conserve battery life.



**RX Save** - Set the receive-mode battery saver interval that controls the "sleep" function. This battery saver mode puts the radio to "sleep" at times of little activity. The radio then "wakes" at a given interval to listen for activity.

**Target Location** - Set what to display when using the smart navigation function. Options are

- Compass - Displays the compass
- Numeric - Displays latitude and longitude

**Time Out Timer** - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1 to 30 minutes and Off. The default is 6 minutes.

**Time Signal Alarm** - Toggles an alarm that goes off every hour on the hour.

**Timers** - Set timers that automatically turn the radio off and back on. Check Enable and enter a time for each action.

**USB Camera Quality** - Choose between Low, Medium, or High Quality for the camera's images.

**USB Camera Size** - Set camera image size.

**USB Camera Spkr** - Option to choose between the internal speaker or the MH-85A11U speaker.

**VFO Mode** - Provides options for the frequency selection range in VFO mode.

Band - Operates only in the current band.

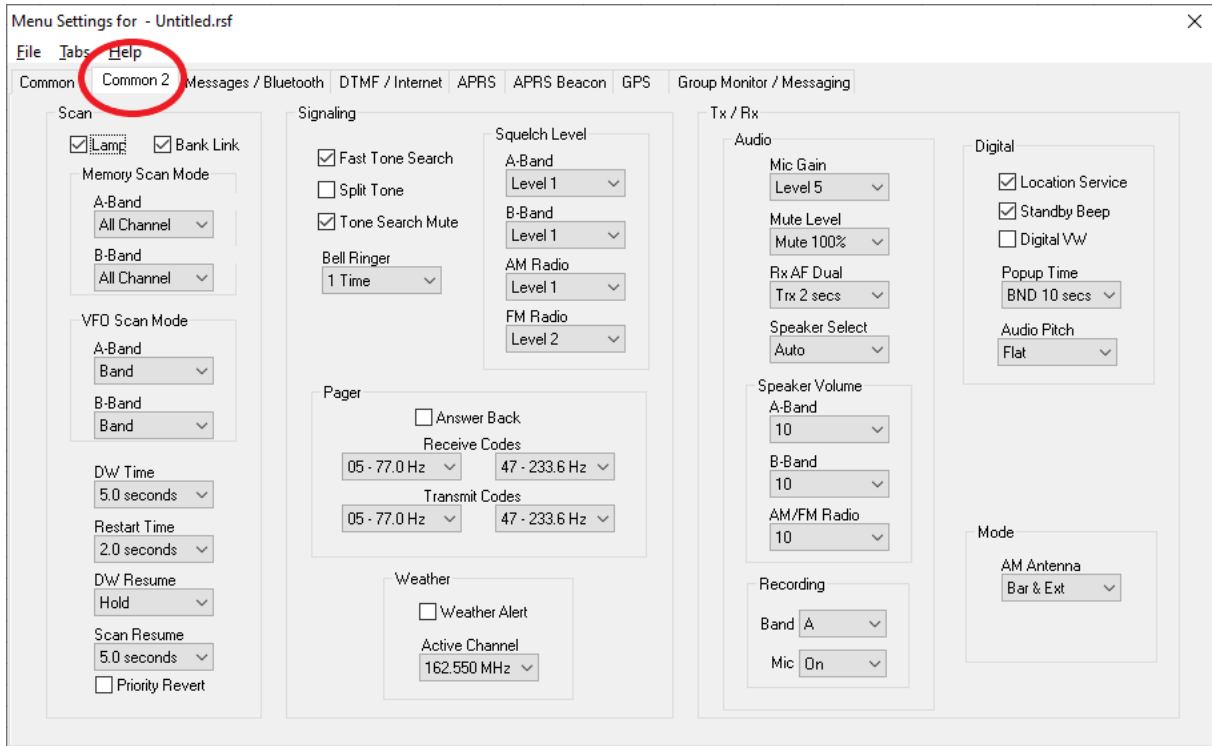
All - Operates in all the bands available to the radio (Remember, the Band A and Band B cover different VFO frequency ranges. Before you think something is wrong because you can't access a desired frequency band, check which Band (A or B) you're in.

**VOX** - Set options for the VOX function including turning on the function and setting the delay.

**Write** - Set the automatic channel number increment when saving details to a memory channel. With this engaged, the radio selects the next available memory channel for storage. This keeps the radio from overwriting a programmed channel.

## 14.2 Common 2

At the top of the main Programmer screen, go to Settings | Radio Menu Settings to locate the Common 2 tab.



This tab sets the global settings for your radio's Scan, Signaling, and Tx/Rx features.

### Entering Common 2 Details

**Active Channel** - This feature of the Weather function sets the active channel for weather alerts from the radio's Weather Broadcast Memory Channels. Choose one of the ten preset frequencies to check for signals that contain the presence of the NOAA Alert Tone while using VFO scan or Memory channel scan.

**Answer Back** - When called by another station with a corresponding pager code, the transceiver is automatically placed in the transmit mode (for about 2.5 seconds) to notify the other station that you are ready to communicate. Use Answer Back to set this feature On or Off.

**Audio** - Change the audio features of the radio.

Mic Gain - Adjust the microphone gain level.

Mute Level - Set the muting level on the non operating band side when a signal is received on the operating band side.

Rx AF Dual - Set the resumption time of radio reception in the AF Dual mode.

Speaker Select - Set speaker switching operation when connecting an external SP/MIC.

**Bank Link** - During memory bank link scanning, the radio can scan memory channels registered in two or more banks specified in advance. This feature sets the memory bank link On or Off. When Off, only the memory channels assigned to the recalled memory bank are scanned.

**Bell Ringer** - The radio can be programmed to sound a Bell alert when a call from another station containing a corresponding tone, DCS or pager code is received. This Signaling feature is used to select the desired number of times the Bell rings.

**Digital** - This Tx / Rx feature adjusts the Digital properties of the radio.

Location Service - Display your current location in digital mode. Can be set to On or Off.

Standby Beep - When On, this setting emits a standby beep sound when the remote station completes transmission.

Digital VW - Turn the VW mode selection On or Off.

Popup Time - This feature sets the time duration to display remote station information, such as the callsign, on the LCD. When set to BNDCNT in the drop down menu, the remote station information is continuously displayed.

Audio Pitch - Set the audio quality of received audio in digital mode. If Flat is selected, the sound quality will be normal. High Boost emphasizes the treble range and Low Boost emphasizes the bass range.

**DW Resume** - Configure the priority memory channel monitoring stop mode settings when the dual receive function is active.

**DW Time** - Set the priority memory channel monitoring interval when the dual receive function is active.

**Fast Tone Search** - Set the audio output during tone search. This setting selects a fast tone search speed.

**Lamp** - Set whether or not the LCD backlight turns on when a signal is received during scanning.

**Memory Scan Mode** - When this mode is active, the receiver is set to scan memory channels.

A-Band - Select A-Band frequencies.

B-Band - Select B-Band frequencies.

**Mode** -

AM Antenna - Setting options for connecting the radio to channel signals.

Bar -

Bar & Ext -

**Pager** - A two-tone CTCSS system for "private" calls. When the person called is not near the transceiver, the information is displayed on the LCD to indicate that a call was received. Use the Receive Codes and Transmit Codes boxes to specify personal codes. Details about this feature are found in the [Enhanced Paging and Coded Squelch](#) section of this Help.

**Priority Revert** - Check to engage the Priority Revert (Dual Watch) feature. When this feature is engaged, the radio periodically checks the Priority channel for activity. When activity is detected, the radio pauses on that channel in accordance to the Scan Resume settings. This option makes your single receive act somewhat like one with dual receive.

**Receive Codes** - Receive codes for Pager function of radio.

**Recording** - With this function, the received audio of the other station, and/or the transmit audio of the radio is recorded on the memory card. The recorded file can be played back with the radio or the memory card can be removed and used on a computer.

Band - Select the band(s) to be recorded.

Mic - Select whether or not to include the transmit audio in the recording. "On" indicates you want to record both the transmit and receive audio. "Off" indicates you only want to record the receive audio.

**Restart Time** - Set the scanning restart time.

**Scan** - Set options for how the radio performs during scanning. Complete details for these features are included in the [Scan Settings](#) section of this Help.

**Scan Resume** - Configure the scan stop mode settings.

Busy - The scanner will halt on a signal it encounters. Scanning will resume one second after the other station signal ceases transmitting. In the case of constant-carrier signals like Weather Station broadcasts, the scanner will likely remain on this frequency indefinitely.

Hold - The scanner will halt on a signal it encounters. Scanning will only resume when it is manually re-initiated.

Time - The scanner will halt on a signal it encounters. Scanning will resume after selected time even if a signal is still on the frequency. Default time is 5 seconds.

**Speaker Volume** - Adjust the volume of the speakers on the radio.

A-Band - Select A-Band frequencies.

B-Band - Select B-Band frequencies.

AM/FM Radio - Select AM/FM Radio frequencies.

**Split Tone** - Check to engage use of CTCSS and DCS tones working together on a given memory channel. This option affects the use of T DCS (CTCSS transmission / DCS reception) and D Tone (DCS transmission / CTCSS reception).

***Note: This option does not have to be engaged in the Programmer to select one of these Tone Modes. Simply select T DCS or D Tone as the Tone Mode for a given channel. The Programmer sets this option appropriately for the radio.***

**Squelch Level** - Select a squelch level.

A-Band - Select A-Band frequencies.

B-Band - Select B-Band frequencies.

AM Radio - Select AM Radio frequencies.

FM Radio - Select FM Radio frequencies.

**Tone Search Mute** - This setting mutes the audio output during tone search.

**Transmit Codes** - Transmit codes for Pager function of radio.

**VFO Scan Mode** - Set the frequency range for scanning in VFO mode.

A-Band - When the Band option is selected from the drop down menu, the radio scans within the A-Band, starting with the current frequency. When the All option is

selected, all of the bands from the current  
MHz to 999 MHz range are scanned.

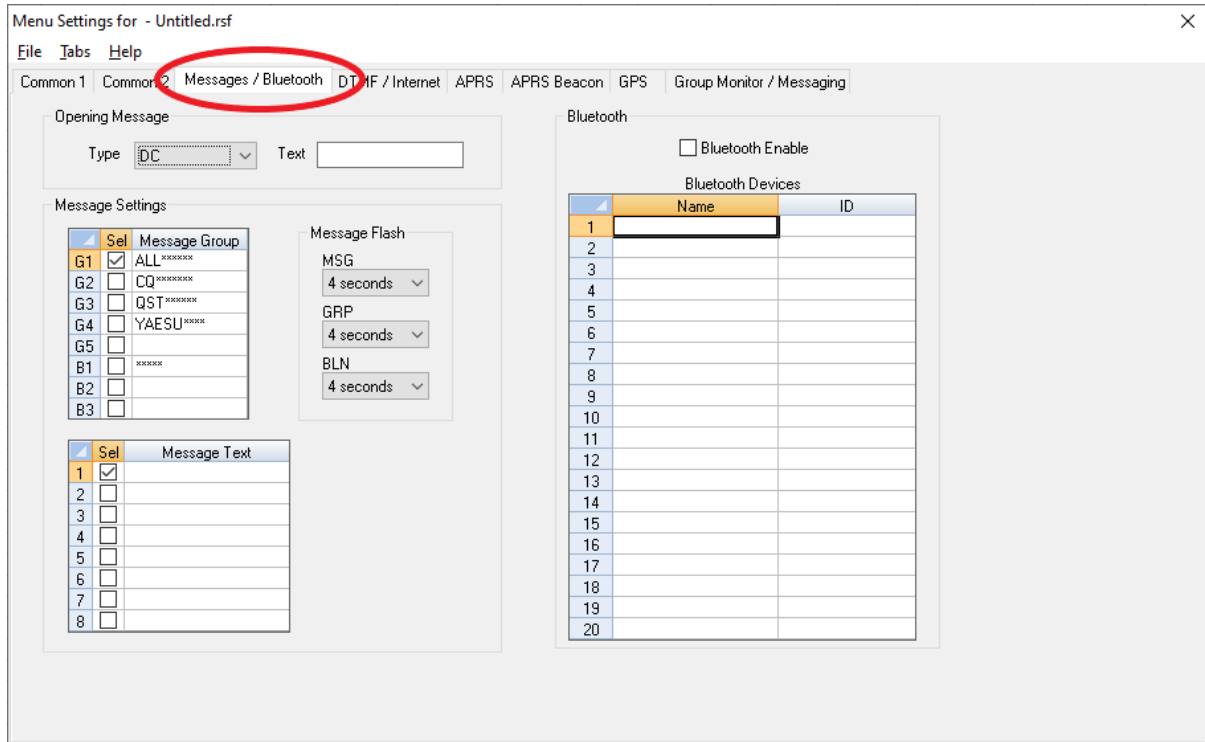
frequency within the 1.8

B-Band - When the Band option is selected from the drop down menu, the radio scans within the B-Band, beginning with the current frequency. When the All option is selected, all of the bands from the current frequency within the 1.8 MHz to 999 MHz range are scanned.

**Weather Alert** - Check to engage the weather alert function. With this function engaged, the radio periodically scans the weather channels looking for the Alert Tone that is sent at the beginning of a NOAA severe weather announcement. Weather Alert works in conjunction with scanning operations on VFO or Memory Channels.

## 14.3 Messages / Bluetooth

Access the Messages / Bluetooth tab under Settings | Radio Menu Settings at the top of the main window of the Programmer.



Configure Bluetooth® settings in this tab to use any commercially available Bluetooth® product for hands-free communication. This tab has options for the radio's Opening Message, Message, and Bluetooth settings.

### Entering Messages / Bluetooth Details

**Bluetooth** - The radio has built-in Bluetooth® functionality, so hands-free operation is possible using a commercially available Bluetooth® headset.

**Bluetooth Devices** - Displays a list of registered or searched Bluetooth® devices.

**Bluetooth Enable** - Enables the radio to connect to the Bluetooth® device.

**Message Settings** - Settings options for messages.

**Message Flash** - Set the strobe to flash when there is an incoming message.

MSG - Set the length of time for the strobe flash when there is an incoming message.

GRP - Set the length of time for the strobe to flash when there is an incoming from a Message Group.

BLN - Set the length of time for the strobe to flash when there is an incoming message from a Number/Bulletin Name.

**Message Group** - Filter setting for receiving messages from specific groups.

**Message Text** - Input text for message.

**Opening Message** - Set the opening message Type and Text (up to 16 characters) to display under the "YAESU" logo displayed when turning on the transceiver.

**Type** - Choose Off, DC or Message for Message Type.

Off - Displays the receive frequency instead of an opening message immediately after turning on the power.

DC - Displays the power-supply voltage and time when turning on the power.

Message - Displays a message comprising up to 16 characters when turning on the power.

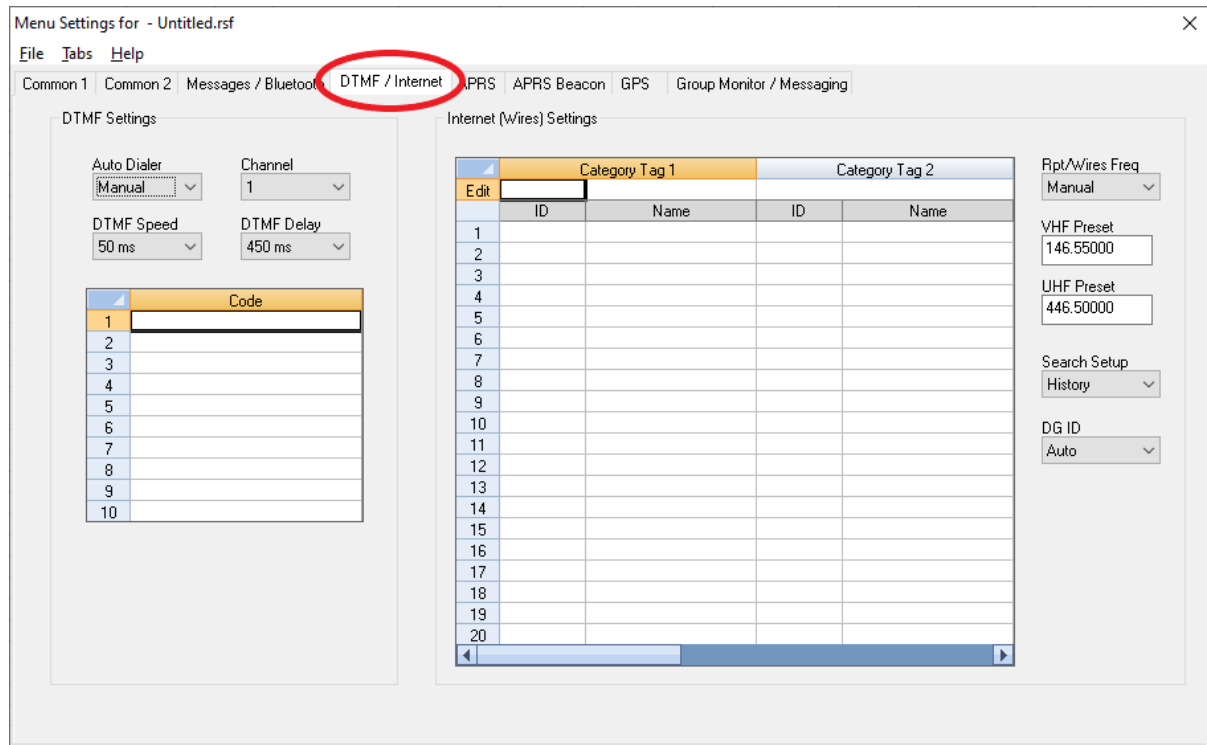
**Text** - Enter text for display message.





## 14.4 DTMF / Internet

The settings for Dual Tone Multi Frequencies (DTMF) / Internet features are found on the DTMF / Internet tab of the Radio Menu Settings by navigating to Settings | Radio Menu Settings at the top of the main Programmer screen.



The 16-button keypad allows easy DTMF dialing for Autopatch, repeater control, or Internet-link access purposes.

Besides numerical digits [0] through [9], the keypad includes the [\*] and [#] digits, plus the [A], [B], [C], and [D] tones often used for repeater control.

DTMF Autodial memories store telephone numbers for autopatch use or strings for repeater control or Internet-link access. You can also store short autopatch or Internet-link access code streams so as to avoid having to send them manually.

### Entering DTMF / Internet Details

**DTMF Settings** - Set the transmission of DTMF code registered to a DTMF memory channel, DTMF code transmission delay time and DTMF code transmission speed.

**Auto Dialer** - Set the DTMF Auto Dialer to allow manual or automatic transmission of DTMF tones for auto patch or Internet-link access.

Manual - While holding the PTT, press the desired number keys on the microphone. When you have completed the sequence, release the PTT.

Auto - While holding the PTT, select a DTMF memory to send by pressing the [DTMF] key (the button to the left of the [POWER] button) and rotating the dial to the desired number.

**Channel** - Select a DTMF memory channel to use when operating on the right or left side, respectively.

**Code** - Input the DTMF code (up to 16 characters).

**DTMF Delay** - Set the amount of time that passes between when the PTT is pressed and the first tone is heard.

**DTMF Speed** - Assign the DTMF code transmission speed.

**Internet (Wires) Settings** - WIRES (Wide-coverage Internet Repeater Enhancement System) expands the range of your radio's communication. This Internet communication system connects the radio with a local WIRES-X Node station so that the radio can communicate and exchange data via the Internet with WIRES-X nodes around the world. This system's News Station Function can write (upload) and read (download) digital data such as text, images and audio. When connected to a WIRES-X node station or room, the node name, room name, call sign of the other station, distance and direction are all displayed on the radio screen.

**Category Tag 1** - Set the category name for the first tag.

**Category Tag 2** - Set the category name for the second tag.

**DG ID** - Set the DG-ID number for WIRES-X.

**ID** - Set the ID for Category Tags.

**Name** - Set the name for Category Tags.

**Rpt / Wires Freq** - Set the frequency to be used for Repeater/WIRES.

**Search Setup** - Set the WIRES ROOM selection method.

**UHF Preset** - UHF frequency for WIRES operation.

**VHF Preset** - VHF frequency for WIRES operation.

## 14.5 DTMF / Autodial Functionality

The 16-button keypad allows easy DTMF dialing for Autopatch, repeater control, or Internet-link access purposes.

Besides numerical digits [0] through [9], the keypad includes the [\*] and [#] digits, plus the [A], [B], [C], and [D] tones often used for repeater control.

DTMF Autodial memories store telephone numbers for autopatch use or strings for repeater control or Internet-link access. You can also store short autopatch or Internet-link access code streams so as to avoid having to send them manually.

### Entering DTMF Details

**Auto Dialer** - Set the DTMF Autodialer feature to allow manual or automatic transmission of DTMF tones for autopatch or Internet-link access.

