

VX-8G Programmer Help

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VX-8G Programmer Help

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.

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. 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 program the radio.

VX-8G 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.

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.

These files are saved separately to be sent to the radio at any time. One file can be sent to the radio at any one time. Be sure to put everything you want into each file as you build it.

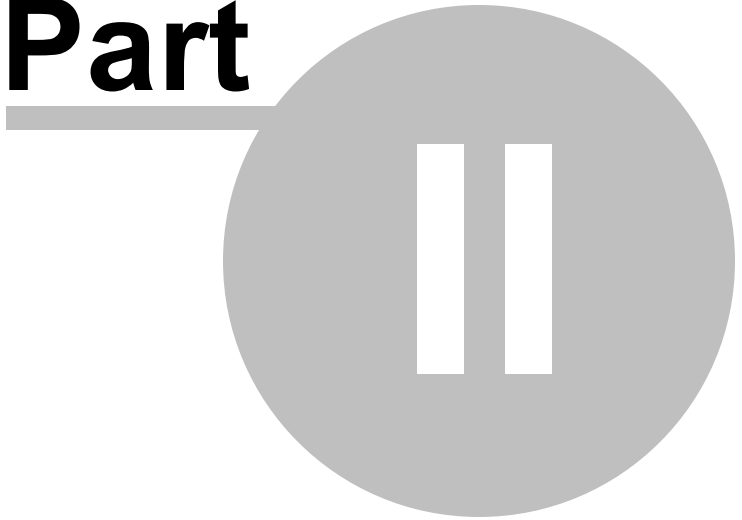
The Programmer also gives you the ability to read a configuration from the radio. The configuration would be stored in a file on your computer to be changed easily. Then, with minimal button pushing, you can send the altered file back to the radio.

Hardware Requirements

Hardware requirements for the Version 4 Programmers include

- A PC running Microsoft Windows: XP, Vista (32 or 64 bit), Windows 7 (32 or 64 bit) or Windows 8 (full version). The programmer will NOT work on Windows 98, ME, NT or 2000.
- The correct computer interface cable as shown in the ***Radio to Computer Cabling*** chapter under ***Radio / Computer Data Transfer*** section of this help.

Part

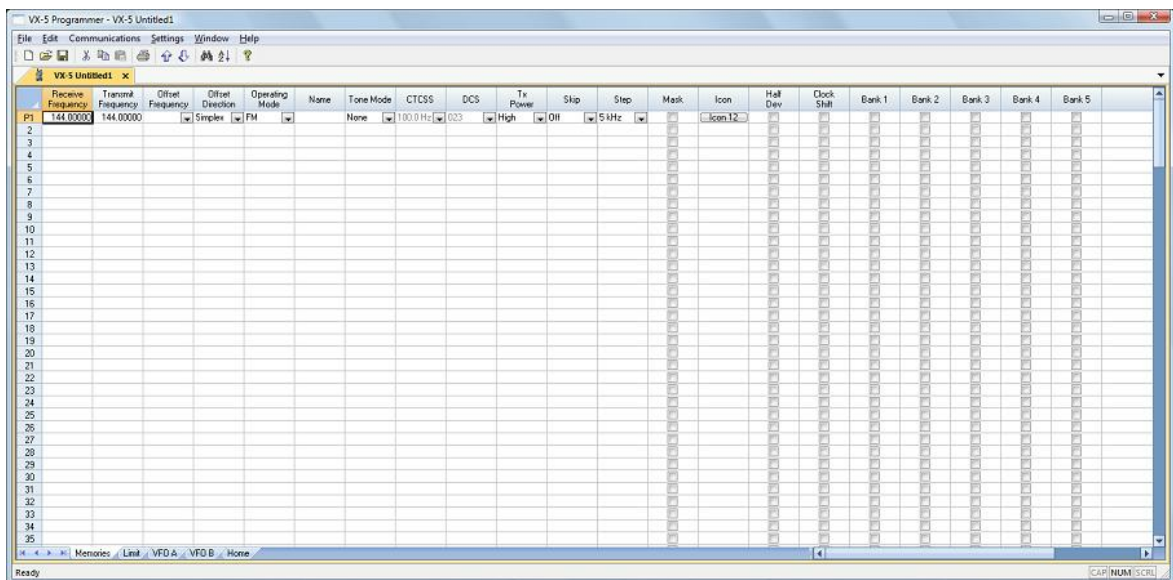


2 Getting Started

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 memory channel information on several of the screens. 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 with this. If information is required, it will warn you when it is missing.

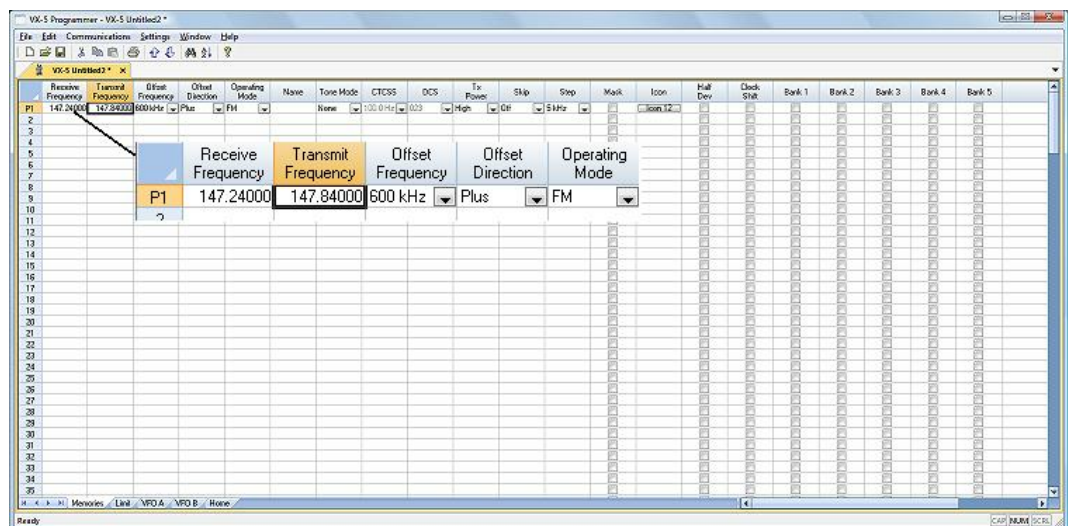
Enter a receive frequency

| | Receive Frequency |
|----|-------------------|
| P1 | 144.00000 |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

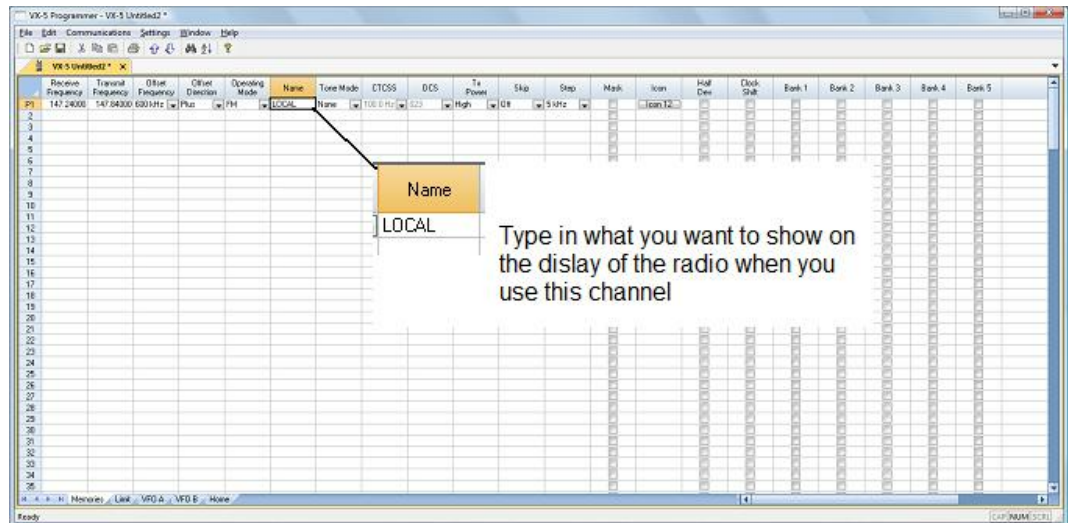
No need to erase.
Just click in the cell and type

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

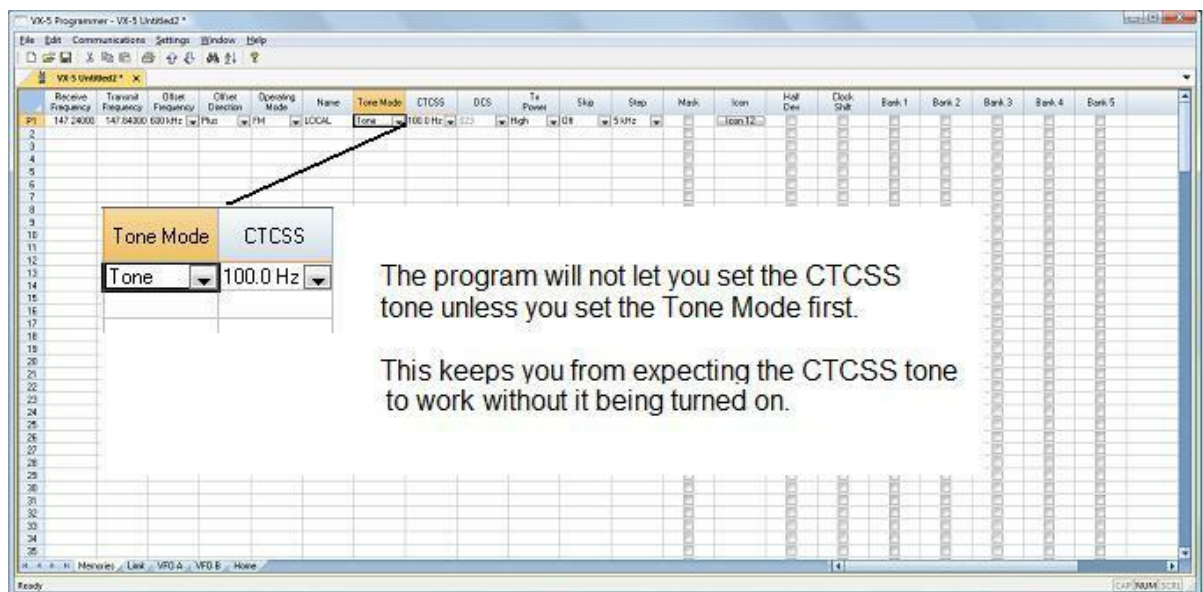
- Type one four seven period two four zero into the receive frequency column.
- Press Enter.
- The program completes much of the channel information with defaults. The Transmit frequency, Offset frequency, Offset Direction and Operating Mode are completed. This satisfies the "Standard offset" requirement from the original information.



- 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.



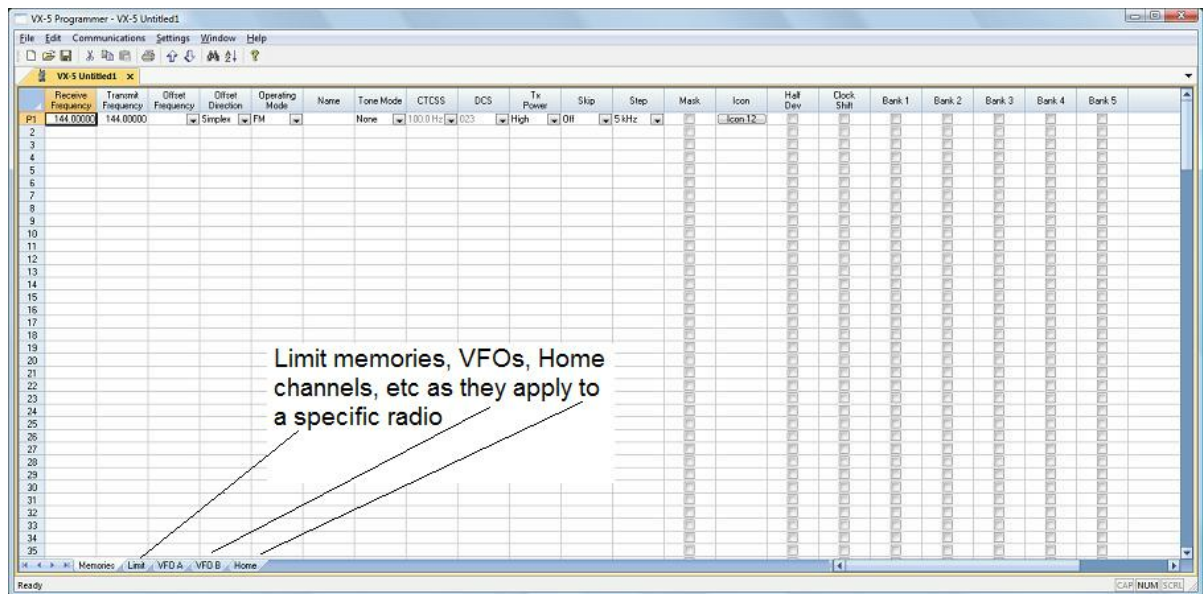
- Press tab to move to the Tone Mode cell. Setting up the tone of 100hz requires TW steps (just as it would if you were doing this from the face of the radio). Turn on Tone Mode AND then set the 100hz tone.



- 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 Limit memories, Home channels, Hypermemoies, VFO, Marine and Shortwave channels, 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.

VX-8 Programmer - DCSTest

File Edit Communications Settings Window Help

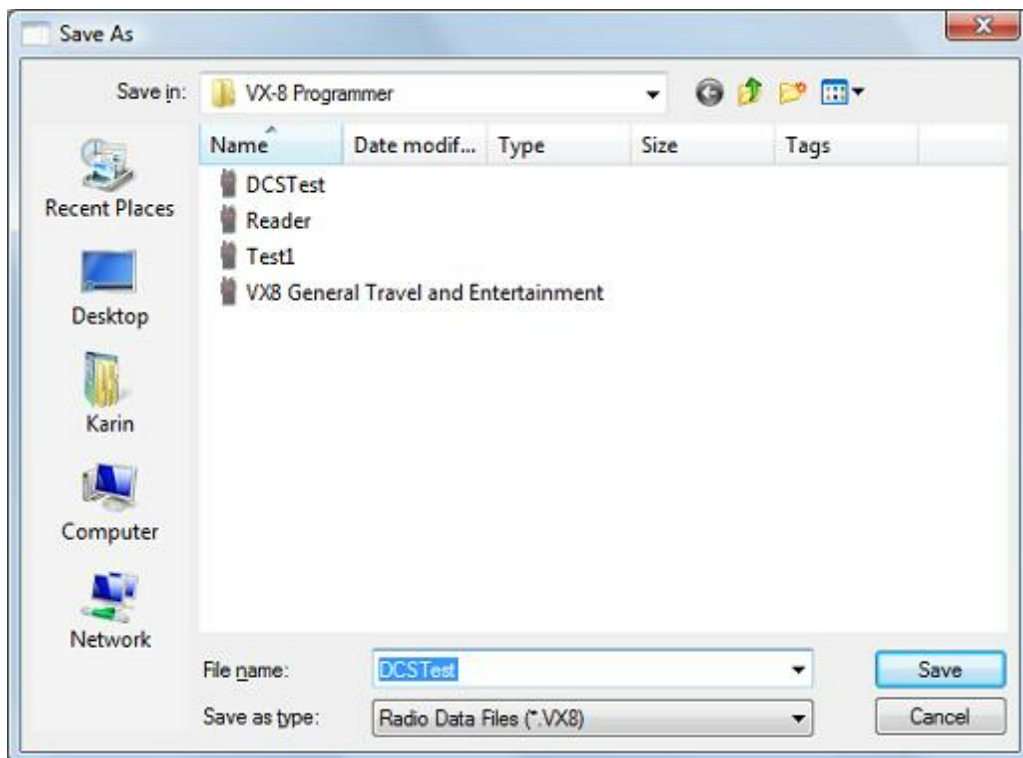
DCSTest

| Receive Frequency | Transmit Frequency | Other Frequency | Other Direction | Operating Mode | Name | Tone Mode | CTCSS | DCS | DCS Polarity | User CTCSS | Tx Power | Skip | Step | Mask | Attenuator | Shifter Squash | Ref | Half Dev | Clock Shift | BANK 1 | BANK 2 |
|-------------------|--------------------|-----------------|-----------------|----------------|------|-----------|----------|-----|--------------|------------|------------|------|--------|------|------------|----------------|-----|----------|-------------|--------|--------|
| 1 | 147.2400 | 147.8400 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 2 | 147.2400 | 147.8400 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 3 | 147.2500 | 147.8500 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 4 | 147.2500 | 147.8500 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 5 | 147.2600 | 147.8600 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 6 | 147.2600 | 147.8600 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 7 | 147.2700 | 147.8700 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 8 | 147.2700 | 147.8700 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 9 | 147.2800 | 147.8800 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 10 | 147.2800 | 147.8800 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 11 | 147.2900 | 147.8900 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 12 | 147.2900 | 147.8900 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 13 | 147.3000 | 147.9000 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 14 | 147.3000 | 147.9000 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 15 | 147.3100 | 147.9100 | 600kHz | Plus | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 15 kHz | | | Off | Off | | | | |
| 16 | 445.2500 | 445.2500 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 17 | 445.2500 | 445.2500 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 18 | 445.2600 | 445.2600 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 19 | 445.2600 | 445.2600 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 20 | 445.2700 | 445.2700 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 21 | 445.2700 | 445.2700 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 22 | 445.2800 | 445.2800 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 23 | 445.2800 | 445.2800 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 24 | 445.2900 | 445.2900 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 25 | 445.2900 | 445.2900 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 26 | 445.3000 | 445.3000 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 27 | 445.3000 | 445.3000 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 28 | 445.3100 | 445.3100 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 29 | 445.3100 | 445.3100 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 30 | 445.3200 | 445.3200 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 31 | 445.3200 | 445.3200 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 32 | 445.3300 | 445.3300 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 33 | 445.3300 | 445.3300 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 34 | 445.3400 | 445.3400 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |
| 35 | 445.3400 | 445.3400 | | Simplex | FM | Name | 100.0 Hz | 323 | RM TM | 1600Hz | High (5 W) | Off | 50 kHz | | | Off | Off | | | | |

File Edit Communications Settings Window Help

Ready

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.

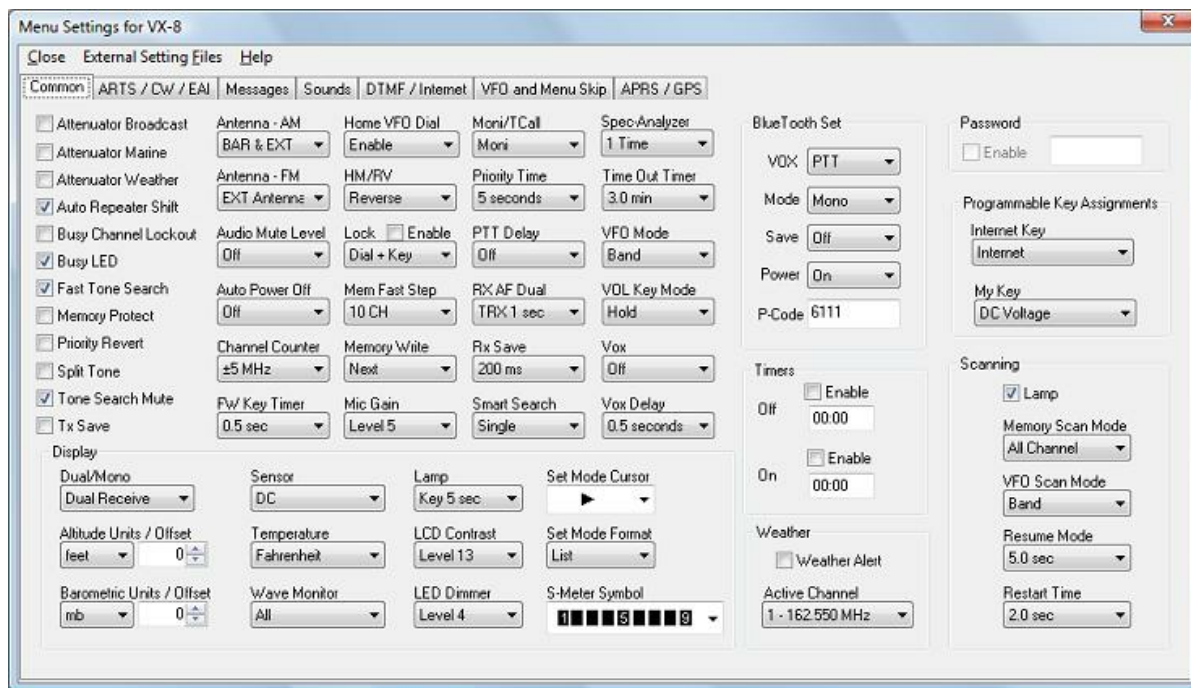
Once you complete this part of the process, the program will open the last file when it starts up.

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: memory channel, limit memory, VFO or Home channel.

These options may include, but are not limited to, Lock mode, ARTS details, display brightness and 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 fields. 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 new *RT Systems'* Version 4 programmers have no comport setup. Using the *RT Systems'* USB cable, you attach the cable, attach the radio, and get the programming done.

First: Communications | Get data from

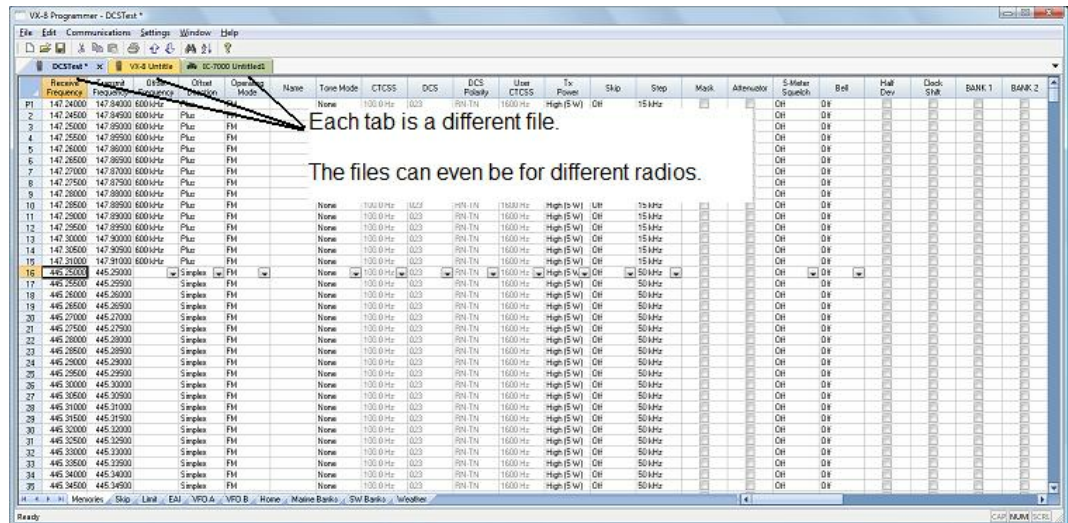
Although you really want to put the details of your file into your new radio so you can use it, doing Get data from with this new radio gets the process started and may help prevent problems sending the file to the radio.

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 with Version 4, your file may already be open in the other tab.



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

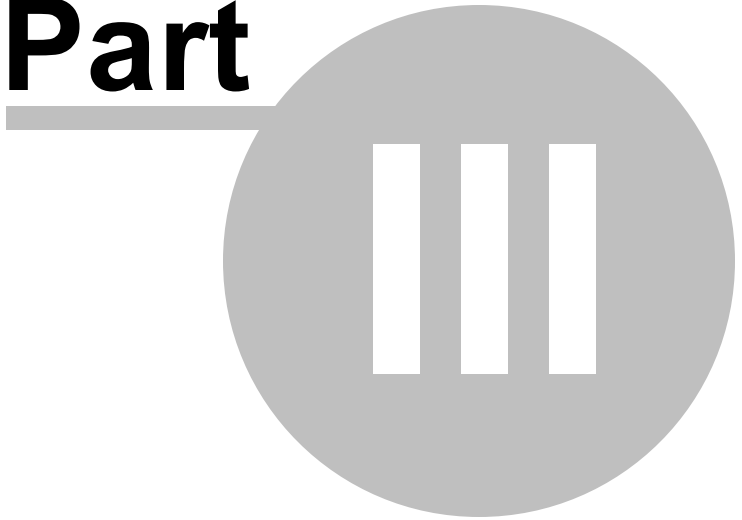
Hardware requirements for the Version 4 Programmers include:

-
- A PC running Microsoft Windows (XP, Vista or Windows 7). The Version 4 *RT Systems'* software will not work on Windows 98, 2000, ME, or NT.
 - Version 4 - An open USB port or the RTS-03 USB to serial adapter to work with an original *RT Systems'* 9-pin serial cable.

Note: The Version 4 programmers will not recognize any other cable or USB adapter. They will not work through a serial port.

- The correct computer interface cable as shown in the ***Radio to Computer Cabling*** section of this help.

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 Version 3 and Version 4 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 what 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 and 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 (View | Preferences in earlier versions). 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 (View | Settings in earlier versions). 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.

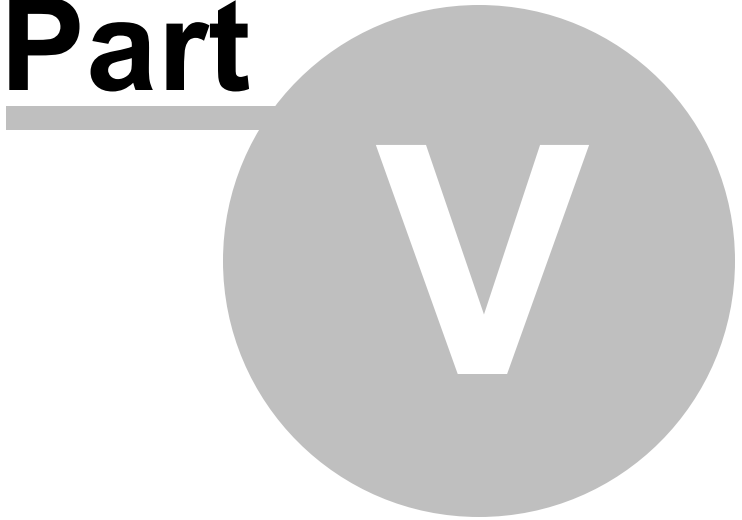
Note: Radio Option Settings (including Lock, Beeps, etc) are read from the radio with the Get data from command. Be sure that settings you have customized are saved in the programmer. Access the Settings screen and use File | Save to make the options that were taken from the radio permanent for programming 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 ***Radio Menu Settings - General Overview*** 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 (both files Version 3 or Version 4 or even between Version 3 and Version 4 files).***
- ***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.

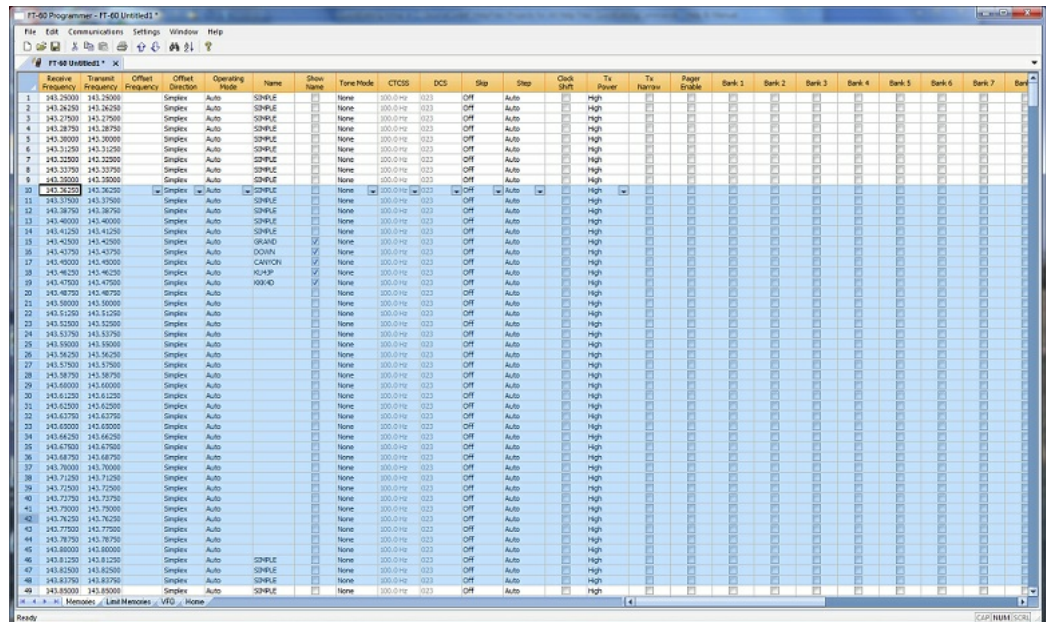
The screenshot displays the FT-60 Programmer software window. The main area is a data grid with the following columns: Row, Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tone Mode, CTCSS, DCS, Skip, Step, Clock Shift, Tx Power, Tx Name, Page Erase, Bank 1, Bank 2, Bank 3, Bank 4, Bank 5, Bank 6, Bank 7, and Bank. Row 13 is highlighted in blue. The software title bar reads 'FT-60 Programmer - FT-60 [Untitled1]'.

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.**

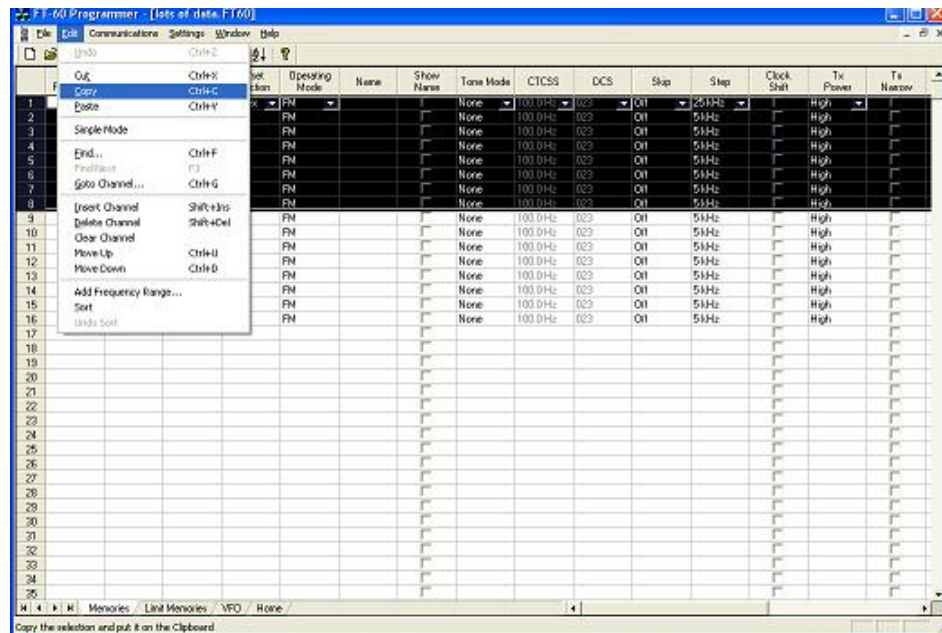


Copy Command

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.



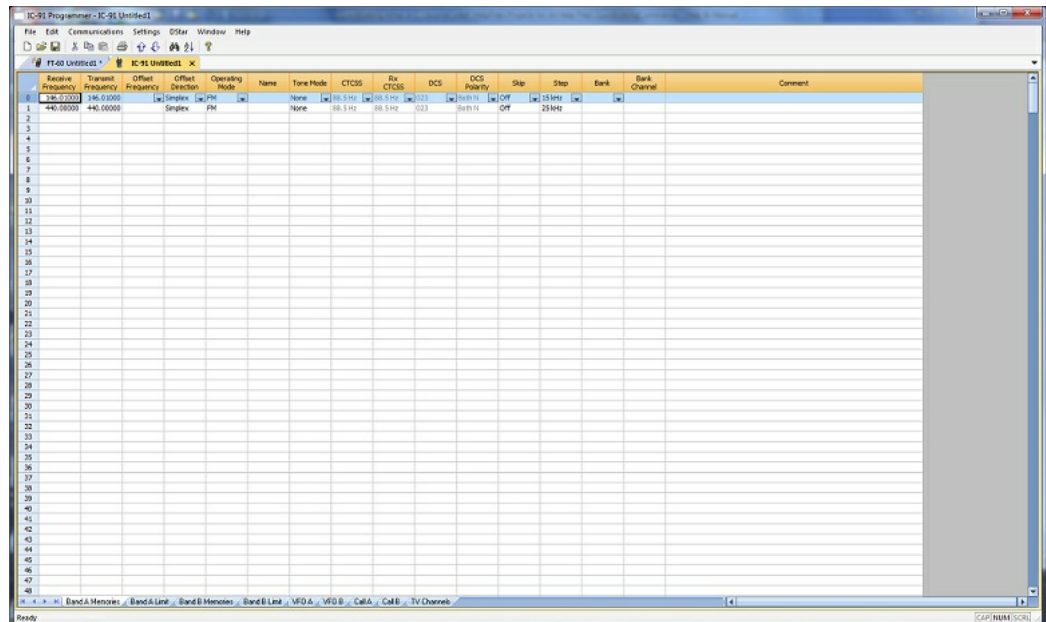
It will appear that nothing has happened. The program in conjunction with built in commands of the operating system of the computer has copied the data. It is waiting for you to Paste it where you want it.

Paste (Ctrl+V) - Writes the selected data to the current position of the cursor overwriting the data from that point. The Version 3 and Version 4 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 Version 4 programmer.

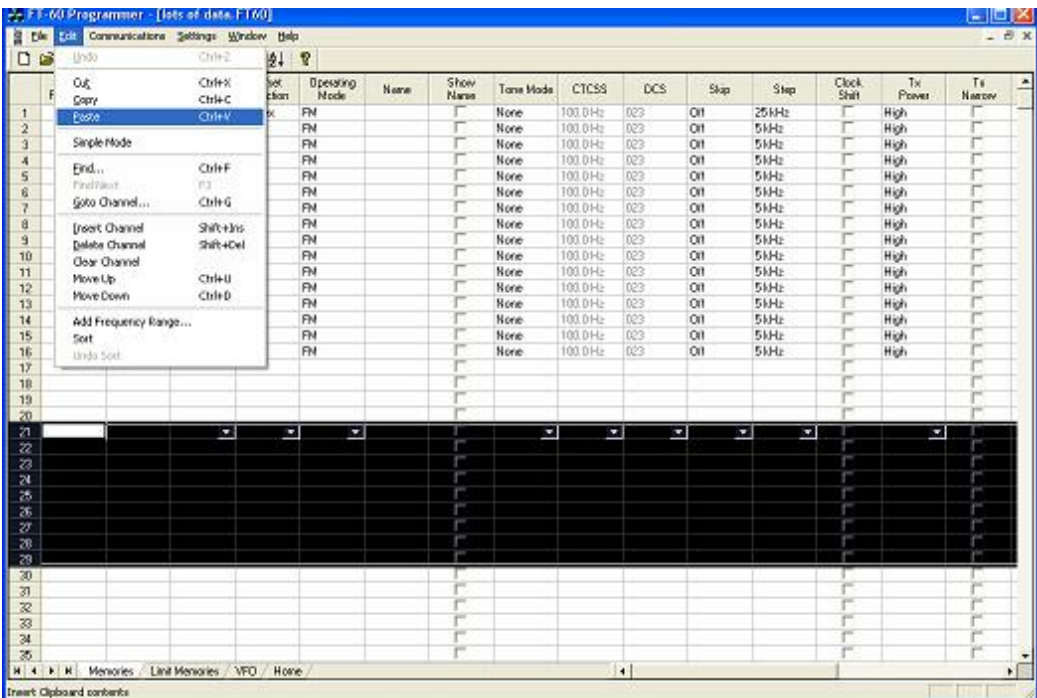
Select the row that is the **first** into which the data is to be pasted. The Paste process will begin in that location with the first copied channel and continue in each channel after that with the rest of the channels that were copied.



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.)

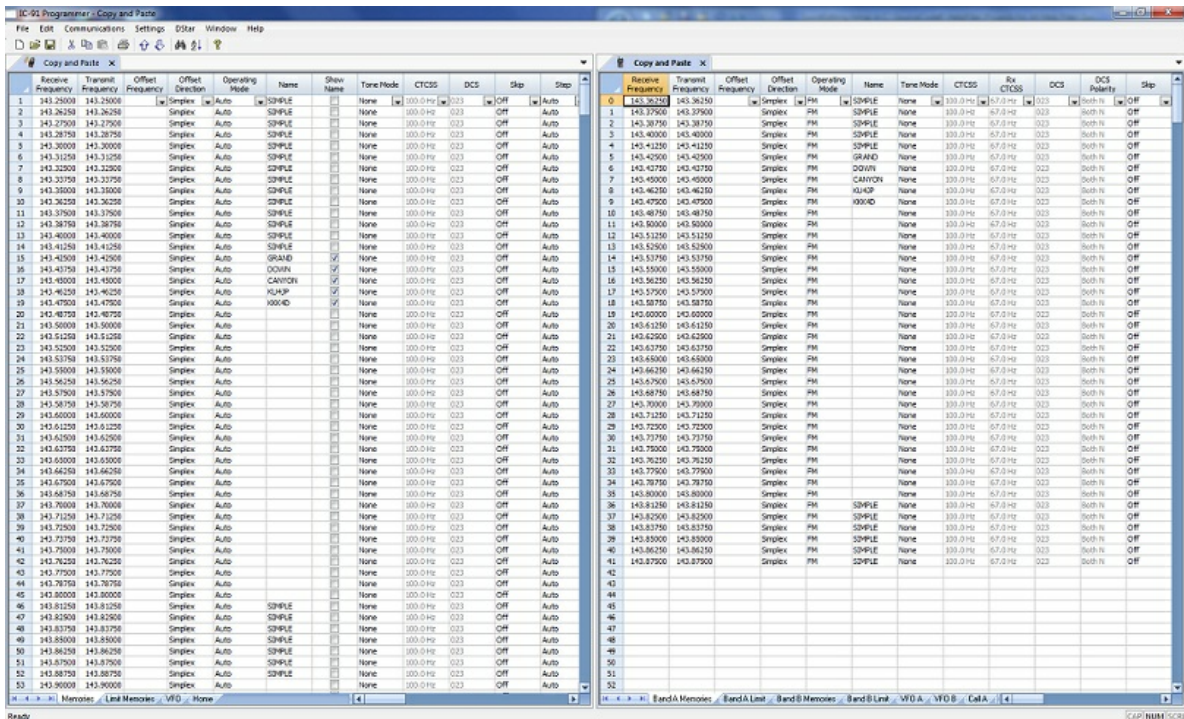
Or while pointing within the highlighted area, right click and select Paste from the menu that opens.



