IC-2730 Programmer Help

IC-2730 Programmer Help

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by RT Systems, Inc.

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

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

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

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

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

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

IC-2730 Programmer Help

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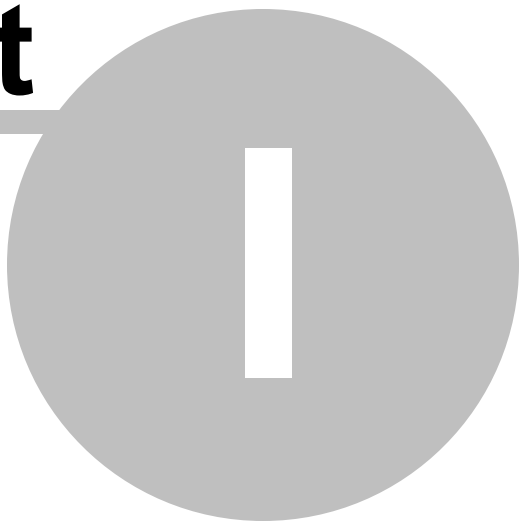
Foreword

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

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

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

Part



1 What Is the Radio Programmer

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

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

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

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

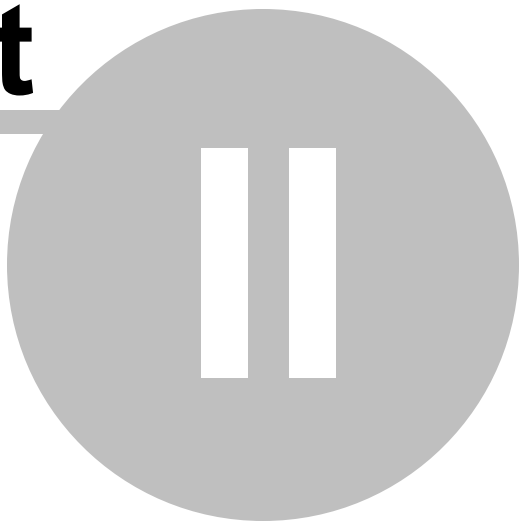
Hardware Requirements

Hardware requirements for the *RT Systems* Programmers include:

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

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

Part



2 Getting Started

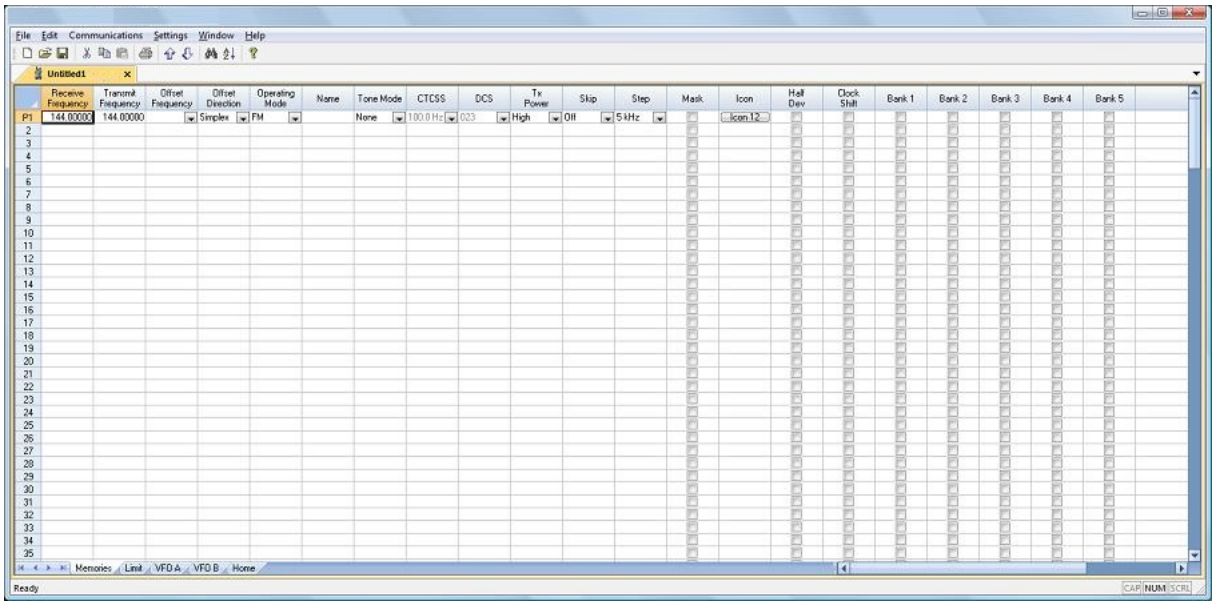
These are the basics for Getting Started with the RT Systems Radio Programmer software. The details presented here are in generalities and while the Programmer for your radio will work in a similar manner, the details may vary for your particular model as all radios are unique.

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

Creating the file

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

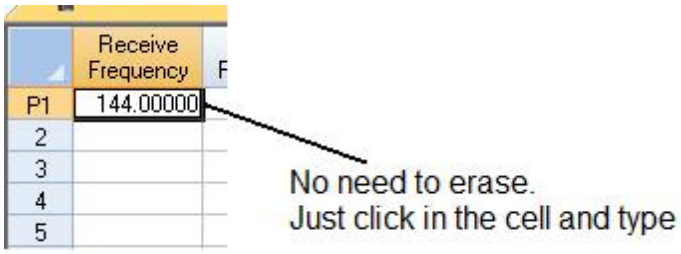
Open the Programmer by clicking on the icon that was created during installation. The Programmer opens to a default file.



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

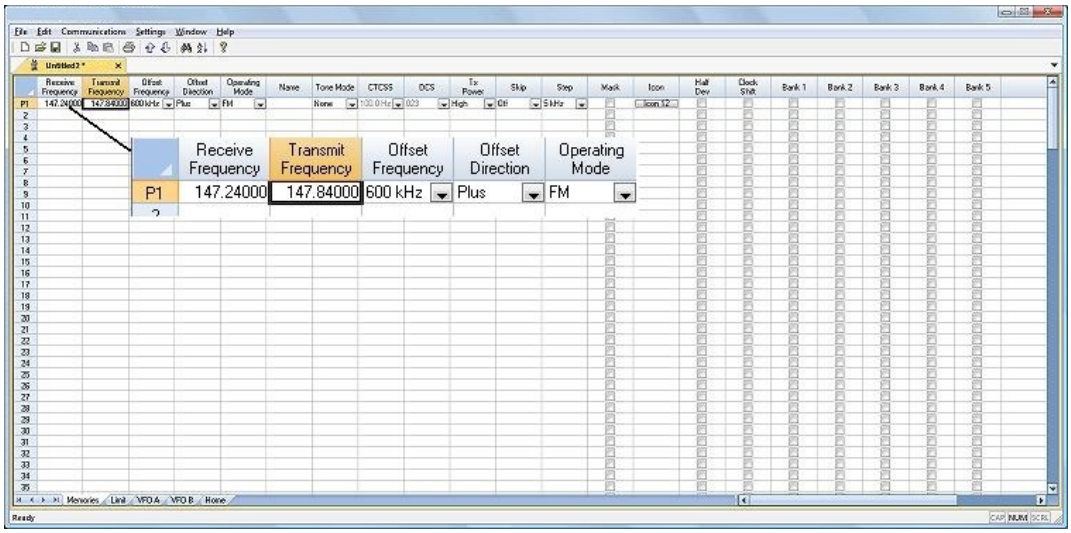
The Programmer will help you be sure your file is complete. If required information is missing, you will be warned of the omission when you try to use the file to program the radio. Simply complete the missing information, save the file and try again to use it to program your radio.

Enter a receive frequency

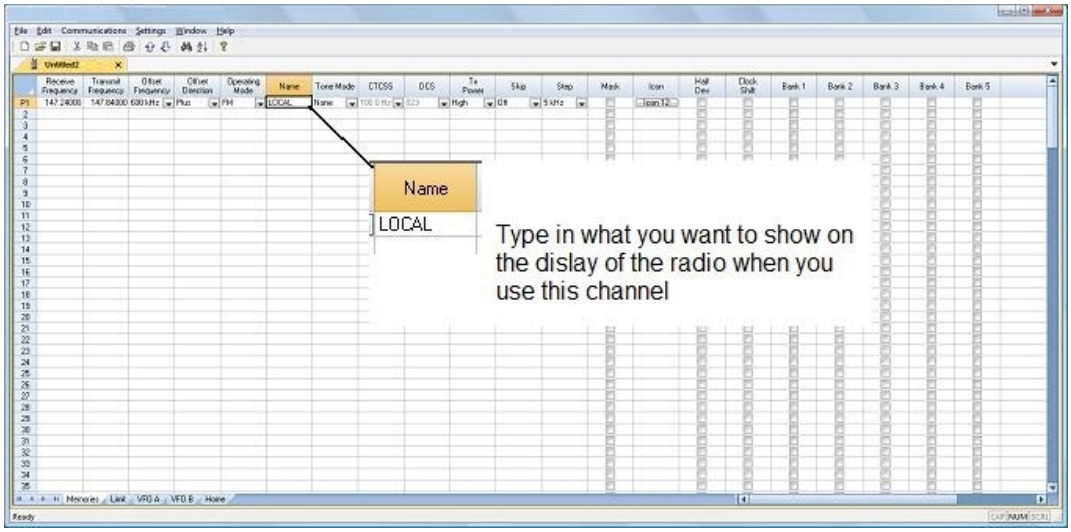


In this example we'll enter 147.240 MHz with standard offset, a Name of Local, and a tone of 100hz.

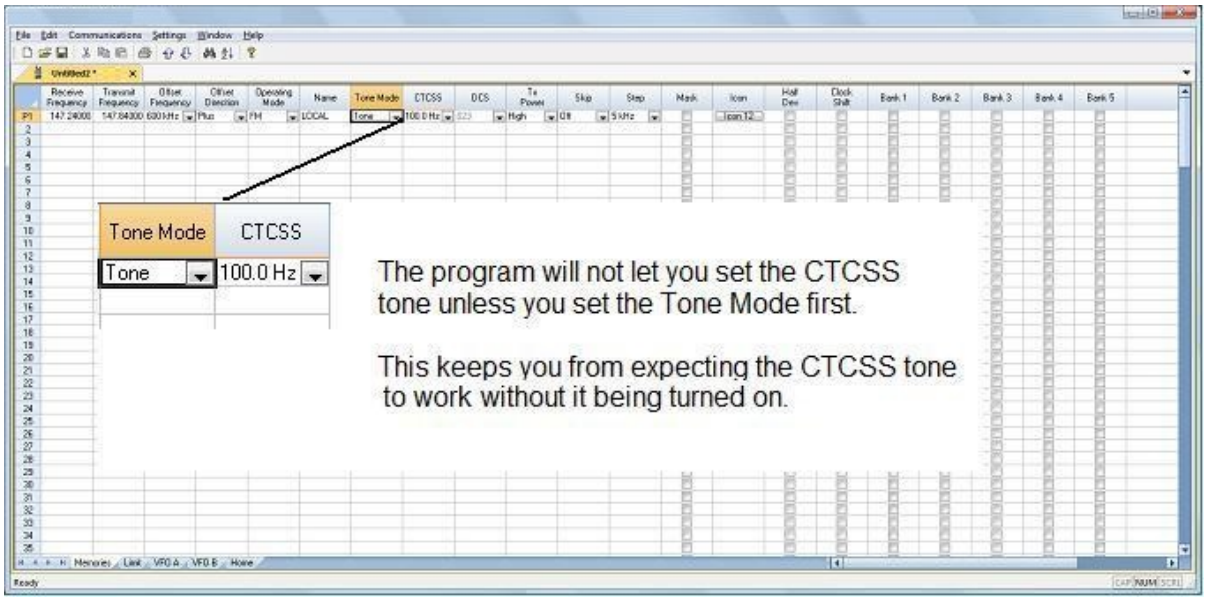
- Type one four seven period two four zero into the receive frequency column.
- Press Enter.
- The program completes much of the channel information with defaults. Transmit frequency, Offset frequency, Offset Direction and Operating Mode are completed based on a US band plan for the receive frequency.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



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

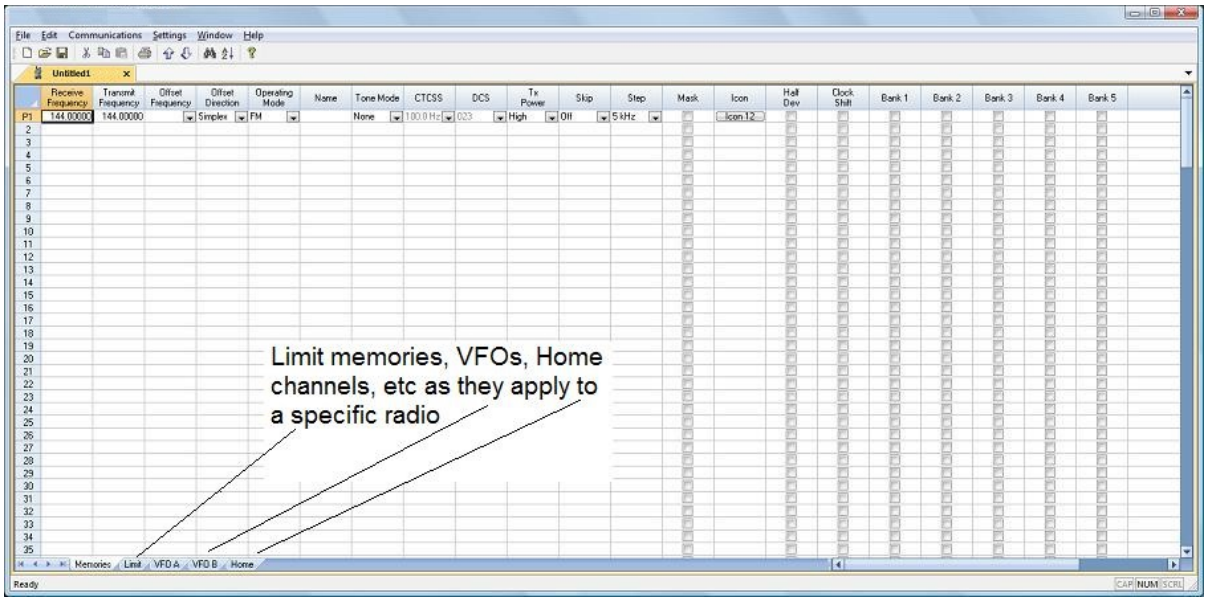


- Press tab to move to the Tone Mode cell. Setting up the tone of 100hz requires TWO steps (just as it would if you were doing this from the face of the radio). Turn on Tone Mode AND then set the 100hz CTCSS tone.



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

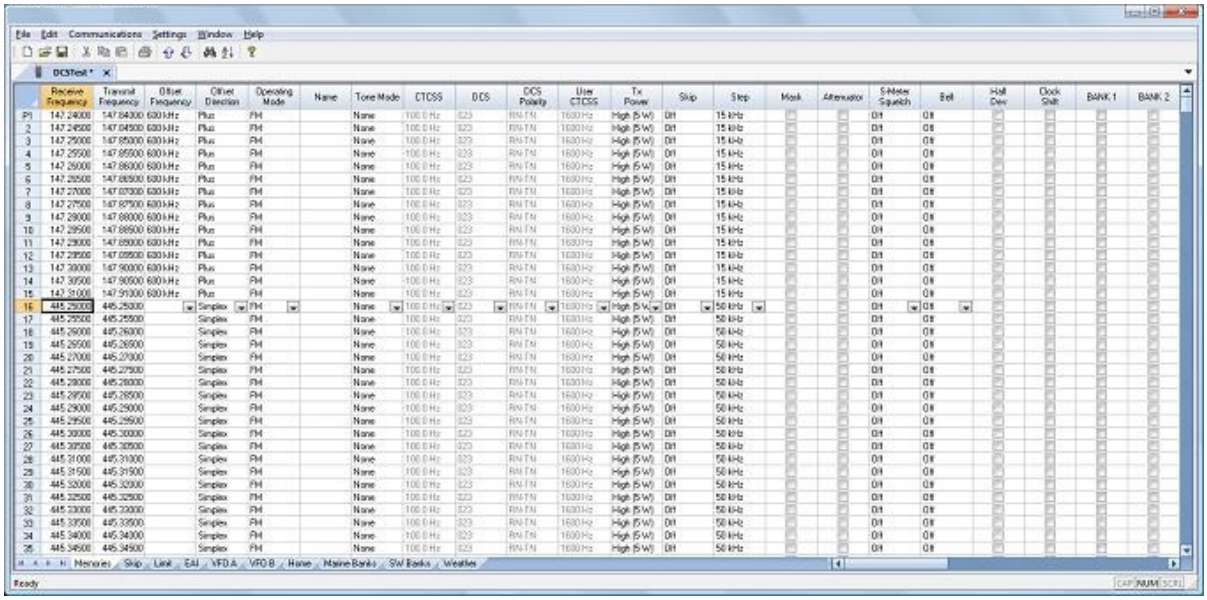
There is more to this radio than just memory channels. So, there is more to the Programmer. Tabs at the bottom of the main screen give you access to Regular Memories, Skip Memories, Limit Memories, VFO, Home, Marine, SW Memories, and Weather Memories, that apply to your radio.



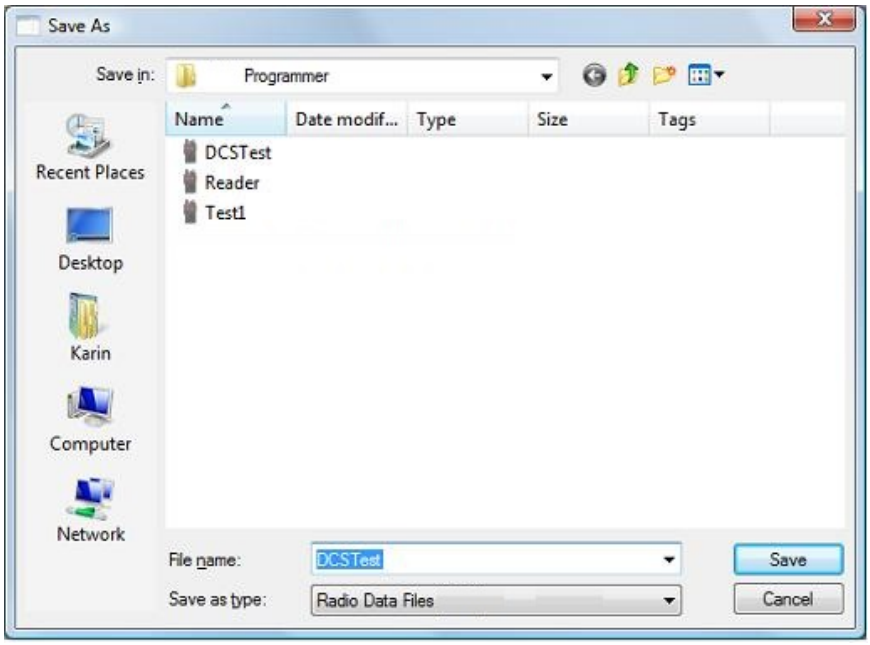
Click a tab. A screen opens with the details that can be entered for these radio functions. You can work with the radio without ever using these tabs. There are default values on these screens that never need to be changed. Make changes for your special activities when you plan to use one of these functions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

Save the file

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



In the menu, click File | Save As.



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

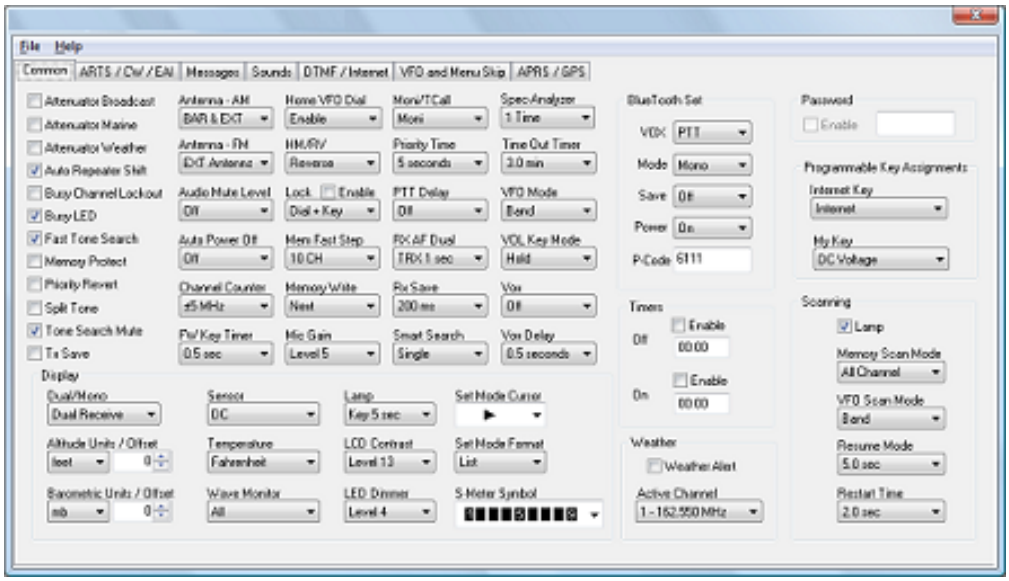
Once you complete this part of the process, the program will open the last file when it starts up.

Even More Radio Functions

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

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

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



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

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

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

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

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

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

First: Communications | Get Data From

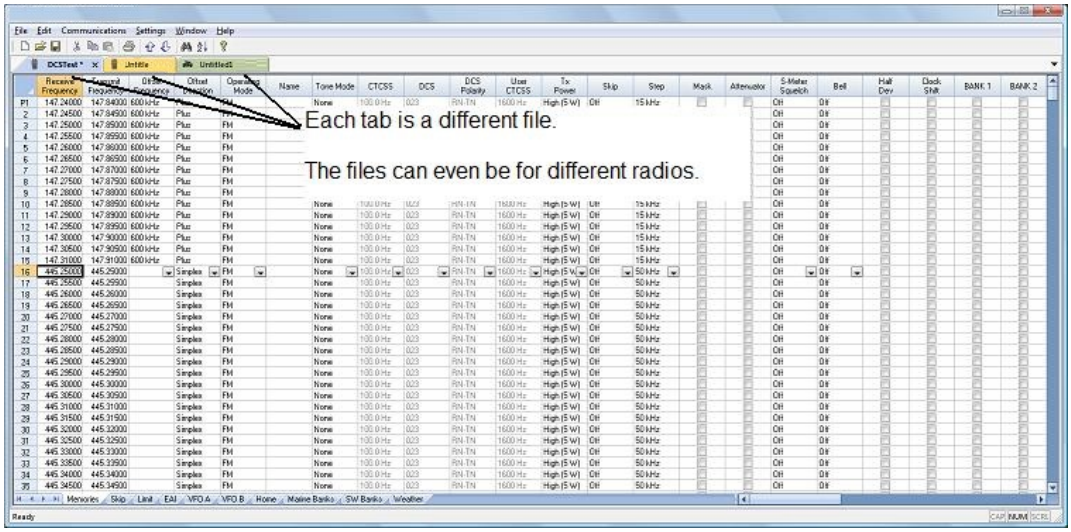
Although you really want to put the details of your file into your new radio so you can use it, doing Get data from with this new radio gets the process started and may help prevent problems sending the file to the radio.

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

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

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

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



Second: Communications | Send Data To

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

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

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

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

Hardware Requirements

Hardware requirements for the *RT Systems* Programmers include:

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

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

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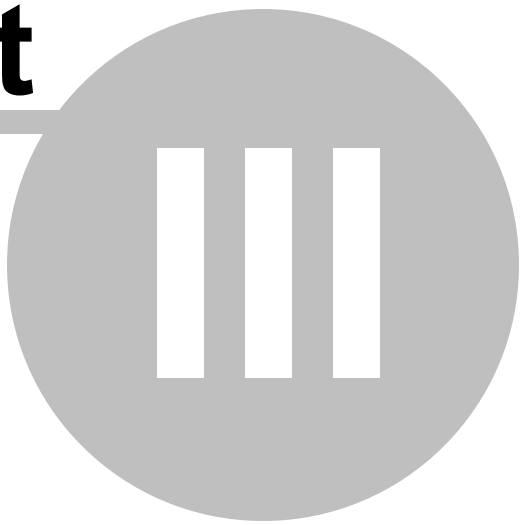


3 Using the Programmer - Overview

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

Working with Programming Files

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

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

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

Creating a New Programming File

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

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

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

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

To save these Global settings

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

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

Creating and using multiple Global settings files

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

To select a settings file for use:

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

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

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

Tying Global Settings to a Memory Channel File

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

To contrast and compare the two Radio Menu Setting options:

- Use Separate file for menu settings (default)

  This is the default for the Programmer.

