

FT-2900 V4 Programmer Help

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FT-2900 V4 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.

FT-2900 V4Programmer Help

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Printed: December 2013

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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.

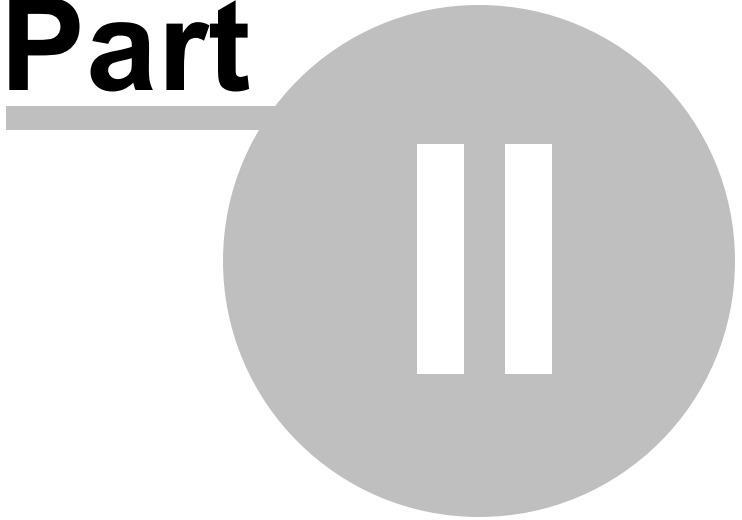
The Programmer also gives you the ability to read a configuration from the radio. The configuration would be stored in a file on your computer to be changed easily. Then, with minimal button pushing, you can send the altered file back to the radio.

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 RT Systems 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

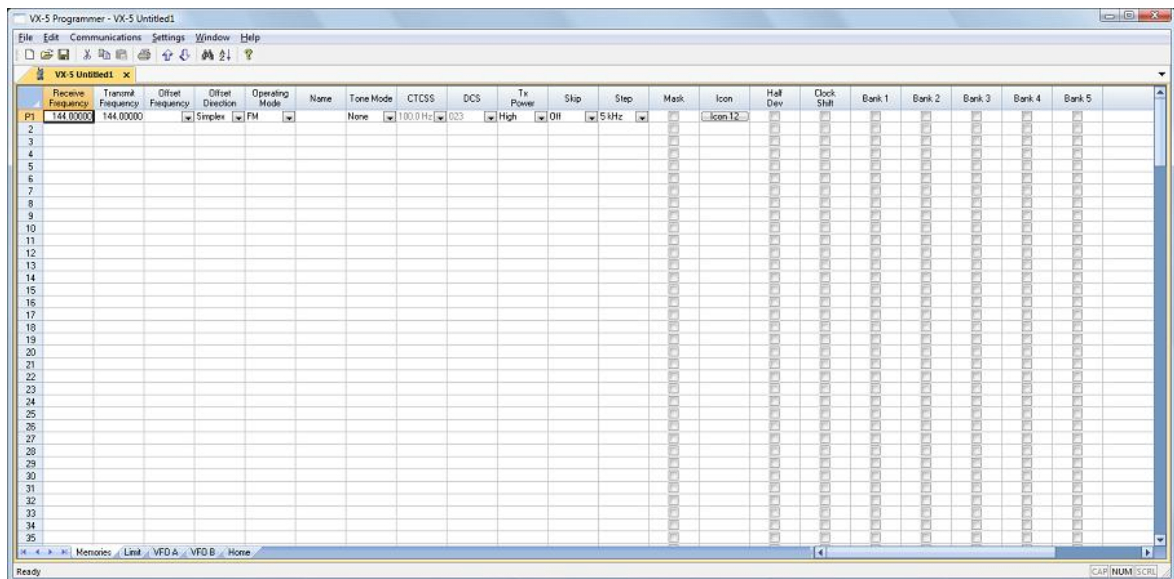
These are the basics for Getting Started with the RT Systems radio programmer software. The details presented here are in generalities and while the programmer for your radio will work in a similar manner, the details may vary for your particular model as all radios are unique.

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

Creating the file

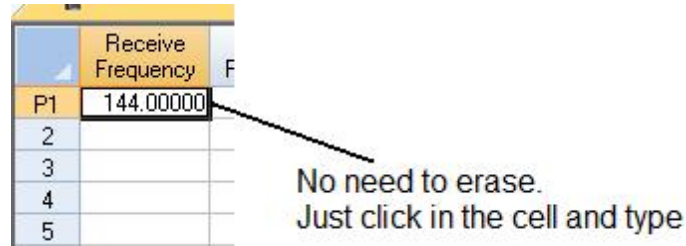
The Programmer gives you an easy way to access details for memory channels and other settings of the radio.

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



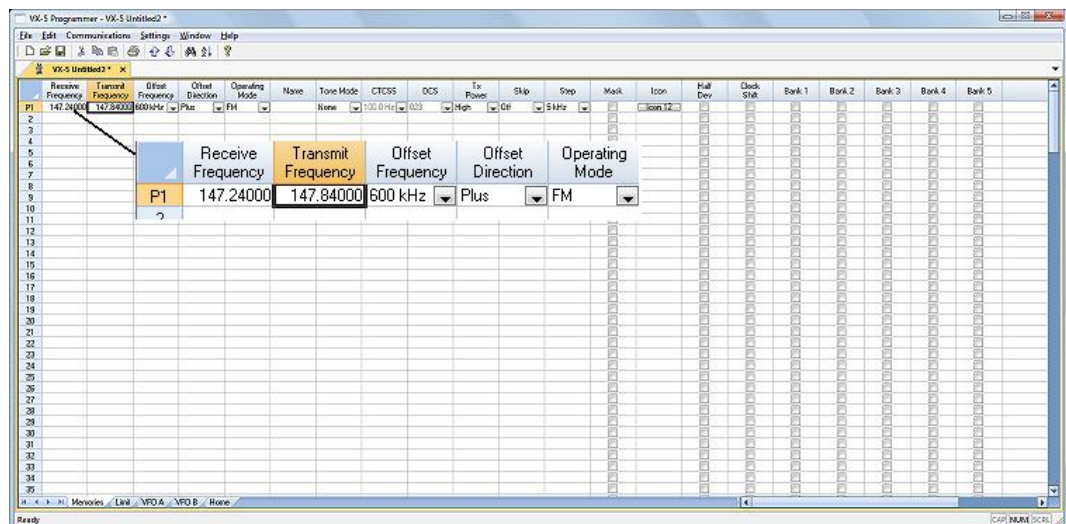
Note: The default file contains memory channel information on several of the screens. This information is needed by the radio to "fill spaces in its little brain". You can change the default entries that you see; but anything that is completed in the default file cannot be left blank. The Programmer will help you with this. If information is required, it will warn you when it is missing.

Enter a receive frequency



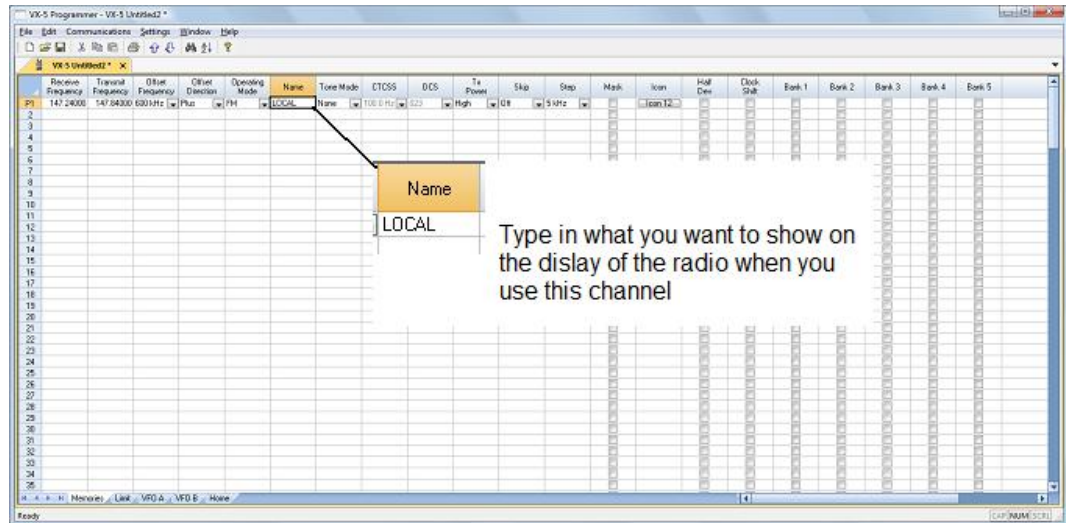
In this example we'll enter 147.240 MHz with standard offset, a Name of Local, and a tone of 100hz.

- 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.

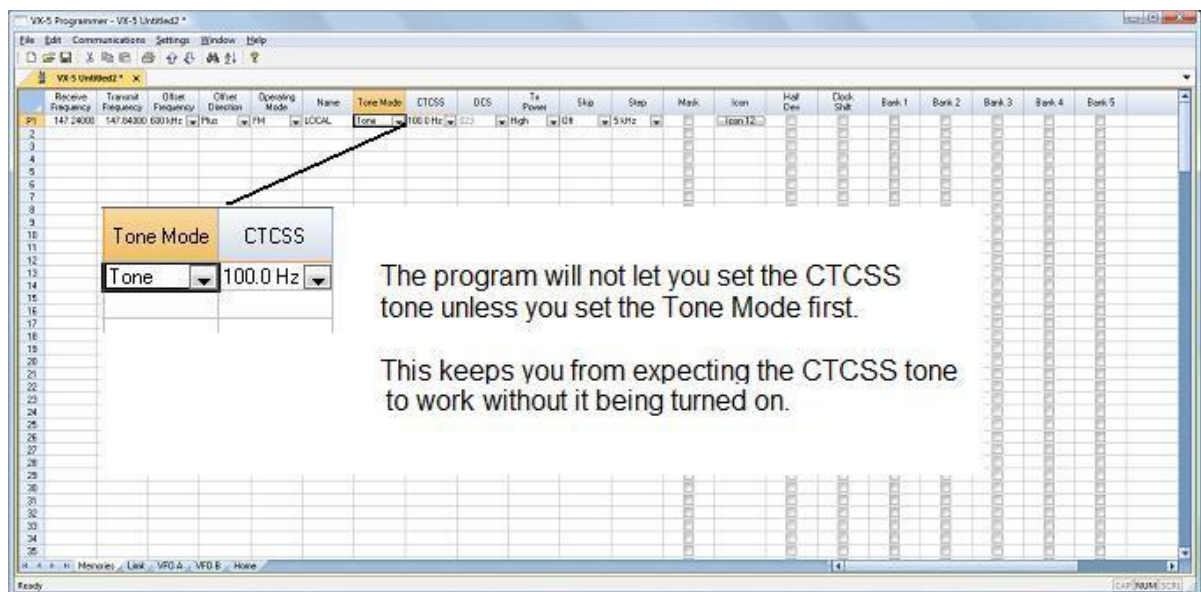


- Press tab or use your mouse to select the Name cell. Type LOCAL. You

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.

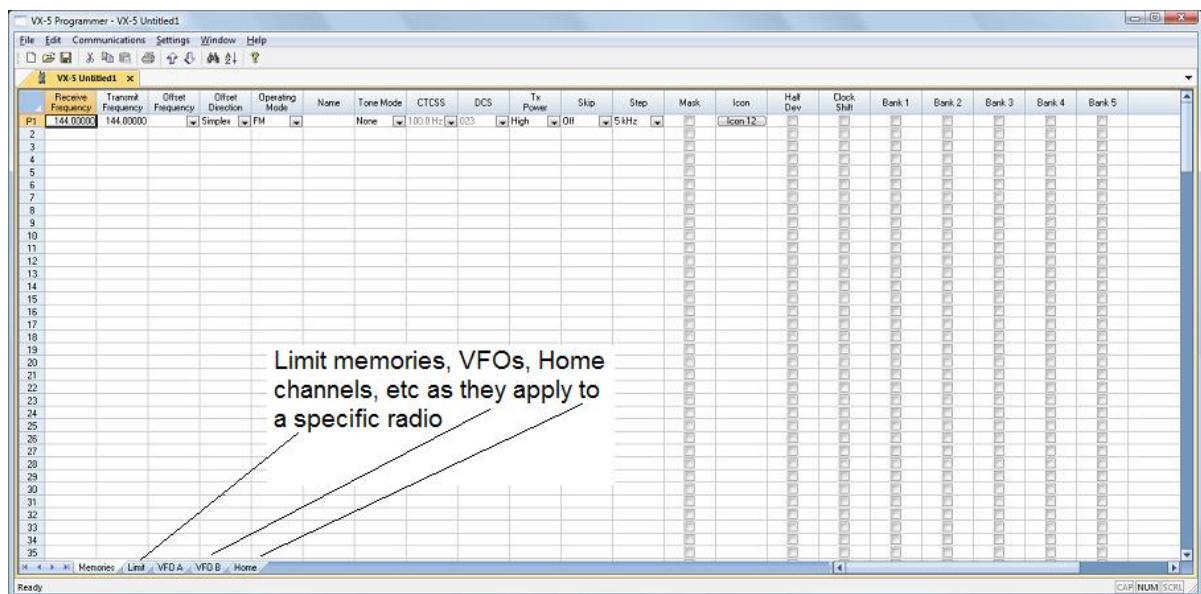


- Press tab to move to the Tone Mode cell. Setting up the tone of 100hz requires TW steps (just as it would if you were doing this from the face of the radio). Turn on Tone Mode AND then set the 100hz tone.



- 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

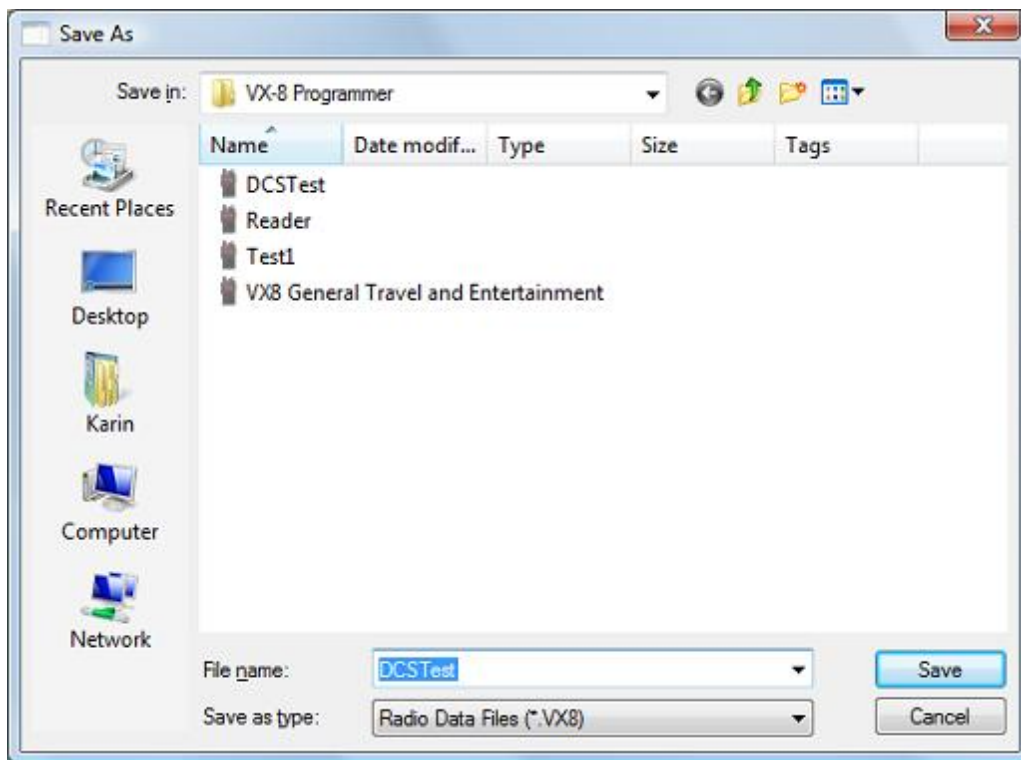
DCSTest

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	Simulator Squelch	Set	Half Dev	Dock Slot	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.

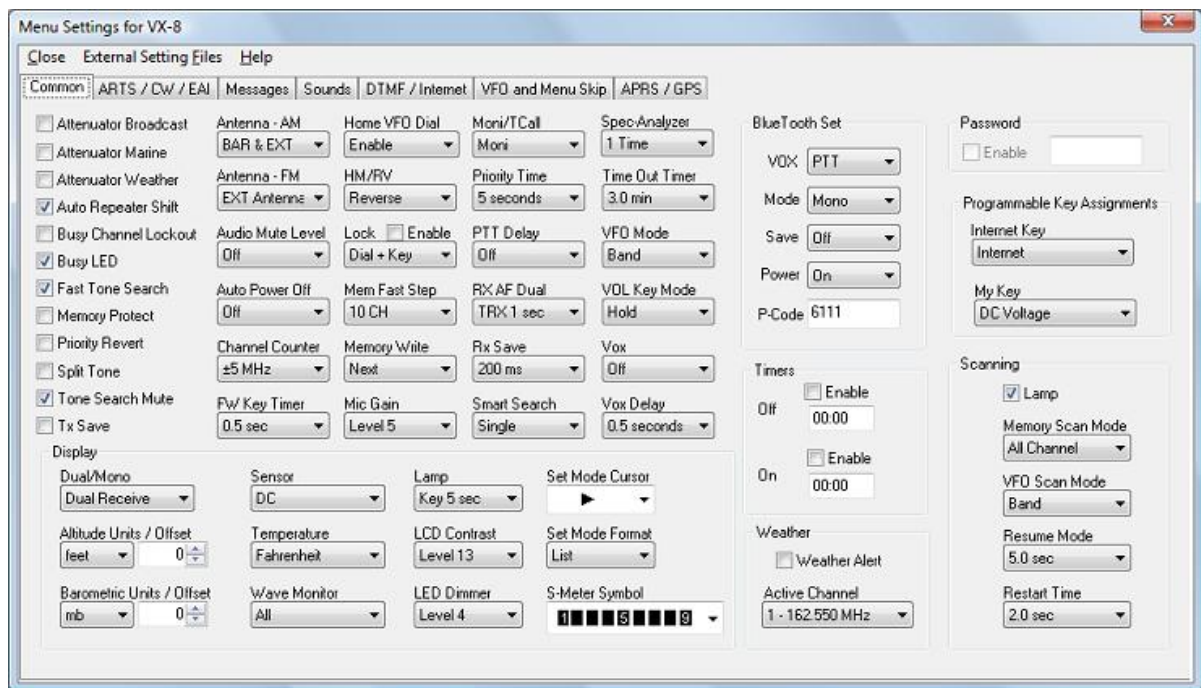
Once you complete this part of the process, the program will open the last file when it starts up.

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

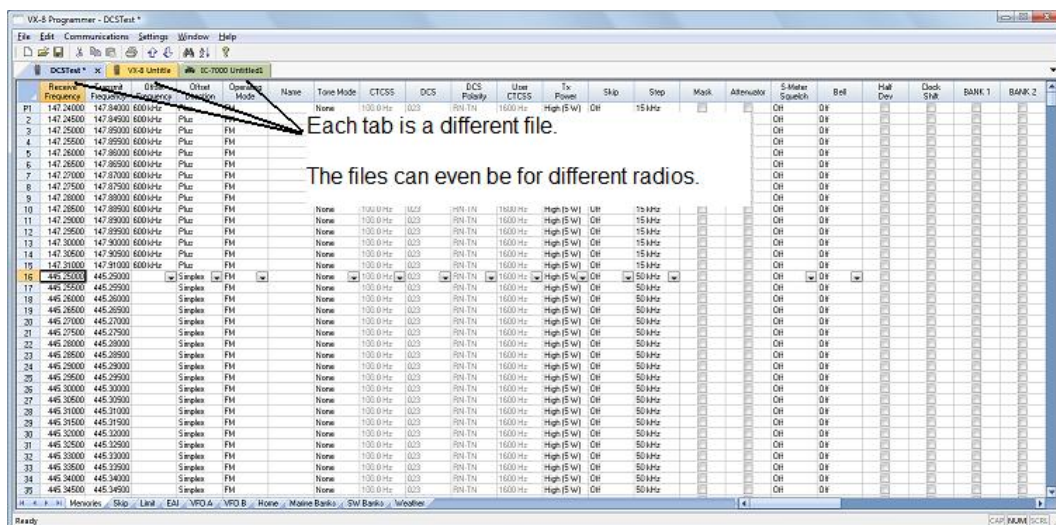
Although you really want to put the details of your file into your new radio so you can use it, doing Get data from with this new radio gets the process started and may help prevent problems sending the file to the radio.

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

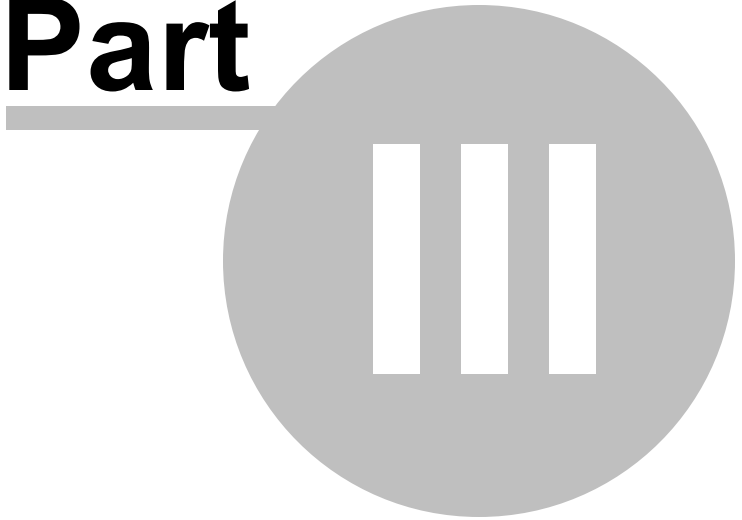
Hardware requirements for the Version 4 Programmers include:

- A PC running Microsoft Windows XP, Vista, Windows 7 (32 or 64 bit), or Windows 8 (full version). 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 RT Systems 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.

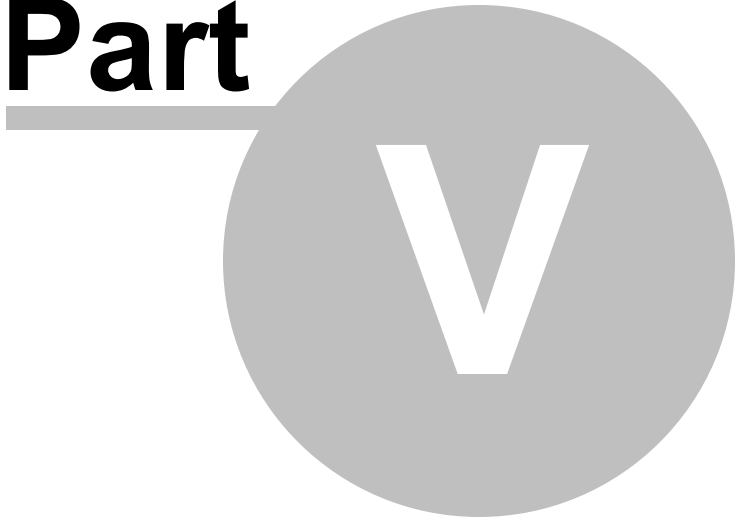
Note: Radio Option Settings (including Lock, Beeps, etc) are read from the radio with the Get data from command. Be sure that settings you have customized are saved in the programmer. Access the Settings screen and use File | Save to make the options that were taken from the radio permanent for programming 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 shows the FT-2900 Programmer software interface. The main window displays a list of channels with columns for Row, Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tone Mode, CTCSS, DCS, Skip, Step, Desk Shift, Tx Power, Tx Harmon, Paper Enable, and Bank 1 through Bank 7. Row 10 is highlighted in blue, and its number '10' is enclosed in a blue box. The software title bar reads 'FT-2900 Programmer - FT-2900 [Untitled]'. The status bar at the bottom shows 'Ready' and 'CAP NUM: 0/0'.

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.**

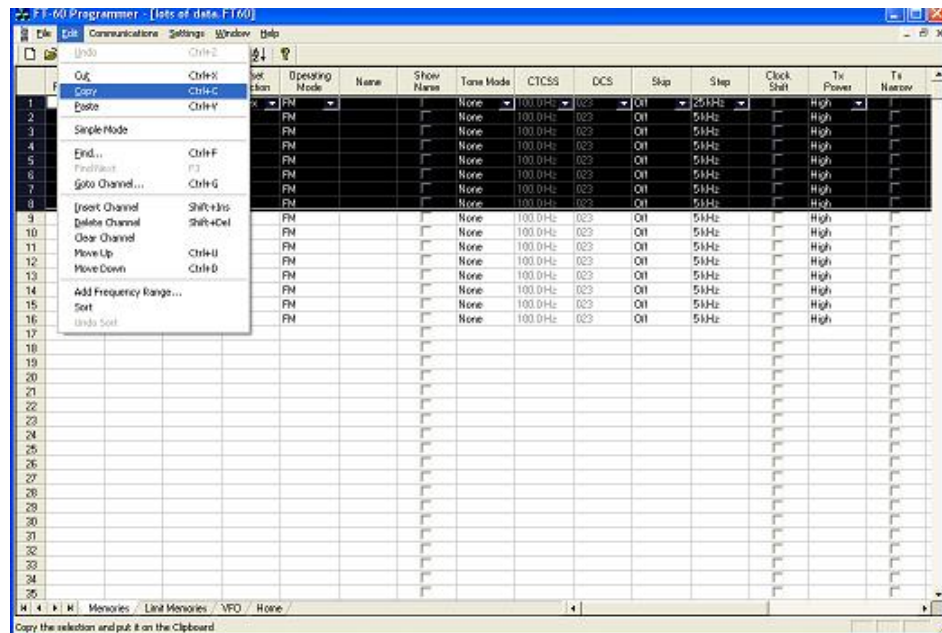
The screenshot displays the FT-80 Programmer software interface. The main window shows a grid of radio frequencies and settings. The columns include: Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tone Mode, CTCSS, DCS, Skip, Step, Cook Shift, Tx Priority, Tx Number, Pager, Bank 1 through Bank 7, and Bank. The grid contains numerous rows of data, with some cells highlighted in blue. The interface includes a menu bar at the top with options like File, Edit, Communications, Settings, Window, and Help. A toolbar is visible below the menu bar. The status bar at the bottom shows 'Ready' and 'CAPTUM (CSC)'.

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.



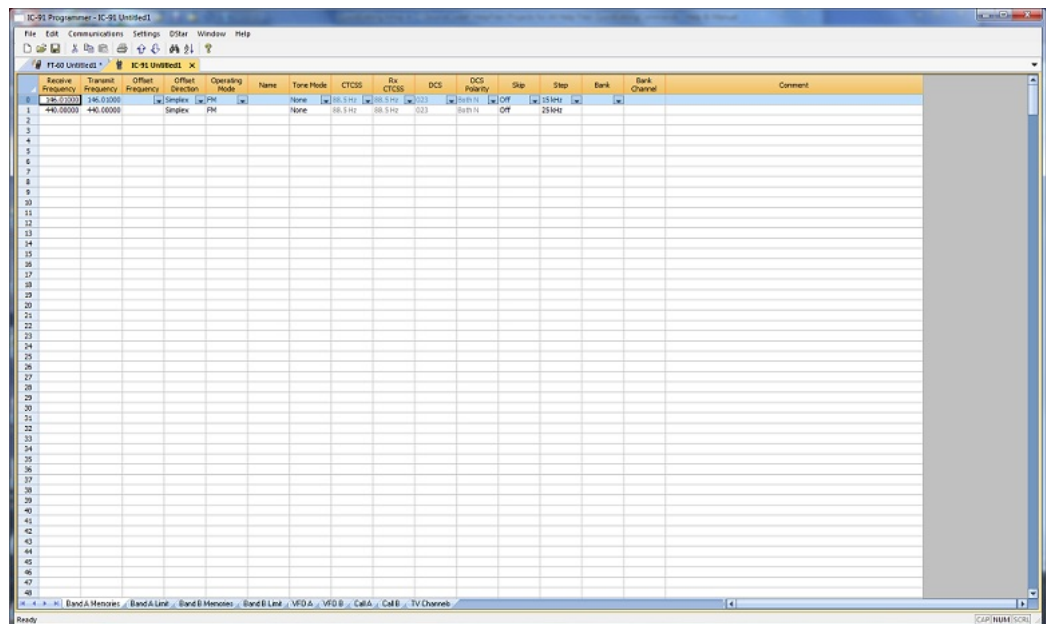
It will appear that nothing has happened. The program in conjunction with built in commands of the operating system of the computer has copied the data. It is waiting for you to Paste it where you want it.