The information is pasted into the selected channels.

| | Receive Frequency | Transmit Frequency | Offset Frequency | Offset Direction | Operating Mode | Name | Tone Mode | CTCSS | RxC CTCSS | DCS | DCS Polarity | Skip | Step | Bank | Back Channel | Comment |
|----|-------------------|--------------------|------------------|------------------|----------------|--------|-----------|----------|-----------|-----|--------------|------|-------|------|--------------|---------|
| 0 | 143.32750 | 143.36250 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 1 | 143.37500 | 143.37500 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 2 | 143.38750 | 143.38750 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 3 | 143.40000 | 143.40000 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 4 | 143.41250 | 143.41250 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 5 | 143.42500 | 143.42500 | | | Simplex FM | GRAND | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 6 | 143.43750 | 143.43750 | | | Simplex FM | DOCTR | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 7 | 143.45000 | 143.45000 | | | Simplex FM | CANNON | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 8 | 143.46250 | 143.46250 | | | Simplex FM | KJMKP | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 9 | 143.47500 | 143.47500 | | | Simplex FM | 909VD | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 10 | 143.48750 | 143.48750 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 11 | 143.50000 | 143.50000 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 12 | 143.51250 | 143.51250 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 13 | 143.52500 | 143.52500 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 14 | 143.53750 | 143.53750 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 15 | 143.55000 | 143.55000 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 16 | 143.56250 | 143.56250 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 17 | 143.57500 | 143.57500 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 18 | 143.58750 | 143.58750 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 19 | 143.60000 | 143.60000 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 20 | 143.61250 | 143.61250 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 21 | 143.62500 | 143.62500 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 22 | 143.63750 | 143.63750 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 23 | 143.65000 | 143.65000 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 24 | 143.66250 | 143.66250 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 25 | 143.67500 | 143.67500 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 26 | 143.68750 | 143.68750 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 27 | 143.70000 | 143.70000 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 28 | 143.71250 | 143.71250 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 29 | 143.72500 | 143.72500 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 30 | 143.73750 | 143.73750 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 31 | 143.75000 | 143.75000 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 32 | 143.76250 | 143.76250 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 33 | 143.77500 | 143.77500 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 34 | 143.78750 | 143.78750 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 35 | 143.80000 | 143.80000 | | | Simplex FM | | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 36 | 143.81250 | 143.81250 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 37 | 143.82500 | 143.82500 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 38 | 143.83750 | 143.83750 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 39 | 143.85000 | 143.85000 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 40 | 143.86250 | 143.86250 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 41 | 143.87500 | 143.87500 | | | Simplex FM | SP4PLE | None | 100.0 Hz | 67.0 Hz | 023 | Both N | OFF | 5 kHz | | | |
| 42 | | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | |
| 46 | | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | | |

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



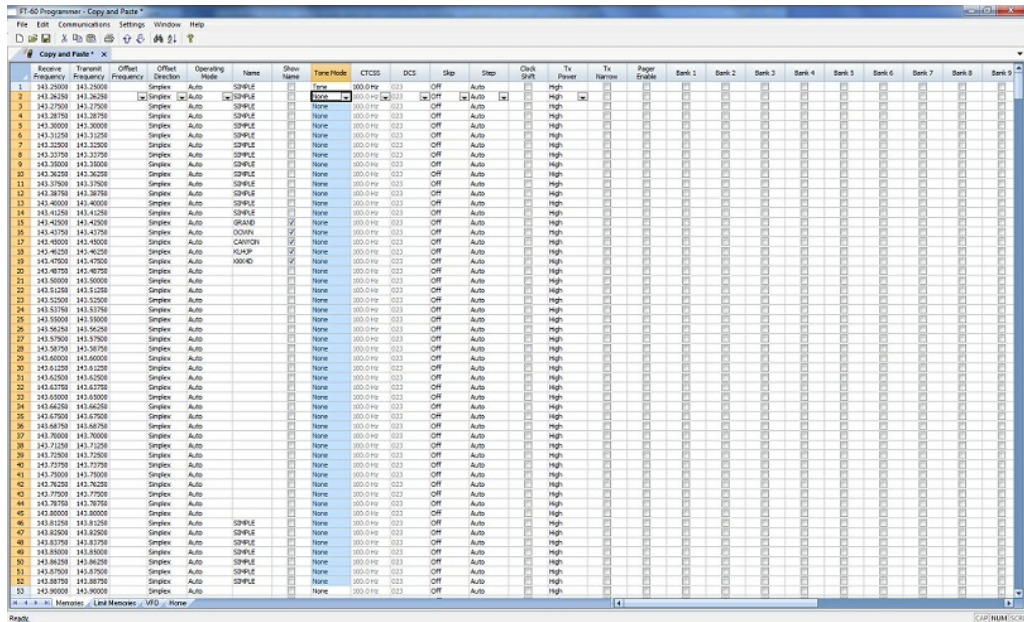
Copying details from one cell to change many rows at once.

- 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.

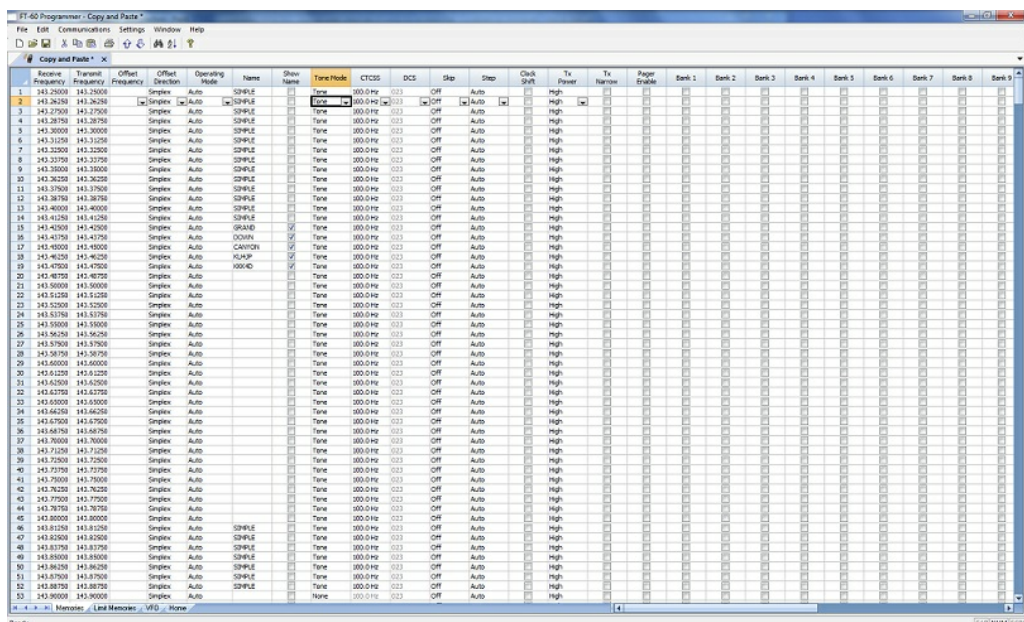
Select the **Tone Mode** field of the first of the channels to be changed.

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



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.

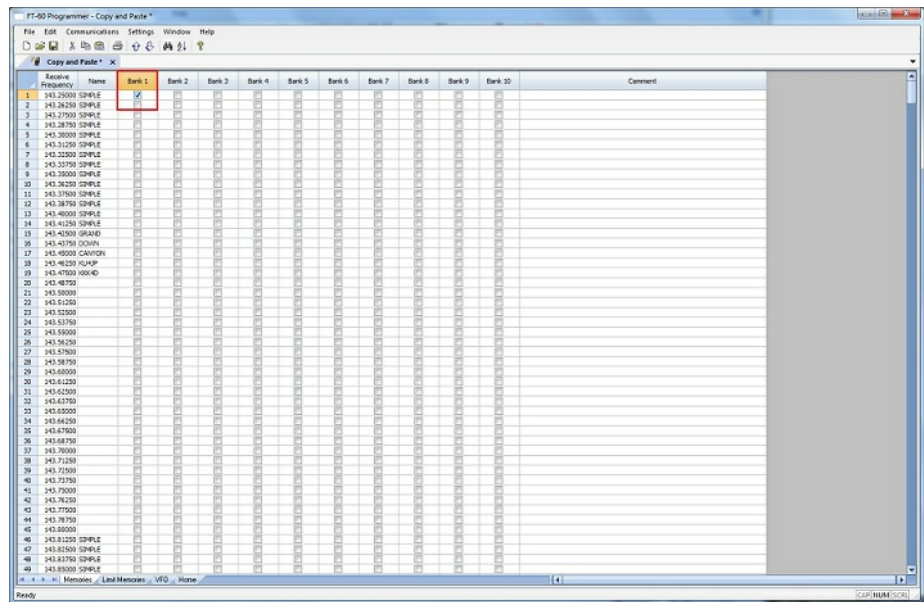
In this example, put channels several into Bank 1 without checking the Bank 1 box for each channel.

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.

The screenshot shows the 'FT-50 Programmer - Copy and Paste' window. The table has columns for 'Receive Frequency', 'Name', and ten 'Bank' columns (Bank 1 to Bank 10). A checkmark is visible in the 'Bank 1' column for the first row (Channel 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 | 143.2500 | SMPL E | | | | | | | | | | |
| 2 | 143.2620 | SMPL E | | | | | | | | | | |
| 3 | 143.2750 | SMPL E | | | | | | | | | | |
| 4 | 143.2870 | SMPL E | | | | | | | | | | |
| 5 | 143.3000 | SMPL E | | | | | | | | | | |
| 6 | 143.3120 | SMPL E | | | | | | | | | | |
| 7 | 143.3250 | SMPL E | | | | | | | | | | |
| 8 | 143.3370 | SMPL E | | | | | | | | | | |
| 9 | 143.3500 | SMPL E | | | | | | | | | | |
| 10 | 143.3620 | SMPL E | | | | | | | | | | |
| 11 | 143.3750 | SMPL E | | | | | | | | | | |
| 12 | 143.3870 | SMPL E | | | | | | | | | | |
| 13 | 143.4000 | SMPL E | | | | | | | | | | |
| 14 | 143.4120 | SMPL E | | | | | | | | | | |
| 15 | 143.4250 | GRAND | | | | | | | | | | |
| 16 | 143.4370 | GRAND | | | | | | | | | | |
| 17 | 143.4500 | CANTON | | | | | | | | | | |
| 18 | 143.4620 | WALSH | | | | | | | | | | |
| 19 | 143.4750 | WALSH | | | | | | | | | | |
| 20 | 143.4870 | | | | | | | | | | | |
| 21 | 143.5000 | | | | | | | | | | | |
| 22 | 143.5120 | | | | | | | | | | | |
| 23 | 143.5250 | | | | | | | | | | | |
| 24 | 143.5370 | | | | | | | | | | | |
| 25 | 143.5500 | | | | | | | | | | | |
| 26 | 143.5620 | | | | | | | | | | | |
| 27 | 143.5750 | | | | | | | | | | | |
| 28 | 143.5870 | | | | | | | | | | | |
| 29 | 143.6000 | | | | | | | | | | | |
| 30 | 143.6120 | | | | | | | | | | | |
| 31 | 143.6250 | | | | | | | | | | | |
| 32 | 143.6370 | | | | | | | | | | | |
| 33 | 143.6500 | | | | | | | | | | | |
| 34 | 143.6620 | | | | | | | | | | | |
| 35 | 143.6750 | | | | | | | | | | | |
| 36 | 143.6870 | | | | | | | | | | | |
| 37 | 143.7000 | | | | | | | | | | | |
| 38 | 143.7120 | | | | | | | | | | | |
| 39 | 143.7250 | | | | | | | | | | | |
| 40 | 143.7370 | | | | | | | | | | | |
| 41 | 143.7500 | | | | | | | | | | | |
| 42 | 143.7620 | | | | | | | | | | | |
| 43 | 143.7750 | | | | | | | | | | | |
| 44 | 143.7870 | | | | | | | | | | | |
| 45 | 143.8000 | | | | | | | | | | | |
| 46 | 143.8120 | SMPL E | | | | | | | | | | |
| 47 | 143.8250 | SMPL E | | | | | | | | | | |
| 48 | 143.8370 | SMPL E | | | | | | | | | | |
| 49 | 143.8500 | SMPL E | | | | | | | | | | |

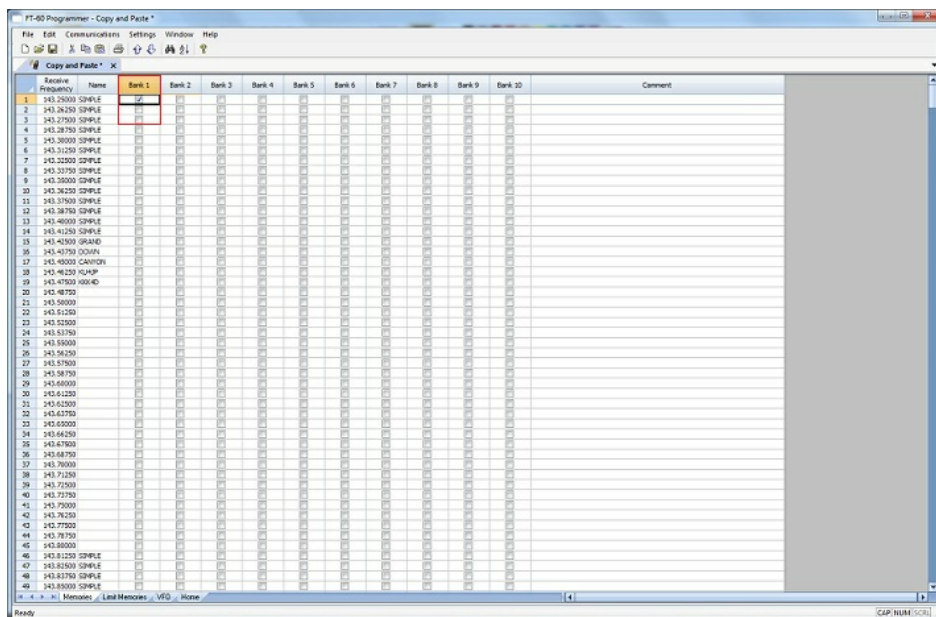
For Channel 1, put a check in the box under Bank 1.



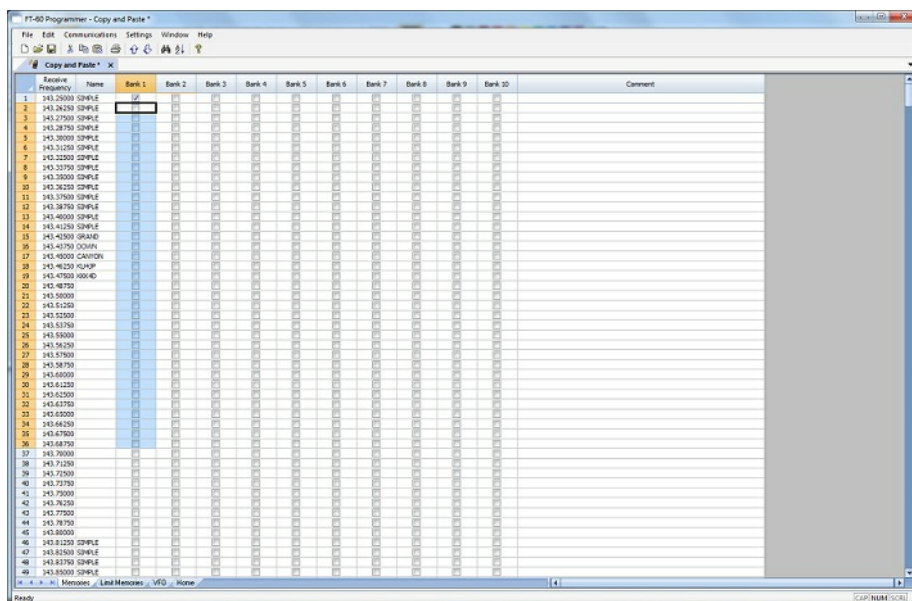
At this point you CANNOT copy this field. Press Tab or Enter to move out of the field.

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 | 143.26250 SIMPLE | ✓ | | | | | | | | | | |
| 3 | 143.27500 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 GUARD | ✓ | | | | | | | | | | |
| 16 | 143.43750 OCEAN | ✓ | | | | | | | | | | |
| 17 | 143.45000 CAUTION | ✓ | | | | | | | | | | |
| 18 | 143.46250 CLUMP | ✓ | | | | | | | | | | |
| 19 | 143.47500 BOUND | ✓ | | | | | | | | | | |
| 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.

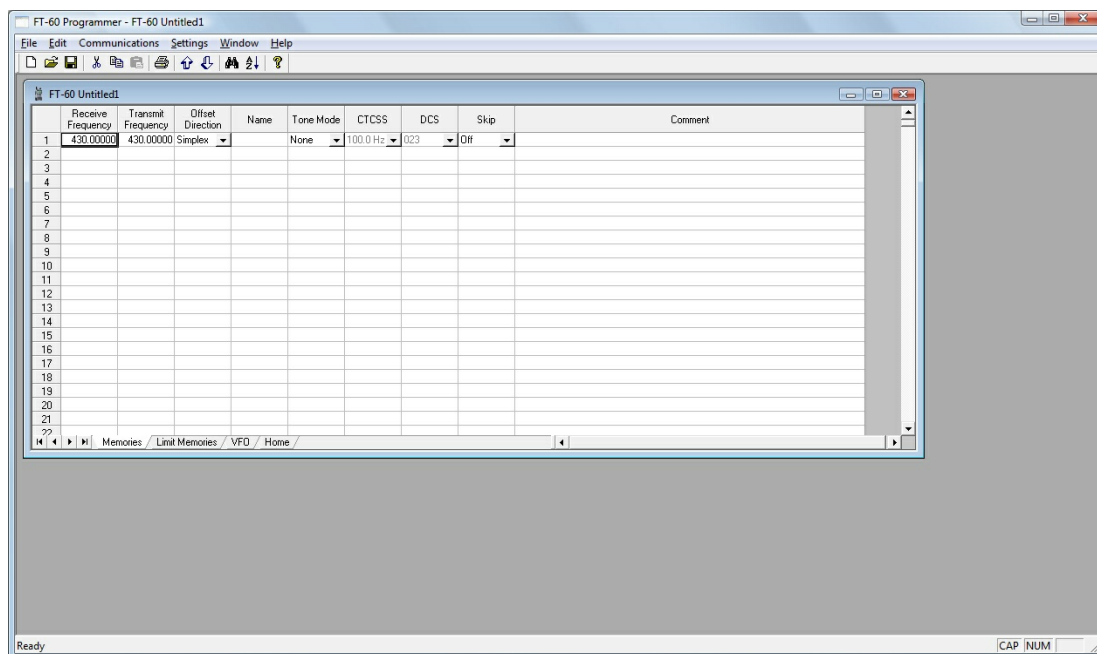
Name - This column is for personalized information to identify the channel.

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.

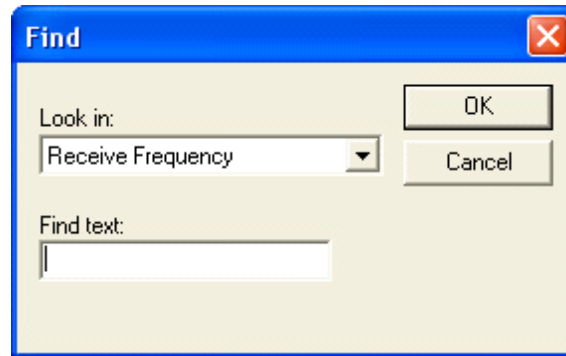
Comment - Personalized notes up to 80 characters. This information remains a part of the file and is not transferred to the radio.



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.



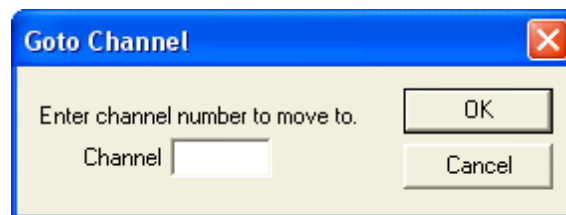
Select the field to be searched (i.e., Receive frequency, Transmit frequency, etc.)

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.

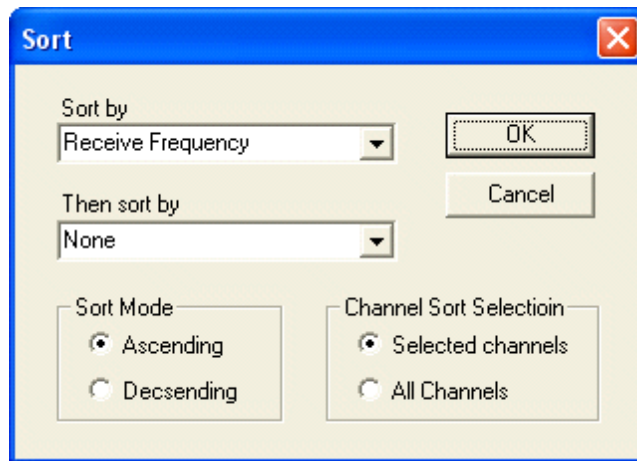
Frequency Step - Enter the value that will separate each of the frequencies in these channels. Select 5kHz to 200 kHz.

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 version 3 and Version 4 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 Version 3 or Version 4 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 Version 3 or Version 4 module for the FT-60. 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 Version 3 or Version 4 programmers separately.)

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

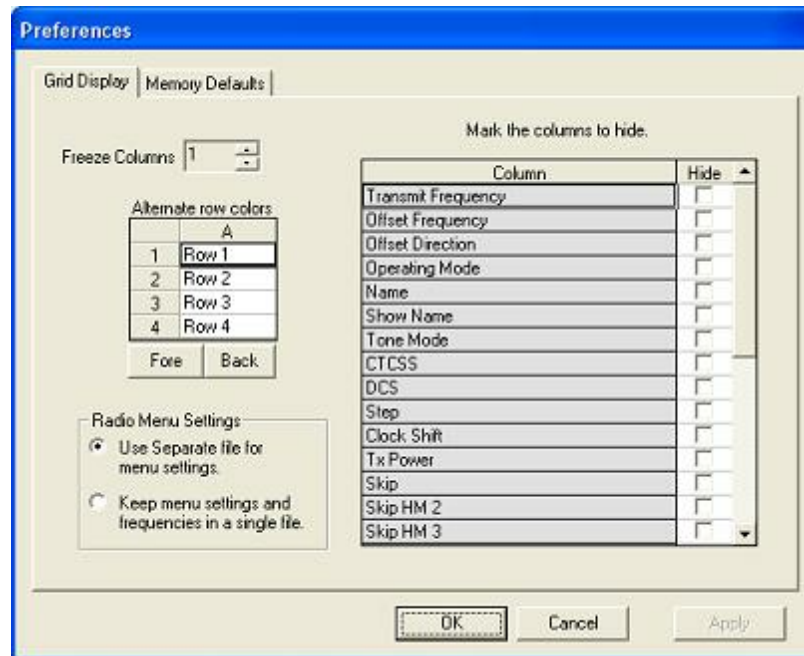
Ctrl N - File | New. Presents the box from which the file type is selected just as in File | New in the menu. Select the file type for the programmer to create a new file for that radio (the same as the one you're working with now or for a different radio for which you have the Version 3 or Version 4 module.)

Part



6 Screen Appearance and Default Options

The screen of the programmer can be customized to make data entry that much easier. 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:



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.

Radio Menu Settings

Sets the option for how the global settings of the radio are saved in the file. These options for saving are explained in great detail in the Using the Programmer - Overview section of this help.

Briefly, the radio settings contained on the Settings screen are options that are not specific to any one memory channel. The radio uses this setting whether it is in memory mode, VFO, on a Home channel, or, basically, whenever it is on. The settings for these options are sent automatically to the radio with the channel information.

The Settings can be saved as part of the channel data file or in a separate file.

As part of the channel data file, they are reset to defaults each time you start a new file. You set them to your specifications for the file that is being created.

As a separate file, they are set once, saved, then sent to the radio with every saved channel data file.

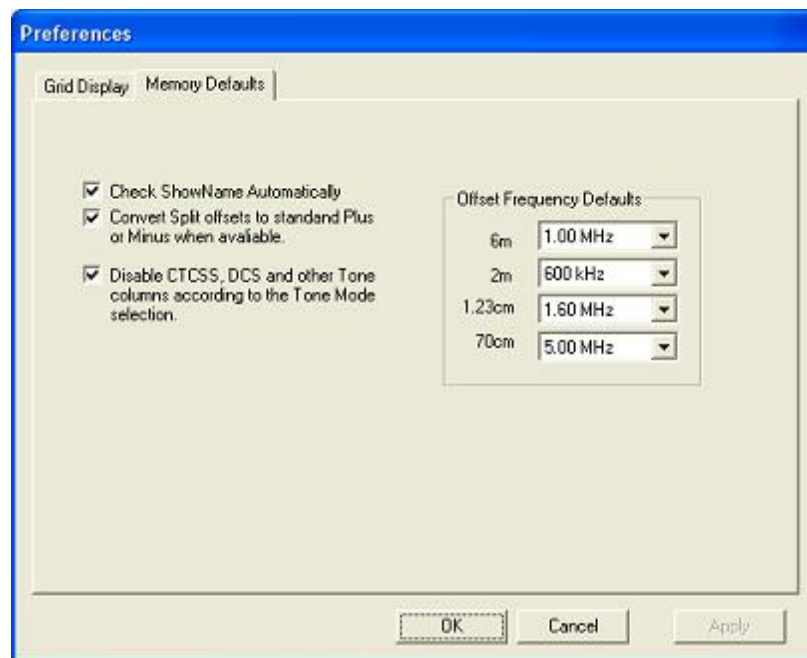
The pros and cons of both of these option are discussed in detail in the Using the Programmer - Overview section of this help.

Memory Defaults

You have complete control of the programmer. These options control default values for the channel data for memory channels, VFOs, Limits, Home, etc. Making one change here controls how a channel will be completed when a frequency is entered.

To access the Memory Defaults screen,

- Select Settings from the menu at the top of the screen.
- Select Preferences
- Once on the Preferences screen select the Memory Defaults tab.



Check Show Name Automatically - For radios with an extra column for show name, having this option selected (checked) lets the programmer mark that check automatically when you enter a name for that memory channel. this eliminates that extra step.

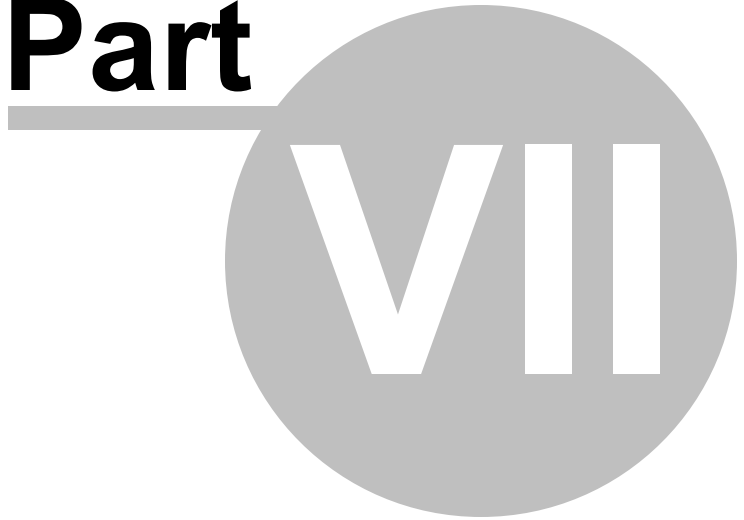
With this option checked, you can uncheck a Show Name box at any time if you would rather display the frequency for a given memory channel.

Convert Split Offsets to standard Plus and Minus when available - This option is for programming Yaesu radios only as Icom radios work only with Plus (+Dup) and Minus (-Dup) offsets. See the discussion of Non-standard offsets in the Programmer Main Window section of this help for a complete explanation.

Disable CTCSS, DCS and other Tone columns according to the Tone Mode selection - Beginning in the Version 3 programmer and continuing into future versions, the programmers have been designed to help you enter information for tones used for repeater access. You cannot enter a tone unless you have selected a Tone Mode which tells the radio to use that tone. The tone value columns are disabled until you turn the tone on. Then only the appropriate column is made active. When this option is unchecked, you will be able to adjust the tone value even if the Tone Mode has not been set for that memory channel.

Offset Frequency Defaults - Defaults are set for US radios. Others are presented to make data entry easier in other countries where those defaults are different.

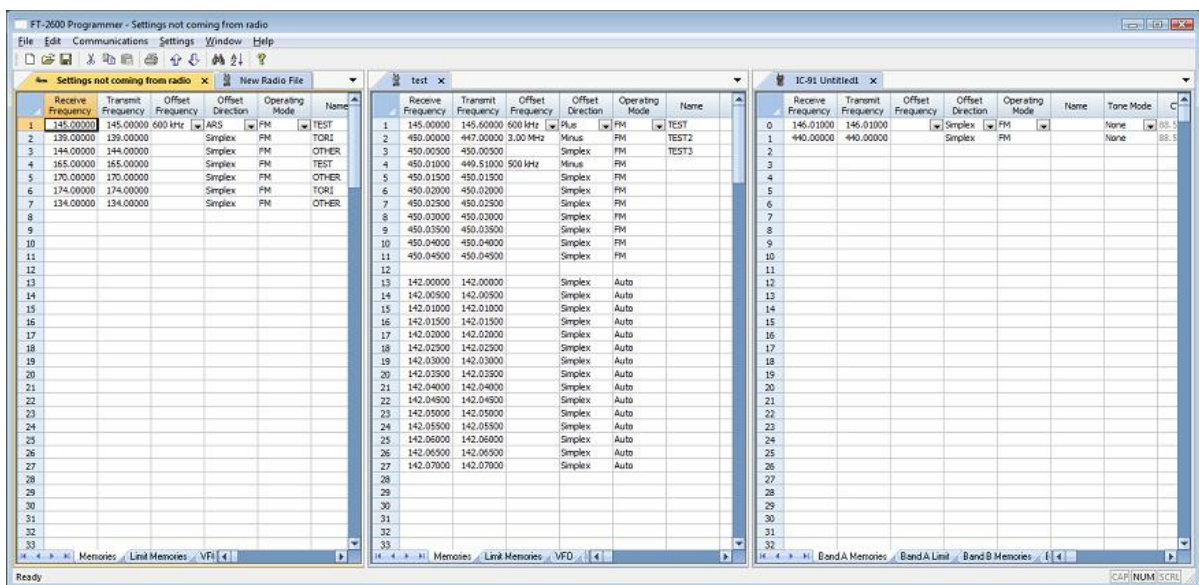
Part



VII

7 Split Screen for Multiple Files

The Version 4 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.



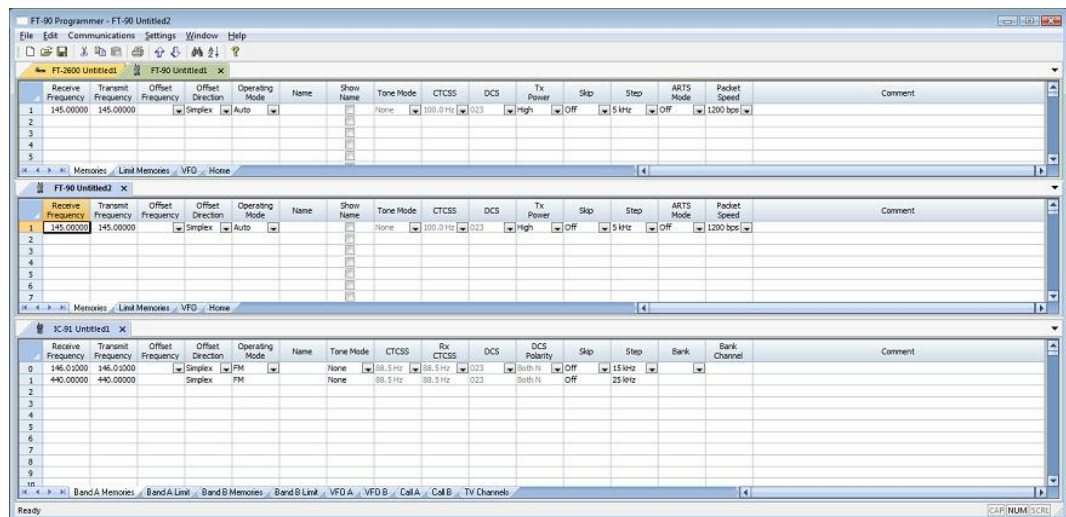
Open the files

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, simple 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 Menu Item Cross Reference

The Programmer presents all the options for the radio in easy to use 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.

Presented here is a cross reference list that details the item as presented in the manual with where you will find the setting for that item in the Programmer.

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

Settings | Radio Menu Settings | Common tab | Auto Power Off

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

| Set Mode | | |
|-----------|---------------|--|
| Menu Item | | Programmer Item |
| 1 | Antenna ATT | Settings Radio Menu Settings Common tab Antenna Attenuator |
| 2 | APO | Settings Radio Menu Settings Common tab Auto Power Off |
| 3 | ARTS Beep | Settings Radio Menu Settings ARTS/CW/EAI tab ARTS Beep |
| 4 | ARTS Interval | Settings Radio Menu Settings ARTS/CW/EAI tab ARTS Interval |
| 5 | Bank Link | Settings Bank Names and Linking |
| 6 | Bank Name | Settings Bank Names and Linking |
| 7 | BCLO | Settings Radio Menu Settings Common tab Busy Channel Lockout |
| 8 | Beep Edge | Settings Radio Menu Settings Sounds tab Band Edge Beep |
| 9 | Beep Level | Settings Radio Menu Settings Sounds tab Beep Level |

| | | |
|----|------------------|---|
| 10 | Beep Melody | Settings Radio Menu Settings Sounds tab User Beep Melody |
| 11 | Beep Select | Settings Radio Menu Settings Sounds tab User Beep Selection |
| 12 | Bell Ringer | Settings Radio Menu Settings Sounds tab CTCSS/DCS Bell |
| 13 | Bell Select | Main page Bell (this option can be set for each memory channel) |
| 14 | Busy LED | Settings Radio Menu Settings Common tab Busy LED |
| 15 | Clock Shift | Main Page Clock Shift (this option can be set for each memory channel) |
| 16 | CW ID | Settings Radio Menu Settings ARTS/CW/EAI tab CW ID |
| 17 | CW Learning | The option is engaged from the face of the radio. |
| 18 | CW Pitch | Settings Radio Menu Settings ARTS/CW/EAI tab CW Pitch (in Learning section) |
| 19 | CW Training | The option is engaged from the face of the radio. |
| 20 | DC Voltage | Not to be set from the Programmer. Access this menu item from the face of the radio to check the current DC voltage available to the radio. |
| 21 | DCS Code | Main screen DCS (This option can be set for each memory channel. The option cannot be changed unless Tone Mode is set to a DCS selection that uses this code.) |
| 22 | DCS Inversion | Main screen DCS Polarity (This option can be set for each memory channel. The option cannot be changed unless Tone Mode is set to a DCS selection that uses this option.) |
| 23 | DTMF Delay | Settings Radio Menu Settings DTMF / Internet tab DTMF Delay (in DTMF Settings section) |
| 24 | DTMF Auto/Manual | Settings Radio Menu Settings DTMF / Internet tab Auto Dialer (in DTMF Settings section) |
| 25 | DTMF Select | Settings Radio Menu Settings DTMF / Internet tab Channel (in DTMF Settings section) |
| 26 | DTMF Speed | Settings Radio Menu Settings DTMF / Internet tab DTMF Speed (in DTMF Settings section) |

| | | |
|----|------------------|---|
| 27 | EAI | Settings Radio Menu Settings ARTS/CW/EAI tab Enable (in EAI section) |
| 28 | EAI Time | Settings Radio Menu Settings ARTS/CW/EAI tab Time (in EAI section) |
| 29 | Emergency Select | Settings Radio Menu Settings ARTS/CW/EAI tab Emergency Signal (in Emergency section) |
| 30 | Extended Menu | Settings Radio Menu Settings VFO and Menu Skip Extended Menu On (Hides Items) |
| 31 | FW Key Hold Time | Settings Radio Menu Settings Common tab FW Key Timer |
| 32 | Half Deviation | Main screen Half Dev (This option can be set for each memory channel.) |
| 33 | Home VFO | Settings Radio Menu Settings Common tab Home VFO Dial |
| 34 | Home/Reverse | Settings Radio Menu Settings Common tab HM/RV |
| 35 | INT Manual/Auto | Settings Radio Menu Settings DTMF / Internet tab Auto Dialer Mode (in Internet (Wires) Settings section) |
| 36 | Internet | Not in the Programmer. Engaged from the face of the radio. |
| 37 | Internet Code | Settings Radio Menu Settings DTMF / Internet tab Access Number (in Internet (Wires) Settings section) |
| 38 | Internet Key | Settings Radio Menu Settings Common tab Internet Key (in Programmable Key Assignments section) |
| 39 | Internet Mode | Settings Radio Menu Settings DTMF / Internet tab Link Mode (in Internet (Wires) Settings section) |
| 40 | Internet Select | Settings Radio Menu Settings DTMF / Internet tab DTMF and Name table (in Internet (Wires) Settings section) |
| 41 | Lamp | Settings Radio Menu Settings Common tab Lamp (in Display section) |
| 42 | Language | Settings Radio Menu Settings Common tab Language |
| 43 | LCD Contrast | Settings Radio Menu Settings Common tab LCD Contrast (in Display section) |

| | | |
|----|------------------|--|
| 44 | LCD Dimmer | Settings Radio Menu Settings Common tab LCD Dimmer (in Display section) |
| 45 | LED Light | Not in Programmer. Engaged from the face of the radio. |
| 46 | Lock | Settings Radio Menu Settings Common tab Lock (selection from list box for Lock condition) |
| 47 | Memory Fast Step | Settings Radio Menu Settings Common tab Mem Fast Step |
| 48 | Memory Name | Main screen Name (This option can be set for each memory channel.) |
| 49 | Memory Protect | Settings Radio Menu Settings Common tab Memory Protect (check box) |
| 50 | Memory Skip | Main screen Skip (This option can be set for each memory channel.) |
| 51 | Memory Write | Settings Radio Menu Settings Common tab Memory Write |
| 52 | Message List | Settings Radio Menu Settings Messages tab Member list (in Message (Member) List section) |
| 53 | Message Register | Settings Radio Menu Settings Messages tab Sel check box (in the Message Select (List) section) |
| 54 | Message Select | Settings Radio Menu Settings Message tab Message Text (in the Message Select (List) section) |
| 55 | Mic Gain | Settings Radio Menu Settings Common tab Mic Gain |
| 56 | Moni/T-Call | Settings Radio Menu Settings Common tab Moni/TCall |
| 57 | Mute | Settings Radio Menu Settings Common tab Audio Mute Level |
| 58 | Off Timer | Settings Radio Menu Settings Common tab Off (in Timers section) |
| 59 | On Timer | Settings Radio Menu Settings Common tab On (in Timers section) |
| 60 | Opening Message | Settings Radio Menu Settings Messages tab Type (in Opening Message section) |
| 61 | Pager Ans-Back | Settings Radio Menu Settings ARTS/CW/EAI tab Answer Back (in Pager section) |
| 62 | Pager Code-Rx | Settings Radio Menu Settings ARTS/CW/EAI tab Receive Codes (in Pager section) |

| | | |
|----|----------------|--|
| 63 | Pager Code-Tx | Settings Radio Menu Settings ARTS/CW/EAI tab Transmit Codes (in Pager section) |
| 64 | Password | Settings Radio Menu Settings Common tab edit box in Password section |
| 65 | PR Frequency | Main screen User CTCSS (This option can be set for each memory channel. The option cannot be changed unless Tone Mode is set to User CTCSS selection.) |
| 66 | Pri Revert | Settings Radio Menu Settings Common tab Priority Revert (check box) |
| 67 | Pri Time | Settings Radio Menu Settings Common tab Priority Time |
| 68 | PTT Delay | Settings Radio Menu Settings Common tab PTT Delay |
| 69 | RPT ARS | Settings Radio Menu Settings Common tab Auto Repeater Shift (check box) |
| 70 | RPT Shift | Main screen Offset Direction (This option can be set for each memory channel.) |
| 71 | RPT Shift Freq | Main screen Offset Frequency (This option can be set for each memory channel.) |
| 72 | Rx Mode | Main screen Operating Mode (This option can be set for each memory channel.) |
| 73 | Save Rx | Settings Radio Menu Settings Common tab Rx Save |
| 74 | Save Tx | Settings Radio Menu Settings Common tab Tx Save (check box) |
| 75 | Scan Lamp | Settings Radio Menu Settings Common tab Lamp (in Scanning section) |
| 76 | Scan Re-Start | Settings Radio Menu Settings Common tab Restart Time (in Scanning section) |
| 77 | Scan Resume | Settings Radio Menu Settings Common tab Resume Mode (in Scanning section) |
| 78 | Sensor Display | Settings Radio Menu Settings Common tab Sensor (in Display section) |
| 79 | Sensor Info | Not something to be programmed. This is the display of the |

| | | |
|----|-----------------|--|
| | | information from an internal sensor of the radio. Access it as needed to check the internal workings of the radio. |
| 80 | Set Mode CSR | Settings Radio Menu Settings Common tab Set Mode Cursor (in Display section) |
| 81 | Set Mode Format | Settings Radio Menu Settings Common tab Set Mode Format (in Display section) |
| 82 | Smart Search | Settings Radio Menu Settings Common tab Smart Search |
| 83 | S-Meter Symbol | Settings Radio Menu Settings Common tab S-Meter Symbol (in Display section) |
| 84 | Spec-Analyzer | Settings Radio Menu Settings Common tab Spec-Analyzer |
| 85 | SQL Level | Settings Radio Menu Settings Sounds tab Squelch (This option can be set differently for several conditions. The Programmer presents all those options on the Sounds tab.) |
| 86 | SQL S-Meter | Main screen S-Meter Squelch (This option can be set for each memory channel.) |
| 87 | SQL Split | Settings Radio Menu Settings Common tab Split Tone (check box) Note: This options is engaged automatically by the Programmer for channels that have a split tone option set for Tone Mode. |
| 88 | SQL Type | Main screen Tone Mode (This option can be set for each memory channel. The option must be set before a CTCSS frequency or DCS code can be changed.) |
| 89 | Step Frequency | Main screen Offset Frequency (This option can be set for each memory channel.) |
| 90 | Time Set | Not addressed in the Programmer. If it were, the time on the radio would reset to the value in the file each time the radio was programmed with this file. Once the option is set on the radio, it is not changed by the Programmer. |
| 91 | Tone Frequency | Main screen CTCSS (This option can be set for each memory channel. The option cannot be changed unless Tone Mode is set to a CTCSS option that uses this value.) |
| 92 | Tone-SRCH Mute | Settings Radio Menu Settings Common tab Tone Search Mute (check box) |
| 93 | Tone- | Settings Radio Menu Settings Common tab Fast Tone Search |

| | | |
|-----|---------------|--|
| | SRCH Speed | (check box) |
| 94 | TOT | Settings Radio Menu Settings Common tab Time Out Timer |
| 95 | VFO Mode | Settings Radio Menu Settings Common tab VFO Mode |
| 96 | VFO Skip | Settings Radio Menu Settings VFO and Menu Skip Ham Bands (table) |
| 97 | Vibrator | Settings Radio Menu Settings Sounds tab Vibrator (This item can be set separately for Band A and Band B) |
| 98 | Vibrator Mode | Settings Radio Menu Settings Sounds tab Vibrator Mode |
| 99 | Volume Mode | Settings Radio Menu Settings Common tab Volume Key Mode (In the Programmer, the settings for this option, Hold and 3 sec, reflect the description of the Normal and Auto Back functions as detailed in the User's Manual for the radio.) |
| 100 | Wx Alert | Settings Radio Menu Settings Common tab Weather Alert (Check box in Weather section) |