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

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

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

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

  This option is set on the Settings | Preferences screen.

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

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

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

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

Part

4 Viewing and Changing Programming Files

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

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

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

Radio Menu Settings

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

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

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

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

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

Part V

5 Easy Editing in the Grid

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

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

Right Click Menu

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

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

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

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

Edit Menu

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

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

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

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

Editing Commands

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

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

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

You can copy two different ways:

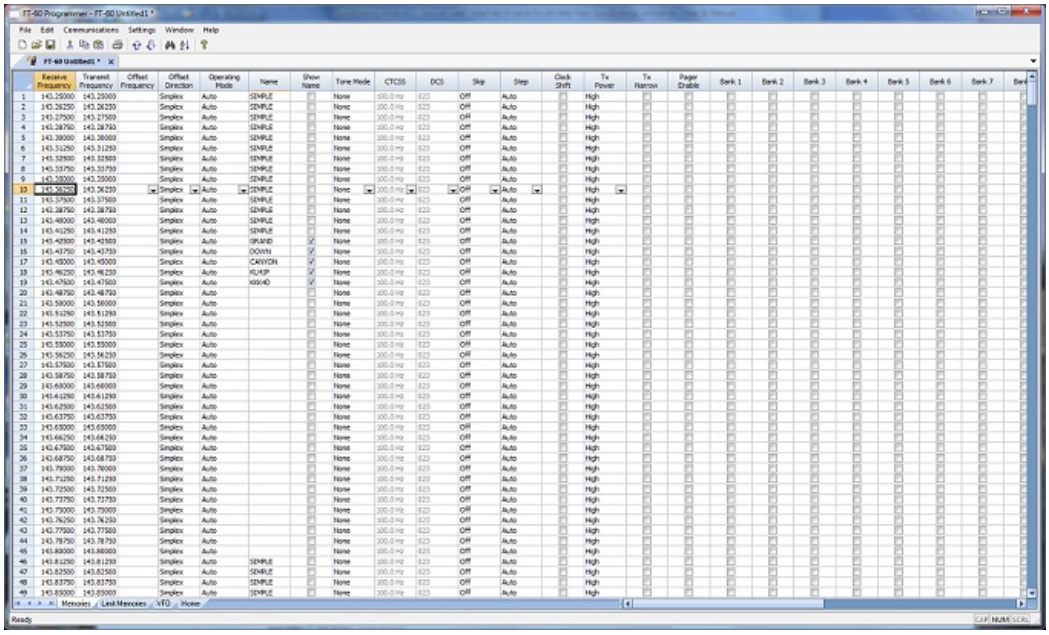
Copy ***all the details*** of a memory channel (one or several at once) or Copy ***details within one column*** (from one cell to one or many at one time)

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

Copying an entire memory channel or group of channels

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

Open the file.

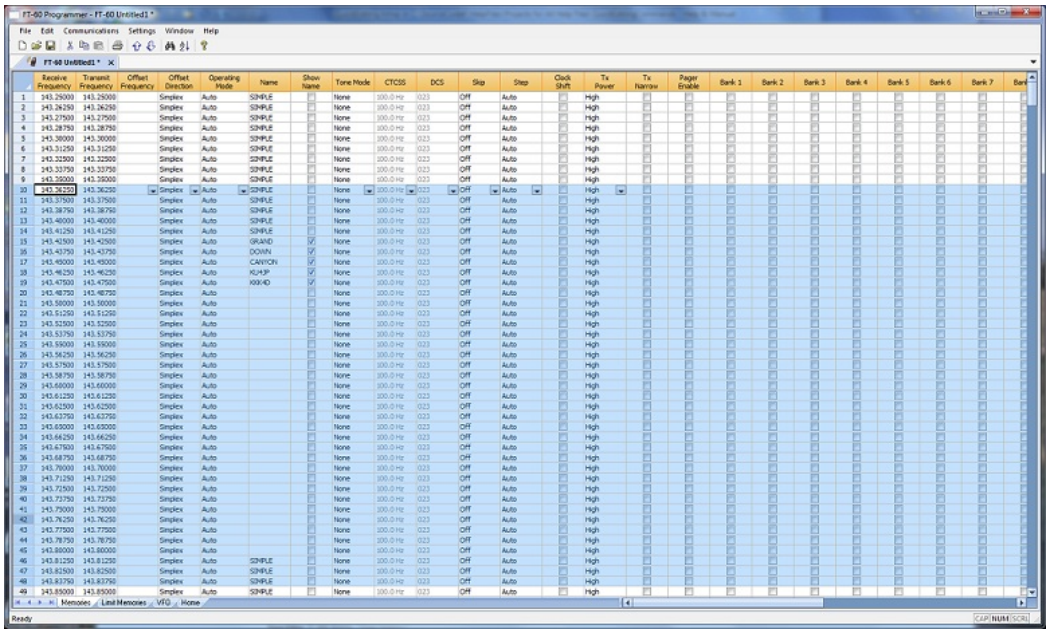


Select the data to be copied.

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

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

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

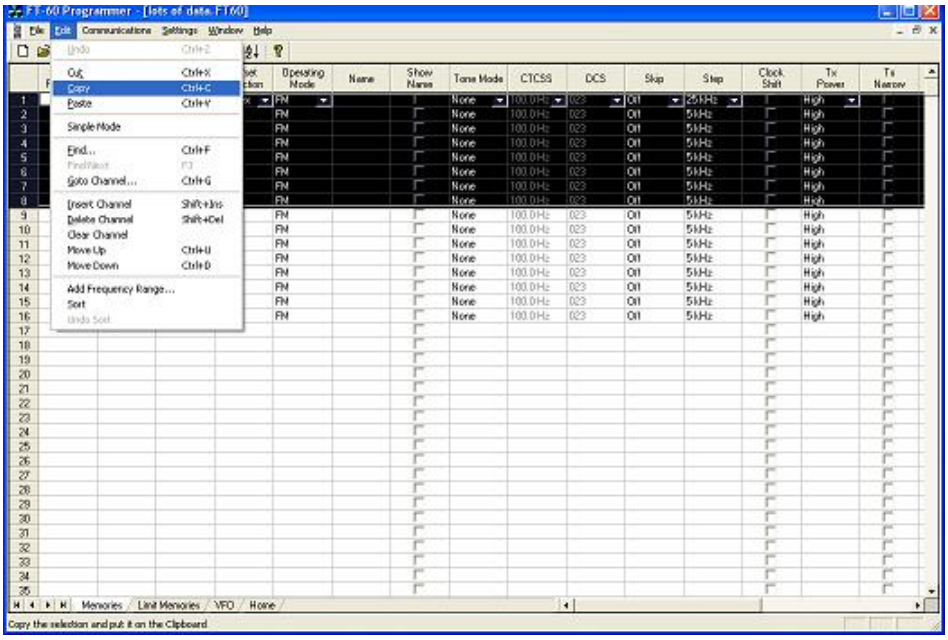


Copy Command

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

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

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



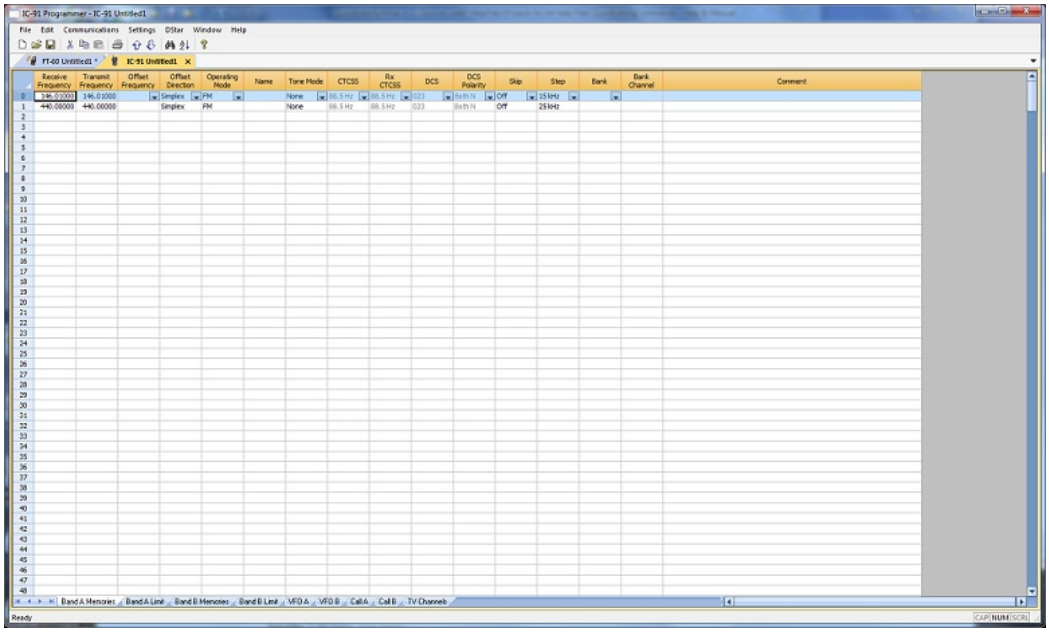
It will appear that nothing has happened. The program in conjunction with built in commands of the operating system of the computer has copied the data. It is waiting for you to Paste it where you want it.

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

Paste Complete Channels

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

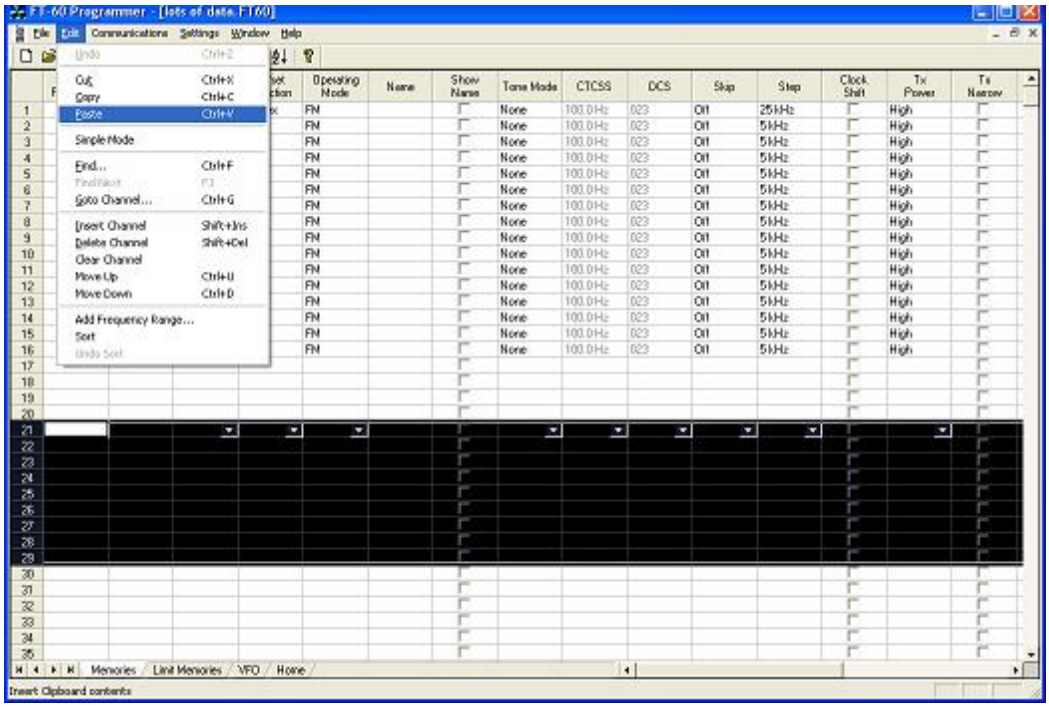
Select the row that is the **first** into which the data is to be pasted. The Paste process will begin in that location with the first copied channel and continue in each channel after that with the rest of the channels that were copied.



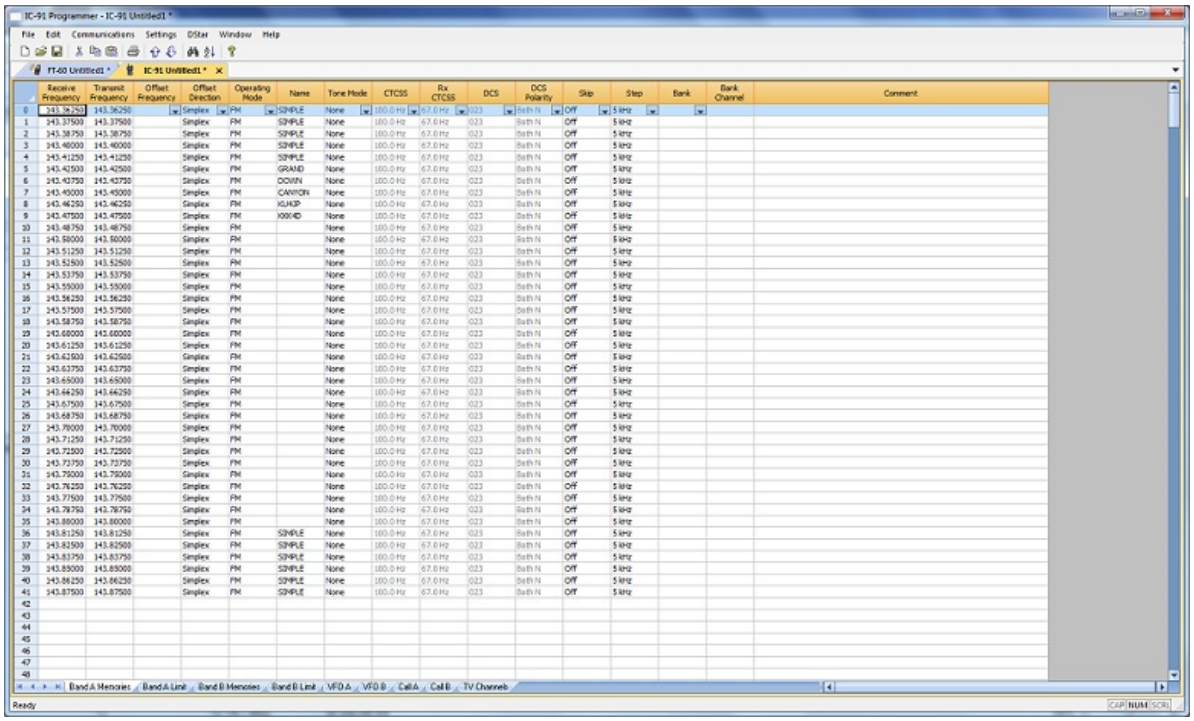
From the menu at the top of the screen, use your mouse to left click on Edit. From the menu that appears, use the mouse to left click on Paste.

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

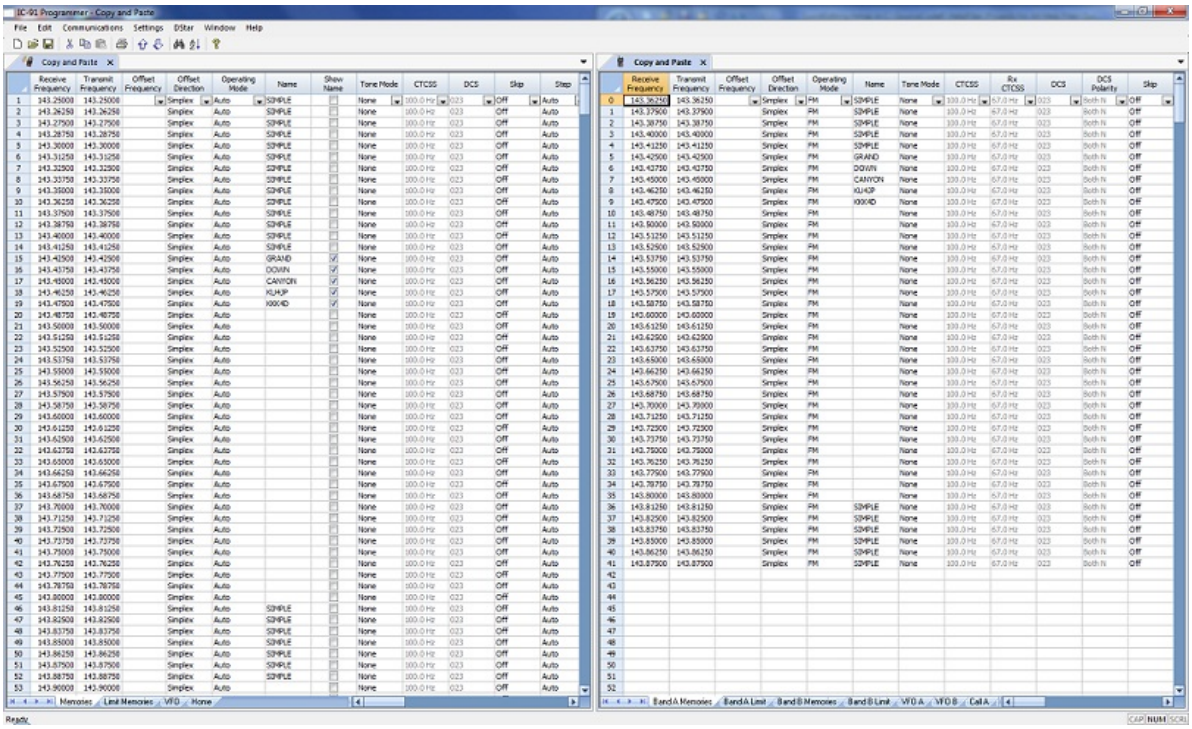
Or while pointing within the highlighted area, right click and select Paste from the menu that opens.



The information is pasted into the selected channels.



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



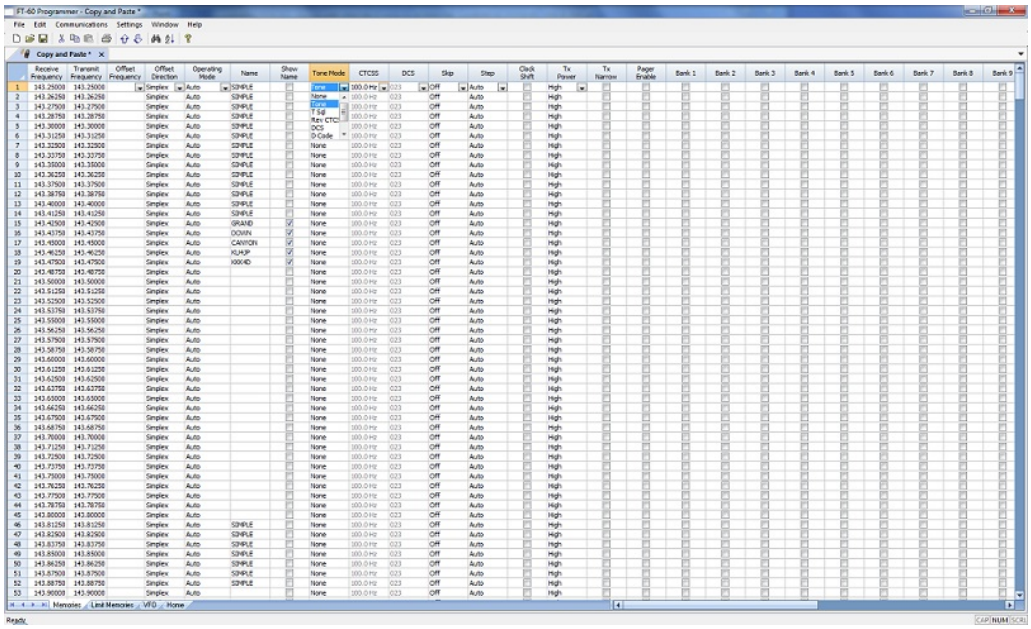
Copying details from one cell to change many rows at once.

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

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

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

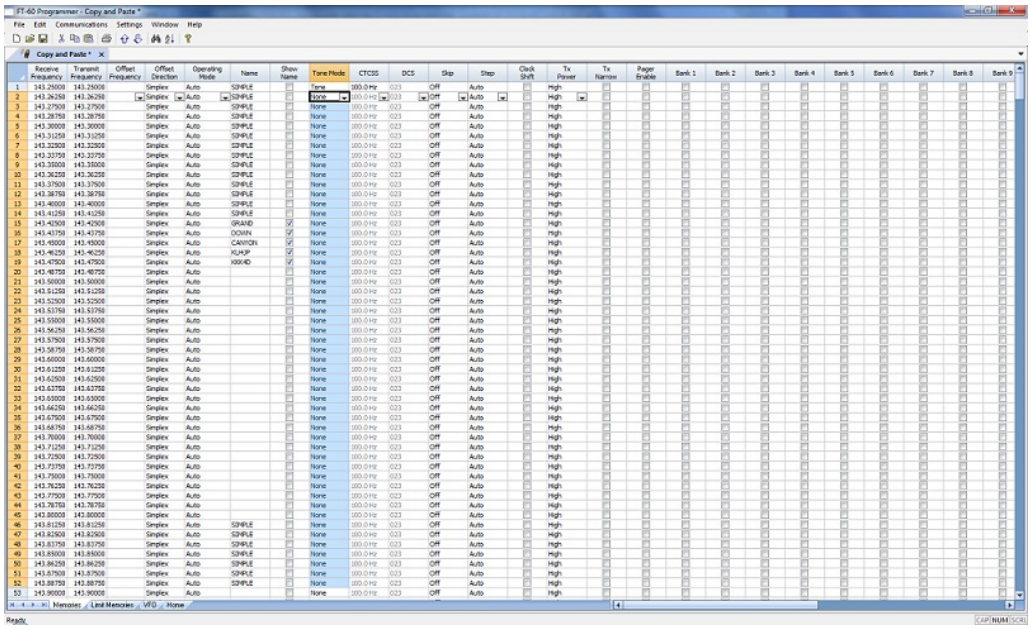
  Make the change by pulling the drop-down and selecting Tone from the list.



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

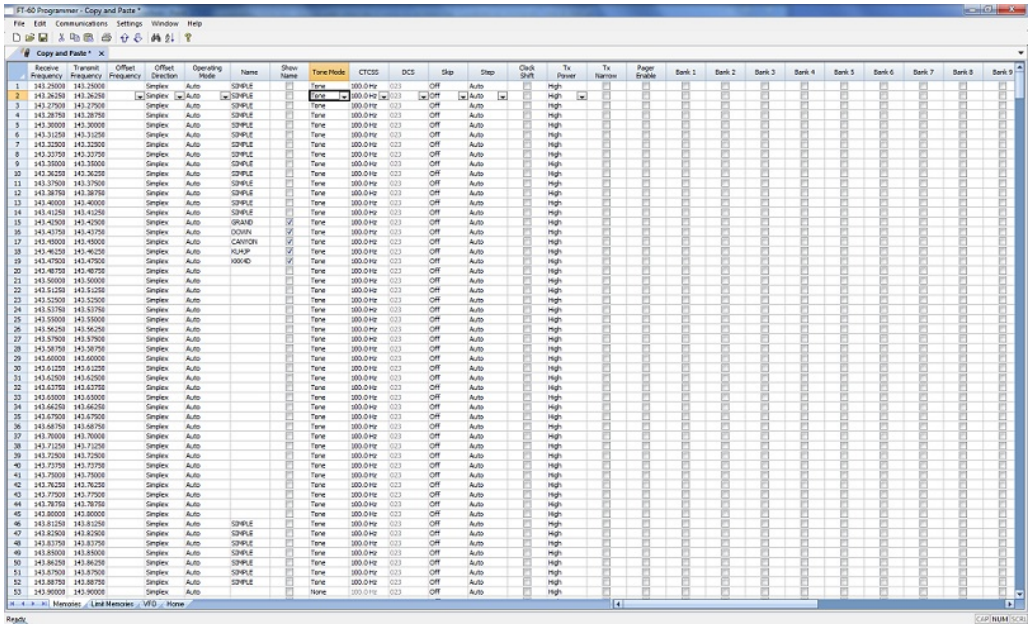
Press Ctrl + C, select Edit | Copy from the menu at the top of the screen, or right click and select Copy from the menu that appears. (Just as with row copying in the first example.)