Manual - While holding the PTT press the desired number keys on the microphone. When you have completed the sequence, release the PTT.

Auto - While holding the PTT, select a DTMF memory to send by pressing the [DTMF] key (the button to the left of the [POWER] button) and rotating the dial to the desired number.

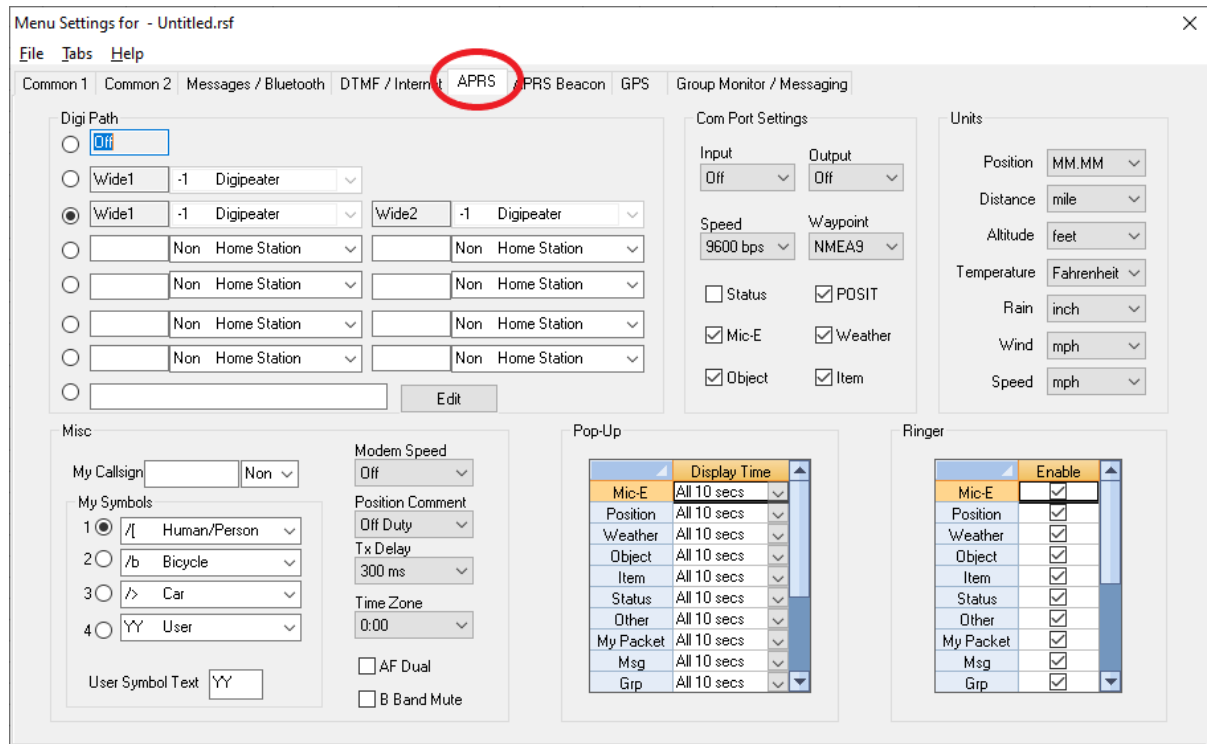
**Channel** - Select the one of the DTMF memory channels to use when operating on the right or left side, respectively.

**DTMF Delay** - Set the amount of time that passes between when the PTT is pressed and the first tone is heard.

**DTMF (Memories)** - Enter up to 16 characters into each of the memories for DTMF tones. Acceptable entries are 0-9, A-D, \*(E), and #(F).

## 14.6 APRS

APRS functions can be accessed on the APRS tab of the Radio Menu Settings under Settings | Radio Menu Settings at the top of the main Programmer window.



Automatic Packet Reporting System (APRS) is a communication system to exchange GPS location data and packet messages. When an APRS signal is received from a partner station, the direction, distance, speed, etc. of the partner station as seen from your station is shown on the transceiver display.

The APRS tab contains options for programming the Digi Path, Com Port, Units, Ringer, Pop-Up, and Misc settings on the radio.

### Entering APRS Details

**AF Dual** - Toggle On or Off to enable the AF Dual function while APRS function is active.

**Altitude** - Select the altitude unit of measurement for APRS display.

**B Band Mute** - Set the B-Band AF muting function when APRS is active.

**Com Port Settings** - Set the COM Port.

**Digi Path** - Set the digital repeater route. A digipeater is a station that relays packets such as beacons. When using a digipeater, register the call sign or alias of the digipeater in the radio.

**Note:** *When too many relay steps are set, the beacons transmitted from the same station are repeatedly relayed. This results in signal congestion on the APRS channel. Use the default settings as far as possible.*

**Distance** - Set the distance unit of measurement for APRS display.

**Input** - Set the Com Port input setting. When set to Off, the input function of the data terminal (negate function) is deactivated. When set to GPS, GPS data is obtained through connecting to a commercially sold external GPS device instead of the internal GPS function in the radio transceiver. In the GPS setting, information obtained from the internal GPS function is negated.

**Item** - Set the Com Port item setting.

**Mic-E** - Set the Com Port Mic-E setting. Mic-E BEACON information is output with WAYPOINT data when On. Mic-E BEACON information is not output when Off.

**Modem Speed** - This sets the APRS baud rate. If the baud rate is set to 1200 bps or 9600 bps, the APRS function will be turned On. If the baud rate is set to Off, the APRS function will be turned Off.

**Note:** *If the APRS baud rate is set to 1200 bps or 9600 bps, the receive and save function will stop automatically. Also, if the APRS is not going to be used, go ahead and set it to Off.*

**My Callsign** - Register your own station callsign to send and receive messages and to transmit beacons in APRS. A callsign is needed for APRS communication. APRS data can't be transmitted if a callsign for your station isn't registered. When registered, the callsign is displayed on the LCD when the power of the transceiver is turned on.

**My Symbols** - Choose from 1 of 48 icons to specify the transmit symbol of your station.

**Object** - Set the Com Port object setting. This feature is displayed when the beacon of an object station is received.

**Output** - Set the Com Port output setting. Off deactivates the input function of the data terminal (negate function). The GPS option outputs GPS data obtained by the transceiver. The WAY.P option (WAYPOINT) outputs position information from APRS PACKET received from a BEACON received from another station as WAYPOINT data.

**Pop-Up** - When an APRS Beacon is received, the content is shown in a pop-up. This setting configures the method and time the pop-up is displayed.

**POSIT** - Set the Com Port POSIT setting.

**Position** - Set the position unit of measurement for APRS display. This is displayed when the beacon from a fixed station (FIXED) or a mobile station (MOVING) is received.

**Position Comment** - Set the position comment function.

**Rain** - Set the rain unit of measurement for APRS display.

**Ringer** - Set the bell sounds for transmit/receive of APRS beacons and messages and the conditions for when it rings. This feature enables the bell to ring On or Off when a beacon or message is received.

**Speed (Com Port Settings)** - Set the communication speed for the data terminal.

**Speed (Units)** - Set the speed unit of measurement for APRS display.

**Status** - Set the Com Port status setting. Set to Off when data terminal is not in use. Set to On when using terminal data. Various setting items are added when On is selected.

**Temperature** - Select the temperature unit of measurement for APRS display.

**Time Zone** - Set the time zone. This setting can be set in units of 30 minutes.

***Note: Time data from the GPS function is transmitted in Coordinated Universal Time (UTC). Depending on the country or region, the time difference from UTC varies. Remember to modify the settings when using the transceiver while traveling.***

**Tx Delay** - Set the APRS data sending delay time.

**Units** - This group of features set the units of measurement for APRS display.

**User Symbol Text** - This feature displays your user symbol as text.

**Waypoint** - Set the number of digits for CALLSIGN information of APRS BEACON stations, attached to various data, when WAYPOINT is selected for OUTPUT.

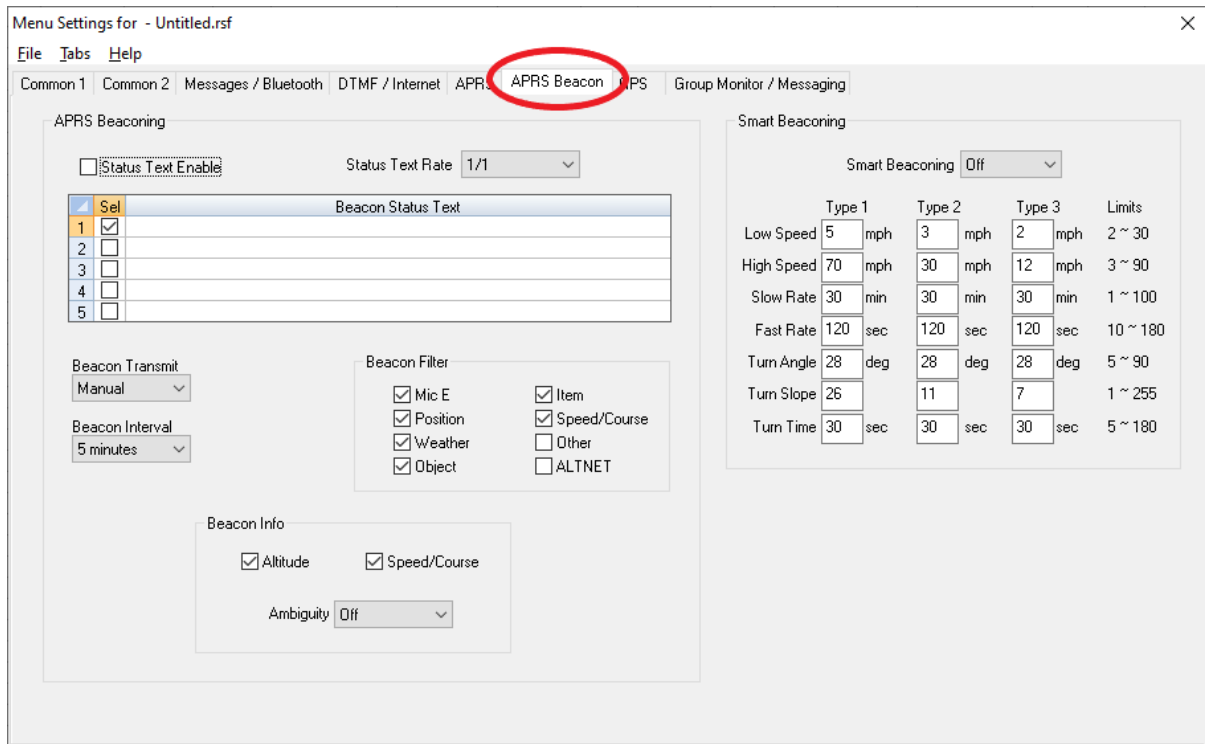
**Weather** - Toggle the Com Port Weather setting to On or Off. This is displayed when the beacon of a meteorological station is received.

**Wind** - Set the wind unit of measurement for APRS display.



## 14.7 APRS Beacon

The APRS Beacon tab is found by navigating to Settings | Radio Menu Settings at the top of the main Programmer window.



Beacons transmit your GPS position to APRS stations in range. Essentially, an APRS Beacon lets "the world" know where you are. This information is useful in emergency situations, particularly when in a remote area.

### Entering APRS Beacon Details

**APRS Beacons** - This group of settings configure the APRS beacons features of the radio.

**Altitude** - Set the transmission beacon altitude.

**ALTNET** - This setting displays the obtained packets specified by Destination Address in Alternate Nets.

**Ambiguity** - This function is for masking lower denominations of your position (longitude, latitude) to pinpoint the position of your station.

Off - Setting this function to Off transmits the precise position information of your station.

1digi - 4digi - Determine the number of digits removed from the ends of your station location's longitude and latitude coordinates with this setting.

**Beacon Filter** - Set filter for obtaining various beacon types.

**Beacon Info** - Set the transmit beacon Information.

**Beacon Interval** - Set the beacon automatic transmit Interval.

**Beacon Status Text** - Input setting for the status text.

**Beacon Transmit** - Set the time interval for automatically sending out an APRS beacon.

***Note: When the APRS beacon transmit is changed to AUTO, the timer for the automatic beacon transmit interval is reset, and the count for the automatic beacon interval begins. When the set time is reached, the initial beacon will be transmitted. Also, if the squelch is open when the specified time has passed to transmit a beacon, the beacon transmission is delayed. When the squelch closes, the beacon will be sent.***

Manual - Transmit the APRS beacon manually from your radio.

Auto - An APRS beacon of your station will be transmitted automatically according to your radio's Beacon Interval settings.

Smart - A Beacon is automatically transmitted using the SmartBeaconing™ function.

**Item** - This is a Beacon Filter setting for displaying the obtained item of beacons.

**Mic E** - This setting displays the obtained MIC-Encoder beacons.

**Object** - Set the display of the obtained object of beacons.

**Other** - This setting displays the obtained packets other than those used in APRS.

**Position** - This setting displays the obtained position of beacons.

**Speed/Course (Beacon Filter)** - This Beacon Filter setting displays the obtained Speed and Course of beacons.

**Speed/Course (Beacon Info)** - Set the speed and course transmit beacon information.

**Status Text Enable** - Enable the input for beacon status text.

**Status Text Rate** - Set the input for beacon text rate.

**Weather** - This Beacon Filter setting displays the obtained weather beacons.

**Smart Beacons** - Function that efficiently transmits an APRS beacon, including your own station position, speed and direction of travel. The beacon information is based on data from a GPS satellite receiver unit.

Off - Deactivates SmartBeacon™

Type 1 - Setting with preset initial value to be used in the operation of high speed movement (such as by vehicle).

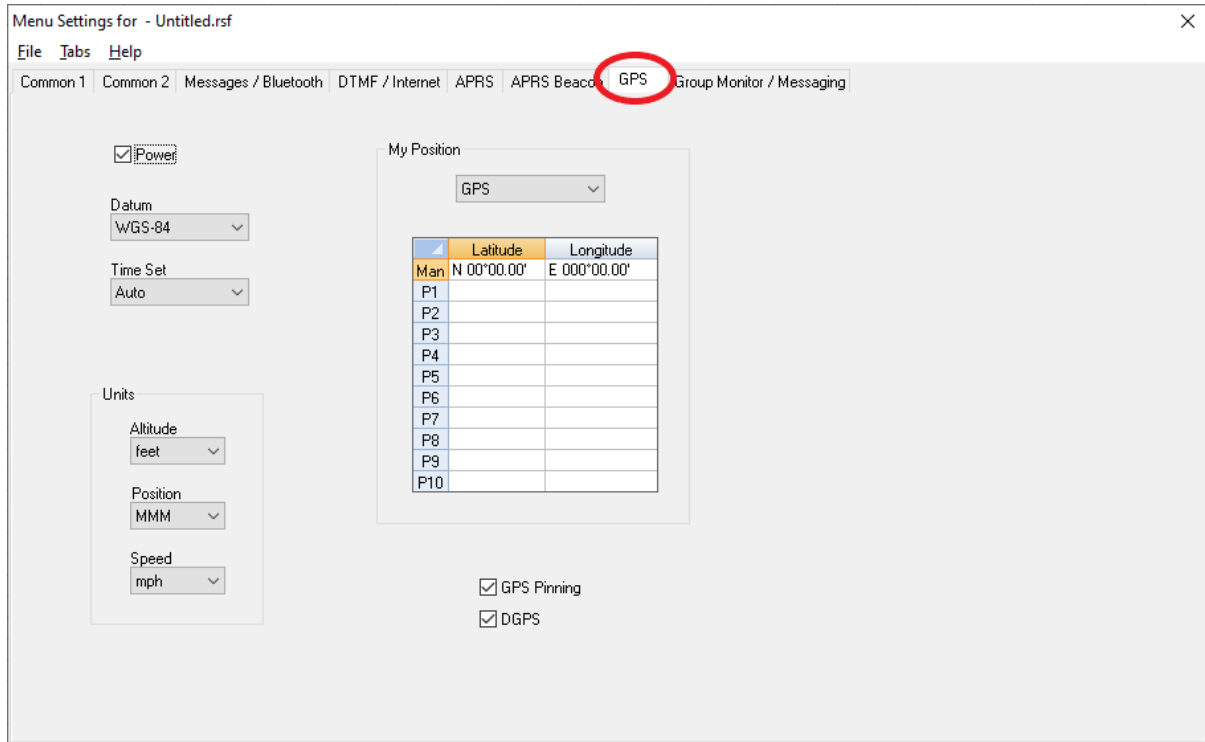
Type 2 - Setting with preset initial value to be used in the operation of medium speed movement (such as by bicycle).

Type 3 - Setting with preset initial value to be used in the operation of low speed movement (such as by walking).

***Note: Type 2 and Type 3 settings (especially Type 3) transmit many beacons in a short period of time, even if in comparatively slow movement. Because of this, using these settings during high speed movement (such as by vehicle), cause many beacons to be transmitted and may cause a frequency jam. Adjust setting to Type 1 when in high speed movement.***

## 14.8 GPS

GPS settings can be programmed by going to Settings | Radio Menu Settings at the top of the main Programmer window.



When receiving signals from Global Positioning Systems (GPS) satellites, the current position (latitude, longitude, altitude) can be calculated and displayed within the tolerance of several meters. Additionally, the radio's GPS can receive the exact time from a satellite-mounted atomic clock.

### Entering GPS Details

**Datum** - Select a datum used for the GPS function.

WGS-84 - Using this setting will set the GPS to the World Geodetic System (WGS-84) coordinate. This is the standard reference coordinate for GPS.

Tokyo Mean - This setting will set the GPS to the Tokyo Mean coordinate.

**DGPS** - This setting toggles Differential Global Positioning System (DGPS) On or Off. DGPS offers improved location accuracy.

**GPS Pinning** - This setting toggles GPS Pinning On or Off. Pinning saves your GPS coordinates, allowing you to easily find routes later.

**My Position** - Set whether position information for your station is obtained via GPS or manually entered.

**GPS** - This is the default for the radio. The GPS will acquire the position of your station automatically.

**Latitude** - Select this option to set the latitude position of your station.

**Longitude** - Select this option to set the longitude position of your station.

**P1 - P10** - The position information of radio stations, acquired via GPS, can be saved in these 10 memories.

**Power** - This setting turns the GPS function On or Off.

**Note: To conserve battery power, turn the GPS function off when not in use.**

**Time Set** - This setting turns the GPS time and date automatic acquisition function On or Off.

Auto - Selecting Auto will turn the date automatic acquisition function On.

Manual - Selecting Manual will turn the date automatic acquisition function Off.

**Units** - Set the units of measurement for GPS display.

**Altitude** - Set the altitude unit of measurement for GPS display.

**Position** - Set the position unit of measurement for GPS display.

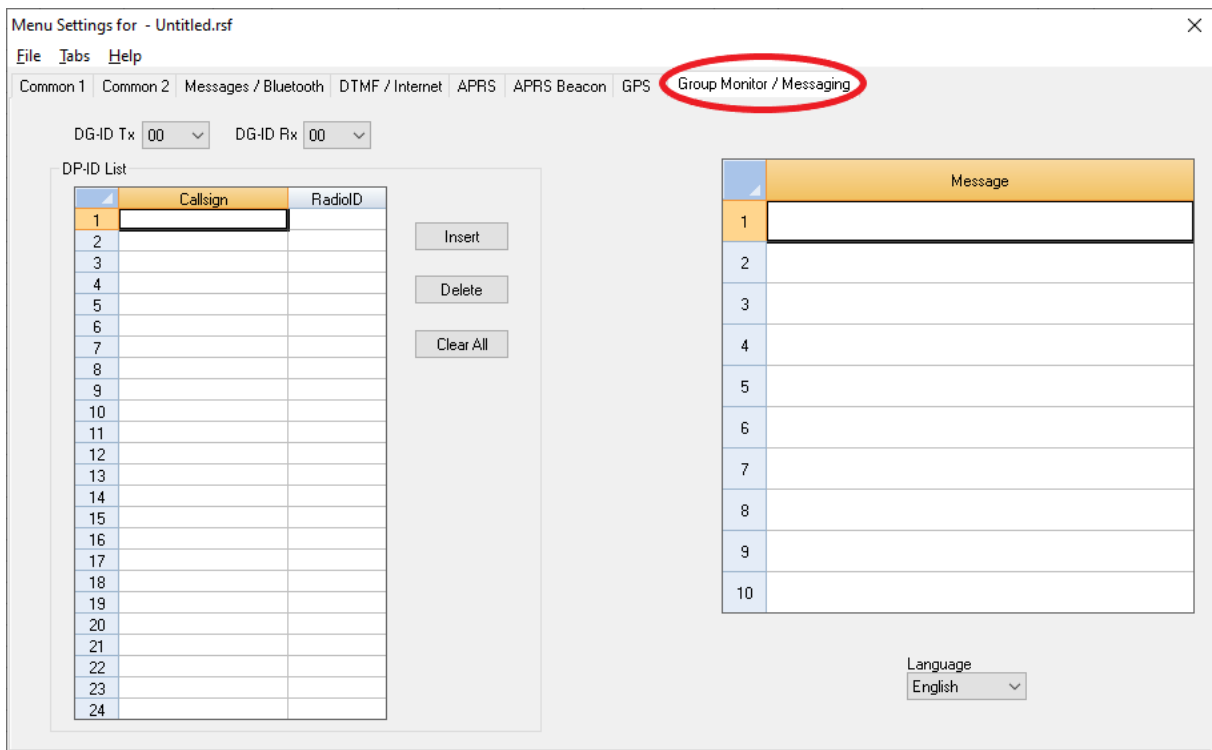
**Speed** - Set the speed unit of measurement for GPS display.