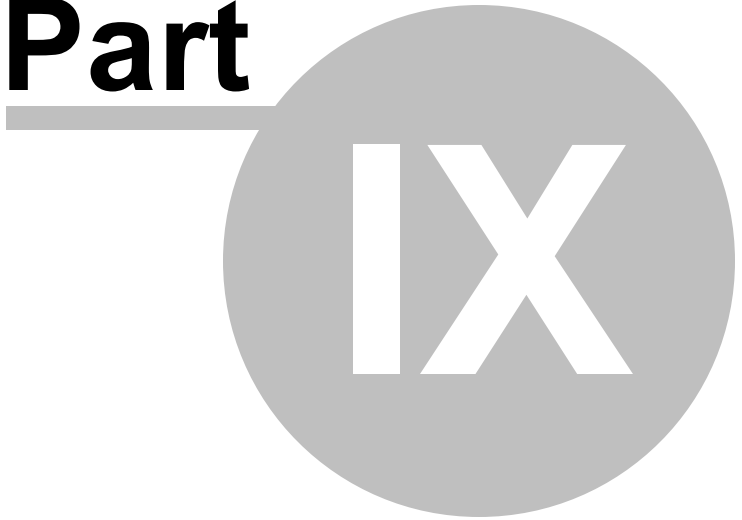
APRS/GPS Set Mode

| | | |
|---|------------------|--|
| 1 | APRS Destination | Not accessible to the Programmer. Fixed value. |
| 2 | APRS Filter | Settings Radio Menu Settings ARPS Beacon Settings tab Beacon Filter |
| 3 | APRS Modem | Settings Radio Menu Settings ARPS / GPS tab APRS Modem |
| 4 | APRS Msg Flash | Settings Radio Menu Settings Messages tab Message Flash (Message (MSG), Group Message (GRP), and Bulletin (BLN)) |
| 5 | APRS Msg Text | Settings Radio Menu Settings Messages tab Message Text |
| 6 | APRS Msg Vibrat | Settings Radio Menu Settings Messages tab Message Vibrate (Message (MSG), Group Message (GRP), and Bulletin (BLN)) |
| 7 | APRS Mute | Settings Radio Menu Settings ARPS / GPS tab B-Band Mute (check box) |
| 8 | APRS Ringer Msg | Settings Radio Menu Settings Messages tab Message Ringer (check box) |

| | | |
|----|------------------|--|
| 9 | APRS Ringer Bcon | Settings Radio Menu Settings ARPS Beacon Settings tab Beacon Ringer (check box) |
| 10 | APRS Unit | Settings Radio Menu Settings ARPS / GPS tab APRS Unit |
| 11 | APRS Tx Delay | Settings Radio Menu Settings ARPS / GPS tab TX Delay |
| 12 | Beacon Interval | Settings Radio Menu Settings ARPS Beacon Settings tab Beacon Interval |
| 13 | Beacon Stats Txt | Settings Radio Menu Settings ARPS Beacon Settings tab Beacon Status Text |
| 14 | Beacon Tx | Settings Radio Menu Settings ARPS Beacon Settings tab Beacon Transmit |
| 15 | Com Port Setting | Settings Radio Menu Settings ARPS / GPS tab Com Port Settings |
| 16 | Digi Path | Settings Radio Menu Settings ARPS / GPS tab Digi Path |
| 17 | GPS Datum | Settings Radio Menu Settings ARPS / GPS tab Datum (in GPS section) |
| 18 | GPS Power | Settings Radio Menu Settings ARPS / GPS tab Antenna Power (check box in GPS section) |
| 19 | GPS Time Set | Settings Radio Menu Settings ARPS / GPS tab Time Set (in GPS section) |
| 20 | GPS Unit | Settings Radio Menu Settings ARPS / GPS tab Altitude, Position, Speed (in GPS section) |
| 21 | Msg Group | Settings Radio Menu Settings Messages tab Message Group (in Message Settings section) |
| 22 | My Callsign | Settings Radio Menu Settings ARPS / GPS tab My Callsign (in APRS Misc section) |
| 23 | My Position | Settings Radio Menu Settings ARPS / GPS tab My Position (in GPS section) |
| 24 | My Symbol | Settings Radio Menu Settings ARPS / GPS tab My Symbols (in APRS Misc section) |
| 25 | Position | Settings Radio Menu Settings ARPS / GPS tab Position |

| | Comment | Comment |
|----|---------------|---|
| 26 | Smart Beacons | Settings Radio Menu Settings Beacon Settings tab Smart Beacon Setting (to customize) AND Smart Beacon Type (to set one for use when Beacon Transmit is set to Smart). |
| 27 | Time Zone | Settings Radio Menu Settings ARPS / GPS tab Time Zone |

Part



9 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), set the

- Offset Direction to SIMPLEX,
- Tone Mode to DCS,
- 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 [ARTS / CW / EAI] tab of the Radio Menu Settings screen of the Programmer.

To engage ARTS from the face of the radio press the FW then the [4] key. To disengage ARTS, press the [4] key.

ARTS Beep - 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.

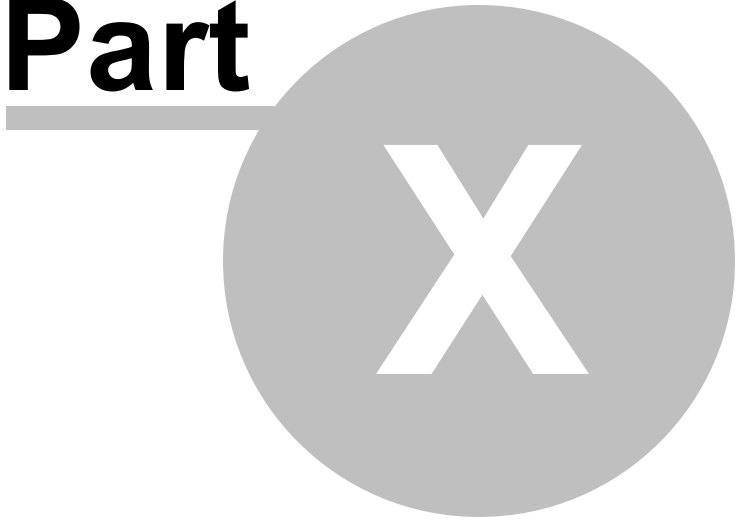
Note: ARTS will not function if the PTT is locked.

Transmissions during the ARTS function, whether or not accompanied by voice transmissions, require that you ID every 10 minutes to satisfy FCC identification requirements. Remember to enter your callsign into the CW ID field and check Enable to engage this part of the function.

CW ID - The callsign, name, or other identifying information (up to 16 characters) that will be transmitted to identify this radio. Enter the callsign and check Enable to activate its use by the radio.

When using ARTS this must be a callsign for legal operations. If this is used for EAI in emergency situations, other identifying information may be more helpful.

Part



10 Emergency Automatic ID

The Emergency Automatic Identification (EAI) feature can be used for searching for persons who are incapacitated. Search-and-rescue personnel who may have become injured in a debris field would especially benefit from this feature.

With EAI enabled, the radio of the incapacitated person will respond automatically when a unique CTCSS tone pair is received. The others of the group can perform direction-finding on this signal to locate the person. The callsign of the incapacitated person will also be transmitted if these options have been set for this feature.

The EAI feature requires several steps for setup. These include:

- 1) Storing the desired frequency into the EAI Memory Channel
- 2) Setting up the CTCSS Tone Pair into the Receiving Pager Memory
- 3) Entering the callsign, name, or other identifying information into the CW ID.
- 4) Setting the response interval.

Details are included here for setting up each of these from the Programmer

1) Storing the desired frequency into EAI Memory Channel

- On the main screen of the Programmer, select the EAI tab from those at the bottom of the screen.
- Enter the details for the channel to be used.

Note: This must be a UHF frequency.

2) Setting up the CTCSS Tone Pair into the Receiving Pager Memory

- Access the Settings screen using Settings | Radio Menu Settings from the main screen of the Programmer.
- Once there, select the [ARTS / CW / EAI] tab.
- The CTCSS Tone pair is selected from those available in the Receive Codes fields of the Pager section.

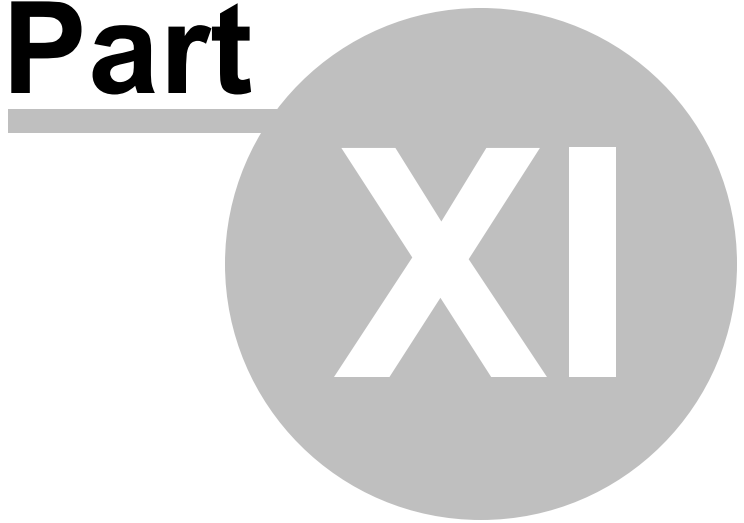
3) Entering the callsign, name, or other identifying information into the CW ID.

- This will identify the receiving radio in the emergency situation (the one of the person in trouble). This automatic ID option is especially useful when voice transmission is not possible.
- Access the Settings screen using Settings | Radio Menu Settings from the main screen of the Programmer.
- Once there, select the [ARTS / CW / EAI] tab.
- Enter your callsign, name or other identifying string (up to six characters) in the CW ID.

4) Setting the response interval.

- Access the Settings screen using Settings | Radio Menu Settings from the main screen of the Programmer.
- Once there, select the [ARTS / CW / EAI] tab.
- Set Timer in the EAI section on this screen. The radio can be set to transmit a brief (0.5 second) beep tone every 2.5 seconds (Interval) or to transmit continuously (Continuous) for the time assigned.

Part



11 Emergency Operations

Emergency Operations

The radio has an Emergency feature that must be activated from the face of the radio. This feature would be helpful for finding someone lost, but not incapacitated, or for alerting others traveling with you of a danger in your vicinity.

The Emergency feature is activated by pressing and holding in the **[HM/RV]** key for one second. To disable, hold the **[HM/RV]** key again for one second.

When this feature is engaged

- The radio is placed on the UHF amateur band Home channel (be sure everyone in the group is on the same frequency);
- The radio emits a loud "Alarm" sound (the volume is controlled by the DIAL knob while pressing & holding the **[VOL]** key);
- The LED of the radio flashes in white;
- The emergency feature can be disabled temporarily when the PTT is pressed allowing for transmission on the UHF Home channel frequency; and
- The emergency feature automatically begins again 2 seconds after the transmission has ended.

Using the settings of the Emergency option on the ARTS/CW/EAI tab of the menu settings screen (Settings | Radio Menu Settings | ARTS/CW/EAI), select the Emergency Signal to be used when the Emergency function is engaged. Available values include the following with a default of Beep and Strobe.

- Beep+Strobe: Loud alarm sounds along with flashing of the LED.
- Beep: Loud "Alarm" sounds.
- Strobe: The LED flashes bright white.
- Beam: The LED glows continuously in white.
- Beam + Beep: A loud alarm sounds and the LED glows white continually.

- CW: The Busy LED flashes the message in 5 wpm Morse code*. The message is entered in the Message field of the Emergency section.
- CW+Beep: The LED flashes the message in 5 wpm Morse Code* and simultaneously a loud alarm is sounded.
- CW ID TX S: Transmits the programmed Emergency message (Morse Code)* and flashes the white LED light, according to the programmed Emergency message (Morse Code)* on the air beginning one minute after activation of the Emergency function.

**** Note: The internationally-recognized Morse Code "SOS" message (. . . - - - . . .) is programmed at the factory for the Emergency message.***

To program the Emergency Message:

Press [MODE] key to display previously stored emergency message

Press and hold the [HM/R] key for 2 seconds to clear previous message

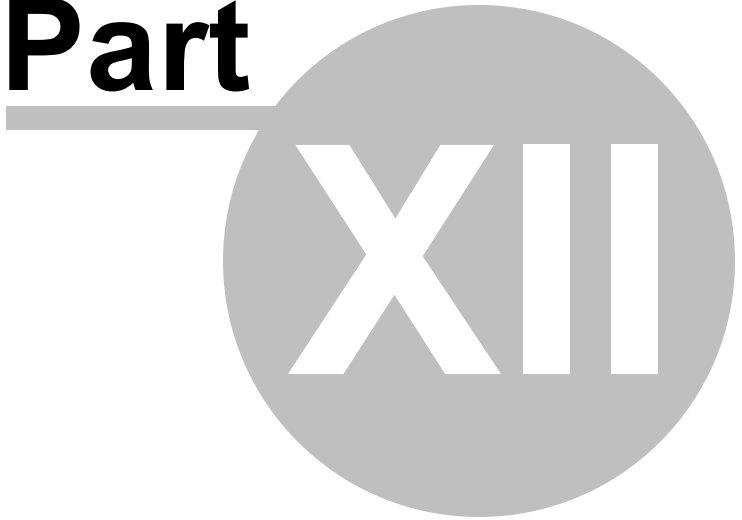
Rotate DIAL knob (or press a keyboard key) to select the first letter/number of message

Press [MODE] key to move to next character

If you make a mistake press the [BAND] key to backspace & re-enter correct character. Press & hold the [HM/RV] key for 2 seconds to delete all data after the cursor that may have been previously entered/ stored erroneously

When message is complete, press [MODE] key again to confirm message, then press the PTT switch to save the settings and exit to normal operation.

Part



XII

12 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.

The squelch then opens so the caller is heard, and the paging ringer immediately sounds, if activated. When you press the PTT to transmit, the CTCSS tone pair that is stored in the Transmitting Pager Memory will be transmitted automatically allowing you to talk to the other radio.

On the ***paged*** radio, the Coded Squelch will cease automatically after the incoming page ends. This allows you to talk to others with this functionality and others on the same frequency without this functionality (this person should have no tone mode set for the channel).

Meanwhile, on the ***paging*** radio, the Coded Squelch will be disabled when the PTT is released after the initial paging transmission. Conversation can continue between all parties and others on the frequency.

Note: If there are others in the group without the Enhanced Paging and Coded Squelch system, they cannot initiate a call to you 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) **Set the Bell to ring when a call is received** (Optional). This is done by setting the Bell column on the Main screen of the Programmer to a selection other than Off.
- 4) **From the menu at the top of the screen, select Settings | Radio Menu Settings**. The Menu Settings screen opens.
- 5) **Select the [ARTS / CW / EAI] tab**.
- 6) **In the Pager section on this page, 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.
- 7) **Check the box for Answer Back to have the radio respond automatically to the received call** (optional) Contingent on FCC rules governing automatic transmissions in the 144 Mhz frequency range.
- 8) If the Bell option is engaged (Bell column on the main page of the Programmer), **select the "Sounds" tab of the Menu Settings screen**.
- 9) **Set the option for CTCSS/DCS Bell to the number of rings or Continuous**.
- 10) If the Bell option is set to **"User 1, 2, or 3"** (on the main page of the Programmer), **configure that user melody in the User Beep Melody section** of this screen.
- 11) **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.
- 12) **Select File | Exit to close this screen** and return to the main screen of the Programmer.
- 13) Save the frequency file to make the setup for this process permanent.

Part



13 Internet / WIRES

WIRES™ (Wide-Coverage Internet Repeater Enhancement System) is a comprehensive and easy-to-use system for linking repeaters and/or home stations together, using Internet voice technology. Similar to voice over IP phone systems, this Internet connection can put you in touch with others around the world using your handheld.

Now you can talk around the world using your hand-held or mobile radio via a WIRES-equipped node. You can easily set up your own WIRES™ node with a minimal equipment investment.

This site, www.vxstd.com/en/wiresinfo-en/, contains information regarding the WIRES™ Internet linking system from Vertex Standard. We welcome you to the World of WIRES™. The site has lots of details for this feature including repeater frequencies, tones and access IDs. Find the latest details there.

The radio can be used to access a "node" (repeater or base station) which is tied into the Vertex Standard WIRES™ (Wide-Coverage Internet Repeater Enhancement System) network. The VX-8 can operate on the SRG (Sister Radio Group) or FRG (Friendly Radio Group) mode.

Note: If other users report that you always have a DTMF "beep" at the beginning of each transmission, and you are not operating in conjunction with Internet access, disable the Internet access feature from the face of the radio by quickly pressing the [⊗] button. The [⊗] icon that indicates use of this feature will disappear from the screen once the feature is disabled.

Part

XIV

14 Programming Memory Channels

The radio has lots of different types of memory channels. In the Programmer, each of these is programmed in a spreadsheet dedicated to that "type" of memory.

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

Regular Memory Channels - The several hundred all radios have these days. The ones you will use most often.

Home Channels - These are special memory channels that have one button access from the face of the radio.

Limit Memories - These memory channels can be used as "regular" memories giving you that many more memory channels for individual use; however, these also control the top and bottom range of scanning when you begin scanning on one of these.

Marine Banks - Many of the radios have preprogrammed frequencies in the Marine band. These channels can be assigned to banks and have names appended for better organization.

Skip Memories - Frequencies that are to be skipped during VFO scanning.

VFO A and B 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 settings at any time, use the Regular Memory Channels.

Weather Channels - Preprogrammed NOAA weather frequencies. These can have names appended for easier identification.

EAI Memory - The details for the frequency used during Emergency Automatic Identification operations.

Details on the editing abilities of the Programmer are included in the ***Easy Editing in the Grid*** section. Review these details to make data entry even easier.

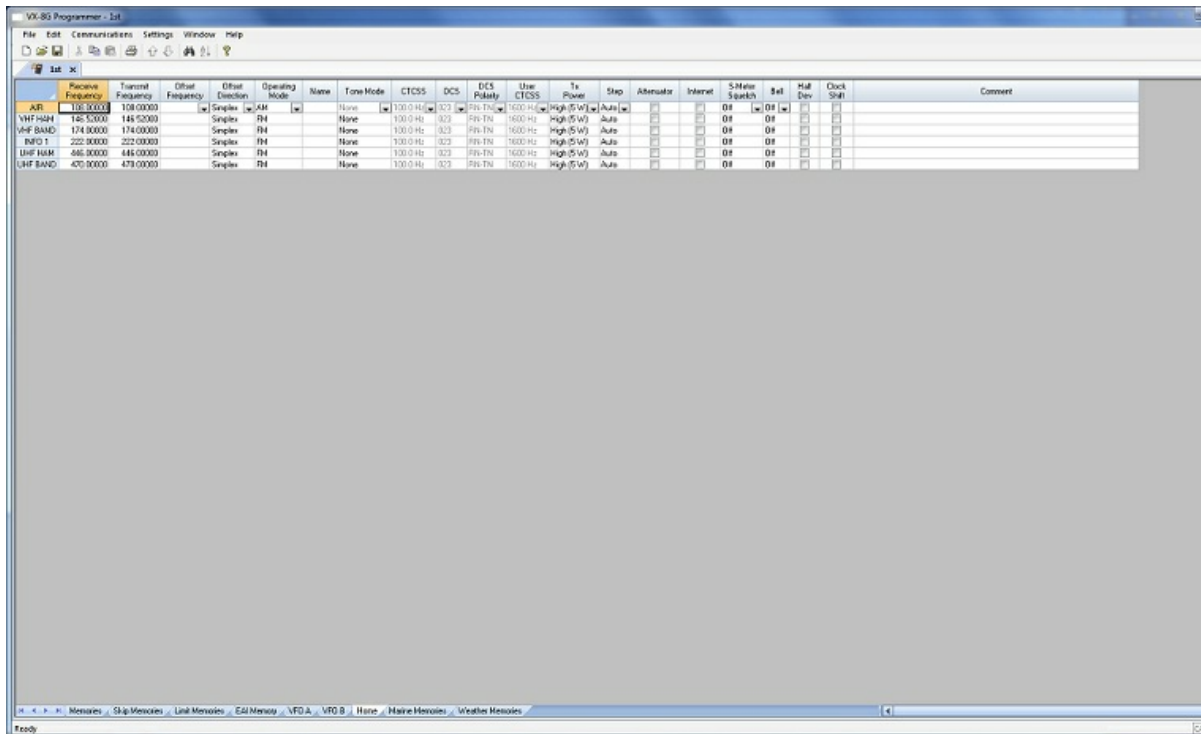
At any time, these topics are available from the Table of Contents at the left.

14.1 Home Channels

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 of the Programmer.

Note: These channels MUST be programmed with a valid frequency for the band. The programmer will not let you program the radio with a file that is lacking a frequency in one of these memories. ANY frequency in the band is acceptable. If you are in doubt of a frequency within a band, open a new file in the programmer and check for the value that was in a default radio.

The UHF (430) Home channel is used during "Emergency channel operations". Plan carefully if you are using that feature of the radio along with other Home channel activities.



The information to be programmed for the Home Channels is the same as that for the regular Memories. See Regular Memory Channels for the details.

Once programmed and sent to the radio, the Home channels are recalled by pressing the [F/W] then the [Hm/Rv] key while operating in either VFO or Memory Mode. The radio will access the Home channel for the band in which you are currently operating.

To return to the last operating frequency (either VFO or Memory channel), again press the [F/W] then the [Hm/Rv] key.

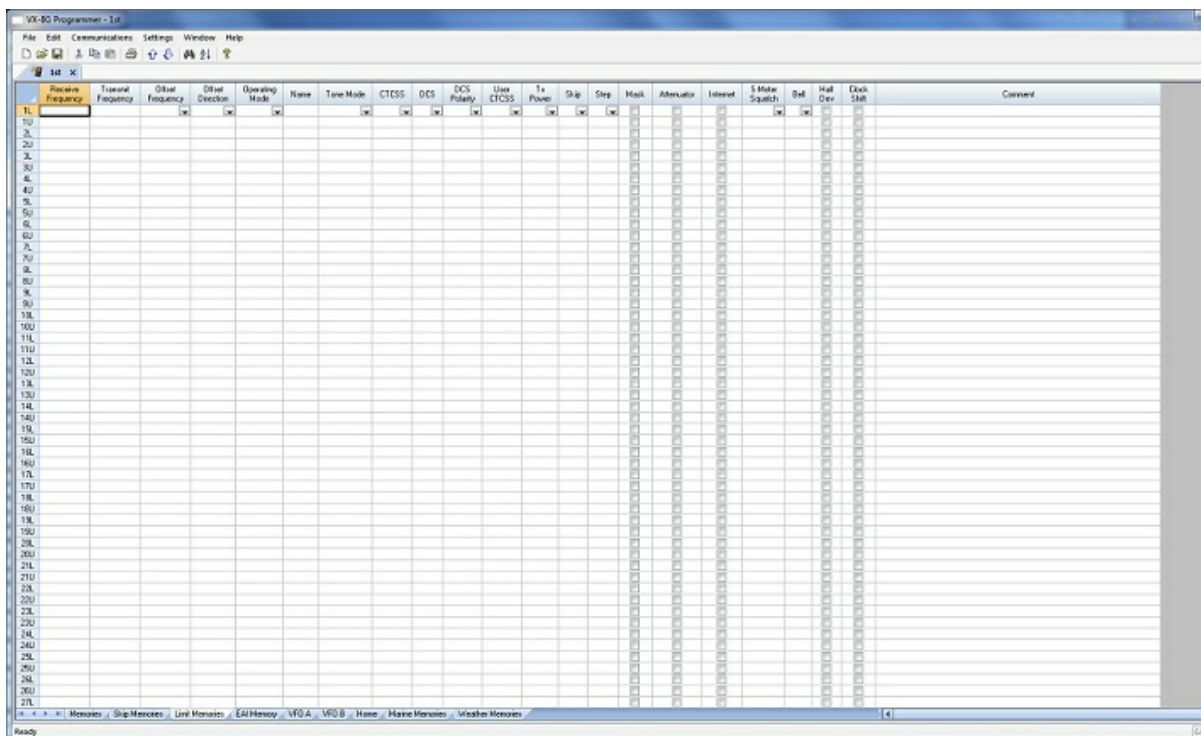
To set the functionality of the [Hm/Rv] key to "Home", access the Settings screen (Settings | Radio Menu Settings) then make your selection with the drop down box on the Common tab of that screen. Save your settings before exiting the Settings screen. (Remember: The red X at the upper left means cancel. If you close the settings screen by clicking on that "X", the Programmer will lose the changes without warning since you have chosen to cancel your work.)

14.2 Limit Memories

This feature allows you to set in band limits for either scanning or manual VFO operation. These limits let you operate in a lesser range of frequencies while in VFO mode.

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 Memory Channels section for the details about the information to be entered.

Note: In the Limit Memory channels, Step becomes much more important since you plan to begin scanning from one of these channels. Remember that 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.

Options for scanning can be set in the Programmer. Select Settings | Radio Menu Settings from the menu at the top of the screen. Once on the Settings screen, scanning functions are found on the Common tab.

See the operating manual of the radio for details on accessing this scanning method from the face of the radio.

14.3 Marine Memories (Banks)

The radio comes preprogrammed with many frequencies in the Marine portions of the band. These channels can be included in the banks of the radio. When operating in Bank mode, these channels will be available along with the regular memory channels in a selected bank.

A channel can be put into none, one, any combination of, or all of the memory banks.

Note: There is no need to put all channels in all banks. All channels are available when you are not operating in Bank mode.

14.4 Regular Memory Channels

The Main window of the Programmer is designed for memory channel entry.

All details associated with the memory channels are programmed from this screen. These are not all the functions of the radio. Other features are set once for the radio to use no matter which memory channel you're on. These items are set on the Settings screen accessed through Settings | Radio Menu Settings from the menu at the top of the screen. In the VX-8G, there are LOTS of other options to be set.

Columns continue off the right side of the window. Use the bar at the bottom of the screen to move to these columns or press ENTER to step through each column. Columns can be hidden using the selections of the Preferences screen. Select Settings | Preferences in the menu to access this screen. These columns remain hidden in this and any other file (new or otherwise) until they are "unhidden" on the Preferences screen. Information is entered into these columns automatically when a new frequency is entered. The information in a hidden column is always there: it is just not visible.

Make programming extra easy. Try Simple Mode in the software for even less to enter. A convenient option is the "**Simple Mode**" for quick memory channel entry. In Simple Mode only the columns needed for the minimum information to set up the channel are shown on the screen. Extra columns are hidden and filled with default information. To put the screen into Simple Mode, select Edit | Simple Mode from the menu. While in Simple Mode, you cannot access the Preferences screen. The Programmer controls what columns are hidden while in this mode.

Details to be entered for Memory Channels

Receive Frequency: Enter a receive frequency for the memory channel. Acceptable frequencies are detailed in the operating manual for the radio.

- 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 or any other band order).
- The first memory channel must be programmed.
- While memory channels can be entered in any order, the sub-band receives on fewer bands than does the main band. Realize that memory channels containing frequencies outside the range of the sub-band will not be displayed there as they will be on the main band. The radio will simply skip over that memory channel when tuning in memory mode or scanning on the

sub-band.

Transmit Frequency: Enter a specific transmit frequency or let the Programmer calculate this frequency based on the offset. This field is always available; however the transmit frequency for an "odd split" is the only value that must be manually entered. Acceptable transmit frequencies are 144 - 148 MHz and 430 - 450 MHz.

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 a "Split" pair: When you are given information to program your radio, you may be given a "pair" of frequencies (one for transmit and a different one for receive). This pair is referred to as a split.

In a Yaesu radio, a split is truly "odd" if the difference between the two frequencies is not evenly divisible by 50. If this is the case, the pair can be entered with a plus or minus offset making the radio perform more efficiently. It also gives you back the Reverse function should you ever need to listen to the input frequency for the repeater. If this is the case, see the section on Using a Non-Standard Offset Frequency Value just below in this Help section.

This information is easily entered into the Programmer and sent to the radio.

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you list on.
- 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 into this field. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)
- Press Enter.
- The Programmer will set the Offset Frequency and Offset Direction as needed for this pair. Ignore these two columns. The information in these two columns may change when the file is opened again if the offset can be figured to a 50kHz value and the direction set to plus or minus. This gives you back functionality on the radio that is lost with a channel marked "Split". If you see this change, ignore it. The radio will function exactly the same when you use it with these different settings.

You are finished with this entry unless you need to enter Name, Tone or other details for

this memory channel.

Offset Frequency: Standard offsets include 100, 500, and 600 kHz and 1.0, 1.6, 1.7, 3.0, 5.0, 7.6, 25.0, and 99.0 MHz. The default Offset Frequency depends on the band of the Receive Frequency being entered (i.e., 2M Band is always 600 kHz, 430 Band is always 5.0 MHz, etc).

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 that value into the Offset Frequency field after the Receive Frequency has been entered and the Offset Direction has been set appropriately to Plus and Minus. Values would be entered as an exact number including the decimal to denote kHz.

- Given the pair 146.650 and 147.300. These values have an offset frequency of 650 kHz.
- Enter the Receive Frequency, 146.650. Press Enter.
- Press Enter repeatedly until you get to the Offset Direction column. Set the Offset Direction to Plus.
- Press Shift-Tab to move to the left to the Offset Frequency column (or use the mouse to select that column).
- The Offset Frequency is entered as .650 (decimal six five zero) - Without the decimal, an error is raised in the Programmer that a valid Offset Frequency should be entered.
- Once you press enter to leave the Offset Frequency field, notice that the Tx Frequency equals 147.300.

As another example:

- 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 (does not divide evenly by 50).
- This pair requires entry of both the Receive and Transmit frequencies.
- The Programmer will set the Offset Direction set to Split automatically once the Tx frequency is entered and you leave that cell.

Offset Direction: This function denotes how the receive and transmit frequency differ.

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 nonstandard offset. The user enters both the receive and transmit frequencies.

Operating Mode: Assign FM, AM, or WFM as appropriate for the frequency.

Name: Enter an Alpha/Numeric tag (up to 16 characters) to a memory channel to provide an easy reminder of the function of a particular channel. The Name is displayed automatically on the radio beneath the operating frequency. The name will not be displayed if the radio is operated in Dual Receive mode.

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.

The radio offers CTCSS (Continuous Tone Coded Squelch System) or DCS (Digital Coded Squelch) to be tailored to your particular needs.

Use of either of the tone systems requires two steps:

- 1) Turning on the Tone Mode and
- 2) Selecting the CTCSS tone or DCS code from the values in the appropriate column.

Turning on the Tone Mode:

None - No tone system activated. Even if the CTCSS Tone or DCS Code column is set to the appropriate value, transmissions will not get through unless this column is set to an appropriate function.

Tone - CTCSS tone generator is activated for transmission only (this mode is used for many if not most repeater operations). When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list. 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 is activated for both transmission and reception (only signals "encoded" with the matching tone will open the squelch. Your radio will remain silent otherwise). When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list.

The value must be in the list. The radio uses the frequency set in the CTCSS Tone column for both Encode and Decode (transmission and reception) With TSql selected as the Tone Mode, the value that appears in the DCS code column is ignored by the radio.

DCS - Digital Coded Squelch mode is activated for transmission and reception. When this option is selected, the DCS column becomes available. Select the code from those in the list. The value must be in the list. The radio uses the DCS Code for both transmissions and reception. With DCS selected as the Tone Mode, the value that appears in the CTCSS tone column is ignored by the radio.

Rev CTCSS (Rev Tone) - Activates the reverse CTCSS Decoder which mutes the receiver when a matching CTCSS tone is heard. When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list.

User CTCSS (PR Freq) - Activates the User programmed Reverse CTCSS Decoder which mutes the receiver when the matching tone is received. When this option is selected, the User CTCSS column becomes available. Select a value between 300Hz and 3000Hz (in 100 Hz steps). The default is 1600Hz. With User CTCSS selected as the Tone Mode, the values that appear in the CTCSS and DCS tone columns are ignored by the radio.

Note: User CTCSS is not a feature that allows you to program a custom tone for repeater use. Alternately, it is not to be used for the tone needed for repeater operations. This is a special feature of the radio designed for a specific function rather than general use.

Pager - Activates the Enhanced Paging and Code Squelch system.

Note: When this option is selected, none of the tone frequency columns on the main screen become available. Tones are not set here for this function. See the Enhanced Paging and Coded Squelch (EPCS) section of this Help for details on setting up the other options for this function.

Message - Activates the Message feature. See the section on this feature for details on setting up the other options for this function.

D Code - Digital Coded Squelch mode is activated for transmission only. With D 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 Tone and DCS Code columns

are both used by the radio. The CTCSS Tone selection is used for transmissions while the DCS Code selection is used for reception. Be sure that you set both the CTCSS Tone and the DCS Code once this option is selected.

D Tone - Digital Coded Squelch is activated for transmission and CTCSS decode for reception. With D - TSQL selected as the Tone Mode, the values that appear in the CTCSS Tone and DCS Code columns are both used by the radio. The CTCSS Tone selection is used for reception while the DCS Code selection is used for transmission. Be sure that you set both the CTCSS Tone and the DCS Code once this option is selected.

CTCSS Tone: This field is available when Tone Mode is set to Tone, T Sql, Rev CTCSS, T DCS, or D Tone. Select one of 50 tone frequencies to be used in the Encode or Decode modes. This value is set independently for each memory channel. A value that appears in this field is **ignored** by the radio if one of the tone modes that uses CTCSS is not activated.

DCS Code: This field becomes active when Tone Mode is set to DCS, D Code, T DCS, or D Tone. 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. A value that appears in this field is **ignored** by the radio if one of the tone modes that uses DCS is not activated.

DCS Polarity: This field becomes available when the Tone Mode is set to DCS, D Code, T DCS, or D Tone. Select the function for the "inverted" DCS Tone. See the section on DCS Tone Inversion in this Help for more details on this function of the radio.

Generally, this options is left as the default RN-TN for normal DCS tone operations. The options for this function include:

RN -TN: Receive and transmit the Normal DCS Tone.

RI -TN: Receive the Inverted DCS Tone and transmit the Normal DCS Tone.

RB -TN: Receive both Normal and Inverted DCS Tones and transmit the Normal DCS Tone.

RN - TI: Receive the Normal DCS Tone and transmit the Inverted DCS Tone.

RI -TI: Receive and transmit the Inverted DCS Tone.

RB -TI: Receive both Normal and Inverted DCS Tones and transmit the Inverted DCS Tone.

User CTCSS: This field becomes active when Tone Mode is set to User CTCSS. Select a value between 300Hz and 3000Hz (in 100 Hz steps). The default is 1600Hz.

With User CTCSS selected as the Tone Mode, the values that appear in the CTCSS and DCS tone columns are ignored by the radio.

Note: *User CTCSS is not a feature that allows you to program a custom tone for repeater use. Alternately, it is not to be used for the tone needed for repeater operations. This is a special feature of the radio designed for a specific function rather than general use.*

Tx Power: The output power can be set individually set for each memory channel to address the exact needs of each operation. Select Low 1, Low 2, Low 3, or High for each memory channel. The power out for each of these settings varies for this radio depending on its power source (battery or DC power supply) and frequency.

Skip: Marks selected memory channel to be skipped during scanning. These channels remain available for manual selection by turning the knob.

Off - The channel will be scanned for activity whenever scanning is done.

Skip - The channel will be skipped.

P-Scan - The channel is included in a special scanning group. These channels are scanned when scanning is begun on a P-scan channel.

Step: The frequency that the radio is on 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 Auto / 5 / 6.25 / 10 / 12.5 / 15 / 20 / 25 / 50 / or 100 kHz steps as needed.

Mask: A masked channel is not available for use either during scanning or when the radio is tuned manually in memory mode.

Masking a channel "hides" it until you "unmask" it from the face of the radio or by sending a file with this option unchecked. Only then will it be available for use. This is a good way to prevent another user from accidentally accessing a channel or to store memories for another area that are used only when you visit that place.

Attenuator: Check to enable the front end attenuator that will reduce received signals and noise in an attempt to make reception better in a noisy setting. With this option On, weaker signals may not be heard. The options are On (checked) and Off (unchecked). The default is Off. This is normally a global option in Yaesu radios. This is the first of the radios that allows you to control attenuation for each memory channel giving you more control for operations on each channel.

Internet: Enables / disables connection into the Vertex Standard WIRES™ (Wide-Coverage Internet Repeater Enhancement System) network. See the Radio Menu

Settings | DTMF/Internet section of this Help for more details.