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



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

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



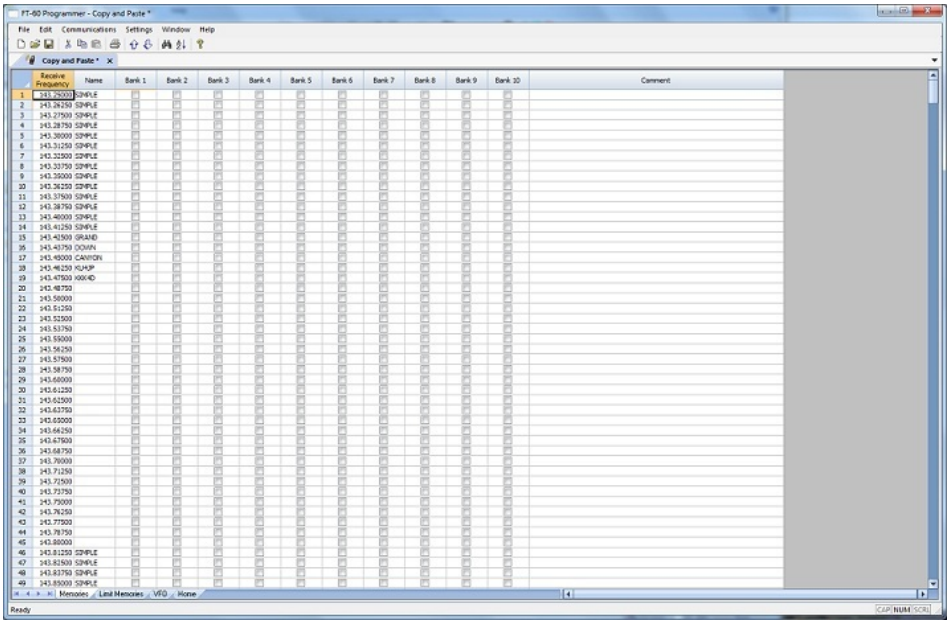
Column editing will address a selection of consecutive cells all at once or individual cells repeatedly. If the items to be changed are not consecutive, you can select and paste repeatedly until all the cells are addresses. You do not have to copy again. The Programmer retains the copied value.

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

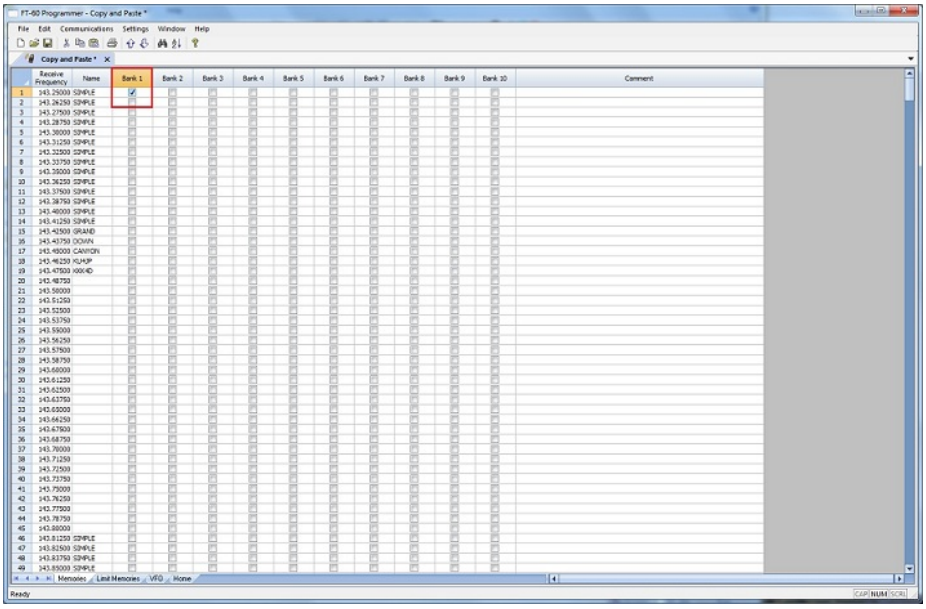
This process varies from the other by how the cells are selected. Check box cells act differently than those that contain text. You can copy from one check box column into another.

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

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



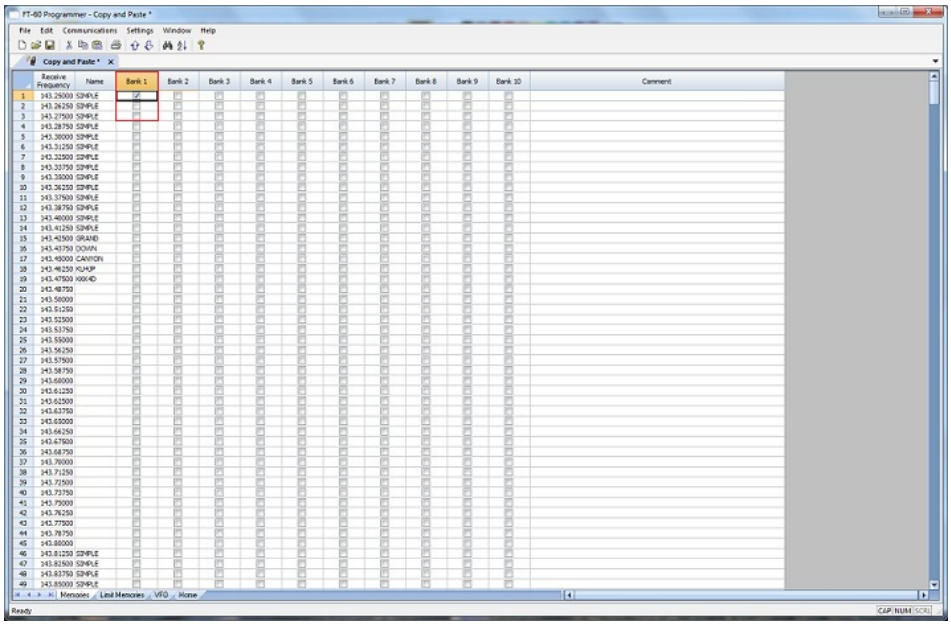
For Channel 1, put a check in the box under Bank 1.



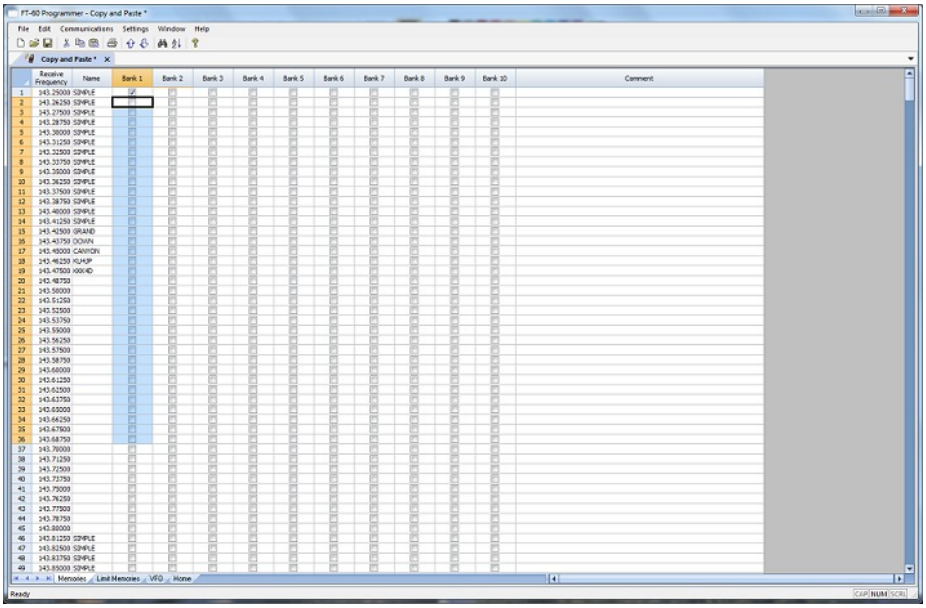
At this point you CANNOT copy this field. Press Tab or Enter to move out of the field.

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

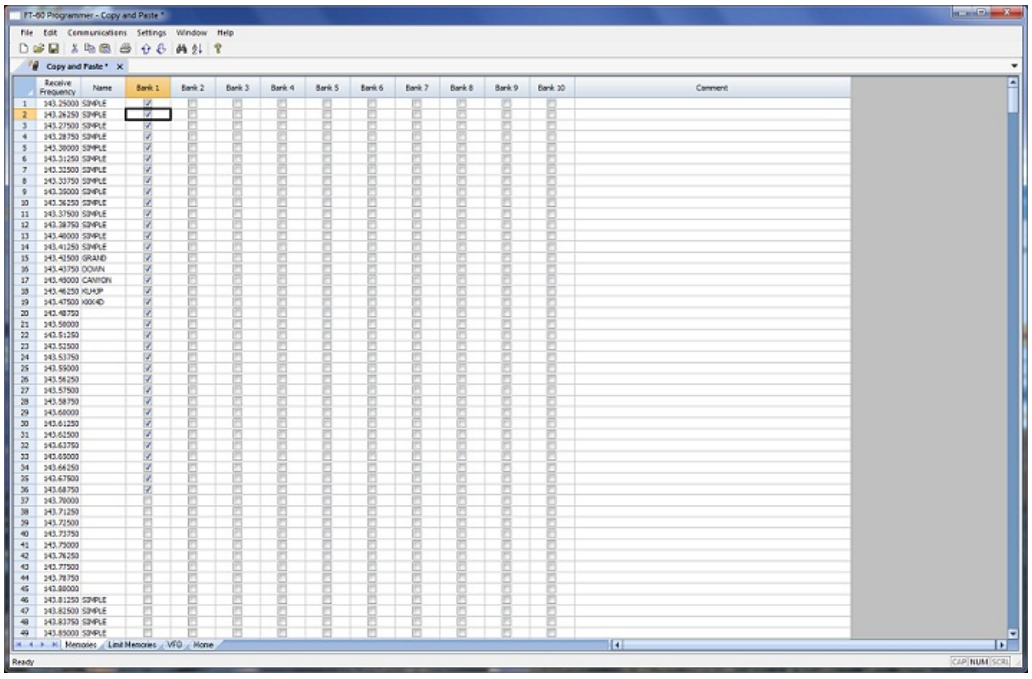
Press Right Arrow to move focus back into the Bank 1 column. Notice that there is now a black border on that cell. The cell is now ready to be copied. Press Ctrl C or select Edit from the menu then copy from the list that opens to copy the cell.



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.



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

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

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

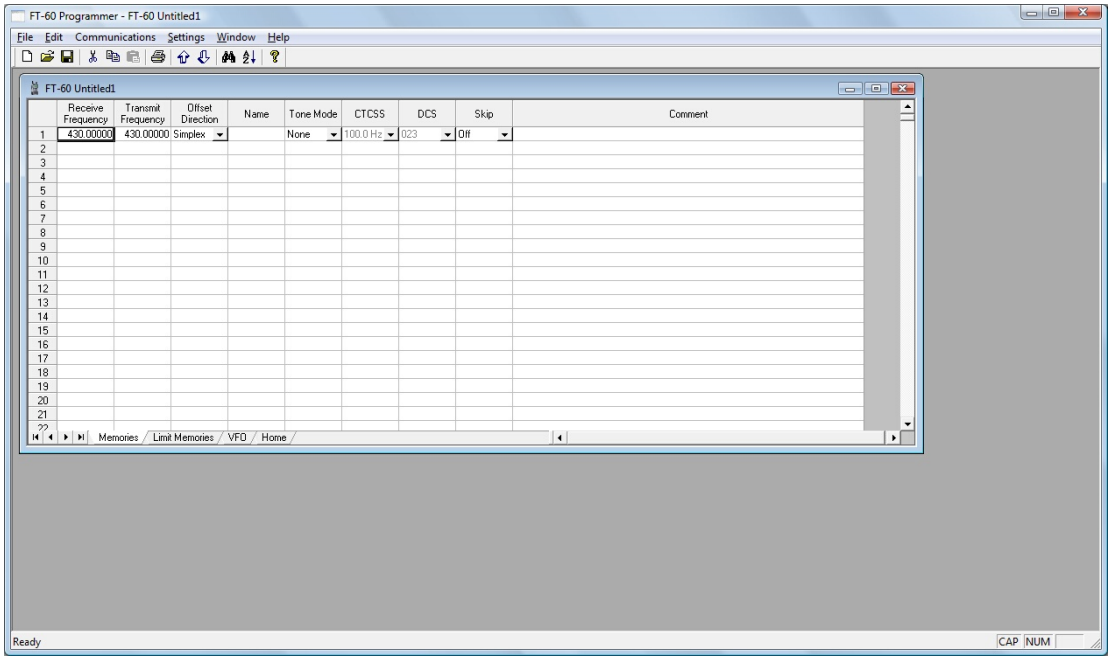
Offset Direction - Again, the Programmer will complete this automatically based on the band plan for the receive frequency. However, an occasional repeater will differ from the band plan. Including this column gives you the ability to address that difference.

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

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

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

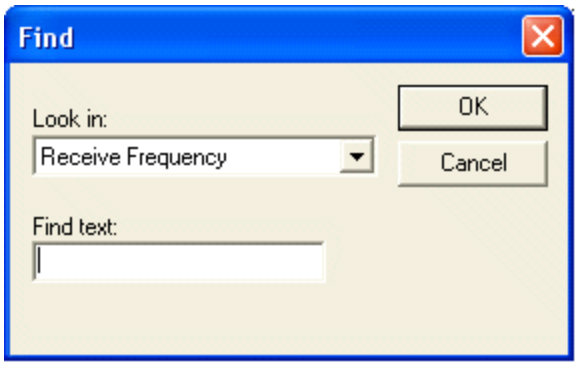
Comment - Personalized notes up to 80 characters. This information remains a part of the file and is not transferred to the radio.



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

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

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



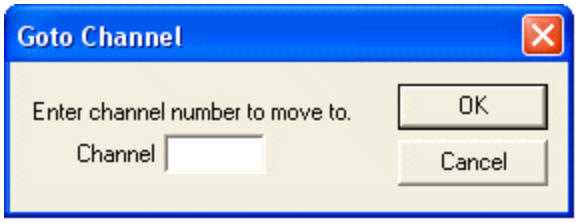
Select the field to be searched (i.e., Receive frequency, Transmit frequency, etc.)

Enter the text (or numbers) to be found.

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

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

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



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

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

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

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

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

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

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

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

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

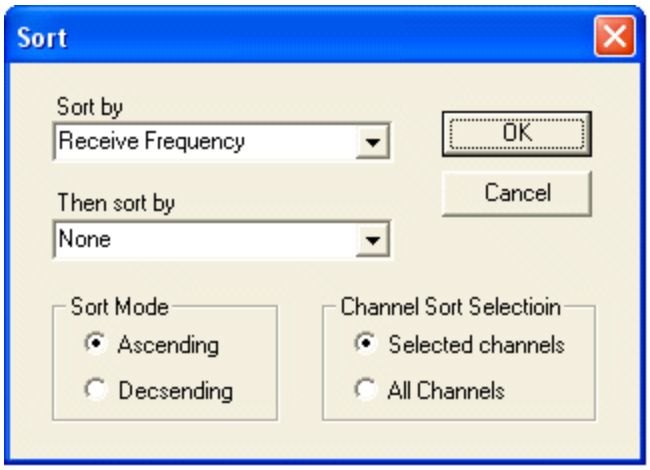
Frequency Step - Enter the value that will separate each of the frequencies in these channels. Select 5 kHz to 200 kHz.

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

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

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

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



Sort by - Select a column for the initial sort.

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

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

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

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

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

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

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

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

Quick File Access Commands

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

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

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

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

Part VI

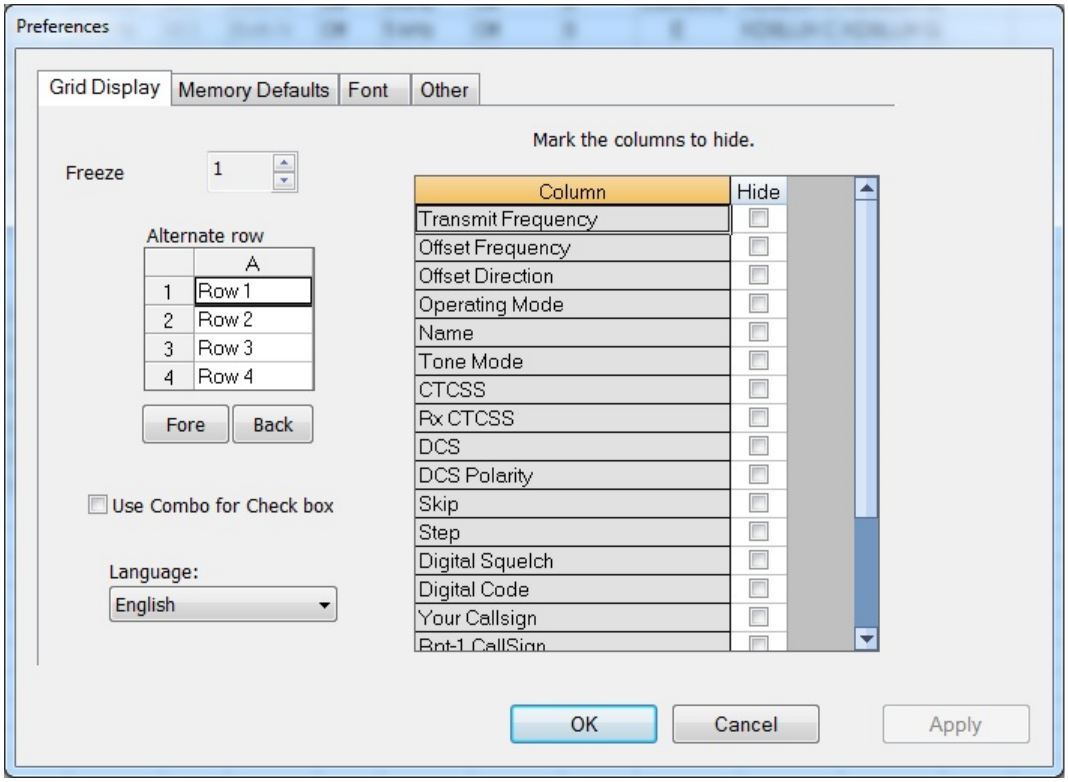
6 Screen Appearance and Default Options

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

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

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

Grid Display



Freeze Columns

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

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

Hidden Columns (Mark the columns to hide)

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

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

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

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

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

Alternate row colors

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

Use Combo for Check box

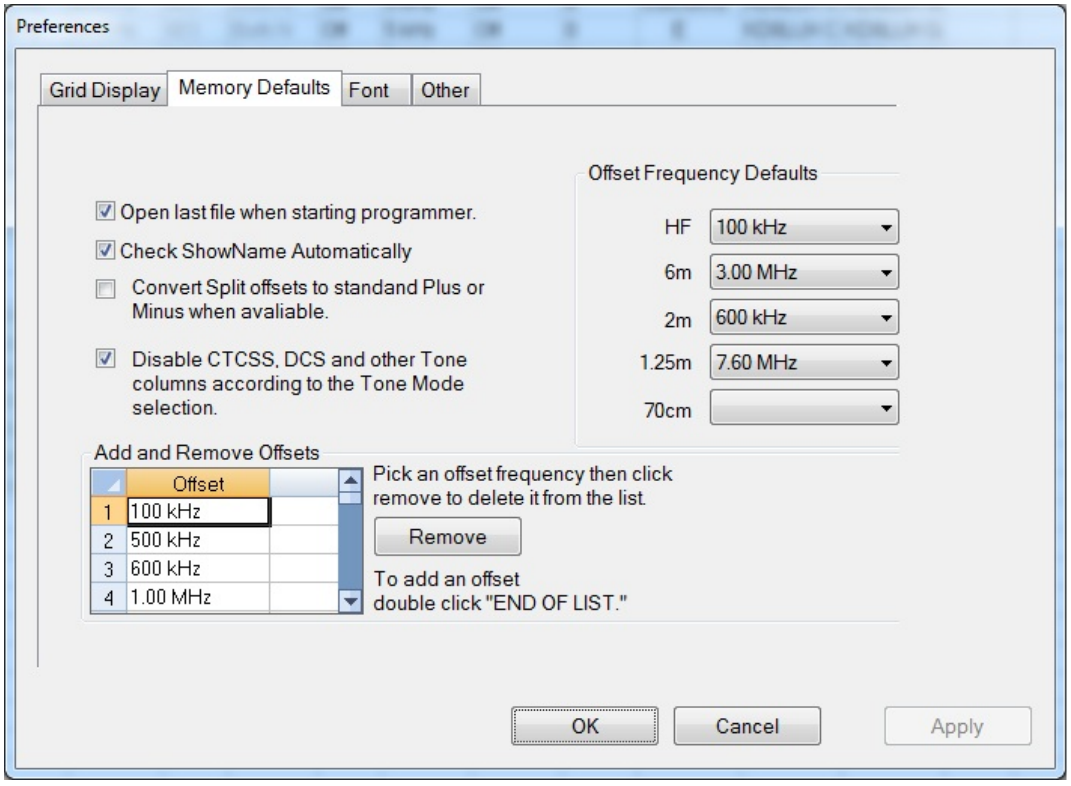
On some systems the checkbox option does not work and you are not able to make selections for banks, show name or other options with check boxes. The check boxes will be missing from the cell.