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.

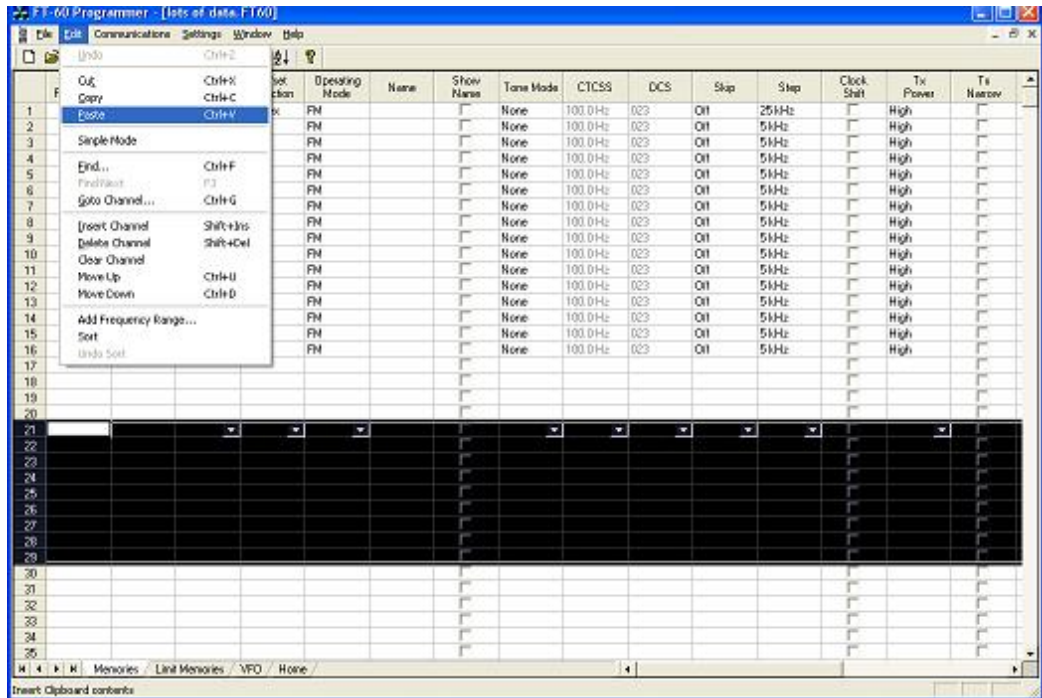
Select the row that is the **first** into which the data is to be pasted. The Paste process will begin in that location with the first copied channel and continue in each channel after that with the rest of the channels that were copied.



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.

The screenshot shows the IC-91 Programmer software window. The main area is a grid with the following columns: Row, Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Tone Mode, CTCSS, RxC CTCSS, DCS, DCS Polarity, Skip, Step, Bank, Bank Channel, and Comment. The grid contains 41 rows of channel data, with the first row (row 0) having a Receive Frequency of 143.32750 and a Transmit Frequency of 143.36250. The software interface includes a menu bar (File, Edit, Communications, Settings, Other, Window, Help) and a toolbar with various icons. At the bottom, there is a status bar with the text 'Ready' and a window management bar showing 'Band A Memory', 'Band A List', 'Band B Memory', 'Band B List', 'VFO A', 'VFO B', 'Call A', 'Call B', and 'TV Channel'.

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

Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Tone Mode	CTCSS	DCS	Skip	Step
1 143.2000	143.2000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
2 143.26250	143.26250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
3 143.27500	143.27500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
4 143.28750	143.28750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
5 143.30000	143.30000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
6 143.31250	143.31250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
7 143.32500	143.32500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
8 143.33750	143.33750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
9 143.35000	143.35000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
10 143.36250	143.36250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
11 143.37500	143.37500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
12 143.38750	143.38750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
13 143.40000	143.40000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
14 143.41250	143.41250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
15 143.42500	143.42500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
16 143.43750	143.43750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
17 143.45000	143.45000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
18 143.46250	143.46250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
19 143.47500	143.47500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
20 143.48750	143.48750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
21 143.50000	143.50000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
22 143.51250	143.51250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
23 143.52500	143.52500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
24 143.53750	143.53750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
25 143.55000	143.55000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
26 143.56250	143.56250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
27 143.57500	143.57500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
28 143.58750	143.58750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
29 143.60000	143.60000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
30 143.61250	143.61250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
31 143.62500	143.62500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
32 143.63750	143.63750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
33 143.65000	143.65000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
34 143.66250	143.66250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
35 143.67500	143.67500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
36 143.68750	143.68750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
37 143.70000	143.70000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
38 143.71250	143.71250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
39 143.72500	143.72500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
40 143.73750	143.73750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
41 143.75000	143.75000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
42 143.76250	143.76250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
43 143.77500	143.77500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
44 143.78750	143.78750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
45 143.80000	143.80000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
46 143.81250	143.81250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
47 143.82500	143.82500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
48 143.83750	143.83750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
49 143.85000	143.85000			Simplex	Auto	None	000.0 Hz	003	Off	Auto
50 143.86250	143.86250			Simplex	Auto	None	000.0 Hz	003	Off	Auto
51 143.87500	143.87500			Simplex	Auto	None	000.0 Hz	003	Off	Auto
52 143.88750	143.88750			Simplex	Auto	None	000.0 Hz	003	Off	Auto
53 143.90000	143.90000			Simplex	Auto	None	000.0 Hz	003	Off	Auto

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.

The screenshot shows the 'Copy and Paste' dialog box in the FT-40 Programmer software. The dialog has a menu at the top with 'Copy and Paste' selected. Below the menu is a table with columns: Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tone Mode, CTCSS, DCS, Gap, Step, Clock Shift, Tx Power, Tx Narrow, Pager Enable, Bank 1, Bank 2, Bank 3, Bank 4, Bank 5, Bank 6, Bank 7, Bank 8, and Bank 9. The table contains 53 rows of radio settings. The 'Copy and Paste' dialog is positioned over the table, and the 'Paste' option is highlighted in the menu.

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.

This is an identical screenshot to the one above, showing the 'Copy and Paste' dialog box in the FT-40 Programmer software. The dialog has a menu at the top with 'Copy and Paste' selected. Below the menu is a table with columns: Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tone Mode, CTCSS, DCS, Gap, Step, Clock Shift, Tx Power, Tx Narrow, Pager Enable, Bank 1, Bank 2, Bank 3, Bank 4, Bank 5, Bank 6, Bank 7, Bank 8, and Bank 9. The table contains 53 rows of radio settings. The 'Copy and Paste' dialog is positioned over the table, and the 'Paste' option is highlighted in the menu.

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.

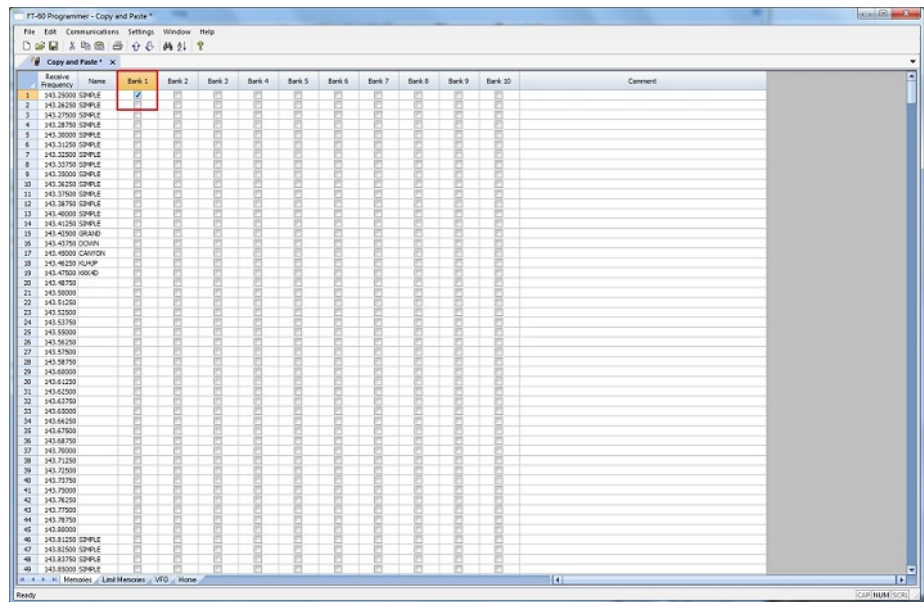
This process varies from the other by how the cells are selected. Check box cells act differently than those that contain text. You can copy from one check box column into another.

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.

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	SMPL1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2 143.2620	SMPL2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 143.2740	SMPL3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 143.2860	SMPL4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5 143.2980	SMPL5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6 143.3100	SMPL6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 143.3220	SMPL7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8 143.3340	SMPL8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9 143.3460	SMPL9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10 143.3580	SMPL10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11 143.3700	SMPL11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12 143.3820	SMPL12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 143.3940	SMPL13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 143.4060	SMPL14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15 143.4180	SMPL15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16 143.4300	SMPL16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17 143.4420	SMPL17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18 143.4540	SMPL18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19 143.4660	SMPL19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20 143.4780	SMPL20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21 143.4900	SMPL21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22 143.5020	SMPL22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23 143.5140	SMPL23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24 143.5260	SMPL24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25 143.5380	SMPL25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26 143.5500	SMPL26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27 143.5620	SMPL27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28 143.5740	SMPL28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29 143.5860	SMPL29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30 143.5980	SMPL30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31 143.6100	SMPL31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32 143.6220	SMPL32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33 143.6340	SMPL33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34 143.6460	SMPL34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
35 143.6580	SMPL35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36 143.6700	SMPL36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37 143.6820	SMPL37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
38 143.6940	SMPL38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
39 143.7060	SMPL39	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
40 143.7180	SMPL40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
41 143.7300	SMPL41	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
42 143.7420	SMPL42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
43 143.7540	SMPL43	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44 143.7660	SMPL44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45 143.7780	SMPL45	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
46 143.7900	SMPL46	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47 143.8020	SMPL47	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48 143.8140	SMPL48	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
49 143.8260	SMPL49	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
50 143.8380	SMPL50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

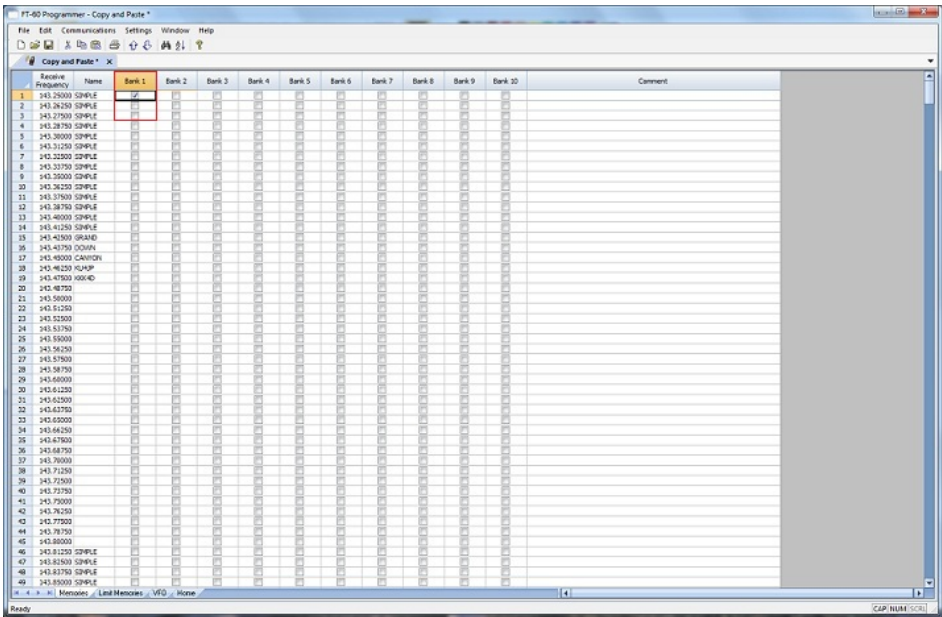
For Channel 1, put a check in the box under Bank 1.



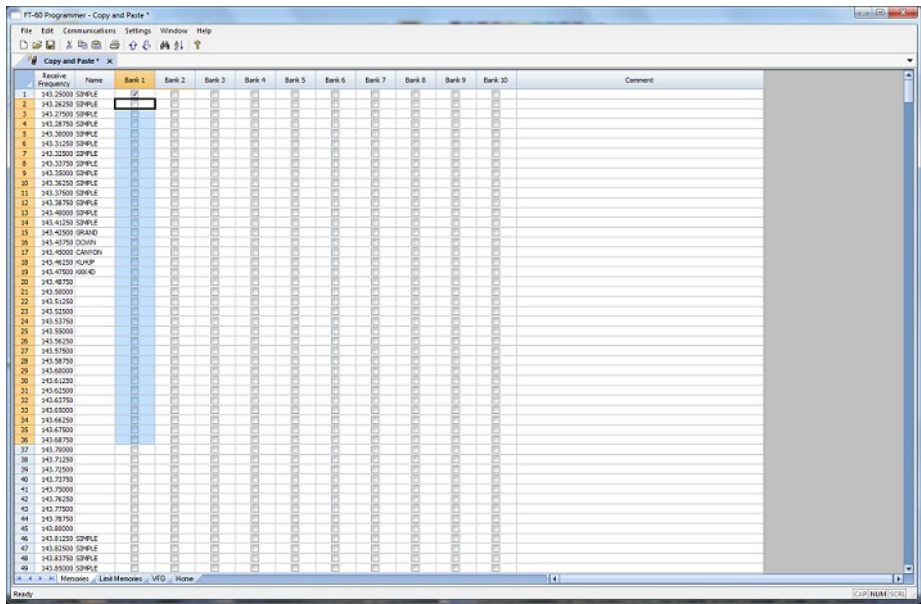
At this point you CANNOT copy this field. Press Tab or Enter to move out of the field.

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	143.29000 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	143.28250 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	143.27500 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	143.26750 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	143.26000 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	143.25250 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	143.24500 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	143.23750 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9	143.23000 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10	143.22250 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11	143.21500 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12	143.20750 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13	143.20000 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14	143.19250 SIMPLE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15	143.18500 GUARD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16	143.17750 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17	143.17000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18	143.16250 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19	143.15500 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20	143.14750 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21	143.14000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22	143.13250 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23	143.12500 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24	143.11750 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25	143.11000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26	143.10250 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27	143.09500 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28	143.08750 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29	143.08000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30	143.07250 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31	143.06500 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32	143.05750 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33	143.05000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34	143.04250 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
35	143.03500 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36	143.02750 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37	143.02000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
38	143.01250 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
39	143.00500 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
40	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
41	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
42	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
43	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
46	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
49	143.00000 DUPLEX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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.

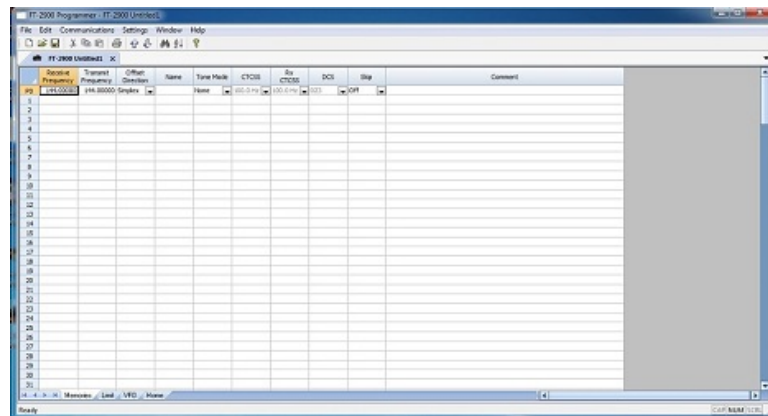
Name - This column is for personalized information to identify the channel.

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.

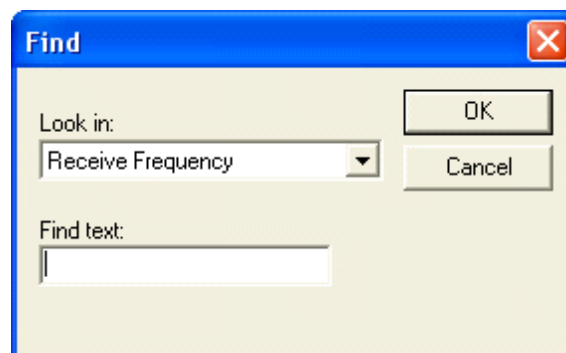
Comment - Personalized notes up to 80 characters. This information remains a part of the file and is not transferred to the radio.



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.



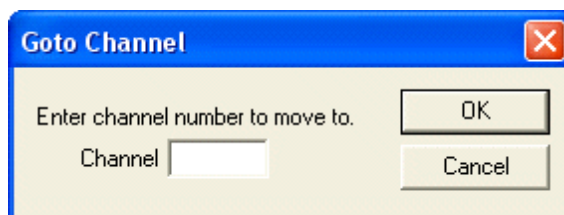
Select the field to be searched (i.e., Receive frequency, Transmit frequency, etc.)

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.

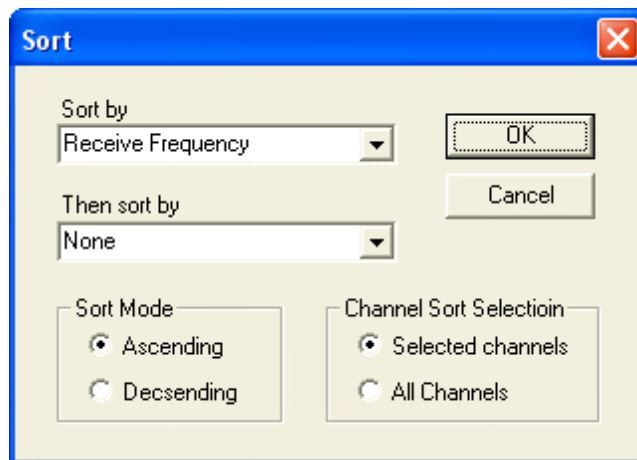
Frequency Step - Enter the value that will separate each of the frequencies in these channels. Select 5kHz to 200 kHz.

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

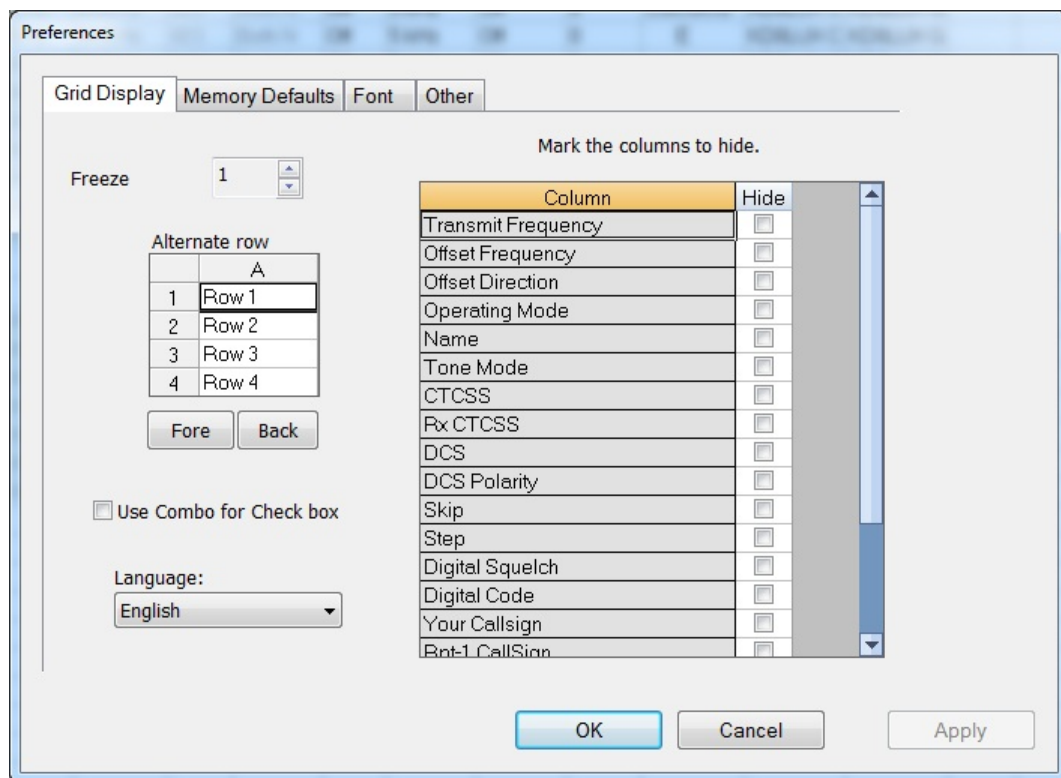


6 Screen Appearance and Default Options

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

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

Grid Display



Freeze Columns

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

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

Hidden Columns (Mark the columns to hide)

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

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

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

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

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

Alternate row colors

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

Use Combo for Check box

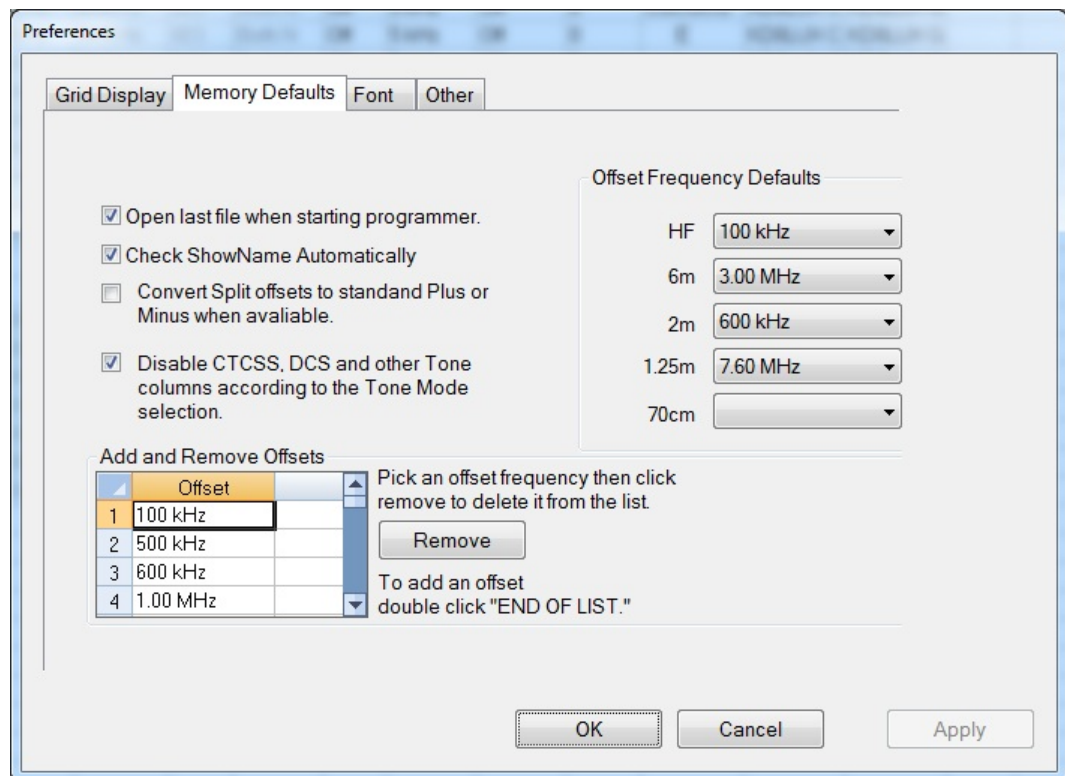
On some systems the checkbox option does not work and you are not able to make selections for banks, show name or other options with check boxes. The check boxes will be missing from the cell.

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

Language

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

Memory Defaults



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

Open last file when starting programmer

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

Check ShowName Automatically

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

Convert Split offsets to standard Plus or Minus when available

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

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

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

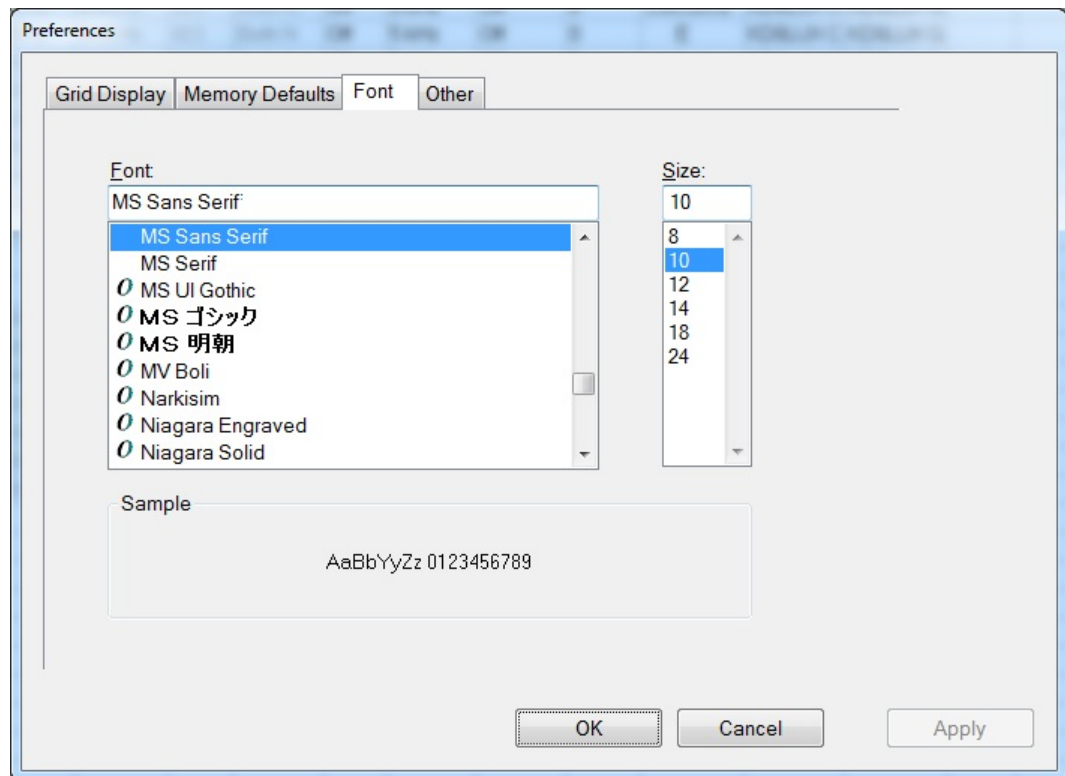
Add and Remove Offsets

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

Offset Frequency Defaults

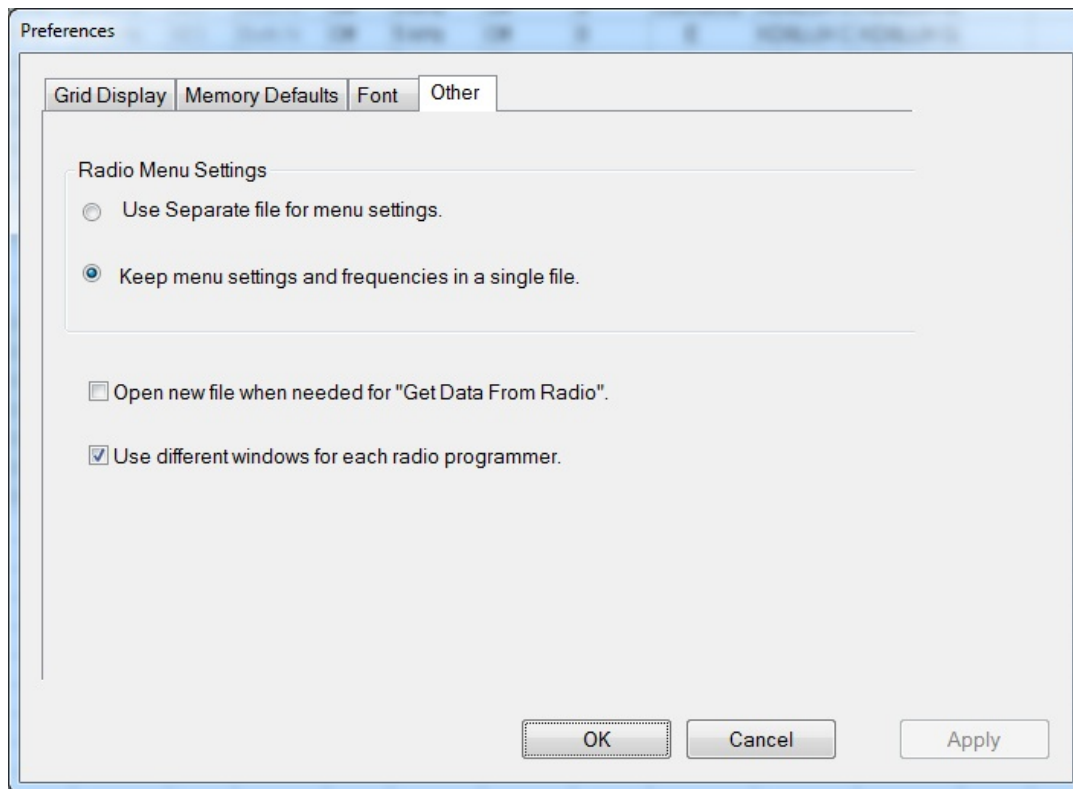
Select a value in each field for the programmer to use when you enter channel information. This value is used for channel information entered into any of the memory channel types (Memory, Limit memories, VFO, Home, etc).