S-Meter Squelch: Adjust the RF Squelch threshold level. As the squelch level increases, weaker signals are not heard and incoming noise is eliminated when listening on the channel. If after you program the radio with this file it receives continuously or does not receive an expected signal, increase or reduce the squelch for the channel.

Bell: During CTCSS Decode (TSql), DCS, Message, or Enhanced Paging Code Squelch (Pager) operation, you may set up the radio so a ringing "bell" sound (or user programmed beep) alerts you to an incoming call. Select from Off (no ring), On (pre-programmed sound), or one of three User defined ringers.

Using this feature requires several things:

- 1) You are using CTCSS Decode (T Sql), DCS, Message, or Enhanced Paging & Code Squelch (Pager) set up for this channel.
 - CTCSS Decode (T Sql) and DCS are set up from the main page of the Programmer by turning on the Tone Mode and setting the CTCSS frequency or DCS code.
 - Enhanced Paging & Coded Squelch (Pager) requires more setup. See the Paging section of this Help for more details.
 - Text Message requires more setup. See the Text Message section of this Help for details.
- 2) You select a Bell option from those listed on the main page of the Programmer.
- 3) You set the action of the bell (number of rings or Continuous) from the Sounds page of the Menu Settings screen accessed from the Settings | Radio Menu Settings item in the menu at the top of the main screen.

A fourth step is required if you are using a customized sound for the bell.

The User defined ringers are set up on the Sounds tab of the Menu Settings section of the Programmer accessed from the main screen with Settings | Radio Menu Settings.

Half Dev(iation): Check the box to engage Narrow (+ 2.5 kHz) Deviation as compared to + 5 kHz normally or when this option is off. This change helps prevent interference with other stations in a crowded environment.

Note: The receiver's IF filter bandwidth is not changed via this setting. This setting will not enable the radio to perform on new commercial channels that are on 2.5kHz steps. Those frequencies are reserved for commercial use and are not available to amateur equipment.

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

Banks: Check the box to assign a memory channel to a given Bank. More details about using banks can be found in the Memory Banks section of this Help.

Note: If you are assigning channels to banks after you have entered all of them, use Bank Settings (Settings | Bank Settings or Ctrl B) in the Programmer to make access to these columns easier by hiding several of the columns that are not needed for this operation. To return all the columns to the screen, select Settings | Bank Settings again.

Comments: An identifying comment up to 80 characters. This information is not transferred to the radio.

14.4. .1 Memory Banks

The VX-8G provides 24 Memory Banks, labeled "b 1" through "b24". Each Memory Bank can be assigned up to 100 channels from the regular memory channels.

The regular memory channels include 900 standard channels numbered 1 ~ 900. 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 (although you can if you want). 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 include in no bank.

A channel an be included in all banks.

A channel can be included and not included as needed in your 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.

You will need to know how to access memory banks from the face of the radio. Consult your operating manual for details.

Accessing Memory Banks

The programmer makes it easy to assign the channels to memory banks. However, it cannot select the bank to be used. That is done from the face of the radio after it is programmed.

To access the memory banks:

Be sure the radio is in memory mode as indicated by the MR next to the displayed frequency. If it is not, press the **[V/M]** key briefly to enter memory mode.

Press **[BAND]** key to enter bank mode as indicated by the "B #" that replaces the MR next to the displayed frequency (# is the bank number). The radio will return to the last bank used or will go to bank 1 if this is the first time you have accessed bank mode.

Now that you are in bank mode, press **[FW]** then **[Band]** again to enter bank selection mode. The frequency on the radio will be replaced by Bank # or the bank name (Entering bank names using the programmer is discussed in the next section of this help topic.)

Turn the **KNOB** to select a bank.

Press **[Band]** again to lock in that selection. In bank mode, the radio operates only on the channels assigned to that bank.

To return to operations on all memory channels, press **[Band]** key. The MR will return to the display to the left of the frequency indicating that the radio is operating in memory mode with all channels available.

Bank Names and Linking

These features are programmed under Settings | Bank Names and Linking.

Name - An alpha/numeric tag (up to 6 characters) can be assigned to a memory bank to more easily identify it. That name appears at the top of the bank column in the Programmer. It appears on the radio when you are selecting a bank.

Link - 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.

Note: Bank linking is only for scanning. When tuning manually in a bank, only the memory channels in that bank will be available. 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.

14.4.3 Bell

The Main window of the Programmer is designed for memory channel entry.

All details associated with the memory channels are programmed from this screen. These are not all the functions of the radio. Other features are set once for the radio to use no matter which memory channel you're on. These items are set on the Settings screen accessed through Settings | Radio Menu Settings from the menu at the top of the screen. In the VX-8G, there are LOTS of other options to be set.

Columns continue off the right side of the window. Use the bar at the bottom of the screen to move to these columns or press ENTER to step through each column. Columns can be hidden using the selections of the Preferences screen. Select Settings | Preferences in the menu to access this screen. These columns remain hidden in this and any other file (new or otherwise) until they are "unhidden" on the Preferences screen. Information is entered into these columns automatically when a new frequency is entered. The information in a hidden column is always there: it is just not visible.

Make programming extra easy. Try Simple Mode in the software for even less to enter. A convenient option is the "**Simple Mode**" for quick memory channel entry. In Simple Mode only the columns needed for the minimum information to set up the channel are shown on the screen. Extra columns are hidden and filled with default information. To put the screen into Simple Mode, select Edit | Simple Mode from the menu. While in Simple Mode, you cannot access the Preferences screen. The Programmer controls what columns are hidden while in this mode.

Details to be entered for Memory Channels

Receive Frequency: Enter a receive frequency for the memory channel. Acceptable frequencies are detailed in the operating manual for the radio.

- 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 or any other band order).
- The first memory channel must be programmed.
- While memory channels can be entered in any order, the sub-band receives on fewer bands than does the main band. Realize that memory channels containing frequencies outside the range of the sub-band will not be displayed there as they will be on the main band. The radio will simply skip over that memory channel when tuning in memory mode or scanning on the sub-band.

Transmit Frequency: Enter a specific transmit frequency or let the Programmer calculate this frequency based on the offset. This field is always available; however the transmit frequency for an "odd split" is the only value that must be manually entered. Acceptable transmit frequencies are 144 - 148 MHz and 430 - 450 MHz.

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 a "Split" pair: When you are given information to program your radio, you may be given a "pair" of frequencies (one for transmit and a different one for receive). This pair is referred to as a split.

In a Yaesu radio, a split is truly "odd" if the difference between the two frequencies is not evenly divisible by 50. If this is the case, the pair can be entered with a plus or minus offset making the radio perform more efficiently. It also gives you back the Reverse function should you ever need to listen to the input frequency for the repeater. If this is the case, see the section on Using a Non-Standard Offset Frequency Value just below in this Help section.

This information is easily entered into the Programmer and sent to the radio.

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you list on.
- 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 into this field. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)
- Press Enter.
- The Programmer will set the Offset Frequency and Offset Direction as needed for this pair. Ignore these two columns. The information in these two columns may change when the file is opened again if the offset can be figured to a 50kHz value and the direction set to plus or minus. This gives you back functionality on the radio that is lost with a channel marked "Split". If you see this change, ignore it. The radio will function exactly the same when you use it with these different settings.

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

Offset Frequency: Standard offsets include 100, 500, and 600 kHz and 1.0, 1.6, 1.7, 3.0, 5.0, 7.6, 25.0, and 99.0 MHz. The default Offset Frequency depends on the band of the Receive Frequency being entered (i.e., 2M Band is always 600 kHz, 430 Band is always 5.0 MHz, etc).

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 that value into the Offset Frequency field after the Receive Frequency has been entered and the Offset Direction has been set appropriately to Plus and Minus. Values would be entered as an exact number including the decimal to denote kHz.

- Given the pair 146.650 and 147.300. These values have an offset frequency of 650 kHz.
- Enter the Receive Frequency, 146.650. Press Enter.
- Press Enter repeatedly until you get to the Offset Direction column. Set the Offset Direction to Plus.
- Press Shift-Tab to move to the left to the Offset Frequency column (or use the mouse to select that column).
- The Offset Frequency is entered as .650 (decimal six five zero) - Without the decimal, an error is raised in the Programmer that a valid Offset Frequency should be entered.
- Once you press enter to leave the Offset Frequency field, notice that the Tx Frequency equals 147.300.

As another example:

- 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 (does not divide evenly by 50).
- This pair requires entry of both the Receive and Transmit frequencies.
- The Programmer will set the Offset Direction set to Split automatically once the Tx frequency is entered and you leave that cell.

Offset Direction: This function denotes how the receive and transmit frequency differ.

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 nonstandard offset. The user enters both the receive and transmit frequencies.

Operating Mode: Assign FM, AM, or WFM as appropriate for the frequency.

Name: Enter an Alpha/Numeric tag (up to 16 characters) to a memory channel to provide an easy reminder of the function of a particular channel. The Name is displayed automatically on the radio beneath the operating frequency. The name will not be displayed if the radio is operated in Dual Receive mode.

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.

The radio offers CTCSS (Continuous Tone Coded Squelch System) or DCS (Digital Coded Squelch) to be tailored to your particular needs.

Use of either of the tone systems requires two steps:

- 1) Turning on the Tone Mode and
- 2) Selecting the CTCSS tone or DCS code from the values in the appropriate column.

Turning on the Tone Mode:

None - No tone system activated. Even if the CTCSS Tone or DCS Code column is set to the appropriate value, transmissions will not get through unless this column is set to an appropriate function.

Tone - CTCSS tone generator is activated for transmission only (this mode is used for many if not most repeater operations). When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list. 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 is activated for both transmission and reception (only signals "encoded" with the matching tone will open the squelch. Your radio will remain silent otherwise). When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list. The radio uses the frequency set in the CTCSS

Tone column for both Encode and Decode (transmission and reception) With TSql selected as the Tone Mode, the value that appears in the DCS code column is ignored by the radio.

DCS - Digital Coded Squelch mode is activated for transmission and reception. When this option is selected, the DCS column becomes available. Select the code from those in the list. The value must be in the list. The radio uses the DCS Code for both transmissions and reception. With DCS selected as the Tone Mode, the value that appears in the CTCSS tone column is ignored by the radio.

Rev CTCSS (Rev Tone) - Activates the reverse CTCSS Decoder which mutes the receiver when a matching CTCSS tone is heard. When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list.

User CTCSS (PR Freq) - Activates the User programmed Reverse CTCSS Decoder which mutes the receiver when the matching tone is received. When this option is selected, the User CTCSS column becomes available. Select a value between 300Hz and 3000Hz (in 100 Hz steps). The default is 1600Hz. With User CTCSS selected as the Tone Mode, the values that appear in the CTCSS and DCS tone columns are ignored by the radio.

Note: User CTCSS is not a feature that allows you to program a custom tone for repeater use. Alternately, it is not to be used for the tone needed for repeater operations. This is a special feature of the radio designed for a specific function rather than general use.

Pager - Activates the Enhanced Paging and Code Squelch system.

Note: When this option is selected, none of the tone frequency columns on the main screen become available. Tones are not set here for this function. See the Enhanced Paging and Coded Squelch (EPCS) section of this Help for details on setting up the other options for this function.

Message - Activates the Message feature. See the section on this feature for details on setting up the other options for this function.

D Code - Digital Coded Squelch mode is activated for transmission only. With D 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 Tone and DCS Code columns are both used by the radio. The CTCSS Tone selection is used for

transmissions while the DCS Code selection is used for reception. Be sure that you set both the CTCSS Tone and the DCS Code once this option is selected.

D Tone - Digital Coded Squelch is activated for transmission and CTCSS decode for reception. With D - TSQL selected as the Tone Mode, the values that appear in the CTCSS Tone and DCS Code columns are both used by the radio. The CTCSS Tone selection is used for reception while the DCS Code selection is used for transmission. Be sure that you set both the CTCSS Tone and the DCS Code once this option is selected.

CTCSS Tone: This field is available when Tone Mode is set to Tone, T Sql, Rev CTCSS, T DCS, or D Tone. Select one of 50 tone frequencies to be used in the Encode or Decode modes. This value is set independently for each memory channel. A value that appears in this field is **ignored** by the radio if one of the tone modes that uses CTCSS is not activated.

DCS Code: This field becomes active when Tone Mode is set to DCS, D Code, T DCS, or D Tone. 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. A value that appears in this field is **ignored** by the radio if one of the tone modes that uses DCS is not activated.

DCS Polarity: This field becomes available when the Tone Mode is set to DCS, D Code, T DCS, or D Tone. Select the function for the "inverted" DCS Tone. See the section on DCS Tone Inversion in this Help for more details on this function of the radio.

Generally, this options is left as the default RN-TN for normal DCS tone operations. The options for this function include:

RN -TN: Receive and transmit the Normal DCS Tone.

RI -TN: Receive the Inverted DCS Tone and transmit the Normal DCS Tone.

RB -TN: Receive both Normal and Inverted DCS Tones and transmit the Normal DCS Tone.

RN - TI: Receive the Normal DCS Tone and transmit the Inverted DCS Tone.

RI -TI: Receive and transmit the Inverted DCS Tone.

RB -TI: Receive both Normal and Inverted DCS Tones and transmit the Inverted DCS Tone.

User CTCSS: This field becomes active when Tone Mode is set to User CTCSS. Select a value between 300Hz and 3000Hz (in 100 Hz steps). The default is 1600Hz. With User CTCSS selected as the Tone Mode, the values that appear in the CTCSS

and DCS tone columns are ignored by the radio.

Note: *User CTCSS is not a feature that allows you to program a custom tone for repeater use. Alternately, it is not to be used for the tone needed for repeater operations. This is a special feature of the radio designed for a specific function rather than general use.*

Tx Power: The output power can be set individually set for each memory channel to address the exact needs of each operation. Select Low 1, Low 2, Low 3, or High for each memory channel. The power out for each of these settings varies for this radio depending on its power source (battery or DC power supply) and frequency.

Skip: Marks selected memory channel to be skipped during scanning. These channels remain available for manual selection by turning the knob.

Off - The channel will be scanned for activity whenever scanning is done.

Skip - The channel will be skipped.

P-Scan - The channel is included in a special scanning group. These channels are scanned when scanning is begun on a P-scan channel.

Step: The frequency that the radio is on 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 Auto / 5 / 6.25 / 10 / 12.5 / 15 / 20 / 25 / 50 / or 100 kHz steps as needed.

Mask: A masked channel is not available for use either during scanning or when the radio is tuned manually in memory mode.

Masking a channel "hides" it until you "unmask" it from the face of the radio or by sending a file with this option unchecked. Only then will it be available for use. This is a good way to prevent another user from accidentally accessing a channel or to store memories for another area that are used only when you visit that place.

Attenuator: Check to enable the front end attenuator that will reduce received signals and noise in an attempt to make reception better in a noisy setting. With this option On, weaker signals may not be heard. The options are On (checked) and Off (unchecked). The default is Off. This is normally a global option in Yaesu radios. This is the first of the radios that allows you to control attenuation for each memory channel giving you more control for operations on each channel.

Internet: Enables / disables connection into the Vertex Standard WIRES™ (Wide-Coverage Internet Repeater Enhancement System) network. See the Radio Menu Settings | DTMF/Internet section of this Help for more details.

S-Meter Squelch: Adjust the RF Squelch threshold level. As the squelch level increases, weaker signals are not heard and incoming noise is eliminated when listening on the channel. If after you program the radio with this file it receives continuously or does not receive an expected signal, increase or reduce the squelch for the channel.

Bell: During CTCSS Decode (TSql), DCS, Message, or Enhanced Paging Code Squelch (Pager) operation, you may set up the radio so a ringing "bell" sound (or user programmed beep) alerts you to an incoming call. Select from Off (no ring), On (pre-programmed sound), or one of three User defined ringers.

Using this feature requires several things:

- 1) You are using CTCSS Decode (T Sql), DCS, Message, or Enhanced Paging & Code Squelch (Pager) set up for this channel.
 - CTCSS Decode (T Sql) and DCS are set up from the main page of the Programmer by turning on the Tone Mode and setting the CTCSS frequency or DCS code.
 - Enhanced Paging & Coded Squelch (Pager) requires more setup. See the Paging section of this Help for more details.
 - Text Message requires more setup. See the Text Message section of this Help for details.
- 2) You select a Bell option from those listed on the main page of the Programmer.
- 3) You set the action of the bell (number of rings or Continuous) from the Sounds page of the Menu Settings screen accessed from the Settings | Radio Menu Settings item in the menu at the top of the main screen.

A fourth step is required if you are using a customized sound for the bell.

The User defined ringers are set up on the Sounds tab of the Menu Settings section of the Programmer accessed from the main screen with Settings | Radio Menu Settings.

Half Dev(iation): Check the box to engage Narrow (+ 2.5 kHz) Deviation as compared to + 5 kHz normally or when this option is off. This change helps prevent interference with other stations in a crowded environment.

Note: The receiver's IF filter bandwidth is not changed via this setting. This setting will not enable the radio to perform on new commercial channels that are on 2.5kHz steps. Those frequencies are reserved for commercial use and are not available to amateur equipment.

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

Banks: Check the box to assign a memory channel to a given Bank. More details about using banks can be found in the Memory Banks section of this Help.

Note: *If you are assigning channels to banks after you have entered all of them, use Bank Settings (Settings | Bank Settings or Ctrl B) in the Programmer to make access to these columns easier by hiding several of the columns that are not needed for this operation. To return all the columns to the screen, select Settings | Bank Settings again.*

Comments: An identifying comment up to 80 characters. This information is not transferred to the radio.

14.4.3.1 DCS Code Inversion (Polarity)

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" (RN -TN).

14.4.9 Entering a "Split" Pair

The Main window of the Programmer is designed for memory channel entry.

All details associated with the memory channels are programmed from this screen. These are not all the functions of the radio. Other features are set once for the radio to use no matter which memory channel you're on. These items are set on the Settings screen accessed through Settings | Radio Menu Settings from the menu at the top of the screen. In the VX-8G, there are LOTS of other options to be set.

Columns continue off the right side of the window. Use the bar at the bottom of the screen to move to these columns or press ENTER to step through each column. Columns can be hidden using the selections of the Preferences screen. Select Settings | Preferences in the menu to access this screen. These columns remain hidden in this and any other file (new or otherwise) until they are "unhidden" on the Preferences screen. Information is entered into these columns automatically when a new frequency is entered. The information in a hidden column is always there: it is just not visible.

Make programming extra easy. Try Simple Mode in the software for even less to enter. A convenient option is the "**Simple Mode**" for quick memory channel entry. In Simple Mode only the columns needed for the minimum information to set up the channel are shown on the screen. Extra columns are hidden and filled with default information. To put the screen into Simple Mode, select Edit | Simple Mode from the menu. While in Simple Mode, you cannot access the Preferences screen. The Programmer controls what columns are hidden while in this mode.

Details to be entered for Memory Channels

Receive Frequency: Enter a receive frequency for the memory channel. Acceptable frequencies are detailed in the operating manual for the radio.

- 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 or any other band order).
- The first memory channel must be programmed.
- While memory channels can be entered in any order, the sub-band receives on fewer bands than does the main band. Realize that memory channels containing frequencies outside the range of the sub-band will not be displayed there as they will be on the main band. The radio will simply skip over that memory channel when tuning in memory mode or scanning on the sub-band.

Transmit Frequency: Enter a specific transmit frequency or let the Programmer calculate this frequency based on the offset. This field is always available; however the transmit frequency for an "odd split" is the only value that must be manually entered. Acceptable transmit frequencies are 144 - 148 MHz and 430 - 450 MHz.

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 a "Split" pair: When you are given information to program your radio, you may be given a "pair" of frequencies (one for transmit and a different one for receive). This pair is referred to as a split.

In a Yaesu radio, a split is truly "odd" if the difference between the two frequencies is not evenly divisible by 50. If this is the case, the pair can be entered with a plus or minus offset making the radio perform more efficiently. It also gives you back the Reverse function should you ever need to listen to the input frequency for the repeater. If this is the case, see the section on Using a Non-Standard Offset Frequency Value just below in this Help section.

This information is easily entered into the Programmer and sent to the radio.

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you list on.
- 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 into this field. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)
- Press Enter.
- The Programmer will set the Offset Frequency and Offset Direction as needed for this pair. Ignore these two columns. The information in these two columns may change when the file is opened again if the offset can be figured to a 50kHz value and the direction set to plus or minus. This gives you back functionality on the radio that is lost with a channel marked "Split". If you see this change, ignore it. The radio will function exactly the same when you use it with these different settings.

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

Offset Frequency: Standard offsets include 100, 500, and 600 kHz and 1.0, 1.6, 1.7, 3.0, 5.0, 7.6, 25.0, and 99.0 MHz. The default Offset Frequency depends on the band of the Receive Frequency being entered (i.e., 2M Band is always 600 kHz, 430 Band is always 5.0 MHz, etc).

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 that value into the Offset Frequency field after the Receive Frequency has been entered and the Offset Direction has been set appropriately to Plus and Minus. Values would be entered as an exact number including the decimal to denote kHz.

- Given the pair 146.650 and 147.300. These values have an offset frequency of 650 kHz.
- Enter the Receive Frequency, 146.650. Press Enter.
- Press Enter repeatedly until you get to the Offset Direction column. Set the Offset Direction to Plus.
- Press Shift-Tab to move to the left to the Offset Frequency column (or use the mouse to select that column).
- The Offset Frequency is entered as .650 (decimal six five zero) - Without the decimal, an error is raised in the Programmer that a valid Offset Frequency should be entered.
- Once you press enter to leave the Offset Frequency field, notice that the Tx Frequency equals 147.300.

As another example:

- 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 (does not divide evenly by 50).
- This pair requires entry of both the Receive and Transmit frequencies.
- The Programmer will set the Offset Direction set to Split automatically once the Tx frequency is entered and you leave that cell.

Offset Direction: This function denotes how the receive and transmit frequency differ.

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 nonstandard offset. The user enters both the receive and transmit frequencies.

Operating Mode: Assign FM, AM, or WFM as appropriate for the frequency.

Name: Enter an Alpha/Numeric tag (up to 16 characters) to a memory channel to provide an easy reminder of the function of a particular channel. The Name is displayed automatically on the radio beneath the operating frequency. The name will not be displayed if the radio is operated in Dual Receive mode.

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.

The radio offers CTCSS (Continuous Tone Coded Squelch System) or DCS (Digital Coded Squelch) to be tailored to your particular needs.

Use of either of the tone systems requires two steps:

- 1) Turning on the Tone Mode and
- 2) Selecting the CTCSS tone or DCS code from the values in the appropriate column.

Turning on the Tone Mode:

None - No tone system activated. Even if the CTCSS Tone or DCS Code column is set to the appropriate value, transmissions will not get through unless this column is set to an appropriate function.

Tone - CTCSS tone generator is activated for transmission only (this mode is used for many if not most repeater operations). When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list. 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 is activated for both transmission and reception (only signals "encoded" with the matching tone will open the squelch. Your radio will remain silent otherwise). When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list. The radio uses the frequency set in the CTCSS

Tone column for both Encode and Decode (transmission and reception) With TSql selected as the Tone Mode, the value that appears in the DCS code column is ignored by the radio.

DCS - Digital Coded Squelch mode is activated for transmission and reception. When this option is selected, the DCS column becomes available. Select the code from those in the list. The value must be in the list. The radio uses the DCS Code for both transmissions and reception. With DCS selected as the Tone Mode, the value that appears in the CTCSS tone column is ignored by the radio.

Rev CTCSS (Rev Tone) - Activates the reverse CTCSS Decoder which mutes the receiver when a matching CTCSS tone is heard. When this option is selected, the CTCSS column becomes available. Select the tone frequency from those in the list. The value must be in the list.

User CTCSS (PR Freq) - Activates the User programmed Reverse CTCSS Decoder which mutes the receiver when the matching tone is received. When this option is selected, the User CTCSS column becomes available. Select a value between 300Hz and 3000Hz (in 100 Hz steps). The default is 1600Hz. With User CTCSS selected as the Tone Mode, the values that appear in the CTCSS and DCS tone columns are ignored by the radio.

Note: User CTCSS is not a feature that allows you to program a custom tone for repeater use. Alternately, it is not to be used for the tone needed for repeater operations. This is a special feature of the radio designed for a specific function rather than general use.

Pager - Activates the Enhanced Paging and Code Squelch system.

Note: When this option is selected, none of the tone frequency columns on the main screen become available. Tones are not set here for this function. See the Enhanced Paging and Coded Squelch (EPCS) section of this Help for details on setting up the other options for this function.

Message - Activates the Message feature. See the section on this feature for details on setting up the other options for this function.

D Code - Digital Coded Squelch mode is activated for transmission only. With D 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 Tone and DCS Code columns are both used by the radio. The CTCSS Tone selection is used for

transmissions while the DCS Code selection is used for reception. Be sure that you set both the CTCSS Tone and the DCS Code once this option is selected.

D Tone - Digital Coded Squelch is activated for transmission and CTCSS decode for reception. With D - TSQL selected as the Tone Mode, the values that appear in the CTCSS Tone and DCS Code columns are both used by the radio. The CTCSS Tone selection is used for reception while the DCS Code selection is used for transmission. Be sure that you set both the CTCSS Tone and the DCS Code once this option is selected.

CTCSS Tone: This field is available when Tone Mode is set to Tone, T Sql, Rev CTCSS, T DCS, or D Tone. Select one of 50 tone frequencies to be used in the Encode or Decode modes. This value is set independently for each memory channel. A value that appears in this field is **ignored** by the radio if one of the tone modes that uses CTCSS is not activated.

DCS Code: This field becomes active when Tone Mode is set to DCS, D Code, T DCS, or D Tone. 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. A value that appears in this field is **ignored** by the radio if one of the tone modes that uses DCS is not activated.

DCS Polarity: This field becomes available when the Tone Mode is set to DCS, D Code, T DCS, or D Tone. Select the function for the "inverted" DCS Tone. See the section on DCS Tone Inversion in this Help for more details on this function of the radio.

Generally, this options is left as the default RN-TN for normal DCS tone operations. The options for this function include:

RN -TN: Receive and transmit the Normal DCS Tone.

RI -TN: Receive the Inverted DCS Tone and transmit the Normal DCS Tone.

RB -TN: Receive both Normal and Inverted DCS Tones and transmit the Normal DCS Tone.

RN - TI: Receive the Normal DCS Tone and transmit the Inverted DCS Tone.

RI -TI: Receive and transmit the Inverted DCS Tone.

RB -TI: Receive both Normal and Inverted DCS Tones and transmit the Inverted DCS Tone.

User CTCSS: This field becomes active when Tone Mode is set to User CTCSS. Select a value between 300Hz and 3000Hz (in 100 Hz steps). The default is 1600Hz. With User CTCSS selected as the Tone Mode, the values that appear in the CTCSS

and DCS tone columns are ignored by the radio.

Note: *User CTCSS is not a feature that allows you to program a custom tone for repeater use. Alternately, it is not to be used for the tone needed for repeater operations. This is a special feature of the radio designed for a specific function rather than general use.*

Tx Power: The output power can be set individually set for each memory channel to address the exact needs of each operation. Select Low 1, Low 2, Low 3, or High for each memory channel. The power out for each of these settings varies for this radio depending on its power source (battery or DC power supply) and frequency.

Skip: Marks selected memory channel to be skipped during scanning. These channels remain available for manual selection by turning the knob.

Off - The channel will be scanned for activity whenever scanning is done.

Skip - The channel will be skipped.

P-Scan - The channel is included in a special scanning group. These channels are scanned when scanning is begun on a P-scan channel.

Step: The frequency that the radio is on 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 Auto / 5 / 6.25 / 10 / 12.5 / 15 / 20 / 25 / 50 / or 100 kHz steps as needed.

Mask: A masked channel is not available for use either during scanning or when the radio is tuned manually in memory mode.

Masking a channel "hides" it until you "unmask" it from the face of the radio or by sending a file with this option unchecked. Only then will it be available for use. This is a good way to prevent another user from accidentally accessing a channel or to store memories for another area that are used only when you visit that place.

Attenuator: Check to enable the front end attenuator that will reduce received signals and noise in an attempt to make reception better in a noisy setting. With this option On, weaker signals may not be heard. The options are On (checked) and Off (unchecked). The default is Off. This is normally a global option in Yaesu radios. This is the first of the radios that allows you to control attenuation for each memory channel giving you more control for operations on each channel.

Internet: Enables / disables connection into the Vertex Standard WIRES™ (Wide-Coverage Internet Repeater Enhancement System) network. See the Radio Menu Settings | DTMF/Internet section of this Help for more details.

S-Meter Squelch: Adjust the RF Squelch threshold level. As the squelch level increases, weaker signals are not heard and incoming noise is eliminated when listening on the channel. If after you program the radio with this file it receives continuously or does not receive an expected signal, increase or reduce the squelch for the channel.

Bell: During CTCSS Decode (TSql), DCS, Message, or Enhanced Paging Code Squelch (Pager) operation, you may set up the radio so a ringing "bell" sound (or user programmed beep) alerts you to an incoming call. Select from Off (no ring), On (pre-programmed sound), or one of three User defined ringers.

Using this feature requires several things:

1) You are using CTCSS Decode (T Sql), DCS, Message, or Enhanced Paging & Code Squelch (Pager) set up for this channel.

- CTCSS Decode (T Sql) and DCS are set up from the main page of the Programmer by turning on the Tone Mode and setting the CTCSS frequency or DCS code.
- Enhanced Paging & Coded Squelch (Pager) requires more setup. See the Paging section of this Help for more details.
- Text Message requires more setup. See the Text Message section of this Help for details.

2) You select a Bell option from those listed on the main page of the Programmer.

3) You set the action of the bell (number of rings or Continuous) from the Sounds page of the Menu Settings screen accessed from the Settings | Radio Menu Settings item in the menu at the top of the main screen.

A fourth step is required if you are using a customized sound for the bell.

The User defined ringers are set up on the Sounds tab of the Menu Settings section of the Programmer accessed from the main screen with Settings | Radio Menu Settings.

Half Dev(iation): Check the box to engage Narrow (+ 2.5 kHz) Deviation as compared to + 5 kHz normally or when this option is off. This change helps prevent interference with other stations in a crowded environment.

Note: The receiver's IF filter bandwidth is not changed via this setting. This setting will not enable the radio to perform on new commercial channels that are on 2.5kHz steps. Those frequencies are reserved for commercial use and are not available to amateur equipment.

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

Banks: Check the box to assign a memory channel to a given Bank. More details about using banks can be found in the Memory Banks section of this Help.

Note: *If you are assigning channels to banks after you have entered all of them, use Bank Settings (Settings | Bank Settings or Ctrl B) in the Programmer to make access to these columns easier by hiding several of the columns that are not needed for this operation. To return all the columns to the screen, select Settings | Bank Settings again.*

Comments: An identifying comment up to 80 characters. This information is not transferred to the radio.

14.5 Skip Memories

The radio has 99 "Frequency Skip Memories" numbered 901-999.

The Skip memories are those that are to be **omitted during VFO scanning**. These may include the frequency of a spurious emission from a television or a radio station that you would rather not hear.

The same information as that for any memory channel is entered for these Skip memories. See the Regular Memory Channels section for the details about the information to be entered.

Note: Although these memory channels can be programmed with all the details of a regular memory channel, the only important data here is the Receive Frequency since the channel is being used only for VFO memory skip.

If these channels are programmed, they can be accessed as regular memory channels (notice that they are included when you turn the dial when tuning in memory mode).

Be careful using these as memory channels. These frequencies WILL BE SKIPPED when scanning in VFO.

14.6 VFO Memories

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 the VFO memory, select the VFO tab 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 VFO's do not have an alpha label available to be programmed. See Regular Memory Channels 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.

14.7 EAI & Weather Memories

EAI Memories

Your radio includes an Emergency feature that may be useful if you have someone monitoring the same frequency as your transceiver's UHF "Home" channel. The **Emergency Automatic ID (EAI)** feature can be used for searching for persons who are incapacitated in disasters like earthquakes, especially search-and-rescue personnel who may have become injured in a debris field. In such cases, if another searcher sends out a unique command (CTCSS tone pair), the radio of the incapacitated party, who may not be able to speak or even press the PTT switch, will automatically cause the injured party's radio to transmit, so others may perform direction-finding and effect a rescue. The callsign of the incapacitated person will also be transmitted, to assist the rescue team.

For more details on setting the EAI features, see the Emergency Automatic ID section of this Help.

Weather Memories

Ten NOAA weather channel frequencies are programmed into memory for easy access.

A name, alpha "tag", can be added to identify the channel.

A scan option can be set for each.

These channels can be organized into banks. Any channel can be put into none, one, multiple, or all banks.

Note: If you are working in a reduced screen, you may need to click the right arrow button at the lower left of the screen to scroll to this tab.

To program the Weather memory, select the Weather Memories tab at the bottom of the screen.

Part



15 Programming Other Set Menu Items

Programming any radio involves details for each memory channel and settings that are global to the radio no matter which memory channel, VFO or Call channel you're operating on.

The Memory Channel details are entered on the grid that appears when the Programmer is first opened. This is only part of what needs to be done to make your radio your own.

The global settings are entered on the screens accessed from **Settings | Radio Menu Settings** in the menu at the top of the main screen. Don't miss these settings. Getting them the way you want them can significantly enhance the performance of your radio.

Details for the options are found in sections of this Help that correspond to the screens in the Programmer where you will find that option. Everything starts in the Programmer from Settings | Radio Menu Settings from the menu at the top of the main screen.

Radio Menu Settings - Common - The screen that opens when you select Settings | Radio Menu Settings. This screen contains the more commonly changed settings such as Beep, Lock and options for Scanning functions.

Radio Menu Settings - ARTS/CW/EAI - Options on this screen include those for ARTS (Auto Range Transponder System), Pager, EAI (Emergency Automatic Identifier), other Emergency operations, CW ID and CW Training.

Radio Menu Settings - Messages - Options on this screen of the Settings file include Opening Message as well as Message Groups, Message Text, Message Member List and Message Select List for GPS and APRS transmissions

Radio Menu Settings - Sounds - Adjustments for volume, squelch, bell ringers, speaker output and customized melody for User Beep are made with the options on this screen.

Radio Menu Settings - DTMF/Internet - Fields here address options for DTMF and Internet functionality.

Radio Menu Settings - VFO and Menu Skip - Make adjustments to hide and show menu items and Ham bands on the radio.

Radio Menu Settings - APRS / GPS - Adjust settings for GPS and APRS features.

Radio Menu Settings - APRS Beacon - Options for APRS Beacons and Smart Beacons are adjusted on this page of the Settings file.

You will find that these headers correspond with screen names in the Programmer. This makes finding the details for the settings on a certain screen easier.

The Programmer offers three options for managing the global settings:

Set and forget - The Radio Menu Settings screens are there for you to use 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 global 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 as you need them 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 save. 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 page contains the details for the options on that page. The pages in the TOC begin with the words "Radio Menu Settings". The information there can help you decide how best to customize a setting.

Once you complete your 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 take it from here making 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 titlebar 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

You have the option of saving the global 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
- 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're made mistakes and need to return to the last time you saved this file).

Remember, with each new file created the Radio Menu Settings return to factory defaults. You must set these option 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.

15.1 Radio Menu Settings - Common

All the options shown on the Common tab of the Settings screen in the Programmer are listed here in alphabetical order rather than the order in which they appear on the screen. This should make it easier to find the details for an option that you're curious about.

Antenna Attenuator - Enables or disables the front-end attenuator for operations. The front-end attenuator reduces all signals and noise which may make reception better in a noisy setting (i.e., electric noise). With this option On, weaker signals may not be heard since the sensitivity of the radio is reduced in an effort to eliminate interference.

Audio Mute Level - Automatically reduce the audio level of the "Receive Only" band when a signal is received on the "Main" band. The audio can be reduced 30%, 50%, or 100%.

Auto Power Off - Set the time after which the transceiver will automatically shut off in an attempt to conserve battery life.

Auto Repeater Shift - The Auto Repeater Shift option automatically sets the offset for any frequency to which you tune manually while in VFO. 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.

Busy Channel Lockout - The Busy Channel Lock Out feature stops the radio from transmitting if a signal is being received.

Busy LED - Control the LED that lights in the Band A or B key indicating signal reception. Disengaging this option will help to conserve battery life.

Fast Tone Search - Select to enable fast Tone Search scanner speed. Available speeds are Fast (2.5 tone/sec) when checked or Slow (1.25 tone/sec) when unchecked.

FW Key Timer - Select how long the function state remains available once the FW key is pressed. This is the time during which a second key is pressed to access the secondary function of that key.

Home VFO Dial - By default, when the radio is operating in Home Channel mode, turning the knob will switch operations to VFO. As you continue to rotate the knob, the radio will tune in VFO mode. By setting this option to Disable, the radio will remain in Home Channel mode even when the knob is turned.

HM/RV - Selects the function of the [HM/RV] button (middle row left on the face of the radio). If used with the Func key (i.e., Func then Hm/Rv), the opposite functionality is triggered in the radio.

Home - One touch recalls a Home channel

Reverse - Reverses the transmit and receive frequencies (default). Lets you listen on the input of the repeater. A good function for you to see if you and the person you're talking to can move to a simplex frequency instead of tying-up the repeater. If you can hear the other person on reverse and he can hear you, simplex communications (radio to radio) will be successful.

Language - Set to English or Japanese for Set Menu Item and screen display.

Lock - Check the box to lock the radio according to the key and dial combination selection. Set the lockout combination for the Lock function to:

Key - The front panel keys are locked

Dial - The dial on the top panel is locked

Key + Dial - Both the keypad and dial are locked

PTT - The PTT switch is locked and transmission is not possible

Key + PTT - Both the keys and the PTT switch are locked

Dial + PTT - Both the dial and the PTT switch are locked

All -The front panel keys, the top panel dial and the PTT switch are all locked.

A lock appears on the screen to let you know when the lock is activated.

Beware - if you lock the keys you will not be able to communicate with the radio from the Programmer. Although the radio will come on in CLONE mode, it will not respond to the key press needed for the remainder of the process.

The keys are unlocked by pressing the power button ever so briefly. Watch for the lock symbol to disappear from the face of the radio indicating that the lock is off. This can be done while the radio is in CLONE mode.

Mem(ory) Fast Step - Select the number of channels to advance with each click of the knob while tuning in memory mode. To access Fast Step tuning, press [Func] key then turn the knob while the "F" appears on the screen. Note: You might want to change the FW Key Timer option to give you more time to tune if you used the Fast Step feature

often.

Memory Protect - This option does the *opposite* of what it implies. If engaged, your memory channels are not protected as well as they are when it is not engaged. When this feature is set to on (checked), the memory write operation is ignored.

When engaged, this option gives you complete control of where a memory channel is stored. In this mode, it will be more than easy to store right over the last memory channel you were working before going to VFO to enter the details for this new memory channel. The chance for loss of data is great. Leaving this option off and letting the radio select the memory channel location may save you the frustration of having to re-enter a channel that was "there a minute ago?!?!?".

Memory Write - Selects the method that the radio uses for selection of the next memory channel slot into which your settings are saved when programming from the face of the radio. The options are:

Lower - Stores the data into the next available "free" channel (Puts the new memory channel somewhere in the list of memories to prevent breaks in the list).

Next - Stores the data into the memory channel which is the next highest from the last stored memory channel (Keeps everything in order as you enter them even if there are breaks in the list).

Mic Gain - Adjust the microphone gain level from Level 1 - Level 9 to improve transmission quality.

MoniTCall - Sets 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 - Open the squelch to allow weak signals to be heard

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

Priority Revert - Activates the Priority Revert Mode. During Priority Channel operations, also referred to as Dual Watch, the Priority channel is accessible even when activity is not present on that channel. With this feature enabled and priority monitoring engaged, pressing the PTT switch instantly reverts operations to the Priority Channel.