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

Language

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

Memory Defaults



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

Open last file when starting Programmer

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

Check ShowName Automatically

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

Convert Split offsets to standard Plus or Minus when available

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

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

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

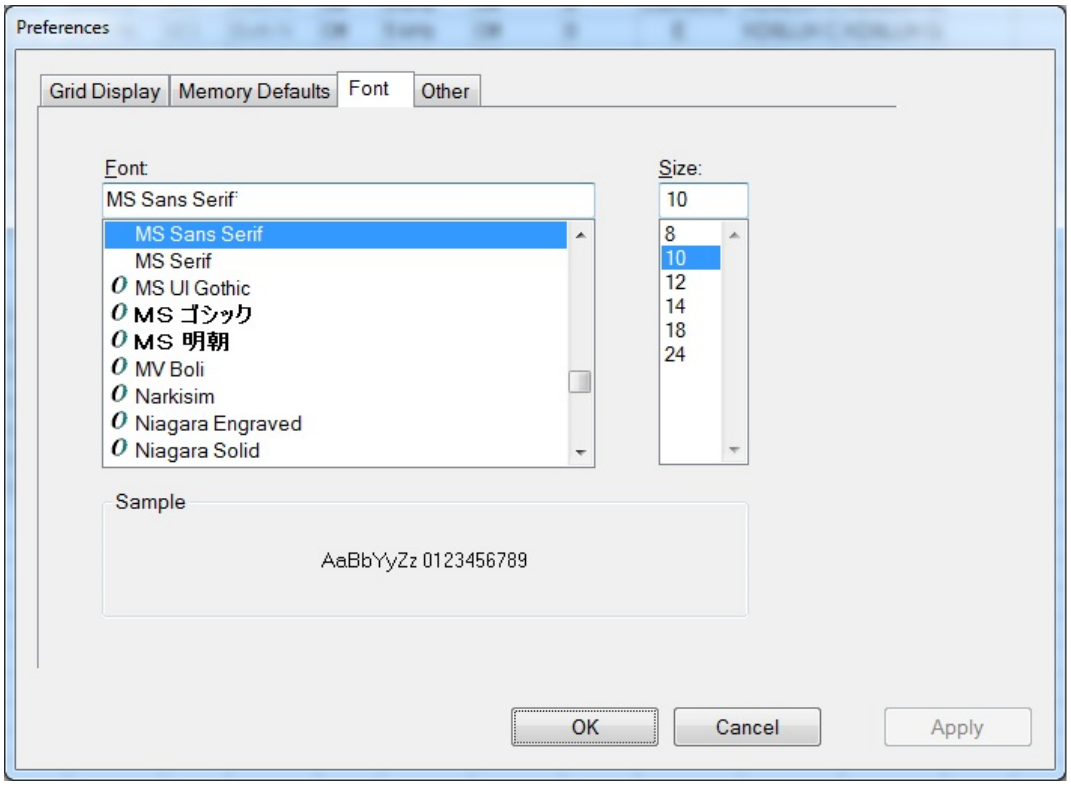
Add and Remove Offsets

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

Offset Frequency Defaults

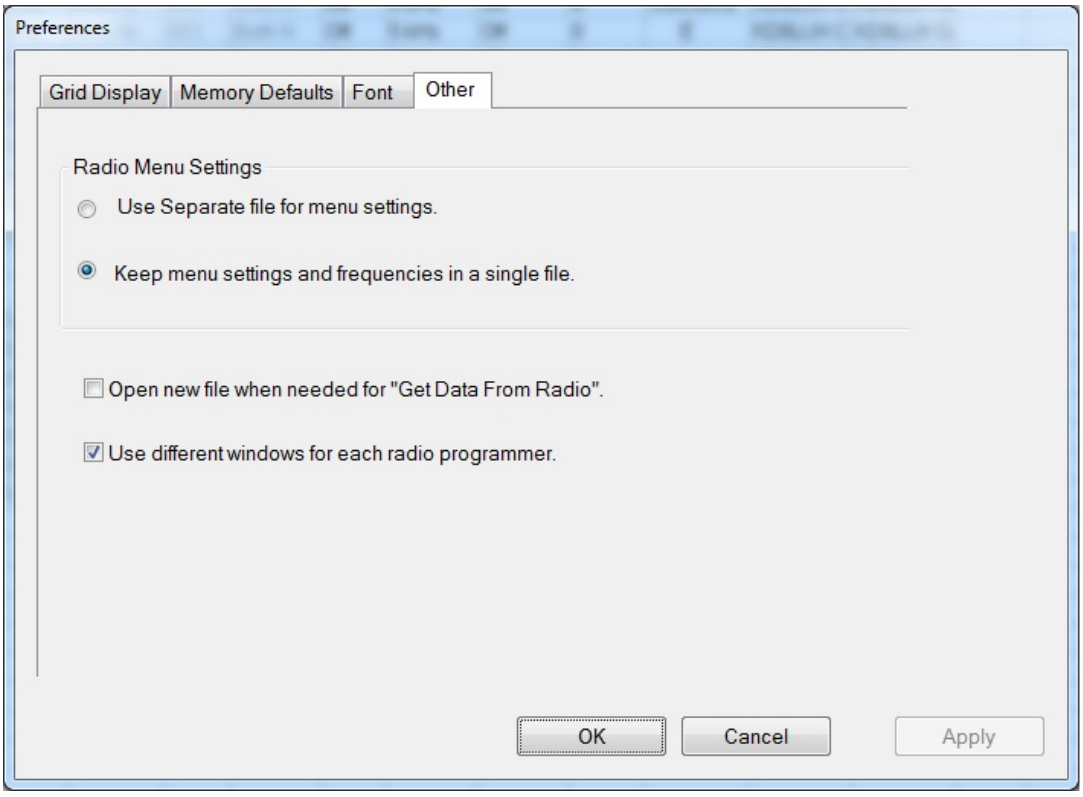
Select a value in each field for the Programmer to use when you enter channel information. This value is used for channel information entered into any of the memory channel types (Memory, Limit memories, VFO, Home, etc).

Fonts



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

Other



Radio Menu settings

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

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

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

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

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

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

Use different windows for each radio Programmer

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

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

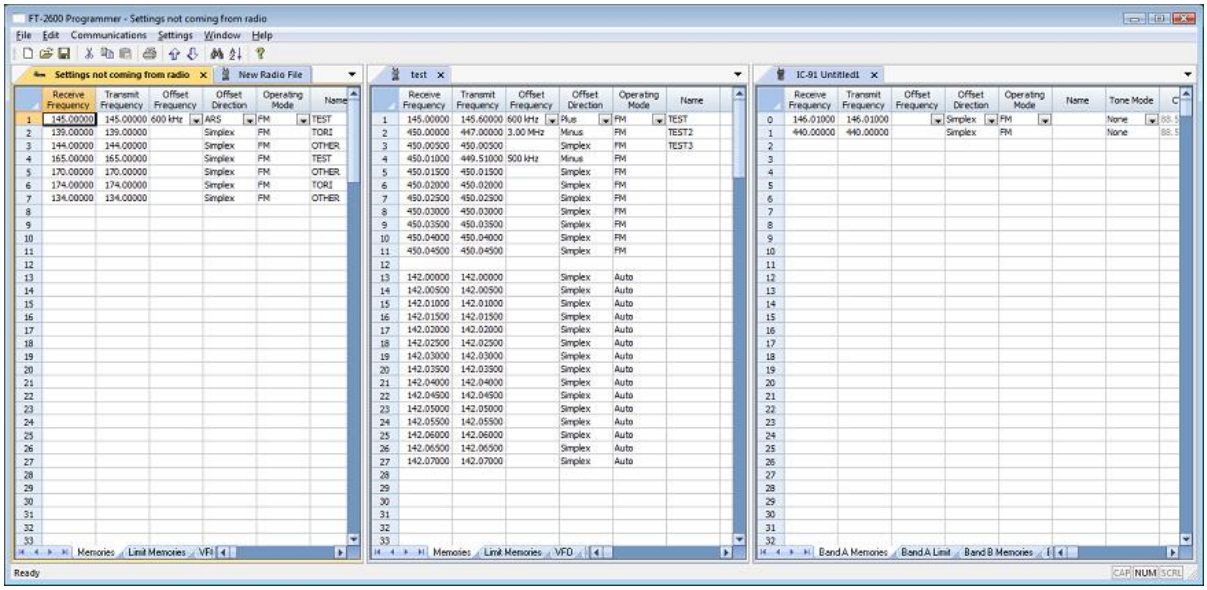
Part VII

7 Split Screen for Multiple Files

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

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

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



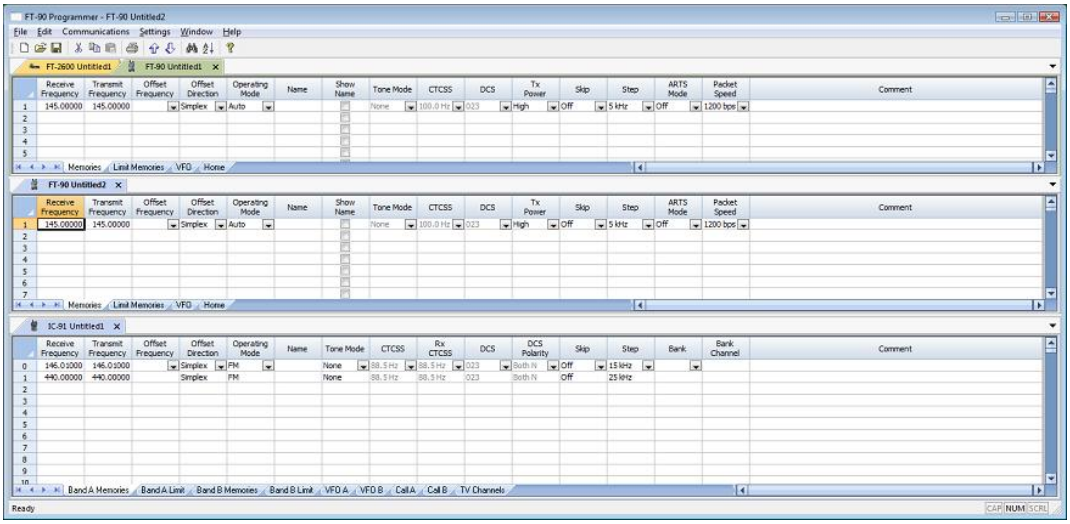
Open the files.

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

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

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

A horizontal split is also possible.



Open the files.

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

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

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

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

Part

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.

Settings | Radio Menu Settings | Common tab | Set Mode Settings | Time Out Timer

- Click on Settings at the top of the screen
- Select Radio Menu Settings from the menu that opens
- The Time Out Timer option is found under the Common tab

Note: Items with * are found in the main menu of the radio for ease of accessibility and in the extended menu of the radio. They are all listed here in the section of the extended menu in which they are found.

Set Mode	
Menu Item	Programmer Item
Mode and Tuning Step (MOD.TS)	
MODE*	Main screen | Operating Mode This item is set independently for each memory channel. AM and FM selections are available within appropriate frequency ranges.
TS*	Main Screen | Step This item can be set independently for each memory channel.
DUP/TONE (DUP.T)	
TONE*	Main Screen | Tone Mode This item can be set independently for each memory channel.

OFFSET*	Main screen | Offset Frequency This item is set independently for each memory channel.
R TONE*	Main Screen | CTCSS. This item is set independently for each memory channel.
C TONE*	Main screen | RX CTCSS This item is set independently for each memory channel
T BURST	Settings | Radio Menu Settings | Set Mode tab | Tone Burst (checkbox)
CODE*	Main screen | DCS. This item is set independently for each memory channel.
DTCS-P*	Main Screen | DCS Polarity. This item is set independently for each memory channel
Scan (SCAN)	
PRIO*	This item is not addressed from the programmer. It is to be turned on from the face of the radio when the feature is wanted to avoid unexpected behavior through accidental activation.
PAUSE*	Settings | Radio Menu Settings | Set Mode | Scan | Pause Timer This item is set independently for A Band and B Band
RESUME*	Settings | Radio Menu Settings | Set Mode | Scan | Resume Timer This item is set independently for A Band and B Band
TEMP	Settings | Radio Menu Settings | Set Mode tab | Scan | Temp Skip Timer This item can be set separately for A Band and B Band.
WX-ALT*	Settings | Radio Menu Settings | Set Mode | Weather
P-Skip	Settings | Radio Menu Settings | Set Mode tab | Scan grid | Program Skip Scan - This item can be set independently for A Band and B Band.

B-Link	Settings | Bank Names and Linking This item is set independently for Band A and Band B
P-Edge	Main screen | Limit Memories
P-Link	Settings | Program Scan Linking. This option can be set separately for nine different combinations.
Function (FUNC)	
SQL TYP	Settings | Radio Menu settings | Set Mode tab | Squelch/ATT
SQL DL	Settings | Radio Menu settings | Set Mode tab | Squelch Delay
FAN	Settings | Radio Menu settings | Set Mode tab | Fan Control
Dial S	Settings | Radio Menu settings | Set Mode tab | Dial Speed-up (checkbox)
AutoRP	Settings | Radio Menu settings | Set Mode tab | Auto Repeater
RMT MIC	Settings | Radio Menu Settings | Set Mode tab | Remote Mic Key
UD MIC	Settings | Radio Menu Settings | Set Mode tab | Up/Down Mic Key
PTT	Settings | Radio Menu Settings | Set Mode tab | One Touch PTT (checkbox)
PTT LK	Settings | Radio Menu Settings | Set Mode tab | PTT Lock (checkbox)
LK OUT	Settings | Radio Menu Settings | Set Mode tab | Busy Channel Lockout (checkbox)
TOT	Settings | Radio Menu Settings | Set Mode tab | Time Out Timer
ACTIVE	Settings | Radio Menu Settings | Set Mode tab | Active Band

MIC G	Settings | Radio Menu Settings | Set Mode tab | Mic Gain
AP OFF	Settings | Radio Menu Settings | Set Mode tab | Auto Power Off
CI-V ADR	Settings | Radio Menu Settings | DTMF/Bluetooth tab | CI-V | Address
CI-V BAU	Settings | Radio Menu Settings | DTMF/Bluetooth tab | CI-V | Baud Rate
CI-V TRN	Settings | Radio Menu Settings | DTMF/Bluetooth tab | CI-V | Transceive (checkbox)
IF Exchange	Settings | Radio Menu Settings | Set Mode tab | IF Enchange (checkbox)
Display (DISP)	
TEMP	Settings | Radio Menu Settings | Set Mode | Scan | Temp Skip Timer
LIGHT	Settings | Radio Menu Settings | Set Mode tab | Display | Backlight
AT-DIM	Settings | Radio Menu Settings | Set Mode tab | Display | Auto Dimmer
DIM TM	Settings | Radio Menu Settings | Set Mode tab | Display | Auto Dimmer Timer
CONT	Settings | Radio Menu Settings | Set Mode tab | Display | LCD Contrast
OPNMSG	Settings | Radio Menu Settings | Set Mode tab | Display | Opening Message (checkbox)
NAME	Settings | Radio Menu Settings | Set Mode tab | Display | Name (checkbox)
AIR	Settings | Radio Menu Settings | Set Mode tab | Display | Air Band Display
Sounds (SOUNDS)	
	Settings | Radio Menu Settings | Set Mode tab | Sounds | Beep Level

BEEPLV	
KEY B	Settings | Radio Menu Settings | Set Mode tab | Sounds | Key Beep (checkbox)
HOME B	Settings | Radio Menu Settings | Set Mode tab | Sounds | Home Channel Beep (checkbox)
EDGE B	Settings | Radio Menu Settings | Set Mode tab | Sounds | Band Edge Beep (checkbox)
STOP B	Settings | Radio Menu Settings | Set Mode tab | Sounds | Scan Stop Beep (checkbox)
SUBMUT	Settings | Radio Menu Settings | Set Mode tab | Sounds | Sub Band Mute
Home Channel (HOMECH)	
SetFreq / SetCH	Main Screen | Call Channels tab
Bluetooth (BT SET)	
BT	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth section | Enable (checkbox)
AT CON	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth section | Auto Connect (checkbox)
CONNEC	This item is not addressed in the programmer.
DISCON	This item is not addressed in the programmer.
PAIR	This item is not addressed in the programmer.
Headset - AF OUT	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Headset | AF Output
Headset - HSFUNC	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Headset | Function Select

VOX LV	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Headset | VOX Level
VOXDLV	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Headset | VOX Delay
VOXTOT	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Headset | VOX Time out Timer
Icom Headset-PoSAVE	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Icom Headset | Power Save (checkbox)
PTT	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Icom Headset | One Touch PTT (checkbox)
PTT B	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Icom Headset | PTT Beep (checkbox)
CUST B	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Icom Headset | Custom Key Beep (checkbox)
CUST K	Settings | Radio Menu Settings | DTMF / Bluetooth tab | Bluetooth | Icom Headset | Custom Key
INITBT	This item is not addressed in the programmer.
Other (OTHERS)	
INFO-VOLT	This item is not addressed in the programmer. Use this option to check the voltage of your power supply in real time.
INFO - VER	This item is not addressed in the programmer. Use this option to check the version of your radio and any Bluetooth device currently connected.
CLONE	***Do not use the options for cloning with the programmer***. The programmer takes care of this automatically for you. An error will occur if you put the radio into clone mode while using the RT Systems programmer.
RESET	You can return your radio to factory defaults by sending a new file to it from the programmer.

Part

9 Finding Repeaters for your Location

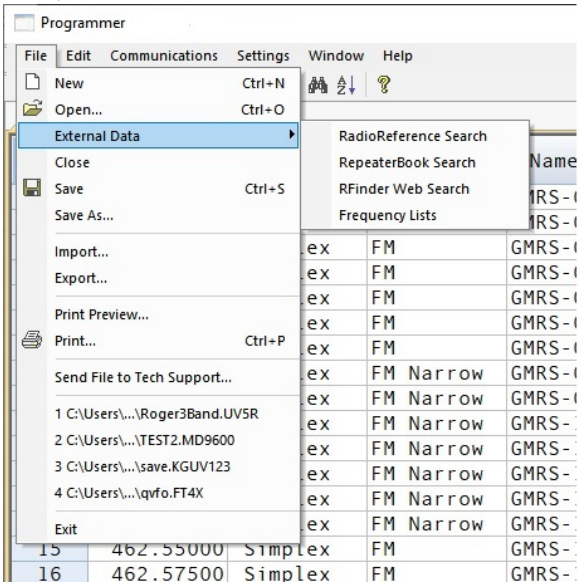
The Programmer has the ability to pull information from commercially maintained frequency information. An Internet connection is required for several of these options. Frequency List is maintained in the Programmer on your computer. The information in that list is always available to you.

To access this information, select

File from the menu at the top of the screen

In the File menu, select External Data

From the list presented, select:



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

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

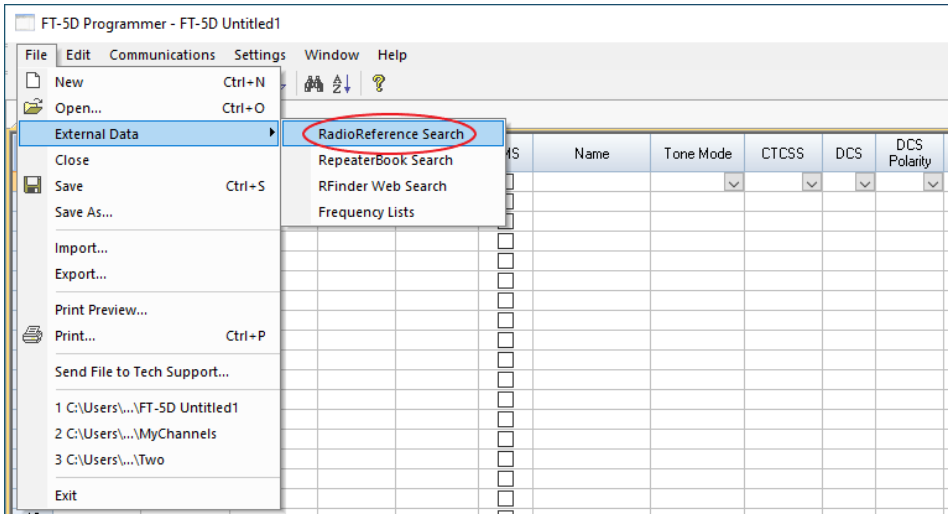
RFinder Worldwide Web Search - A commercially maintained database of amateur repeaters in the US and other countries worldwide. This search has the best interface with a location and route search available. See the RFinder site for details about that subscription.

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

9.1 Radio Reference Search

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

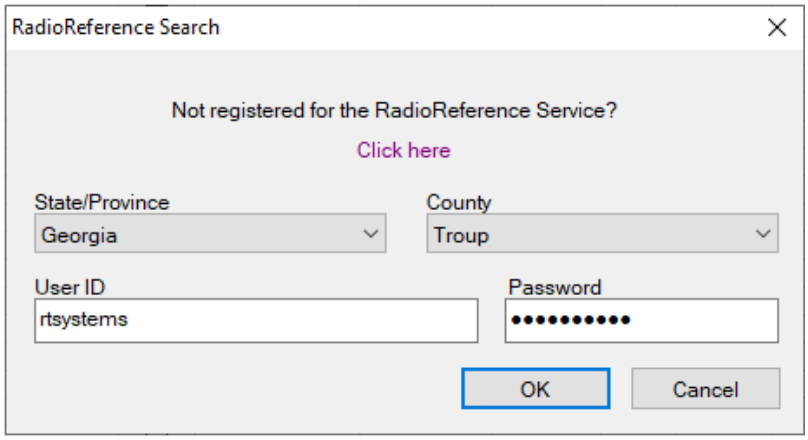
The Programmer provides easy access to the RadioReference Search interface. From the main screen of the Programmer, go to File | External Data | RadioReference Search.



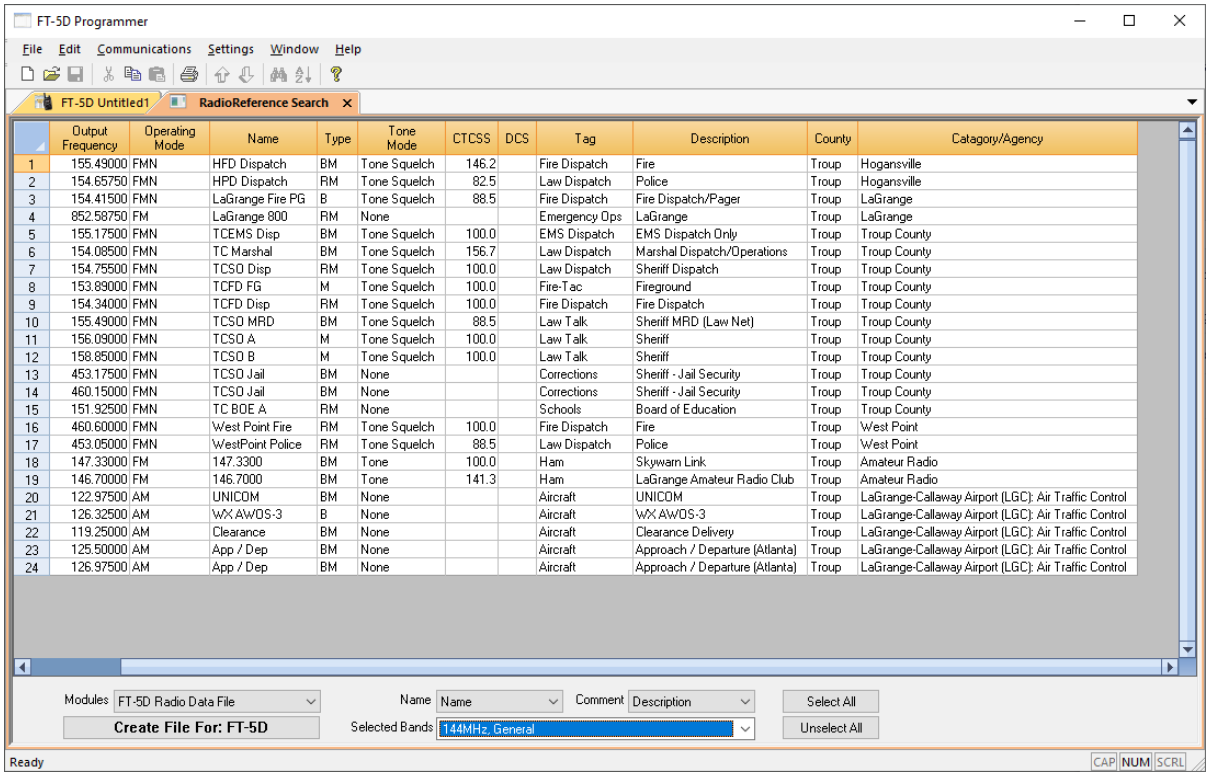
Once on the RadioReference Search page, you will need your User ID and Password. This is the information that was issued to you when you established your subscription with RadioReference. If you don't have a User ID and Password yet, click on "Click here" in the Programmer to follow the link to RadioReference.com. Follow the prompts to create and pay for your account. Then return to the Programmer.

Enter your UserID and Password into the RadioReference Search screen in the Programmer. The data will be saved by the Programmer: you will need to enter it only once. You can use these credentials to search as many times as you want until that subscription expires. Your renewal at RadioReference lets you continue in the Programmer.