Fonts



New to the Version 4.5 programmers is the selection of font and size to control display of headers, messages and item identifiers in the programmer. Select any font and size available on your system to make the programmer easier to use.

Other



Radio Menu settings

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

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

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

By default the programmer warns you when you select Communications | Get

Data from Radio and the current file (the one you see on the screen right now) is not a blank, default file. The programmer is warning you that if you continue you will lose all the work you have done by replacing the information on the screen with that currently in the radio.

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

Use different windows for each radio programmer

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

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

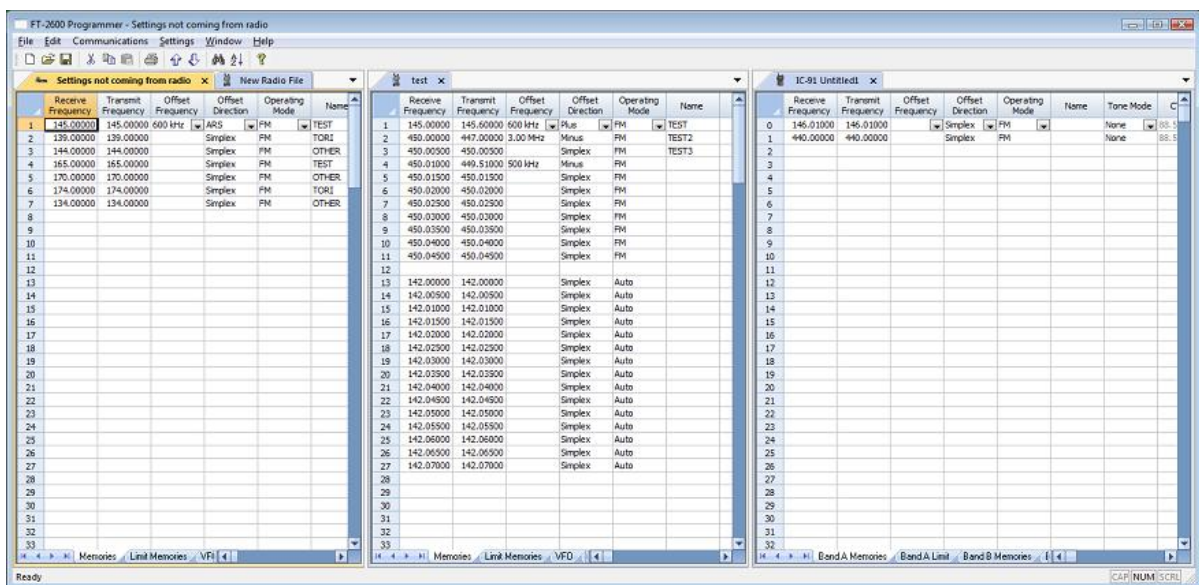
Part



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.



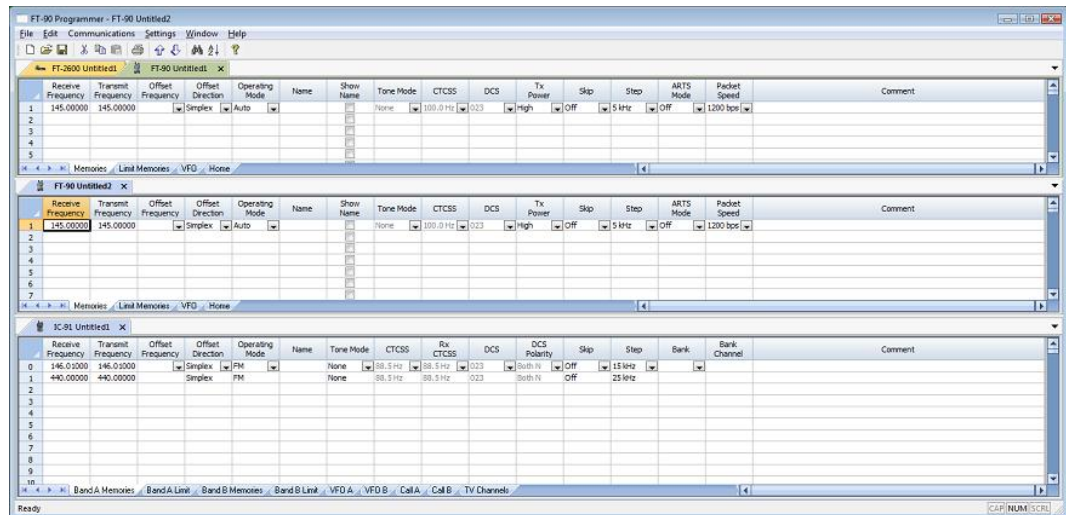
Open the files

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 operating manual where you will find the setting for that item in the Programmer.

The location in the Programmer is described as a "path". For example: APO Settings | Radio Menu Settings | Common tab | Auto Power Off

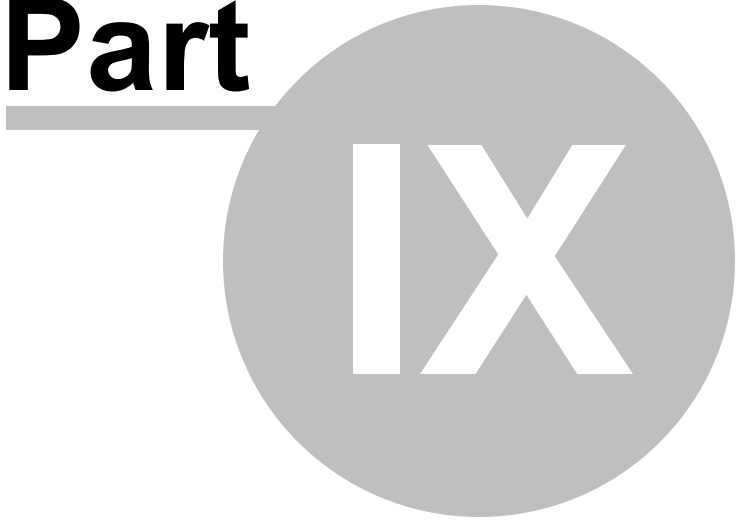
- Click on Settings at the top of the screen
- Select Radio Menu Settings from the menu that opens
- Select the Common tab
- The option is named Auto Power Off on the Common tab.

Set Mode		Programmer Item
Menu Item		
1	APO	Settings Radio Menu Settings Common tab Auto Power Off
2	ARTS Beep	Settings Radio Menu Settings Misc. Settings tab ARTS Beep
3	ARTS Interval	Settings Radio Menu Settings Misc. Settings tab ARTS Beep
4	ARS	Settings Radio Menu Settings Common tab Auto Repeater (check box)
5	BCLO	Settings Radio Menu Settings Common tab Busy Carrier Lockout
6	Beep	Settings Radio Menu Settings Common tab Beep
7	Bell	Settings Radio Menu Settings Common tab Bell
8	Bank Link	Settings Bank Names and Linking Link column
9	Bank Name	Settings Bank Names and Linking Name column
10	Clock Shift	Main screen Clock Shift (This item can be set for each memory channel)
11	CW ID	Settings Radio Menu Settings Misc. Settings tab CW ID (In ARTS section)
12	CW Training	Settings Radio Menu Settings Misc/ Settings tab CW Training (several options available in this section)
13	DC Voltage	Not a part of the Programmer. This is a visual indication of the DC voltage immediately available to the radio.

14	DCS Code	Main screen DCS and Rx 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. See details for when DCS or RX DCS is used in the Regular Memory Channels section of this Help.)
15	DCS Rev	Settings Radio Menu Settings Common tab DCS Reverse (check box)
16	Dimmer	Settings Radio Menu Settings Common tab Dimmer
17	DT A/M	Settings Radio Menu Settings DTMF and Internet tab DTMF Settings Autodialer
18	DT Delay	Settings Radio Menu Settings DTMF and Internet tab DTMF Settings Delay
19	DT Set	Settings Radio Menu Settings DTMF and Internet tab DTMF Settings DTMF grid
20	DT Speed	Settings Radio Menu Settings DTMF and Internet tab DTMF Settings Speed
21	Edge Beep	
22	Internet Code	Settings Radio Menu Settings DTMF and Internet tab Wires section DTMF Code (This code is one of the nine entered in the Internet Link Systems access grid on this same screen.)
23	Internet Mode	Settings Radio Menu Settings DTMF and Internet tab Wires section Mode
24	Internet A/M	Settings Radio Menu Settings DTMF and Internet tab Wires section Autodialer
25	Internet Set	Settings Radio Menu Settings DTMF and Internet tab Wires section DTMS Memory
26	Lock	Settings Radio Menu Settings Common tab Lock Mode
27	Mic Gain	Settings Radio Menu Settings Common tab Mic Gain
28	Mem Scan	Settings Radio Menu Settings Common tab Scan Mode
29	MW Mode	Settings Radio Menu Settings Common tab Memory Write Mode
30	Name Set	Main screen Name (This option can be set for each memory channel.)
31	Opening Msg	Settings Radio Menu Settings Misc. Settings tab Opening Message section Display (Enter the characters for the message into the Characters field of this same section.)
32	Pager	Main screen Tone Mode EPCS (This option can be set for each memory channel.)
33	Pager Answer Back	Settings Radio Menu Settings Misc. Settings Pager section Answer Back
34	Pager Rx Code	Settings Radio Menu Settings Misc. Settings Pager section Receive Codes
35	Pager Tx Code	Settings Radio Menu Settings Misc. Settings Pager section Transmit Codes
36	PRG P1	Settings Radio Menu Settings Settings tab P1 Key
37	PRG P2	Settings Radio Menu Settings Settings tab P2 Key
38	PRG P3	Settings Radio Menu Settings Settings tab P3 Key

39	PRG P4	Settings Radio Menu Settings Settings tab P4 Key
40	Password	Settings Radio Menu Settings Misc. Settings tab Password section (The password cannot be enabled until the characters for that password are entered. The option will be disabled if the characters are removed.)
41	Resume	Settings Radio Menu Settings Settings tab Scan Resume
42	RF SQL	Settings Radio Menu Settings Settings tab RF Squelch
43	RPT	Main screen Offset Direction (This option can be set for each memory channel.)
44	RVRT	Settings Radio Menu Settings Settings tab Priority Revert (check box)
45	Smart Search	Settings Radio Menu Settings Settings tab Smart Search
46	Shift	Main screen Offset Frequency (This option can be set for each memory channel.)
47	Skip	Settings Radio Menu Settings Settings tab Skip (This option can be set for each memory channel.)
48	Split	Settings Radio Menu Settings Settings tab Split Tone (The split tone modes: D Code, T DCS, and D Tone, are always available in the Tone Mode column on the main screen of the Programmer. When using the Programmer, you do not have to set this option to enable use of these tone modes for a memory channel.)
49	SQL Type	Main screen Tone Mode (This option can be set for each memory channel. This option must be set to enable the tone frequency and DCS code columns.)
50	Step	Main screen Step
51	Temp	Settings Radio Menu Settings Common tab Temperature - Set units of the display. When accessed from the face of the radio, this item displays the current temperature within the body of the radio.
52	TN Frequency	Main screen CTCSS or Rx CTCSS (This option can be set for each memory channel. The option cannot be changed unless Tone Mode is set to a CTCSS selection that uses the value of the column. See details for when CTCSS or RX CTCSS is used in the Regular Memory Channels section of this Help.)
53	TOT	Settings Radio Menu Settings Time Out Timer
54	Tone Search Mute	Settings Radio Menu Settings Tone Search Mute (check box)
55	Tone Search Speed	Settings Radio Menu Settings Tone Search
56	VFO Scan	Settings Radio Menu Settings VFO Scan Width
57	Weather Alert	Settings Radio Menu Settings Weather Alert (check box)
58	Weather Volume	Settings Radio Menu Settings Weather Alert Beep
59	Wide/Narrow Deviation	Main Screen Operating Mode

Part



IX

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),

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

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

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

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

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

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

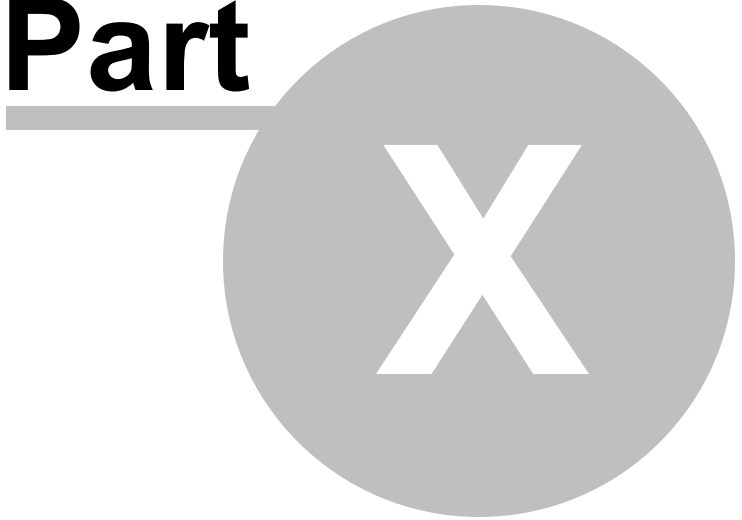
The ARTS options include:

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

Note: The ARTS functionality can be accessed only through one of the programmable mic keys on the radio. In your setup of this functionality, set one of P1 - P4 to ARTS. In the Programmer, the P1 - P4 key functionality is set on the Common tab of the Settings screen.

The ARTS functionality is disabled on the radio by pressing the P1 - P4 key that is set to the ARTS option.

Part



10 Enhanced Paging and Coded Squelch

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

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

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

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

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

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

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

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

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

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

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

- 2) **On this memory channel, set Tone Mode to "EPCS".** You will notice that none of the tone frequency fields become available on the main screen when this option is selected. This is normal functionality for the Programmer since tone frequencies for this function are not set here.
- 3) **From the menu at the top of the screen, select Settings | Radio Menu Settings.** The Menu Settings screen opens.
- 4) **Access the Misc. Settings tab of the Settings screen.**
- 5) **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.
- 6) **Check the box for Answer Back to have the radio respond automatically to the received call** (optional) Contingent on FCC rules governing automatic transmissions.
- 7) **Set the option for CTCSS/DCS Bell to the number of rings or Continuous.**
- 8) **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.
- 9) **Select File | Exit to close this screen** and return to the main screen of the Programmer.

Answer Back - Pressing the PTT switch to respond to a page call will open the code squelch of the calling station. If you prefer to have the radio respond automatically to page calls, check the Answer Back box on the Programmer

Receive Codes - radio remains silent until it receives the CTCSS tone pair that matches the stored code numbers. The paging ringer immediately sounds when activated.

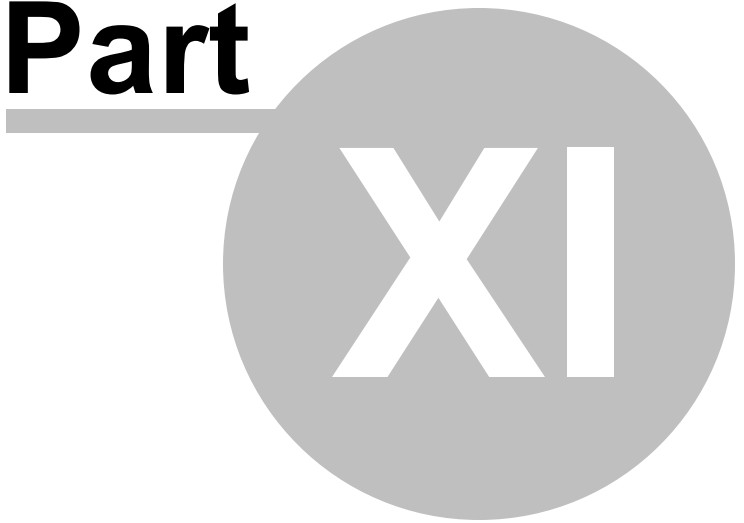
CTCSS TONE NUMBER

No.	Hz	No.	Hz	No.	Hz	No.	Hz	No.	Hz
01	67.0	11	94.8	21	131.8	31	171.3	41	203.5
02	69.3	12	97.4	22	136.5	32	173.8	42	206.5
03	71.9	13	100.0	23	141.3	33	177.3	43	210.7
04	74.4	14	103.5	24	146.2	34	179.9	44	218.1
05	77.0	15	107.2	25	151.4	35	183.5	45	225.7
06	79.7	16	110.9	26	156.7	36	186.2	46	229.1
07	82.5	17	114.8	27	159.8	37	189.9	47	233.6
08	85.4	18	118.8	28	162.2	38	192.8	48	241.8
09	88.5	19	123.0	29	165.5	39	196.6	49	250.3
10	91.5	20	127.3	30	167.9	40	199.5	50	254.1

Note: The FT-2900R does not recognize the order of the 1st tone and the 2nd tone; for example, both CTCSS pairs "10, 35" and "35, 10" are recognized as identical.

Transmit Codes - stored CTCSS tone pair, based on transmit code numbers, will be transmitted automatically when the PTT switch is closed.

Part



11 Independent CTCSS/DCS Tones

A feature previously only in commercial radios, this radio has the ability to transmit TWO different CTCSS or DCS tones for one repeater. That's one tone in and a different one out.

"Independent" transmit and receive CTCSS or DCS tones are a function of Independent transmit frequencies or "Odd Splits". This seems a little strange when you want to use this feature with a "normal" repeater (one with a standard plus or minus 600kHz or 5 Mhz offset); however it can be done easily and will work for a "normal" repeater.

To setup this function in the Programmer

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you listen 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. (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 blank the Offset Frequency since this value is not used by the radio for Split operations.
- The Programmer will set the Offset Direction to Split.
- Press Enter until the Tone Mode field is highlighted for this channel. (You can fill in a Name on your way past that field if you want to use that feature of the radio).
- Once in the Tone Mode field, select TSq1 for CTCSS or DCS to use separate tones for transmission and reception.
- Set the CTCSS frequency value in the CTCSS and Rx CTCSS fields. (RX CTCSS is Receive CTCSS. This is the "out" tone for the repeater or the one associated with the receive frequency on the radio. This is the one that mutes YOUR radio.) Or select DCS codes from the DCS and RX DCS columns.

- Set other options for this channel as needed for good performance. The other options are not related to this functionality. They are a part of the design of the radio to enhance the radio's performance in a given situation.

Notes:

Setting a Split for a "normal" repeater: You are given details about a "normal" repeater (one that uses a standard 600kHz or 5.0 Mhz offset); but, it uses separate CTCSS tones for encode and decode.

- 1. You *MUST* enter the repeater as a Split to use the Independent tone function. To do this, enter the receive frequency.**
- 2. Notice that the Transmit frequency field is completed with a value 600 kHz more or less than the Receive frequency. This is a "normal" repeater (at least for 2M).**
- 3. Press Enter until you are in the Offset Direction column. Do NOT make changes to the information in the columns between Receive Frequency and Offset Direction.**
- 4. Set Offset Direction to Split. Notice that the Transmit Frequency remains unchanged (600 kHz more or less than the Receive Frequency) and the Offset Frequency field is blanked since the radio does not use this value for a split pair.**
- 5. Press Enter until you get to the Tone Mode column.**
- 6. Select TSql.**
- 7. Set the appropriate values into the CTCSS and Rx CTCSS fields.**

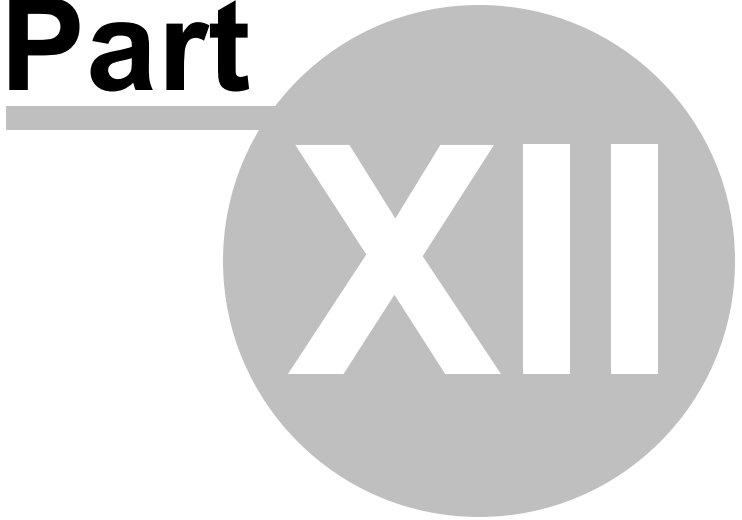
The split pair uses only a Tone to get into the repeater: not two tones: Enter the two frequencies as a Split Pair (see details above). Select Tone for the Tone Mode. Select the CTCSS frequency from those in the CTCSS column.

I'm not sure which tone goes with which function (encode or decode): That's one of the things that the Programmer makes so easy for you. Program the channel as many times as you need to for all the combinations of frequencies and tones. Then once

you find the channel that works, delete the others from the Programmer and reprogram your radio so that only the one "good" channel is available.

The frequency pair is a split and the system uses Tone Squelch; however, it uses the SAME tone for encode and decode: Setup the memory channel as a split by entering the Receive and Transmit frequencies. Set Tone Mode to TSqL. Set the CTCSS and Rx CTCSS columns to the same value.

Part



XII

12 Internet/WIRES Settings

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 radio 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.

Internet (Wires) Settings

The Internet option settings are found on the Settings screen of the Programmer. From the main window select Settings | Radio menu settings. Then select the DTMF/Internet tab to find the fields.

Enter the DTMF access code for a system other than WIRES into a DTMF memory channel.

Mode - Select the Internet Link Connection mode. Available are SRG and FRG.

SRG - Sister Radio Group Mode

FRG - Friends' Radio Group Mode

Autodialer - Control the DTMF Autodialer feature while operating on the Internet.

DTMF Code: Select the Access Number (DTMF digit) for WIRES™ operation. Available values are CODE 0 - CODE 9. The default is CODE 1

DTMF Memory: Select the memory register for an Access Number (DTMF code) for non-WIRES™ Internet Link System access. Available values are D1 - D9. The default

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, other would report to you that they hear a DTMF "beep" preceding each of your transmissions.

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.

On the radio, the Internet function is engaged and disengaged by pressing the ["Lock"] key briefly (if you hold it for any length of time at all, you will lock the knobs and switches of the radio). Watch the display of the radio. If the [⊗] symbol appears, the Internet function is engaged.

Press the ["Lock"] key again to disengage the feature and stop the "beep".

Internet Link Systems - Enter the access code and identifying name for Internet Link System repeaters.

Press the 'atomic' [⊗] key momentarily to disable connection feature.

Part



13 Memory Banks / Names and Linking

The FT-2900 provides 8 memory banks into which you can separate your memory channels for optimum use. Think of the banks as subsets of all the memory channels.

For example:

- Bank 1 - VHF Ham frequencies
- Bank 2 - VHF fire department frequencies
- Bank 3 - Train radio frequencies
- Bank 4 - UHF Ham frequencies

This separation makes it possible for you to use a limited number of memory channels at one time. Now when you scan, you repeat the same channels more often and miss less. You hear communications specifically for the activity you're doing at the time. You can share your radio with someone without having to worry that they will encounter a frequency they should not hear.

To put a channel into a bank, enter the memory channel information then put a check in the appropriate Bank column.

For easier entry, select Settings | Bank Settings to hide column other than the receive frequency, name, and banks.

- A memory channel can be assigned to all Banks by checking all of the columns or it can be omitted completely by not checking a box at all.
- When the radio is operated in Memory Bank Mode only those channels assigned to the selected Bank will be available for manual tuning and/or scanning.
- There is no need to put all the memories in all the memory banks. All the memories are available when you are not operating in a memory bank.
- The radio allows only 50 memory channels per bank. The Programmer is designed with this limit and will not allow you to put more than 50 memory channels in a bank. (This is contrary to the information of the Operating Manual for the radio; but, it is how the radio works as proven by testing with the radio.)

Using Banks

Banks are engaged from the radio's microphone by pressing the * on the keypad with the radio in memory mode.

The radio will immediately access Bank 1 as indicated by the "b1" that appears momentarily at the lower right of the display.

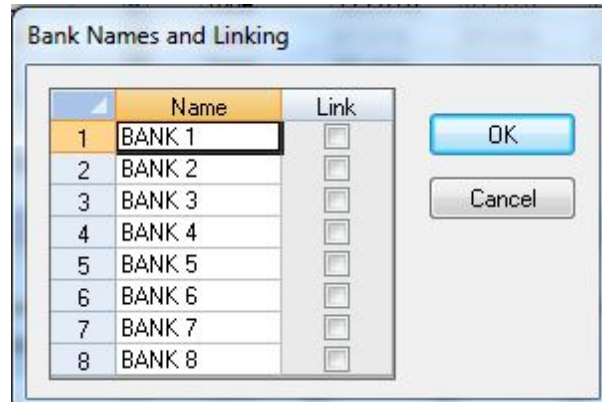
Press the # key on the microphone to advance to the next bank. You will see the display at the lower right step through "b2, b3, b4", etc where the banks include memory channels (empty banks are not included in the progression).