To set the Priority Channel using the Programmer:

- Choose the memory channel that you want as the priority channel by clicking on the number for that channel. You will notice that the entire line becomes highlighted indicating the selection.

- Select Edit from the menu at the top of the screen then Set Priority Channel from the menu that opens.
- You will notice a "P" appears next to the channel number giving you clear indication that this is now your Priority Channel selection.
- The same "P" appears on the face of the radio when that memory channel is selected.

Priority Time - Set the time between instances of monitoring the Priority Channel during other operations. The default is 5 seconds. This means that every 5 seconds the radio will leave its current operating frequency and check the Priority Channel for activity. If activity is heard, operations will remain on the Priority Channel according to the condition set in the Scan Resume option.

PTT Delay - Set the delay time before the carrier is transmitted when the PTT is pressed.

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. The available values are Off and values from 0.2 seconds up to 10 seconds. The default is 0.2 seconds.

Smart Search - Set the Smart Search sweep option. Available values are Single and Continuous (as described below). The default is Single.

Single - The transceiver sweeps the current band once in each direction starting at the current frequency. All channels with activity (up to 15 in each direction) are loaded into the Smart Search memories. Whether or not all the memories are filled, the search is halted after one sweep in each direction.

Continuous - The transceiver sweeps in each direction starting at the current frequency continuously until all the Smart Search memories are filled.

Spec(trum) Analyzer - Sets the sweep mode for the spectrum analyzer function. The Spectrum Analyzer presents a visual representation of activity above and below the current operating frequency.

1 Time - The sweep covers the band once.

Continuous - The transceiver sweeps the current band repeatedly.

Full Time - The transceiver sweeps the current band repeatedly with audio remaining on the current operating frequency.

Split Tone - Enables or disables split CTCSS/DCS tones. When one of the split tone indicators is set and saved for a memory channel, this selection is set automatically.

The default is Off.

Time Out Timer - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are .5 to 10 minutes and Off. The default is 3 minutes.

Tone Search Mute - Enable/disable the radio's audio output while Tone Search scanning is activated.

Tx Save - Enables or disables the Transmitter Battery Saver function that automatically lowers the power output level based on the strength of the last signal received. The options are On (checked) and Off (unchecked). The default is Off.

VFO Mode - Set the VFO band edge condition for manual tuning.

All - When the VFO frequency reaches the high end of the current band, scanning continues with the low end of the *next* band.

Band - When the VFO frequency reaches the high end of the current band, scanning continues at the low end of the *same* band.

VOL Key Mode - Change how the Vol key responds when pressed. This change determines whether you continue to hold the Vol key while turning the Knob to adjust the volume or whether the Vol key holds automatically for 3 seconds during which time adjustments can be made using the Knob. Options are:

Hold - Volume adjustment via the knob is possible while the VOL key is being held.

3 Seconds - Volume adjustment via the knob is possible for 3 seconds after the Vol key has been pressed and released: the Vol key does not have to be held during that adjustment.

Dual/Mono Display - Set the radio for Dual or Mono receive.

Note: *Names will NOT be displayed when the radio is in Dual mode. To switch between modes on the radio, press the B-key next to the display.*

Display Lamp - Control the backlighting when a key is pressed. Options are for the lamp to remain lit for 2 to 10 seconds with a key press, to be on continuously, or to not light at any time.

LCD Contrast - Set to control how dark the type is on the display of the radio.

Note: *If this option is set to a value less than 20 you will not see the characters on the display at all. If set higher than 30, the background*

will darken along with the characters.

LCD Dimmer - Control the brightness of the backlighting. Level 1 turns the backlighting off. Level 4 is the brightest.

Sensor - Choose information to be included as part of the display. Choices include:

DC - Battery voltage and battery type. (default)

Temperature - Current temperature inside the radio's case.

Off - Disables sensor display. Current time will be displayed.

Note: Sensor information is displayed only if the radio is in mono receive mode with small characters (not large characters as stated in the operating manual).

Set Mode Cursor - Choose the cursor that is displayed beside the option once you are into and editing an item of the set mode.

Set Mode Format - Control access to the Set Mode items.

List - The Set Mode items are listed alphabetically by name and number.

Item - The Set Mode items are shown one at a time with the default for that particular item. The display advances through the items in alphabetical order.

S-Meter Symbol - Select the symbol to be used for S-meter display. The S-meter displays the strength of a received for transmitted signal.

Password - Enter and enable a password for the radio. The Programmer will not allow you to set a blank password. Enable will become active once an entry is made for the password.

Note: You cannot put the radio with a password into CLONE mode. Be sure you know how to turn this option off from the face of the radio to again be able to access CLONE mode for programming.

Programmable Key Assignments - The **Internet Key** (the button at the lower left corner of the radio's keypad) can be set for functionality other than the default.

Internet - Enable or disables the Internet function

Internet Select - Recalls the Internet Access Number (SRG) or Access String (FRG). These details for Internet functionality are set on the DTMF and Internet tab of the Settings screen.

Set Mode - Assign an item from the Set Menu to be accessed via this button. The set menu item is selected from those in the My Key field.

Programmable Key Assignments - The My Key - Select the function of the Set Menu to be assigned to the 'Internet' key. The change in functionality will be seen on that key if the Programmable Key Assignment is set to Set Mode.

Scanning Lamp - Enables or disables illumination of the LCD lamp whenever the scanner stops while scanning. When enabled, you are able to see the frequency of the incoming signal more easily in a low light situation.

Memory Scan Mode - Select the scanning to be performed while in memory mode.

All Scan - Scanning includes all the memory channels.

Tag 1 - Scanning includes only those memory channels with the same first digit of the name as that of the channel where scanning was begun.

Tag 2 - Scanning includes only those memory channels with the same first and second digits of the name as that of the channel where scanning was begun.

Band Scan - Scanning includes only those memory channels in the same operating band as that of the channel where scanning was begun.

PMS-X - Scanning includes only those memory channels within the selected PMS frequency pair. The PMS (Programmed Memory Scan) limits are set as Limit Memories in the Programmer.

VFO Scan Mode - Select the scanning to be performed while in VFO mode.

Band Scan - Scanning includes frequencies in the current band. Note: Step is an important part of scanning. Set too low, scanning may be too slow. Set too high, you may miss frequencies you really wanted to check. VFO step is adjusted in the Programmer on the VFO tab. It can be set independently for each band.

All Scan - Scanning includes frequencies across the entire receiving range of the radio other than the FM broadcast band. Remember, the radio has Skip channels that mark a frequency to be skipped during scanning. Use of these can make VFO scanning much more efficient.

+/-1 MHz, +/-2 MHz, +/-5 MHz - Scanning will include frequencies within the designated bandwidth.

PMS-X - Scanning includes only those memory channels within the selected PMS frequency pair. The PMS (Programmed Memory Scan) limits are set as Limit Memories in the Programmer.

Restart Time - Used in conjunction with Busy resume mode, scanning begins again once the signal has been lost for the time designated.

Resume Mode - Determines how the radio will restart scanning once a signal has been heard.

2 - 10 seconds: Scanning will halt for the time selected when a signal is heard. It will restart even if the signal is still active.

Busy: Scanning will halt on a signal and remain there until the signal is lost for a time set in the Scan Restart option.

Hold: Scanning will halt on a signal and remain there. Scanning must be restarted manually.

Timers - Set details to control the radio's ability to turn itself on and off at preset times. Check to enable and set the desired time.

Note: *This function will not work unless the radio's clock is set. This function is done from the face of the radio not from the Programmer. See the operating manual for the radio for details on setting the clock.*

Weather Alert - Enable or disable the Weather Alert Scan process of the radio. With this option enabled, the radio will check the weather channels for activity every five seconds while scanning in VFO or memory mode. The default for this option is Off or unchecked.

Note: *Since weather emergencies can arise at any moment, it is recommended that you review the Weather Alert Scan section of the operating manual. You should know how to engage and disengage this option from the face of the radio making it available to you even when the computer is not.*

Active Channel - Select the active weather channel from the 10 preprogrammed NOAA frequencies listed.

15.2 Radio Menu Settings - ARTS / CW / EAI

ARTS - 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. See the Auto Range Transponder System section of this Help for further details.

CW Learning/Training - The radio is equipped with a feature to help you learn Morse Code (CW). The tones heard during Learning and Training are not transmitted over the air. Several options control this function.

Form - Set to Characters per minute (CPM) or Words per minute (WPM).

Strobe LED - Check to enable flashing of the LED (white) for a visual representation of the CW being sent.

CW Pitch - Set from 400 - 1000 MHz to suit your ability to hear the tone.

Learning Mode - Choose the characters to be studied

- Alpha - Sends the same alpha character repeatedly
- Alpha Auto - Sends an alpha character then moves to the next character automatically.
- Number - Sends the same number repeatedly.
- Number Auto - Sends the number then moves to the next number automatically.
- Symbol - Sends the same symbol repeatedly.
- Symbol Auto - Sends the symbol then moves to the next symbol automatically.

Learning Alpha - Assign the letter to be repeated or upon which to start the auto progression through the letters.

Learning Number - Assign the number to be repeated or upon which to start the auto progression through the characters.

Learning Symbol - Assign the symbol from the list to be repeated or upon which to start the auto progression through the characters.

Learning Speed - Set the speed for the code.

Learning Repeat - Set the number of repeats for Alpha, Number or Symbol mode.

Training Speed - Set the speed for the code.

Training Mode - Choose the characters and pattern to be used for training.

- Alpha 5 Chr - A group of five letters is sent once.
- Alpha Repeat - Groups of five letters are sent. The letters are in random order. The same group is not sent repeatedly.
- Number 5 Chr - A group of five numbers is sent once.
- Number Repeat - Groups of five numbers are sent repeatedly. The numbers are in random order. The same group is not sent repeatedly.
- Mix 5 Chr - A group of five alpha, number, "?" or "/" characters is sent once.
- Mix Repeat - Groups of five alpha, number, "?" or "/" characters are sent repeatedly. Characters of the groups are in random order. The same group is not sent repeatedly.

EAI (Emergency Automatic Identification) - The Emergency Automatic Identification (EAI) feature is useful in situations where a person has become incapacitated. Voice transmissions are not possible; however, with this feature properly configured and engaged, the radio *will respond automatically* without having to press any buttons.

Setup for EAI is detailed in the Emergency Automatic ID section of this Help. There are several other details to be addressed along with the two listed here.

Enable - Check to turn the EAI function on.

Time - Set the interval of the emergency signal and the length of time it will be transmitted.

Emergency Operations - The radio has an Emergency feature that must be activated from the face of the radio (i.e., used by someone who is not incapacitated). This feature would be helpful for finding someone lost, but not incapacitated, or for

alerting others traveling with you of a danger in your vicinity. See Emergency Operations section of this Help

Pager - 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).

Configure the options here for:

Answer Back - Check the box to have the radio respond automatically to the received call.

Receive Codes - The pair of tones that must be received before you can hear a signal while you are using Paging.

Transmit Codes - The pair of tones that are transmitted with your signal so that others engaged in Paging can receive and hear your signal.

Setup for the Paging functionality are detailed in the Enhanced Paging and Coded Squelch section of this Help. There are several other details to be addressed along with those listed here.

15.3 Radio Menu Settings - Messages

Message Settings

Group and Bulletin Ringer - Check "SEL" box to engage the audible sound heard when a Group or Bulletin message is received.

Note : The operating manual for the radio describes this option incorrectly. The radio displays only an On/Off option for GRP and BLN ringer within ARPS Menu Item #8.

Message Flash - Visual indication by the radio's LED when a message in one of the three; MSG, GRP or BLN; types is received. The "flash" response can be set differently for each of the three types of messages.

Message Group (Filter) - Select an option to receive only specific types of message information. Unlike beacon filters, message filtering is limited to one selection. G1 - G5 affect message group code while B1 - B3 affect bulletin group code.

Message Ringer - Engage the audible sound heard when a message is received to me individually. Options include:

- Off - No sound is heard
- On - The radio emits a ring indicating receipt of a signal.
- USR BP 1, 2, 3 - The radio emits the User Beep Melody as entered on the Sounds tab of the Settings screen in the Programmer.

Message Text - Enter text of up to 16 characters for each of the seven fixed form messages. Check the box next to the one of these messages to use it when this file is sent to the radio. To select a different message when operating the radio, access APRS menu item 5 and select from those that appear.

Message Vibrate - Set the options for MSG, GRP and BLN for how often the radio will vibrate when an incoming message is heard.

Opening Message

Select an option for the initial display of the radio at power on.

Type:

- Off - There is no initial display. The radio comes on ready to use.
- DC - Voltage available to the radio is displayed beneath the Vertex Standard logo.
- Message - Text of up to 6 characters is displayed beneath the Vertex Standard Logo. Enter those characters in the Text field of this section.
- Normal - Yaesu is displayed beneath the Vertex Standard logo.

Text: Enter up to 6 characters to be displayed when Message type is engaged.

Text Messages

The radio provides a message feature, which sends a text message (up to 16 characters) instead of sending a voice transmission.

This part of the Help covers briefly the details of what is to be entered for the fields. More details on this feature can be found in Messages - In Detail section of this Help.

Message (Member) List - Enter an identifier (up to 8 characters) for those in the group who will be sending and receiving messages. This can be name, callsign or other identifying information. Check the box next to the one that is your personal identification.

Message Select (List) - Enter the text to be sent (up to 16 characters). Check the box next to the one that you want to send.

15.3. .1 Text Messages - In detail

The radio provides a message feature, which sends a text message (up to 16 characters) instead of sending a voice transmission. Twenty (20) different messages can be programmed into memory for easy access. When one is selected to be sent, the text and your ID are sent.

NOTE: The Message Feature requires that all members

(1) Use the VX-3R , FTM-10R or VX-8 transceiver (a combination of these three can be used);

(2) Store the same message text into the Message Select (List);

(3) Store the same member text into the same location of the Message (Member) List; and

(4) Set the same frequency.

Messages cannot be sent through repeaters.

To set up messages:

- 1) **Enter the frequency for the channel.** This must be a simplex channel as repeaters do not pass this information.
- 2) **Set the Tone Mode to Message.**
- 3) **Set the Bell option** (optional) in the Bell column on the main page of the Programmer.
- 4) **Access the Menu Settings screen through the Settings | Radio Menu Setting menu at the top of the main screen.**
- 5) **Select the Messages tab** of the Settings screen.
- 6) **Enter the Member ID.** Twenty different member IDs can be entered of up to 8 characters each. This information is sent as part of the message text. The received message appears as "Message from Message ID" so enter your ID carefully since it will be sent.
- 7) **Check the box for the one to be sent as the message ID.**
- 8) **Enter the Message Text.** Twenty different messages can be entered of up to 16 characters each into the Message Text of the Message Select (List).
- 8) **Check the box to select the Message text to be sent.** This is the

message that will be sent when the radio is programmed with this file. To send other messages, you need to know how to select a message and an ID from the face of the radio.

Things to consider about messages and IDs:

1. Both radios must contain the same messages. In testing, the message text could occupy different message slots; however, it had to be there to be displayed.
2. Both radios must contain the same message IDs. You do not enter your information into all of the 20 slots. The information of the person that you will receive a message from must also appear in the list for it to be displayed on the radio with the message.

15.4 Radio Menu Settings - Sounds

Band Edge Beep - Enables or disables the audible tone that sounds when the radio reaches a band edge during tuning or scanning.

Beep Level - The volume of the beep is controlled by the audio volume level. The volume of the beep can be adjusted relative to the volume by setting the level in this option.

Beep Mode - Select which action will cause the radio to emit an audible tone.

Off - No sound is heard

Key + Scan - A beep is heard when a key is pressed or when scanning halts on a signal.

Key - A beep is heard when a key is pressed.

CTCSS/DCS Bell - Tone squelch operations have the option of sounding a bell when a call is received. This field sets the number of rings for the bell.

FM Speaker Output - Control audio output for FM Broadcast.

Auto - The FM Broadcast audio output is directed automatically to the internal speaker or the earphone depending on connection of the earphone antenna.

Speaker - The FM Broadcast audio output is heard through the internal speaker and the earphone.

User Beep Melody - Select the note and duration of that note for your own personal melody that sounds when a call is received during CTCSS operations.

User Beep Selection - Select the User Beep to be used. Enter the melody for the User Beep in the User Beep Melody section on this screen.

Vibrator Mode - When using Vibrator to alert you of an incoming signal, set the mode to:

MODE 1: The transceiver vibrates continuously.

MODE 2: The transceiver vibrates at a long interval.

MODE 3: The transceiver vibrates at a short interval.

Volume and Squelch - The radio has independent adjustments for A Band and B

Band operations. These include:

Speaker Volume - Set the volume for sound from the speaker of the radio.

Squelch FM - Control squelch levels that are appropriate for each of these bands of the radio.

Vibrator - The radio can be set to respond to vibrate when a call is received. Settings for this option include:

- OFF: The Vibrator function is disabled.
- BUSY: The transceiver vibrates when receive a signal.
- SIGNALING: The transceiver vibrates when receiving a signal with a matching CTCSS, DCS, or EPCS tone.

15.5 Radio Menu Settings - DTMF / Internet

DTMF Settings

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.

- **Auto Dialer** - Enable or disable the DTMF Autodialer feature to allow transmission of DTMF tones for autopatch or Internet-link access.
- **Channel** - Select the one of the 10 DTMF memory channels to use.
- **DTMF Speed** - Set the speed at which the DTMF tones are transmitted. Some repeaters require alteration to this speed to hear all the tones correctly.
- **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 10 memories for DTMF tones. Acceptable entries are 0-9, A-D, *(E), #(F) and - (pause)

Internet (Wires) Settings

The radio can be used to access a "node" (repeater or base station) which is tied into the Vertex Standard WIRES™ (Wide-Coverage Internet Repeater Enhancement System) network, operating in the "SRG" (Sister Radio Group) mode.

- **Access Number** - Set the DTMF tone for SRG access.
- **Auto Dialer Mode** - Enable or disable the auto dialer for transmission of access tones. This auto dialer is independent of that for the non-Internet DTMF memories.

- **Link Mode** - Select SRG or FRG as the Internet access mode.
- **Memory Selection** - Select one of the 64 preprogrammed Internet access memories to use for FRG access.
- **Memory Channels** - Enter a DTMF access string up to 8 characters and a Name of up to 8 characters to identify that connection.

Note: Turning on the Internet function is not included in the Programmer. When this option is on, a DTMF tone is transmitted at the beginning of every transmission. This is an annoying and unexpected action of the radio if this option were to be set when you were not ready to operate on the Internet.

The Programmer makes it easy to configure the settings for the Internet functionality. Engaging that functionality is left for you to do from the menu of the radio when you are ready to use it.

More details on this feature can be found in the Internet / WIRES Functionality section of this Help.

15.6 Radio Menu Settings - VFO and Menu Skip

Ham Bands (VFO skip bands)

The Ham Bands feature lets you select bands to be omitted when selecting VFOs with the Band key.

In the Programmer, an unchecked selection is included on the radio. To omit a band, check the box next to that selection.

Both AM and FM cannot be checked. Similarly, all of the ham bands cannot be omitted.

Menu Item Skip

This process is completed in two steps.

1. Select the menu items that will not appear when you access the Set Item menu in the radio.
2. Check Extended Menu On to hide these items on the radio.

If items are selected and the Extended Menu On item is not, the selected items will appear with an asterick beside each. Once the Extended Menu item is set to On (either in the radio or from the Programmer), these menu items will be hidden.

Note: You should know how to engage and disengage each of these functions from the face of the radio. In the field, away from your computer, you may need to access a band or an item that is hidden.

15.7 Radio Menu Settings - APRS / GPS

The **Automatic Packet Reporting System (APRS)** was designed to support rapid, reliable exchange of information for local, tactical real-time information, events or nets. The concept, which dates back to the mid 1980's, is that all relevant information is transmitted immediately to everyone in the net and every station captures that information for consistent and standard display to all participants. The primary objective is consistent exchange of information between everyone. For more information on this system, search the web for APRS. The search will return many articles with a plethora of information including several from the ARRL site.

The VX-8G displays your position (Longitude/Latitude). The radio is also equipped with a data modem to enable APRS (Automatic Packet Reporting System) transmissions. The Automatic Packet Reporting System (APRS) is a software program and registered trademark of Bob Bruninga, WB4APR. Many of the APRS and GPS details can be preset in the Programmer. Some must be handled in the field as an operational part of the radio. These are not included in the Programmer.

To program those APRS and GPS details that are available in the Programmer, select Settings | Radio menu settings from the menu at the top of the screen. This can be accessed while you are on any of the spreadsheets of the program. Once the Settings screen opens, select the APRS / GPS or APRS Beacon tab.

APRS Settings

APRS Modem - Enable/disable the APRS mode and set the baud rate.

B Band Mute - Enable/disable audio output on the B Band during APRS operations.

My Symbols - Select an icon which will be displayed on the monitors of other stations with your APRS transmission.

The radio has more than 180 individual symbols separated into 4 groups.

Set one for each group.

Select one to be used with the 1 - 4 button selection. The #4 button - User Symbol Text is for a personalized entry to use during APRS operation.

The radio will use the one selected and have the others immediately

available for use through manual selection from the APRS Set Menu Item 24 on the radio.

My Callsign - Enter your callsign to identify your station.

Position Comment - A brief description of your station or situation that is included with APRS transmissions.

Time Zone - Set the time offset between local time and UTC time. See the map in the operating manual for additional information.

Tx Delay - Set the time delay between transmitting the preamble (flag code) then the APRS data.

Units - Control how received data is displayed on your radio.

- Altitude - Set to feet or meters
- Distance - Set to mile or kilometer
- Position - Set to MM.MM' or MM'SS"
- Speed - Set to kmph, knot, or mph.
- Temperature - Set to Farenheit or Celcius.
- Rain - Set to mm or inch.
- Wind - Set to m, s or mph.

***Note:** When working with the radio, the APRS / GPS information is accessed when you press the Menu button briefly. The first screen that appears is current information coming from the FGPS-2 unit. If that unit is not attached, these fields will be blank.*

The fields that you are setting in the Programmer are accessed in the APRS menu on the radio. That menu is found by pressing the Menu button briefly then once in the APRS/GPS screen, press and hold the Menu button until the APRS/GPS menu becomes available. This menu is easily identified by the "APRS" or "GPS" that is included with the label for each of the items.

Com Port Settings

Input - Select the type of data to be received.

Output - Select the type of data output to the Com port.

Speed - Set the baud rate for the comport for proper connection to optional packet equipment.

Waypoint - Set the expected data.

Status - Check or uncheck to engage or disengage.

Mic-E - Check to engage this filtering option.

Object - Check to engage this filtering option.

POSIT - Check to engage this filtering option.

Weather - Check to engage this filtering option.

Item - Check to engage this filtering option.

Digi Path

Set up to eight digipeaters for the APRS packet path.

The radio is preset to "Wide1-1" and "Wide1-1/Wide2-1" digipath to insure that your transmitted APRS Beacon is repeated by the new N paradigm digipeaters. Yaesu recommends that you use this setting by default.

Six other options for settings are available for you to customize.

GPS Settings

GPS Power - Enables/disables the built-in GPS Antenna Unit.

Altitude - Set for feet or meters

Datum - Select GPS datum type. Most operations including APRS use the default "WGS84"; however, there are other databases available.

My Position - Select the information be used for your current location. The option can be set to GPS, Auto, Longitude, Latitude, or one of the 10 memorized positions.

Man / P1 - P10 Table -The table displays memorized positions used during GPS operations.

Position - Set for MMM or SS

Speed - Set in km/h, mph, or knot.

Time Set - Set use of the GPS clock data to Auto or Manual.

15.8 Radio Menu Settings - APRS Beacon

The Programmer handles additional information for APRS beaconing on this screen. Items to be set include:

Beacon Filter - Select the specific types of APRS beacon to be received or rejected. Check to receive. Uncheck to reject.

Beacon Interval - The length of time between beacon transmissions when beacons are being transmitted automatically.

Beacon Ringer - Enable/disable the audible sound heard when an APRS Beacon is received.

Beacon Status Text - Enter a message for APRS beacon. Select one to be transmitted. The first text message is transmitted by default.

Beacon Transmit - Control beacon transmission.

Auto - The radio transmits the APRS beacon automatically at the time interval set in the Beacon Interval option.

Manual - The APRS beacon is transmitted only when the [ⓧ] key is pressed. You remain in complete control of when the beacon is transmitted.

Smart - Enable automatic transmission in accordance with the interval determined in the Smart Beacon Settings for Type 1, 2 or 3.

Smart Beacon Type - Select Type 1, 2, or 3 to use when Beacon Transmit is set to "Smart". This selection correlates to the Type 1, 2, or 3 settings in the Smart Beacon Settings section.

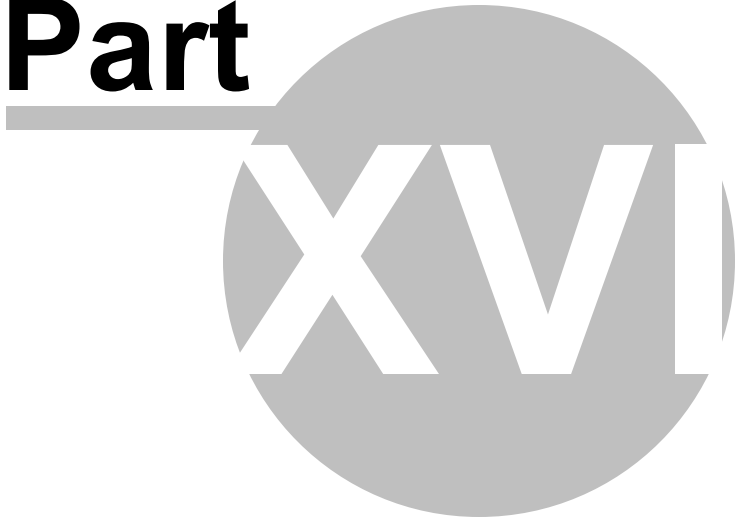
Smart Beacon Settings - Set the options for each of three Smart Beacon types. The radio transmits the APRS beacon automatically when any parameter value exceeds the set point.

The default values are suggested as Type 1 for walking, Type 2 for bicycling, and Type 3 for travel in a vehicle. Adjustments are suggested if these do not generate the desired rate of transmission during your given activity.

Note: There is nothing really special about one of these as compared to another. This menu item (APRS/GPS Menu Item 24) simply gives you three sets of the same parameters to set as you need for experimentation or for three different activities once you establish suitable values for that activity.

You need to know how to change between the Types from the face of the radio. Then you can experiment with the three sets of values while in the field to find those that work best for you. To make your selection, access the APRS/GPS menu, select item #24, select Type 1, 2, or 3. Exit the menu and resume your activities.

Part



16 Radio / Computer Data 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 all cases, ***be sure to follow the directions presented on the screen carefully.*** The wrong button press can result in a communications failure.

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.

16.1 Communications | Get Data From 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 recommended before the first file is sent to the radio; however, it is not a requirement. 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)

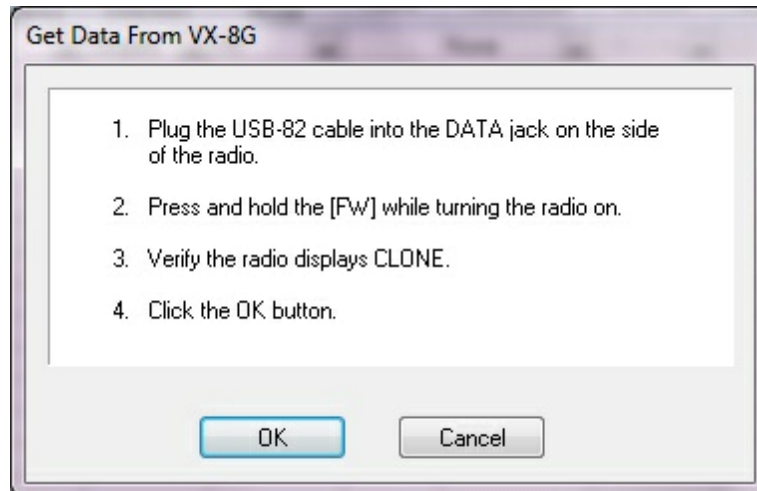
Connect the cables properly to the radio. See the Radio to Computer Cabling section of this Help for details of that cabling.

Be sure the battery is charged completely or that you are connected to an 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).

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/green 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.***

- *When the screen opens, skip to step 4 and click OK without doing anything on the radio.*
- *Then press the [Band] key and watch the radio change. If it changes to CLONE, press the [Band] key 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.

Troubleshooting

"Nothing" happens when I press the button indicated on the second screen of the Get Data From process.

If this is "nothing on the radio", check that your keys are not locked. The lock symbol appears on the screen with the word "CLONE". Simply press the power button briefly to unlock the keys. Then press the Band button again to continue.

If this is "nothing on the computer" (i.e., the transfer status bar does not appear and begin to fill), check the cable connections between the radio and the computer.

Should the problem persist, contact **RT Systems** for personal assistance.

16.2 Communications | Send Data To Radio

Sends the contents of the current file and the settings file to the radio.

Note: In the Version 4 Programmers you can have files open for several different radios at one time. The Programmer can send a file only to the radio it is for. The extension of the file tells you which radio it is for.

You can open and send a file created for one radio to another; however, you must open that file as one for the receiving radio. See the File | Open section of this Help for details on this process.

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 Menu 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 section of this Help.

If the radio "acts funny" after it is programmed:

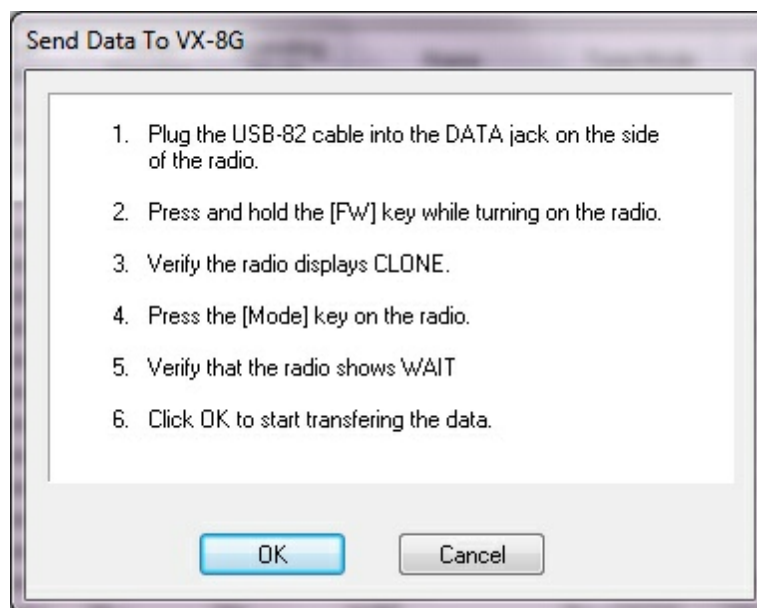
- Check the Radio Menu Settings.
- Make changes to the settings as needed.
- Save the settings file.
- Do Communications | Send Data To with the same memory channel file.

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.



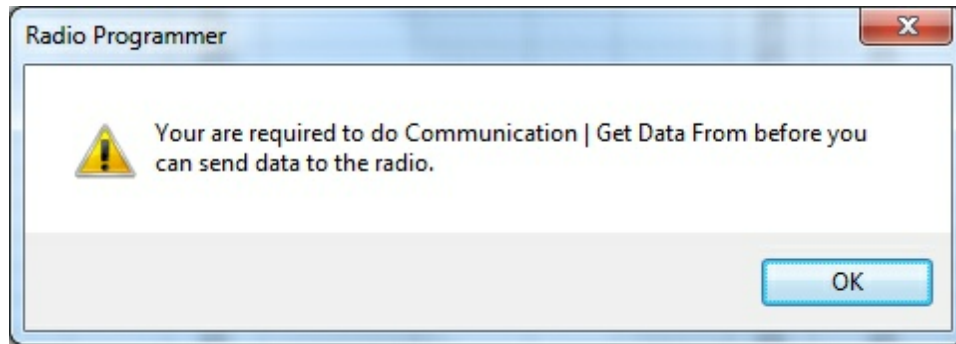
Follow the steps on this screen. When you click OK a progress bar appears letting you know that the process is being completed.

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. Press the V/M or MR or DM key on the radio (See the manual for your specific model to identify the key press that changes the radio from VFO to memory mode. It will be detailed there.) 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.

16.3 Comport Setup

In the Version 4 *RT Systems'* Programmers there is ***no comport setup***. The software finds the USB cable automatically.

Troubleshooting

When I select Communications | Send Data To, I get the following error:



The only cable that works with the Version 4 *RT Systems'* Programmer is the *RT Systems'* USB cable specific to the radio. Cables are not interchangeable.

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. Further, The steps are different for Get Data From the radio or Send Data To the radio.

Should the problem persist, contact RT Systems tech support. See Contact Us in this Help for hours and phone number. Appointments can be made for after hours calls to make it easier for you to be at your computer with the cable and radio for tech support.

16.4 Radio to Computer Cabling

The radio must be connected to the computer with the proper cables for that radio.

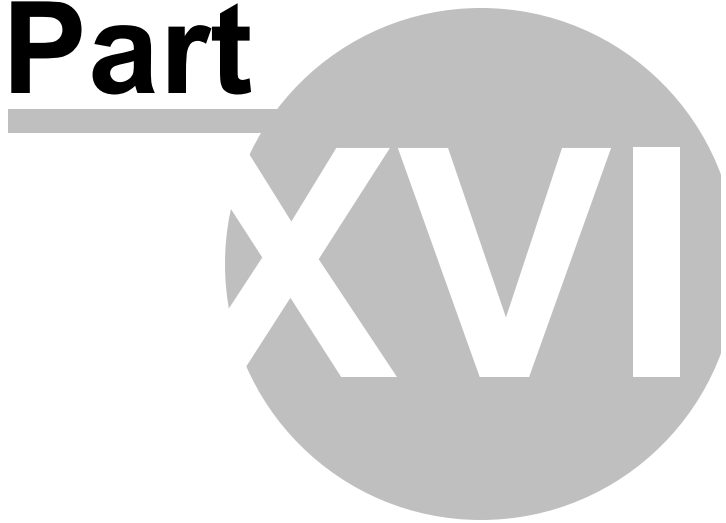
The USB-82 cable, a 2.5mm plug, is the correct cable for this radio, and is included in the ADMS-VX8G kit with the RT Systems' software.

This cable is easily identified by its orange color, has a 2.5mm stereo plug at one end of the cable, and the *RT Systems* name is on the USB end of the cable.



Note: The data jack on the VX-8G is offset slightly relative to the hole of the case. This makes it a little difficult to plug the cable into the radio properly. Gently push and wiggle the plug until it is firmly seated in the jack letting the part you are holding go slightly off center relative to the hole in the case. The plug fits into the jack securely when seated completely.

Part



17 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, with the exception of the Icom IC-7000, all other programmers erase everything in the radio and replace it with what is in the file. 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.

Open Travel Plus Link - Active only if a list is open in Travel Plus. Accesses that Travel Plus list. Details on this functionality are available in the ARRL Travel Plus section of the help.

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 dependant on the e-mail program of your computer.

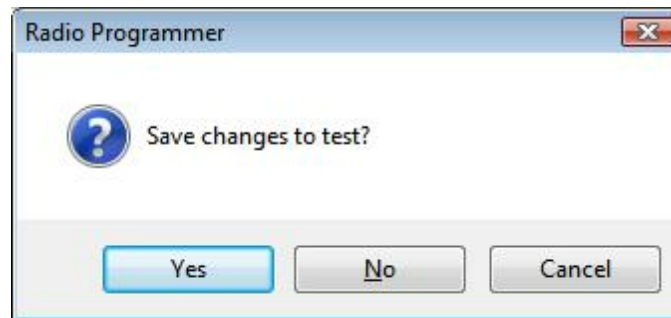
Files 1-4 - Up to four files that you last worked in and saved.

Exit - Closes the programmer.

17.1 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.

17.2 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 address in the programmer under Settings | Radio Menu Settings.

The settings for these features that were last saved are use 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, factory 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.

17.3 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.

Working with the programmers is a little different if you have one programmer or several programmers installed on this machine. Click the topic for details on

[Opening a file with the Version 3 or Version 4 programmer \(One Version 3 or Version 4 programmer installed\)](#)

The Version 3 and higher programmers allow you to "share" Version 3 and higher files from other radios...even radios from other manufacturers. Click the topic for details.

[Opening ANY Version 3 file](#)

There have been many *RT Systems'* programmers over the years. The Version 3 or higher programmers can open and convert files from those older programmers. Click to topic for details.

[Opening existing programming files \(*.rdf or *.icf files\)](#)

17.3.1 Opening files from older programmers

Opening existing programming files (*.rdf or *.icf files)

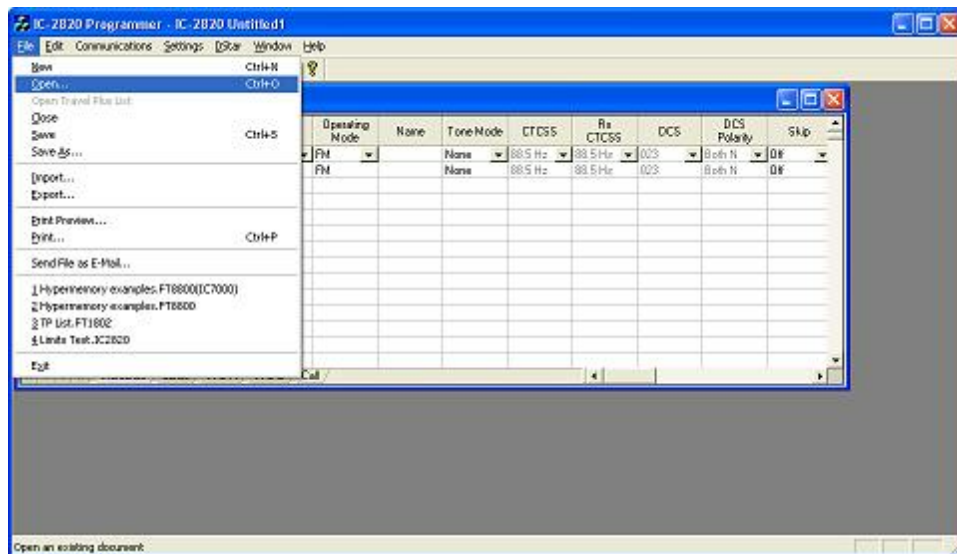
The Version 3 or higher programmers can open a file created with an original RT Systems' ADMS or WCS programmer for the same radio.

In this example, a file for the Yaesu FT-60 that was created in the original ADMS-1J programmer (an .rdf file) will be opened in the Version 3 programmer for the FT-60. This process is the same in the Version 4 programmers although the screens will look a little different.

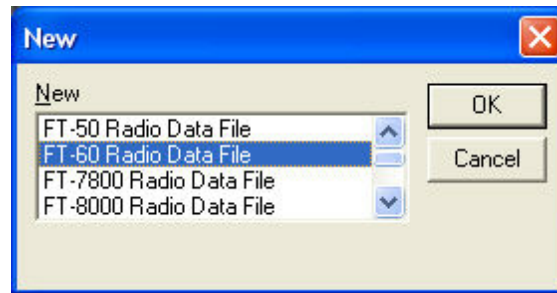
Directory selections may vary on your system depending on your choices in the original programmer. This example is designed based on defaults from the original programmers.