Continue on this screen to select the State/Province and County information for the frequencies you're searching for



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

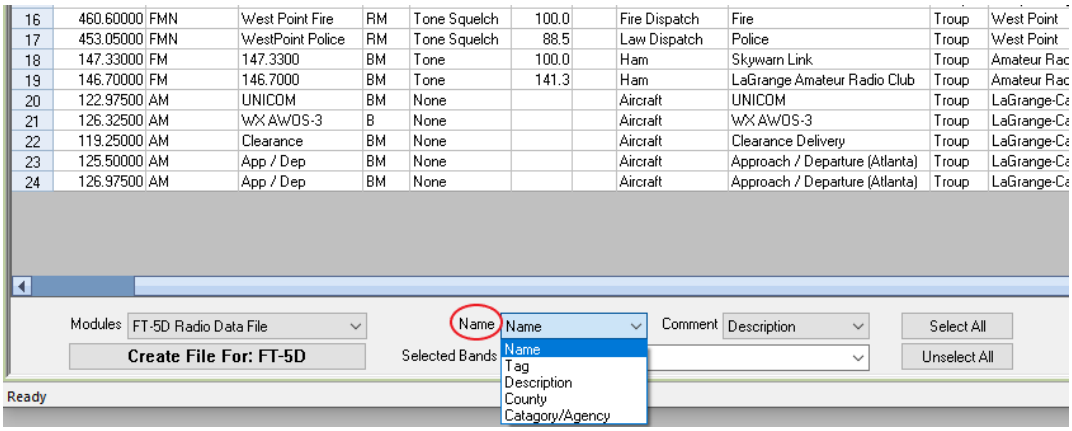


	Output Frequency	Operating Mode	Name	Type	Tone Mode	CTCSS	DCS	Tag	Description	County	Catagory/Agency
1	155.49000	FMN	HFD Dispatch	BM	Tone Squelch	146.2		Fire Dispatch	Fire	Troup	Hogansville
2	154.65750	FMN	HPD Dispatch	RM	Tone Squelch	82.5		Law Dispatch	Police	Troup	Hogansville
3	154.41500	FMN	LaGrange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

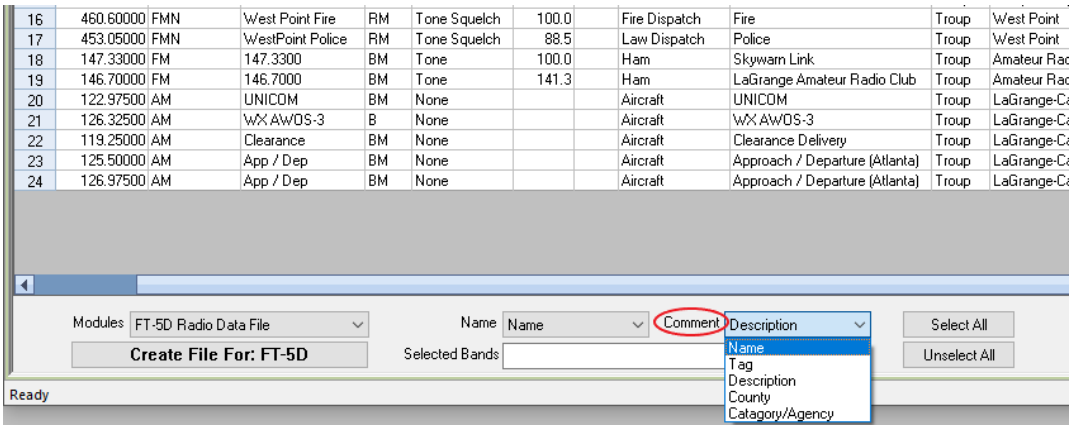
On this screen, you will:

- Check the data in the spreadsheet. Verify that this is the data you expected. A misspelled location can cause the search to return incorrect data.
- Choose one of the options in the Name drop down menu to identify what the channel Name will be. The drop down menu provides options for naming

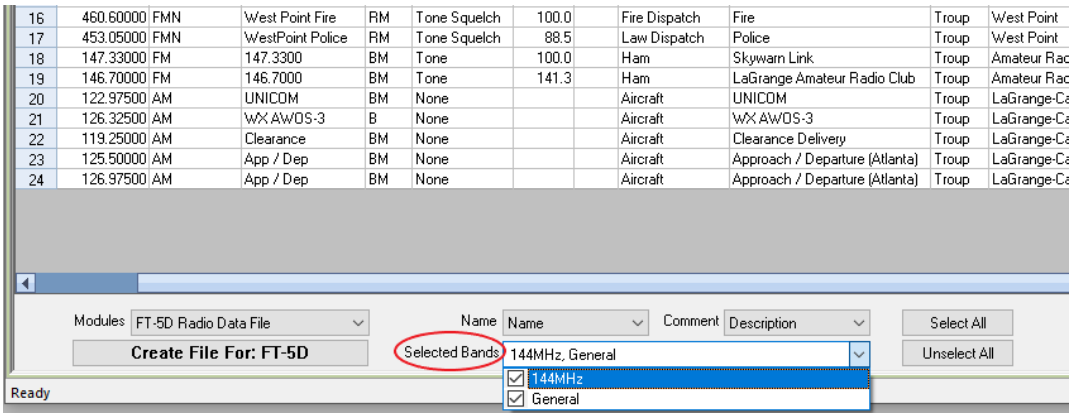
the channel according to Name, Tag, Description, County, or Category/Agency. Although this information will be transferred to the radio, the data might be truncated depending on the number of characters the radio can hold. For example, DENVER might become DENVE so choose carefully.



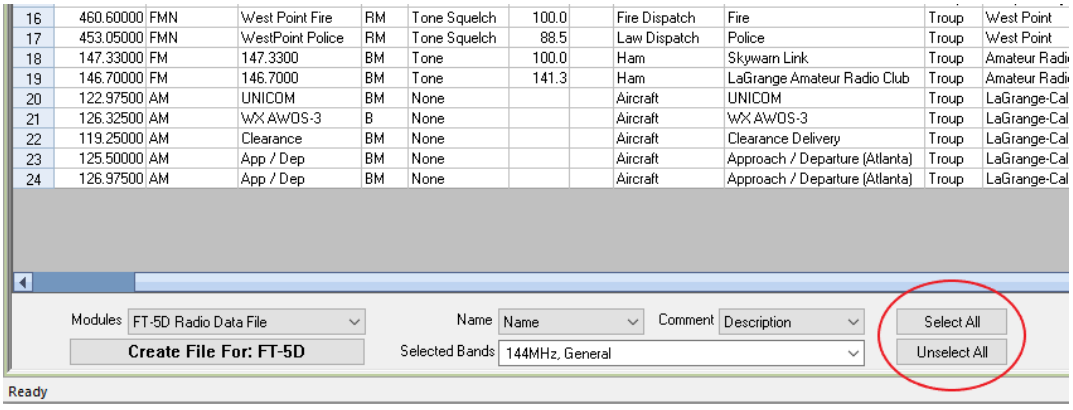
- Use the options in the Comment menu to identify what the channel Comment field will contain. The Comment drop down menu options are Name, Tag, Description, County, or Category/Agency. Comment information isn't transferred to the radio. It simply provides more details about the channel. Should you choose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



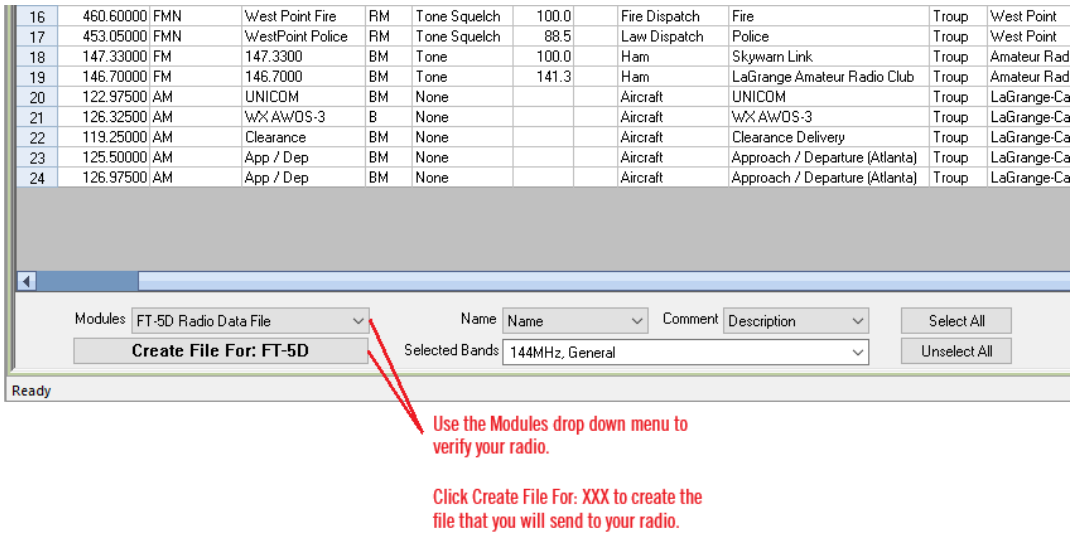
- The Selected Bands drop down menu controls the frequency band data sent to the radio. Unselect the check mark beside the band name to omit that frequency band from being sent to the radio, and select the check mark beside the band name to include it.



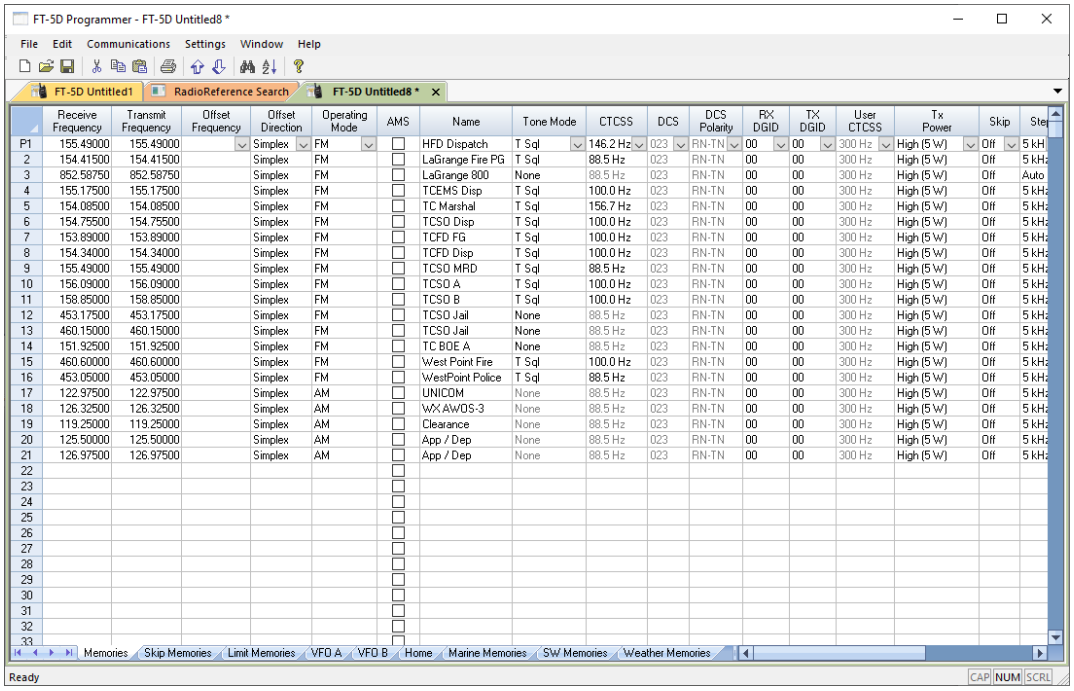
- Use the Select All and Unselect All buttons to fine tune the channels you want to send to the radio.



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



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



You need only complete Communications | Send Data To Radio in the Programmer to have your radio ready to go with all the channels you see on the screen. Details for that process specific to your radio can be found in other sections of this help.

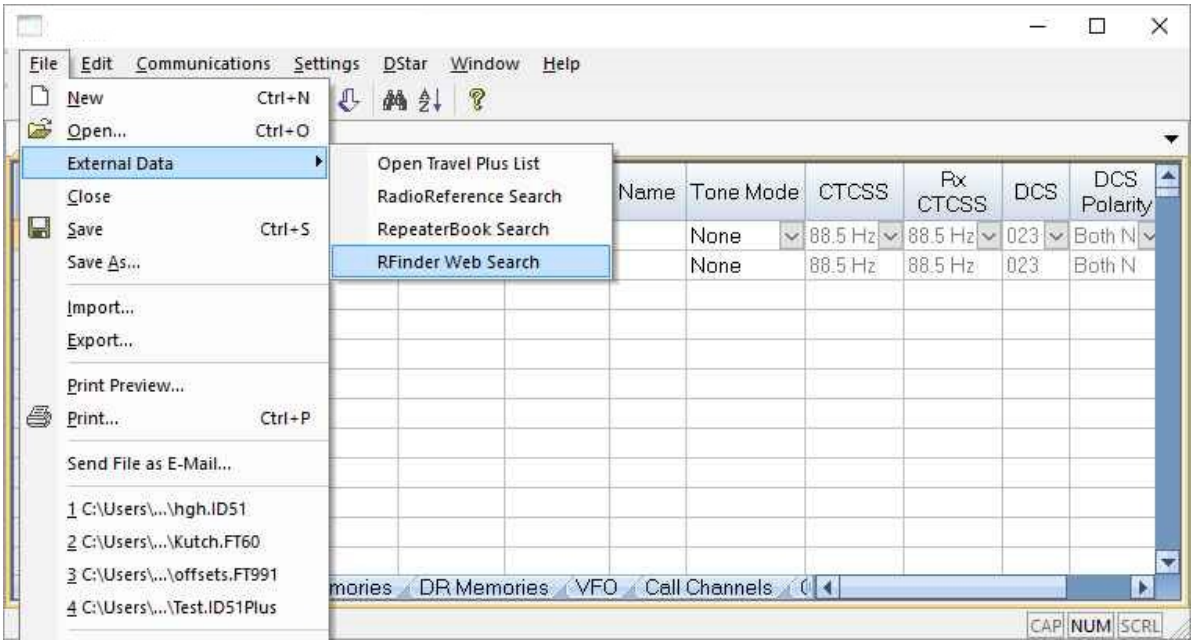
9.2 RFinder Worldwide Web Search

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

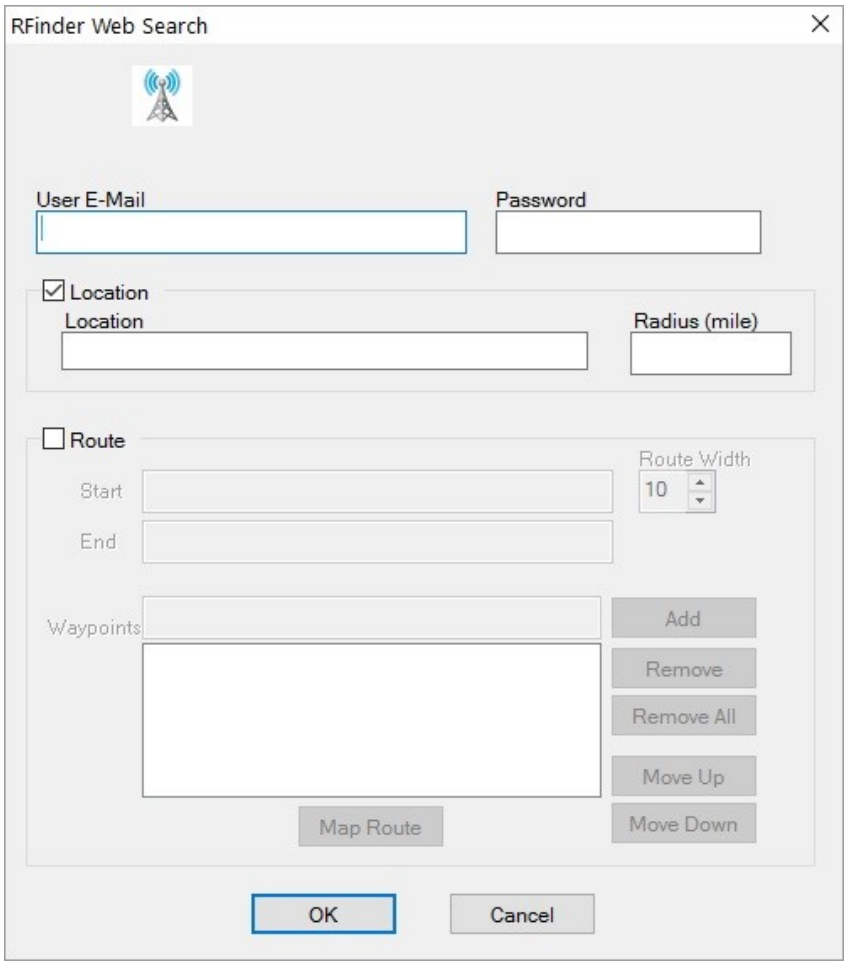
Access to the RFinder Worldwide Repeater Directory is available by subscription. A license subscription is required to access the RFinder database through the Programmer. You purchase that license from the RFinder web site.

Using the RFinder Interface

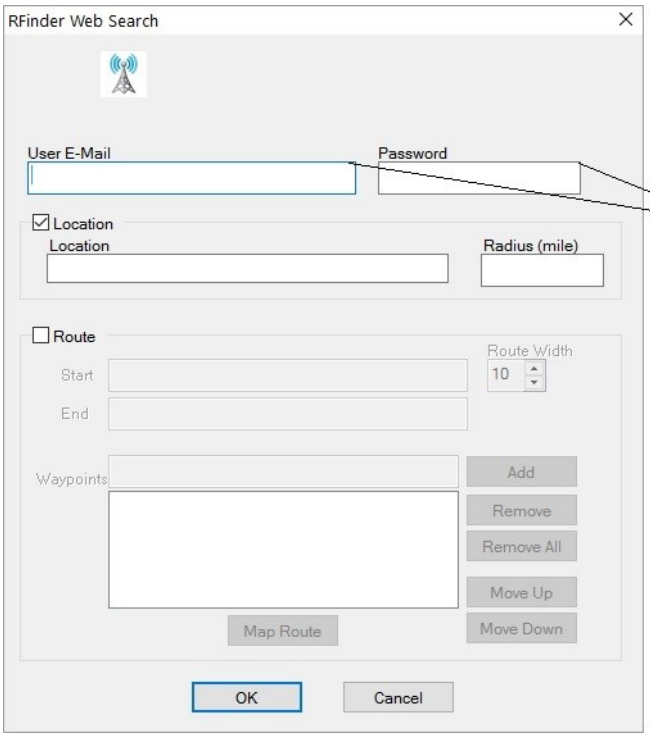
From the main screen in the Programmer, select File | External Data | RFinder Web Service.



A window opens with options for this service.



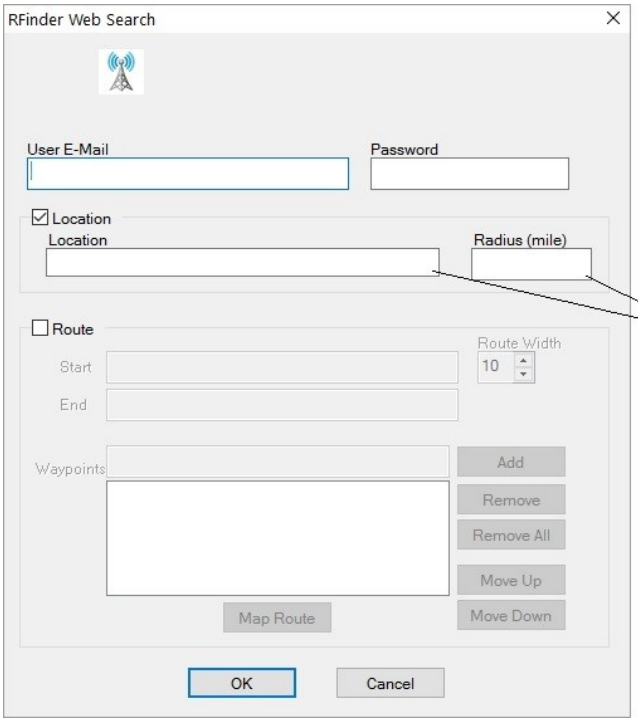
Enter Username and Password as assigned on the RFinder site. This information will be saved when you click OK. You complete these fields only once.



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

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

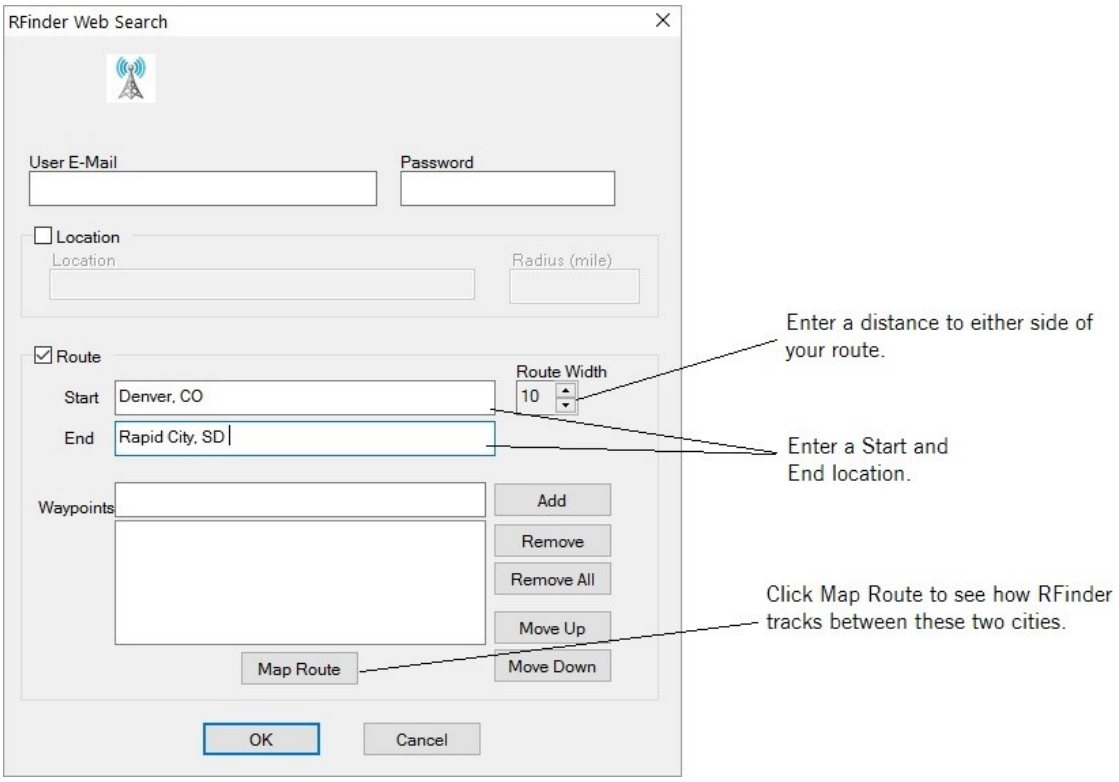
Now the fun begins... Complete your location.

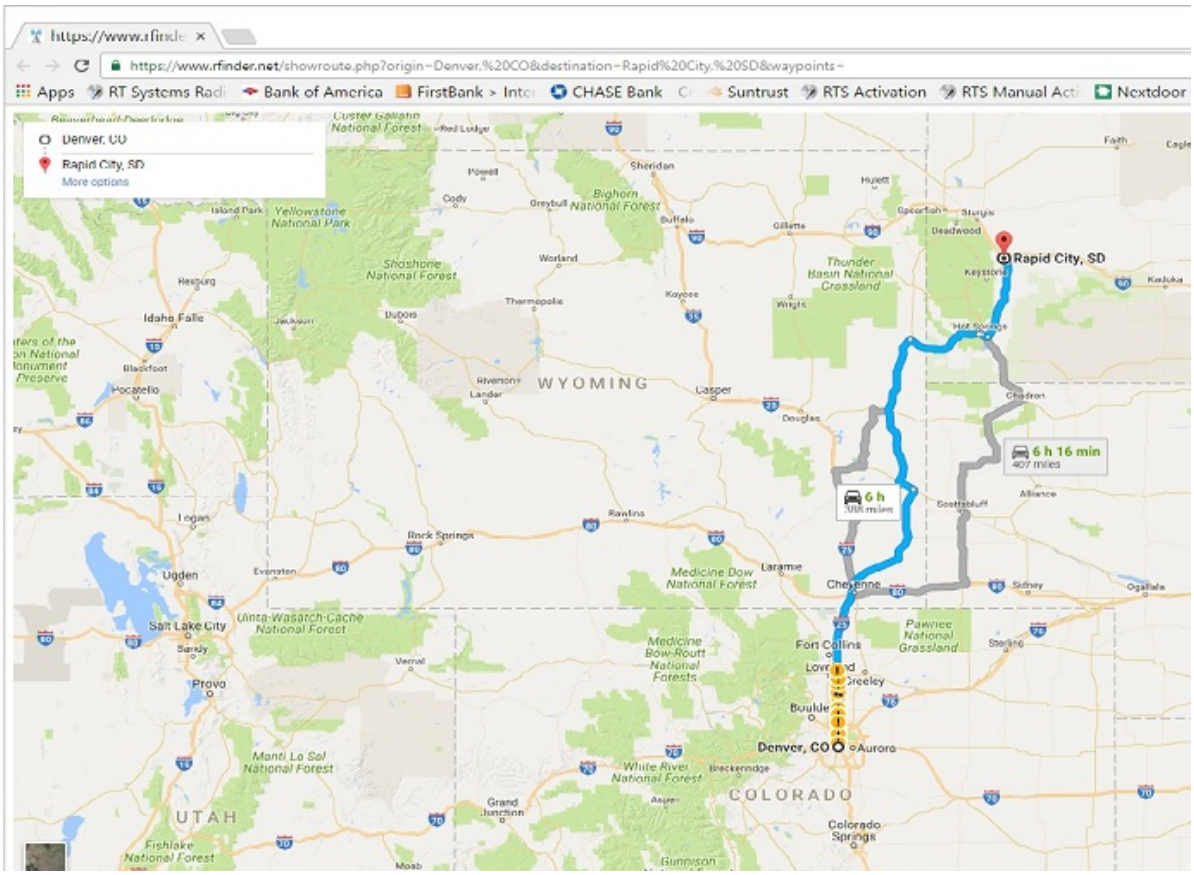


Enter a Location and a radius around it for all the repeaters in that one area.