## 14.9 Group Monitor / Messaging

The Group Monitor (GM) tab of Radio Menu Settings is found by going to Settings | Radio Menu Settings at the top of the main Programmer window.

The Group Monitor function allows frequently communicating stations to be registered into a group. When Group members operating in GM are within communication range, members automatically exchange their location and ID information and an alert may be sounded. Messages and images can also be exchanged between GM members, and location information received from other stations can be used for navigation.

**Note: The GM function doesn't operate in FM (analog) mode or on the B-Band. Switch the A-Band communication mode into digital mode before activating the GM function. To use the GM function, all group members must operate on the same frequency.**



### Entering Group Monitor / Messaging Details

**DG-ID Rx** - Set the Digital Group ID (DG-ID) receiver number for Group Monitor.

**DG-ID Tx** - Set the Digital Group ID (DG-ID) transmitter number for Group Monitor.

**DP-ID List** - Set list of Digital Personal IDs (DP-IDs).

**Callsign** - Create and change the names of group members under this setting.

**Clear All** - Clicking this button clears all data from the DP-ID List.

**Delete** - Clicking this button clears the data from the selected row. If there's data in any row below the deleted row, the data below the deleted row will move up one row.

**Insert** - Use this button to insert data into the selected row. If there's existing data in the selected row, the existing data will move down one row.

**RadioID** - In the GM function, each transceiver transmits its own ID beside the callsign. This ID is a 5-digit code consisting of alphanumeric characters written into the transceiver during factory production. The RadioID can't be changed.

**Language** - Choose between English and Japanese for your language preference.

**Message** - Type messages containing a maximum of 16 characters to group members. Each text can be registered as a standard message.

**Part**





## 15 Computer / Radio File Transfer

Data flow two ways: *from the computer to the radio* or *from the radio to the computer*.

Even when you are sending a file to the radio, some data must be sent from the radio to the computer to ensure that the two are "talking" before transfer of the file ever gets started.

In either case, ***be sure to follow the directions presented on the screen carefully***. The wrong button press can result in a communications failure that could reset your radio to factory defaults.

Details for this process are contained in these sections:

[Communications | Get Data From](#) - Always the best place to start. Even if there is nothing in your radio. It gets the data "flowing" between the two.

[Communications | Send Data To](#) - This process programs the radio with the details of the file that is on the screen. If the file is blank, you will have a blank radio. Be sure you see your frequencies on the screen before you start this part of the process.

Radio to computer cabling - Check the photos to be sure you are using the correct cabling for your radio.

[Comport Setup](#) - There is no comport setup in Version 4. The Programmer automatically finds the *RT Systems* USB cable for you. This section contains some troubleshooting details.

## 15.1 Get Data From The Radio

Uploads the contents of the radio memory to the computer.

This function is often referred to as "reading" the radio since memory information is "read" from the radio.

This step is required before the first file can be sent to the radio. Files with frequency information can be created in the Programmer without executing this step.

### **"The data from the radio will overwrite this file. Continue?"**

This message will be raised by the Programmer when you select Communications | Get data from radio with a file open that is not a new (default) file into which no entries have been made.

This message is warning you that you will replace any information you have entered with whatever is in the radio. The "whatever" could be all blank channels.

Answer "yes" if you want to lose all the information that appears on the screen. Answer "no" if you don't want to lose several hours of work spent creating the file on the screen.

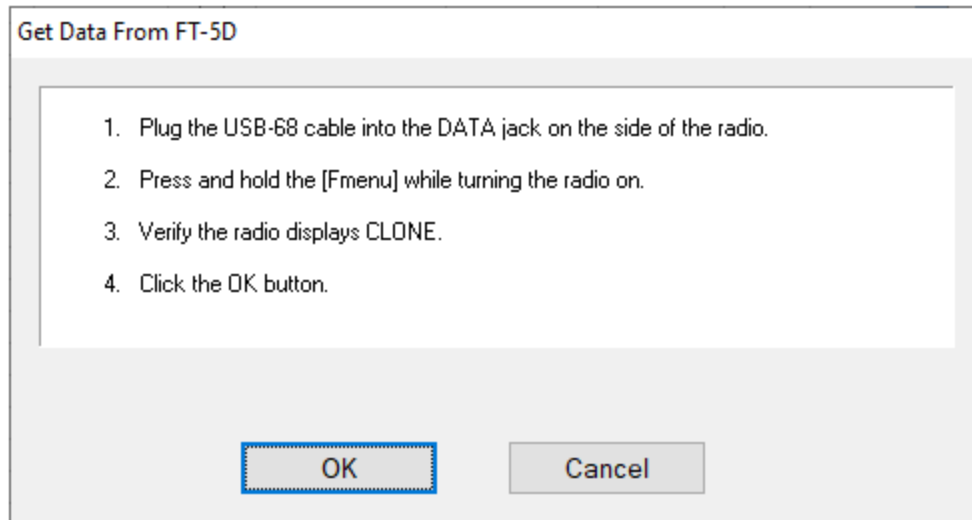
To prevent loss of information, first do File | New to open a new (default) file. Then while looking at that file, do Communications | Get data from radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

Once you complete Communications | Get data from radio, return to your file a) select the tab at the top of the page; or b) select File | Open and open the file from the list presented (if you closed it some time during the process.)

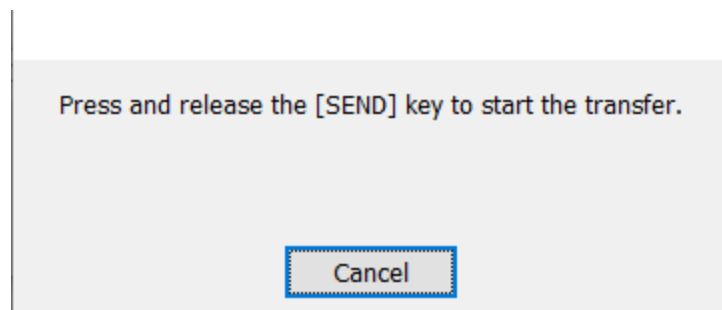
### **The Get Data From process (reading the radio)**

- Connect the cables properly to the radio. See the Radio to Computer Cabling section of this help for details of that cabling.
- Be sure you have a reliable external power source before beginning this process. Loss of power during communications may result in a reset radio.
- The screen that opens has details for completing the process to get data from the radio (read the radio).
- When working with a laptop or smaller computer, be sure to use external power for the computer.

**Read the screen carefully. The steps differ with each model. All the steps you need to do are listed on this screen.**



- Now that the radio is in CLONE mode, click OK to continue.



- Press the button on the radio to start the transfer.
- A transfer status bar is displayed on the computer to let you know that the computer is receiving the data being sent from the radio. If the "blue bar" does not appear and fill, cancel the process and try again.

**Note: If the "blue/green bar" does not appear and begin to fill immediately, the first steps in troubleshooting are as follows:**

- **Do NOT turn the radio off. Do these steps exactly as listed here.**
- **Cancel the process on the computer.**

- ***Once the screen closes, select Communications | Get data from radio from the main page of the Programmer.***
- ***Then press the [Send] and watch the radio change. If it changes to CLONE, press the [Send] again.***

***The radio was always in CLONE mode. There was no reason to turn it off and back on again. This often gets the process going after a failure.***

When the Get Data From process is complete, the Programmer will return to the spreadsheet of the main window where the information taken from the radio is displayed. This information is ready to be edited and saved.

The radio can remain connected to the computer while changes are being made in the Programmer. These changes are not reflected in the radio until you complete the Send data to process in the Programmer. Leave the radio in CLONE mode or turn it off while it is connected to the radio. If it is on in normal mode, it may "act funny" since the PTT line is active in the programming cabling.

If you are doing major editing, turn the radio off and remove the cloning cable. Then return to the Programmer for editing the file. Once your editing is complete, connect the radio to the computer and complete the Send Data To process to transfer the changes to the radio.

## 15.2 Send Data to The Radio

Sends the contents of the current file and the settings file to the radio.

### Current File

The Programmer can work with several radio files at one time. There is no need to close extra files before executing the Send Data To process.

The current file will be sent to the radio during the Send Data To process. The current file is the one that appears in the main window of the Programmer. Basically, what you see on the screen is what is sent to the radio.

### Settings File

Check your global menu settings under Settings | Radio Radio Settings to be sure the right information is being sent. The items on this screen are the radio settings that are not associated with a specific memory channel.

These settings are set once to be sent to the radio with any file that you create. Details on these settings can be found in the [Programming Other Set Menu Items](#) of this Help.

If the radio "acts funny" after it is programmed,

- Check the Radio Menu Settings.
- Make changes to the settings as needed.
- Save the settings file.
- Do Communications | Send Data To with the same memory channel file

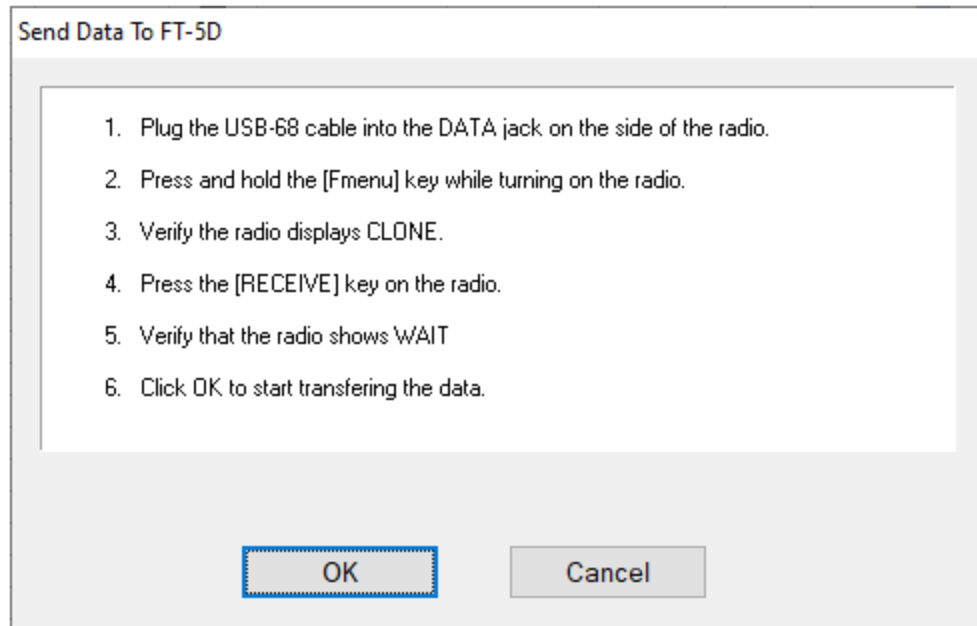
The settings will be sent with the memory data.

### Completing the Send data to Process

When you execute the Radio | Send Data To command, you are presented with instruction for putting the radio into clone mode.

***Read the screen carefully. The steps to put the radio into clone mode differ with each model. Pressing the wrong button will result in no response or the wrong response for the process. The key sequence***

***for sending data to the radio is different in all radios than that to Get Data From The Radio.***



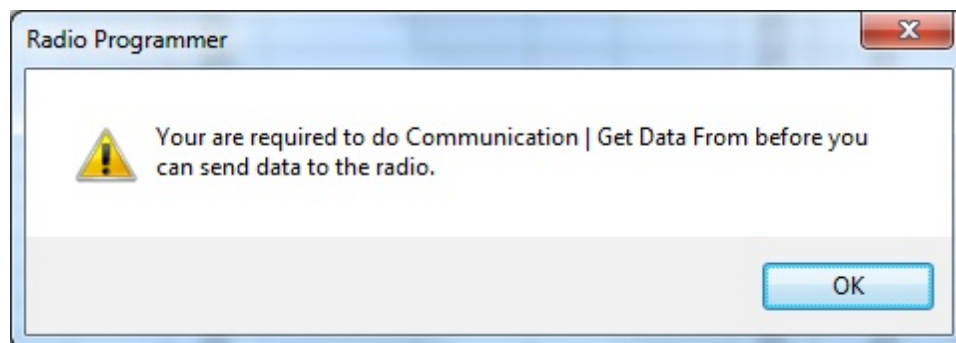
Follow the steps on this screen. When you click OK a progress bar appears letting you know that the process is being completed.

When the transfer is complete, the transfer status window disappears and the Programmer returns to the Main Window.

With the radio off, remove the cloning cable. The radio is ready to power-up and use with the newly programmed settings.

## Troubleshooting

### Communications | Get Data From Radio required first



The first time you attempt to send your file to the radio, this message may appear. This indicates that you have not read the configuration of the radio into the Programmer. There are details that the Programmer can get only from the radio. Even if the radio is not yet programmed, these "background" details are necessary for the Programmer to send a file to your radio successfully.

To complete this process:

- 1) Select File | New from the menu at the top of the screen.
- 2) Turn off the radio.
- 3) Select Communication | Get Data From Radio from the menu at the top of the screen.
- 4) Complete the process detailed on the screen.
- 5) Once the process is complete, click the tab at the top of the screen showing your filename. The file that you want to send to the radio will be displayed on the screen.
- 6) Select Communications | Send Data To Radio from the menu at the top of the screen.
- 7) Complete the process following each step carefully to program these channels into the radio.

### **Modified Radio**

If your radio has been modified, you need to read from the radio (Get Data From) into a new file before you attempt to write data to the radio. When the Get Data From process is used, even if the radio is not yet programmed, the Programmer gets the data it needs to know that the radio is modified.

When you use Get Data From for the sake of establishing communications, you need to save the file **ONLY** if you want to save the memory data that is currently in the radio. The Programmer already has what it needs. The option to save is available should you want to save the pre-programmed data.

### **The radio is not programmed after the process is complete**

This could indicate several things. Most of those are specific to the radio. The most general error is not an error in programming; but the need to put the radio into Memory mode once programming is complete. Many of the radios return to VFO when they are

programmed. Change the radio from VFO to memory mode. Once in memory mode the information programmed will be available for use.

Several of the Yaesu radios truly are not programmed when the download process is complete. These radios have encountered an error during the programming process. Try the process again. If it continues to fail, first, be sure you are using the latest version of the Programmer by updating from the Software Updates link of the website. If the problem persists, send the file that you are attempting to send to the radio. We will examine it for any problem that might exist in the data.

Check the cabling between the radio and the computer by disconnecting and reconnecting at all connections. Try the process again.

**If you have problems sending a certain file to the radio.**

Cancel the Send Data To process and execute Get Data From. Be sure to open a New file (File | New) into which the data will be read. This prevents loss of data in the file that you are sending to the radio. Getting data from the radio is a less critical process that can help get communications established.

The radio must be connected to the computer with the proper cables for that radio. See Radio to Computer Cabling in this help for details and pictures.

Should the problem persist, contact *RT Systems* for personal assistance.



## 15.3 Comport / Radio Cabling

The radio must be connected to the computer with the proper cables for that radio.

The USB-68 cable is needed to attach the radio to the computer for programming. This cable is easily identified by its yellow color, the USB connection with "RT Systems" on the hood at the computer end, and the special Yaesu HT connection at the radio end.

The cable attaches to the data connection on the side of the radio.

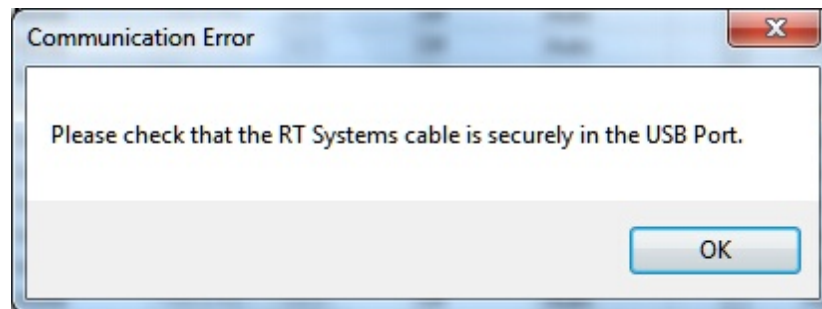


## 15.4 Comport Setup

RT Systems' Programmer has **NO comport setup**. The software finds the USB cable automatically.

### Troubleshooting

When I select Communications | Send Data To, I get the following error:



***The RT Systems USB-68 or the Yaesu SCU-18 or SCU-19 cables are the only programming cables that will be recognized by the radio Programmer. The cable that comes in the box with the radio is not for programming. It is for firmware upgrades when Yaesu releases those in the future.***

Be sure to give the computer enough time to do its internal setup once the cable is attached. On some machines this can take up to a minute (a long time in computer time). Once the cable is ready for use, the program will continue into the steps for transferring data between the radio and the computer.

Follow the steps carefully. They are unique to each radio and different for the same radio for Get data from or Send data to.

### Interference from other applications

Your radio is not the only device you attach to your computer for programming or data interchange. I-Pads, I-Pods, Palm Pilots and other PDA devices, printers, cameras and others all install programs for their use. Unfortunately, many of these programs run constantly looking to be used any time a cable is attached.

These programs take control of the cable even if it is not for their device. This renders the cable useless for its intended purpose.

You may not even be aware that these programs are running. You may have sold the device months ago; but unless you took steps to permanently disable the software for it, the problem remains. These programs run start whenever the computer is started or brought back from hibernation then run in the background with little indication that they are there.

Begin checking by hovering over each icon at the lower right of your screen. Those in the taskbar. A name will appear as you pass over each. You may recognize the one that needs to be disabled. Usually an option to Exit or Close will be available from a right click menu. Don't worry about exiting something you might need. The application will begin again when you restart your computer.

After addressing a program, check in the Programmer. You should be able to click OK on the Communications | Get Data from screen and have the process continue instead of raising the error message.

Tech support at RT Systems will be glad to help you with this; but we are limited given this is an issue specific to the applications running on your machine. You are welcome to contact us for help with this issue.

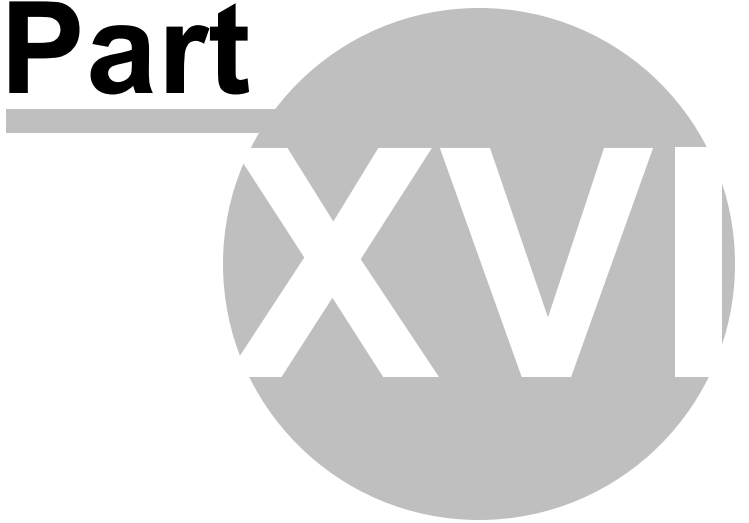
## Defective Cable

Cables from RT Systems are 100% tested prior to packaging. Even with this level of control, occasionally a cable fails in the field. Contact RT Systems tech support if to determine if the cable is at fault and a replacement is needed.

A replacement can be initiated when you send a copy of your receipt as proof of purchase and the issue has been diagnosed with a tech support representative at RT Systems. In this case, a replacement will be sent immediately with a prepaid label for return of the defective item. The replacement will be sent to the address on the receipt.

If the receipt is not available, return the original cable for replacement. A replacement cable will be sent immediately when the defective item is received at our location.

**Part**



## 16 File Maintenance

Just as in a word process or other Windows based program, you will create files in the Programmer for use in the radio. You can create as many files as the space on your hard drive will allow.

Remember, erase everything and replace it with the details of the file sent from the Programmer. Be sure everything you want in the radio is in the file that is sent. This is an "all or nothing" process.