To open an existing file from the original programmer:

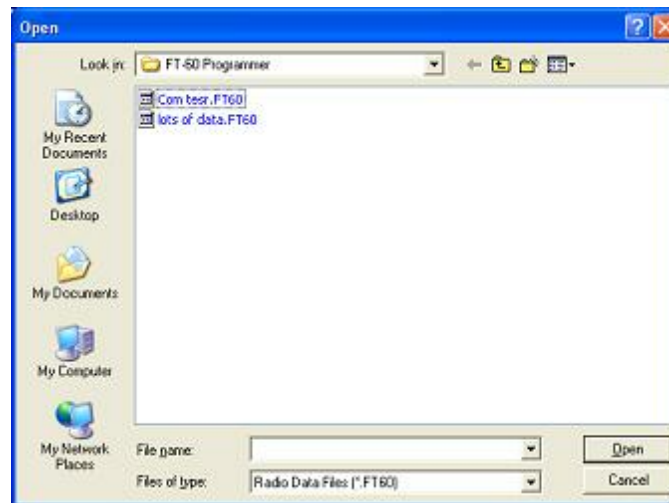
- In the V3 Programmer, select File | Open.



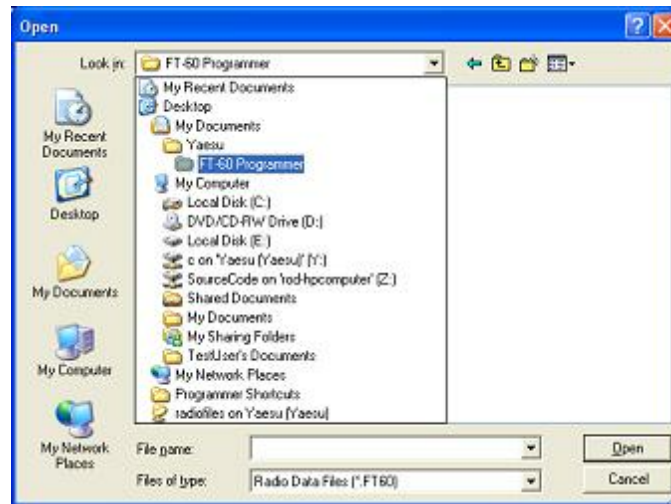
- If you have several Version 3 programmers installed, you will need to select FT-60 Radio Data File from the list in box that opens next. This step is omitted if only one programmer is installed.



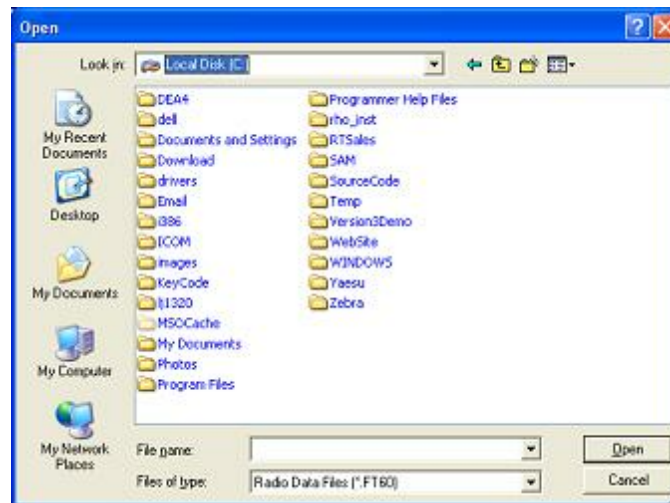
- An Open Dialog appears



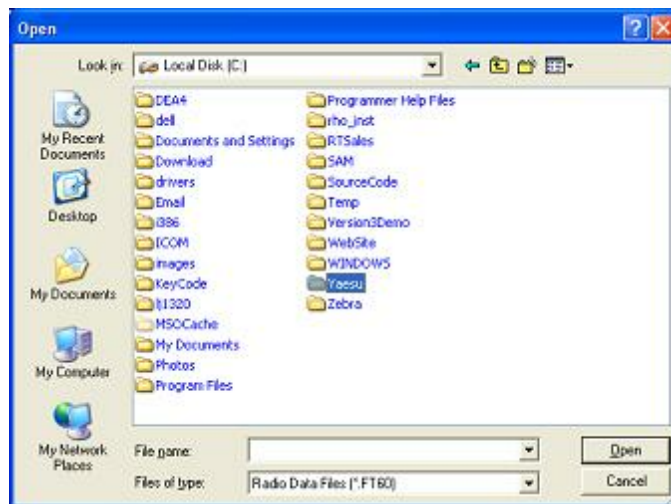
- Since the Version 3 programmer is geared to look in its own directory, we need to "find" the original file to be opened (We must change filing cabinet drawers as the old analogy was described.) Use your mouse to left click the down arrow to the right of the Look In box. A directory listing appears. The one highlighted in the list simply indicates the "drawer" you are in now. Do not be afraid. This is only a list from which we will make a selection. You cannot hurt anything with these steps and actions.



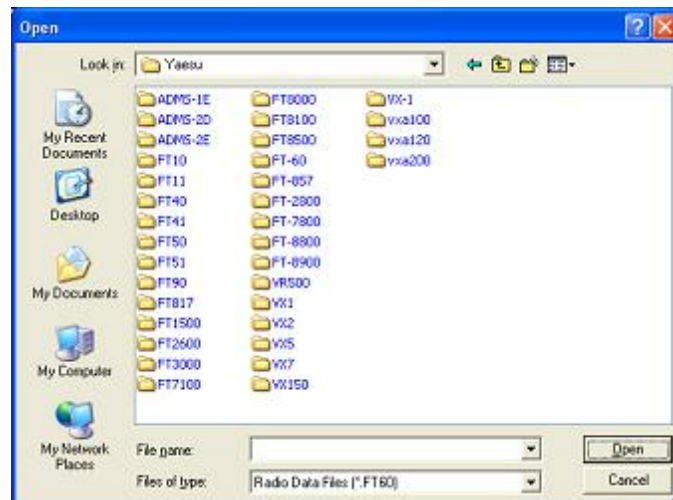
- Use your mouse to left click on Local Disk (C) in the list. On your machine this wording can vary a little. In general, you're looking for that "(C)" to know you've made the correct selection.



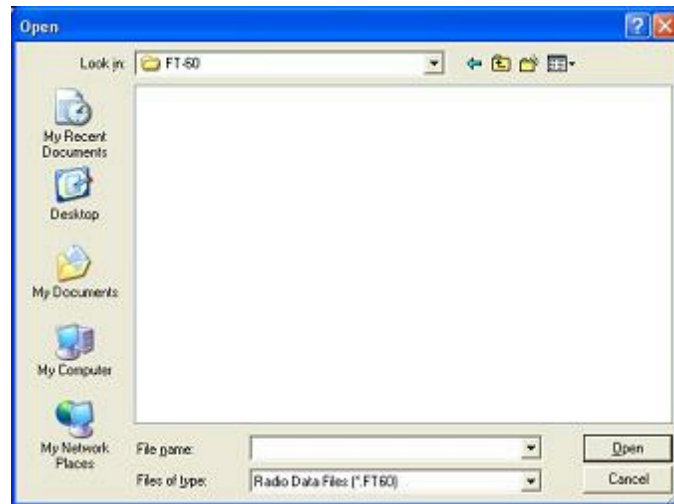
- What you see now are directories (the ones with the little yellow folders) and files. Find the little yellow folder that says Yaesu next to it. Put your mouse on it and Left click. Once Yaesu is highlighted, let go of the mouse button, move the pointer to the Open button, then use your mouse to left click on the Open button.



- After clicking Open, the contents of the Yaesu directory appear.



- In this example, there are lots of directories (the ones with the little yellow folders) since all the original programmers were installed on this machine. In your case, there is probably only one directory (little yellow folder). In either case, find the FT-60 directory (the one with the little yellow folder and the words "FT-60" next to it). Find the FT-60 directory. Point at it with your mouse. Use the Left mouse button to click on it. Release the mouse button. Move the pointer to the Open button. Left click the mouse once on the Open button.



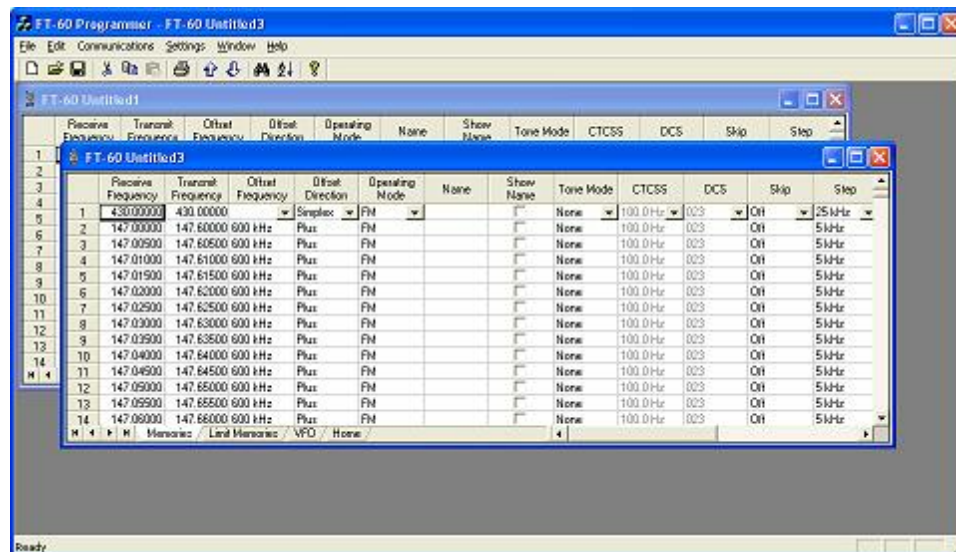
- Yes, a blank screen appears. This is normal. At the bottom of that screen, find the "Files of type" box. Use the left mouse button to click on the down arrow at the right of that box. Select Old Radio Files (*.rdf) from that list. The names of the available files will appear on the screen.



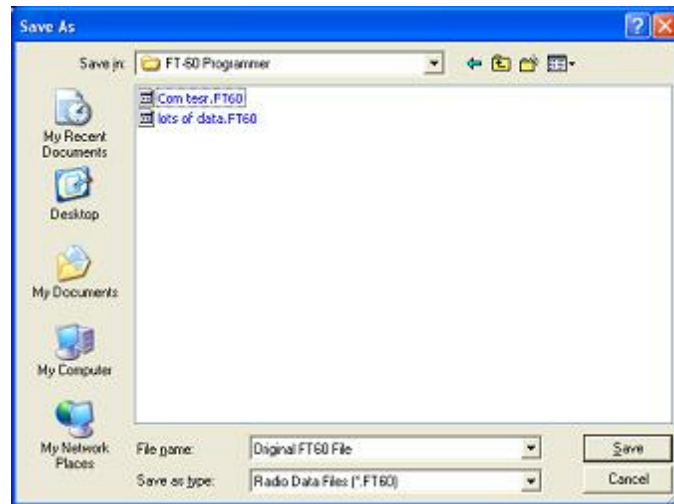
- Use the mouse to point at the name of the file that you want to open. Click the left mouse button once to select that file.



- Release the left mouse button. Move the pointer to Open. Click the left mouse button once to open the file.



- All the data of the original file is converted into a new Version 3 file for the FT-60.
- Now, save this new file so you don't have to do this again every time. Also, once saved as a new Version 3 file, you can use this data for other radios once you have the Version 3 programmer for them. (Advanced feature explained below). From the menu, select File then Save as from the list. Use the left mouse button to make this selection.



- Enter a filename in the File name field at the bottom of this screen. Use your left mouse button to click Save.

Note: Only files from the original ADMS-1J for the FT-60 Version 2 programmer can be accessed with the FT-60 Version 3 programmer. Files ending in *.rdf for other Yaesu radios cannot be opened in the FT-60 Version 3 programmer.

17.3.2 Opening a V3 or V4 file from a different radio

The Version 3 programmers have the ability to "share" memory channel information between radios. It makes no difference if the radios are from the same manufacturer or not. As long as both files are from an RT Systems' Version 3 programmers, they can be used by the Version 3 programmer for any other radio.

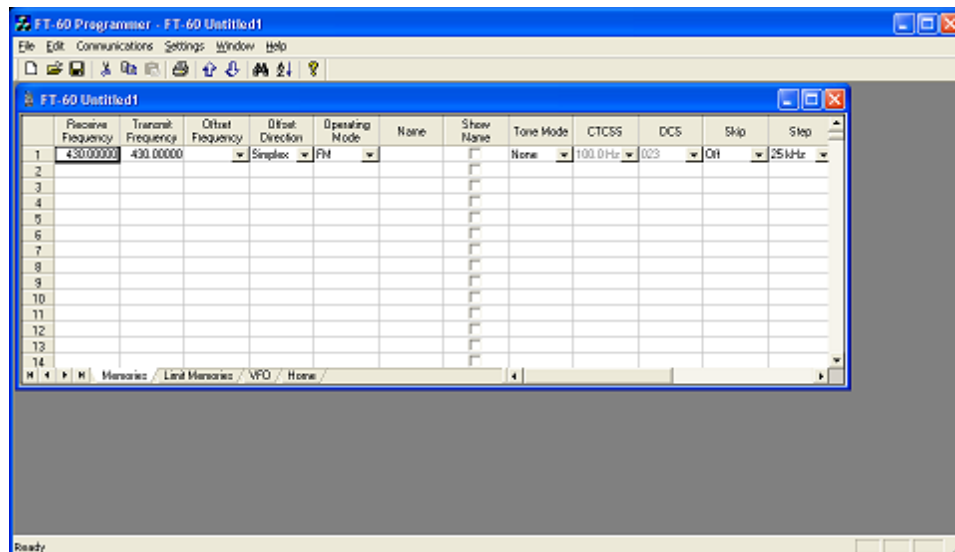
To open a Version 3 file from a different radio:

The steps detailed here are based on the directory structure of this machine. Make changes to directories as needed to locate files that you want to open.

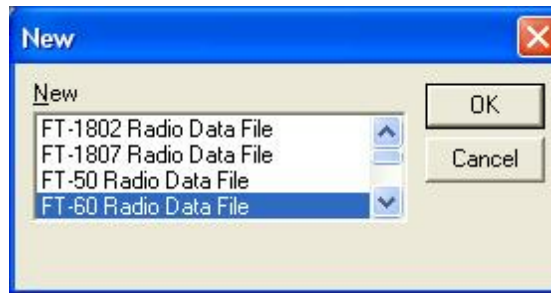
Files that you create in Version 3 can now be shared easily with anyone else who has a Version 3 programmer. Simply post the Version 3 file for anyone to download.

In this example, a file for the Icom IC-T81 will be opened to be sent to the Yaesu FT-60.

- Open the FT-60 Version 3 programmer.



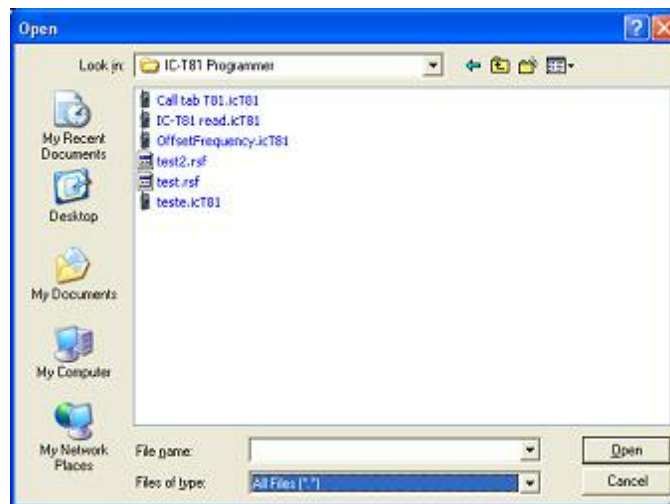
- From the menu at the top of the screen, select File | Open. A box appears from which you select the programmer for the **radio to be programmed (in this case, the FT-60)**.



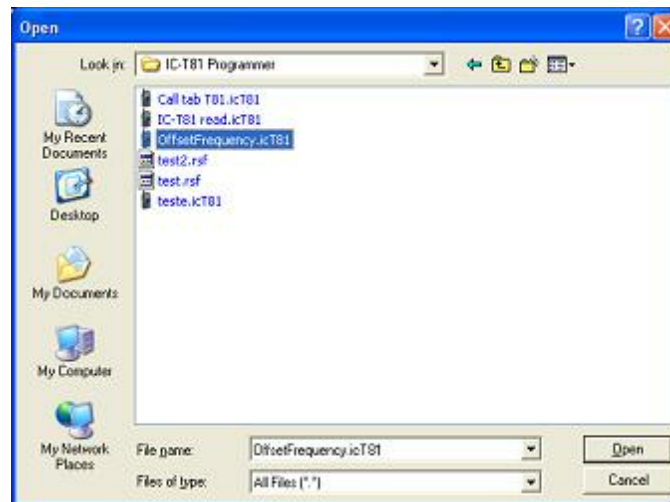
- An Open Dialog box appears. By default it is looking in the FT-60 directory since it is trying to help you find an FT-60 programming file. You will change directories to where the file is stored that you want to open. (Note: If you received the file via e-mail or from an Internet site, you chose where it was saved. Personalize the steps here to move to that location.)



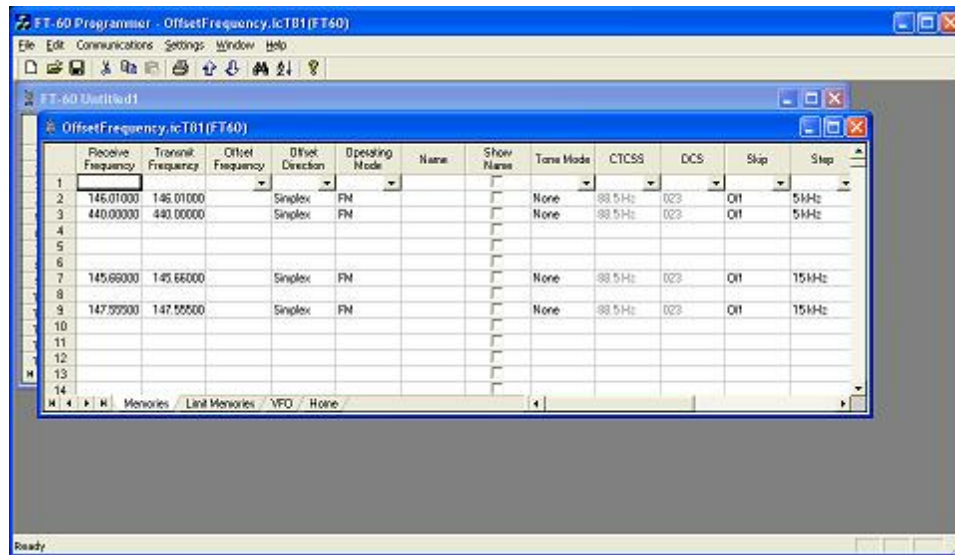
- When the contents of that directory are displayed, it probably will be blank as shown. You have done nothing wrong. This is normal. The process is still looking for an FT-60 file. From the Files of type field at the bottom of the screen (the one highlighted blue in the figure above), select All files (*.*) .



- A listing will appear with more than just the file that you're looking for. Everything in that directory is listed. Your file will be in the list. Select the file from the list.



- Click Open in the lower right corner.
- The resulting file contains frequencies that can be sent to the FT-60. The blanks represent frequencies that were removed during the conversion. These frequencies would be invalid for the FT-60.



Creation of this file did not disturb the original file. The memory channel information was not removed from the original. A copy was made by the programmer for the conversion.

You can edit the file. In this case it needs to be edited to be sure that memory channel 1 is programmed. You can remove the blank channels if you want. You can add others.

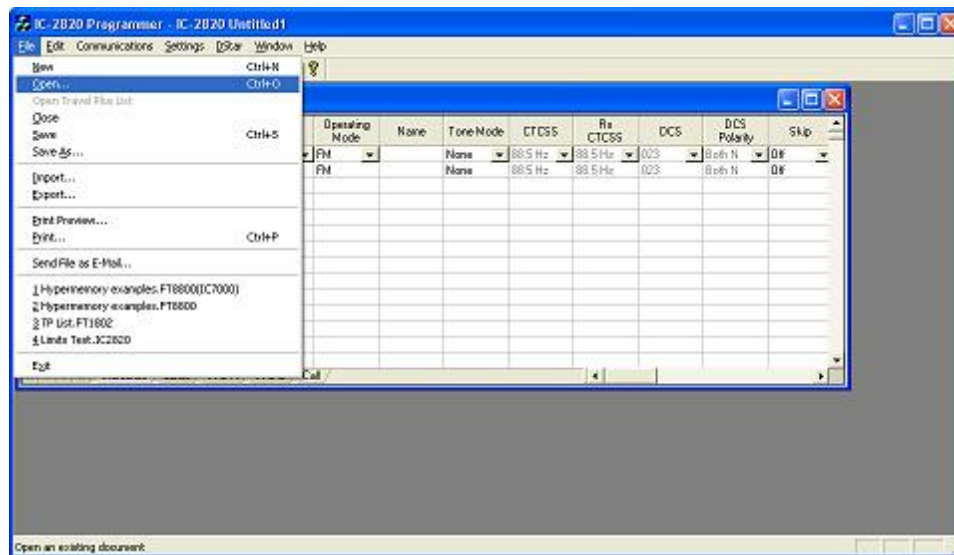
Alternately, you can send this file to the radio just as it is...other than channel 1 needing to be programmed with something allowable for the radio.

Once you have used this to program the FT-60, you can save the file or close without saving depending on your needs for the data.

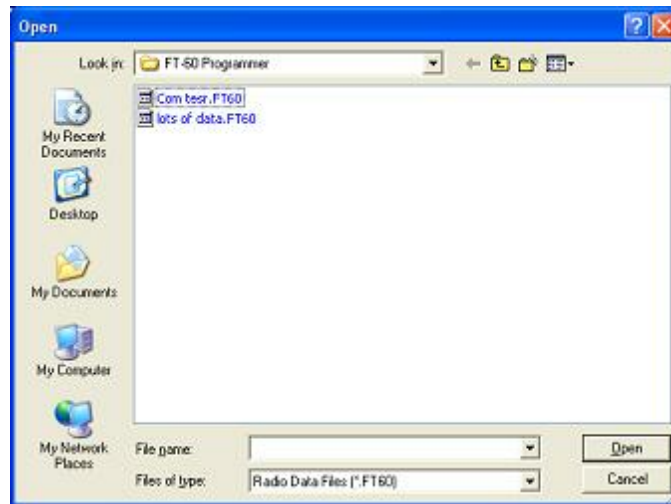
17.3.3 Opening a V3 or V4 file

Opening a file with the Version 3 programmer (One Version 3 programmer installed)

- Select File|Open from the menu at the top of the screen.



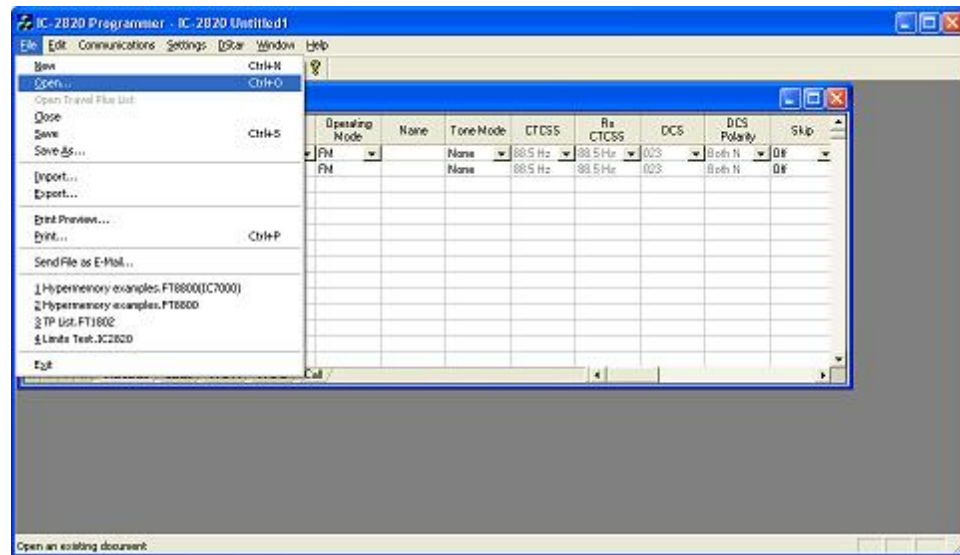
- A Windows Open dialog appears.



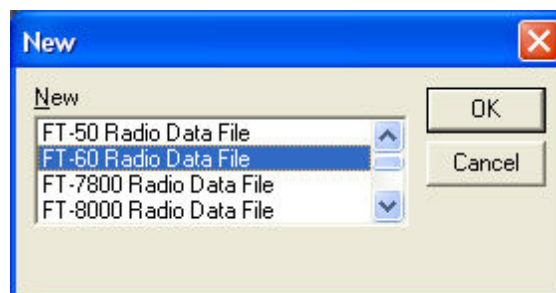
- Select the file that you want to open from the list presented. Click the Open button at the bottom right. This file opens in the programmer.

Opening a file with the Version 3 programmer (More than one Version 3 programmer installed)

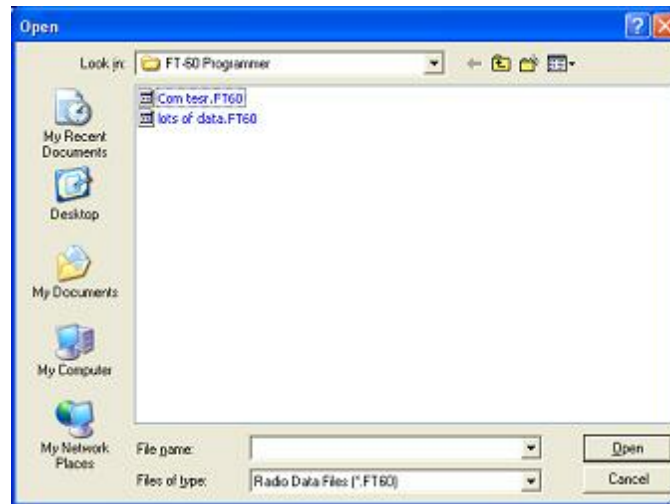
- Select File|Open from the menu at the top of the screen.



- A window opens listing the programmers installed on this machine. Select the radio from the list that will be programmed by this file being opened.



- A Windows Open dialog appears with a list of the files for that radio.



- Select the file that you want to open from the list presented. Click the Open button at the bottom right. This file opens in the programmer.

17.4 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 column, 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.

17.5 File | Print Preview

This new feature of the Version 3 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.

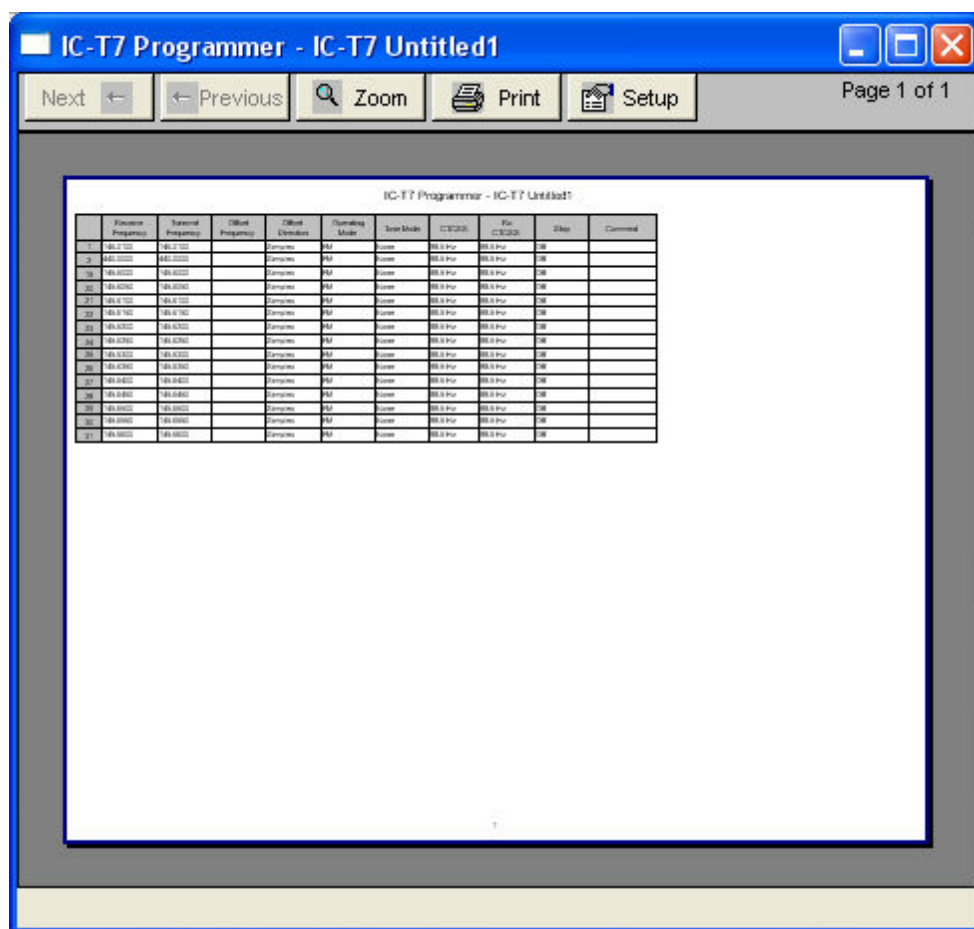
You will notice first that the screen changes. It is filled with the data that will be printed. This is just a temporary change. The order of your channels has not been changed in the file.

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 | Rx CTCSS | Skip | Comment |
|----|-------------------|--------------------|------------------|------------------|----------------|-----------|--------|----------|------|---------|
| 1 | 146.0100 | 146.0100 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 2 | 145.0000 | 145.0000 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 18 | 145.0000 | 145.0000 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 20 | 145.0050 | 145.0050 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 21 | 145.0100 | 145.0100 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 22 | 145.0150 | 145.0150 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 23 | 145.0200 | 145.0200 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 24 | 145.0250 | 145.0250 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 25 | 145.0300 | 145.0300 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 26 | 145.0350 | 145.0350 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 27 | 145.0400 | 145.0400 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 28 | 145.0450 | 145.0450 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 29 | 145.0500 | 145.0500 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 30 | 145.0550 | 145.0550 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |
| 31 | 145.0600 | 145.0600 | | Simplex | FM | none | 88.5Hz | 88.5Hz | Off | |

Notice at the top of the page you can see that your 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.



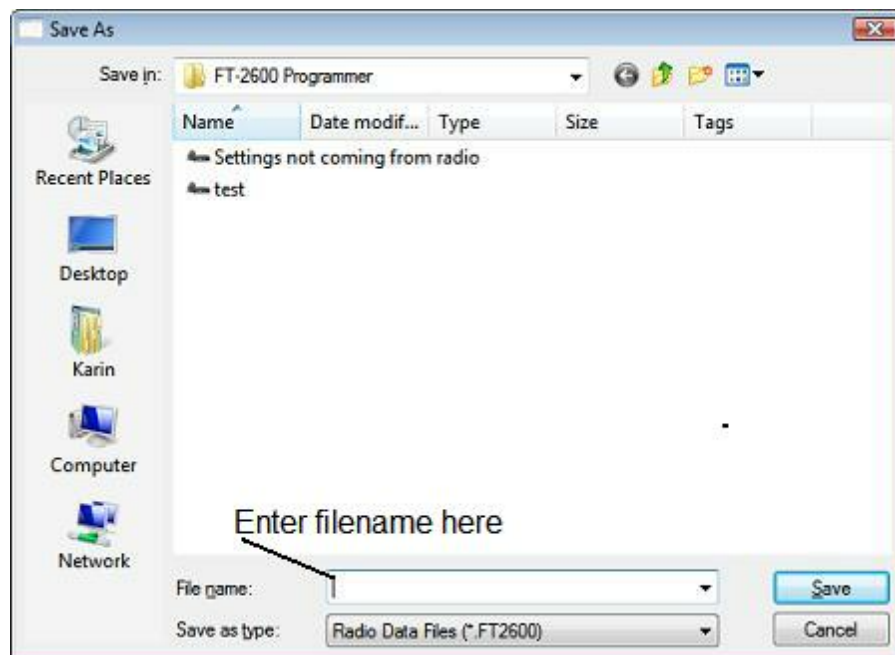
Under Printer setup, change the margins to print on as much of each page of paper as possible. Again, this can make it possible for all the columns to fit on one (or half the number of) page.

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

17.6 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.



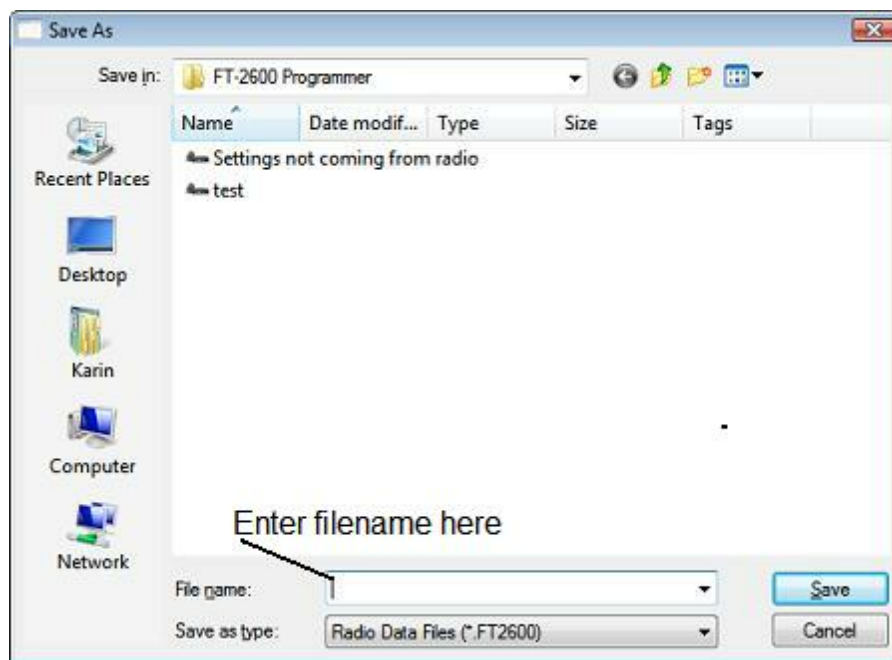
17.6.1 File | Save

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.



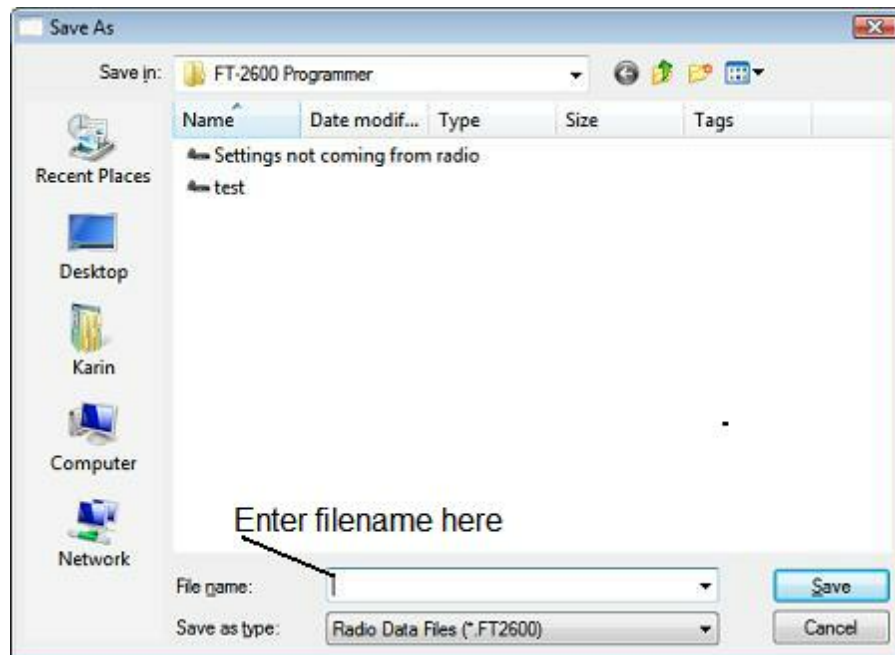
The filename can be any combination of characters and spaces including numbers and letters.

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

17.6.2 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



18 ARRL TravelPlus*

RT Systems' Version 4 programmers have a feature that opens a TravelPlus list in the radio programmer. This makes the data available for creating files for programming your radio without the need to import the data from a file.

This Help file contains sections on creating the list in TravelPlus* and on getting that list ready to program your radio. Takes only a few mouse clicks to have your radio programmed for that trip or other special event.

Creating a list in TravelPlus* - Brief details on this process. For more details, see the help file in TravelPlus*.

Opening the list in the radio Programmer - Details on opening the list in the radio programmer and the controls on that list.

Using the TravelPlus* list with an existing radio programming file - Sometimes you don't want all the repeaters found for an area by TravelPlus*... or you want to put what you found into a certain group of memory channels in the radio programming file. This section details how to use the list selectively in the radio file.

*TravelPlus is a product of the American Amateur Radio League.

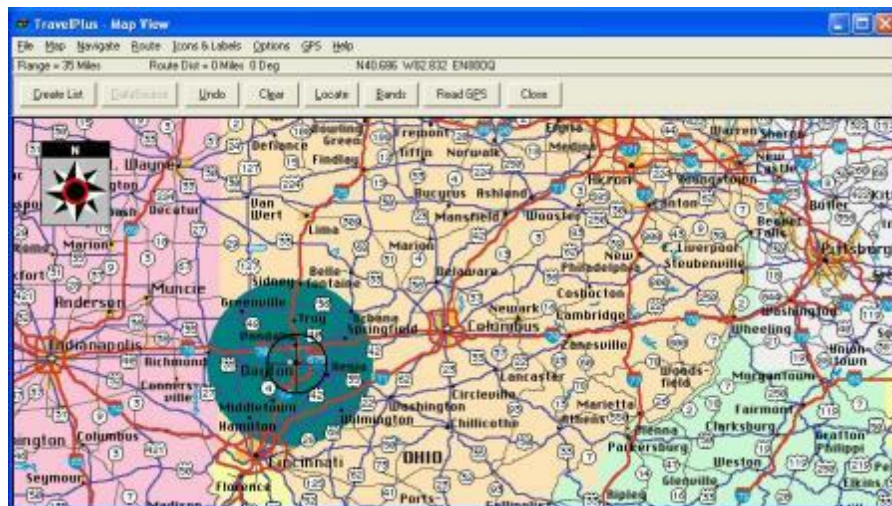
Any images from TravelPlus included in this help are copyrighted to DHF Systems, LLC.

18.1 Creating a list in TravelPlus*

RT Systems' Version 4 programmers have a feature that opens a TravelPlus* list in the radio programmer. This makes the data available for creating files for programming your radio without the need to import the data from a file.

These instructions very briefly cover creation of the list from TravelPlus*. It is not intended to teach you to use that program. Detailed instructions are included in this help for using the information from that list in a file for programming your radio.

Open TravelPlus* from the link provided when that program was installed. Select a location or create a route.



Once you have the area defined on the map, click the Create List button from the top of the screen. TravelPlus* displays the list of repeater frequencies found within your search area.