Press the * key again to exit bank mode.

Bank Names

Many Yaesu radios allow you to name the banks. This name appears on the display of the radio when you are selecting the bank to use.

In the Programmer, select Settings | Bank Names and Linking from the menu at the top of the screen. This menu item is active only if you are on the Memory Channels tab.



Enter a name for the bank. The name will appear on the main page of the Programmer for that Bank.

Bank Linking

When the Memory Bank feature is engaged, the radio scans only memory channels in the *current* memory bank unless the Memory Bank Link Scan feature is enabled.

The memory Bank Link Scan feature allows you to scan the memory channels in several "linked" Memory Banks.

Note: This is a scanning feature that allows you to scan several banks. It is not designed for you to combine banks for working in several channels at once.

If you want the channels of both banks to appear as one group for operations other than scanning, put the memory channels in both banks.

To initiate Bank Link scanning, put the radio into one of the "linked" banks and begin scanning by pressing the [MHz(Set)] key for one second.

Part

XIV

14 Programming Memory Channels

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

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

[Regular memory channels](#) - The several hundred all radios have these days. The ones you will use most often.

[Home \(Call\) Channels](#) - One channel designed for one touch recall. See the operating manual for the radio for recall details.

[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.

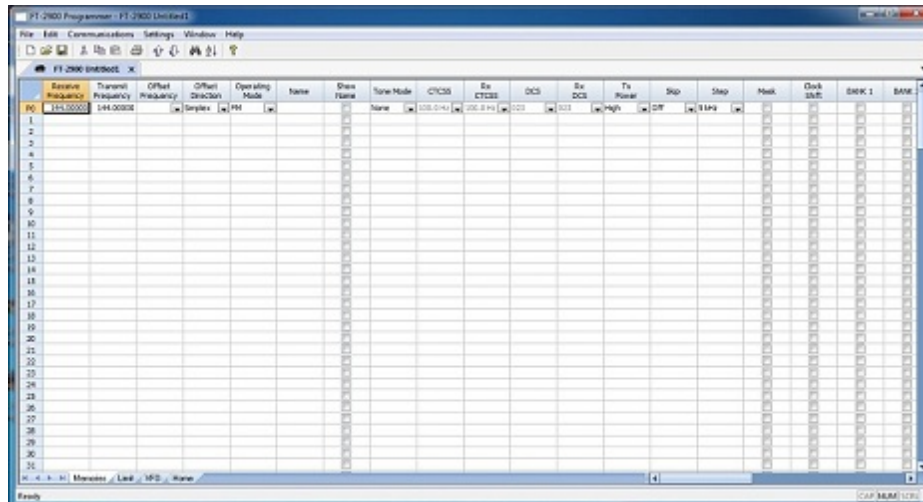
[VFO Memories](#) - Settings for VFO operations when the file is first sent to the radio. This channel has no one button recall on the radio and will change when the tuning knob is used. To be able to recall settings at any time, use the Regular Memory Channels.

Details on the special 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 Regular Memory Channels

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

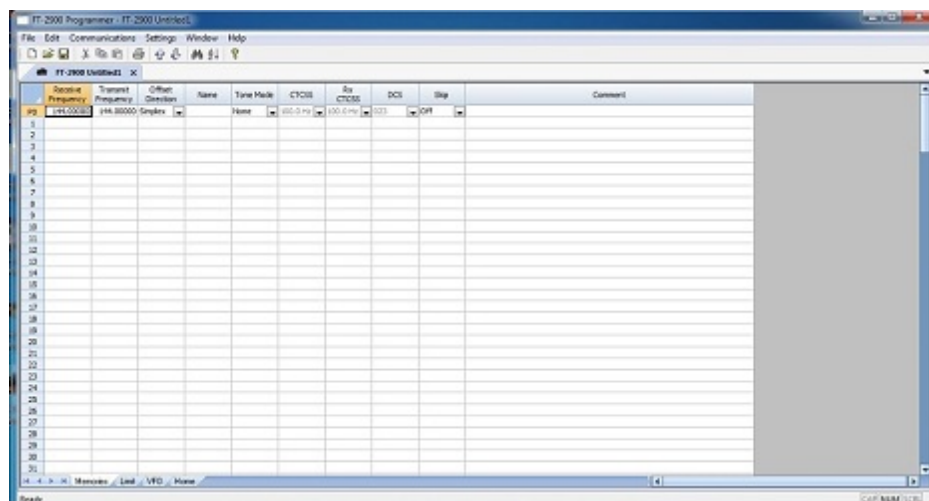


All details associated with the memory channels are programmed from this screen.

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 other items are set on the Settings screen accessed through Settings | Radio Menu Settings from the menu at the top of the screen.

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.

Make programming extra easy. Try Simple Mode in the software for even less to enter.



- In Simple Mode 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.
- The first memory channel must be programmed.

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 entered manually.

Note: In the Programmer you can enter details for frequencies outside the transmission abilities of the radio. 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 receive and a different one for transmit). This pair is referred to as a split.

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 listen 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. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)

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

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, 3.0, 5.0, 7.6, 10.0, and 99.0 MHz. The most common standards are 600 kHz for the 2M band and 5.0 MHz for the 440 MHz band.

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

A **nonstandard Offset Frequency** value is entered by typing it into the Offset Frequency field after the Receive Frequency has been entered. Values are entered as an exact value including the decimal to denote kHz. Then select Plus or Minus in the Offset Direction column and watch the Programmer calculate the Transmit Frequency.

For example, given the pair **146.650** and **147.300**, the **Offset Frequency** entered would be **.650** (decimal - six - five - zero) with a **Plus** Offset Direction. Without the decimal, an error is raised in the Programmer that a valid Offset Frequency should be entered.

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

Offset Direction

Simplex - Transmit and receive frequencies are the same. Remember, when you use Simplex, the radio does not use any value that appears in the Offset Frequency column. It will transmit and receive on the SAME frequency.

Minus - The Offset Frequency is subtracted from the receive frequency yielding the frequency on which you will be transmitting.

Plus - The Offset Frequency is added to the receive frequency yielding the

frequency on which you will be transmitting.

Split - Used when a non-standard offset is required. The user enters both the receive and transmit frequencies.

Operating Mode: Assign FM or Narrow FM as appropriate for the frequency.

Name: Enter an Alpha/Numeric tag (up to 6 characters) to a memory channel to provide an easy reminder of the function of a particular channel.

Show Name: Check the box to have the Name displayed on the radio rather than the operating frequency. This option is checked (ON) automatically by default in the Programmer when a name is entered.

Even if you enter a name, you can choose not to display that name by removing the check mark in the Show Name box.

Note: When operating the radio in memory mode, press and hold the [LOW(A/N)] key for one second to toggle the display between Name and Frequency.

Tone Mode: The tone systems of the radio has two functions.

- It sends the sub-audible signal needed to gain access to a "toned" repeater.
- It uses a sub-audible tone to block signals into your radio. Your radio remains silent until a signal with the assigned tone is heard. This makes you like the "toned" repeater.

The radio has the ability to store and use independent CTCSS and/or DCS tones for a transmit and receive. This allows you to use a different CTCSS frequency or DCS code for transmit (encode) and receive (decode). This function is often described as "one tone in and a different one out" and is used by many commercial systems.

Use of either of any of the tone systems requires two steps: Turning on the Tone Mode and Setting the CTCSS tone frequency or DCS code. The Programmer makes sure that you complete both by blocking access to the tones until a Tone Mode is selected.

The **Tone Modes** include:

None - No tone system activated. Even if the CTCSS Tone or DCS Code columns are set to a value, transmissions will not get through unless this column is set to an the proper 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 Rx CTCSS, DCS and Rx DCS columns are ignored by the radio.

TSql - CTCSS tone squelch is activated for **both transmission and reception using one tone frequency for both**. In this mode only signals setup with the same tone will open the squelch. Your radio will remain silent otherwise.

- When this option is selected, for simplex or normal repeater operations (not split) **only** the CTCSS column becomes available **because the radios uses the SAME CTCSS frequency for both transmission and reception..**
- Select the tone frequency from those in the list. The value must be in the list.
- The values that appear in the RX CTCSS, DCS, and RX DCS columns are ignored by the radio when this option is being used with a memory channel other than one with an Offset Direction of "Split".
- Details for using T-Sql with a "Split" Operating Direction and independent tones is covered in the *Using Independent Tones* section of this Help that can be accessed from the Contents at the left.

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.
- The values that appear in the RX CTCSS, DCS and Rx DCS columns are ignored by the radio.

EPCS - Enhanced Paging and Coded Squelch system of the radio is a system that allows you to call a specific station (Paging) and to receive calls from your choice directed to you (Coded Squelch).

- One set of tones is allowed for this process regardless of how many times the process is engaged for different frequencies. Those tones

are set in the Settings File. To access this option select Settings | Radio Menu Settings from the top of the screen. Then access the Misc. Settings tab and the Pager section on that screen.

- The values that appear on the main screen of the Programmer in the CTCSS, RX CTCSS, DCS and Rx DCS columns are ignored by the radio when this option is engaged.
- More details on this functionality are found in the [Enhanced Paging and Coded Squelch](#) section of this Help.

DCS - Digital Coded Squelch mode is activated for **transmission and reception using one DCS code for both**. This mode is used in many commercial systems.

- 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.
- The values that appear in the CTCSS, Rx CTCSS and Rx DCS columns are ignored by the radio.

D Code - Digital Coded Squelch mode is activated for **transmission only**. This function is very similar to Tone; however, a DCS code rather than a CTCSS frequency is used.

- The radio uses the DCS Code set in the DCS code column for transmissions only. Reception is open for any signal.
- The values that appear in CTCSS, Rx CTCSS and Rx DCS are ignored by the radio.

T DCS - **CTCSS** tone generation is activated for **transmission** and **Digital Coded Squelch** mode is activated for **reception**.

- The CTCSS and Rx DCS columns become available to set the tone values for this function.
- The values that appear in the Rx CTCSS and DCS columns are ignored by the radio.

D Tone - **DCS** is activated for **transmission** and **CTCSS** tone generation is activated for **reception**.

- The Rx CTCSS and DCS columns become active to set the tone value for this function.

- The values that appear in the CTCSS and RX DCS columns are ignored by the radio.

CTCSS Tone: Select one of 50 tone frequencies to be used in the Encode and Decode modes. This value is set independently for each memory channel and will be used by the radio for both reception and transmission if the channel does not have an operating mode of "Split". This field is active only if the Tone Mode is set a mode that uses a CTCSS tone. A value that appears in this field is ignored if one of the tone modes that uses CTCSS is not activated.

Rx CTCSS Tone: Used for independent frequency pairs when *separate tones are needed for transmission and reception*. This is the tone for reception (Rx - Receive).

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

Rx DCS Code: Select one of the 104 codes available for "special" DCS functions. This field will become active when a value needs to be set. This value is set independently for each memory channel. This field is active only when a Tone Mode for DCS is selected. A value that appears in this field is ignored if one of the tone modes that uses DCS is not activated.

Using "**Independent**" **CTCSS or DCS Tones** - "Independent" transmit and receive CTCSS or DCS tones can be used only if the memory channel is set to Split. See the [Independent CTCSS/DCS Tones](#) section of this Help for further details.

Tx Power: The output power can be set individually set for each memory channel to address the exact needs of each operation. Select Low 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. See the radio's operating manual for the specifics.

Skip: Marks selected memory channel to be *skipped during scanning*. These channels remain available for manual selection by turning the knob. The radio has five different skip settings for each memory channel.

Off indicates that the channel will be scanned for activity whenever scanning

is done.

Skip indicates that the channel will be skipped.

P-Scan puts the channel into 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 (in VFO or Memory tune). 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.

Mask: Mark the channel to "hide" when tuning or scanning. This channel can be accessed when it is "un-masked" from the face of the radio.

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. In a Yaesu radio, you can assign a channel to none, one or all banks. Find details on [Memory Banks / Names and Linking](#) in that section of this Help.

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

14.2 Home Channel

The Home channel memory provides convenient, one-touch access to your most often used frequency. The home channel memory is programmed on the Home tab of the Programmer.

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 the file is sent to the radio, the Home channel is recalled by pressing the [MW (D/MR)] once if operating in memory mode or twice if operating in VFO mode.

14.3 Limit Memories

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

For example, you might wish to set up a limit (in North America) of 144.300 MHz to 148.000 MHz so as to prevent encroachment into the SSB/CW "Weak Signal" portion of the band below 144.300 MHz.

The upper and lower limits for the Programmable Memory Scan ranges are entered on the Limit Memories page of the Programmer. This page is accessed via 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.

In the Programmable Memory Scan limit 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. Set the step value sufficiently small that you don't miss activity but sufficiently large that you cover the range in an acceptable time.

14.4 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.

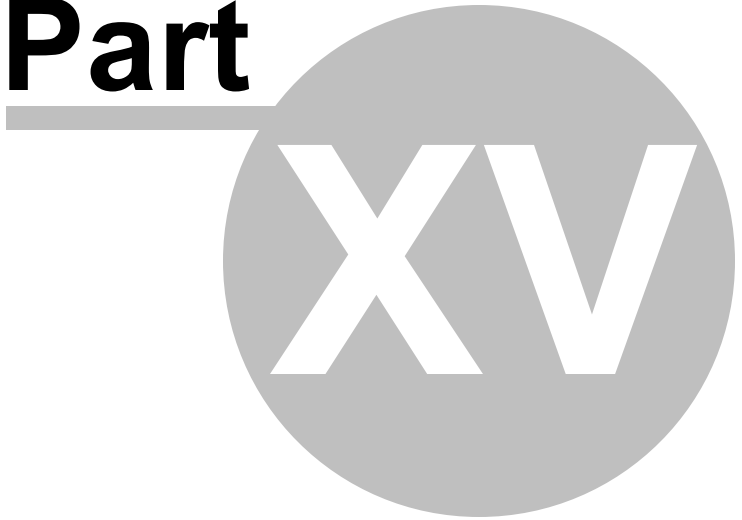
Note: Remember, the VFO memory is temporary. The programmed frequencies appear immediately after the file is sent to the radio. When the radio is manually tuned in VFO mode, the programmed frequency cannot be recalled as a memory channel frequency will be.

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 using the Programmer. Memory channels are programmed directly into the spreadsheet that appears when the Programmer opens.

The information to be entered is the same as that for regular Memories except that the VFO's do not have a Name available to be programmed. See [Regular Memory Channels](#) for details of the fields.

Part



15 Programming Other Set Menu items

There is a lot more to this radio than just the memory channel.

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

Radio Menu Settings are set from the Radio Menu Settings screens in the Programmer. These screens are accessed by selecting **Settings | Radio Menu Settings** from the menu on the main screen.

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

New to the Programmers is 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 global 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

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

If your radio "acts funny" once it is programmed with a file of memory channels, check the settings file to be sure things are set correctly. Then be sure to save the settings file so your personal touches will go to the radio with every file. (File | Save from the menu on the Settings screen). The settings file then works in conjunction with the memory channel file to program your radio.

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

Auto Repeater - The radio to automatically sets the repeater offset for a frequency tuned to in VFO according to a set band plan as shown in the operating manual for the radio.

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

Beep - Enables / disables the beeper for:

Key - The beeper sounds when a key is pressed.

Key + Scan - The beeper sounds when you press a key or when the scanner stops on an active frequency.

Off - Disables the beeper.

Bell - Set the CTCSS/DCS/EPCS bell ringer repetition.

Busy Carrier Lockout - Enable / disable the ability to prevent transmission when the frequency is busy.

DCS Reverse (Inversion) - Engage use of the DCS Code Inversion function of the radio. This functionality is described in detail in the [DCS Code Inversion](#) section of the Help.

Dimmer - Set the brightness of the front panel display.

Lock - Select the combination of radio functions that are locked when the lock function is engaged from the face of the radio. Combinations control front panel keys, the tuning dial, and the PTT switch. To engage the lock, press and hold the orange button next to the power switch on the face of the radio until the lock symbol appears on the radio's display.

Memory Write Mode - Designate how the radio will select the memory channel to be programmed when saving channel details from the radios face. Options include:

Next - the radio suggests the "next" available channel (i.e., if you have entered 1-10, 11 is the next even if 6 is empty).

Lower - the radio suggests the "lowest" available channel (i.e., if you have programmed 1-10 with 6 empty, 6 will be suggested when you next save.)

Mic Gain - Adjust the mic gain for optimum performance.

Priority Revert - Enable / disable the Priority Revert Mode or Dual Watch functionality. This function is explained in more detail in the [Priority Channel Scanning](#) section of this Help.

Programmable Keys (P1 Key / P2 Key / P3 Key / P4 Key) - Change the function assigned to the microphone keys to many from the Set Menu.

RF Squelch - Adjust the RF squelch threshold level for receive signals. The RF Squelch function allows you to set the squelch so that only signals exceeding a certain S-meter level will open the squelch. Select Off, S1 through S9, or S9+. With a higher setting, only strong signals will be received. The default is Off.

Scan Mode - Select what part of the memory channels will be included when scanning. Options include:

All Scan - The radio sweeps all memory channels.

Tag 1 - The radio sweeps only those memory channels with the same "first" digit of the alpha/numeric tag as that in the channel on which scanning started (i.e., you start on a channel with a name of Local. Scanning will include the channels with names of Local, Lubck, Lead, Lvstn, LaG, etc., and omit all others).

Note: The radio will display MS Error if no other channel match the scan criteria.

Tag 2 - The radio sweeps only those memory channels with the same first and second digits of the alpha/numeric tag as that in the channel on which scanning started (i.e., from the example above, if you start on Local, none of the others of that list would be included since the second letter does not match).

Note: The radio will display MS Error when no other channels match the scan criteria.

Scan Resume - Selects the Scan Resume mode. Available values are Busy, Time, 3/5/10 Seconds as described below. The default is Busy.

3/5/10 Sec - The scanner stops when a signal is received then resumes after the designated time even if the signal is still present. You can choose these time independently.

Busy - The scanner will hold until the signal disappears, then will resume when the carrier drops.

Time - The scanner will hold for the five seconds, then resume whether or not the other station is still transmitting.

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.

Split Tone - Engage additional Tone Mode combinations for advanced functionality with subaudible tones. This option does not have to be set when using these advanced Tone Modes in the Programmer. D-Code, T-DCS and D-Tone are always

available as Tone Modes in that selection on the main page of the program.

Temperature - Display temperature in Fahrenheit or Celsius.

Time Out Timer - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1, 3, 5 and 10 minutes and Off. The default is 3 minutes.

Tone Search - Set the speed of this search to Fast or Slow.

Tone Search Mute - Enable / disable the receive audio output during Tone Search activity.

VFO Scan Width - Set to scan the band (All) or a set bandwidth (1, 2, or 5 MHz)

Weather Alert Beep - Set the volume for this alert to normal or max.

Weather Alert - Enable / 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.

15.1. .1 DCS Code Inversion

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

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

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) can try setting DCS priority to something other than "normal" (RN -TN).

15.1.8 Dimmer

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

If your radio "acts funny" once it is programmed with a file of memory channels, check the settings file to be sure things are set correctly. Then be sure to save the settings file so your personal touches will go to the radio with every file. (File | Save from the menu on the Settings screen). The settings file then works in conjunction with the memory channel file to program your radio.

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

Auto Repeater - The radio to automatically sets the repeater offset for a frequency tuned to in VFO according to a set band plan as shown in the operating manual for the radio.

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

Beep - Enables / disables the beeper for:

Key - The beeper sounds when a key is pressed.

Key + Scan - The beeper sounds when you press a key or when the scanner stops on an active frequency.

Off - Disables the beeper.

Bell - Set the CTCSS/DCS/EPCS bell ringer repetition.

Busy Carrier Lockout - Enable / disable the ability to prevent transmission when the frequency is busy.

DCS Reverse (Inversion) - Engage use of the DCS Code Inversion function of the

radio. This functionality is described in detail in the [DCS Code Inversion](#) section of the Help.

Dimmer - Set the brightness of the front panel display.

Lock - Select the combination of radio functions that are locked when the lock function is engaged from the face of the radio. Combinations control front panel keys, the tuning dial, and the PTT switch. To engage the lock, press and hold the orange button next to the power switch on the face of the radio until the lock symbol appears on the radio's display.

Memory Write Mode - Designate how the radio will select the memory channel to be programmed when saving channel details from the radios face. Options include:

Next - the radio suggests the "next" available channel (i.e., if you have entered 1-10, 11 is the next even if 6 is empty).

Lower - the radio suggests the "lowest" available channel (i.e., if you have programmed 1-10 with 6 empty, 6 will be suggested when you next save.)

Mic Gain - Adjust the mic gain for optimum performance.

Priority Revert - Enable / disable the Priority Revert Mode or Dual Watch functionality. This function is explained in more detail in the [Priority Channel Scanning](#) section of this Help.

Programmable Keys (P1 Key / P2 Key / P3 Key / P4 Key) - Change the function assigned to the microphone keys to many from the Set Menu.

RF Squelch - Adjust the RF squelch threshold level for receive signals. The RF Squelch function allows you to set the squelch so that only signals exceeding a certain S-meter level will open the squelch. Select Off, S1 through S9, or S9+. With a higher setting, only strong signals will be received. The default is Off.

Scan Mode - Select what part of the memory channels will be included when scanning. Options include:

All Scan - The radio sweeps all memory channels.

Tag 1 - The radio sweeps only those memory channels with the same "first" digit of the alpha/numeric tag as that in the channel on which scanning started (i.e., you start on a channel with a name of Local. Scanning will include the channels with names of Local, Lubck, Lead, Lvstn, LaG, etc., and omit all others).

Note: The radio will display MS Error if no other channel match the scan criteria.

Tag 2 - The radio sweeps only those memory channels with the same first and second digits of the alpha/numeric tag as that in the channel on which scanning started (i.e., from the example above, if you start on Local, none of the others of that list would be included since the second letter does not match).

Note: The radio will display MS Error when no other channels match the scan criteria.

Scan Resume - Selects the Scan Resume mode. Available values are Busy, Time, 3/5/10 Seconds as described below. The default is Busy.

3/5/10 Sec - The scanner stops when a signal is received then resumes after the designated time even if the signal is still present. You can choose these time independently.

Busy - The scanner will hold until the signal disappears, then will resume when the carrier drops.

Time - The scanner will hold for the five seconds, then resume whether or not the other station is still transmitting.

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.

Split Tone - Engage additional Tone Mode combinations for advanced functionality with subaudible tones. This option does not have to be set when using these advanced Tone Modes in the Programmer. D-Code, T-DCS and D-Tone are always

available as Tone Modes in that selection on the main page of the program.

Temperature - Display temperature in Fahrenheit or Celsius.

Time Out Timer - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1, 3, 5 and 10 minutes and Off. The default is 3 minutes.

Tone Search - Set the speed of this search to Fast or Slow.

Tone Search Mute - Enable / disable the receive audio output during Tone Search activity.

VFO Scan Width - Set to scan the band (All) or a set bandwidth (1, 2, or 5 MHz)

Weather Alert Beep - Set the volume for this alert to normal or max.

Weather Alert - Enable / 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.

15.1.8.1 Priority Channel Scanning

Priority Channel Scanning is often referred to as Dual Watch. This two channel scanning ability allows you to operate on a VFO, Memory or Home channel while monitoring for activity on a particular memory channel.

If a signal is received on the Priority Channel that is strong enough to open the squelch, the radio will switch to that channel in accordance with the Scan-Resume settings.

Any memory channel can be the Priority Channel. To set the priority channel:

- Enter the details for the channel on the main screen of the Programmer.
- With that channel selected, click Edit | Set Priority Channel from the menu at the top of the screen.
- You will notice the "P" (Priority) appears along with the channel number for that memory channel. When this file is sent to the radio, :PRI" will appear in the upper right corner of the display when this channel is selected.

To engage Priority Channel Scanning

While operating on any memory channel, home channel or on a VFO frequency, press and hold the [Rev (DW)] key for one second.

The display will remain on the current channel; however, every five seconds the radio will check the Priority Channel for activity.

To disable priority channel scanning

Press and hold the [D/MR(MW)] key momentarily.

Watch the face of the radio for a moment. You will see that the display no longer changes.

Priority Revert Mode

During Priority channel operations, the radio has the ability to move to the Priority Channel instantly without waiting for activity on that channel.

When the Priority Revert feature is enabled, pressing the PTT switch results in

transmissions on Priority Channel.

Note: Remember that with this option on, you will transmit on the Priority Channel NOT on the channel you may be listening to at the moment.

15.1.13 Programmable Mic Keys

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

If your radio "acts funny" once it is programmed with a file of memory channels, check the settings file to be sure things are set correctly. Then be sure to save the settings file so your personal touches will go to the radio with every file. (File | Save from the menu on the Settings screen). The settings file then works in conjunction with the memory channel file to program your radio.

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

Auto Repeater - The radio to automatically sets the repeater offset for a frequency tuned to in VFO according to a set band plan as shown in the operating manual for the radio.

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

Beep - Enables / disables the beeper for:

Key - The beeper sounds when a key is pressed.

Key + Scan - The beeper sounds when you press a key or when the scanner stops on an active frequency.

Off - Disables the beeper.

Bell - Set the CTCSS/DCS/EPCS bell ringer repetition.

Busy Carrier Lockout - Enable / disable the ability to prevent transmission when the frequency is busy.

DCS Reverse (Inversion) - Engage use of the DCS Code Inversion function of the

radio. This functionality is described in detail in the [DCS Code Inversion](#) section of the Help.

Dimmer - Set the brightness of the front panel display.

Lock - Select the combination of radio functions that are locked when the lock function is engaged from the face of the radio. Combinations control front panel keys, the tuning dial, and the PTT switch. To engage the lock, press and hold the orange button next to the power switch on the face of the radio until the lock symbol appears on the radio's display.

Memory Write Mode - Designate how the radio will select the memory channel to be programmed when saving channel details from the radios face. Options include:

Next - the radio suggests the "next" available channel (i.e., if you have entered 1-10, 11 is the next even if 6 is empty).

Lower - the radio suggests the "lowest" available channel (i.e., if you have programmed 1-10 with 6 empty, 6 will be suggested when you next save.)

Mic Gain - Adjust the mic gain for optimum performance.

Priority Revert - Enable / disable the Priority Revert Mode or Dual Watch functionality. This function is explained in more detail in the [Priority Channel Scanning](#) section of this Help.

Programmable Keys (P1 Key / P2 Key / P3 Key / P4 Key) - Change the function assigned to the microphone keys to many from the Set Menu.

RF Squelch - Adjust the RF squelch threshold level for receive signals. The RF Squelch function allows you to set the squelch so that only signals exceeding a certain S-meter level will open the squelch. Select Off, S1 through S9, or S9+. With a higher setting, only strong signals will be received. The default is Off.

Scan Mode - Select what part of the memory channels will be included when scanning. Options include:

All Scan - The radio sweeps all memory channels.

Tag 1 - The radio sweeps only those memory channels with the same "first" digit of the alpha/numeric tag as that in the channel on which scanning started (i.e., you start on a channel with a name of Local. Scanning will include the channels with names of Local, Lubck, Lead, Lvstn, LaG, etc., and omit all others).

Note: The radio will display MS Error if no other channel match the scan criteria.

Tag 2 - The radio sweeps only those memory channels with the same first and second digits of the alpha/numeric tag as that in the channel on which scanning started (i.e., from the example above, if you start on Local, none of the others of that list would be included since the second letter does not match).

Note: The radio will display MS Error when no other channels match the scan criteria.

Scan Resume - Selects the Scan Resume mode. Available values are Busy, Time, 3/5/10 Seconds as described below. The default is Busy.