From the File menu at the top of the main window, select:

[New](#) - Create a new file in any Version 3 Programmer you have installed.

[Open](#) - Open an existing file in any of the Version 3 Programmers you have installed.

Close - Closes the current file.

[Save](#) - Saves the current file.

[Save As](#) - Saves the current file giving you the opportunity to enter a new name. This creates a copy of the file and saves it with the new name you entered.

Import - Advanced functionality that addresses data from a "flat" ASCII file. Details on this process are found in the Import and Export section of the Help.

Export - Extracts data from the programmer file to a "flat" ASCII file. Details on this process are found in the Import and Export section of the Help.

[Print Preview](#) - Lets you see the formatted information on the screen before it prints.

[Print](#) - Prints the current file.

Send File as E-mail - Sends the current file to *RT Systems'* tech support. This functionality is dependent on the e-mail program of your computer.

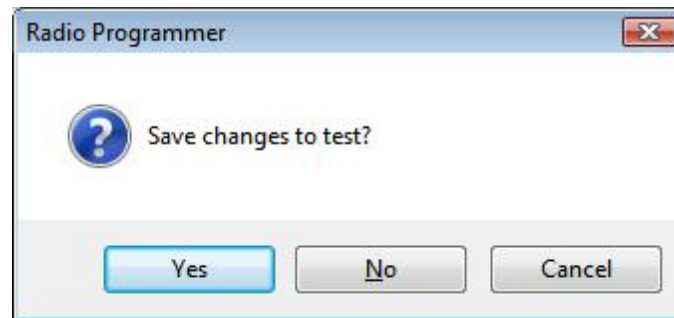
Files 1-4 - Up to four files that you last worked in and saved.

[Exit](#) - Closes the Programmer.

## 16.1 File | Exit

Exits the Programmer.

If files have been changed, you will be prompted to save or cancel the Exit command to avoid data loss in that file.



Yes - Exits the program saving the file.

No - Exits the program without saving any work done in the file since the last time you saved.

Cancel - Halts the Exit option. The program returns to the open file.

## 16.2 File | New

Use this command for setting up a "clean slate" into which you enter memory frequencies. A "clean slate" or default file will often have at least one channel programmed on the memory channel screen. This is a factory default that is in your radio when it is new. The information for this channel can be changed; however, in most radios, channel 1 must be programmed.

***Use the quick key command of Ctrl M for easy access to a new file.***

If you have been working to create a file with memory channels, use File | New before using Communications | Get data from to prevent losing all the work you have done in this file. The Get data from process will replace the information in the open file with what is in the radio.

### Other Radio Menu Settings and a New File

The radio is more than just memory channels. There are features that are controlled once for the radio. They cannot be customized for each memory channel. These features are addressed in the Programmer under Settings | Radio Menu Settings.

The settings for these features that were last saved are used whenever a New file is created. There is no need to reset these features for each new file. If you have not saved a settings file, these radio menu items are set to factory defaults (as if you reset your radio).

***Note: If you radio "acts funny" after you download to it (i.e., keypad beeps are different, squelch is open, Scan resume settings are changed, etc.) you have not yet set these options in the Settings portion of the Programmer. To make these option settings permanent:***

- ***Select Settings | Radio Menu Settings from the menu at the top of the screen.***
- ***Personalize your options just as you did on the radio.***
- ***Select File | Save from the menu on the Settings screen.***
- ***Enter a filename when prompted and click Save.***
- ***Select File | Exit from the menu on the Settings screen.***
- ***You will not have to change these again unless you want them to function differently.***

***The settings file will change only if you read from the radio (Communications | Get data from) and send that file back to the radio (Communications | Send data to) without saving the memory information that you retrieved. This is helpful if you are programming a friend's radio in which he has all these options set up as he wants them.***

The File|New command can be used to open several new files at once. Memory channel information can be copied between these files (even from V3 to V4), regardless of which radio they are for.



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## 16.3 File | Open

Just as in a word processor or other Windows programs, the command opens a previously saved file.

You are not limited to one programming file for your radio. Make as many as you want. Then choose the one you want when you open the Programmer.

## 16.4 File | Print

Prints the Memory channel information of the displayed page of the current file (i.e., if you are on the Memories tab, the memory channel information is printed. Similarly, if you are on the VFO tab, the VFO channel information is printed. )

- When this command is selected, a print dialog will give you the opportunity to setup your printer.
- Hidden columns are not printed. A printout can be customized (including increasing type size) by deliberately hiding columns before printing. To hide columns, select Settings | Preferences from the menu of the Programmer.
- Only memory channels that are programmed are printed. Your printout will not include the blank channels in the file.
- Use [Print Preview](#) to see what your printout will look like and how many pages will be included before you send it to the printer. This new option will help save lots of wasted paper.

## 16.5 File | Print Preview

This feature of the Programmers lets you preview the data to be printed before you waste paper sending it to the printer.

With the file open that you want to print, select File | Print Preview.

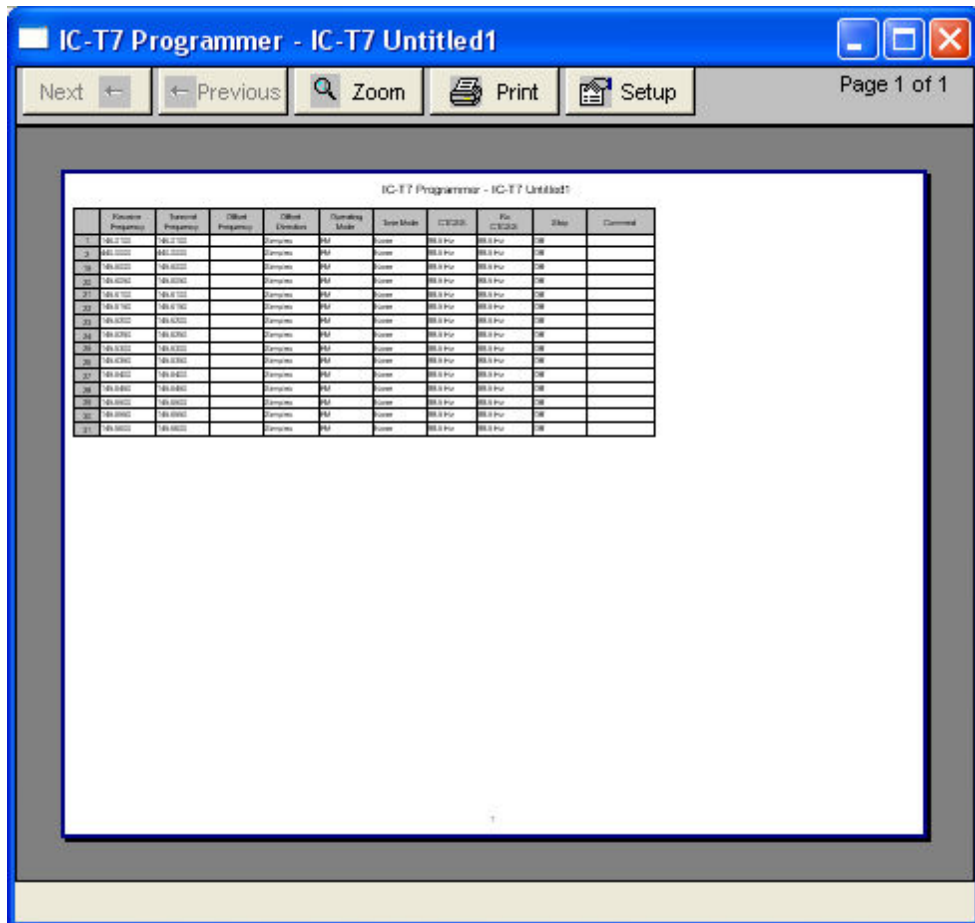
You will notice first that the screen changes. It is filled with the data that will be printed. This is just a temporary change. The order of your channels has not been changed in the file.

Then the screen opens to display the printed output you can expect.

	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Tone Mode	CTCSS	*A CTCSS	Skip	Comment
1	146.0100	146.0100		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
2	146.0000	146.0000		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
18	145.6000	145.6000		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
20	145.6250	145.6250		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
21	145.6100	145.6100		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
22	145.6150	145.6150		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
23	145.6200	145.6200		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
24	145.6250	145.6250		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
25	145.6300	145.6300		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
26	145.6350	145.6350		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
27	145.6400	145.6400		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
28	145.6450	145.6450		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
29	145.6500	145.6500		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
30	145.6550	145.6550		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	
31	145.6600	145.6600		Simplex	FM	None	88.5 Hz	88.5 Hz	Off	

Notice at the top of the page you can see that you have "X of X pages". Making small changes can help reduce this number if it is not as you expect.

For example, reduce the size of the Comment column since it is not being used (or hide it completely). This move could save an additional page (or pages) by getting all the columns to fit on one page.



Under Printer setup, change the margins to print on as much of each page of paper as possible. Again, this can make it possible for all the columns to fit on one (or half the number of) page.

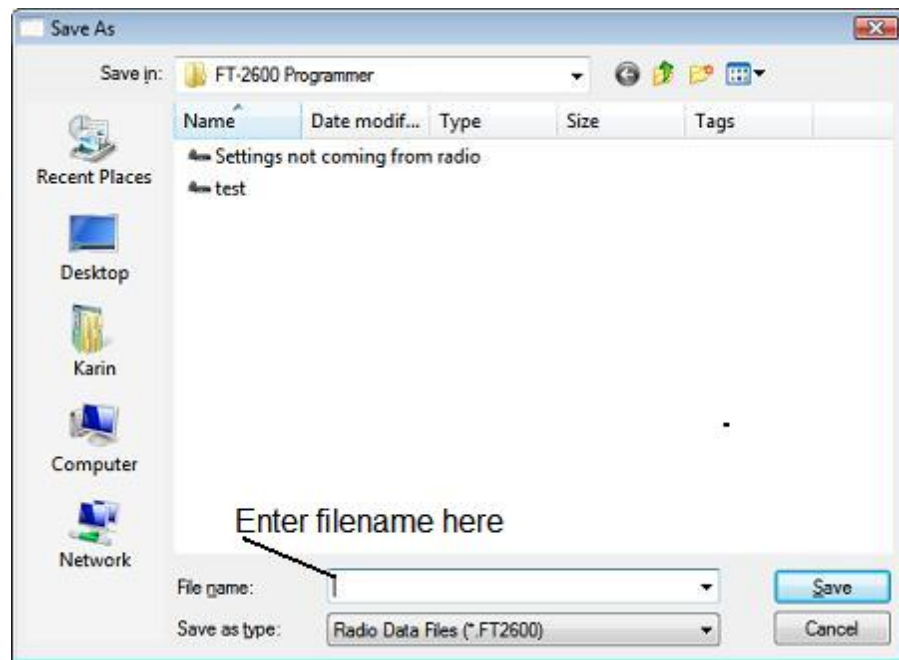
Use Zoom to read the data in the preview more easily. Click Zoom again to return to this view.



## 16.6 Saving Programming Files

Many different files can be saved to your hard drive for permanent storage giving you the ability to reprogram your radio quickly and easily to suit your current use.

- Files are saved using the [File | Save](#) or [File | Save As](#) command.
- When the window opens for the filename, enter any name up to 256 characters (including spaces) but without a period at the end or an extension. The Programmer will enter that information for you automatically.



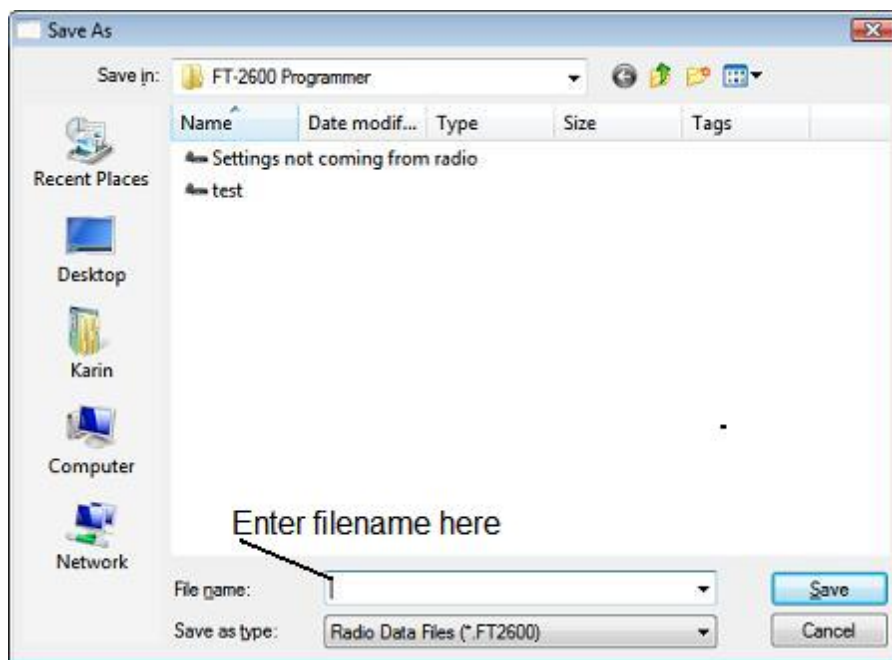
## 16.6.1 File | Save

Saves the current file to your computer hard drive.

If several files are open, the current file (the one on top: the one you are working in) is the one that will be saved. Be sure to save the changes to each of the open files before closing the Programmer.

It is recommended that you save the current file during data input and before sending it to the radio. Just as with a word processor, it's an awful shame to lose everything if something happens to the computer during either of these processes.

If the name of the current file is Untitled (in the main window title bar), you will be presented with a save file dialog and should enter a new filename.



The filename can be any combination of characters and spaces including numbers and letters.

When saving a file, let the Programmer do the work. All you need to enter is the name you want for the file.

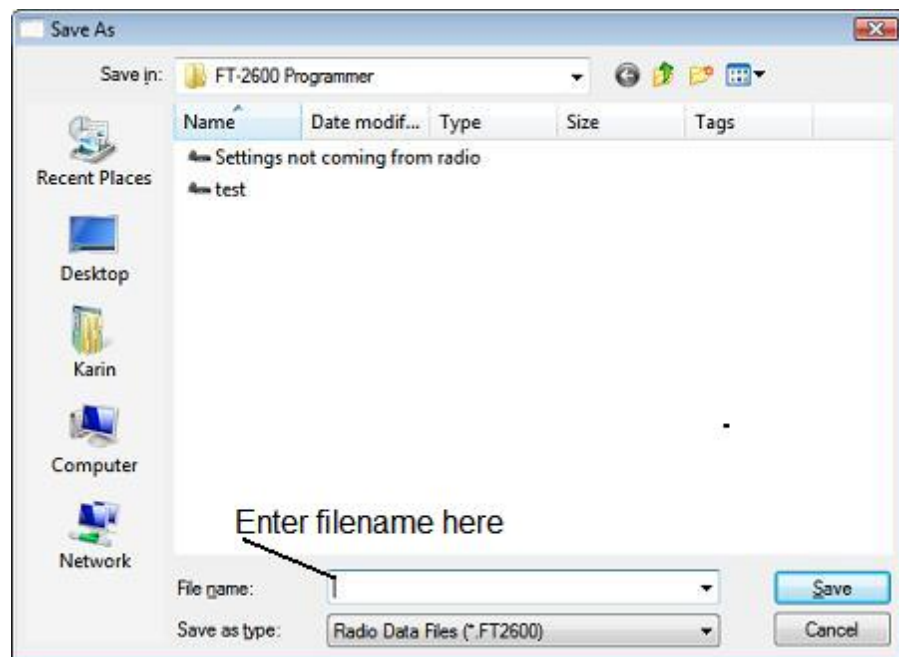




## 16.6.2 File | Save As

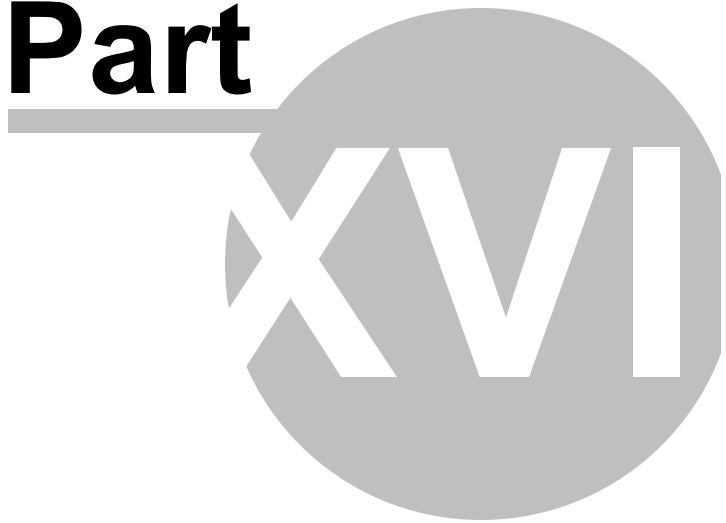
Saves the current file under a new name. Used if you want to make a copy of the file that you're working in to maintain the original without the changes you're making now.

- If several files are open, the one that is active is the current file. This file will be saved with the Save As command.
- This is a good way to start another file for editing. Changes made to this file do not affect the data in the original file.
- When this command is selected, a save file dialog containing a list of existing files is presented. You can either select one of these to be overwritten or enter a new filename. The Programmer will add the extension so you should not enter an extension or a period at the end of the filename.



- The title bar of the window changes to reflect the new filename.
- When saving a file, let the Programmer do the work. All you need to enter is the name you want for the file.

**Part**



## 17 Copying From an Excel Spreadsheet

The Programmer can handle information copied from an Excel spreadsheet.

Although this process is valid for transferring data between these programs, it is not recommended for original file creation. It can be tedious getting all the information into the original Excel file that you are copying from. For example, why struggle to find information for the offset frequency and offset direction for your Excel list when the Programmer will complete this information automatically when frequencies are entered there.

Limitations for use of another commercial spreadsheet program include:

- The spreadsheet program will know none of the limitations of the radio. It will allow you to enter any value in any space. You will have to enter transmit and receive frequencies, CTCSS tones, and DCS codes carefully to be sure they are imported correctly to the radio.
- You will need to organize your data carefully. The Programmer will import all the items from a single column as the same thing. This can cause an odd split to be entered as Simplex or a non-standard offset to be ignored if non-similar data is listed in the same column.

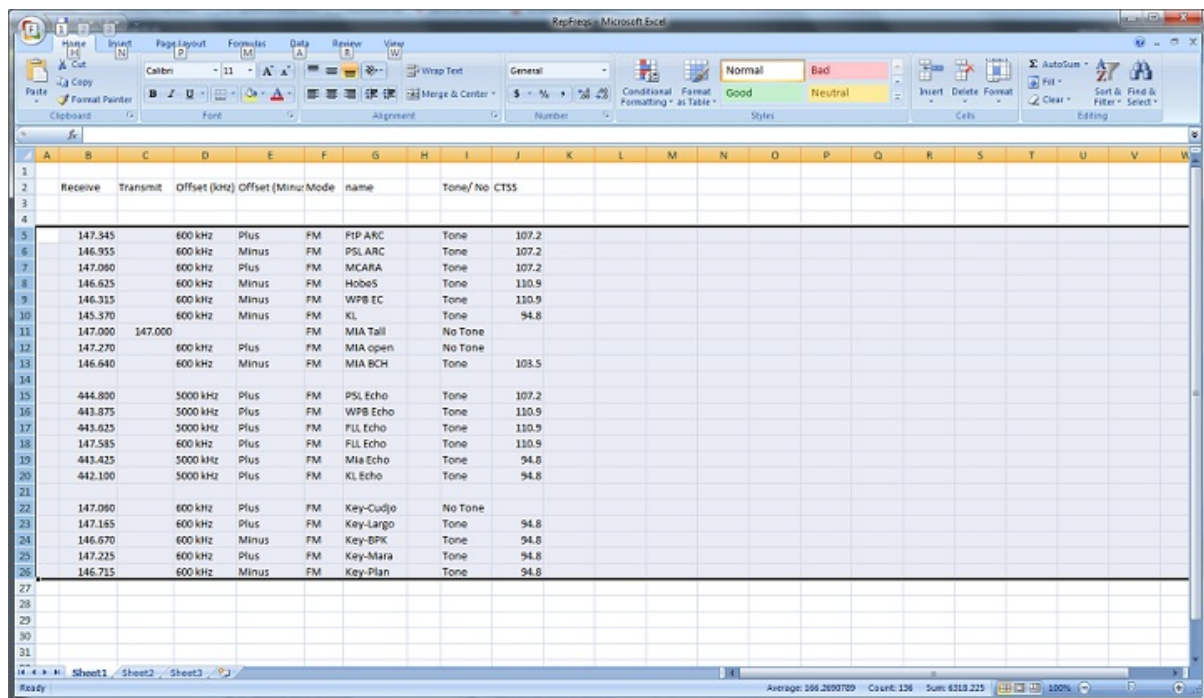
Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.