The screenshot shows a window titled "TravelPlus - Repeater List" with a menu bar (File, Edit, View, Help) and a toolbar. Below the menu bar, it says "Repeater List: 123" and "List by Sequence". The main area contains a table with the following columns: Seq#, Band, Country, State, Region, Location, Output, Input, Call, Repeater, Notes, CTCSS, and St. The table lists 25 repeaters, all in the USA, Ohio, Montgomery region, with locations in Dayton, Trotwood, Kettering, and W Carrollton. The table data is as follows:

| Seq# | Band | Country | State | Region | Location | Output | Input | Call | Repeater | Notes | CTCSS | St |
|------|-------------|---------|-------|------------|--------------|----------|-------|--------|----------------|-------|-------|----|
| 1 | 144-148 MHz | USA | OHIO | MONTGOMERY | Dayton | 145.1100 | - | WCSOE | o(CA) s1x 67.0 | 67.0 | | W |
| 2 | 144-148 MHz | USA | OHIO | MONTGOMERY | Dayton | 146.6400 | - | WBSCQ | o(CA) eWX | | | W |
| 3 | 144-148 MHz | USA | OHIO | MONTGOMERY | Dayton | 146.8200 | - | WABFLZ | o(CA) e | | | W |
| 4 | 144-148 MHz | USA | OHIO | MONTGOMERY | Dayton | 146.9100 | - | WBSCQ | o(CA) e | | | W |
| 5 | 144-148 MHz | USA | OHIO | MONTGOMERY | Dayton | 146.9400 | - | WBB1 | om 100.0 | 100.0 | | W |
| 6 | 144-148 MHz | USA | OHIO | MONTGOMERY | Dayton | 147.3350 | + | WBSCM | o(CA) e | | | W |
| 7 | 144-148 MHz | USA | OHIO | MONTGOMERY | Dayton | 147.3400 | + | WABFLZ | o(CA) e 77.0 | 77.0 | | W |
| 8 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 442.0000 | + | WBBSV | o | | | W |
| 9 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 442.1000 | + | WBB1 | o | | | W |
| 10 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 442.0000 | + | WBSCM | o(CA) e | | | W |
| 11 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 443.0500 | + | NBBB | o | | | W |
| 12 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 443.5000 | + | WBBSR | o | | | W |
| 13 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 443.6000 | + | W71A | oC | | | W |
| 14 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 443.7500 | + | WBBSK | o 123.0 | 123.0 | | W |
| 15 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 443.7750 | + | WFBH | o 131.8 | 131.8 | | W |
| 16 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 444.0500 | + | WABFGJ | o 1 100.0 | 100.0 | | W |
| 17 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 444.2500 | + | WBSCQ | o | | | W |
| 18 | 420-450 MHz | USA | OHIO | MONTGOMERY | Dayton | 444.7625 | + | WBSC1 | (CA) e 77.0 | 77.0 | | W |
| 19 | 420-450 MHz | USA | OHIO | MONTGOMERY | Trotwood | 443.9250 | + | WBZOL | o(CA) | | | W |
| 20 | 420-450 MHz | USA | OHIO | MONTGOMERY | Trotwood | 443.9750 | + | WBPB | o | | | W |
| 21 | 144-148 MHz | USA | OHIO | MONTGOMERY | Kettering | 146.9050 | - | WABFGJ | o 1 100.0 | 100.0 | | W |
| 22 | 144-148 MHz | USA | OHIO | MONTGOMERY | Kettering | 147.0750 | + | WBSCM | oe | | | W |
| 23 | 420-450 MHz | USA | OHIO | MONTGOMERY | Kettering | 444.6425 | + | WBSCC | o(CA) t | | | W |
| 24 | 420-450 MHz | USA | OHIO | MONTGOMERY | W Carrollton | 443.6500 | + | NBBB | o | | | W |
| 25 | 420-450 MHz | USA | OHIO | MONTGOMERY | W Carrollton | 444.5000 | + | WBZQ | om s1x | | | W |

Check the list. If you don't like the results, try again. Once you are satisfied with the list, you are finished with TravelPlus*. You can exit that program or leave it running while you access the *RT Systems'* radio programmer.

Run the *RT Systems* programmer (Version 4 only). If the programmer is already running, switch to it now to create a file from this list for programming the radio.

*TravelPlus is a product of the American Amateur Radio League.

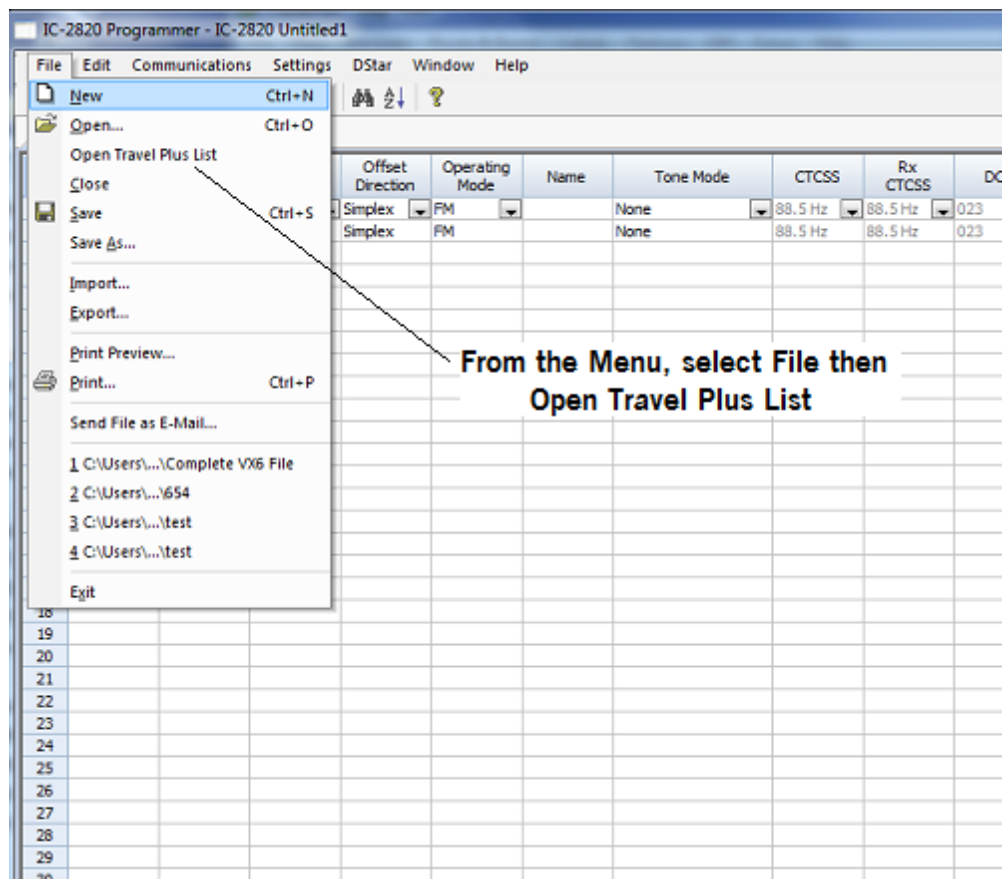
Any images from TravelPlus included in this help are copyrighted to DHF Systems, LLC.

18.2 Opening the list in the Programmer

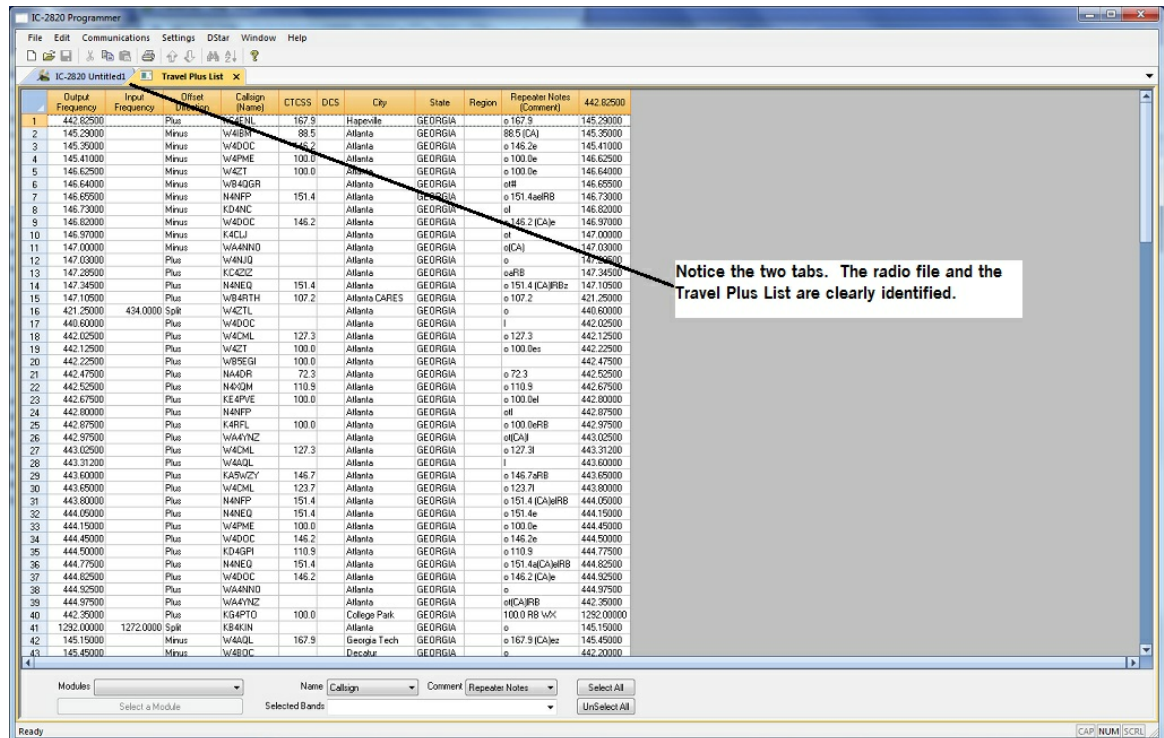
Once you have created a list in TravelPlus* (Version 10.0 or higher), open any one of the Version 4 programmers installed on your machine.

To access the list:

- Select File from the menu at the top of the screen.
- Select Open TravelPlus* list (this option was disabled until you created the list)



- The list appears in the window of the programmer



Customizing the list for the radio file:

Several selections appear at the bottom of the window that contains the list. These options control how the programmer will handle the data from the list in creating the radio programming file. These fields and their options are described below.

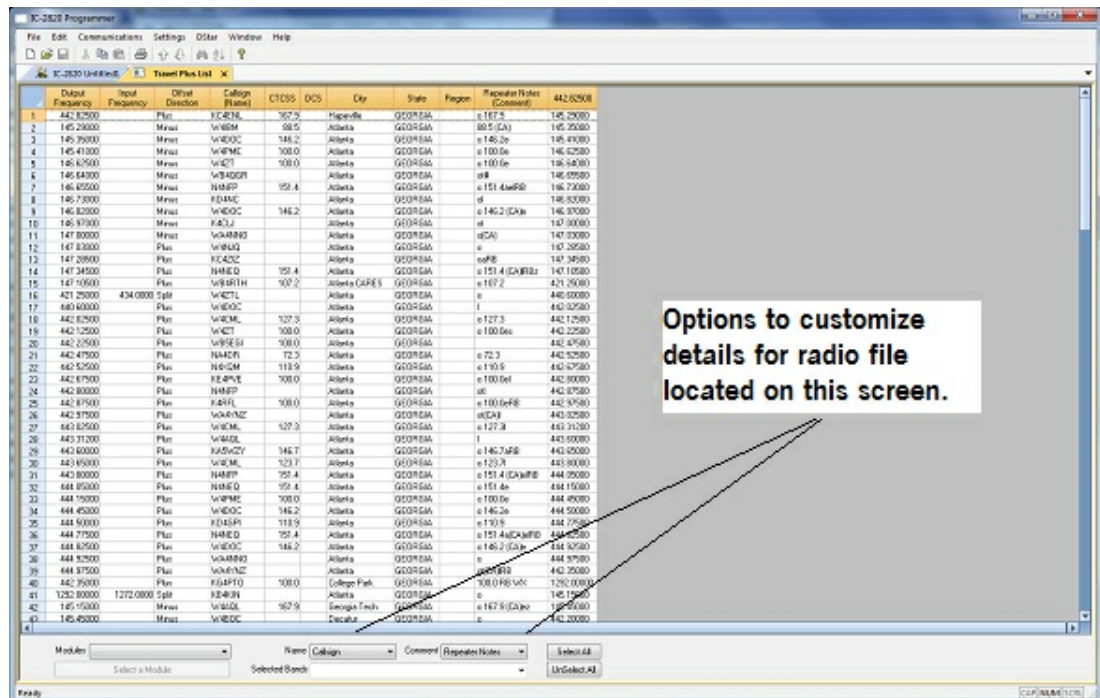
- **Selected Bands:** Lists the bands of the frequencies in the list. All the bands are selected by default. Uncheck those that you don't want as part of the file for the radio.

If you are programming a 2 Meter radio with a file that contains 6 Meter repeaters, you can choose to eliminate those frequencies in this step to better understand what will be contained in your resulting file. If you skip this step, the programmer will omit these frequencies in the resulting radio file since the radio does not operate on these frequencies.

If you do not eliminate the bands that cannot be used by your radio, the resulting radio file will contain blanks for each frequency the programmer removes during file creation. Although the radio does not care, you may not want all those blanks in your radio file.

If the TravelPlus* list contains too many frequencies for the radio, using

the Selected Bands option would remove unused frequencies thus lowering the number in the file and making it possible to create a radio file with all those frequencies that you want. (i.e., Your TravelPlus* file has 512 frequencies in the selected area. Your radio has 450 channels. You Select Bands and eliminate 6M, 10M and 220 Mhz Bands. The resulting list now has 432 frequencies... few enough that they all will fit into the radio file.)



- **Name:** The TravelPlus* list contains information that does not "match" directly to a column in the radio programmer. One of the columns in the programmer accept data from these columns is the Name field.

Name in the programmer is the field that sets the alpha display on the radio. Generally, this display is limited to 5-8 characters depending on the radio (other than the VX-8 that allows 16 characters).

By default, the programmer associates Callign from the TravelPlus* list to Name in the programmer.

You can change that association by selecting another column from those listed.

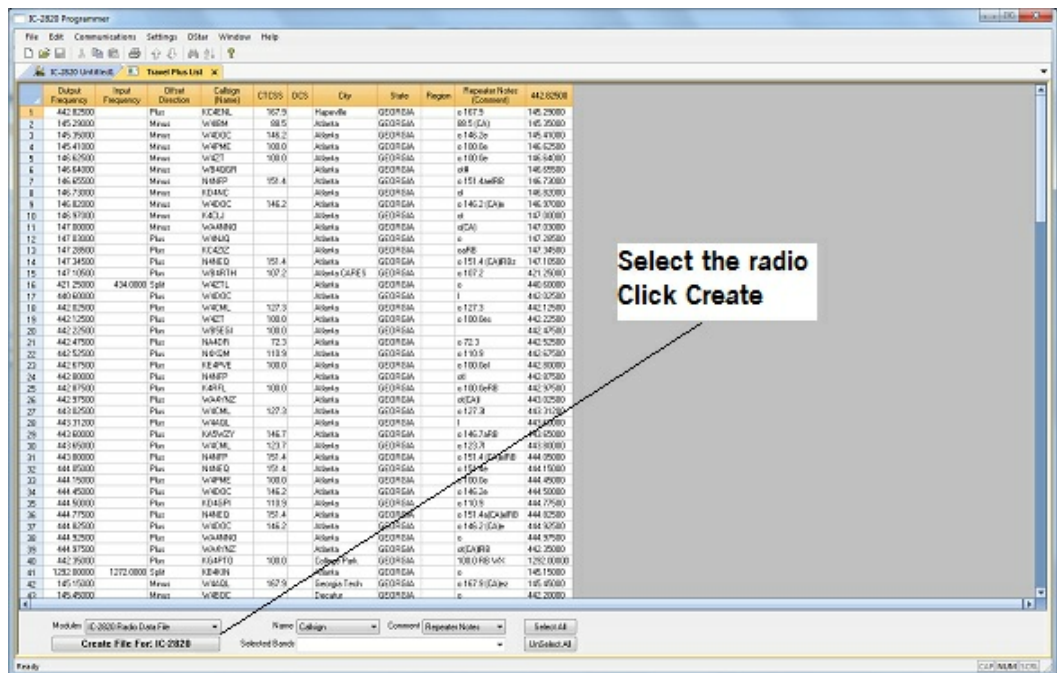
- **Comment:** The TravelPlus* list contains information that does not "match" directly to a column in the radio programmer. One of the columns in the programmer accept data from these columns is the Comment field.

Comment in the programmer is a field of information that helps you while you work with the programmer. This information does not transfer to the radio.

By default, the programmer associates City from the TravelPlus* list to Comment in the programmer.

You can change that association by selecting another column from those listed.

- **Module:** Select the radio for which you want to create a file.



The resulting file appears in its own tab.

The screenshot shows the 'IC-2820 Programmer - IC-2820 Unlinked2' window. The main area contains a table with columns for various radio parameters. The table is populated with data for various frequencies and call signs, including:

| Receive Frequency | Transmit Frequency | Offset Frequency | Offset Direction | Operating Mode | Name | Tone Mode | CTCSS | Rx CTCSS | DCS | DCS Polarity | SKP | Step | Digital Squelch | Digital Code | Tone Callign | Sub-1 Callign | Sub-2 Callign | Bank | Bank Channel |
|-------------------|--------------------|------------------|------------------|----------------|--------|-----------|-----------|-----------|-----|--------------|-----|-------|-----------------|--------------|--------------|---------------|---------------|------|--------------|
| 3 395.70000 | 394.80000 | 440.22000 | 5.00 MHz | +DUP | W4RDM | None | 187.5 Hz | 187.5 Hz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 163 |
| 2 345.30000 | 344.70000 | 500 kHz | | DUP | W4DOC | None | 146.2 MHz | 146.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 3 345.40000 | 344.80000 | 600 kHz | | DUP | W4RPH | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 148 |
| 4 346.62500 | 346.02500 | 600 kHz | | DUP | W4RTT | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 108 |
| 5 346.64000 | 346.04000 | 600 kHz | | DUP | W4RQGR | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 6 346.69500 | 346.09500 | 600 kHz | | DUP | W4RFP | None | 131.4 MHz | 131.4 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 7 346.73000 | 346.13000 | 600 kHz | | DUP | W4RHC | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 8 346.83000 | 346.23000 | 600 kHz | | DUP | W4DOC | None | 146.2 MHz | 146.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 9 346.97000 | 346.37000 | 600 kHz | | DUP | W4CJL | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 14 |
| 10 347.00000 | 346.40000 | 600 kHz | | DUP | W4RND | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 11 347.03000 | 347.43000 | 600 kHz | | +DUP | W4RQJ | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 12 347.28000 | 347.68000 | 600 kHz | | +DUP | W4CZD | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 13 347.34800 | 347.74800 | 600 kHz | | +DUP | W4RQJ | None | 131.4 MHz | 131.4 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 14 347.38000 | 347.78000 | 600 kHz | | +DUP | W4RTH | None | 137.2 MHz | 137.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 107 |
| 15 425.25000 | 424.65000 | 12.75 MHz | | +DUP | W4TFL | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 107 |
| 16 440.80000 | 440.20000 | 5.00 MHz | | +DUP | W4DOC | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 17 440.02500 | 440.02500 | 5.00 MHz | | +DUP | W4CML | None | 127.2 MHz | 127.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 127 |
| 18 440.12000 | 440.12000 | 5.00 MHz | | +DUP | W4RTT | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 108 |
| 19 440.22500 | 440.22500 | 5.00 MHz | | +DUP | W4RQJ | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 108 |
| 20 440.47500 | 440.47500 | 5.00 MHz | | +DUP | W4RKS | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 21 440.52500 | 440.52500 | 5.00 MHz | | +DUP | W4RQJ | None | 137.5 MHz | 137.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 118 |
| 22 440.67500 | 440.67500 | 5.00 MHz | | +DUP | W4RHC | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 108 |
| 23 440.80000 | 440.80000 | 5.00 MHz | | +DUP | W4RFP | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 24 440.87500 | 440.87500 | 5.00 MHz | | +DUP | W4RQJ | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 108 |
| 25 440.97500 | 440.97500 | 5.00 MHz | | +DUP | W4RQJ | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 26 440.02500 | 440.02500 | 5.00 MHz | | +DUP | W4CML | None | 127.2 MHz | 127.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 127 |
| 27 440.60000 | 440.60000 | 5.00 MHz | | +DUP | W4RQJ | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 28 440.80000 | 440.80000 | 5.00 MHz | | +DUP | W4RHC | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 29 440.80000 | 440.80000 | 5.00 MHz | | +DUP | W4RFP | None | 131.4 MHz | 131.4 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 30 440.60000 | 440.60000 | 5.00 MHz | | +DUP | W4RQJ | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 31 444.10000 | 444.10000 | 5.00 MHz | | +DUP | W4RHC | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 108 |
| 32 444.40000 | 444.40000 | 5.00 MHz | | +DUP | W4DOC | None | 146.2 MHz | 146.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 33 444.80000 | 444.80000 | 5.00 MHz | | +DUP | W4RQJ | None | 130.4 MHz | 130.4 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 118 |
| 34 444.77500 | 444.77500 | 5.00 MHz | | +DUP | W4RQJ | None | 131.4 MHz | 131.4 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 35 444.82500 | 444.82500 | 5.00 MHz | | +DUP | W4DOC | None | 146.2 MHz | 146.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 36 444.92500 | 444.92500 | 5.00 MHz | | +DUP | W4RND | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 37 444.97500 | 444.97500 | 5.00 MHz | | +DUP | W4RQJ | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 38 440.70000 | 440.70000 | 5.00 MHz | | +DUP | W4RTH | None | 130.6 MHz | 130.6 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 108 |
| 39 345.15000 | 344.55000 | 600 kHz | | DUP | W4RQJ | None | 187.5 MHz | 187.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 157 |
| 40 345.40000 | 344.80000 | 600 kHz | | DUP | W4DOC | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 41 440.20000 | 440.20000 | 5.00 MHz | | +DUP | W4RHC | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 42 444.25000 | 444.25000 | 5.00 MHz | | +DUP | W4DOC | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 43 440.17000 | 440.17000 | 5.00 MHz | | +DUP | W4RQJ | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 44 440.07500 | 440.07500 | 5.00 MHz | | +DUP | W4RND | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |
| 45 345.15000 | 344.55000 | 600 kHz | | DUP | W4RQJ | None | 146.2 MHz | 146.2 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 146 |
| 46 345.37000 | 344.77000 | 600 kHz | | DUP | W4DOC | None | 130.5 MHz | 130.5 MHz | 003 | North H | OFF | 5 kHz | OFF | | | | | | 0 151 |

The file is ready to be sent to the radio.

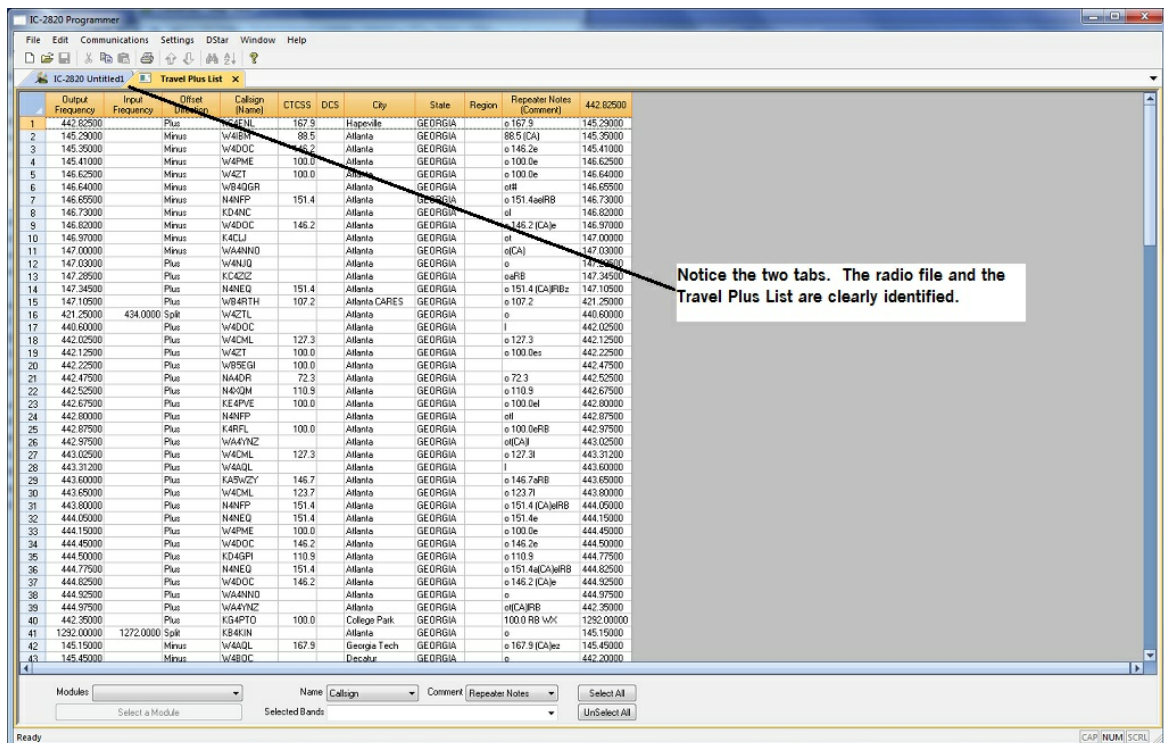
*TravelPlus is a product of the American Amateur Radio League.
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18.3 Using the TravelPlus* List with existing programmer file

You may not want to use all the information from the TravelPlus* list in a separate file for your radio. You may already have a file to which you want to add only some of the information from the List.

Using the list from TravelPlus* along with a Version 4 RT Systems radio programmer, you can copy and paste selected channels from the list to a file for your radio.

- Begin by creating your list in TravelPlus* as detailed in Creating a List in TravelPlus* in this help.
- Open the programmer.
- Open the file into which the frequencies are to be inserted.
- Access the TravelPlus* list through the link in the file menu. Both the list and the file are now open in the programmer. Working in reduced screen mode is helpful with this process to let you see both files at one time.

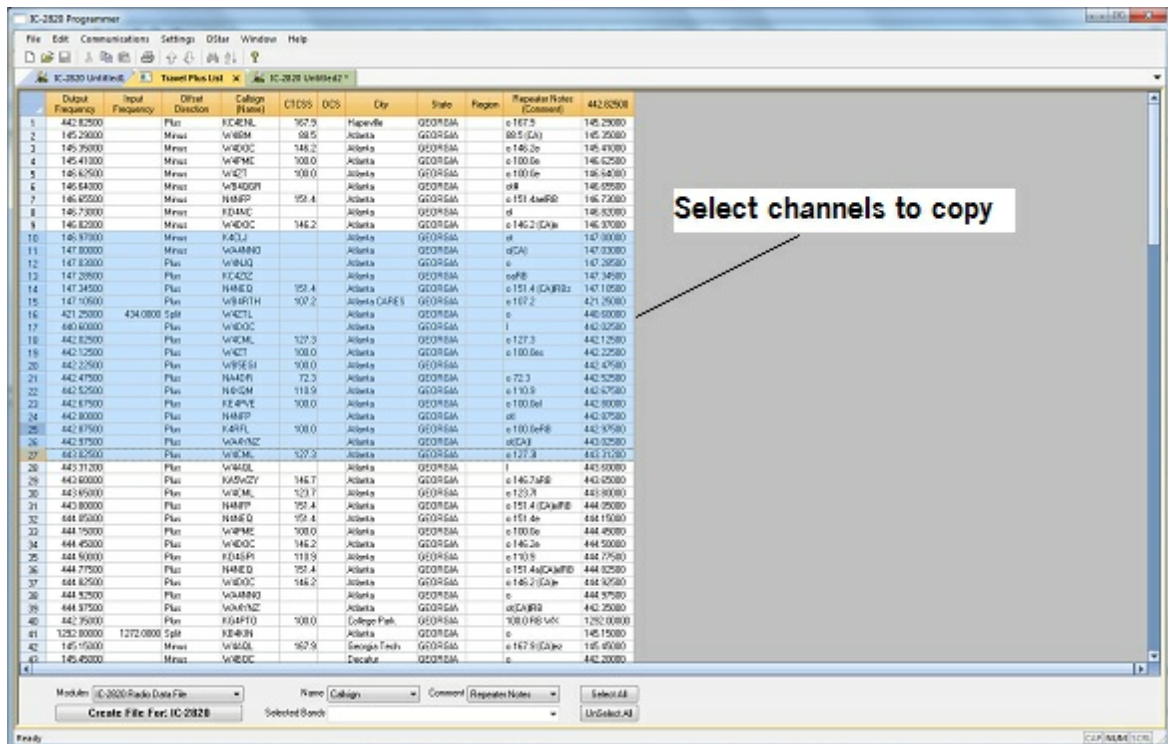


- Select a group of channels.

Point your mouse at the CHANNEL NUMBER (the grey shaded column on the left) and left click. Don't let go of the left click button if you want more than one.

While holding the left mouse button, drag the mouse over the CHANNEL NUMBER of all the channels you want. If there are more than those on the screen, just keep going at the bottom. The screen will scroll to let you continue your selection.

Note: The entire row of a selected channel will turn be highlighted. If only the Receive Frequency is highlighted, then ONLY that information will be copied.



- Copy the channels

With the mouse pointing at the highlighted channels right click and select Copy from the menu that opens.

OR... with your mouse, left click to select Edit from the menu at the top

of the screen. From the menu that opens, select Copy.

It will appear that nothing has happened; however, Windows has copied the information.

- Use the mouse to click into the programmer file.

Note: If you are using the programmer in full screen mode, select Window from the menu then the programmer file name from the bottom of that list to switch between the two screens.

Alternately, you can select Window | Tile to have the programmer display the two windows equally in the main window.

- Select the first channel in the file into which the information is to be pasted.
- Paste the information into the radio file

With the mouse pointing at the highlighted channels right click and select Paste from the menu that opens.

OR... with your mouse, left click to select Edit from the menu at the top of the screen. From the menu that opens, select Paste.

- View the results

The resulting file now contains only those selected pieces of information from the TravelPlus* list along with all the original information of that file.

| Receive Frequency | Transmit Frequency | Offset | Offset Direction | Operating Mode | Name | Tone Mode | CTCSS | RxC CTCSS | DCS | DCS Polarity | Skip | Snoop | Digital Squelch | Digital Code | Four Callign | Rot-1 Callign | Rot-2 Callign | Bank | Bank Channel |
|-------------------|--------------------|-----------|------------------|----------------|-------|-----------|----------|-----------|-----|--------------|------|-------|-----------------|--------------|--------------|---------------|---------------|------|--------------|
| 246.0200 | 246.0200 | | Simplex | FM | None | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | 000000 | | | | |
| 440.0800 | 440.0800 | | Simplex | FM | None | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | 000000 | | | | |
| 146.0700 | 146.0700 | 680 kHz | +DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 247.0800 | 246.4000 | 680 kHz | -DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 347.0300 | 347.0300 | 680 kHz | +DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 347.2850 | 347.0850 | 680 kHz | +DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 347.3450 | 347.0450 | 680 kHz | +DUP | FM | WVPCJ | Tone | 151.4 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 347.1850 | 347.0850 | 680 kHz | +DUP | FM | WVPCJ | Tone | 137.2 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 421.2500 | 424.0000 | 12.75 kHz | -DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.4800 | 440.4800 | 5.08 kHz | +DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.0250 | 440.0250 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 127.3 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.1850 | 440.1850 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 130.6 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.2350 | 440.2350 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 130.6 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.4750 | 440.4750 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.5250 | 440.5250 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 135.8 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.6750 | 440.6750 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 130.6 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.8800 | 440.8800 | 5.08 kHz | +DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.8750 | 440.8750 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 130.6 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.9750 | 440.9750 | 5.08 kHz | +DUP | FM | WVPCJ | None | 88.5 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |
| 440.0250 | 440.0250 | 5.08 kHz | +DUP | FM | WVPCJ | Tone | 127.3 Hz | 88.5 Hz | 003 | South N | OFF | 5 kHz | OFF | 0 | | | | | |

- Save the programmer file to make this change permanent.

Press Ctrl S or select File then Save from the menu that opens

With either process it will appear that nothing happens; however, Windows has made the change to the radio file permanent.

- Send the file to your radio.

*TravelPlus is a product of the American Amateur Radio League.

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Part



19 Copying From an Excel Spreadsheet

The Programmer can handle information copied from an Excel spreadsheet.

Although this process is very 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 file to be copied. 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.

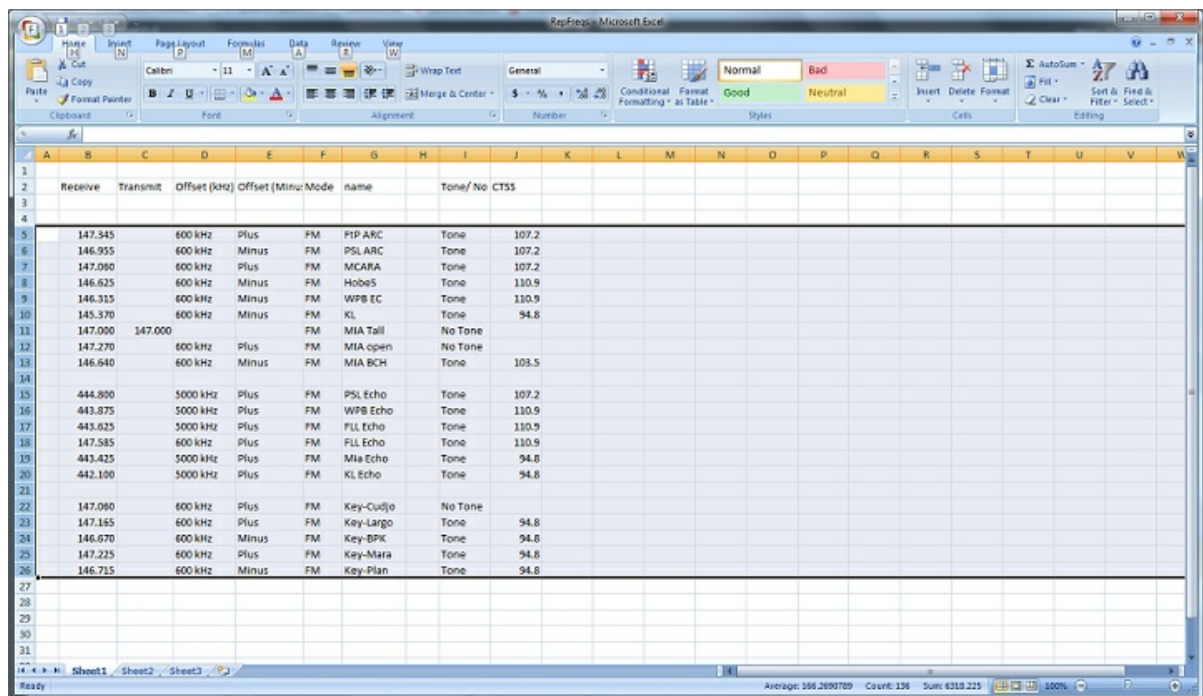
Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.

19.1 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:

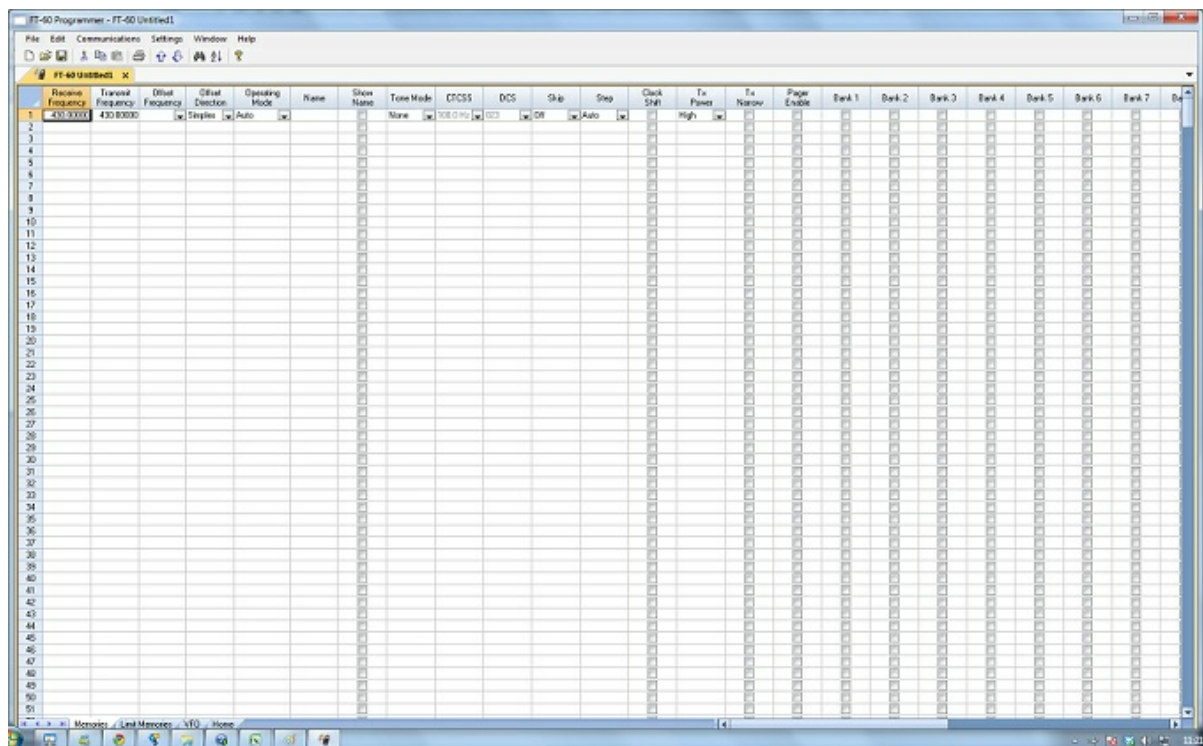
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | |
|---------|----------|--------------|---------------|------|-----------|----------|-------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| Receive | Transmit | Offset (kHz) | Offset (Minu) | Mode | name | Tone/ No | CTSS | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.945 | 600 kHz | Plus | FM | FIP ARC | Tone | 107.2 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 146.955 | 600 kHz | Minus | FM | PSL ARC | Tone | 107.2 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.060 | 600 kHz | Plus | FM | MCARA | Tone | 107.2 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 146.625 | 600 kHz | Minus | FM | Hobas | Tone | 110.9 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 146.315 | 600 kHz | Minus | FM | WPB EC | Tone | 110.9 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 145.370 | 600 kHz | Minus | FM | KL | Tone | 94.8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.000 | 147.000 | | FM | MIA Tall | No Tone | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.270 | 600 kHz | Plus | FM | MIA open | No Tone | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 146.640 | 600 kHz | Minus | FM | MIA BCH | Tone | 103.5 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 444.800 | 5000 kHz | Plus | FM | PSL Echo | Tone | 107.2 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 443.875 | 5000 kHz | Plus | FM | WPB Echo | Tone | 110.9 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 443.625 | 5000 kHz | Plus | FM | FLL Echo | Tone | 110.9 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.585 | 600 kHz | Plus | FM | FLL Echo | Tone | 110.9 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 443.425 | 5000 kHz | Plus | FM | Mia Echo | Tone | 94.8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 442.100 | 5000 kHz | Plus | FM | KL Echo | Tone | 94.8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.060 | 600 kHz | Plus | FM | Key-Cudjo | No Tone | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.165 | 600 kHz | Plus | FM | Key-Largo | Tone | 94.8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 146.670 | 600 kHz | Minus | FM | Key-BPK | Tone | 94.8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 147.225 | 600 kHz | Plus | FM | Key-Mara | Tone | 94.8 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 146.715 | 600 kHz | Minus | FM | Key-Plan | Tone | 94.8 | | | | | | | | | | | | | | | | | | | | | | | | |

19.2 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.