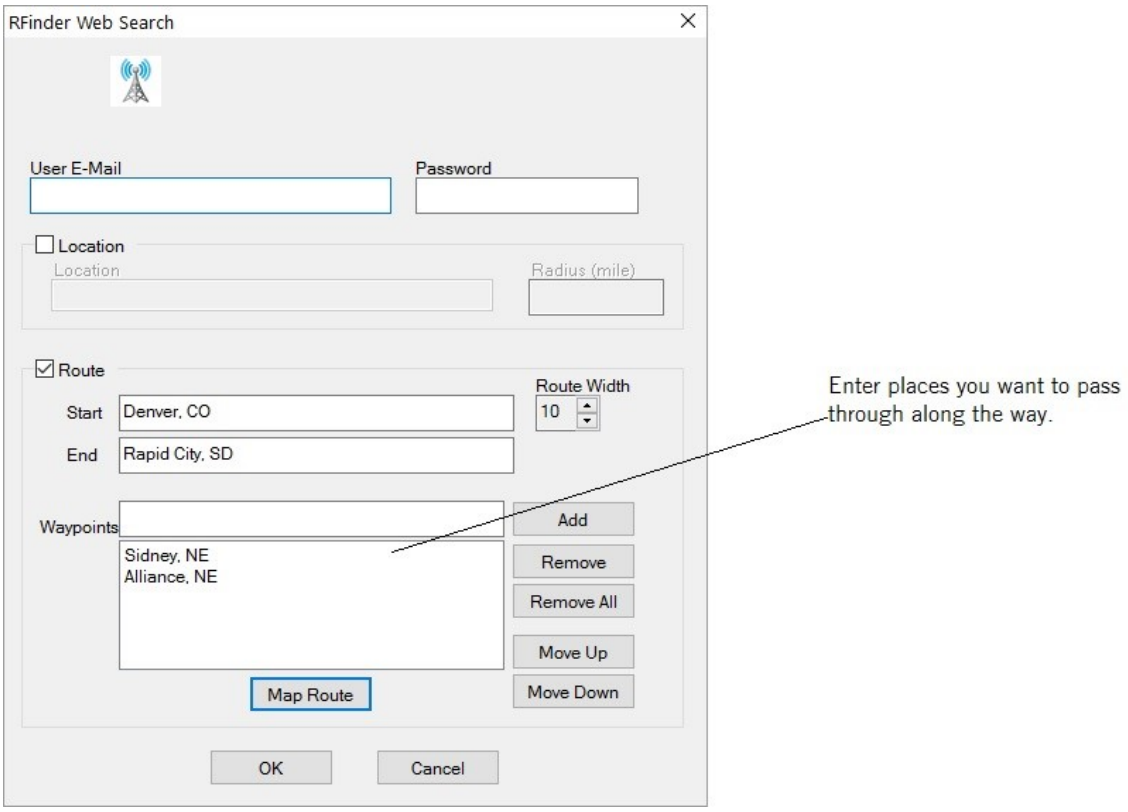
This is great way to find all the repeaters for your destination city when you are traveling.

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

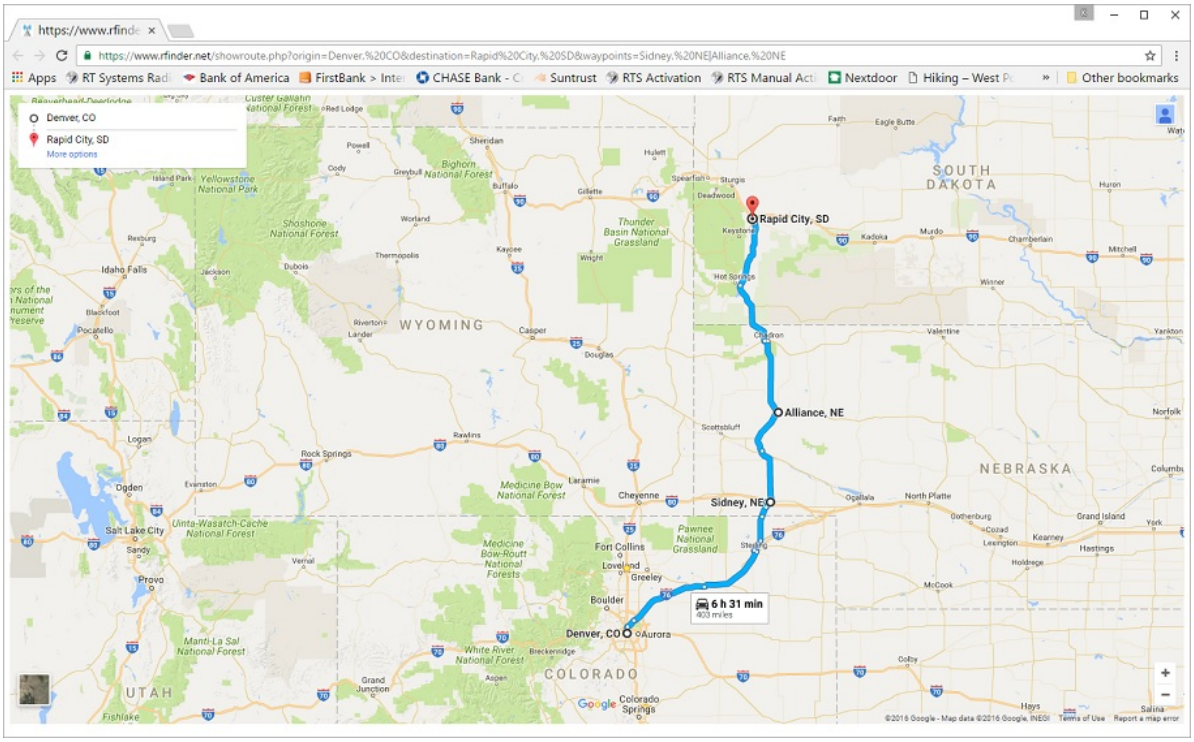




If this is not your desired route, enter waypoints along the route you want to take. RFinder will then track through those cities on the way between the start and end locations.



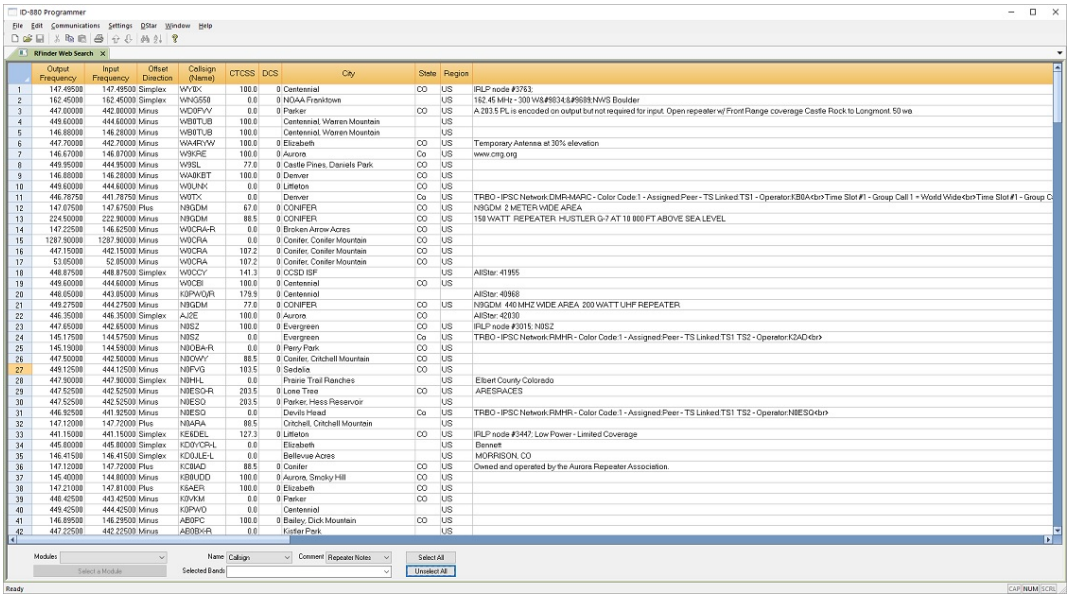
And your route becomes this.



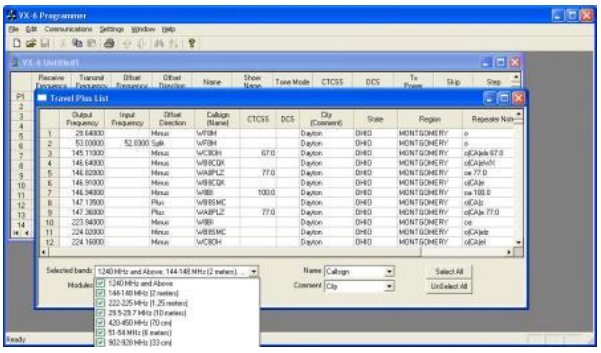
Click OK.

A screen is returned on which you will:

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

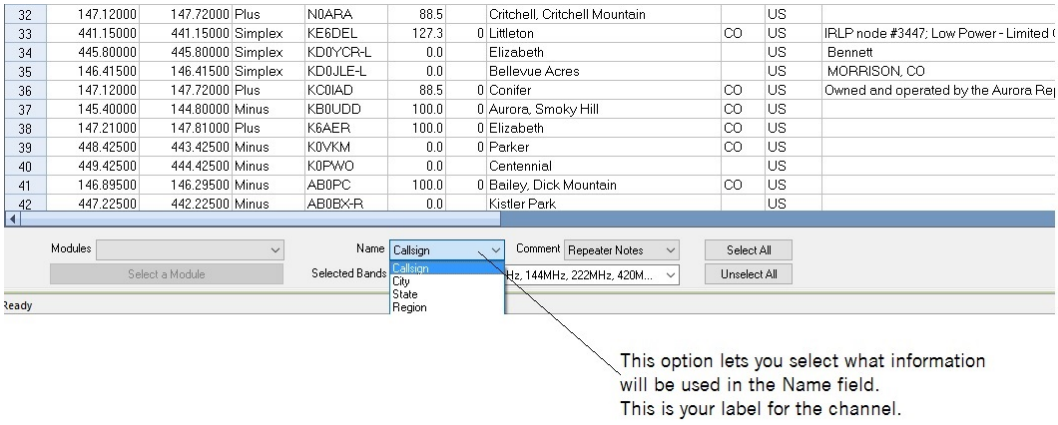


- Use the tools at the bottom of this screen to further refine the list (you may have DMR or Dstar or P25 repeaters in the list that you don't want).

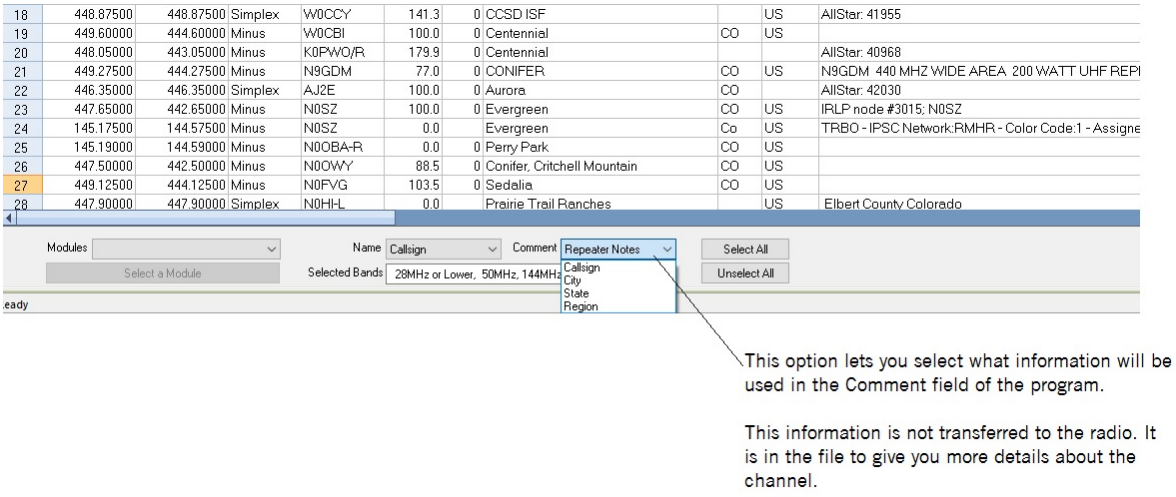


- Assign information for the Name field: this can be Callsign, City, State, Region, Repeater Notes or Sponsor. Remember, the radio will truncate

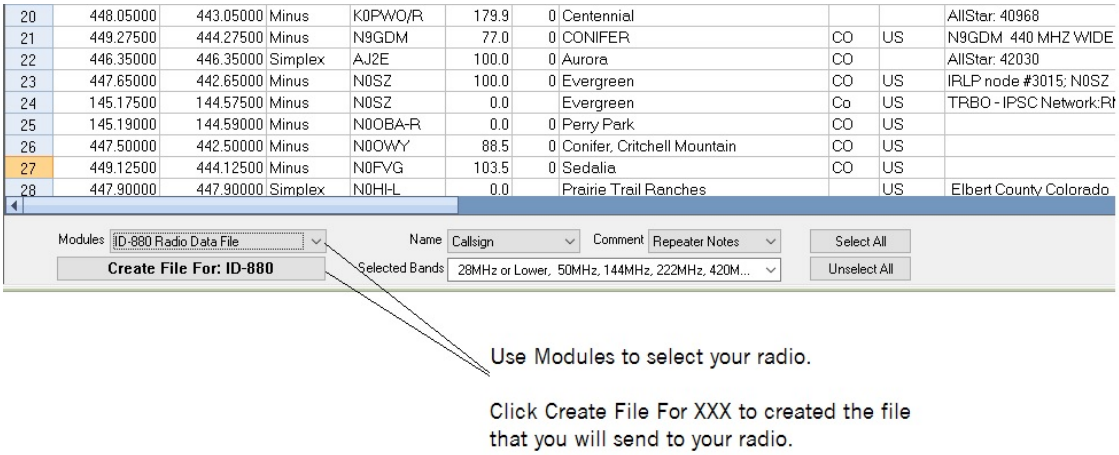
your selection to the number of characters it can hold. So in some of the older radios, DENVER would become DENVE.



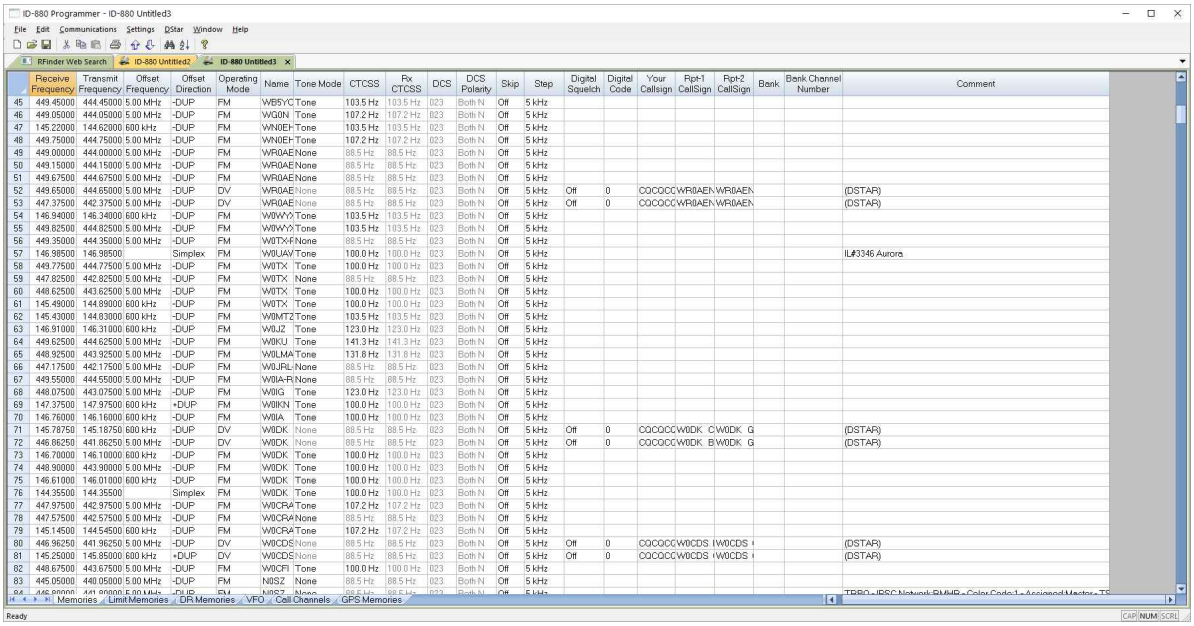
- Assign information for the Comment field: this is information that will not be transferred to the radio. It provides more details about a certain channel. You can select Callsign, City, State, Region, Repeater Notes or Sponsor for this field.



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



The programming file for your radio is created.

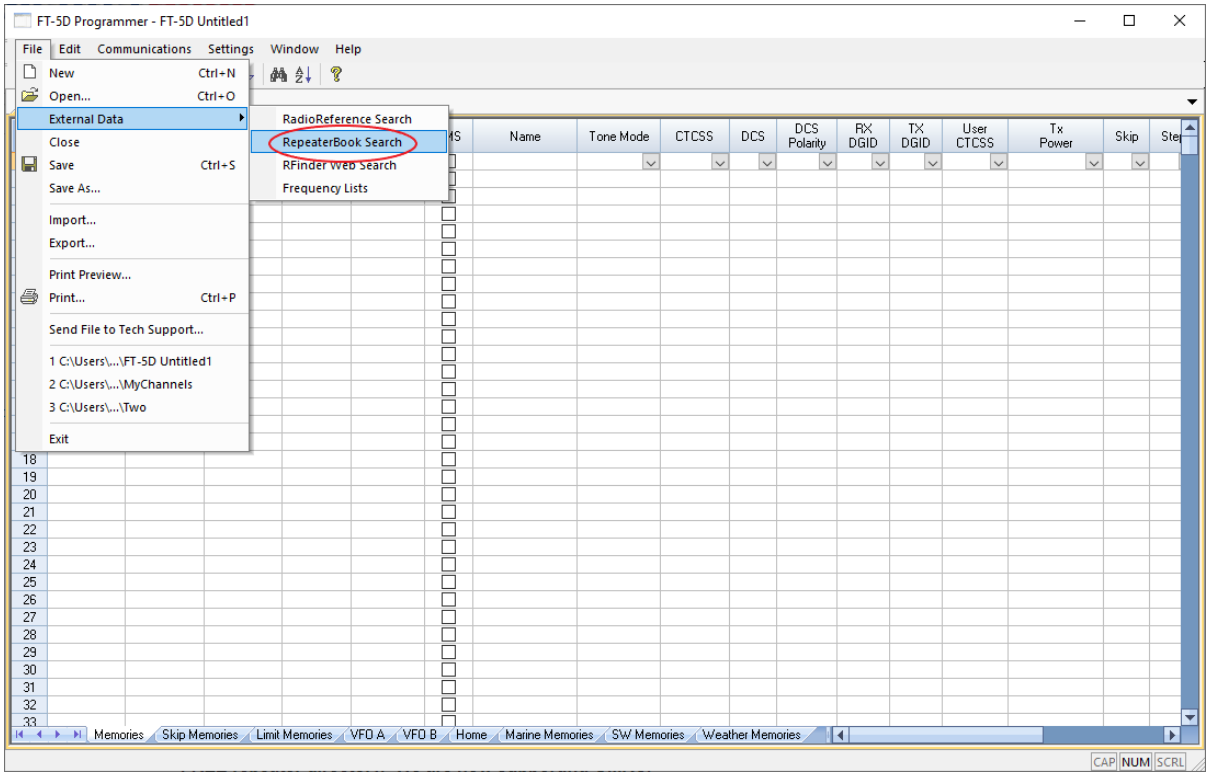


A complete programming file with having to type only the location you want!

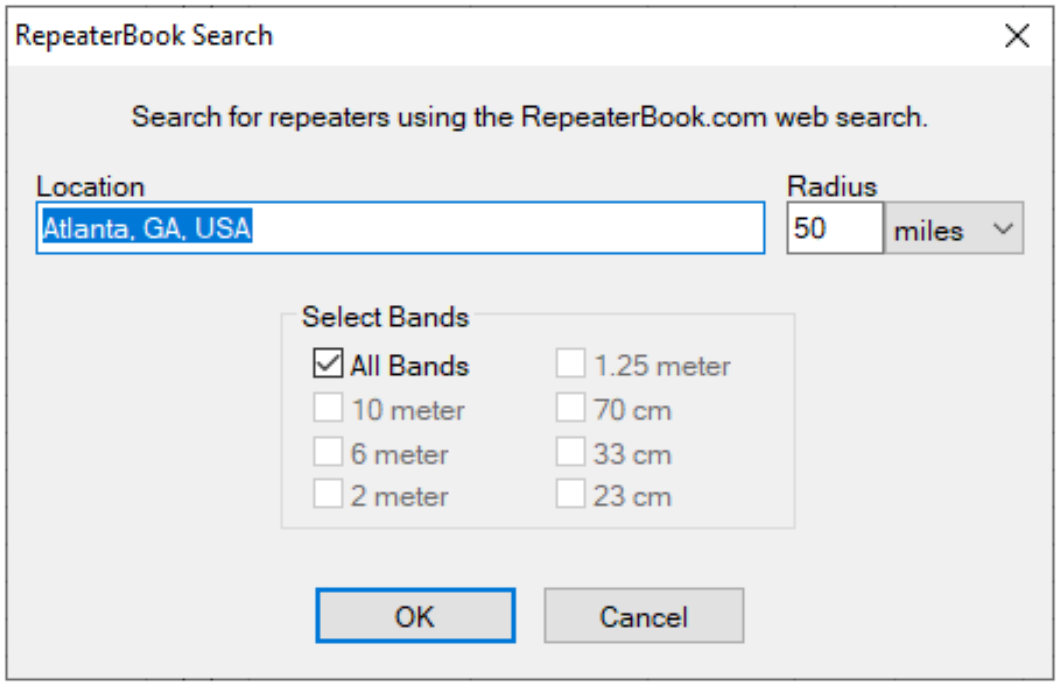
You need only complete Communications | Send Data To Radio in the Programmer to have your radio ready to go with all the channels you see on the screen. Details for that process specific to your radio can be found in other sections of this help.