3/5/10 Sec - The scanner stops when a signal is received then resumes after the designated time even if the signal is still present. You can choose these time independently.

Busy - The scanner will hold until the signal disappears, then will resume when the carrier drops.

Time - The scanner will hold for the five seconds, then resume whether or not the other station is still transmitting.

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.

Split Tone - Engage additional Tone Mode combinations for advanced functionality with subaudible tones. This option does not have to be set when using these advanced Tone Modes in the Programmer. D-Code, T-DCS and D-Tone are always

available as Tone Modes in that selection on the main page of the program.

Temperature - Display temperature in Fahrenheit or Celsius.

Time Out Timer - Set the maximum time of continuous transmission after which the radio is forced back into receive mode. Available values are 1, 3, 5 and 10 minutes and Off. The default is 3 minutes.

Tone Search - Set the speed of this search to Fast or Slow.

Tone Search Mute - Enable / disable the receive audio output during Tone Search activity.

VFO Scan Width - Set to scan the band (All) or a set bandwidth (1, 2, or 5 MHz)

Weather Alert Beep - Set the volume for this alert to normal or max.

Weather Alert - Enable / 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.

15.2 Radio Menu Settings - Misc. Settings

This screen contains other Set Menu options that can be set from the Programmer.

ARTS - These options along with general information about the ARTS functionality, are described in detail in the [Auto Range Transponder System](#) section of this Help.

CW Training - Set the options for Morse Code training.

Words or Characters - Set the units of the code speed to Words per minute or Characters per minute.

Speed - Set the speed

Mode - Select the character set to be heard.

Open Message - Control the message that appears on the screen of the radio when it is first powered on. Set Display to:

DC Voltage - The voltage of the supply available to the radio is displayed.

Message - The user defined message entered in the Characters field is displayed.

Off - No opening message is displayed.

Pager - These settings along with details about this functionality are included in the [Enhanced Paging and Coded Squelch](#) section of this Help.

Password - Enter up to 4 characters for the password. Check to enable this feature.

Note: *The feature cannot be enabled unless characters are entered. Once a character is entered, the Enable checkbox will become available. The Enable checkbox will be unchecked and no longer available if the characters are removed from the Password field.*

Weather Channels - These fields control details for the 10 preprogrammed NOAA channels.

Sel - Set the Weather Channel to be used during Weather Alert operations.

Name - Enter an alpha/numeric string to identify the channel.

Skip - Set the scanning preference for the weather channels.

15.3 Radio Menu Settings - DTMF / Internet

Entering DTMF Details

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 are provided, allowing you to store telephone numbers for autopatch use. You can also store short autopatch or Internet-link access code streams so as to avoid having to send them manually.

DTMF Settings - Personalize the DTMF Autodialer settings with your personal operations. The options to be set include:

Autodialer - Set to Manual or Auto.

Manual - The radio transmits DTMF tones corresponding to the keys of the microphone when the PTT is pressed and the mic key is pressed.

Auto - The radio transmits pre-programmed DTMF tones when the PTT is pressed and a key is selected from the mic. Once transmission begins it will continue until the entire programmed sequence has been sent even if you release the PTT.

Channel - Default DTMF programmed channel.

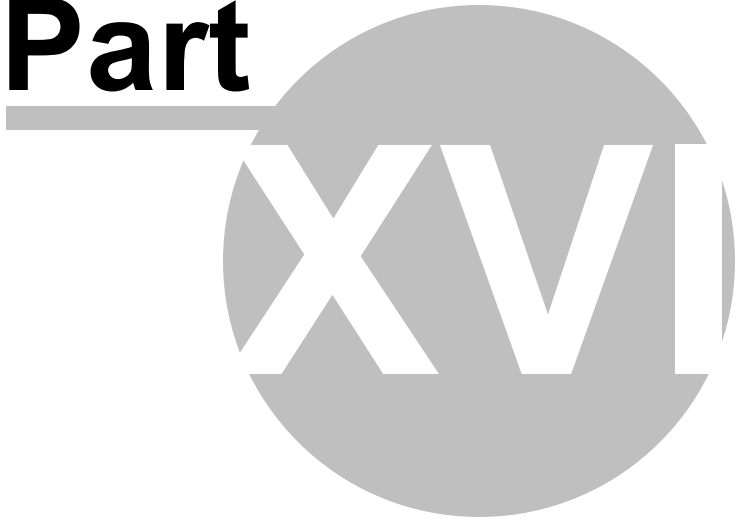
Delay - Set the delay time between keying the mic and transmission of the first DTMF tone.

Speed - Set the speed at which the DTMF digits are sent.

Wires

The radio can be used to access the WIRES Internet system. See [Internet/WIRES Settings](#) of this Help for details of this functionality and the option settings.

Part



16 Computer to Radio 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.

[Comport Setup](#) - The *RT Systems'* Version 4 Programmer does not have comport setup. The program finds the USB cable automatically. This section contains some troubleshooting details that you might find helpful.

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.

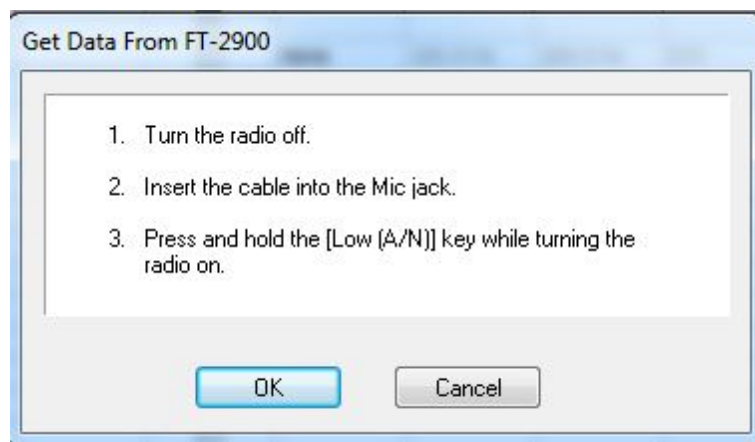
The Get Data From process (reading the radio)

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. Let go of the button once the transfer begins. There is no need to hold it during the entire process.

A transfer status bar is displayed on the computer to let you know that the computer is receiving the data being sent from the radio. If the "blue bar" does not appear and fill, cancel the process and try again.

Note: If the "blue 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.

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.

Other details for general troubleshooting can be found in the **Troubleshooting** section of this Help.

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

16.2 Communications | Send Data To

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,

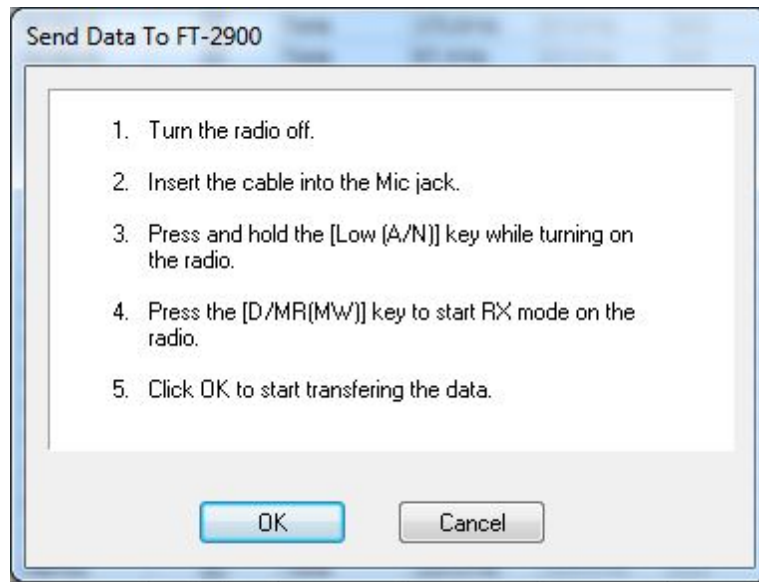
- Check the Radio Menu Settings. (Settings | Radio Menu Settings)
- Make changes to the settings as needed.
- Save the settings file.
- Do Communications | Send Data To with the same memory channel file.

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.



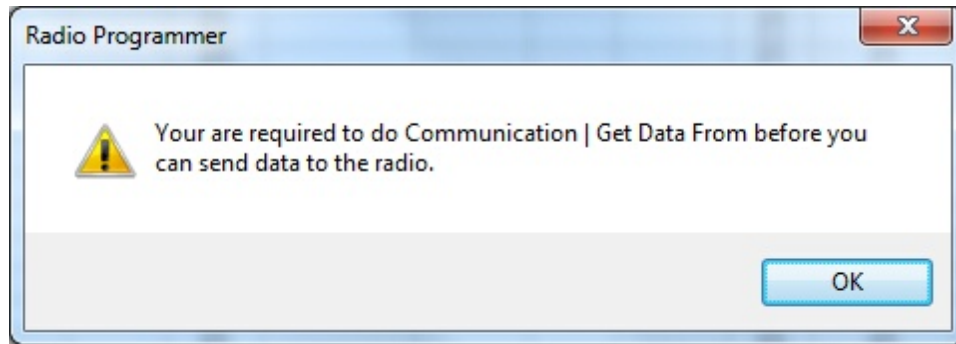
Follow the steps on this screen. When you click OK, a progress bar appears letting you know that the process is being completed.

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 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 **send a file to the radio**.

When the Get Data From process is used, even if the radio is not yet programmed, the

Programmer gets the data about the radio's modification.

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 operating 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.

More troubleshooting details can be found in the **Troubleshooting** section of this Help.

If necessary, contact **RT Systems** for assistance.

16.3 Radio to Computer Cabling

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

The USB-29F cable is needed to attach the radio to the computer for programming.

This cable is easily identified by its green color, the USB connection with "RT Systems" on the hood at the computer end, and the 6-pin modular plug at the radio end.

This cable is provide in the ADMS-2900 kit.

The Version 4 Programmer will work only with the RT Systems USB-29F. No other USB cable or USB adapter with the serial cable will work with the Version 4 software.



16.4 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:



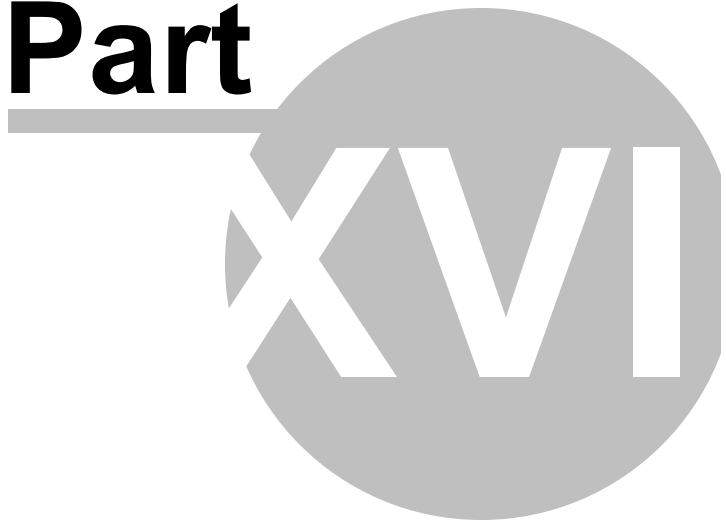
The only cable configurations that work with the Version 4 *RT Systems'* Programmers are

- The *RT Systems'* USB cable; or
- The *RT Systems'* original serial cable connected to the computer via the RTS-03 USB to serial adapter.

Be sure to give the computer enough time to do its internal setup once the cable is attached. On some machines this can take up to a minute (a long time in computer time). Once the cable is ready for use, the program will continue into the steps for transferring data between the radio and the computer.

Follow the steps carefully. They are unique to each radio and different for the same radio for Get Data From or Send Data To.

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.

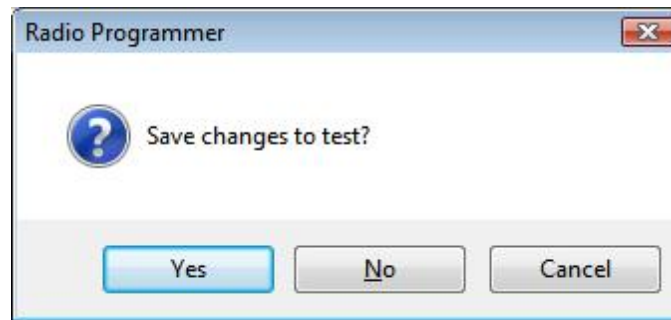
Files 1-4 - Up to four files that you last worked in and saved.

[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)

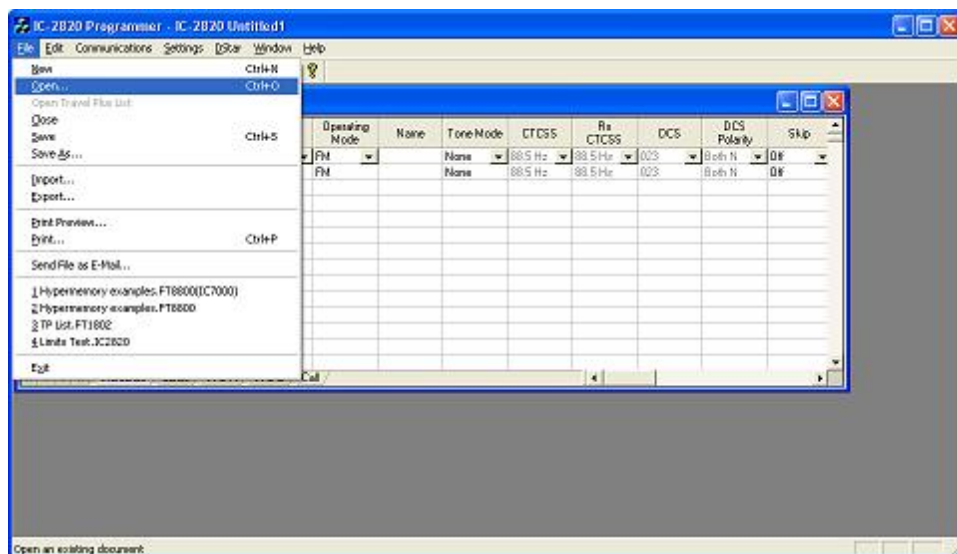
The Version 3 or higher programmers can open a file created with an original RT Systems' ADMS or WCS programmer for the same radio.

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.

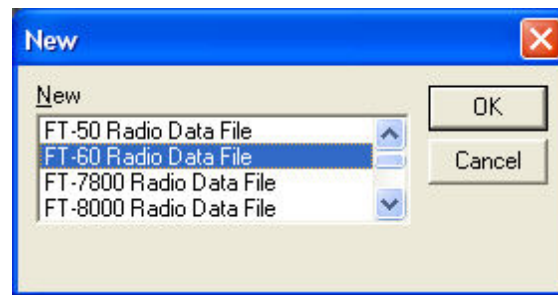
Directory selections may vary on your system depending on your choices in the original programmer. This example is designed based on defaults from the original programmers.

To open an existing file from the original programmer:

- In the V3 Programmer, select File | Open.



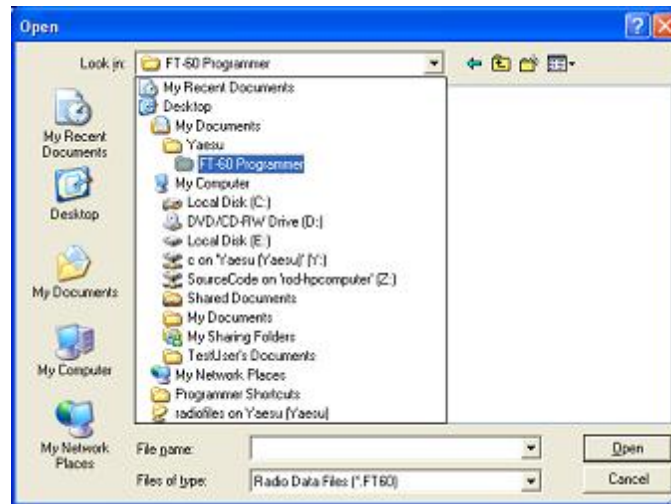
- If you have several Version 3 programmers installed, you will need to select FT-60 Radio Data File from the list in box that opens next. This step is omitted if only one programmer is installed.



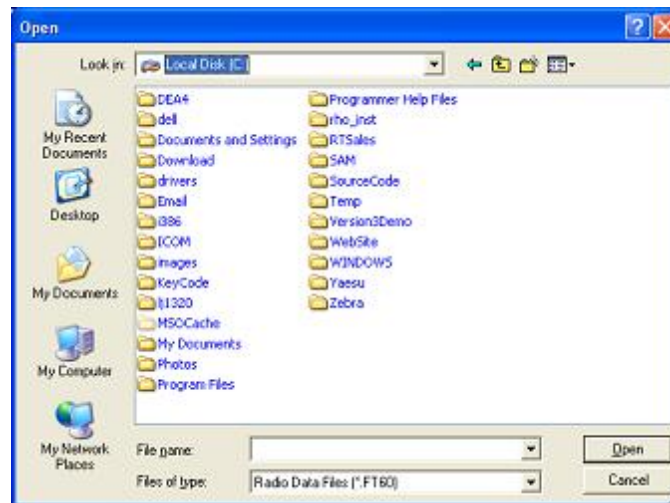
- An Open Dialog appears



- 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.



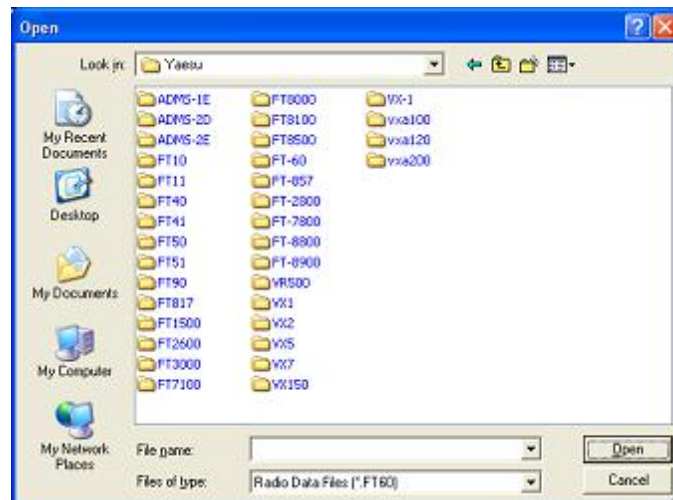
- Use your mouse to left click on Local Disk (C) in the list. On your machine this wording can vary a little. In general, you're looking for that "(C)" to know you've made the correct selection.



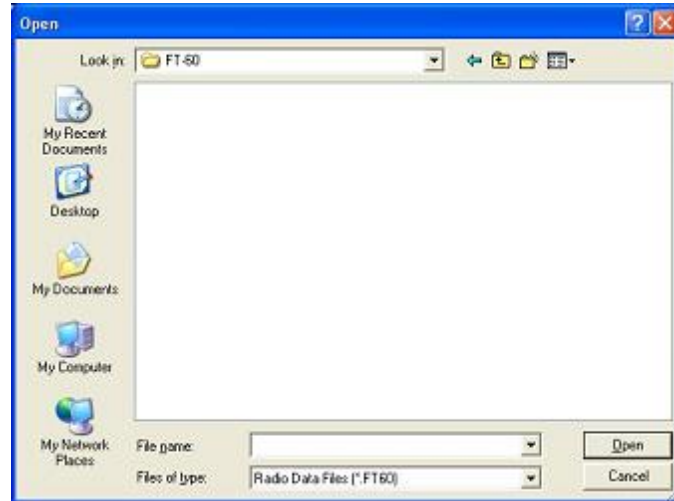
- What you see now are directories (the ones with the little yellow folders) and files. Find the little yellow folder that says Yaesu next to it. Put your mouse on it and Left click. Once Yaesu is highlighted, let go of the mouse button, move the pointer to the Open button, then use your mouse to left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



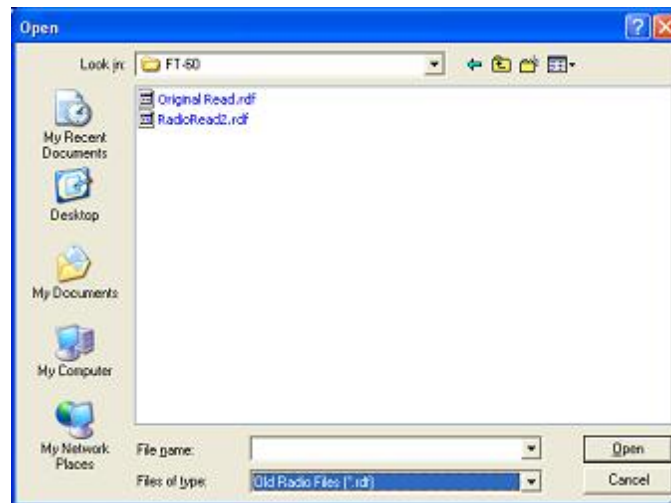
- After clicking Open, the contents of the Yaesu directory appear.



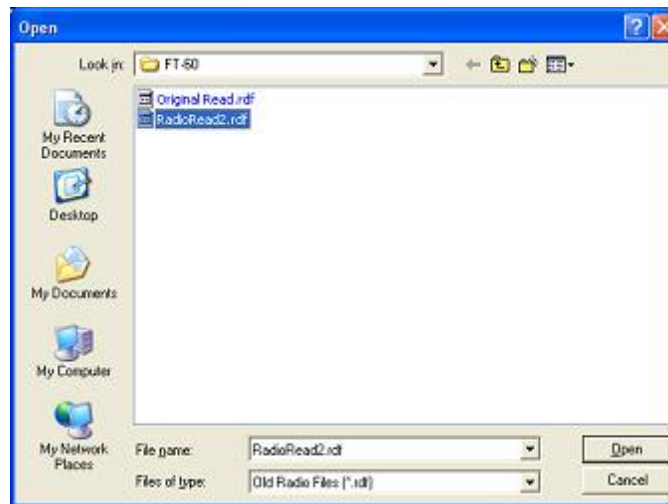
- In this example, there are lots of directories (the ones with the little yellow folders) since all the original programmers were installed on this machine. In your case, there is probably only one directory (little yellow folder). In either case, find the FT-60 directory (the one with the little yellow 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.



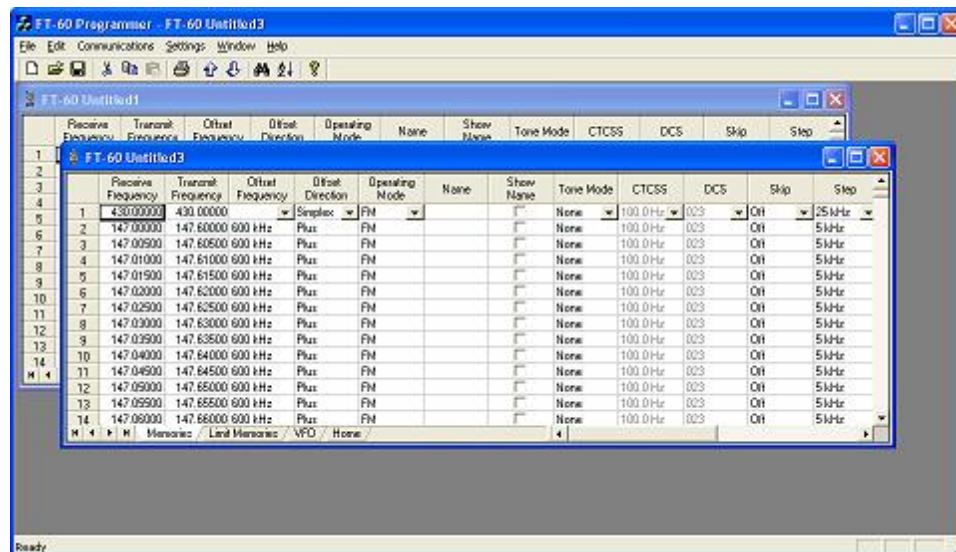
- Yes, a blank screen appears. This is normal. At the bottom of that screen, find the "Files of type" box. Use the left mouse button to click on the down arrow at the right of that box. Select Old Radio Files (*.rdf) from that list. The names of the available files will appear on the screen.



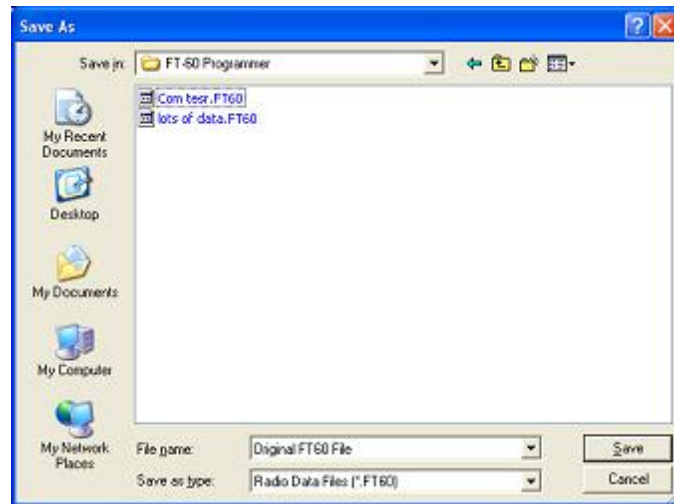
- Use the mouse to point at the name of the file that you want to open. Click the left mouse button once to select that file.



- 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.

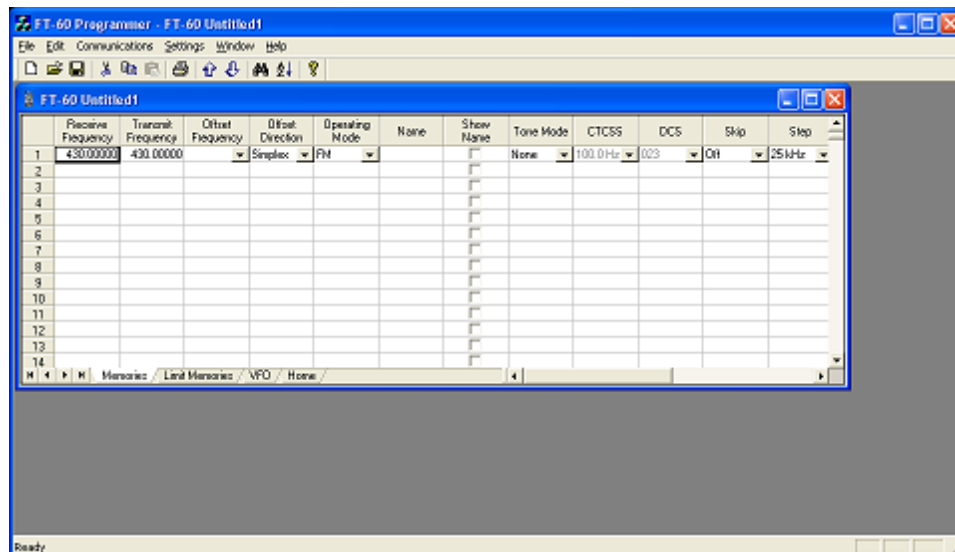
To open a Version 3 file from a different radio:

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.

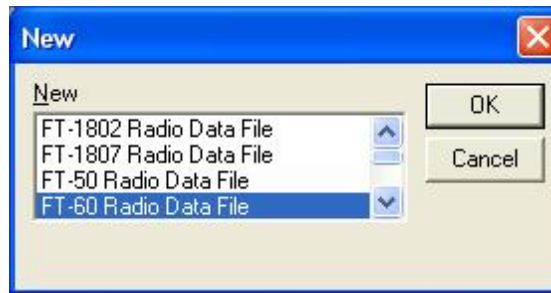
Files that you create in Version 3 can now be shared easily with anyone else who has a Version 3 programmer. Simply post the Version 3 file for anyone to download.