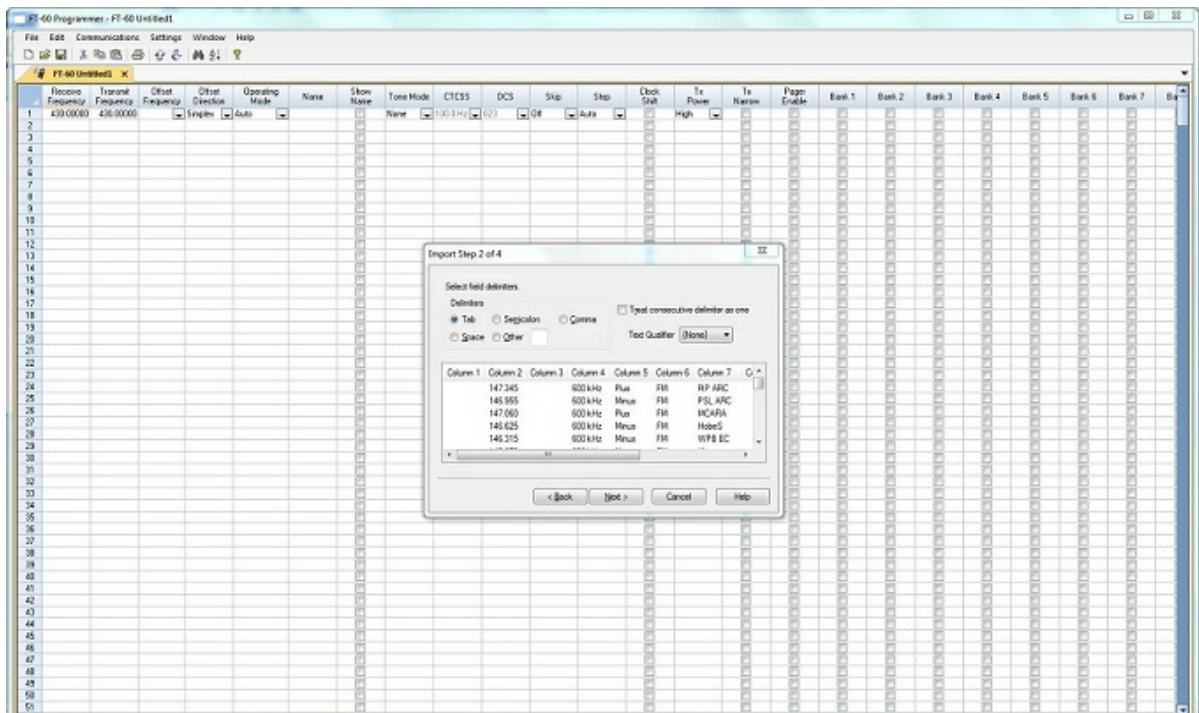
Note: *The FT-60 is used here as an example. The process works the same for any RT Systems Version 4 programmer although column names may differ or not be available.*



19.3 Step 3

Paste: Ctrl V or right click and select Paste or select Edit then Paste from the menu at the top of the screen.

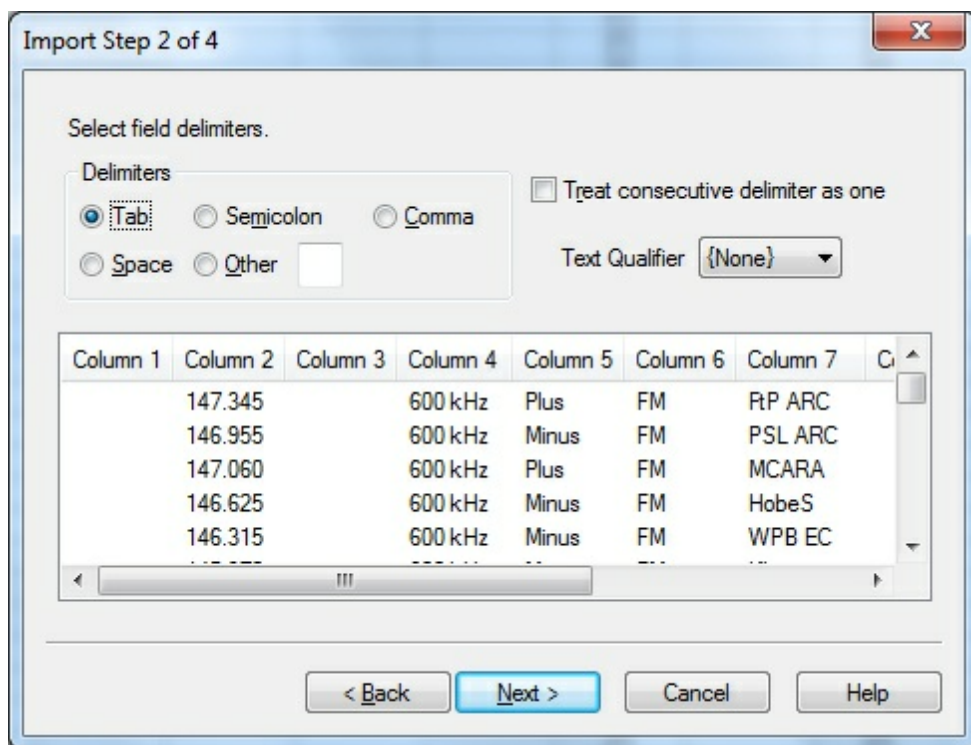
A window opens to complete the process.



19.4 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.

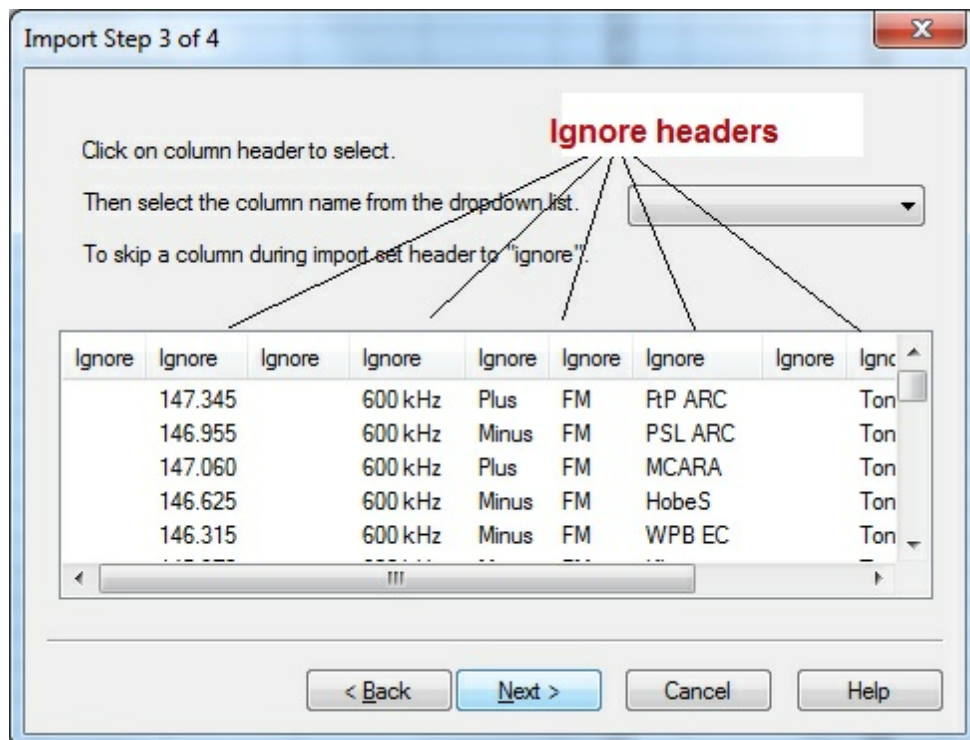


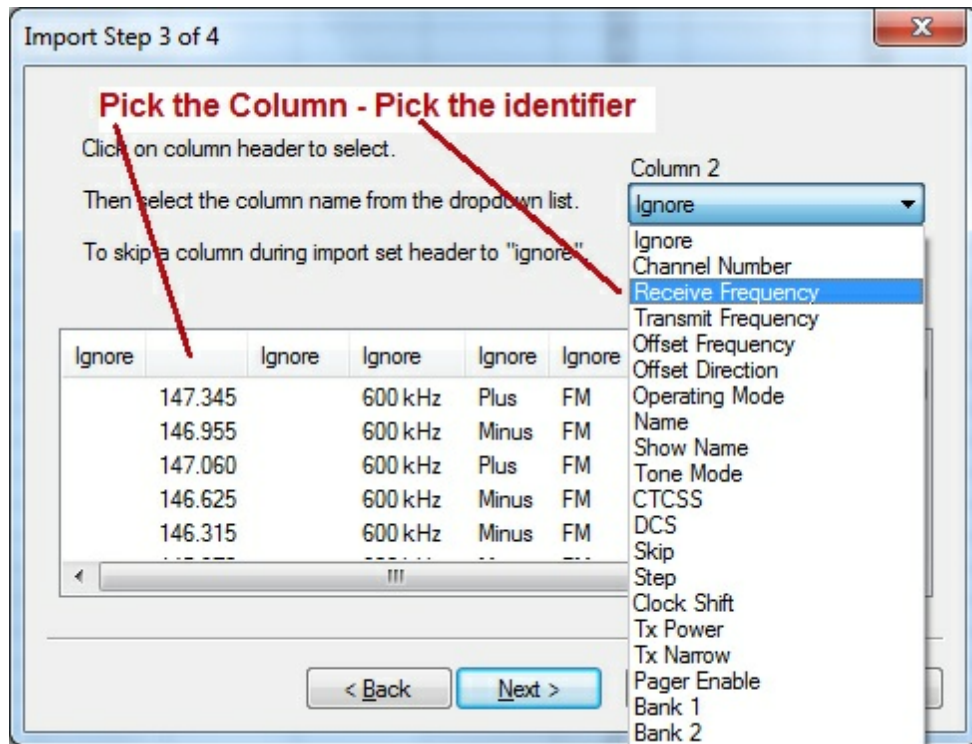
Click Next to continue.

19.5 Step 5

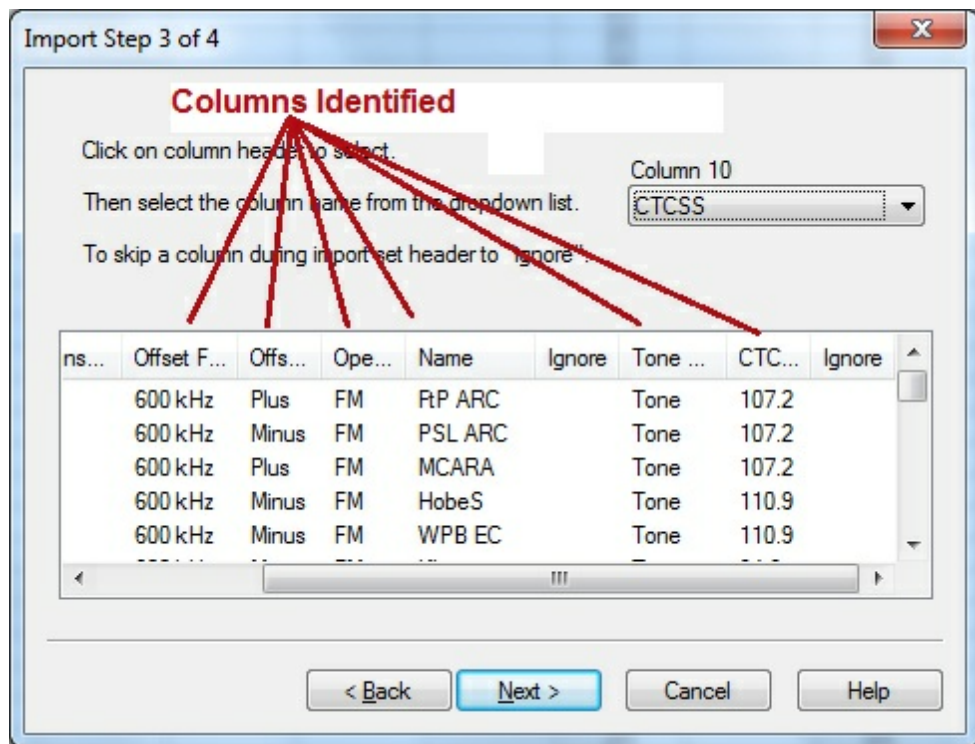
In this step of the process, you identify the information in your spreadsheet for the programmer. The programmer attempts to identify the columns based on the headers that you have for the columns.

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.





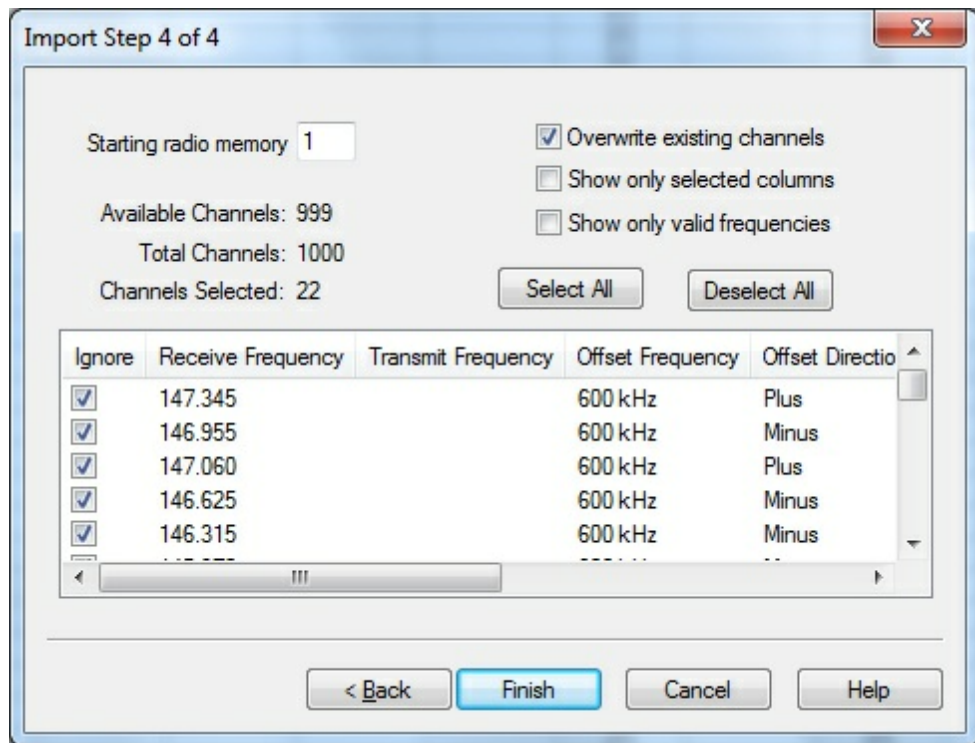
The column header changes to show your selection. Be sure to identify each of the columns you want used. The data in an "ignored" column will be set to defaults in the resulting file. Your specifics will not be used.



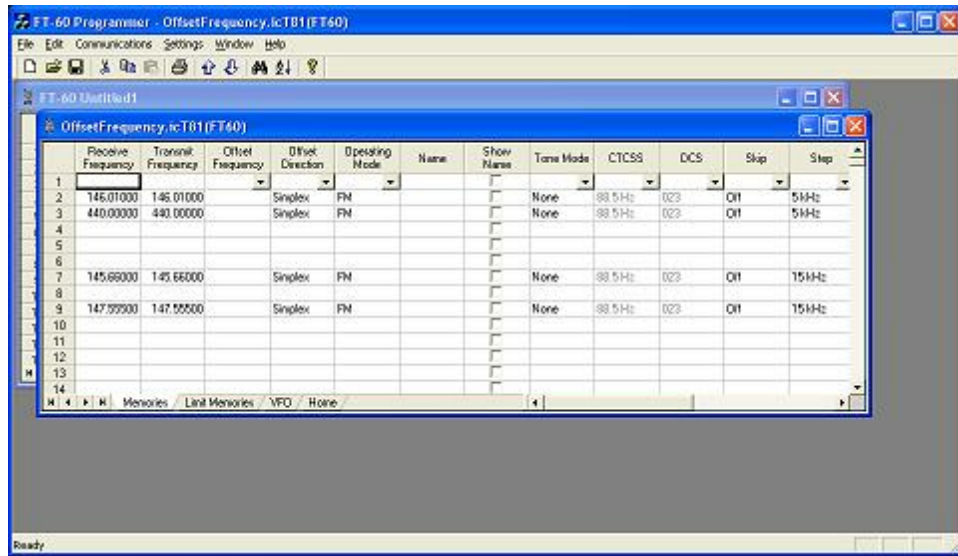
Click Next to continue.

19.6 Step 6

Complete the options on the final screen and click Finish.



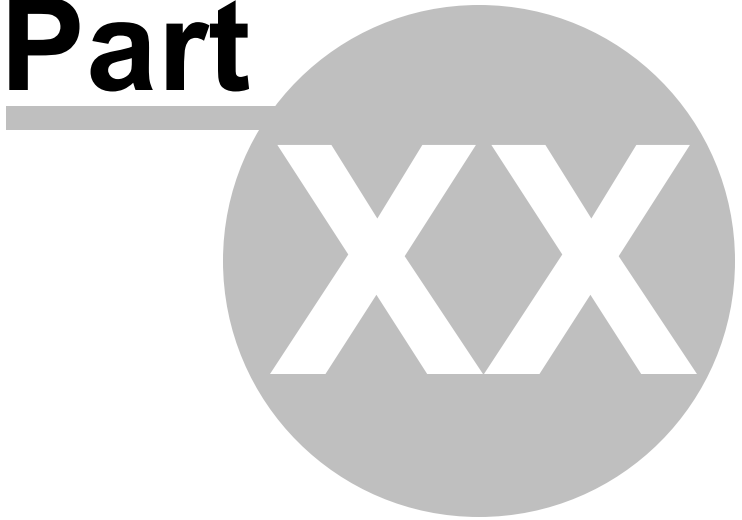
The resulting file contains the data just as it was in the Excel spreadsheet.



The screenshot shows the FT-60 Programmer software interface. The main window displays a table with columns for Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tone Mode, CTCSS, DCS, Skip, and Step. The table contains several rows of data, including frequencies like 145.01000, 440.00000, 145.66000, and 147.55500. The interface also includes a menu bar (File, Edit, Communications, Settings, Window, Help) and a status bar at the bottom.

| | Receive Frequency | Transmit Frequency | Offset Frequency | Offset Direction | Operating Mode | Name | Show Name | Tone Mode | CTCSS | DCS | Skip | Step |
|----|-------------------|--------------------|------------------|------------------|----------------|------|-----------|-----------|---------|-----|------|--------|
| 1 | | | | | | | | | | | | |
| 2 | 145.01000 | 145.01000 | | Simplex | FM | | | None | 88.5 Hz | 023 | Off | 5 kHz |
| 3 | 440.00000 | 440.00000 | | Simplex | FM | | | None | 88.5 Hz | 023 | Off | 5 kHz |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | 145.66000 | 145.66000 | | Simplex | FM | | | None | 88.5 Hz | 023 | Off | 15 kHz |
| 8 | | | | | | | | | | | | |
| 9 | 147.55500 | 147.55500 | | Simplex | FM | | | None | 88.5 Hz | 023 | Off | 15 kHz |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |

Part



20 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 off 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.

20.1 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.)

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 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). And the Offset Direction as 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 – 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 you 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 Users 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 set 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.

20.2 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.

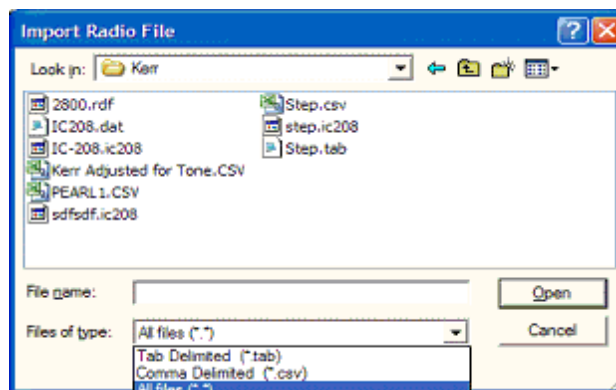
Working in a new file eliminates the possibility that existing data will be overwritten and lost during the import process. From there use the tools available in the programmer (copy and paste, column editing, sort and unsort, etc) to get the data just as you want it.

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.

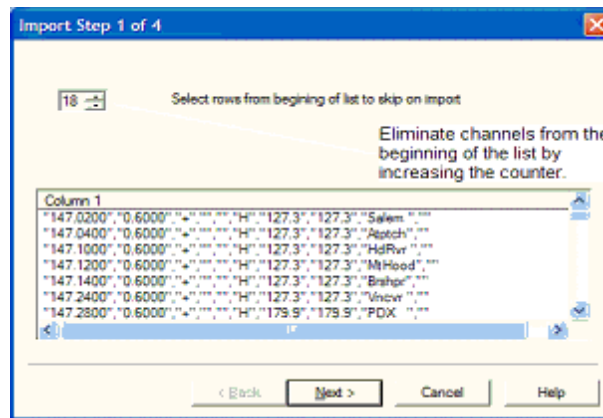


This screen gives you the ability to find and open the file to be imported.

- 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.

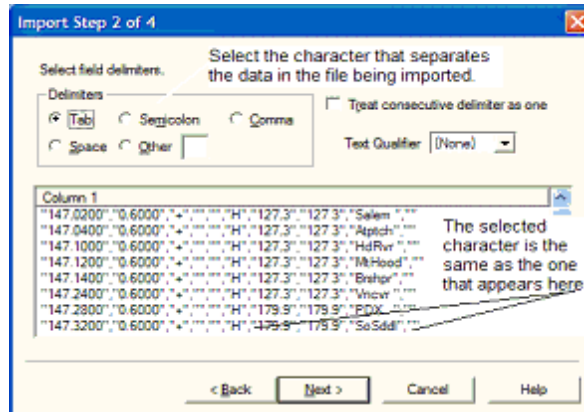
Actually, it is recommended that you leave the headers to help you more easily identify the information in a later step.

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.

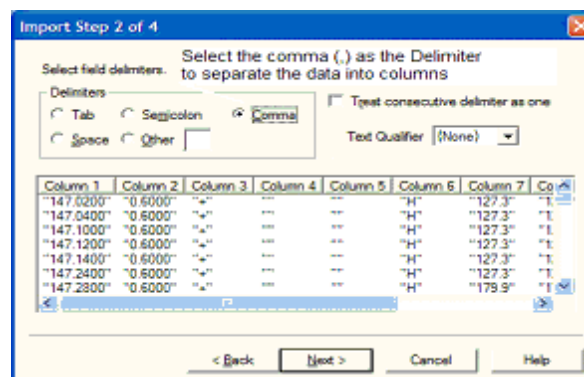
20.3 Import - Step 2

Import Step 2 of 4: Identify the delimiters (separators) used in your file.



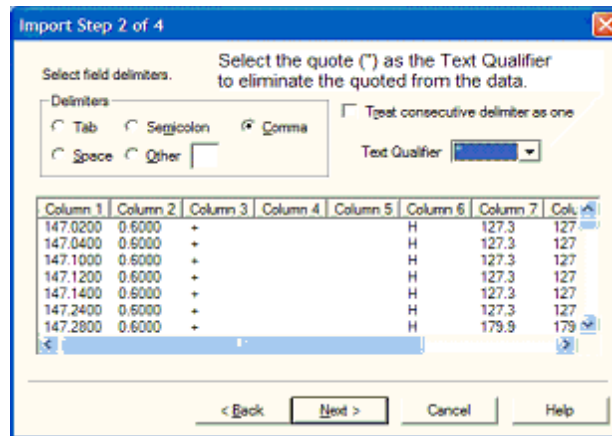
The data in the file to be imported is separated by tabs, semicolons, commas, space or other non-text characters. Select from the list at the top of the screen or enter the one you used.

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.

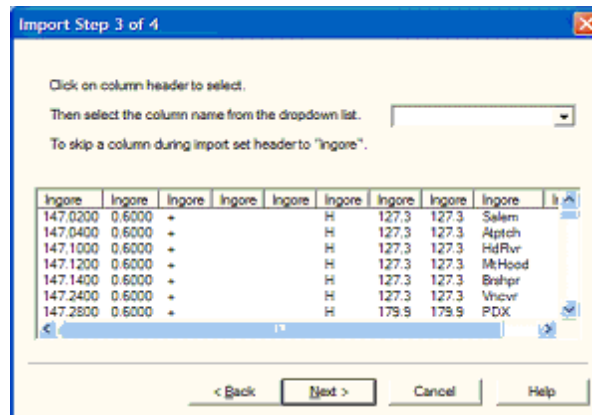


Click Next to continue.

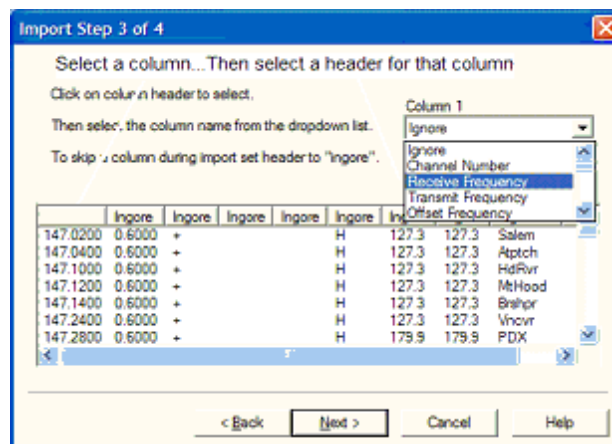
20.4 Import - Step 3

Import Step 3 of 4: Identify the data to the Programmer

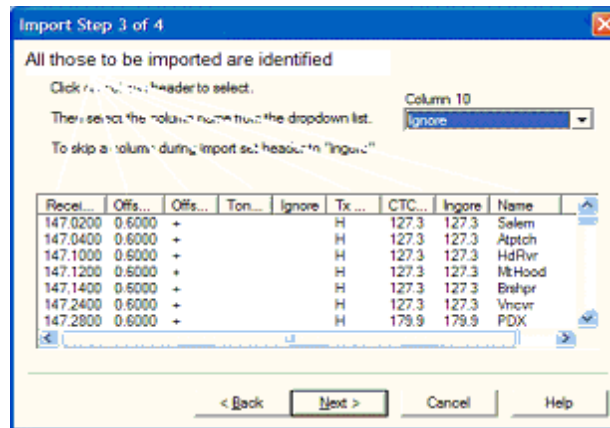
The Programmer will make an attempt to identify the information in your file. In this step of the process, you can make corrections to the assignments the Programmer has made and identify other columns that you want imported.



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.

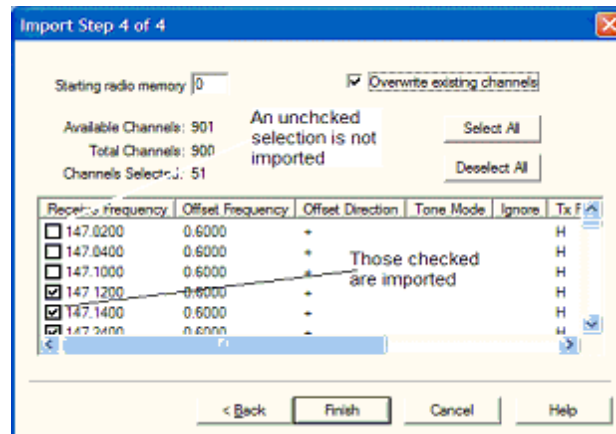


Click Next to continue.

20.5 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:

Resulting file when Starting radio memory was set to 23 during the last step of import

| | Receive Frequency | Transmit Frequency | Offset Despatching | Offset Direction | Operating Mode | Name | Show Name | Tone Mode | CTCSS | DCS | Tx Power | Skip |
|----|-------------------|--------------------|--------------------|------------------|----------------|---------|-----------|-----------|-------|-----|----------|------|
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | 147.02000 | 147.62000 | 0.6000 | Plus | FM | SALEM | | None | 127.3 | 023 | High | 01 |
| 24 | 147.04000 | 147.64000 | 0.6000 | Plus | FM | AT PTC4 | | None | 127.3 | 023 | High | 01 |
| 25 | 147.10000 | 147.70000 | 0.6000 | Plus | FM | HDRVR | | None | 127.3 | 023 | High | 01 |
| 26 | 147.12000 | 147.72000 | 0.6000 | Plus | FM | MTHOOD | | None | 127.3 | 023 | High | 01 |
| 27 | 147.14000 | 147.74000 | 0.6000 | Plus | FM | BRS-RR | | None | 127.3 | 023 | High | 01 |
| 28 | 147.24000 | 147.84000 | 0.6000 | Plus | FM | WQDVR | | None | 127.3 | 023 | High | 01 |
| 29 | 147.26000 | 147.86000 | 0.6000 | Plus | FM | RQV | | None | 179.9 | 023 | High | 01 |
| 30 | 147.30000 | 147.90000 | 0.6000 | Plus | FM | SOSCO1 | | None | 179.9 | 023 | High | 01 |
| 31 | 147.58000 | 147.90000 | 0.6000 | Simplex | FM | FMSR-2 | | None | 179.9 | 023 | High | 01 |
| 32 | 147.22000 | 147.82000 | 0.6000 | Plus | FM | TLLHR | | None | 179.9 | 023 | High | 01 |
| 33 | 162.95000 | 162.95000 | 0.6000 | Simplex | FM | NDM4 | | None | 179.9 | 023 | High | 01 |
| 34 | 195.43000 | 195.43000 | 0.6000 | Simplex | FM | POLICE1 | | None | 179.9 | 023 | High | 01 |

Part



21 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 is 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

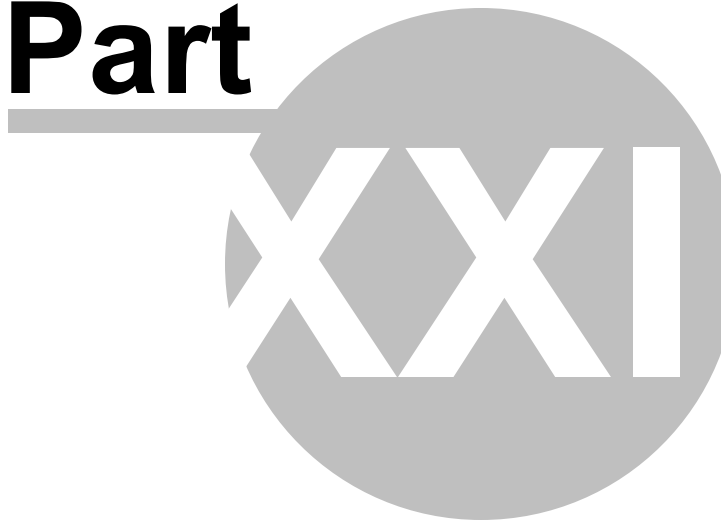
Select the section of the file to be exported.

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



22 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 Techsupport personnel, the issue and the result are often detailed on the FAQ page of www.rtsystemsinc.com. Check there for additional information that might pertain to the exact issue you're 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?"

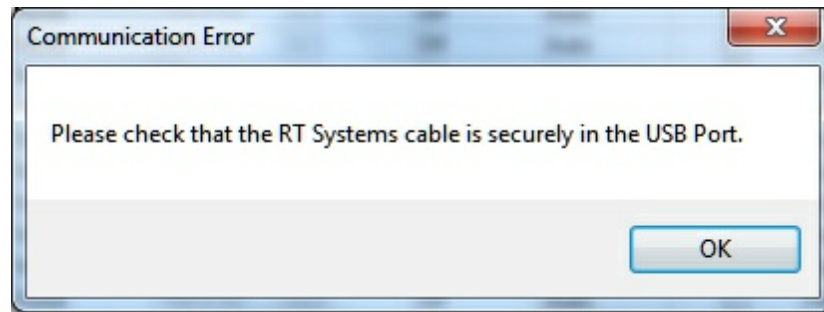
This message will be raised by the programmer when you select Communications | Get data from radio with a file open that is not a new (default) file into which no entries have been made.

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 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.)

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 to 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.

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 cable it

must use for a specific radio.

Two different errors can occur in this configuration. Either the programmer will report that the 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. 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.

USB Driver Installation

On some systems running Windows 2000 or early versions of XP, the drivers for the cable will need to be installed manually. This is a normal thing 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.

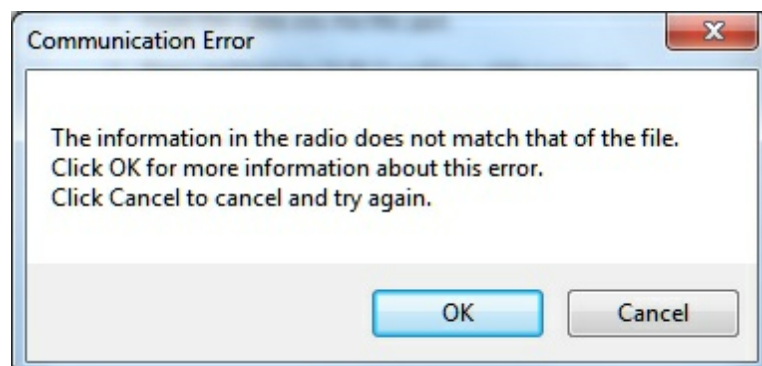
The drivers have been installed on your machine in the following directory.

C:\Program Files\Common Files\RT SystemsV4\RTDrivers\USBComDrivers\Drivers

Run the New Hardware Wizard twice. The first time use `fdibus.ini` in that directory. The second time use `fdiport.ini` in that same directory.

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.

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 know 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 Version 4 RT Systems Programmers work only with the

- ***RT Systems' USB cables OR***
- ***Original RT Systems' serial cable with the RTS-03 USB to serial adapter.***

No other USB cable will be recognized by the programmer.

RT Systems' programmers address over 50 different radios. Of those, some program through the speaker jack, some through the mic jack, some through the data jack and some through the CAT port. These ports must be addressed by the correct cable for communications to be successful.

Be sure to use the correct 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're programming to be sure that you're 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. 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 options 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

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.

Windows Version Compatibility

The Version 4 Programmer is designed to work with Windows XP, VISTA (32 or 64 bit) or Windows 7 (32 or 64 bit).

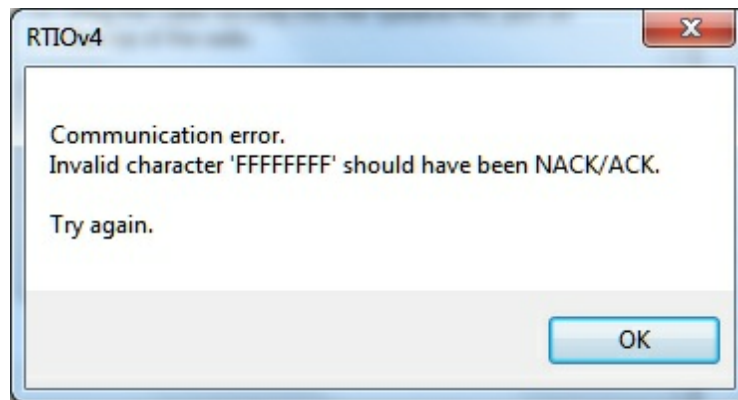
RT Systems no longer supports use of the programmers on Windows 98, Windows 98SE, Windows 2000, or Windows ME.

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 is successful, attempt Send data to. 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 is completed.

22.1 Get Data from Radio Required

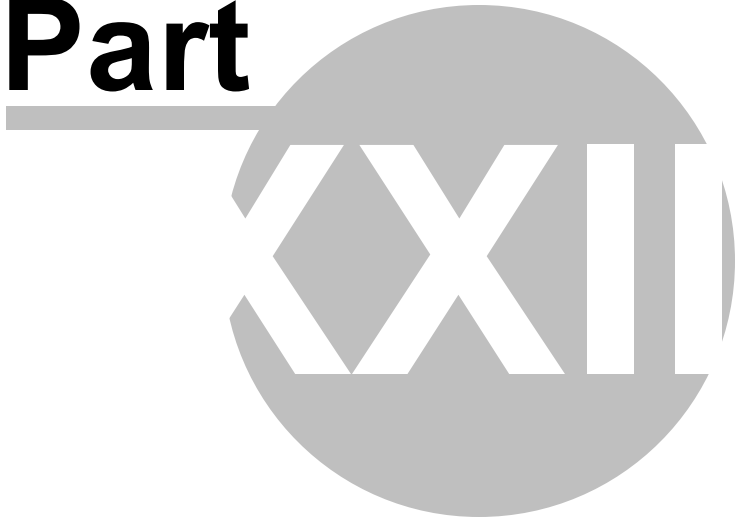
The first time you attempt to send your file to the radio, this message may appear.



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.

Part



23 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

$$154031250 / 5000 = 30806.25$$

$$154031250 / 12500 = 12322.5$$

$$154031250 / 6250 = 24645$$

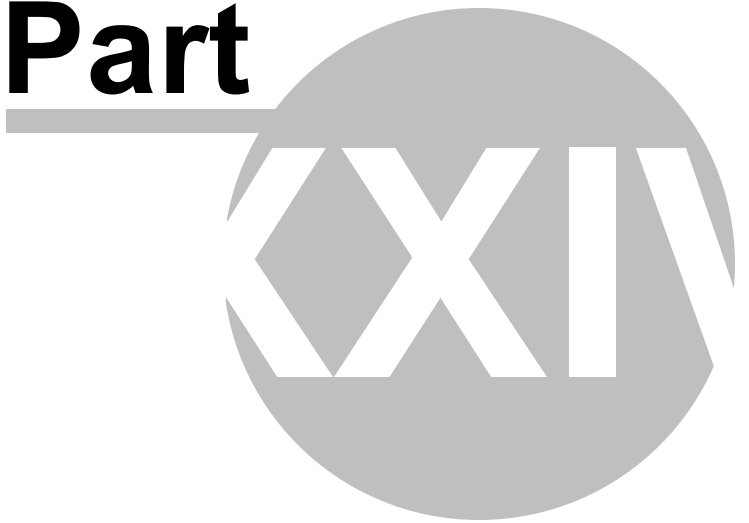
The 6250 Hz division was successful. There is a possibility that this frequency can be used by an amateur radio.

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



24 Hardware Error Troubleshooting

"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 our 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.
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 begin 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 Get 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.

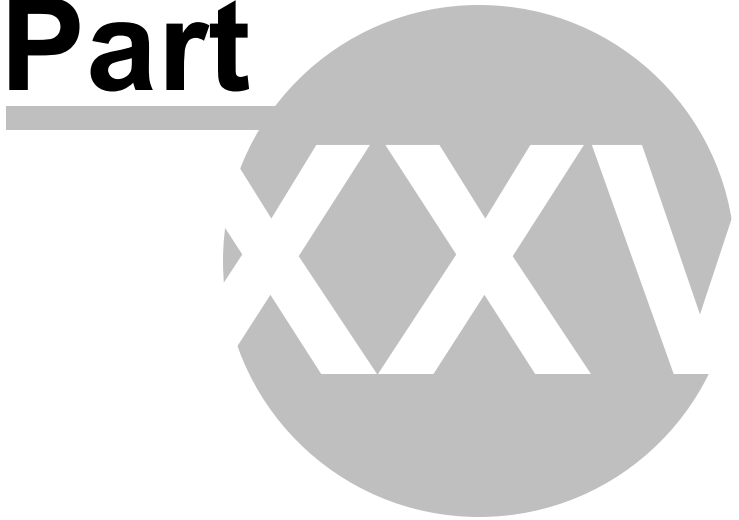
Be sure it has not pulled loose (this is easy to do with a USB). Also, the cable should be plugged into a USB port on the computer rather than on a USB hub.

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



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Web Page www.rtsystemsinc.com

Program updates

Answers to frequently asked questions can be reviewed under FAQs on our site.

E-mail techsupport@rtsystemsinc.com

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.