## 17.1 Step 1

The Programmer makes no assumptions about the information being handed to it from the Excel file. You need to be familiar with the data in the file to the point you can identify that data to the Programmer during the copy process.

### Step 1

Open the Excel file. Select and copy the information you want to put into the Programmer.



The screenshot shows a Microsoft Excel spreadsheet with the following data:

	Receive	Transmit	Offset (kHz)	Offset (Minus)	Mode	name	Tone/No	CTSS
5	147.945		600 kHz	Plus	FM	PIP ARC	Tone	107.2
6	146.955		600 kHz	Minus	FM	PSL ARC	Tone	107.2
7	147.060		600 kHz	Plus	FM	MCARA	Tone	107.2
8	146.825		600 kHz	Minus	FM	Hobes	Tone	110.9
9	146.315		600 kHz	Minus	FM	WPB EC	Tone	110.9
10	145.570		600 kHz	Minus	FM	KL	Tone	94.8
11	147.000	147.000			FM	MIA Tall	No Tone	
12	147.270		600 kHz	Plus	FM	MIA open	No Tone	
13	146.640		600 kHz	Minus	FM	MIA BCH	Tone	103.5
15	444.800		5000 kHz	Plus	FM	PSL Echo	Tone	107.2
16	443.875		5000 kHz	Plus	FM	WPB Echo	Tone	110.9
17	443.825		5000 kHz	Plus	FM	FLL Echo	Tone	110.9
18	147.585		600 kHz	Plus	FM	FLL Echo	Tone	110.9
19	443.425		5000 kHz	Plus	FM	Mia Echo	Tone	94.8
20	442.100		5000 kHz	Plus	FM	KL Echo	Tone	94.8
22	147.060		600 kHz	Plus	FM	Key-Cudjo	No Tone	
23	147.155		600 kHz	Plus	FM	Key-Largo	Tone	94.8
24	146.970		600 kHz	Minus	FM	Key-BPK	Tone	94.8
25	147.225		600 kHz	Plus	FM	Key-Mara	Tone	94.8
26	146.715		600 kHz	Minus	FM	Key-Plan	Tone	94.8

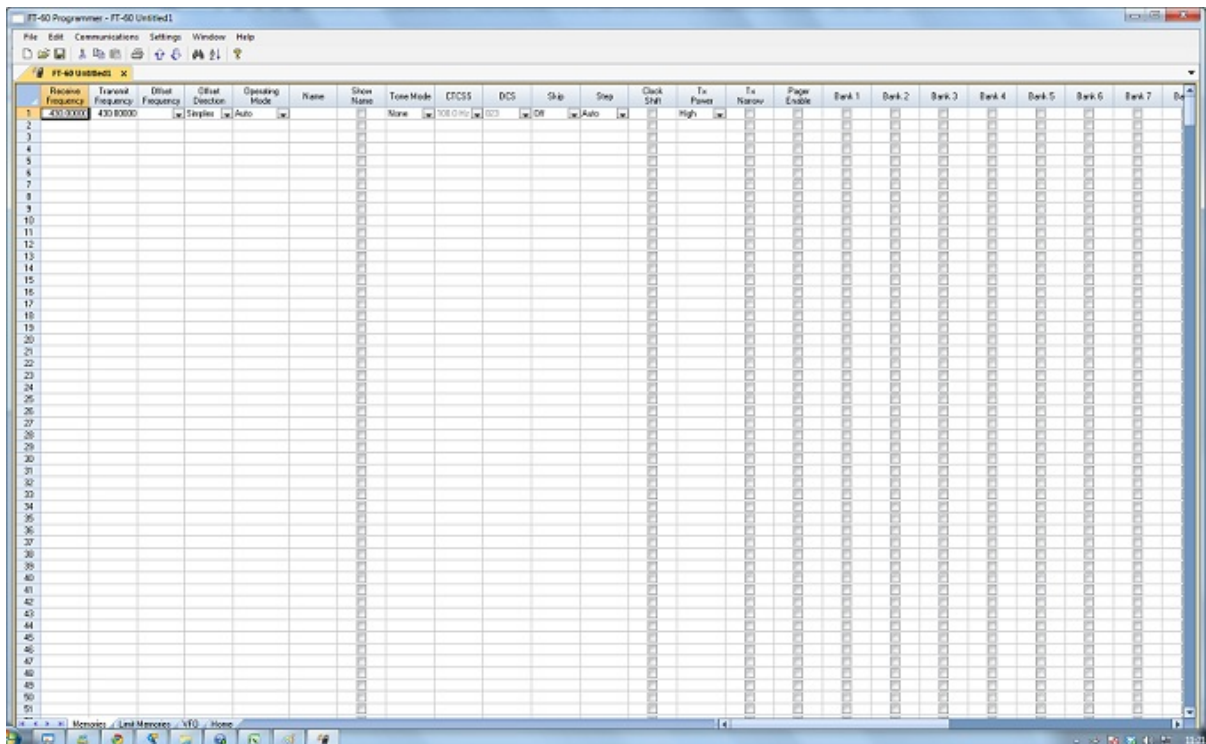


## 17.2 Step 2

Open the Programmer to which the data is to be pasted.

It is recommend that you import into a new file to prevent loss of data from an existing file. Channel information can be copied to an existing file, and put exactly where you want it, after the process of copying from Excel is complete.

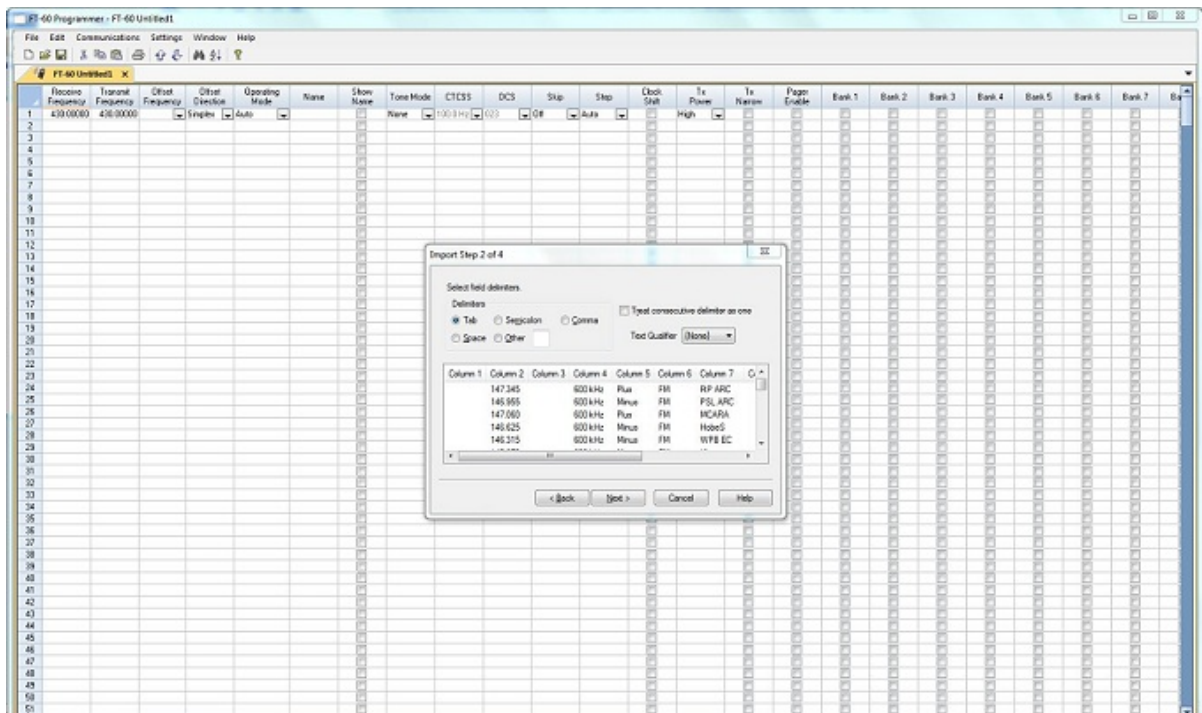
**Note: The FT-60 is used here as an example. The process works the same for any RT Systems Programmer (Version 4 or higher). Column names shown in the screen shots of this example may differ or not be available for your particular radio.**



## 17.3 Step 3

Paste: Press Ctrl V or right click and select Paste or select Edit then Paste from the menu at the top of the screen.

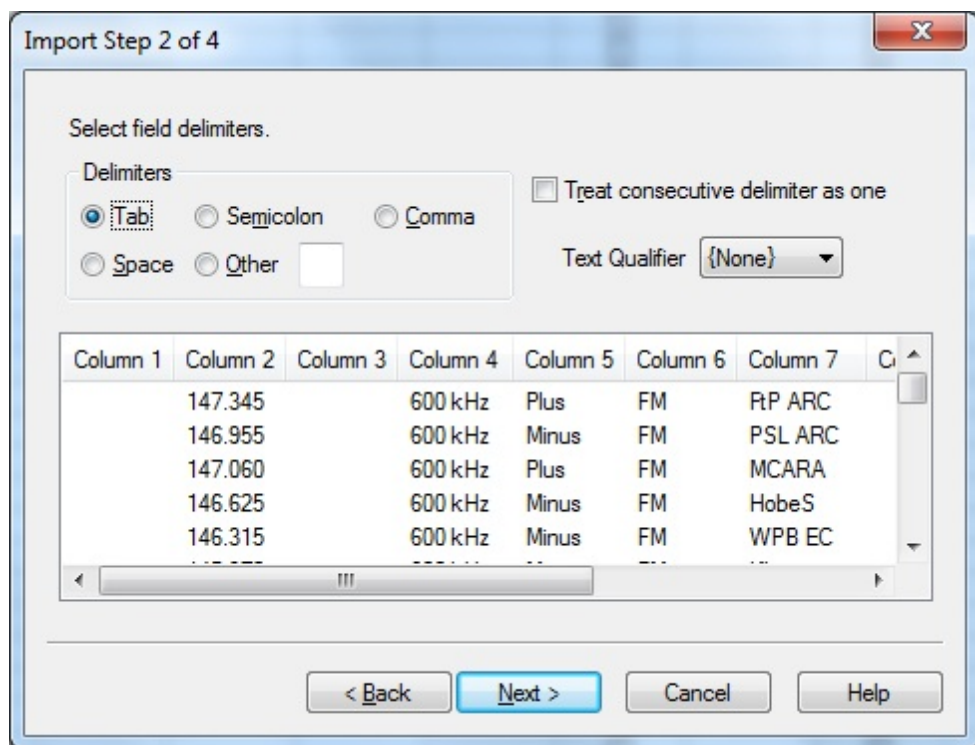
A window opens to complete the process.



## 17.4 Step 4

On this screen, you may need to use the Text Qualifier to remove quotes from your data.

The data should appear as it does in this image: without quotes and separated into columns.



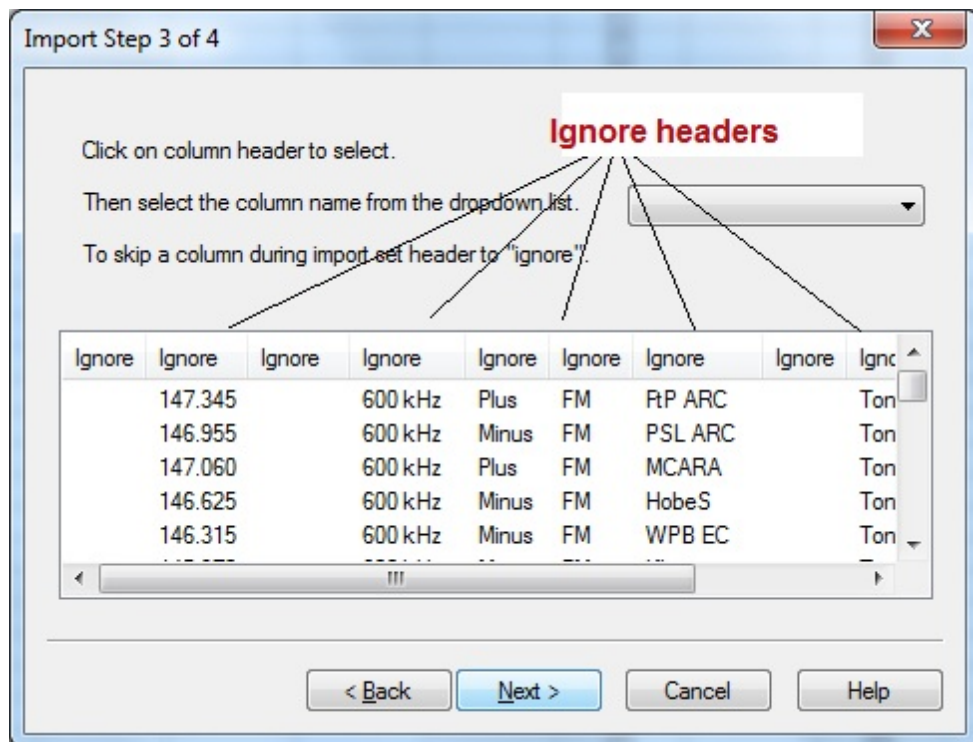
Click Next to continue.

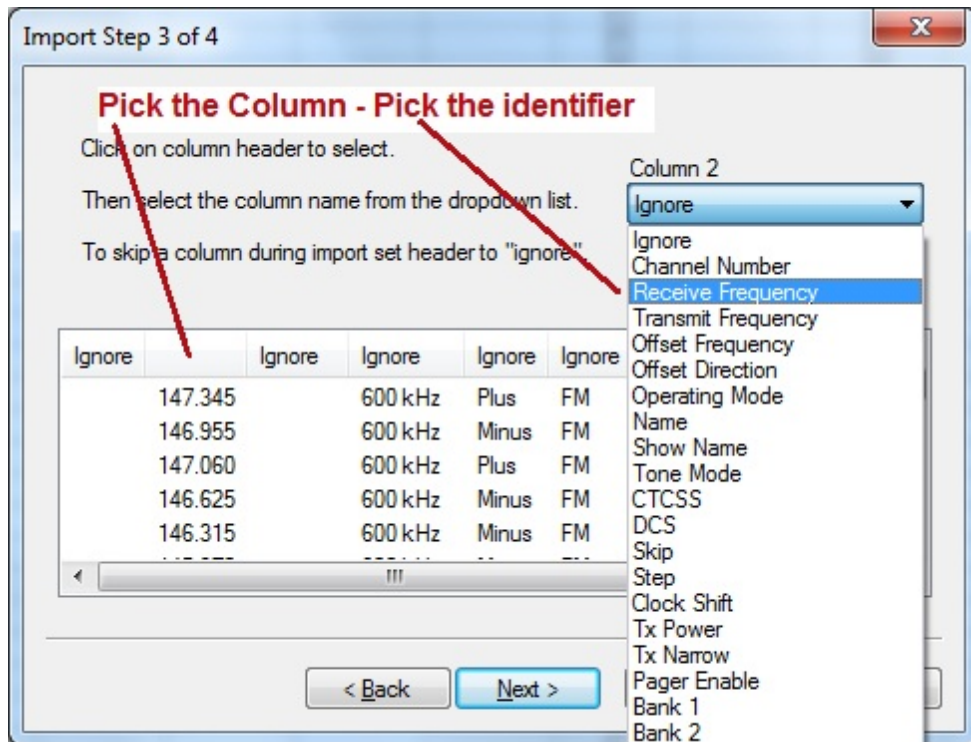


## 17.5 Step 5

In this step of the process, you identify the information in your spreadsheet for the Programmer. The Programmer attempts to identify the columns based on the headers that you have for the columns in your original file.

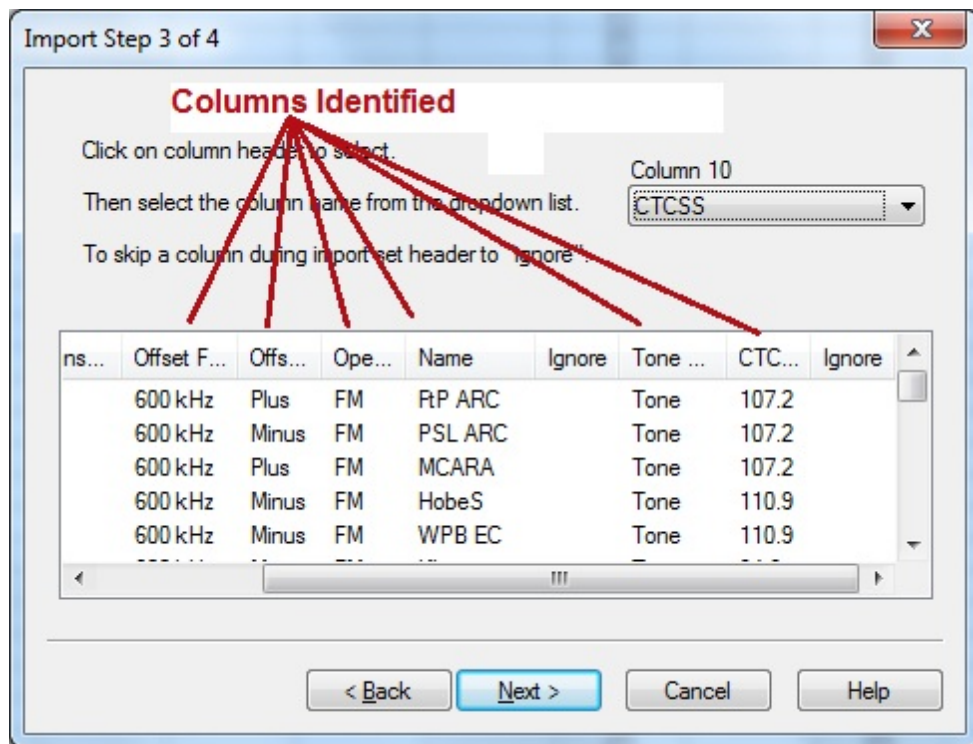
The Programmer makes no assumptions and will set any non-matched column to "Ignore". The data in an ignored column will not be used in this process.





The column header changes to show your selection. Be sure to identify each of the columns you want used. The data in an "ignored" column will be set to defaults in the resulting file. Your specifics will not be used (the information will be ignored).

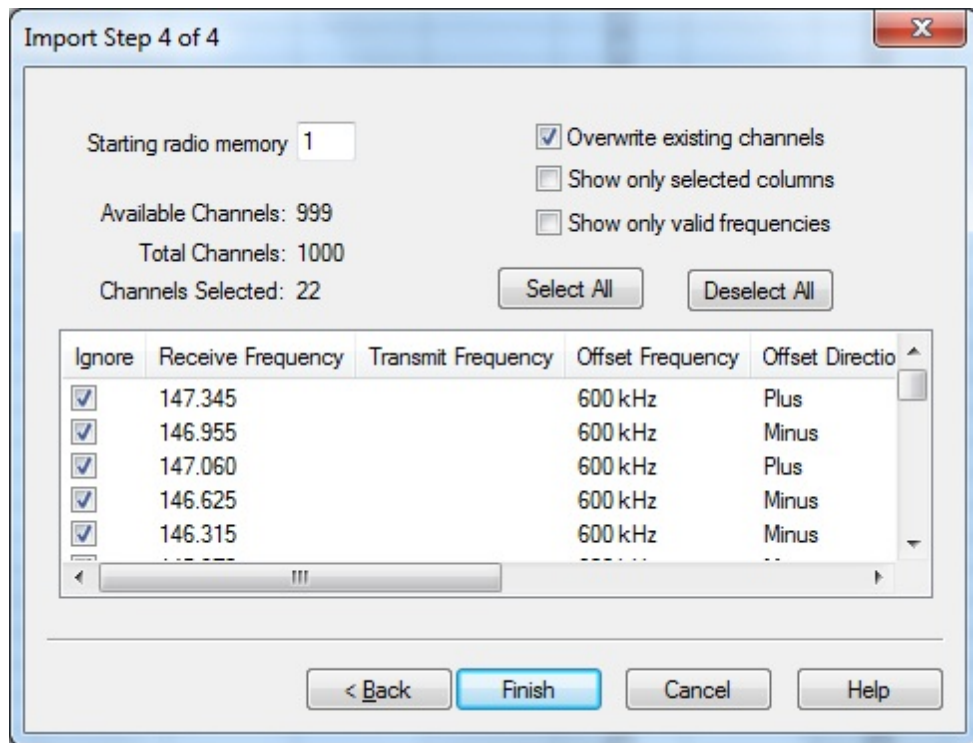
You **ONLY** need Receive frequency to import. The Programmer will set everything else for the channel to defaults which means you will lose other important information (names, tones, etc.) if you don't take the time to tell the Programmer that this information is available in the file.



Click Next to continue.

## 17.6 Step 6

Complete the options on the final screen and click Finish.