9.3 Repeater Book Search

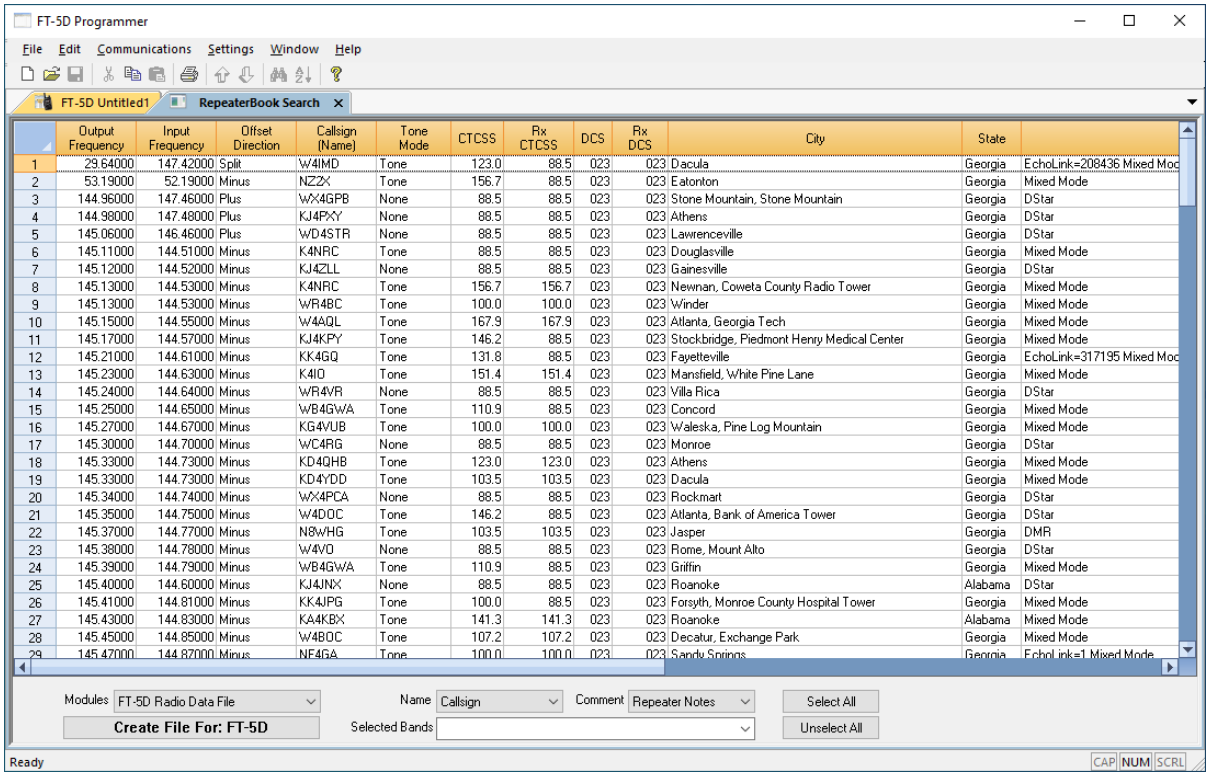
The RepeaterBook Search is amateur radio's most comprehensive global repeater directory. It is free to use and can be accessed right from the main screen of your Programmer by going to File | External Data | RepeaterBook Search.



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

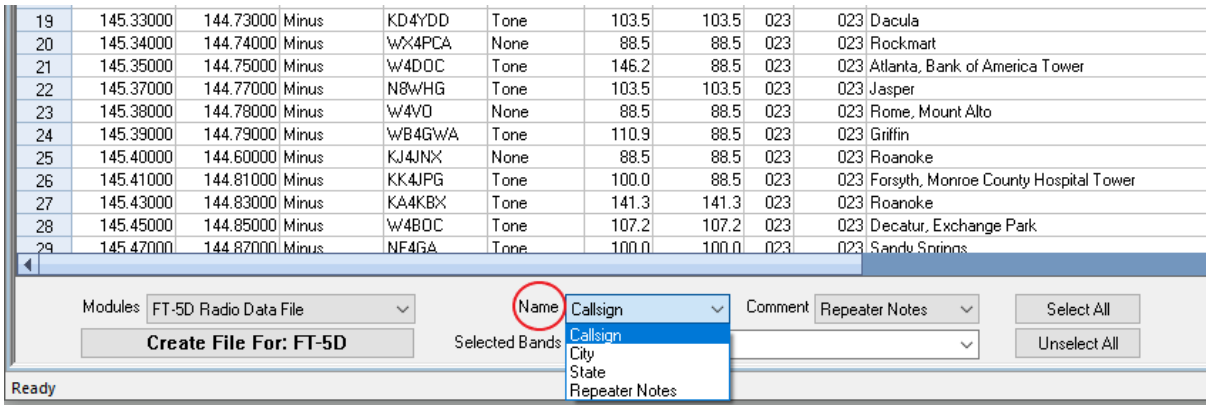


A new tab will open in the main screen of the Programmer. This tab contains the data returned from the parameters you selected for your search on the previous screen.

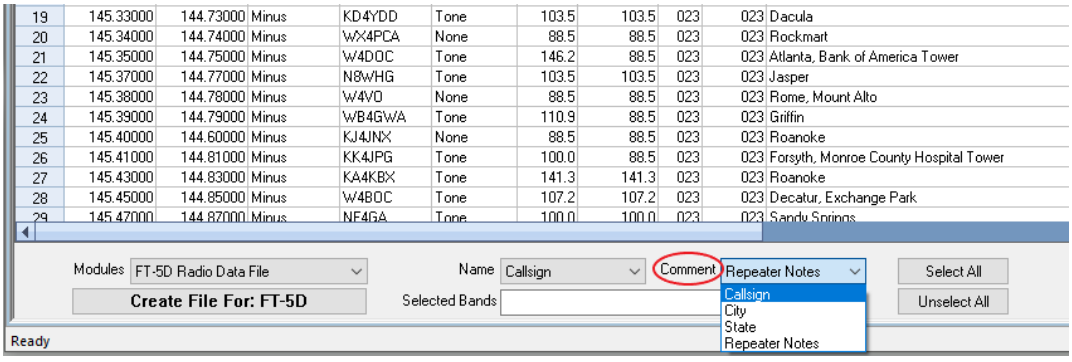


On this screen, you will:

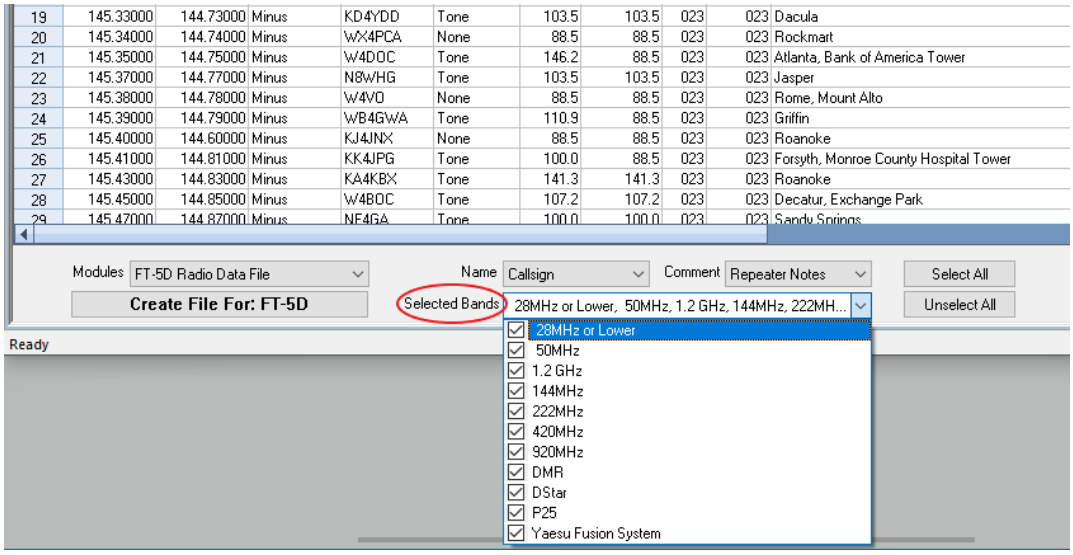
- Check the data in the spreadsheet. Verify that this is the data you expected. A misspelled word can cause the search to return incorrect data.
- Choose one of the options in the Name drop down menu to identify what the channel Name will be. The drop down menu provides options for naming the channel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



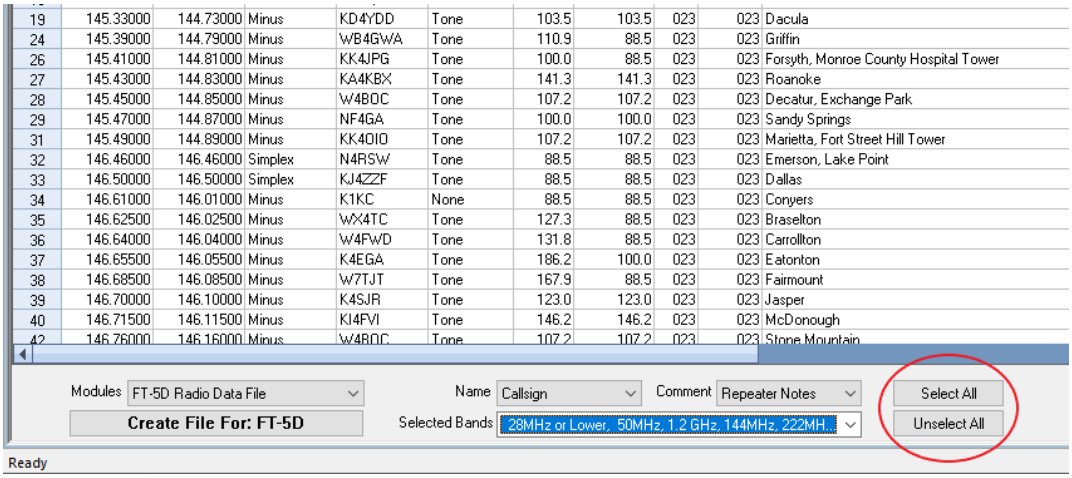
- Use the options in the Comment menu to identify what the channel Comment field will contain. The Comment drop down menu options are Callsign, City, State, or Repeater Notes. Comment information isn't transferred to the radio. It simply provides more details about the channel. Should you choose to print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



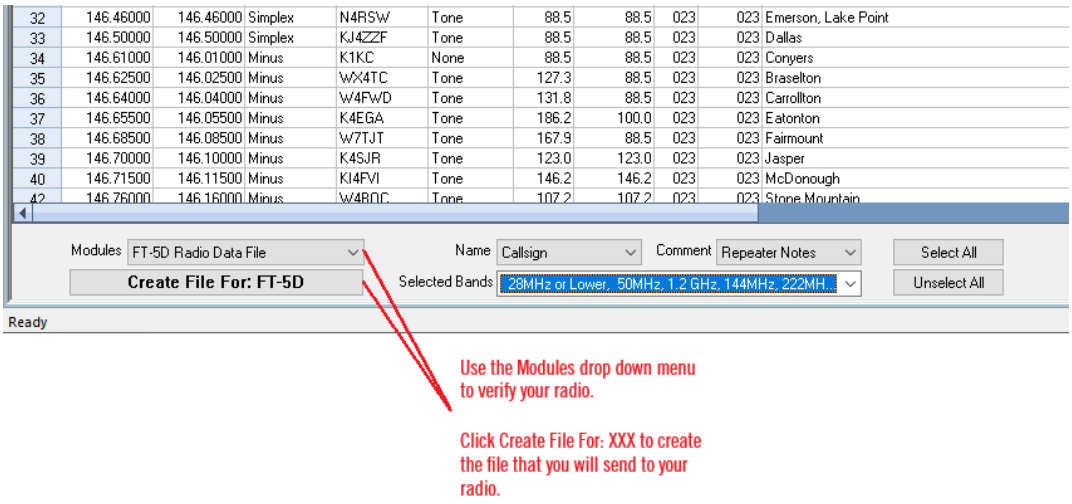
- The Selected Bands drop down menu controls the frequency band data sent to the radio. Unselect the check mark beside the band name to omit that frequency band from being sent to the radio, and select the check mark beside the band name to include it. It's recommended that you remove any distracting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



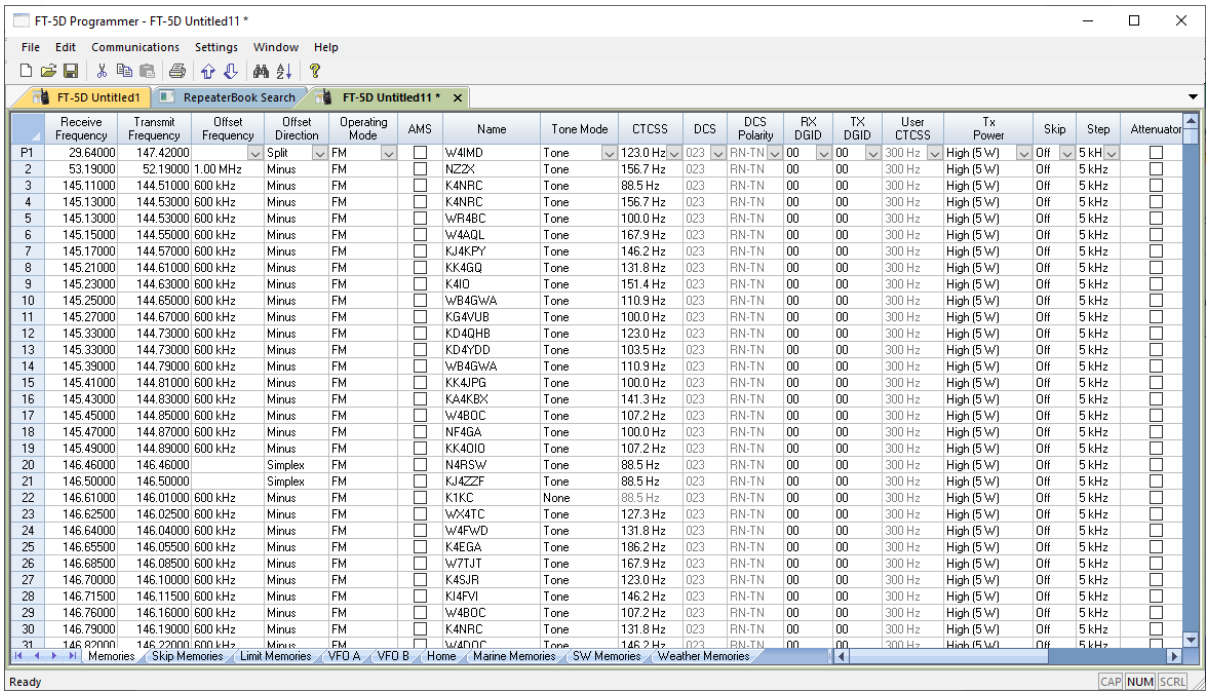
- Next, use the Select All and Unselect All buttons to fine tune the channels you want to send to the radio.



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



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



	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	AMS	Name	Tone Mode	CTCSS	DCS	DCS Polarity	RX DGID	TX DGID	User CTCSS	Tx Power	Skip	Step	Attenuator
P1	29.64000	147.42000		Split	FM		W4IMD	Tone	123.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
2	53.19000	52.19000	1.00 MHz	Minus	FM		NZZX	Tone	156.7 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
3	145.11000	144.51000	600 kHz	Minus	FM		K4NRC	Tone	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
4	145.13000	144.53000	600 kHz	Minus	FM		K4NRC	Tone	156.7 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
5	145.13000	144.53000	600 kHz	Minus	FM		WR4BC	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
6	145.15000	144.55000	600 kHz	Minus	FM		W4AQL	Tone	167.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
7	145.17000	144.57000	600 kHz	Minus	FM		KJ4KPY	Tone	146.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
8	145.21000	144.61000	600 kHz	Minus	FM		KK4GQ	Tone	131.8 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
9	145.23000	144.63000	600 kHz	Minus	FM		K4IO	Tone	151.4 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
10	145.25000	144.65000	600 kHz	Minus	FM		WB4GWA	Tone	110.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
11	145.27000	144.67000	600 kHz	Minus	FM		KG4VUB	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
12	145.33000	144.73000	600 kHz	Minus	FM		KD4QHB	Tone	123.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
13	145.33000	144.73000	600 kHz	Minus	FM		KD4YDD	Tone	103.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
14	145.39000	144.79000	600 kHz	Minus	FM		WB4GWA	Tone	110.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
15	145.41000	144.81000	600 kHz	Minus	FM		KK4JPG	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
16	145.43000	144.83000	600 kHz	Minus	FM		KA4KBX	Tone	141.3 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
17	145.45000	144.85000	600 kHz	Minus	FM		W4BOC	Tone	107.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
18	145.47000	144.87000	600 kHz	Minus	FM		NF4GA	Tone	100.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
19	145.49000	144.89000	600 kHz	Minus	FM		KK4OIO	Tone	107.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
20	146.46000	146.46000		Simplex	FM		N4RSW	Tone	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
21	146.50000	146.50000		Simplex	FM		KJ4ZZF	Tone	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
22	146.61000	146.01000	600 kHz	Minus	FM		K1KC	None	88.5 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
23	146.62500	146.02500	600 kHz	Minus	FM		WX4TC	Tone	127.3 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
24	146.64000	146.04000	600 kHz	Minus	FM		W4FWD	Tone	131.8 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
25	146.65500	146.05500	600 kHz	Minus	FM		K4EGA	Tone	186.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
26	146.68500	146.08500	600 kHz	Minus	FM		W7TJT	Tone	167.9 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
27	146.70000	146.10000	600 kHz	Minus	FM		K4SJR	Tone	123.0 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
28	146.71500	146.11500	600 kHz	Minus	FM		KI4FVI	Tone	146.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
29	146.76000	146.16000	600 kHz	Minus	FM		W4BOC	Tone	107.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
30	146.79000	146.19000	600 kHz	Minus	FM		K4NRC	Tone	131.8 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	
31	146.82000	146.22000	600 kHz	Minus	FM		W4DOC	Tone	146.2 Hz	023	RN-TN	00	00	300 Hz	High (5 W)	Off	5 kHz	

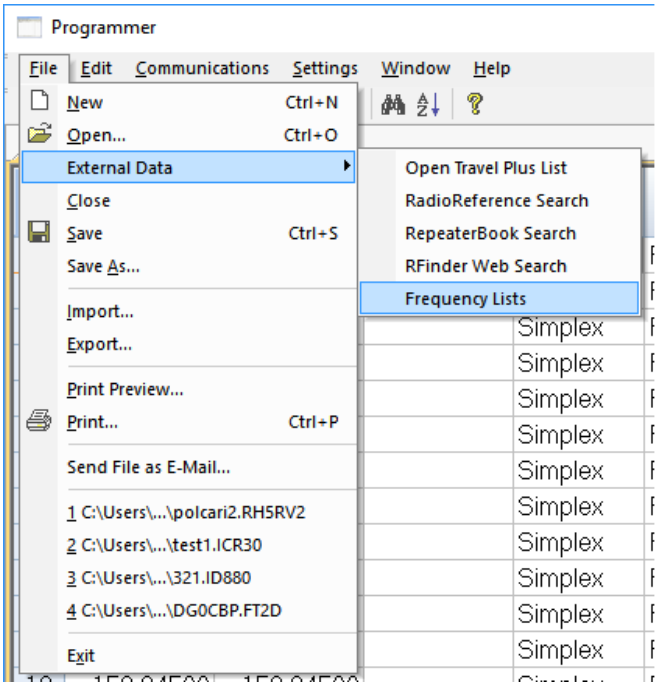
You need only complete Communications | Send Data To Radio in the Programmer to have your radio ready to go with all the channels you see on the screen. Details for that process specific to your radio can be found in other sections of this help.

9.4 Frequency List

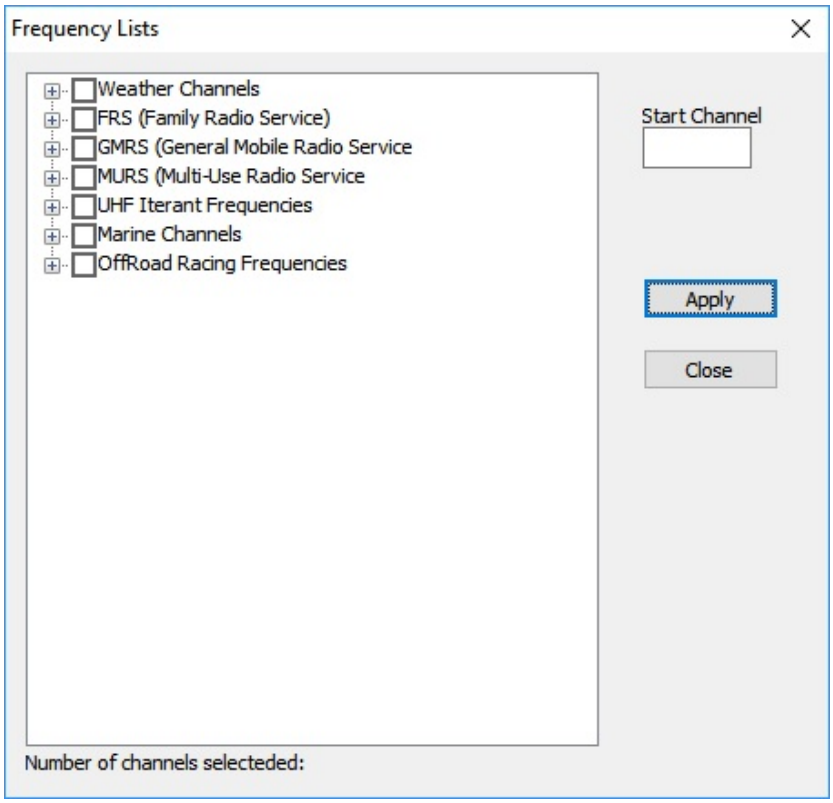
RT Systems' Programmers have a built in list of frequencies for you to use when making a file. It takes only a few mouse clicks to have your radio programmed with the frequencies that you need to use.

Included in this List are GMR frequencies, Weather Channels, FRS, MURS, UHF Itinerant Frequencies, Marine Channels and Off Road Racing Frequencies.

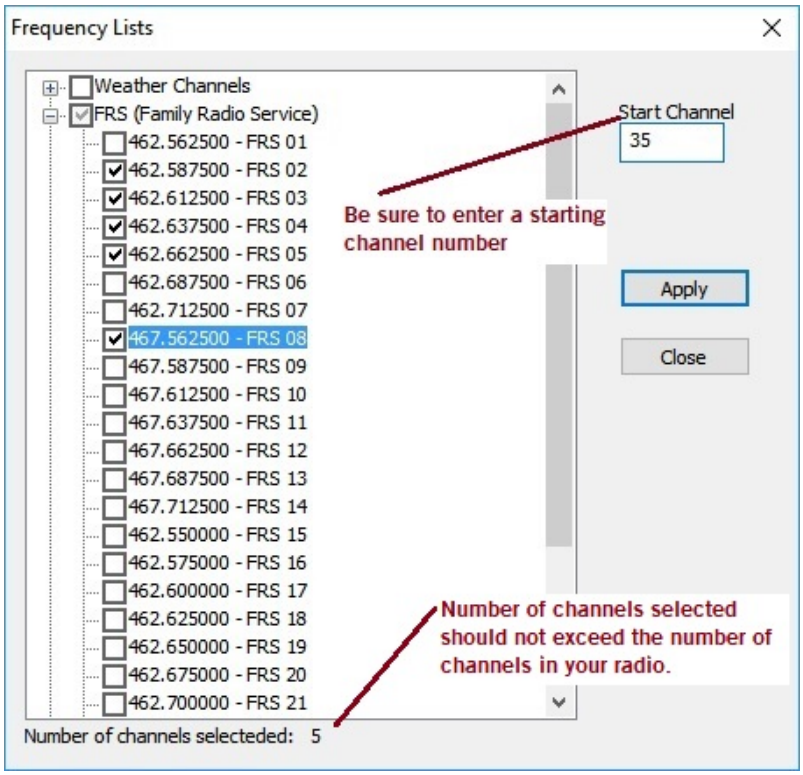
In the programmer, select **File | External Data | Frequency List**.



The screen opens with list options.