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.



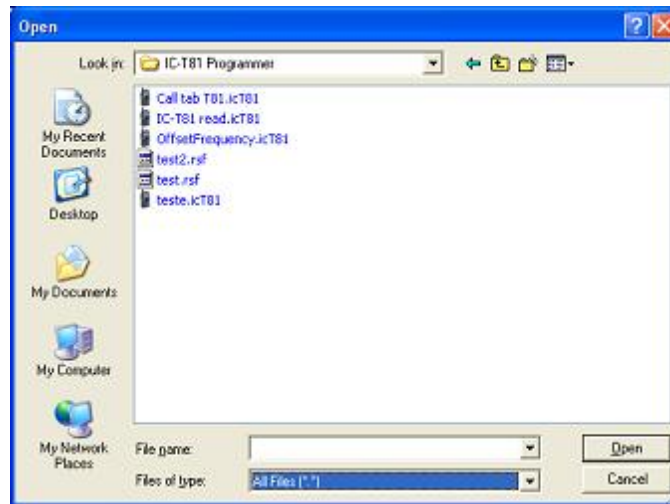
- From the menu at the top of the screen, select File | Open. A box appears from which you select the programmer for the **radio to be programmed (in this case, the FT-60)**.



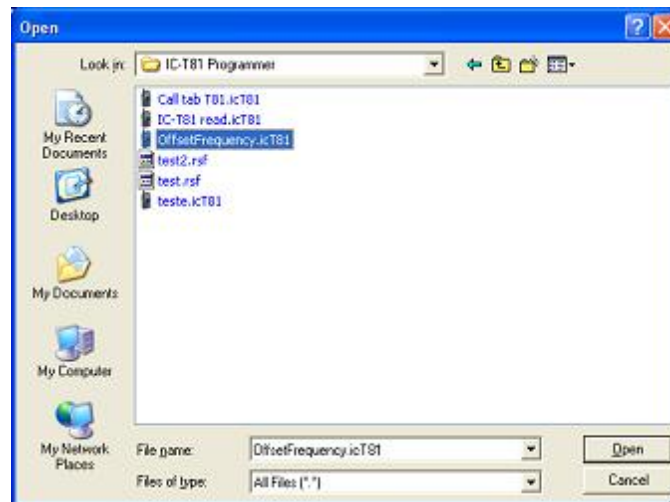
- An Open Dialog box appears. By default it is looking in the FT-60 directory since it is trying to help you find an FT-60 programming file. You will change directories to where the file is stored that you want to open. (Note: If you received the file via e-mail or from an Internet site, you chose where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



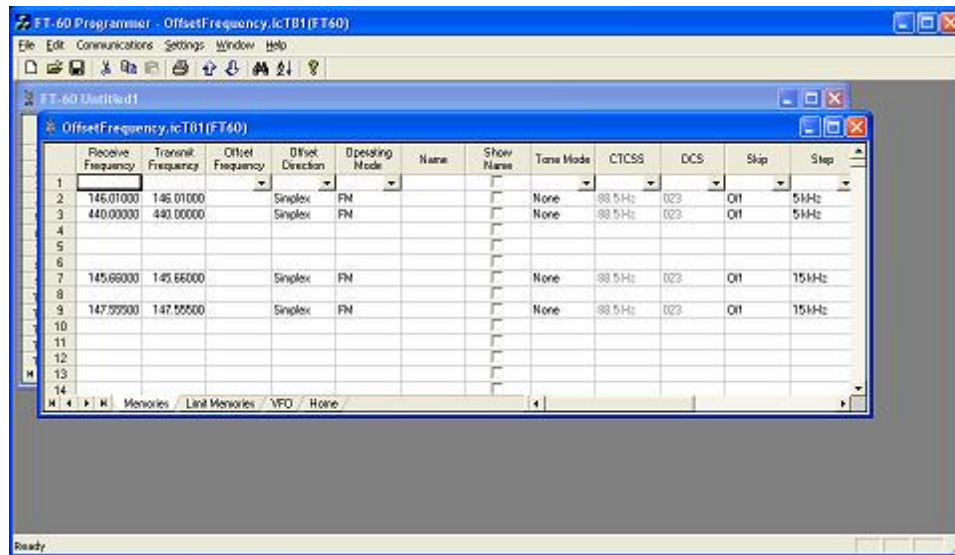
- When the contents of that directory are displayed, it probably will be blank as shown. You have done nothing wrong. This is normal. The process is still looking for an FT-60 file. From the Files of type field at the bottom of the screen (the one highlighted blue in the figure above), select All files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



- 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.

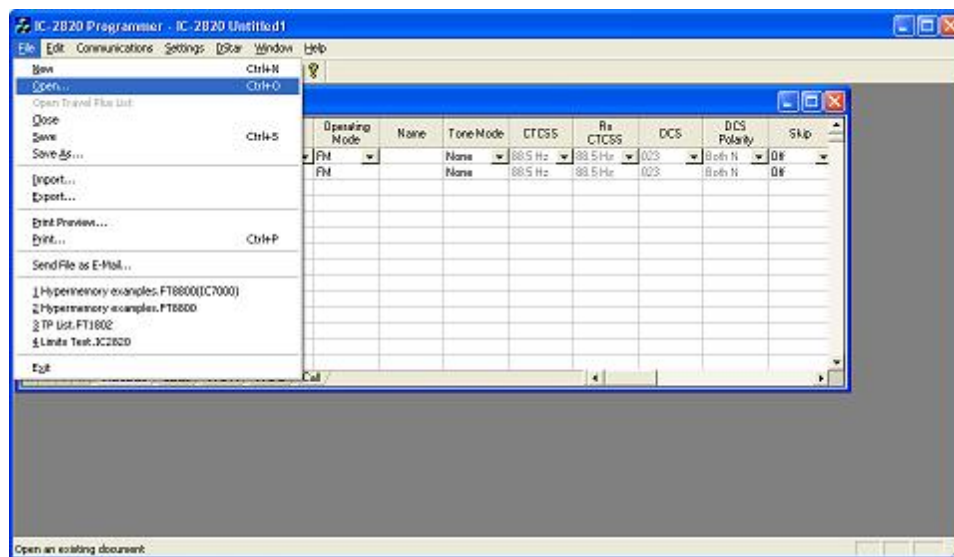
Alternately, you can send this file to the radio just as it is...other than channel 1 needing to be programmed with something allowable for the radio.

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.

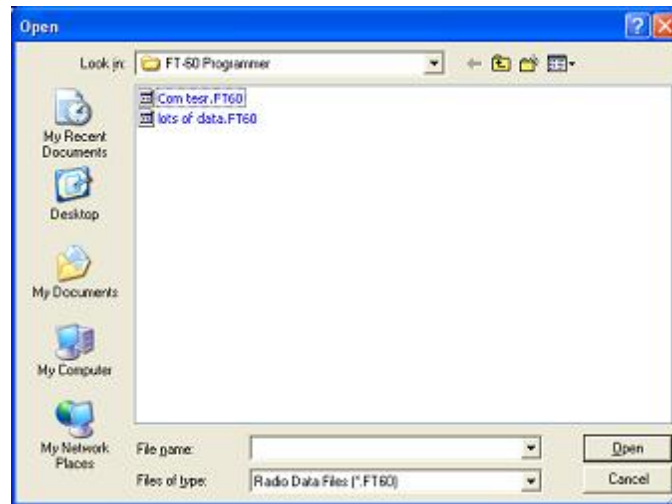
17.3.3 Opening a V3 or V4 file

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.



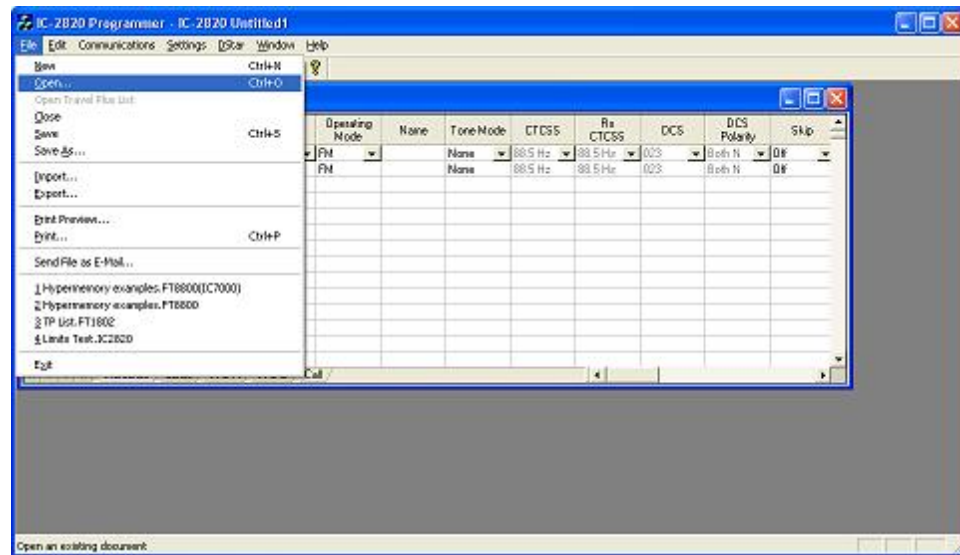
- A Windows Open dialog appears.



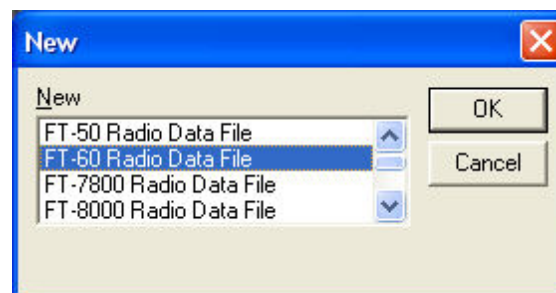
- Select the file that you want to open from the list presented. Click the Open button at the bottom right. This file opens in the programmer.

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

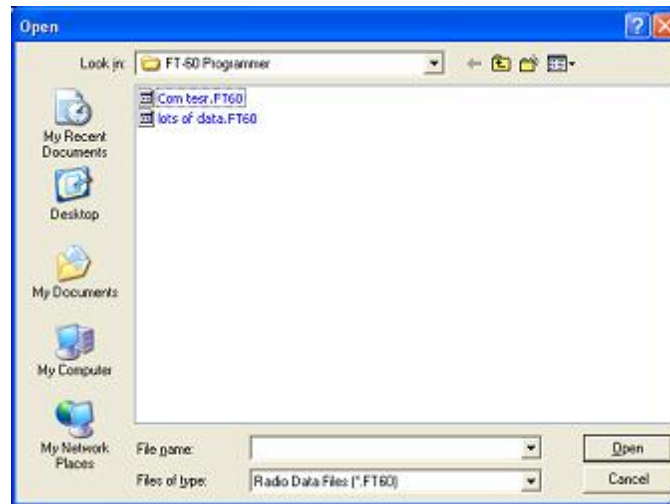
- Select File|Open from the menu at the top of the screen.



- 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 files 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	P1 CTCSS	Skip	Comment
1	146.0100	146.0100		Simple	FM	none	88.5Hz	88.5Hz	Off	
2	145.0000	145.0000		Simple	FM	none	88.5Hz	88.5Hz	Off	
18	145.0000	145.0000		Simple	FM	none	88.5Hz	88.5Hz	Off	
20	145.0050	145.0050		Simple	FM	none	88.5Hz	88.5Hz	Off	
21	145.0100	145.0100		Simple	FM	none	88.5Hz	88.5Hz	Off	
22	145.0150	145.0150		Simple	FM	none	88.5Hz	88.5Hz	Off	
23	145.0200	145.0200		Simple	FM	none	88.5Hz	88.5Hz	Off	
24	145.0250	145.0250		Simple	FM	none	88.5Hz	88.5Hz	Off	
25	145.0300	145.0300		Simple	FM	none	88.5Hz	88.5Hz	Off	
26	145.0350	145.0350		Simple	FM	none	88.5Hz	88.5Hz	Off	
27	145.0400	145.0400		Simple	FM	none	88.5Hz	88.5Hz	Off	
28	145.0450	145.0450		Simple	FM	none	88.5Hz	88.5Hz	Off	
29	145.0500	145.0500		Simple	FM	none	88.5Hz	88.5Hz	Off	
30	145.0550	145.0550		Simple	FM	none	88.5Hz	88.5Hz	Off	
31	145.0600	145.0600		Simple	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.

The screenshot shows the 'IC-T7 Programmer - IC-T7 Untitled1' window. At the top, there are navigation buttons: 'Next', 'Previous', 'Zoom', 'Print', and 'Setup'. The status bar indicates 'Page 1 of 1'. The main area contains a table with the following columns: 'Source Program', 'Target Program', 'Offset Program', 'Offset Division', 'Starting Mode', 'Start Mode', 'IC220', 'IC220', 'Date', and 'Comment'. The table contains 15 rows of data, each with a unique source and target program name, an offset of 00000, a starting mode of 'Normal', and a start mode of 'Normal'. The 'Comment' column is currently empty for all entries.

Source Program	Target Program	Offset Program	Offset Division	Starting Mode	Start Mode	IC220	IC220	Date	Comment
100.0000	100.0000	00000	Normal	Normal	Normal	Normal	Normal		
100.0001	100.0001	00000	Normal	Normal	Normal	Normal	Normal		
100.0002	100.0002	00000	Normal	Normal	Normal	Normal	Normal		
100.0003	100.0003	00000	Normal	Normal	Normal	Normal	Normal		
100.0004	100.0004	00000	Normal	Normal	Normal	Normal	Normal		
100.0005	100.0005	00000	Normal	Normal	Normal	Normal	Normal		
100.0006	100.0006	00000	Normal	Normal	Normal	Normal	Normal		
100.0007	100.0007	00000	Normal	Normal	Normal	Normal	Normal		
100.0008	100.0008	00000	Normal	Normal	Normal	Normal	Normal		
100.0009	100.0009	00000	Normal	Normal	Normal	Normal	Normal		
100.0010	100.0010	00000	Normal	Normal	Normal	Normal	Normal		
100.0011	100.0011	00000	Normal	Normal	Normal	Normal	Normal		
100.0012	100.0012	00000	Normal	Normal	Normal	Normal	Normal		
100.0013	100.0013	00000	Normal	Normal	Normal	Normal	Normal		
100.0014	100.0014	00000	Normal	Normal	Normal	Normal	Normal		
100.0015	100.0015	00000	Normal	Normal	Normal	Normal	Normal		

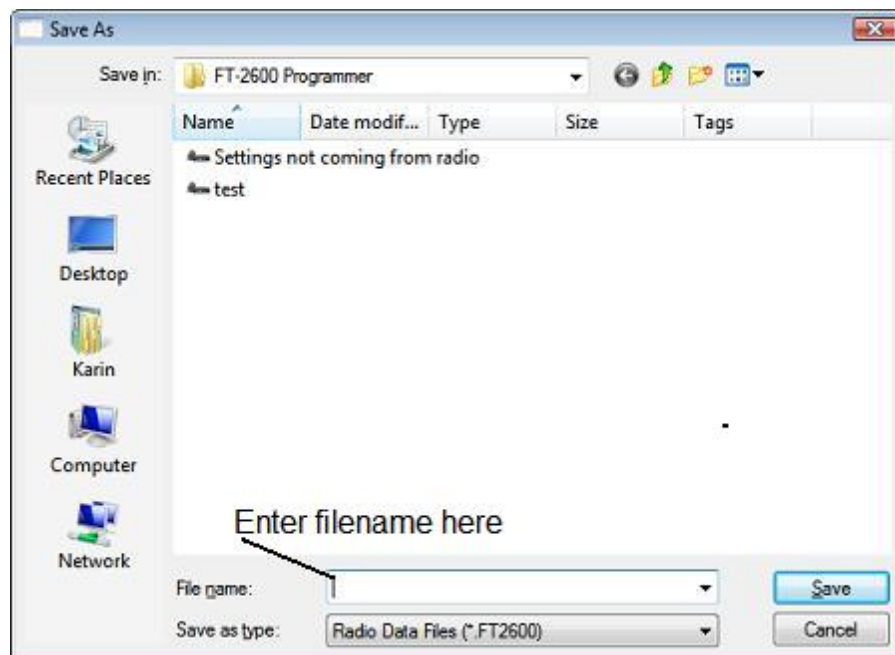
Under Printer setup, change the margins to print on as much of each page of paper as possible. Again, this can make it possible for all the columns to fit on one (or half the number of) page.

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.



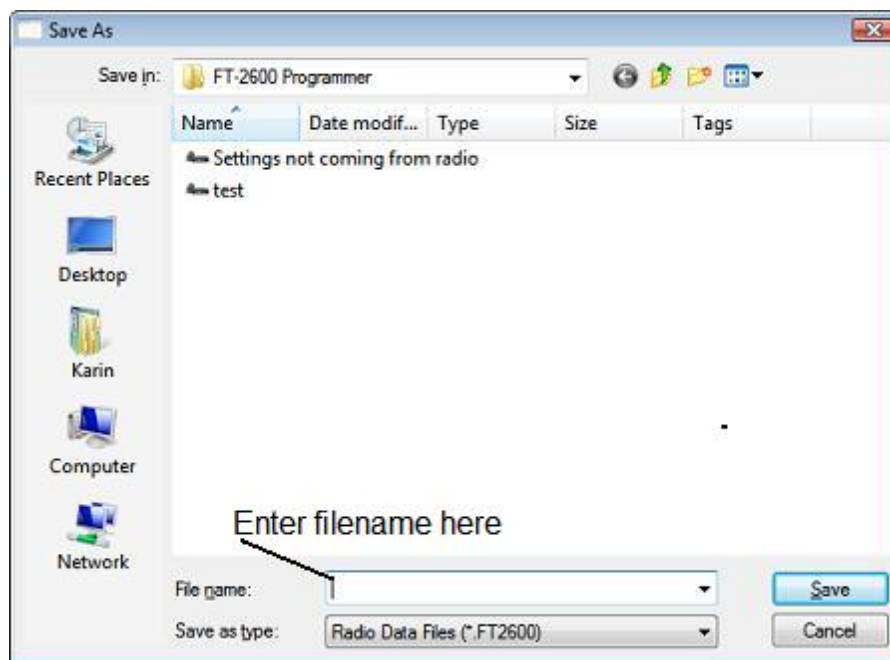
17.6.1 File | Save

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.



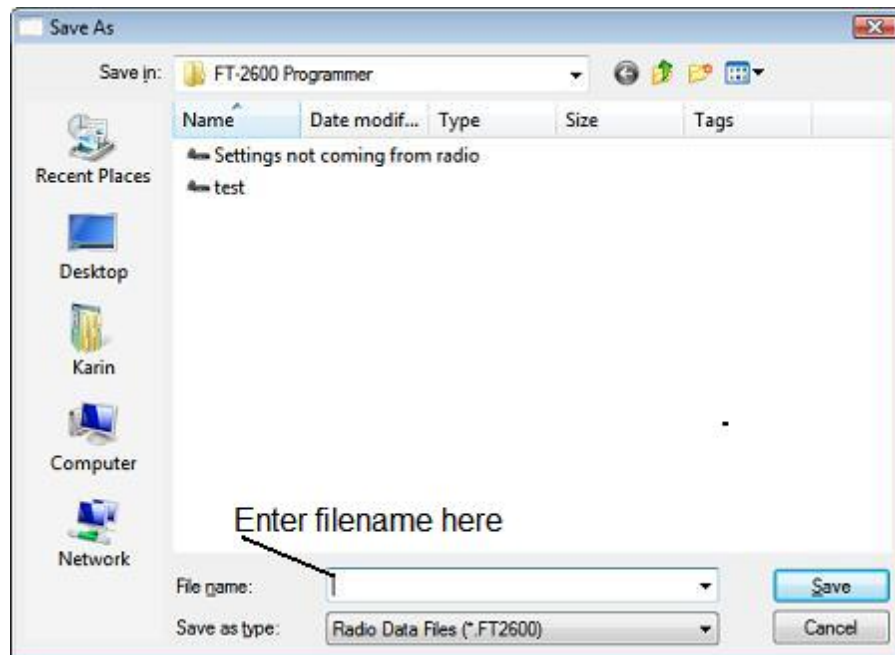
The filename can be any combination of characters and spaces including numbers and letters.

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.

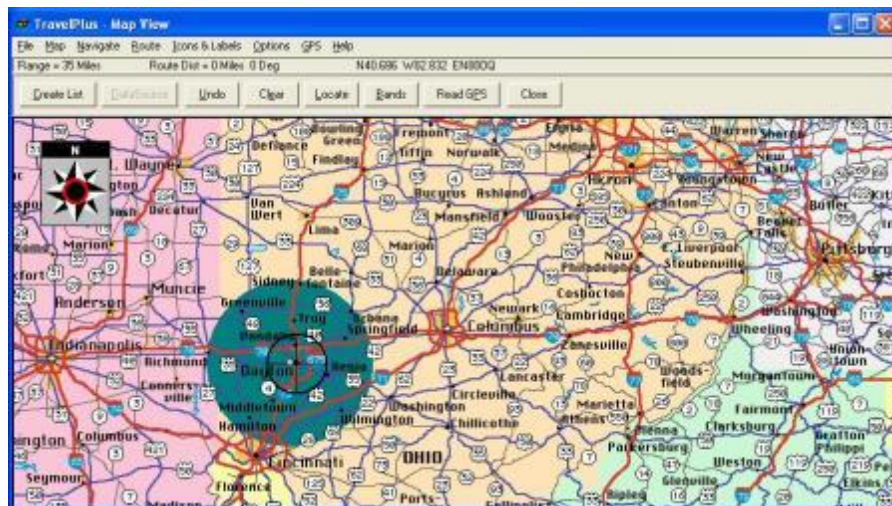
*TravelPlus is a product of the American Amateur Radio League.
Any images from TravelPlus included in this help are copyrighted to DHF Systems, LLC.

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 Sp. 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	Sp
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	o 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.

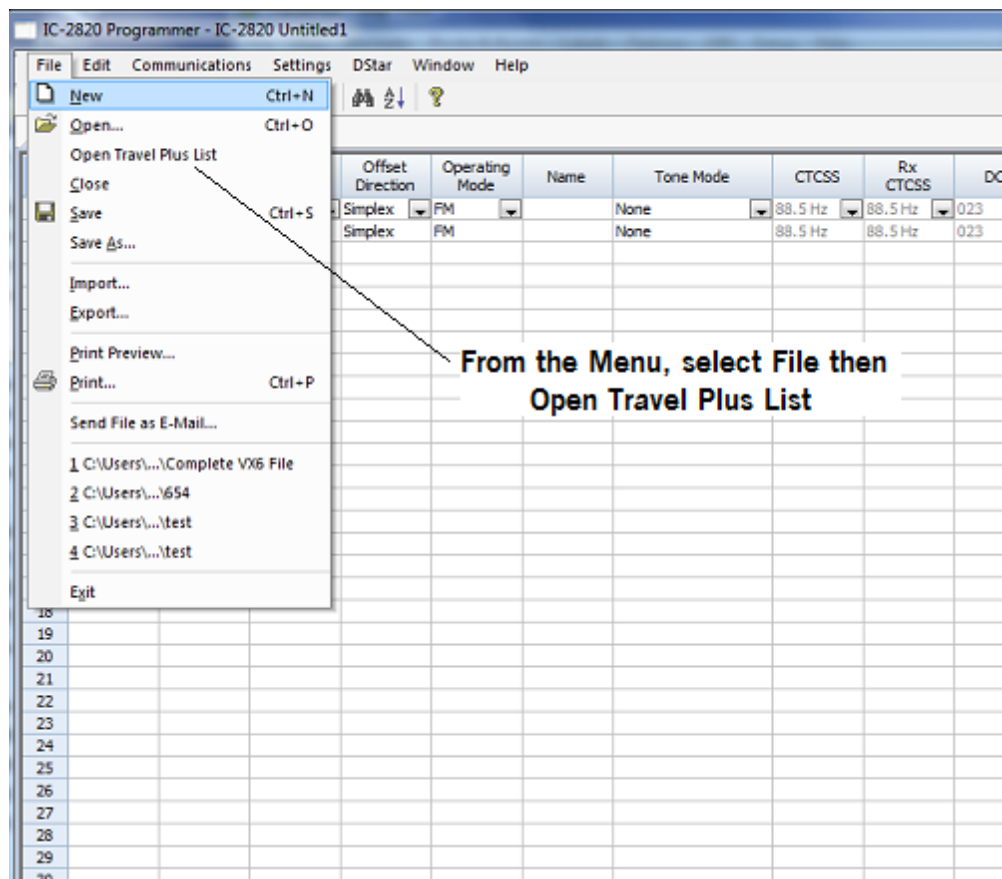
Any images from TravelPlus included in this help are copyrighted to DHF Systems, LLC.

18.2 Opening the list in the Programmer

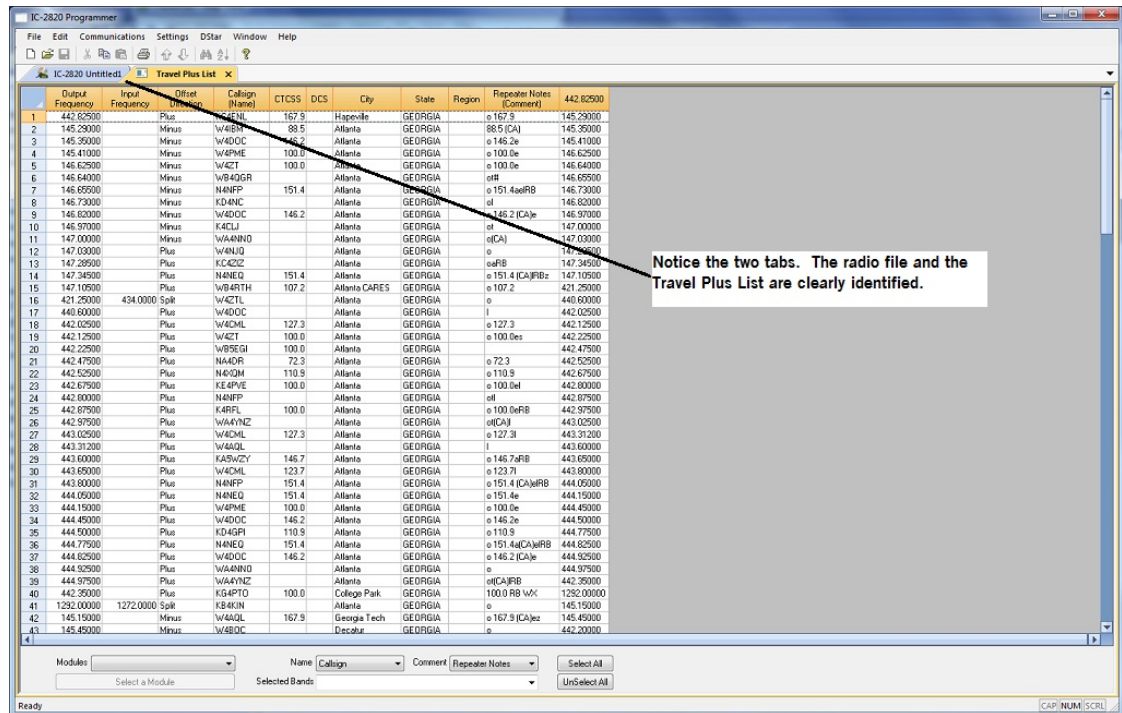
Once you have created a list in TravelPlus* (Version 10.0 or higher), open any one of the Version 4 programmers installed on your machine.

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.)