The resulting file contains the data just as it was in the Excel spreadsheet.

The screenshot displays the FT-40 Programmer software window. The main area is a spreadsheet with columns for various radio parameters. The data is organized into rows, each representing a different radio channel. The columns include:

- Row:** Channel number (1-20).
- Receive Frequency:** Frequency in MHz (e.g., 142.3100).
- Transmit Frequency:** Frequency in MHz (e.g., 147.5400).
- Offset Frequency:** Offset in MHz (e.g., 500).
- Offset Direction:** Plus or Minus.
- Operating Mode:** FM, FT2A, etc.
- Name:** Name of the channel (e.g., FT2A).
- Show Name:** Checkmark.
- Tone Mode:** Tone, None, etc.
- CCSS:** Checkmark.
- DCS:** Checkmark.
- Skp:** Checkmark.
- Step:** Auto.
- Click S/H:** Checkmark.
- Tx Power:** High.
- Tx Narrow:** Checkmark.
- Page Enable:** Checkmark.
- Bank 1-7:** Checkmarks.

The first 20 rows of data are as follows:

Row	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Show Name	Tone Mode	CCSS	DCS	Skp	Step	Click S/H	Tx Power	Tx Narrow	Page Enable	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7
1	142.3100	147.5400	500 MHz	Plus	FM	FT2A	<input checked="" type="checkbox"/>	Tone	107.2 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	142.3200	147.5500	500 MHz	Minus	FM	P2L AR	<input checked="" type="checkbox"/>	Tone	50.2 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	147.9000	147.6500	500 MHz	Plus	FM	HGSA	<input checked="" type="checkbox"/>	Tone	107.2 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	146.6200	146.8200	500 MHz	Minus	FM	NOSES	<input checked="" type="checkbox"/>	Tone	118.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	146.3700	146.3100	500 MHz	Minus	FM	WVPC EC	<input checked="" type="checkbox"/>	Tone	118.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	146.3700	144.7700	500 MHz	Minus	FM	P.L.	<input checked="" type="checkbox"/>	Tone	34.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	147.9000	147.8000	500 MHz	Minus	FM	MA TA	<input checked="" type="checkbox"/>	None	108.0 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	147.2700	147.8700	500 MHz	Plus	FM	MA OP	<input checked="" type="checkbox"/>	None	108.0 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	146.8400	146.8400	500 MHz	Minus	FM	MA EC	<input checked="" type="checkbox"/>	Tone	500.5 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	440.9000	440.9000	5.08 MHz	Plus	FM	P2L EC	<input checked="" type="checkbox"/>	Tone	107.2 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11	440.8700	440.8700	5.08 MHz	Plus	FM	WVPC EC	<input checked="" type="checkbox"/>	Tone	118.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12	440.6200	440.6200	5.08 MHz	Plus	FM	P2L EC	<input checked="" type="checkbox"/>	Tone	118.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
13	147.5800	147.5800	500 MHz	Plus	FM	P2L EC	<input checked="" type="checkbox"/>	Tone	118.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
14	440.6200	440.4200	5.08 MHz	Plus	FM	MA EC	<input checked="" type="checkbox"/>	Tone	34.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
15	440.1000	440.1000	5.08 MHz	Plus	FM	P2L EC	<input checked="" type="checkbox"/>	Tone	34.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
16	147.9000	147.8500	500 MHz	Plus	FM	KEY-DJ	<input checked="" type="checkbox"/>	None	108.0 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17	147.1600	147.7600	500 MHz	Plus	FM	KEY-LA	<input checked="" type="checkbox"/>	Tone	34.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
18	146.6700	146.8700	500 MHz	Minus	FM	KEY-EP	<input checked="" type="checkbox"/>	Tone	34.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
19	147.2200	147.8200	500 MHz	Plus	FM	KEY-MA	<input checked="" type="checkbox"/>	Tone	34.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
20	146.7500	146.7500	500 MHz	Minus	FM	KEY-PL	<input checked="" type="checkbox"/>	Tone	34.9 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>	High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Part**



## 18 Importing a file

The Programmer can Import data from delimited text files. These files can be created using the Export feature of the Programmer for another radio, Travel Plus for Repeaters by ARRL, commercial spreadsheet programs, or text editors.

Limitations for use of another commercial spreadsheet program include:

- The spreadsheet program will know none of the limitations of the radio. It will allow you to enter any value in any space. You will have to enter transmit and receive frequencies, CTCSS tones, and DCS codes carefully to be sure they are imported correctly to the radio.
- You will need to organize your data carefully. The Programmer will import all the items from a single column as the same thing. This can cause an odd split to be entered as Simplex or a non-standard offset to be ignored.

The easiest way to begin a text file for your Programmer is to Export a file from the Programmer first. In that exported file, you will see column headers for the details that the Programmer expects to import. You will also see the format of the information. You can edit or add to this file with any commercial spreadsheet program or text editor.

***Note: The new features of the Programmer include the ability to enter a series of channels by entering just a beginning frequency and the number to be entered, column editing, copy and paste of one or multiple rows of data, rearrangement of columns, hiding columns that need not be edited, and automatic completion of data based on band defaults for a frequency entered. Given that the Programmer is designed for the data of the radio, you might find editing in the Programmer easier than using another spreadsheet program.***

The file to be imported must contain, at a minimum, Receive frequency to define a valid memory channel. The Programmer will fill the rest of the details for that channel with defaults just as if that frequency had been entered.

The Programmer makes no assumptions about the information available. If a piece of information is omitted, the Programmer imports the memory as a simplex channel and fills other fields with defaults.

Although this process is very valid for transferring data from one radio Programmer to another and for using the data from other sources such as ARRL Travel Plus, it is not recommended for original file creation. It can be tedious getting all the information into the file to be imported just like the Programmer wants it. Let the Programmer help you

as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.



## 18.1 Creating a file for Import

### Checking a file to use with the Programmer

If you are given a file that you want to import into a Programmer for use by your radio and are not sure if it is a "flat file", test the file by opening it with Windows Notepad.

If the Notepad display is full of strange characters with very little legible text, this file is not ready to be imported by the Programmer. The file may or may not be able to be used for import depending on how it was created and saved.

Try opening the file in Microsoft Excel or other commercial spreadsheet program. If everything looks good there carefully save the file in as delimited text (this could be called several different things in the program that you are using. If the first one you try does not produce the file format that you want, try selecting a different File Type during the save process. The details for this process are included below for Microsoft Excel.

Open the file that you created during the save process in Notepad. As before, if the display is legible data separated by commas you are well on your way. If, however, the data appears in one very long line, you should return to the original source to extract the data with line feed breaks at the end of each record.

If the Notepad display has orderly lines of legible data separated by commas, it is ready for use by the Programmer. It is fine if you see two commas right together. The process can handle a blank field.

### Saving an Excel file for import

If you work on a file in Excel for import to the Programmer, that file must be saved as a comma delimited file before you leave Excel. The Programmer cannot import an Excel file with all its formatting codes. What it can work with is the "flat file" output of that file.

- In Excel, select File | Save as.
- In the Save As window change the Save as Type to CSV (comma delimited) \*.csv
- Enter a file name for the output file. Pay attention to the drive and directory to which the file is being saved. You will need to be able to find the file later for use during import.

- Excel will raise a warning(s) about worksheets and formatting that will be lost if the file is saved in this format. Answer to the affirmative (OK or Yes) to the message(s); eliminating the formatting is exactly what you want.
- When you exit Excel, you will be asked again if you want to save the \*.csv file. If you have made no changes since you last saved, answer No. If you have made changes, answer Yes and proceed through the warnings again to save the file again.

### **Limitations for use of another commercial spreadsheet program include:**

- The spreadsheet program will know none of the limitations of the radio. It will allow you to enter any value in any space. You will have to enter transmit and receive frequencies, CTCSS tones, and DCS codes carefully to be sure they are imported correctly to the radio.
- You will need to organize your data carefully. The Programmer will import all the items from a single column as the same thing. This can cause an odd split to be entered as Simplex or a non-standard offset to be ignored if the data is not in a column labeled correctly or is mixed in with dissimilar data.

## **The Import File**

The Import function is designed to assimilate some if not all of the following pieces of information for use by the Programmer. As radio features vary, so will the information to be imported (i.e., frequency ranges, the way offsets are handled, special options such as mask, clock shift, etc.)

The very best way to begin an Import file is to export a file from the Programmer. That will give you the headers for the columns that the Programmer expects and formatting for the data in each.

Remember, you need only Receive frequency to import a file. All other details will be set to defaults for the field during the import process. As with all computer functions, the more information you can give it and the more accurate that information, the easier the process and the more accurate the results.

**Channel Number:** If your file has channel numbers and you opt to use this column during import, your resulting file might not be what you expect.

- If the "Overwrite existing channels" option is checked: The information will be inserted into the specific channel no matter what is in the file at that location now . While the channel numbers can help to organize the information being imported, it can result in data being overwritten in the process.
- If the "Overwrite existing channels" option is unchecked: The information from the file being imported will be skipped if there is already information in the channel. The data in the existing radio file will not be overwritten.

***It is always recommended that you import into a new file to prevent data loss in an existing radio file. Once the information is in the Programmer file, it can be copied into an existing file. With the copy process, you have more control of where the data is inserted into the file.***

**Receive Frequency:** The very least a file must have to be imported is the receive frequency. This may be called the "output frequency" depending on whether you're referring to the radio or the repeater. If the column header is "Receive Frequency", the import process will recognize this label and identify the information automatically.

- Acceptable receive frequencies are detailed in the User's Manual for the radio. In the text file, the frequency should be entered in the format "MHz decimal kHz" (i.e., 146.450) with up to five digits following the decimal.
- Although unacceptable frequencies can be entered into the text file, they will not be imported into the Programmer. They will result in a blank memory channel when import is completed.

**Transmit Frequency:** Enter a specific transmit frequency in the format "MHz decimal kHz" (i.e., 146.450) with up to five digits following the decimal.

***This information can be omitted from the file.***

- If you are importing repeater information where all the repeaters have standard offsets (none operates on an "odd" split) the import process will calculate the Transmit Frequency from other information in the file.

***This information must be included in a separate column for an "odd split".***

- The column can be empty other than the specific information for those few "odd split" repeaters. The import process will calculate the Transmit Frequency from other information in the file for the other channels.
- Acceptable transmit frequencies are detailed in the manual for your radio.

***Note: In the Programmer you can enter details for frequencies outside the transmission abilities of the radio; however, the software will not enable transmission on these frequencies. Transmission will be possible only if the radio has been properly modified.***

**Offset Frequency:** This is the amount that the Receive Frequency changes to produce the Transmit Frequency. Standard offsets in the Programmer include 100, 500, and 600 kHz (0.1, 0.5 and 0.6 MHz) and 1.0, 1.6, 3.0, 5.0, and 7.6 MHz.

- In Yaesu radios any value in 50 kHz increments can be used as an offset (i.e., .650, .550, .050).
- In an Icom radio, there are no Splits. Everything must be entered with an exact Offset Frequency.
- The Offset Frequency is used by the radio along with the Offset Direction to calculate the Transmit Frequency. The Programmer does the same.
- This is one place that the import process will make an assumption for you. It uses 600 kHz for the offset for VHF and 5 MHz for the offset for UHF if no other offset is specified.

### **Non-Standard Offsets**

The Offset Frequency can be used in conjunction with Offset Direction for a value in 5 kHz steps (i.e., any value ending in .xx5 where x is any digit from 0 to 9). This gives you the ability to use the Reverse function of the radio although your frequency pair is not separated by a standard offset value. This is considered a non-standard offset.

To use a non-standard offset in your text file enter the Receive Frequency. Then enter the Offset Frequency as an exact value including the decimal to denote kHz. For example, given the pair 146.650 and 147.300, the Offset Frequency entered would be .650 (decimal six five zero). The Offset Direction is Plus or Minus. With these three pieces of information, the import process will setup this memory channel correctly for use by the radio with the most functionality.

**Note:** You may see this import with one of the standard Offset Frequencies; however, once the file is saved, closed and reopened, the Plus or Minus and the Offset Frequency value as entered will appear.

**Offset Direction:** The Offset Direction lets the Import process know whether to add (plus) or subtract (minus) the Offset Frequency from the Receive Frequency when calculating the Transmit Frequency for the memory channel.

Enter Plus, Minus, + or - for the process to recognize the command.

**Note:** Be sure to use Offset Direction if your file contains + and &ndash; in this column. Using Offset Frequency for this column will result in all channels being imported as simplex.

**Operating Mode:** Enter FM, AM, or WFM as appropriate for the frequency.

**Name:** Enter an Alpha/Numeric tag (up to 8 characters) for the memory channel to provide an easy reminder of the function of a particular frequency. Not all radios have this available for each memory channel. Consult your Users' Manual for details.

**Tone Mode:** Use of the tone systems of the radio allows for silent monitoring until a call is received with a corresponding tone. Tone mode also allows access to repeaters that are made private with a PL tone. Most radios offer CTCSS (Continuous Tone Coded Squelch System) or DCS (Digital Coded Squelch) to be tailored to your particular needs. Consult your Users' Manual for details specific to your model.

Use of either of the tone systems requires two steps. Your import file will handle these steps in THREE (3) columns.

- Step 1: Turning on Tone Mode

There are now so many different tone modes and combinations of them, we recommend that you use the designation just as it appears in the Programmer for your radio to identify the Tone Mode to be used. Examples would include but not be limited to:

- None - Tone mode off
- Tone - Encode
- T Sql - Encode/Decode
- DCS - DCS Tone

- Others specific to your radio as detailed in the Tone Mode column of the Programmer.
- Step 2: Setting the tone frequency (CTCSS) or selecting the code for the tone (DCS).

**Note:** *The CTCSS tone frequencies and the DCS tone codes should be stored in TWO separate columns in your file to be imported. The import process does not separate. It will ignore incorrect values leaving the tone set incorrectly for the channel.*

- **CTCSS Tone:** Enter one of the 50 tone frequencies in the format MHz decimal kHz with only one digit to the right of the decimal.

This value must be entered exactly as shown in the chart in the Users Manual. A value that is not in the table will result in an incorrect tone value setting in the resulting Programming file.

This value is set independently for each memory channel.

- **DCS Code:** Enter one of the 104 codes in a three digit format (This will appear as two digits if your editor does not show leading zeroes. Two digits are acceptable when the third is a leading zero).

This value must be entered exactly as shown in the chart in the User's Manual.

A value that is not in the table will result in an incorrect tone value setting.

This value can be set independently for each memory channel that uses a DCS tone.

**Skip:** Marks selected memory channel to be *skipped during scanning*. This field should contain one of the following:

Scan, 0, or Stop to include the channel to be scanned.

Skip or 1 to mark the channel to be skipped.

PScan or 2 to mark the channel as Preferential Scan.

**Step:** The frequency being used by the radio changes by the value of the step when tuning manually. This value is used by the radio in Memory Tune mode. This value is

not critical in memory mode since the original memory channel frequency can be retrieved by exiting Memory Tune mode.

Enter 5/10/12.5/15/20/25/50 or 100 as needed.

**Clock Shift:** Shifts the internal reference frequency slightly to eliminate "birdies" that interfere on other channels.

Enter On or 1 / Off or 0

**Tx Power:** The output power can be set individually for each memory channel to address the exact needs of each operation.

Enter High / Med / Low

**Half Deviation:** Enter On or Off as needed for the channel.

**Comments:** Enter an identifying comment up to 80 characters.

You can see by the details here that creating a file for import can be a tedious process. Although this process is very valid for transferring data from one radio Programmer to another and for using the data from other sources such as ARRL Travel Plus, it is not recommended for original file creation.

Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.

The comma-delimited file can contain this information in any order. It must contain only the Receive frequency to be a valid memory channel. The Programmer makes no assumptions about the information available. If a piece of information is omitted, the Programmer imports the memory as a simplex channel and fills other fields with defaults.

This data can be entered in any order. You will identify the specifics to the Programmer during the Import process. If you find after several entries that you need another column for additional information, simply add it at the end. The Programmer will correct the order when it imports.

Save the data in your file often to prevent loss. Be sure to save the file as text with delimiters (separators) rather than as a worksheet of the program in which you are working. The Programmer cannot use a worksheet created by the other program.

To save as a text file, select File | Save (in the spreadsheet program). In the Save file window, select a different file type from the selection at the bottom of the screen. Acceptable formats are those that specify Text (i.e., .csv, or .txt file extension).

Exit the spreadsheet program. Your file is ready to be imported into the Programmer. Changes can be made within the Programmer after you import the data.



## 18.2 Import - Step 1

In the Programmer, select File | New.

It is always best to import to an "Untitled" or new file. The new file is used as a temporary stopping point for the data. This way, if the results are not quite as you expected, you simply close the file without saving and begin again... in another new file.

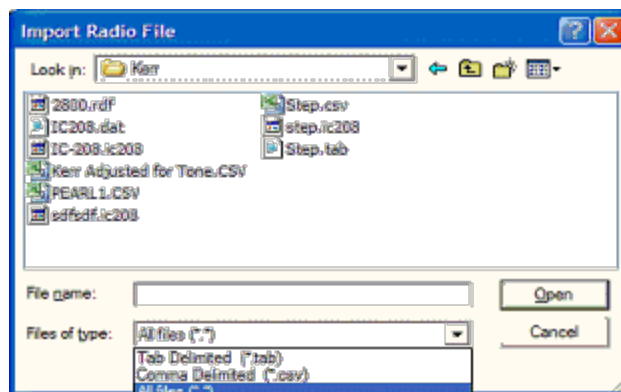
Working in a new file eliminates the possibility that existing data will be overwritten and lost during the import process. From there use the tools available in the Programmer (copy and paste, column editing, sort and unsort, etc) to get the data just as you want it.

If you want the data to be a part of an existing file, use copy and paste to move it from the new file to exactly where you want it in the existing file.

## Importing

In the Programmer select File | Import.

From the Import Radio File dialog that opens, select the file to be opened.

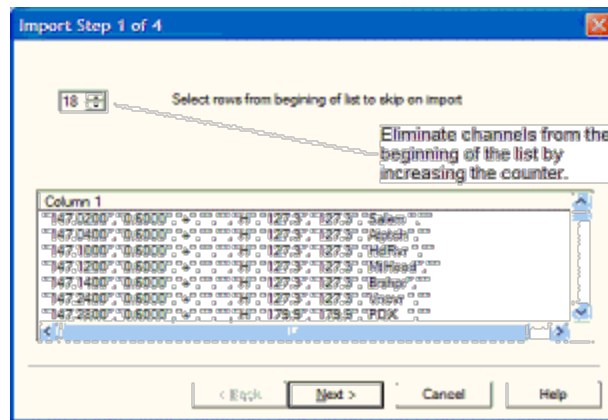


This screen gives you the ability to find and open the file to be imported.

- Use "Look in:" at the top to change directories as needed.
- Use "File of type:" at the bottom to show other files in the directory you selected. Since the most common file types are \*.csv and \*.tab you may need to change types for your file to appear.

- Once your file is highlighted, select Open to proceed.

### Import Step 1 of 4: Identify one or more of the first rows of data to be omitted



This screen was used originally to omit headers, columns without data, from the import. This is no longer necessary.

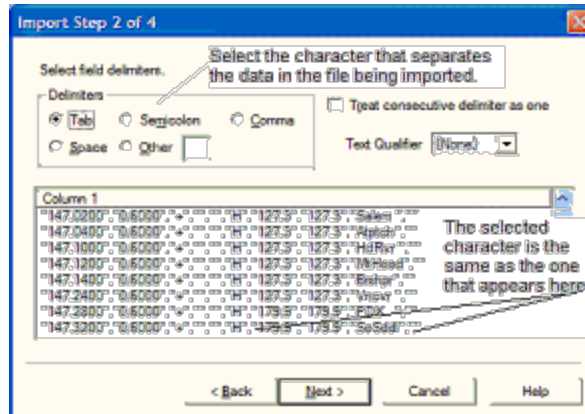
***Actually, it is recommended that you leave the headers to help you more easily identify the information in a later step.***

This step remains useful for eliminating a number of memory channels from the import process, for example, if your file contains more channels than are allowed by the radio. You could eliminate multiple channels here rather than later in the import process.

Click [Next](#) to continue.

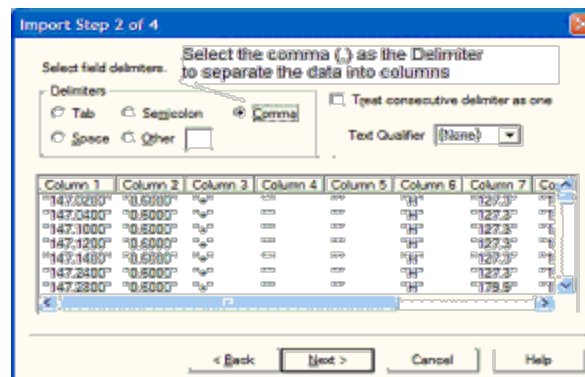
### 18.3 Import - Step 2

**Import Step 2 of 4: Identify the delimiters (separators) used in your file.**



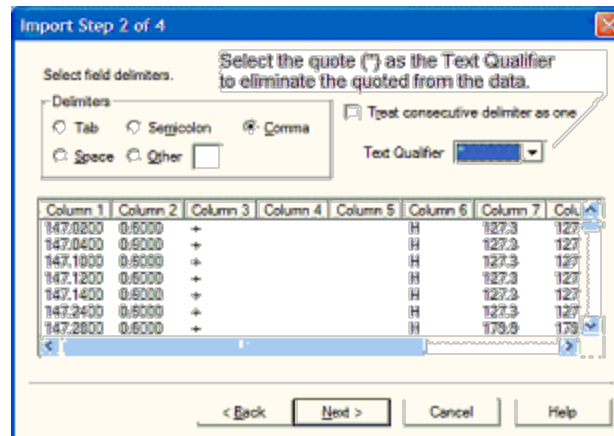
The data in the file to be imported is separated by tabs, semicolons, commas, space or other non-text characters. Select from the list at the top of the screen or enter the one you used.

Once you select the correct delimiter, the data will properly separate into columns.



Examine the data to be sure that it is ready for the Programmer to process. Look at the data in the window. Select the proper Text Qualifier if you have single or double quotes within a data field. With quotes present, the import process will handle all the data

incorrectly resulting in a blank file. Once selected, the quotes are removed and the data appears as shown.

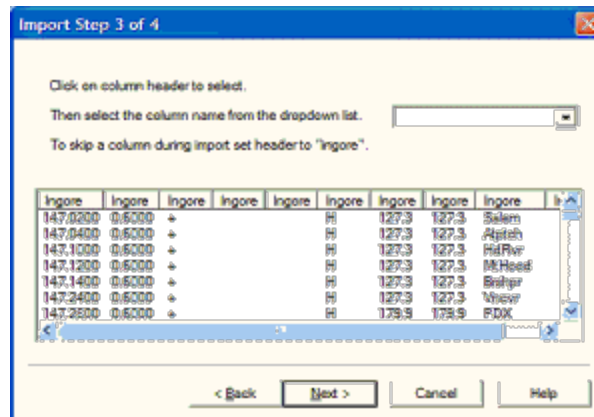


Click [Next](#) to continue.

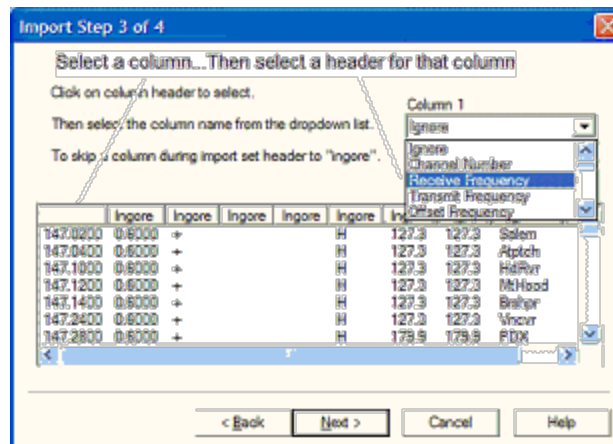
## 18.4 Import - Step 3

### Import Step 3 of 4: Identify the data to the Programmer

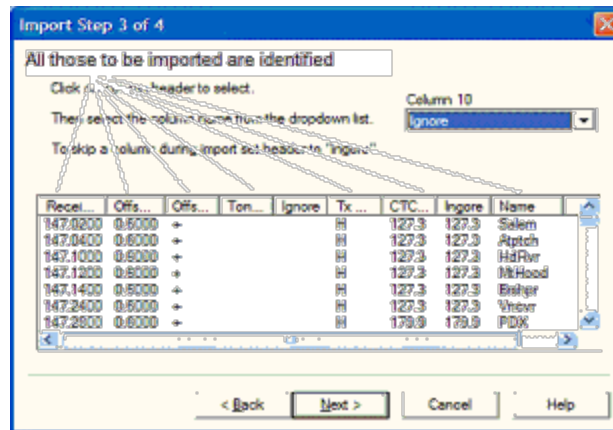
The Programmer will make an attempt to identify the information in your file. In this step of the process, you can make corrections to the assignments the Programmer has made and identify other columns that you want imported.



For the columns to be imported, select the header of the column (the little grey box just above the column) then select the proper identifier from the drop down list at the top of the screen



You need to identify only those columns to be imported.

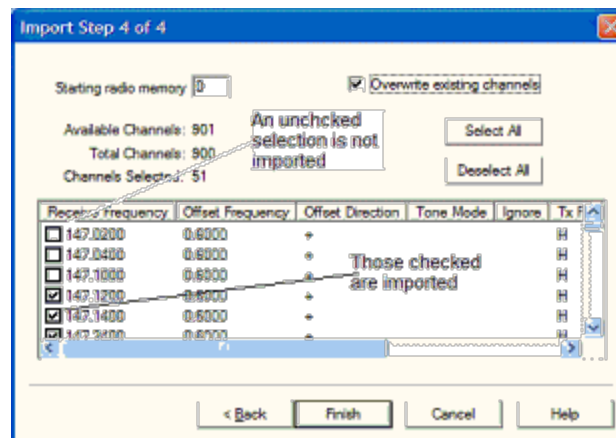


Click [Next](#) to continue.

## 18.5 Import - Step 4

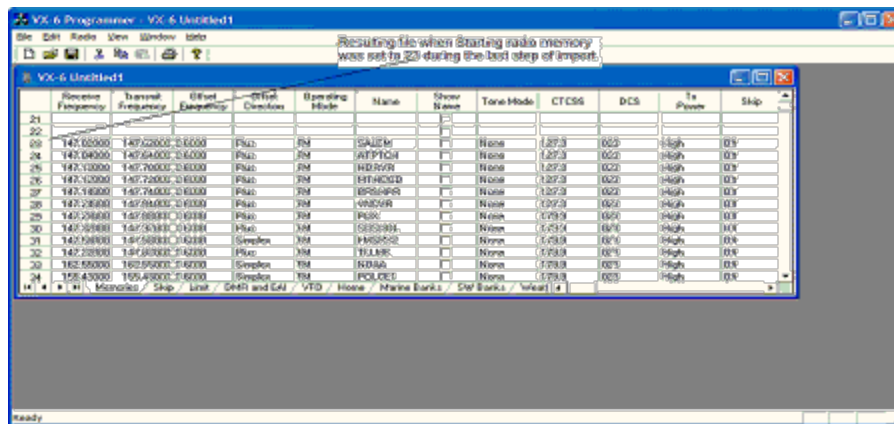
### Import Step 4 of 4: Limit the channels that are imported by the Programmer

Again, you can make adjustments to the data to be imported without having to edit the original file. Select all or any part of the list by checking the box at the left of the screen.



Since the data can be imported into an existing file, use the boxes at the top of the screen to place the data in the file where you want it to appear.

- Starting radio memory - Insert the channels into the file somewhere other than at the beginning (i.e., At the end of a list that has the last channel of 21. Enter 22 in this box to begin with the next memory channel of that file).
- Overwrite existing channels - Tells the process to replace data it finds in the existing file or to skip that data and write in the next available channel. For example:
- Unchecked - If you import into a file with memories in channel numbers 1-10, 12, 15 and 16 the process would write the imported channels in order to 11, 13, 14, then 17 on to the end of the imported list.
- Checked - If you import to a file with memories in channel numbers 1-10, 12, 15 and 16 the process would write the imported channels in order beginning at channel 1 and continue in order to the end of the imported list. The existing channel data of the file would be lost in the process as it is replaced with that of the imported file.
- Finish - Click to complete the process. The resulting file in this example would look like this:





**Part**



## 19 Export

The Programmer can export, "convert" , the data of a radio programming file to a flat file for use in other programs. This will create the file that you need if someone asks you for a ".csv" or Excel file.

You control two parts of export:

What is exported from the file.

Where the exported file is saved on your hard drive.

### **What is exported from the file**

The file created through export contains the data on the screen that is open when the process is begun.

If a radio has Right Memories and Left Memories, it will export the data of the Right Memories when you are viewing that screen when the process is begun and the data from the Left memories if you are viewing that screen.

Each export should be directed to a separate file. If you use the same filename, you will replace the data from the first export with that of the next.

### **Where the exported file is saved on your hard drive**

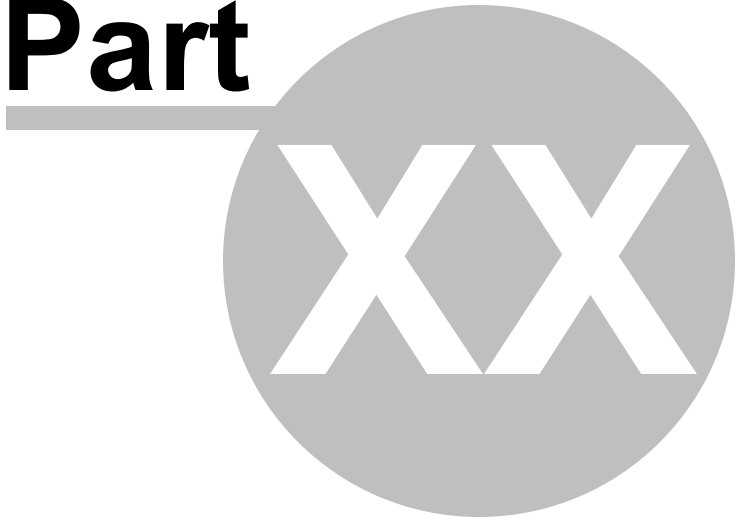
Select the section of the file to be exported.

Click File | Export.

A Save dialog box opens. You have complete control of the filename and location of the file on your hard drive in the options in that Save dialog box.

Pay close attention to the filename and directory designation of the resulting file. You want to be able to find it easily later.

**Part**



## 20 Common Troubleshooting

Technical support is available from *RT Systems* at the times and number shown in the *Contacting RT Systems* of this help.

As issues are addressed by Tech Support personnel, the issue and the result are often detailed on the Support page of [www.rtsystemsinc.com](http://www.rtsystemsinc.com). Check there for additional information that might pertain to the exact issue you are seeing with your radio.

Detailed here are several of the more common problems that you may want to check before you contact technical support.

### **"The data from the radio will overwrite this file. Continue?"**

This message will be raised by the Programmer when you select Communications | Get Data From Radio with a file open that is not a new (default) file into which no entries have been made.

This message is warning you that you will replace any information you have entered with whatever is in the radio. The "whatever" could be all blank channels.

Answer "YES" if you want to lose all the information that appears on the screen.  
Answer "NO" if you do not want to lose several hours of work spent creating the file on the screen.

#### **To prevent loss of information:**

- First, do File | New to open a new (default) file.
- Then while looking at that file, do Communications | Get Data From Radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

Once you complete Communications | Get Data From Radio, return to your file and either:

- Select the tab at the top of the page
- Or select File | Open and open the file from the list presented (if you closed it some time during the process).

## Program cannot find cable



This message can appear when you are attempting to "Get Data From Radio" or "Send Data To Radio." There can be several causes. For More details, see the [Cannot Find Cable](#) section in this Help.

## Interference from other cables attached

The Programmer is designed to find the cable to be used by this radio for programming. This process is done through special identifying numbers programmed into the electronics of the USB connector.

The process looks at each USB device attached. Other items attached, especially other programming cables, may cause the Programmer to wrongly identify the RT Systems cable it must use for a specific radio.

Two different errors can occur in this configuration. Either the Programmer will report that the RT Systems cable is not attached to the USB port or the Communications process will not respond since the data being transferred from the radio (you did press all the right buttons) is traveling along a cable other than that the Programmer is connected to.

## Interference from other applications

Your radio is not the only device you attach to your computer for programming or data interchange. iPads, iPods, Palm Pilots and other PDA devices, printers, cameras and others all install programs for their use. Unfortunately, many of these programs run constantly looking to be used any time a cable is attached.

These programs take control of the cable even if it is not for their device. This renders the cable useless for its intended purpose.

You may not even be aware that these programs are running. You may have sold the device months ago; but unless you took steps to permanently disable the software for it, the problem remains. These programs run start whenever the computer is started or brought back from hibernation then run in the background with little indication that they are there.

Begin checking by hovering over each icon at the lower right of your screen. Those in the task bar. A name will appear as you pass over each. You may recognize the one that needs to be disabled. Usually an option to Exit or Close will be available from a right click menu. Do not worry about exiting something you might need. The application will begin again when you restart your computer.

After addressing a program, check in the Programmer. You should be able to click 'OK' on the Communications | Get Data From screen and have the process continue instead of raising the error message.

Tech support at RT Systems will be glad to help you with this, but we are limited given this is an issue specific to the applications running on your machine.

## **Defective Cable**

Cables from RT Systems are 100% tested prior to packaging. For more information on what to do if a cable fails, see the [Defective Cable](#) section of this Help.

## **USB Driver Installation**

On some systems the drivers for the cable will need to be installed manually. We at *RT Systems* will be happy to help you through this process, or see the [USB Driver Installation](#) section of this Help.

## **Modified Radio**



This error is raised when you attempt to send a file to a radio that is modified before the Programmer is given that information.

If your radio has been modified, you must complete Communications | Get data From Radio into a new file before you attempt to write data to the radio. When the Get Data From radio process is used, even if the radio is not yet programmed, the Programmer gets the data it needs to learn that the radio is modified.

When you use Communications | Get data From for the sake of establishing communications, you need to save the file ONLY if you want to save the memory data that is currently in the radio. The Programmer already has what it needs. The option to save is available should you want to save the pre-programmed data.

## Cabling to properly address the radio

***The RT Systems Programmers work only with the RT Systems' USB cables  
No other USB cable will be recognized by the Programmer.***

RT Systems' Programmers address over 400 different radios. Of those, some program through the speaker jack, some through the microphone jack, some through the data jack and some through the CAT port. These ports must be addressed by the correct RT Systems cable for communications to be successful.

Be sure to use the correct RT Systems cabling to address the radio being programmed. Check the User's Manual for the radio if you are not sure where the port is on the radio that is specified in the Programmer. The cables for this particular radio are pictured in the *Radio to Computer Cabling* section of this help.

Specific to the FT-857/D and FT-897D: The cable used for programming is the USB-62 cable with the 8-pin mini din plug. This plug is attached to the CAT jack on the back of the radio. Forcing this connector into the data port will ruin the plug and could damage

the radio. There have been cases where the power pin and the PTT were connected (since you never know which pin will go which way when you force them out of place) causing several hundred dollars in damage. Check to be sure you are connecting the cable to the matching jack before forcing the pins into the holes.

At the time of this writing (2009), none of the Yaesu VHF/UHF mobile radios used the USB-62 cable with its 8-pin plug. We have seen this tried. It will not work. The mobile radios that program through the data jack require a 6-pin mini din connection on the cable. Check the cabling specified in the Help for the radio that you are programming to be sure that you are using the right one to address the radio.

## Icom specific issue for Clone mode

Other than the Icom IC-R10, at the time of this writing, Icom radios are **NOT** put into CLONE mode for programming from RT Systems' Programmers. For more details, see the [Clone Mode](#) section of this help.

## Yaesu Radio does not go into Clone mode after initial menu selection

Many Yaesu radios, hand held and mobiles, access Clone mode from a start up menu. For more details, see the [Clone Mode](#) section of this help.

## Yaesu Radio does not change to Tx or Clone Out when button is pressed

Many Yaesu radios have a key sequence that starts Clone mode without having to select that option from a start up menu. For more details, see the [Clone Mode](#) section of this help

## Windows Version Compatibility

The RT Systems Programmers are designed to work with Windows XP (SP3), VISTA (32 or 64 bit) or Windows 7 (32 or 64 bit) and Windows 8 and 8.1 (full version).



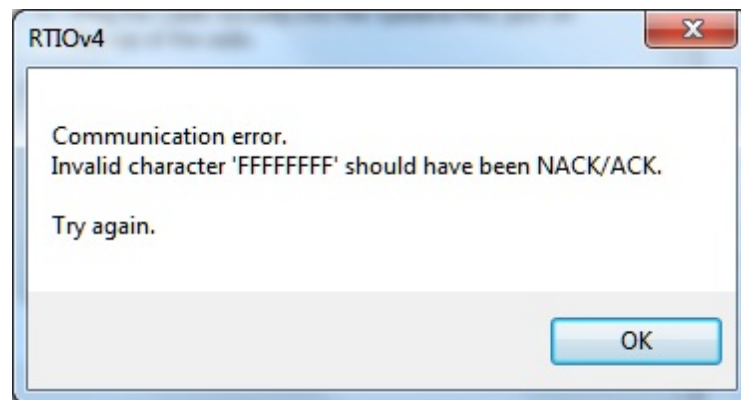
RT Systems no longer supports use of the Programmers on Windows 98, Windows 98SE, Windows 2000, or Windows ME.

**Note: If you plan to use an older computer for programming your radio, you may experience problems with the program resulting from files that are missing from the operating system. These files would have been delivered through normal Windows updates to the operating system.**

**If the machine has been out of service for several years, set it up with an Internet connection and Automatic Updates activated. Let it sit for several days while it finds what it needs.**

**Once the updates are installed, you will have no other problems related to the operating system relative to the Programmer.**

## NACK/ACK Error



As ugly as this error appears, it actually is only a generic message saying the Communication process failed. Try again after reading the hints here.

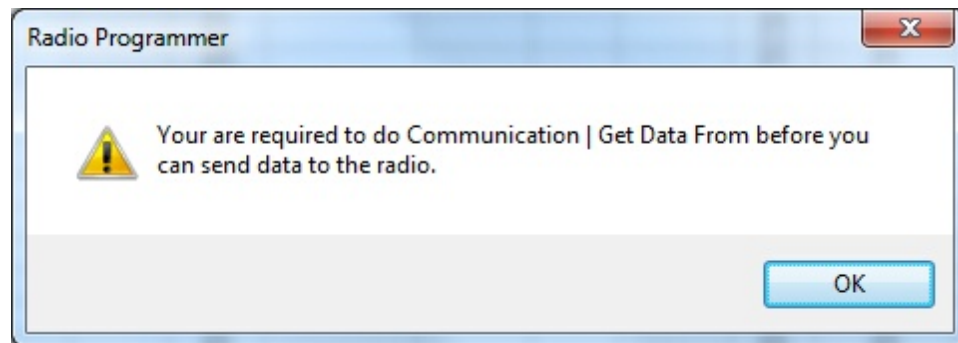
- Do NOT turn the radio off. It may display Error. It is not terrible unhappy and is still in Clone Mode.
- Cancel all Communications screens that are open in the Programmer.
- Open a new file (File | Open from the menu at the top of the screen).
- Select Communications | Get data from radio. Doing Get Data from often gets the process going.
- Skip the steps for putting the radio into Clone mode. It is already there.

- Click OK.
- Press the key as instructed to begin the process (sometimes you need to press it twice. Once to return to Clone mode, then again to begin the process).

Once Get Data From Radio is successful, attempt Send Data To Radio. In this scenario, you can skip the steps to put the radio into Clone mode since it usually remains in Clone mode after Get Data From Radio is completed.

## 20.1 Get Data from Radio Required

The first time you attempt to send your file to the radio, this message may appear:



This indicates that you have not read the configuration of the radio into the Programmer.

There are details that the Programmer can get only from the radio. Even if the radio is not yet programmed, these "background" details are necessary for the Programmer to send a file to your radio successfully.

It is good habit to use the 'Get Data From Radio' function to make sure the computer and radio are "talking" to each other.

This can, however, come with some issues if you are not careful.

**When using the 'Get Data From Radio' process, you will be prompted with this question:**

**"The data from the radio will overwrite this file. Continue?"**

This message is warning you that you will replace any information you have entered with whatever is in the radio. The "whatever" could be all blank channels.

Answer "YES" if you want to lose all the information that appears on the screen.  
Answer "NO" if you do not want to lose several hours of work spent creating the file on the screen.