The screenshot shows the IC-2820 Programmer software window. The main area is a table with columns: Output Frequency, Input Frequency, Offset Direction, Callign (Name), C1255, DCS, City, State, Program, and Repeat/Notes (Comments). The table contains 432 rows of data. A callout box with the text "Options to customize details for radio file located on this screen." points to the 'Name' column. At the bottom of the window, there are controls for 'Module', 'Name', 'Callign', 'Common', 'Repeat/Notes', and 'Select All'.

Output Frequency	Input Frequency	Offset Direction	Callign (Name)	C1255	DCS	City	State	Program	Repeat/Notes (Comments)	442.0000
1 442.2500	Plus	V435L	367.3	Haywards	GEORGEA	e 117.3	146.2500			
2 146.2000	Minus	V435M	98.5	Atlanta	GEORGEA	80.5(CA)	146.2000			
3 146.7000	Minus	V435C	146.2	Atlanta	GEORGEA	e 146.2e	146.7000			
4 146.4100	Minus	V435E	700.0	Atlanta	GEORGEA	e 100.0e	146.4100			
5 146.4500	Minus	V435T	700.0	Atlanta	GEORGEA	e 100.0e	146.4500			
6 146.4300	Minus	V435G	700.0	Atlanta	GEORGEA	e 100.0e	146.4300			
7 146.4500	Minus	N435P	151.4	Atlanta	GEORGEA	e 151.4e	146.4500			
8 146.7000	Minus	F435C	146.2	Atlanta	GEORGEA	e	146.7000			
9 146.4300	Minus	V435C	146.2	Atlanta	GEORGEA	e 146.2(CA)	146.4300			
10 146.7000	Minus	F435J		Atlanta	GEORGEA	e	146.7000			
11 147.0000	Plus	V435H		Atlanta	GEORGEA	e	147.0000			
12 147.0000	Plus	V435Q		Atlanta	GEORGEA	e	147.0000			
13 147.2000	Plus	V435C		Atlanta	GEORGEA	e	147.2000			
14 147.3500	Plus	N435D	151.4	Atlanta	GEORGEA	e 151.4(CA)	147.3500			
15 147.5500	Plus	V435H	700.2	Atlanta	GEORGEA	e 100.2	147.5500			
16 442.2000	434.0000	Plus	V435L		Atlanta	GEORGEA	e	442.2000		
17 440.4000	Plus	V435C		Atlanta	GEORGEA	e	440.4000			
18 442.4500	Plus	V435M	137.3	Atlanta	GEORGEA	e 137.3	442.4500			
19 442.2500	Plus	V435T	700.0	Atlanta	GEORGEA	e 100.0e	442.2500			
20 442.2500	Plus	V435G	700.0	Atlanta	GEORGEA	e 100.0e	442.2500			
21 442.4500	Plus	N435D	72.3	Atlanta	GEORGEA	e 72.3	442.4500			
22 442.2500	Plus	N435M	119.9	Atlanta	GEORGEA	e 119.9	442.2500			
23 442.4500	Plus	F435E	700.0	Atlanta	GEORGEA	e 100.0e	442.4500			
24 442.8000	Plus	N435P	700.0	Atlanta	GEORGEA	e	442.8000			
25 442.4500	Plus	F435L	700.0	Atlanta	GEORGEA	e 100.0e	442.4500			
26 442.3500	Plus	V435N		Atlanta	GEORGEA	e	442.3500			
27 442.4500	Plus	V435M	137.3	Atlanta	GEORGEA	e 137.3	442.4500			
28 442.3100	Plus	V435L		Atlanta	GEORGEA	e	442.3100			
29 440.4000	Plus	N435Z	146.7	Atlanta	GEORGEA	e 146.7e	440.4000			
30 442.4500	Plus	V435M	137.3	Atlanta	GEORGEA	e 137.3	442.4500			
31 442.8000	Plus	N435P	151.4	Atlanta	GEORGEA	e 151.4(CA)	442.8000			
32 442.8000	Plus	N435D	151.4	Atlanta	GEORGEA	e 151.4e	442.8000			
33 444.7000	Plus	V435E	700.0	Atlanta	GEORGEA	e 100.0e	444.7000			
34 444.4000	Plus	V435C	146.2	Atlanta	GEORGEA	e 146.2e	444.4000			
35 444.9000	Plus	F435P	119.9	Atlanta	GEORGEA	e 119.9	444.9000			
36 444.7500	Plus	N435D	151.4	Atlanta	GEORGEA	e 151.4(CA)	444.7500			
37 444.4500	Plus	V435C	146.2	Atlanta	GEORGEA	e 146.2(CA)	444.4500			
38 444.7000	Plus	V435H		Atlanta	GEORGEA	e	444.7000			
39 444.3500	Plus	V435N		Atlanta	GEORGEA	e	444.3500			
40 442.7000	Plus	F435T	700.0	College Park	GEORGEA	700.0 FB w/c	442.7000			
41 1252.0000	1272.0000	Plus	F435P		Atlanta	GEORGEA	e	1252.0000		
42 146.7000	Minus	V435L	167.9	Swainsboro	GEORGEA	e 167.9(CA)	146.7000			
43 146.4000	Minus	V435C		Dacula	GEORGEA	e	146.4000			

- **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"

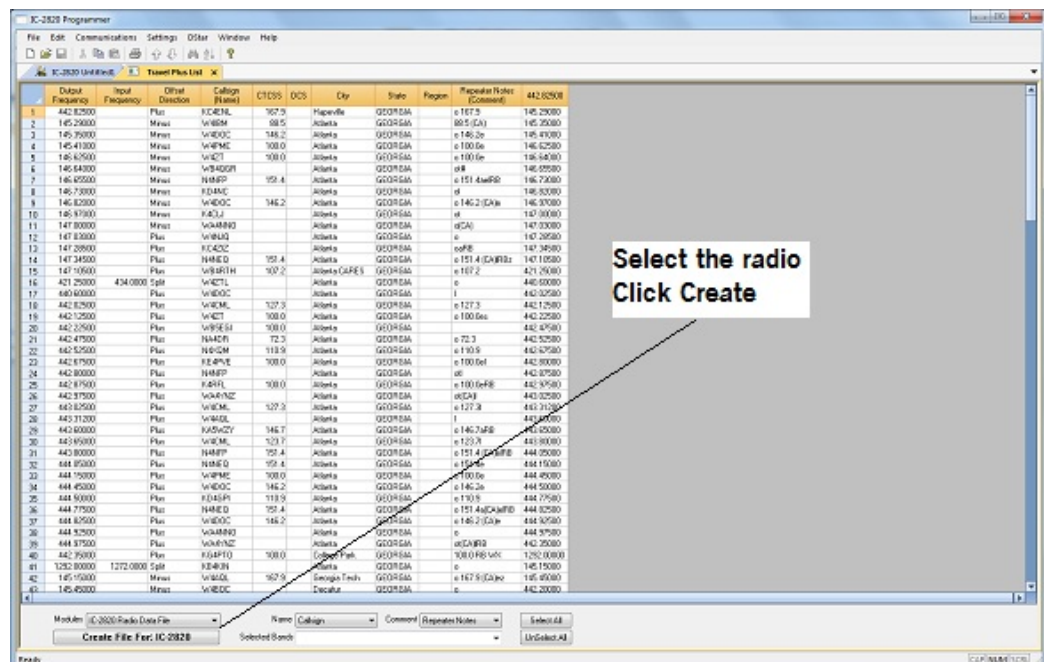
directly to a column in the radio programmer. One of the columns in the programmer accept data from these columns is the Comment field.

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 Receiver Frequency, Transmitter Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Tone Mode, CTCSS, Rx CTCSS, DCS, DCS Polarity, Skp, Step, Digital Squelch, Digital Code, Four Callign, Rot-1 Callign, Rot-2 Callign, Bank, and Bank Channel. The table lists various frequencies and call signs, such as 442.3200, 442.3250, 442.3300, etc., with corresponding call signs like W4R00, W4R01, W4R02, etc.

The file is ready to be sent to the radio.

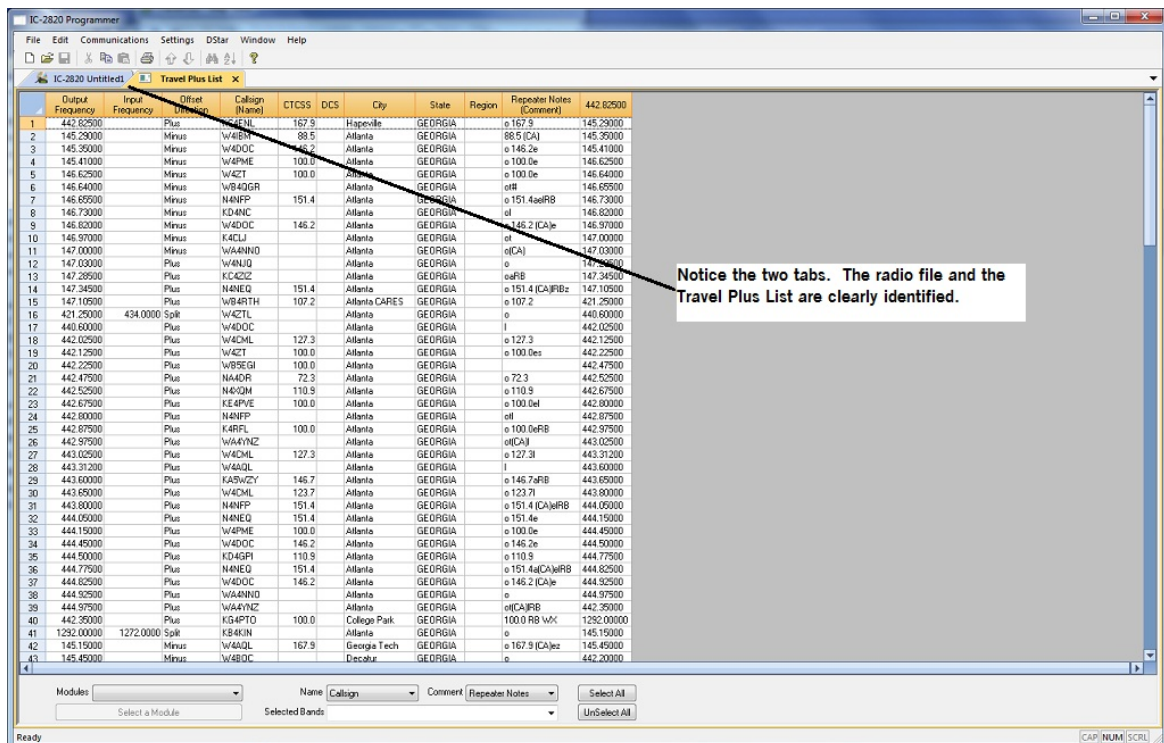
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18.3 Using the TravelPlus* List with existing programmer file

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.

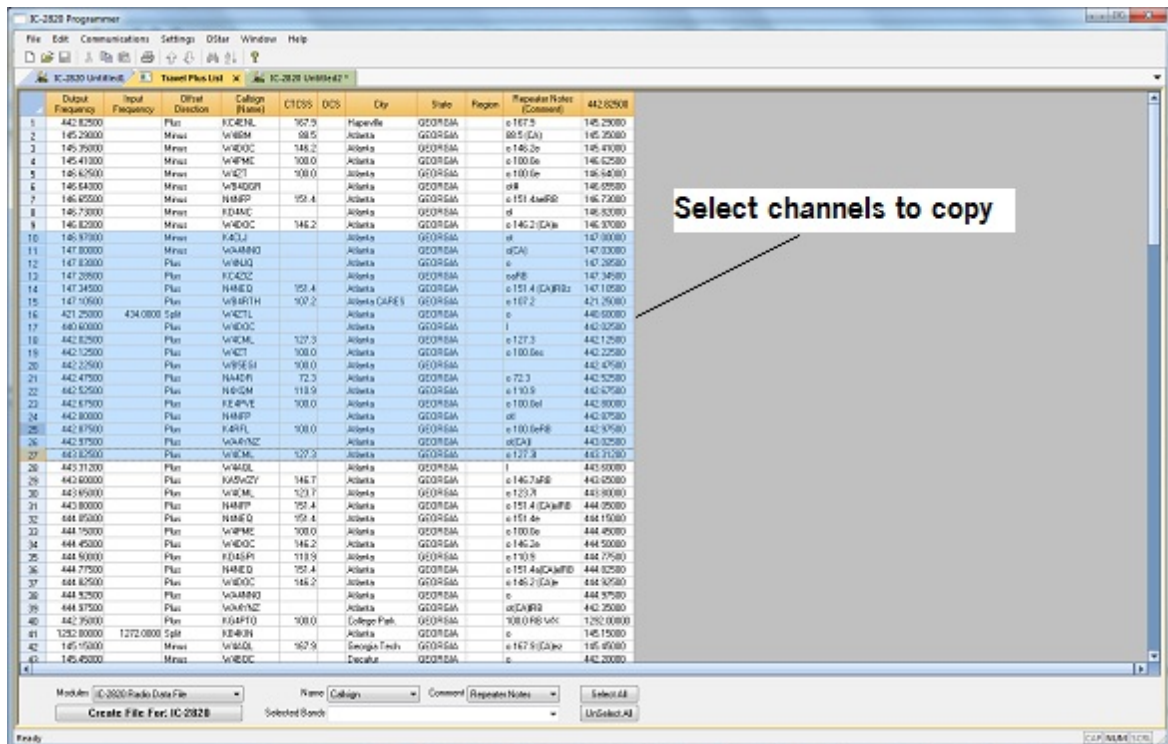


- Select a group of channels.

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	002	South N	Off	5 kHz	Off		000000				
440.0800	440.0800		Simplex	FM	None	None	88.5 Hz	88.5 Hz	003	South N	Off	5 kHz	Off		000000				
146.0700	146.0700	600 kHz	+	DUP	FM	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off						
247.0200	246.4000	600 kHz	-	DUP	FM	W4PHD	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
347.0300	347.6500	600 kHz	+	DUP	FM	W4EDJ	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
347.2850	347.8850	600 kHz	+	DUP	FM	W4ATZ	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
347.3450	347.9450	600 kHz	+	DUP	FM	W4WBJ	Tone	151.4 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
347.3850	347.9850	600 kHz	+	DUP	FM	W4RTH	Tone	107.2 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
421.2500	424.0500	2.75 MHz	+	DUP	FM	W4TFL	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.4800	448.6800	5.00 MHz	+	DUP	FM	W4EDC	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.0250	447.0250	5.00 MHz	+	DUP	FM	W4NML	Tone	127.3 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.1850	447.1850	5.00 MHz	+	DUP	FM	W4TFT	Tone	100.0 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.2250	447.2250	5.00 MHz	+	DUP	FM	W4BGI	Tone	100.0 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.4750	447.4750	5.00 MHz	+	DUP	FM	W4NDR	Tone	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.5250	447.5250	5.00 MHz	+	DUP	FM	W4RGN	Tone	135.8 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.6750	447.6750	5.00 MHz	+	DUP	FM	W4PHE	Tone	100.0 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.8800	447.8800	5.00 MHz	+	DUP	FM	W4PFP	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.8750	447.8750	5.00 MHz	+	DUP	FM	W4BFL	Tone	100.0 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.9750	447.9750	5.00 MHz	+	DUP	FM	W4PHZ	None	88.5 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000
440.0250	448.0250	5.00 MHz	+	DUP	FM	W4NML	Tone	127.3 Hz	88.5 Hz	002	South N	Off	5 kHz	Off					0000

- 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.

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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.

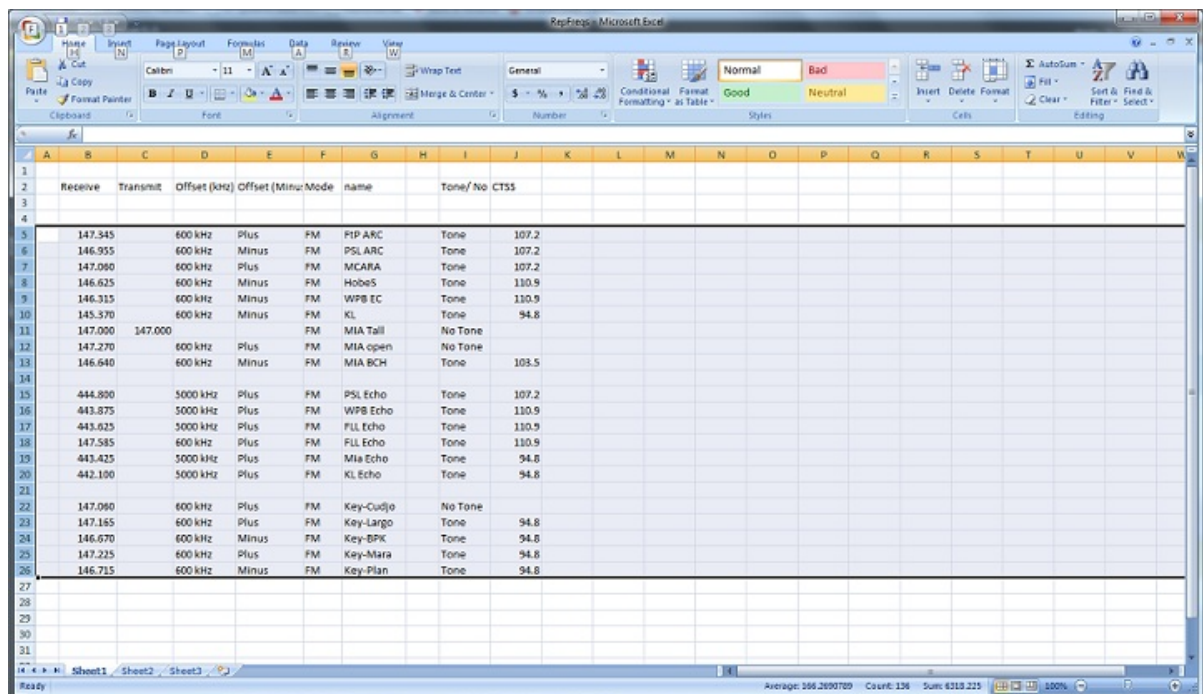
Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.

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:

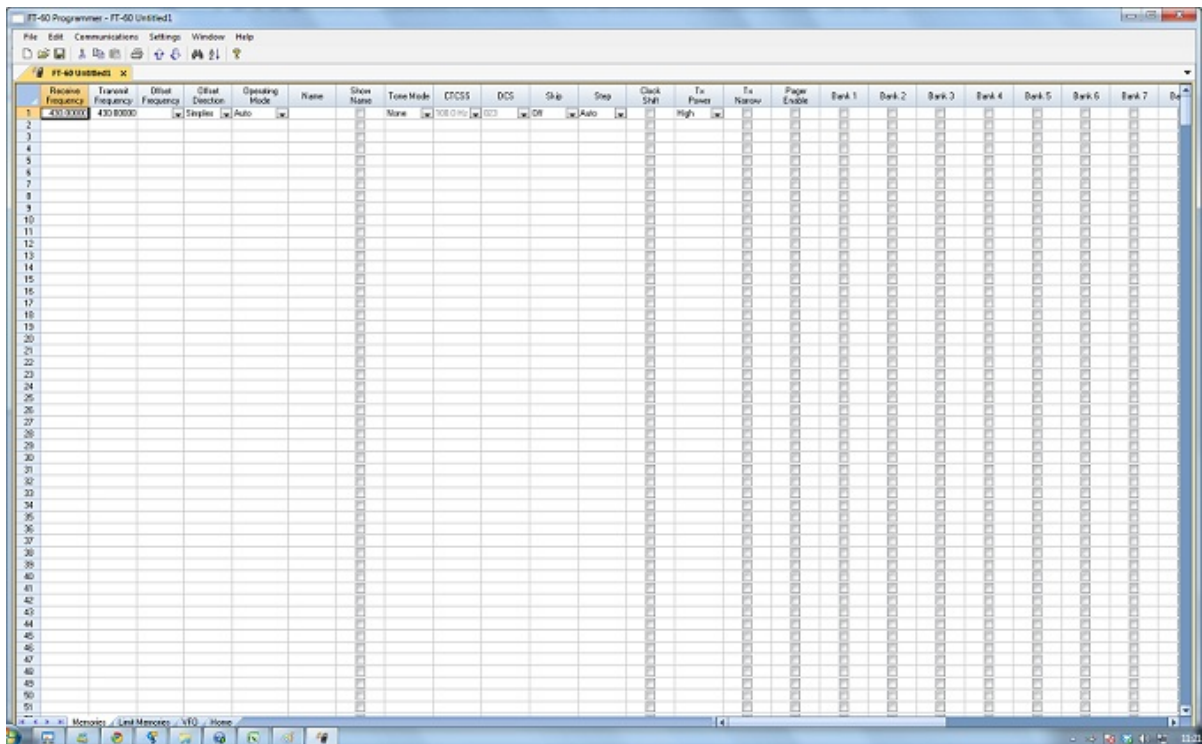
	Receive	Transmit	Offset (kHz)	Offset (Minu)	Mode	name	Tone/ No	CTSS
5	147.945		600 kHz	Plus	FM	FIP ARC	Tone	107.2
6	146.955		600 kHz	Minus	FM	PSL ARC	Tone	107.2
7	147.060		600 kHz	Plus	FM	MCARA	Tone	107.2
8	146.625		600 kHz	Minus	FM	Hobas	Tone	110.9
9	146.315		600 kHz	Minus	FM	WPB EC	Tone	110.9
10	145.370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

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.

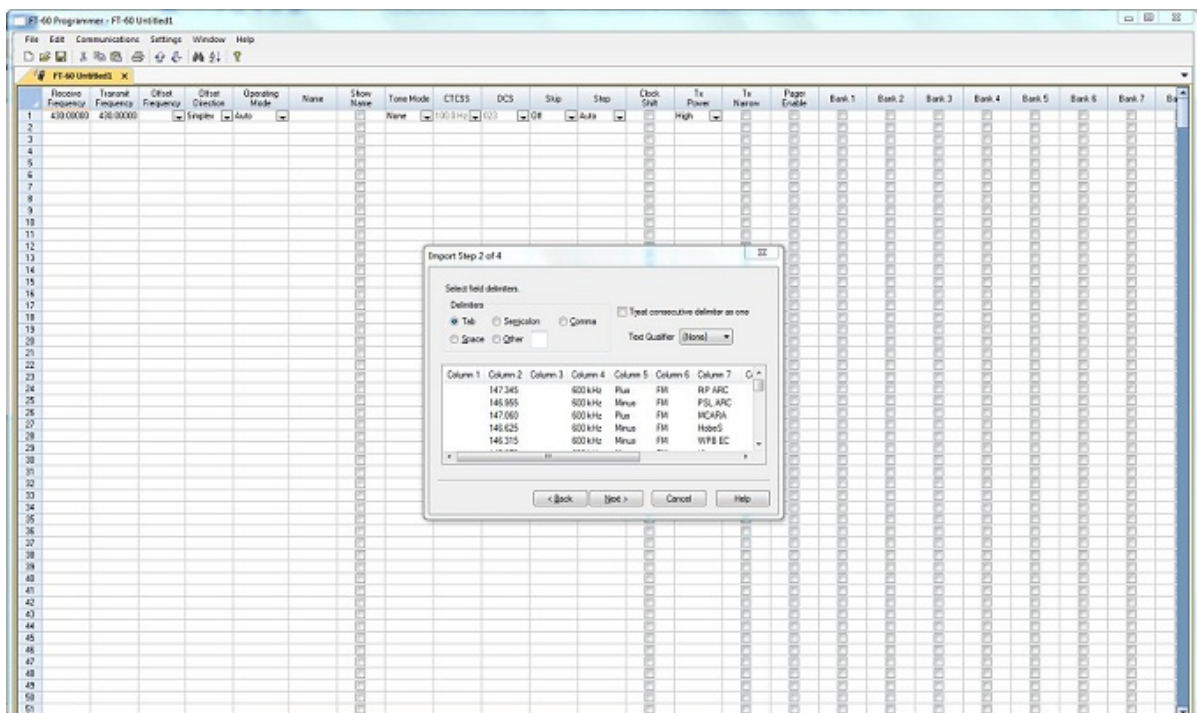
Note: The FT-60 is used here as an example. The process works the same for any RT Systems Version 4 programmer although column names may differ or not be available.



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.

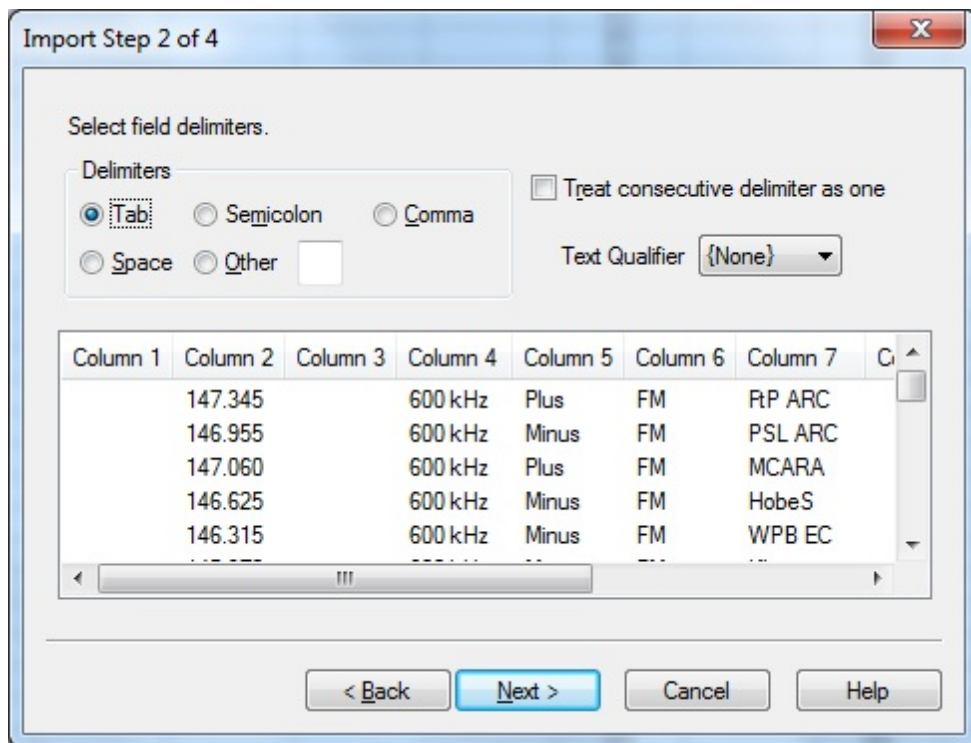
A window opens to complete the process.



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.