**To prevent loss of information:**

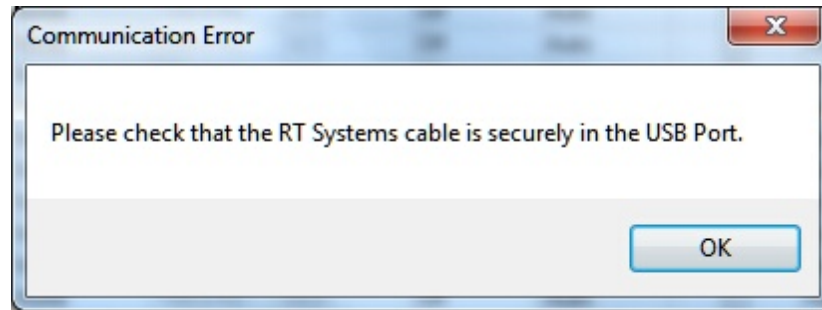
- First, do File | New to open a new (default) file.
- Then while looking at that file, do Communications | Get Data From Radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

Once you complete Communications | Get Data From Radio, return to your file and either:

- Select the tab at the top of the page
- Or select File | Open and open the file from the list presented (if you closed it some time during the process).

## 20.2 Cannot Find Cable

### Program cannot find cable



This message can appear when you are attempting to Get Data From the radio or Send Data To the radio. There can be several causes. The most common are:

- The cable is not attached to the computer or you have the wrong programming cable attached. The cable for this radio is pictured in the **Computer / Radio Cabling** section of this help.
- The communications process was accessed too quickly after the cable was attached. It can take some computers a minute or more to recognize the cable properly. Give the computer a little more time and try again.
- The problem may lie in the electronics of the cable. If this is the first time you have attempted this process, contact RT Systems for assistance. This can be corrected easily in just a few minutes with the computer and an Internet connection.

**Note: This can be corrected using a machine that has an Internet connection that you don't plan to use for the programming software. The software for the radio does not have to be installed to complete the correction.**

- HotSync, the program for the Palm Pilot, is running on this computer. Hotsync immediately takes control of an available comport. Since the RT Systems programming cable establishes a comport, Hotsync takes control before you have a chance to use it. Look for the icon, red and blue arrows chasing each other, in the tray at the right of the task bar. If found, right click and exit. That program will load again when you re-boot your computer. You will need to disable this software any time you program your radio.



## 20.3 USB Driver Installation

### USB Driver Installation

On some systems, the drivers for the cable will need to be installed manually. This is a normal issue in the USB world and is easily done.

We at *RT Systems* will be happy to help you through this process.

With the USB cable detached from the computer, start the New Hardware Wizard from the indication for the device in the Device Manager.

The drivers have been installed on your machine in the following directory.

C:\Program Files (x86)\Common Files\RTSystems V5\RT  
Drivers\USBComDrivers

Then attach the cable again. Check in Device Manager to be sure it is now listed under Ports (Com and Lpt) with a comport designation assigned.

## 20.4 Clone Mode Issues

### Icom specific issue for Clone mode

Other than the Icom IC-R10, at the time of this writing, Icom radios are NOT put into CLONE mode for programming. CLONE mode is used only when you transfer data from one radio to another.

The process for programming the radio from the computer is simple. When the instructions say to "Turn the radio on", do just that, press the power button to turn it on. If pressing a key is needed as a part of this step, it will be included with the instructions on the Get data from screen.

### Yaesu Radio does not go into Clone mode after initial menu selection

Many Yaesu radios, handheld and mobiles, access Clone mode from a startup menu. When you turn the radio on holding the specified key, you are in that menu with several options of radio functions. Clone is only one of these options.

Once the Clone option is found in that menu, another key on the radio is pressed to activate that mode. You know the option has been activated when the radio cycles off and back on. Only then is it in Clone mode and ready to program.

If the radio does not cycle off and back on when that next button is pressed, one of the following may address the issue:

The keys on the face of the radio are locked. Turn the radio off and back on in normal mode to check for the Lock symbol on the screen. Unlock the keys and try again.

You have pressed the designated key too long or not long enough. Try again until you get the feel for the process.

### Yaesu Radio does not change to Tx or Clone Out when button is pressed



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Many Yaesu radios have a key sequence that starts Clone mode without having to select that option from a startup menu: the radio simply comes on in Clone mode.

With CLONE displayed on the face of the radio, a button is pressed to begin communications.

If the radio comes on displaying CLONE, but then is unresponsive when the button is pressed to begin (i.e., the screen does not change from Clone), check these two common causes:

First, be sure you are using the correct cabling for the radio being programmed. If an adapter was included with the kit, use it.

Check that the keys are not locked. To check, turn the radio off. Turn it back on in normal mode and check for the Lock symbol on the screen. Unlock the keys from the face of the radio and try again.

## 20.5 Defective Cable

### Defective Cable

Cables from RT Systems are fully tested prior to packaging. Even with this level of control, occasionally a cable fails in the field. Contact RT Systems tech support to determine if the cable is at fault and a replacement is needed.

A replacement can be initiated when you send a copy of your receipt as proof of purchase and the issue has been diagnosed with a tech support representative at RT Systems. In this case, a replacement will be sent immediately with a prepaid label for return of the defective item. The replacement will be sent to the address on the receipt.

If the receipt is not available, return the original cable for replacement. A replacement cable will be sent immediately when the defective item is received at our location.

## 20.6 Buttons Being Locked

Some radios come with a Key Lock button, typically on the face of the radio. When this button is engaged, it prevents the user from using other buttons/functions on the radio.

If this happens, locate the lock button on your radio. If you need help finding your lock button, or the button set up with the lock feature, the location of this button will be outlined in either the Help file specific to your radio, or in your radio user's manual.

Disengage the lock button in order to regain usability for the other buttons/functions. Whether or not this requires a long press or short press, depends on the radio and the way the buttons may have been set up in the Programmer.

Often times, you can look under Settings | Radio Menu Settings, locate the lock button function, and see if it is turned on/off (checked) or if it requires a long or short press from the radio face (this will typically be under Radio Buttons).

## 20.7 Firmware Updates

### RT Systems' Programmer Updates

Occasionally, the Programmer needs updates. Failure to update the Programmer may result in issues with getting your radio programmed the way you would like. Updates can be found on the Support portion of [www.rtsystemsinc.com](http://www.rtsystemsinc.com).

#### To Update Your Firmware:

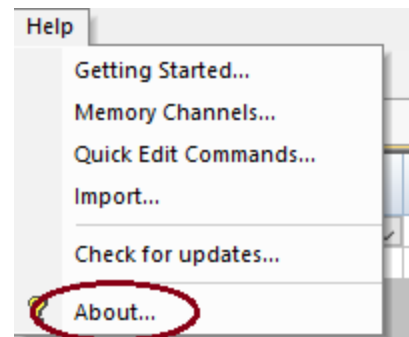
- Before you begin, it is important to make sure none of the RT Systems Programmers are running in the background. Restarting your computer is a good option to ensure the Programmer(s) is closed.
- Locate the updater for the Programmer version you have.



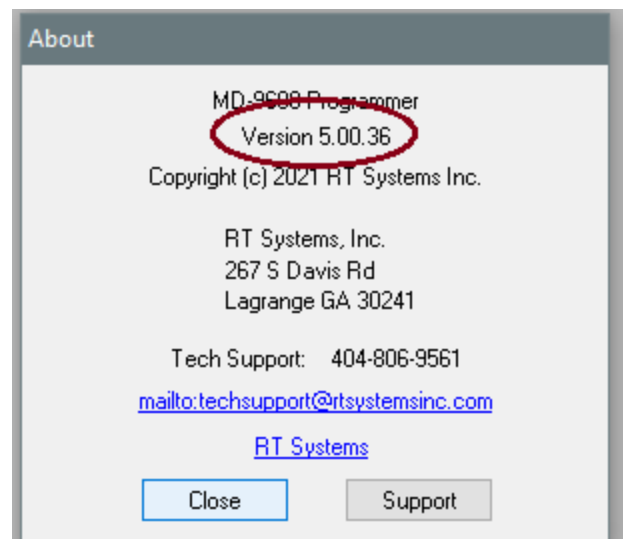
- Click the updater and let it run.
- A pop-up box for the download will appear. From here, click 'Run.'
- If the screen appears with a list of files, click the 'Update' button at the bottom of the screen.
- After the update finishes, run the Programmer as usual. Everything will be up-to-date.

#### To find out what version you have:

- Go to Help in the menu toolbar.
- Select 'About' from the bottom of the drop-down menu.



- After you choose 'About,' the following screen will appear. Here, you will be able to locate the version you have.



**Part**



## 21 Invalid Frequencies

This information is meant to address radio operators in the US. While many of these details are true in other countries, some are not. Band plans, allowable frequencies, and other details differ around the world; but many of the functions of the radio remain the same making this information useful to everyone.

This section is offered to help users understand why a frequency is rejected by an amateur radio. The Programmer will not allow you to enter a frequency that your particular radio cannot use.

Your radio is designed to work on all frequencies in the amateur bands. Problems arise when frequencies from commercial operations are used on this amateur equipment. This explanation is offered to help you understand where the radios differ.

### How Radios Work

A little here about how radios work. As for an allowable frequency, three factors are important: Reference Frequency, Reference Step and Step.

**Reference Frequency** - Based on its internal electronics, the radio uses a value based off the frequency you enter along with the Reference Frequency Oscillator to generate the desired frequency.

**Reference Step** - The difference between any two Reference Frequencies. This value is set as a part of the internal workings of the radio. It cannot be changed.

**Step** - The difference between two frequencies displayed on the face of the radio when the tuning knob is turned while operating in VFO mode.

Reference Step and Step work in conjunction with each other allowing or prohibiting you from tuning to a given frequency.

Commercial radios have a Reference Step of 2.5 kHz.

Amateur radios are generally designed with Reference Steps of 5, 6.25, 12.5, 9 (only AM) and 8.333333 (air band only) kHz. While a few models have all these Reference Steps, many more remain with only Reference Steps of 5 and 12.5 kHz. These two are sufficient for accessing any repeater in the Amateur Bands.

While in the mathematics of things there will be frequencies in the commercial bands that match the available Reference Steps of Amateur radios, the Step of the Amateur radio will not allow you to tune to the desired frequency.

It takes both working together to achieve a valid frequency.

## Testing the validity of a frequency

The question of validity is seen with frequencies with four digits following the decimal (i.e., 154.03125 may be your local volunteer fire department frequency and while their commercial radios can do this frequency, your amateur radio cannot... and it cannot be made to do it with any software.)

Let's take 154.03125 and put it to the test.

### Step 1:

The first and easiest test for the validity of a frequency is to attempt to dial to that frequency in VFO mode on the face of the radio. Remember in your attempts that it may be necessary to adjust the Step (see your Operator's Manual for details) to get to a certain frequency.

Turn on your radio.

Access VFO mode

Turn the tuning knob.

With the frequency changing by 5kHz steps, the frequency changes from 154.030 to 154.035 to 154.040 (oops... lost the 3 in the second position... let's try something else).

Change Step to 12.5 kHz (see Operator's Manual for your radio. This is generally done in the Set menu; however a shortcut key on the face of the radio may give you easier access to this menu item.)

With the frequency changing by 12.5kHz steps, the frequency changes from 154.025, to 154.0375 (hey, at least I have the fourth digit now), to 154.050... oops, missed the 154.03125 completely. Again, can't get there tuning on the face of the radio.

Try other Step values until you're satisfied that the radio just cannot be made to do that frequency.

### Step 2:

Compare your frequency to this list. If you find it here, it will work. Note: "x" represents any number.



1. xxx.xx500 - Generally only 5 or 0 allowed in the third position with all 0s after that. A few exceptions are shown below.
2. xxx.x12500 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.
3. xxx.x375 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.
4. xxx.x625 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.
5. xxx.x875 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.

Comparing 154.03125:

There is a 1 in the third position after the decimal. By Rule 1, this is not allowed for an amateur radio.

The frequency does not fit into any of the others that allow 4 digits after the decimal.

Step 3: Do the math.

Allowable frequencies (in Hz) must be evenly divisible by 5000 or 12500 or 6250 Hz.

Convert your frequency to Hz:

$$154.03125 \times 1,000,000 = 154031250$$

Divide that number by 5000

$$154031250 / 5000 = 30806.25$$

$$154031250 / 12500 = 12322.5$$

$$154031250 / 6250 = 24645$$

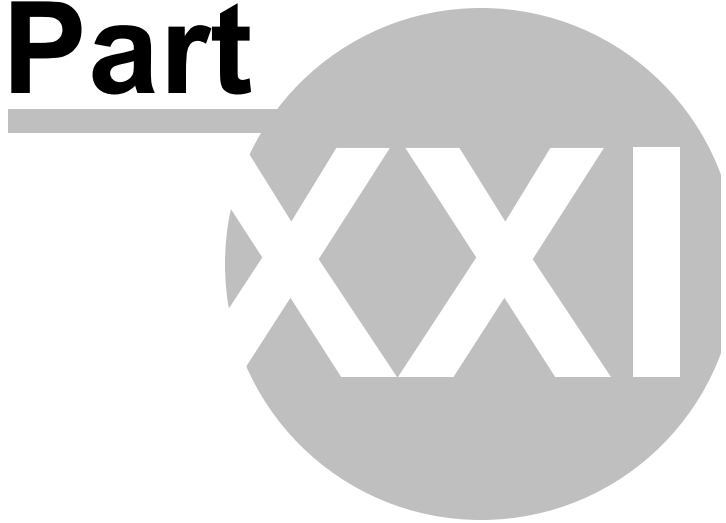
The 6250 Hz division was successful. There is a possibility that this frequency can be used by an amateur radio.

As discussed earlier, both the Reference Step and the Step of the radio are used to determine a valid frequency. Models vary. While this frequency passed

the validity test for certain amateur radios, that in no way implies that it will work on your particular radio.

For this particular frequency to work in your particular radio, it is necessary that the radio have a 6.25 kHz step available in the Step option of the Set menu.

**Part**



## 22 Hardware Error Troubleshooting



This error is VERY common in the radios that use the 2-pin plug into the mic jack. It is resolved by pushing the cable again... a little harder so that it seats completely into the mic jack.



*"Well of course the information in the radio and the file do not match. I just made changes to the file and I want the different information in the radio!!"*

This is a common first reaction to this error. However, that is not the file information involved in this error. There are several causes for this error. They include incorrect key strokes on the radio, interference on the computer by another application or device, a faulty cable or the presence of a radio that has been modified for out of band use.

Below are various steps offered as corrections. At the end of each section try again to transfer data to the radio again.

## Try this First

The error most likely indicates that "behind the scenes" information about the radio does not match that of a factory radio. This is most common when a radio has been modified for out of band transmission.

1. Create a new file (press Ctrl M on the keyboard or select File | New from the menu at the top of the screen). This protects the file that you are trying to send to the radio.
2. Select Communications | Get Data From Radio from the menu at the top of the screen. Complete the steps of the process.
3. When this is completed successfully, return to your file (click to tab at the top of the screen that displays the filename or select File | Open to reopen your file.)
4. Select Communications | Send Data To Radio. Be careful to follow these steps shown on this screen. Generally, they are different from the Get Data From radio steps.

## Radio Issues

### **"Error" is displayed on the radio.**

"Behind the scenes" information about the radio does not match that of a factory radio. This is most common when a radio has been modified.

1. Create a new file (Ctrl M or File | New)
2. Execute Communications | Get Data From Radio. This is the only way this "behind the scenes" information can be obtained for your radio.
3. When this is completed successfully, return to your file.
4. Execute Communications | Send Data To Radio being careful to follow these steps since they are different from the Get Data From radio steps.

**The radio does not change when "OK" clicked on the screen in the Programmer (never indicates receive).**

There is no communication between the radio and the computer. Check through the Cable issues to be sure you are using the right cable and that it is connected properly to the radio and to the computer.

### **The radio never goes to CLONE.**

On many radios you hold buttons during power on to access a startup menu. Once you select the clone option of the menu (the radio is **NOT YET IN CLONE MODE**), you press a key to accept the CLONE option. When you press the button to access the startup menu option, the radio does not change.

1. The keys on the radio may be locked. Turn the radio off then back on in normal mode to check for a lock symbol on the screen. If the keys are locked, unlock them. Once unlocked, power off the radio and begin the Communications process again.
2. The key specified is "touchy" and responds if it is touched just the right way. This has been the case on several of the mobile radios. Try again with a shorter or longer touch on the button. When you get that touch just right, the radio will respond.
3. The wrong cable is being used. This is true for several of the hand held radios that use the 4-pin plug. If you attempt this process with a stereo plug, the radio will not respond when you attempt the cloning process.

### **The radio never went into send (TX) mode (Get data from radio process).**

Now that the radio is in Clone mode, one more button press is required to start the data transfer (Get Data From) or to make the radio ready to receive the data (Send Data To).

1. The wrong cable is being used. This is true for several of the hand held radios that use the 4-pin plug. If you attempt this process with a stereo plug, the radio will not respond when you attempt to access the Clone option of the startup menu.
2. The keys on the radio are locked. Turn the radio off then back on in normal mode to check for a lock symbol on the screen. Once the keys have been unlocked, power off the radio and begin the Communications process again

### **Radio is not on at the time of data transfer.**

This can get the process "out of sync". Cancel the Communications screen on the computer. Then access that screen again and start over with turning the radio on in Clone mode. Be sure the battery is charged on your handheld radio or that you are connected to external power to prevent an unexpected shutdown during this process.

## General Issue

### **Followed the Steps Incorrectly or executed the wrong process.**

Get data from the radio:

1. Go to "Communications" in the top menu.
2. Click "Get Data From Radio".
3. Read and follow each step. (Remember, the keystrokes are different for each radio. They are detailed for a particular radio on the Get Data From Radio screen. The trick is to follow each step... one at a time.)

Send data to the radio:

1. Go to "Communications" in the top menu.
2. Click "Send Data to Radio".
3. Read and follow each step. (Remember, the keystrokes are different for each radio. They are even different for this process than they were for the Get Data From Radio process. They are detailed for a particular radio on the Send Data To Radio screen. The trick is to follow each step... one at a time.)

## Cable Issues

### **Check that you are using the correct cable for this radio.**

Many radios have jacks that will accommodate the programming cable from a different radio. Although the cable fits in the jack, the radio does not accept programming through the wrong jack.

You can see the cables for each radio by clicking on [Programming Cable Chart](#).

### **Check that the cable is securely in the USB Port.**

Be sure it has not pulled loose (this is easy to do with a USB). Also, the cable should be plugged into a USB port on the computer rather than on a USB hub.

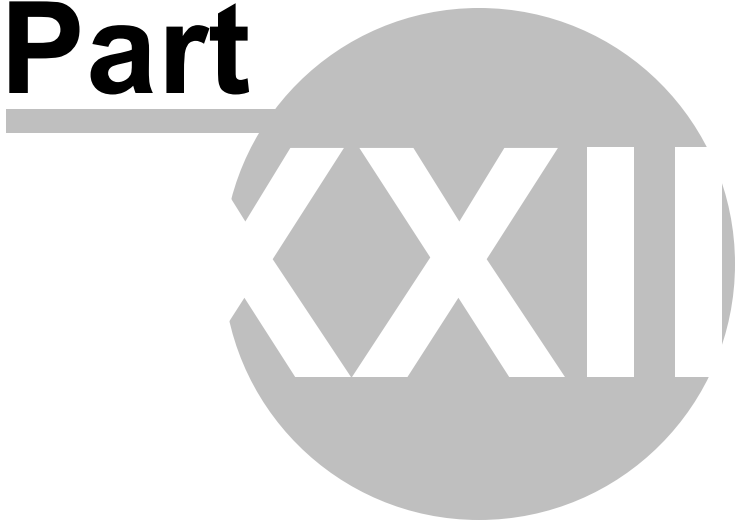
**Check that the cable is plugged into the radio securely.**

On cables with 6- or 8-pin round din plugs, you may want to check that the pins are not bent in such a way that they are making a bad connection. Unplug the cable from the radio and check by looking at the pins in the plug.

On cables with 4, 6, or 8 pin modular plugs that address the mic jack, push the cable toward the connector to be sure the modular plug is plugged into the mic jack completely. There can be a good bit of play between the mic jack and the plug. Hold the cable securely until the process is complete.



**Part**



## 23 Contact Us

*RT Systems, Inc.*  
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LaGrange, GA 30241

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Technical support	404-806-9561
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Fax	770-216-1836
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Technical Support Hours	Monday through Friday 10:00 AM until 6:00 PM Eastern Time
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Other times by appointment. Call or e-mail to make arrangements.

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Web Page	<a href="http://www.rtsystemsinc.com">www.rtsystemsinc.com</a>
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Program updates

Answers to frequently asked questions can be reviewed under FAQs on our site.

[See it Done: How To Videos](#)

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E-mail	<a href="mailto:techsupport@rtsystemsinc.com">techsupport@rtsystemsinc.com</a>
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Should you choose to send a message via e-mail, be sure to include at the very least the following details:

- The radio with which you use the Programmer
  - The version number of the Programming software
-

(found in the Programmer under  
Help | About)

Based on the information given, we will respond as quickly as possible.

Be sure that rtsystemsinc.com is set as an acceptable address for your e-mail program. Or watch for your response in your spam or junk mail folder.