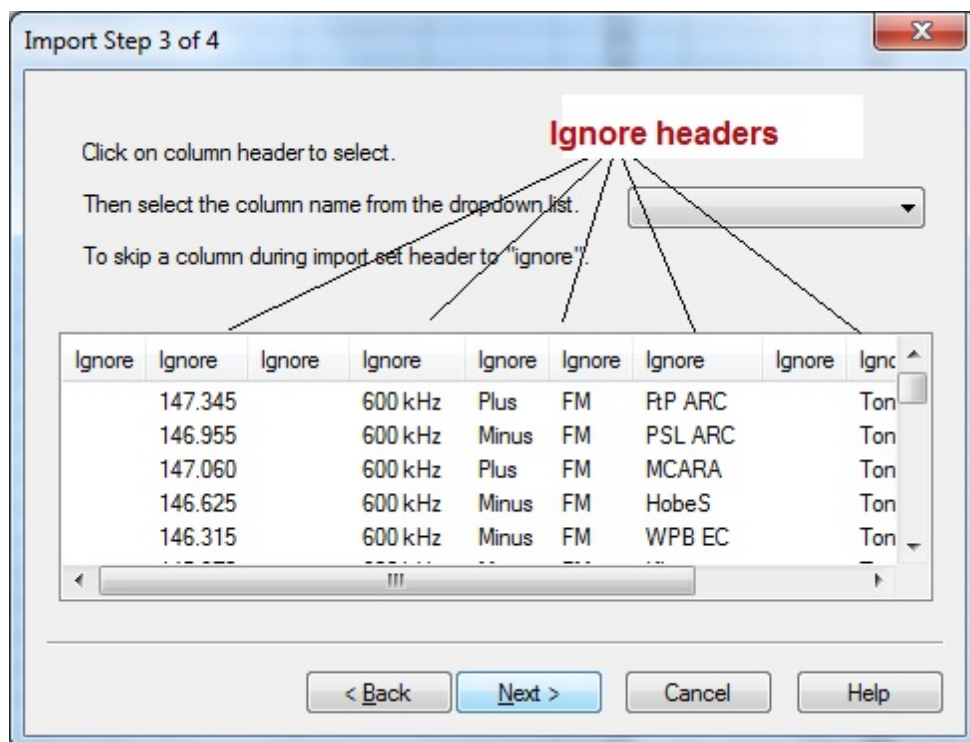


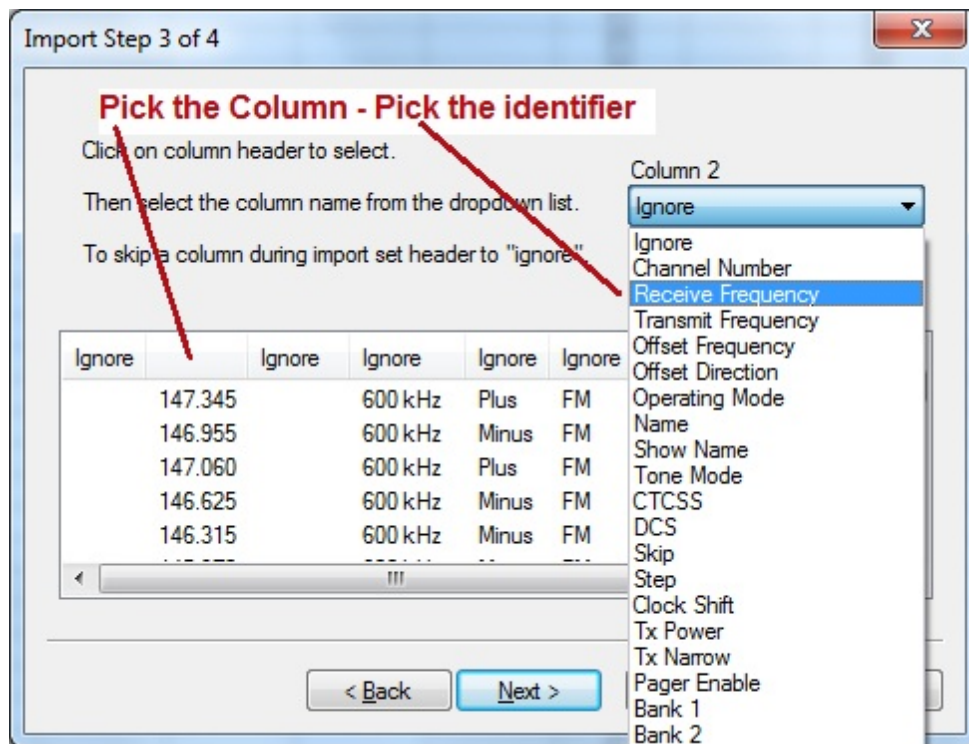
Click Next to continue.

19.5 Step 5

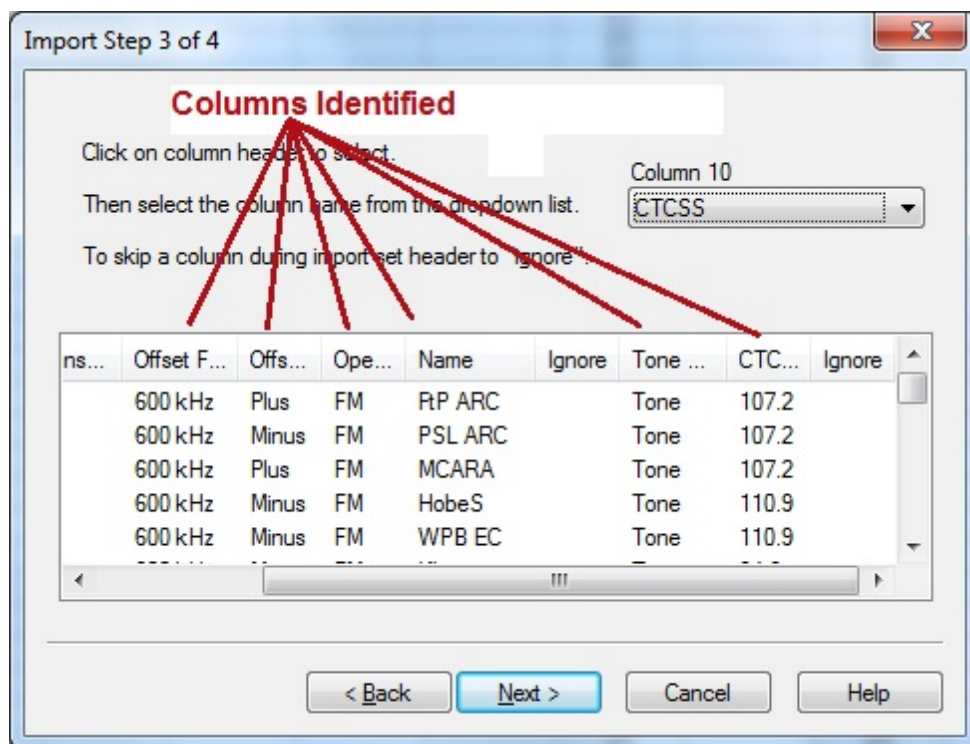
In this step of the process, you identify the information in your spreadsheet for the programmer. The programmer attempts to identify the columns based on the headers that you have for the columns.

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.





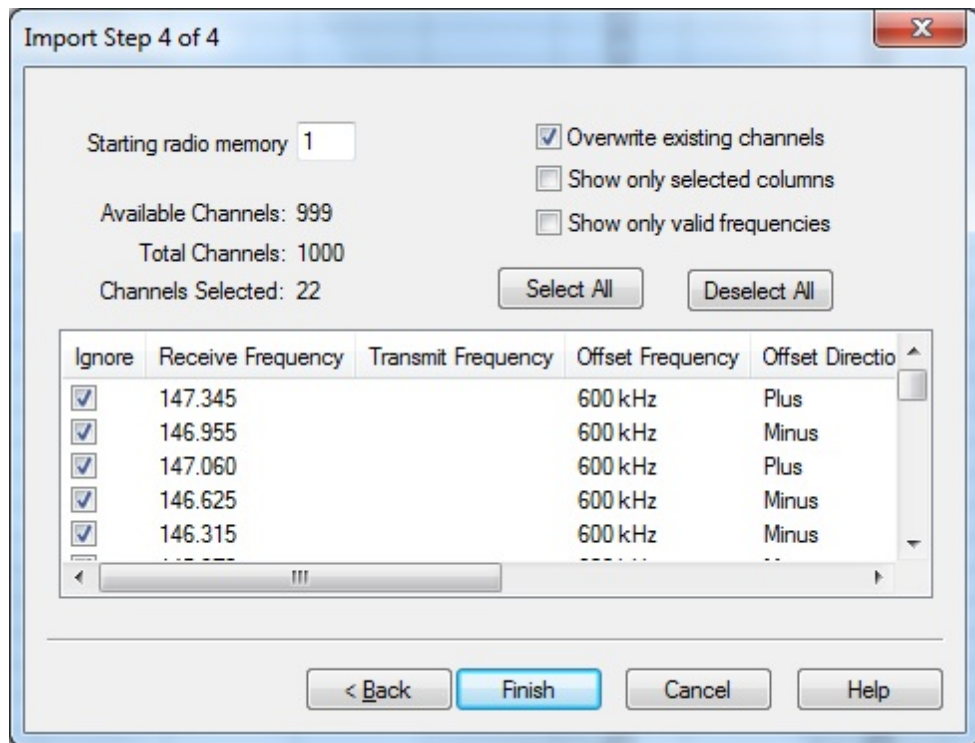
The column header changes to show your selection. Be sure to identify each of the columns you want used. The data in an "ignored" column will be set to defaults in the resulting file. Your specifics will not be used.



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.

FT-60 Programmer - OffsetFrequency.icT81(FT60)

File Edit Communications Settings Window Help

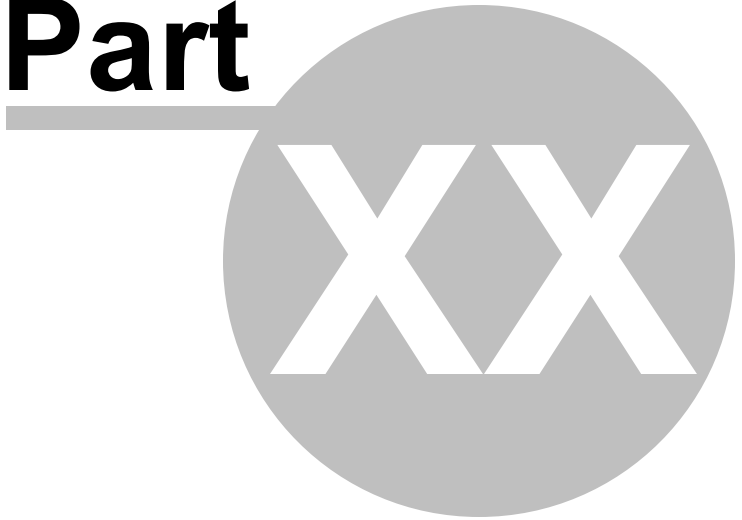
FT-60 Unlabeled1

OffsetFrequency.icT81(FT60)

	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												

Ready

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 &endash; 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.

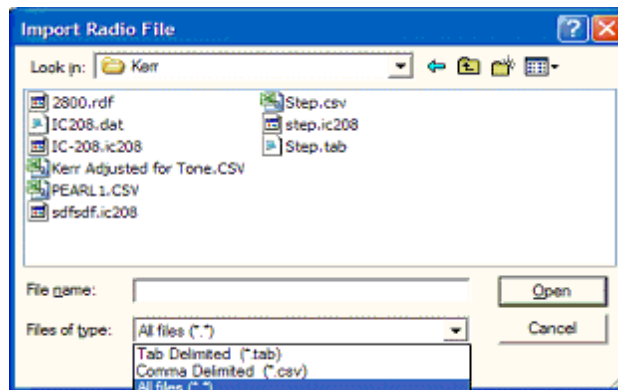
Working in a new file eliminates the possibility that existing data will be overwritten and lost during the import process. From there use the tools available in the programmer (copy and paste, column editing, sort and unsort, etc) to get the data just as you want it.

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.

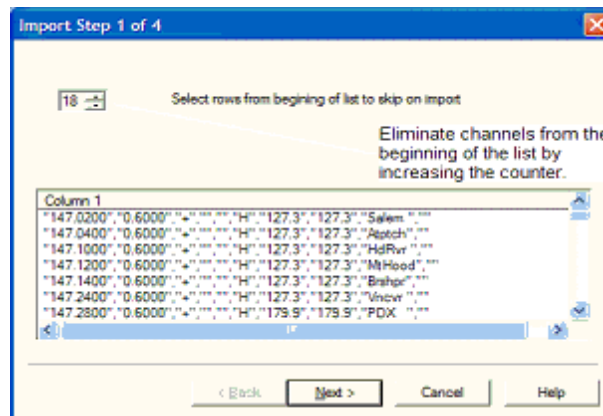


This screen gives you the ability to find and open the file to be imported.

- 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.

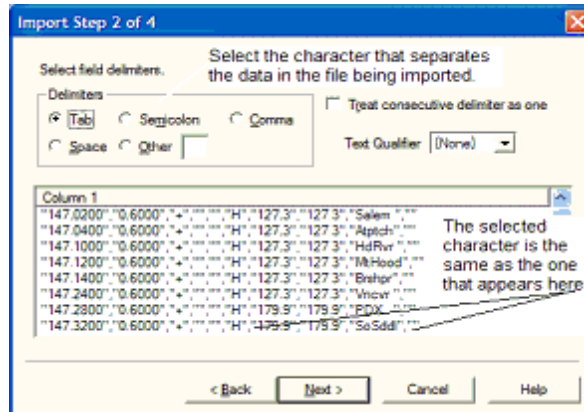
Actually, it is recommended that you leave the headers to help you more easily identify the information in a later step.

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.

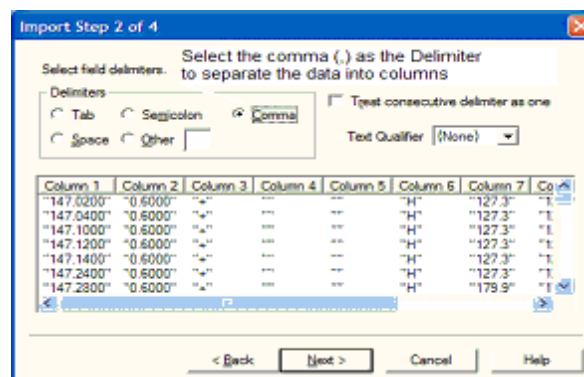
20.3 Import - Step 2

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



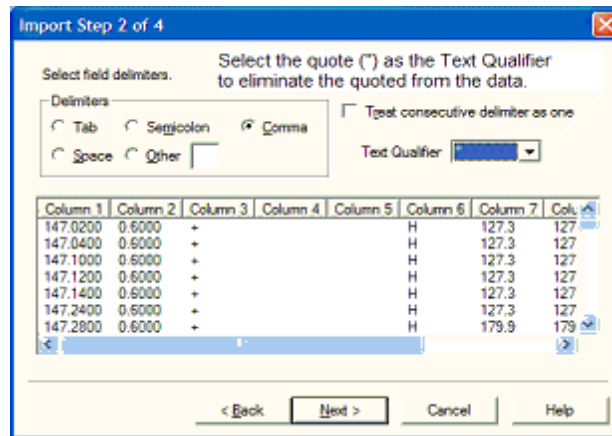
The data in the file to be imported is separated by tabs, semicolons, commas, space or other non-text characters. Select from the list at the top of the screen or enter the one you used.

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.

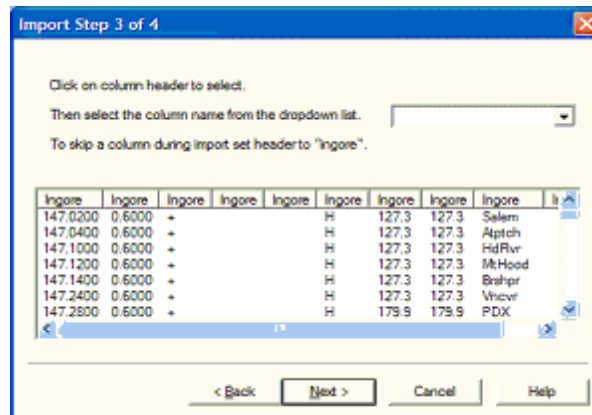


Click [Next](#) to continue.

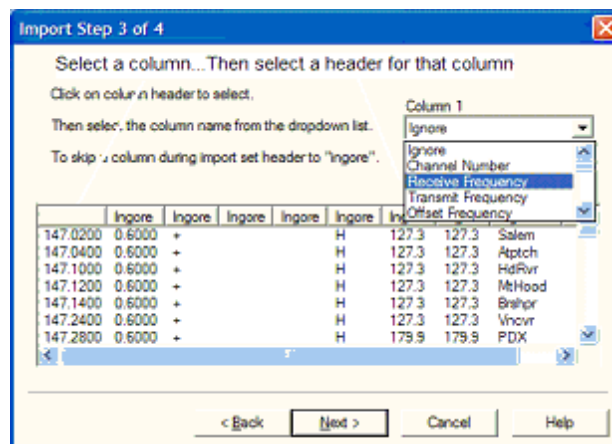
20.4 Import - Step 3

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

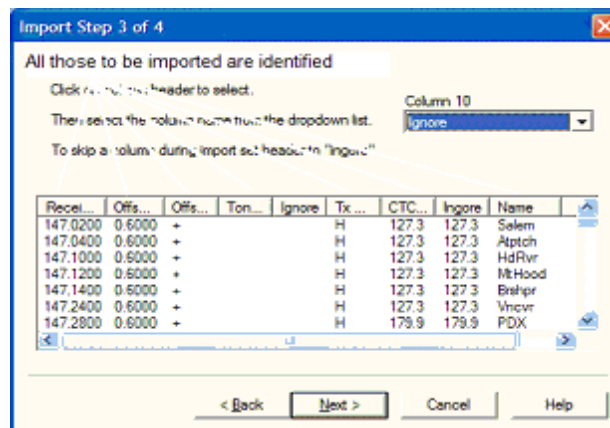
The Programmer will make an attempt to identify the information in your file. In this step of the process, you can make corrections to the assignments the Programmer has made and identify other columns that you want imported.



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.

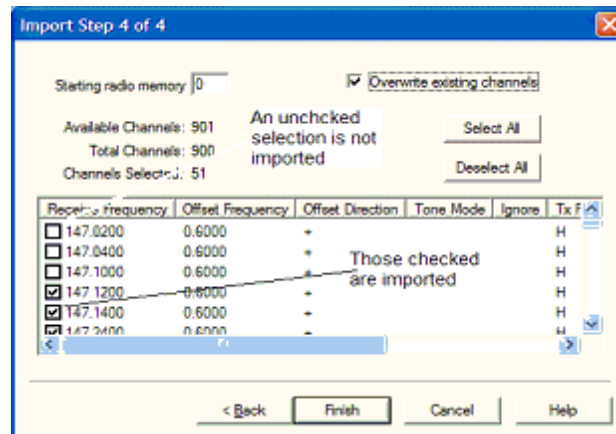


Click [Next](#) to continue.

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 Desparity	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	<input type="checkbox"/>	None	127.3	023	High	01
24	147.04000	147.64000	0.6000	Plus	FM	AT PTC4	<input type="checkbox"/>	None	127.3	023	High	01
25	147.10000	147.70000	0.6000	Plus	FM	HDRVR	<input type="checkbox"/>	None	127.3	023	High	01
26	147.12000	147.72000	0.6000	Plus	FM	MTHOOD	<input type="checkbox"/>	None	127.3	023	High	01
27	147.14000	147.74000	0.6000	Plus	FM	BRS-RR	<input type="checkbox"/>	None	127.3	023	High	01
28	147.24000	147.84000	0.6000	Plus	FM	WQDVR	<input type="checkbox"/>	None	127.3	023	High	01
29	147.26000	147.86000	0.6000	Plus	FM	RQV	<input type="checkbox"/>	None	179.9	023	High	01
30	147.30000	147.90000	0.6000	Plus	FM	SORSO1	<input type="checkbox"/>	None	179.9	023	High	01
31	147.58000	147.90000	0.6000	Simplex	FM	FMSR-2	<input type="checkbox"/>	None	179.9	023	High	01
32	147.22000	147.82000	0.6000	Plus	FM	TLLHR	<input type="checkbox"/>	None	179.9	023	High	01
33	162.95000	162.95000	0.6000	Simplex	FM	NDJ44	<input type="checkbox"/>	None	179.9	023	High	01
34	195.43000	195.43000	0.6000	Simplex	FM	PCJCE1	<input type="checkbox"/>	None	179.9	023	High	01

Ready

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

XXI

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.

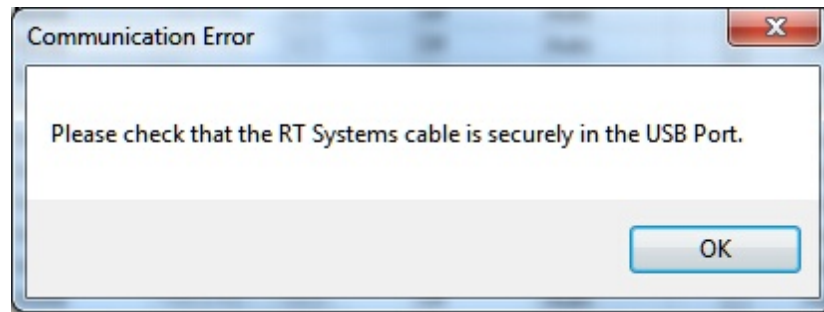
This message is warning you that you will replace any information you have entered with whatever is in the radio. The "whatever" could be all blank channels.

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 RT Systems cable it must use for a specific radio.

Two different errors can occur in this configuration. Either the programmer will report that the RT Systems cable is not attached to the USB port or the Communications process will not respond since the data being transferred from the radio (you did press all the right buttons) is traveling along a cable other than that the programmer is connected to.

Interference from other applications

Your radio is not the only device you attach to your computer for programming or data interchange. 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 `ftdibus.ini` in that directory. The second time use `ftdiport.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 100 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 RT Systems cable for communications to be successful.

Be sure to use the correct RT Systems cabling to address the radio being programmed. Check the User's Manual for the radio if you are not sure where the port is on the radio that is specified in the programmer. The cables for this particular radio are pictured in the *Radio to Computer Cabling* section of this help.

Specific to the FT-857/D and FT-897D: The cable used for programming is the USB-62 cable with the 8-pin mini din plug. This plug is attached to the CAT jack on the back of the radio. Forcing this connector into the data port will ruin the plug and could damage the radio. There have been cases where the power pin and the PTT were connected (since you never know which pin will go which way when you force them out of place) causing several hundred dollars in damage. Check to be sure you are connecting the cable to the matching jack before forcing the pins into the holes.

At the time of this writing (2009), none of the Yaesu VHF/UHF mobile radios used the USB-62 cable with its 8-pin plug. We have seen this tried. It will not work. The mobile radios that program through the data jack require a 6-pin mini din connection on the cable. Check the cabling specified in the help for the radio that you'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) and Windows 8 (full version).

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

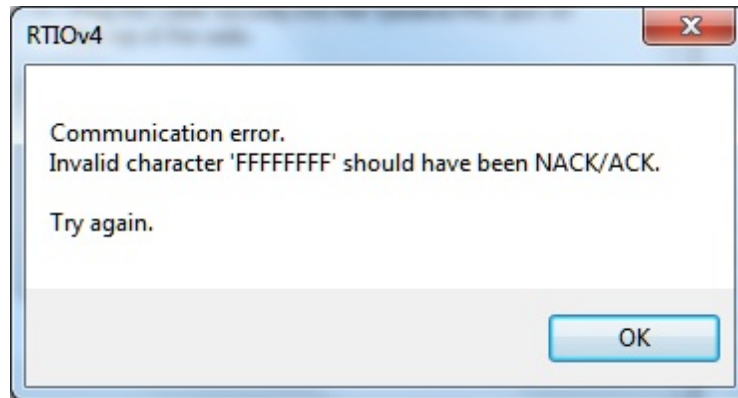
Note: If you plan to use an older computer for programming your radio, you may experience problems with the program resulting from files that are missing from the operating system. These files would have been delivered through normal Windows updates to the operating system.

If the machine has been out of service for several years, set it up with

an Internet connection and Automatic Updates activated. Let it sit for several days while it finds what it needs.

Once the updates are installed, you will have no other problems related to the operating system relative to the programmer.

NACK/ACK Error



As ugly as this error appears, it actually is only a generic message saying the Communication process failed. Try again after reading the hints here.

Do NOT turn the radio off. It may display Error. It is not terrible unhappy and is still in Clone Mode.

Cancel all Communications screens that are open in the programmer.

Open a new file (File | Open from the menu at the top of the screen).

Select Communications | Get data from radio. Doing Get Data from often gets the process going.

Skip the steps for putting the radio into Clone mode. It is already there.

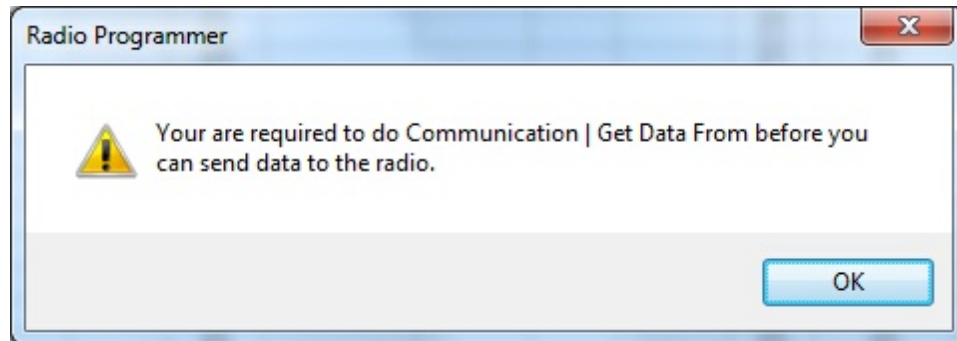
Click OK

Press the key as instructed to begin the process (sometimes you need to press it twice... once to return to Clone mode... then again to begin the process.)

Once Get data from 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.

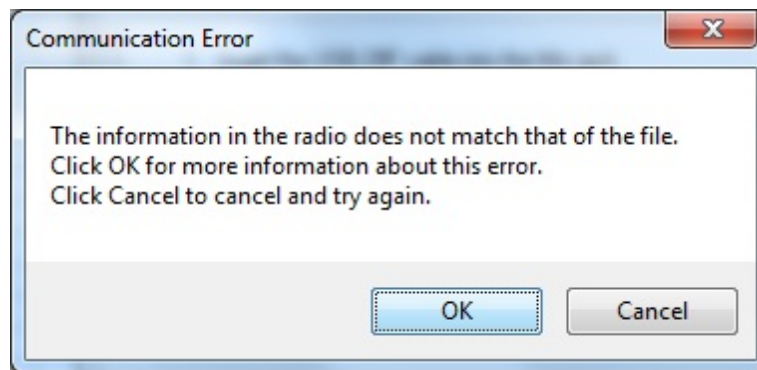
Part



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.

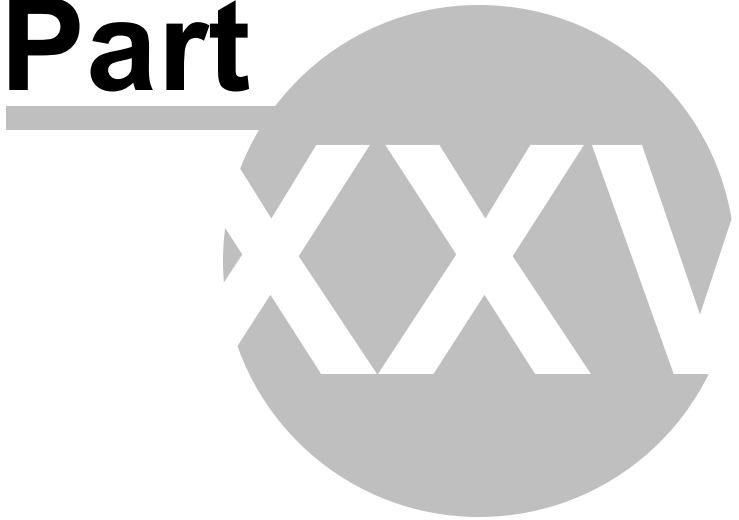
Be sure it has not pulled loose (this is easy to do with a USB). Also, the cable should be plugged into a USB port on the computer rather than on a USB hub.

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



25 Contact Us

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Fax 770-216-1836

Technical Support Hours Monday through Friday
10:30AM until 6:00 PM (Eastern Time)
9:30AM until 5:00 PM (Central Time)
8:30AM until 4:00 PM (Mountain Time)
7:30AM until 3:00 PM (Pacific Time)

Other times by appointment. Call or e-mail to make arrangements.

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.