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



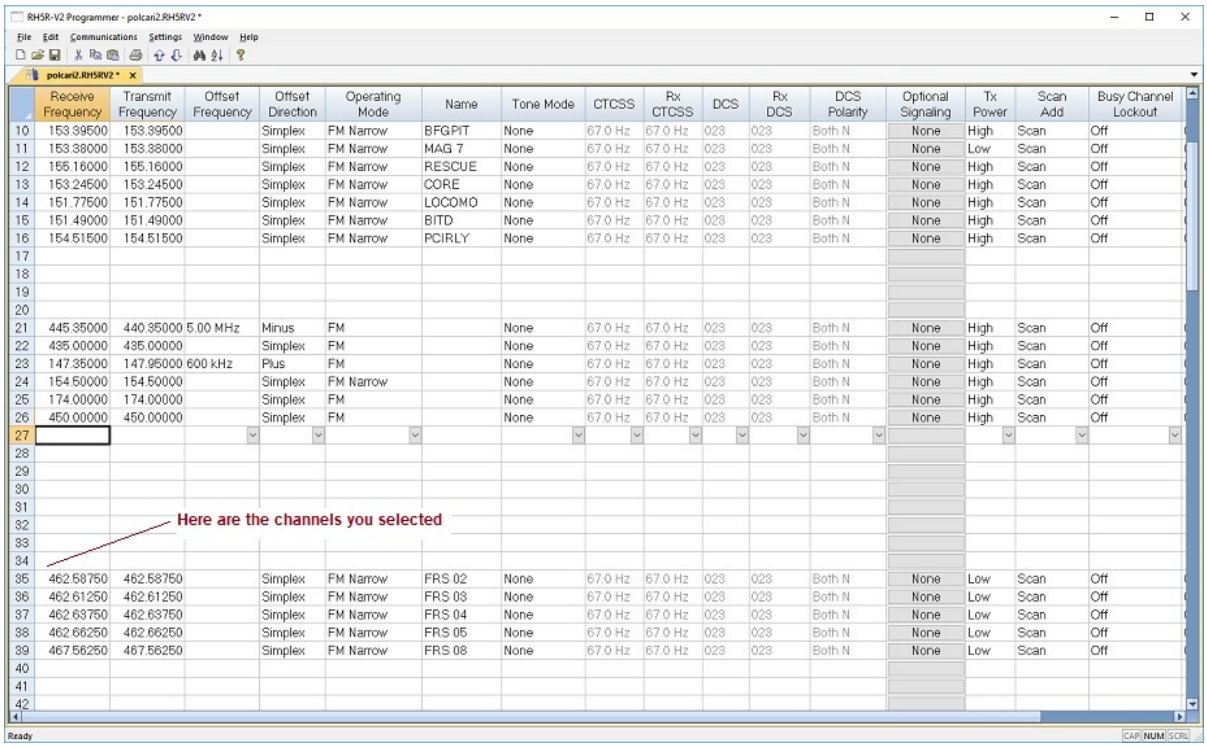
Make your selections from the list or click the box next to FRS to select all in that list.

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

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

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

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



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

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

9.5 ARRL TravelPlus*

The ARRL discontinued Travel Plus* in about 2015. It is no longer available and no longer supported by the RT Systems programmers (Version 5 or later). These instructions are included for anyone with an older version of the Programmer and a copy of Travel Plus*.

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.

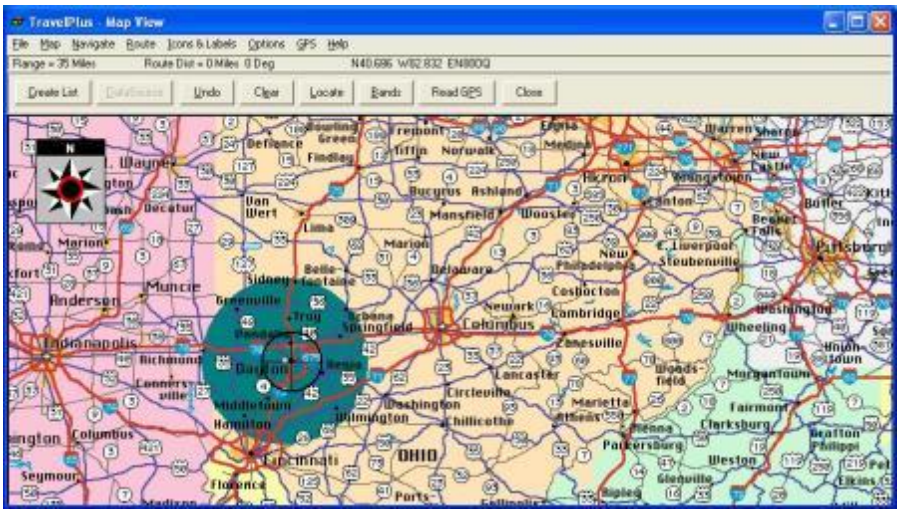
*TravelPlus is a product of the American Amateur Radio League.

9.5.1 Creating a list in TravelPlus*

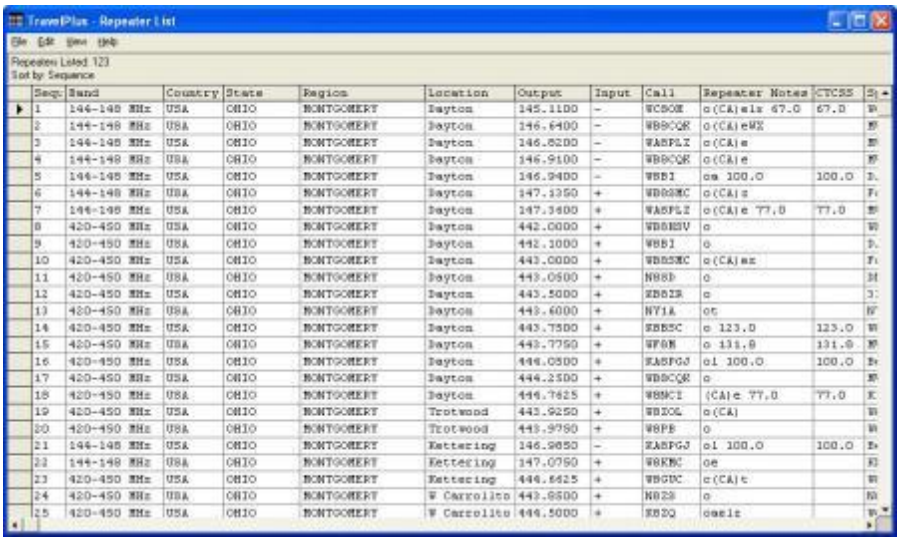
RT Systems' programmers have a feature that opens a TravelPlus* list in the radio programmer. This makes the data available for creating files for programming your radio without the need to import the data from a file.

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.


TravelPlus - Repeater List

File Edit View Help

Repeaters Listed 123
Sort by Sequence

Seq	Band	Country	State	Region	Location	Output	Input	Call	Repeater Notes	CTCSS	D
1	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	145.1100	-	WC8OH	o(CA)els 67.0	67.0	W
2	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	146.6400	-	WB8CQK	o(CA)eWX		M
3	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	146.8200	-	WA8PLI	o(CA)e		M
4	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	146.9100	-	WB8CQK	o(CA)e		M
5	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	146.9400	-	WB8I	os 100.0	100.0	D.
6	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	147.1350	+	WD8GMC	o(CA)s		F
7	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	147.3600	+	WA8PLI	o(CA)e 77.0	77.0	M
8	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	442.0000	+	WD8NSV	o		W
9	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	442.1000	+	WB8I	o		D.
10	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.0000	+	WD8GMC	o(CA)ex		F
11	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.0500	+	N8SD	o		H
12	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.5000	+	KD8IR	o		J
13	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.6000	+	NY1A	ot		N
14	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.7500	+	KB8SC	o 123.0	123.0	W
15	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.7750	+	WF8M	o 131.0	131.0	M
16	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	444.0500	+	KA8PGJ	o1 100.0	100.0	E
17	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	444.2500	+	WB8CQK	o		M
18	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	444.7625	+	WB8CI	(CA)e 77.0	77.0	K
19	420-450 MHz	USA	OHIO	MONTGOMERY	Trotwood	443.9250	+	WB2OOL	o(CA)		W
20	420-450 MHz	USA	OHIO	MONTGOMERY	Trotwood	443.9750	+	W8PB	o		W
21	144-148 MHz	USA	OHIO	MONTGOMERY	Kettering	146.9850	-	KA8PGJ	o1 100.0	100.0	E
22	144-148 MHz	USA	OHIO	MONTGOMERY	Kettering	147.0750	+	W8KMC	oe		K
23	420-450 MHz	USA	OHIO	MONTGOMERY	Kettering	444.6625	+	WB8UC	o(CA)t		W
24	420-450 MHz	USA	OHIO	MONTGOMERY	W Carrollto	443.8500	+	N8ZS	o		N
25	420-450 MHz	USA	OHIO	MONTGOMERY	W Carrollto	444.5000	+	K8ZQ	oaelt		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. If the programmer is already running, switch to it now to create a file from this list for programming the radio.

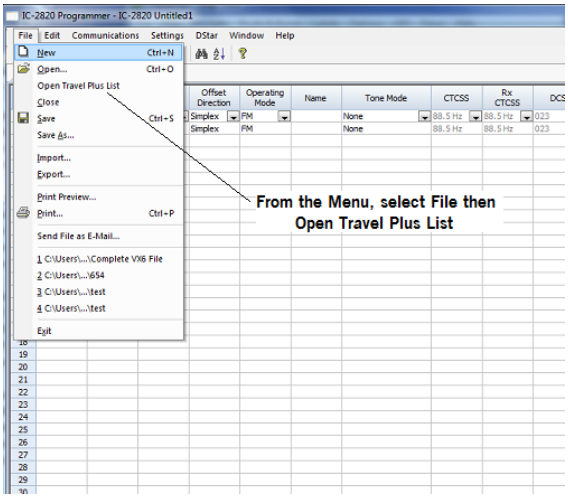
*TravelPlus is a product of the American Amateur Radio League.
Any images from TravelPlus included in this help are copyrighted to DHF Systems, LLC.

9.5.2 Opening the list in the Programmer

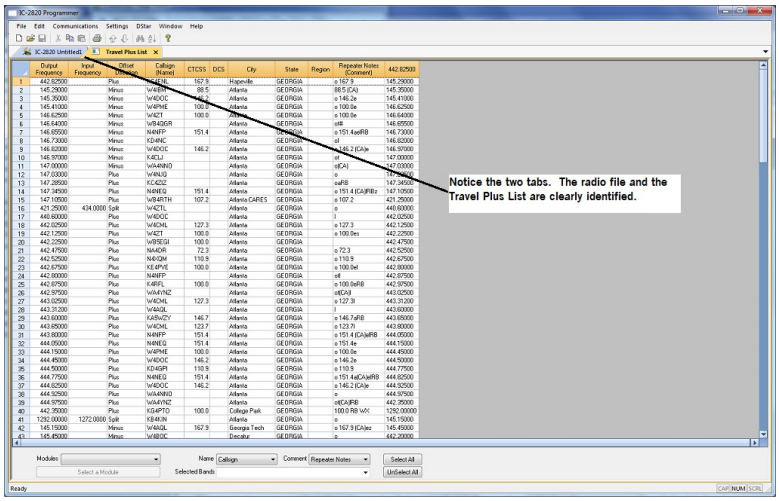
Once you have created a list in TravelPlus* (Version 10.0 or higher), open any one of the programmers installed on your machine.

To access the list:

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



- The list appears in the window of the programmer



Customizing the list for the radio file:

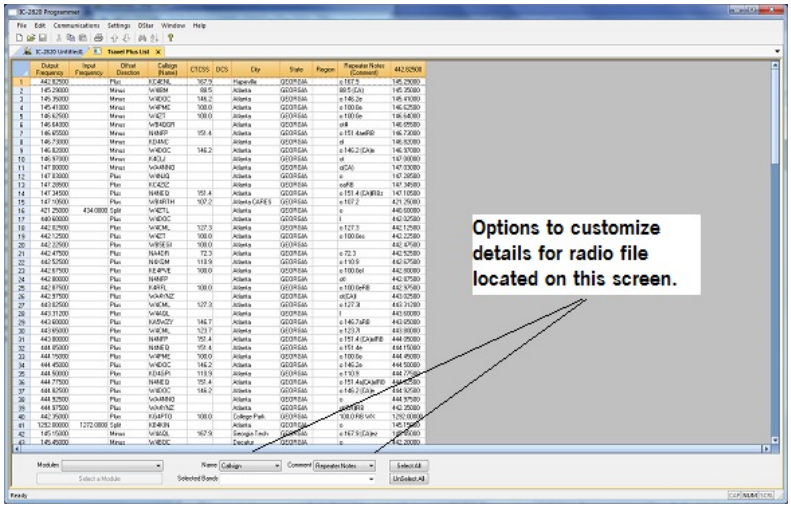
Several selections appear at the bottom of the window that contains the list. These options control how the programmer will handle the data from the list in creating the radio programming file. These fields and their options are described below.

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

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

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

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



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

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

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

  You can change that association by selecting another column from those listed. Remember that many radios allow only 6 to 8 characters for the name. The data of the field you select will be truncated and you could end up with the exact same identifier for many channels. Callsign is your best selection for the older radios with a limited number of characters.

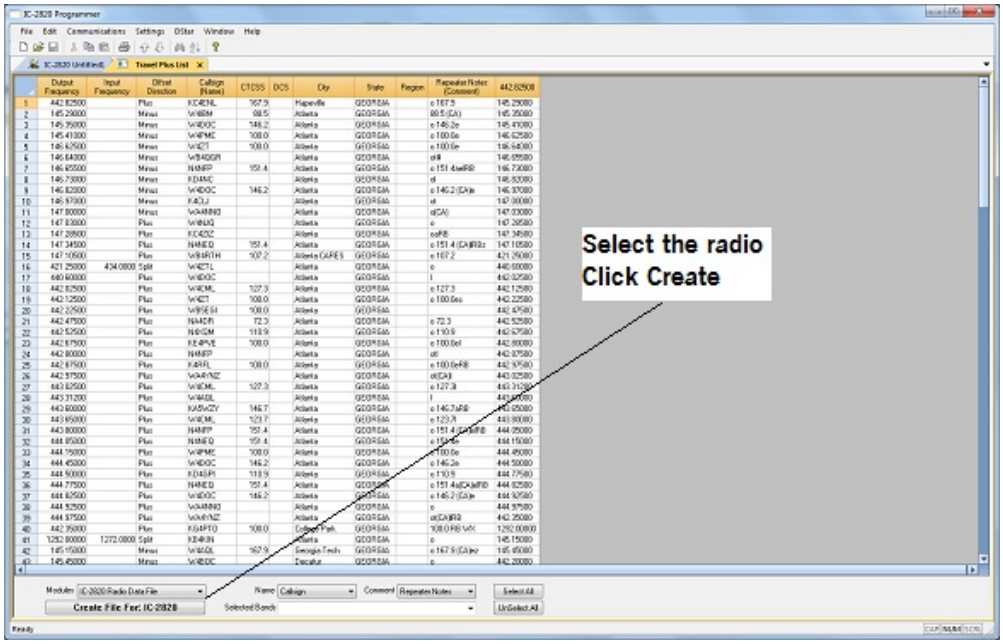
- Comment: The TravelPlus* list contains information that does not "match" directly to a column in the radio programmer.One of the columns in the programmer accept data from these columns is the Comment field.

  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.

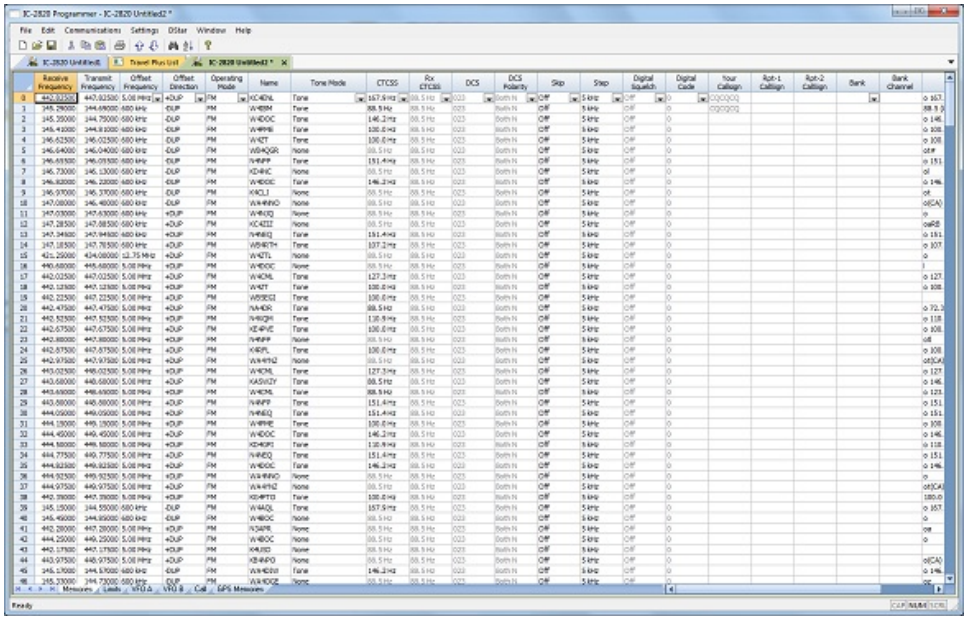
  By default, the programmer associates City from the TravelPlus* list to Comment in the programmer.

  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 file is ready to be sent to the radio.

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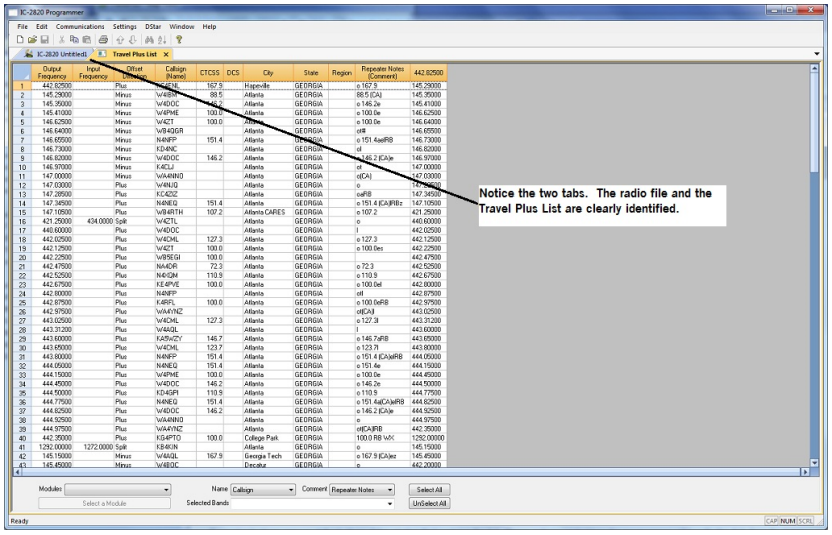
9.5.3 Using the TravelPlus* List with existing programmer file

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 an RT Systems radio programmer (Version 4 or higher), 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.

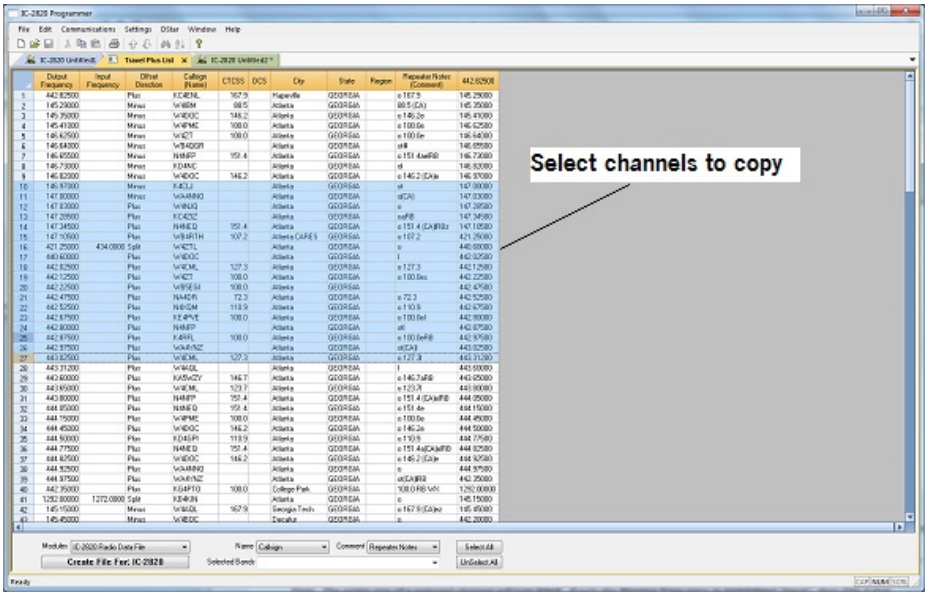


- Select a group of channels.

  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.

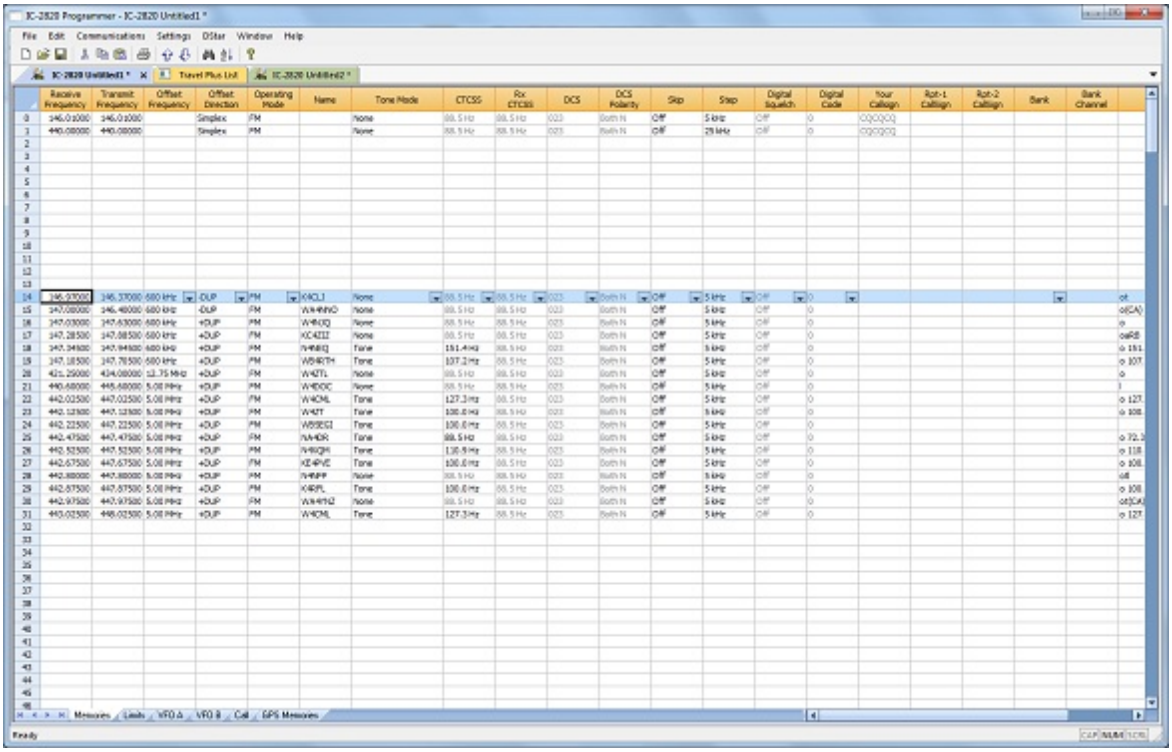
- Select the first channel in the file into which the information is to be pasted.
- Paste the information into the radio file

  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.



- Save the programmer file to make this change permanent.

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

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

- Send the file to your radio.

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

10 Programming Memory Channels

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

When you find information about a repeater (from friends, the Internet, etc.), that information will include a frequency (say 146.94 or 440.00), a + or -, and maybe another number with a decimal (like 103.5). This is all you need to set up a memory channel through the Programmer. The Programmer will even help with some of the details. Let me explain:

- **Receive Frequency**: 146.94 or 440.00 (Type it into the Receive Frequency field just as you see it here. Put a period for the decimal.) Press Enter.
- **Offset Direction**: This is the + or - shown in your information. The Programmer has probably set this field already. Check that the Offset Direction is Dup+ or Dup- as shown in the information you have.
- **Tone Mode**: No this was not specifically given, but it is a part of the information because of the 103.5 number. Set this field to Tone.
- **CTCSS**: 103.5 (Be sure to find the value in the CTCSS list. If it is not there, the radio cannot use what you were given. Check your information.)

This is all you need for the radio to hear and let you talk through the repeater. The other columns on the screen are for extra options that you don't need right now. For more information on all the columns on the main screen of the Programmer, see the Memory Channel Details section of this help.

Memory Types

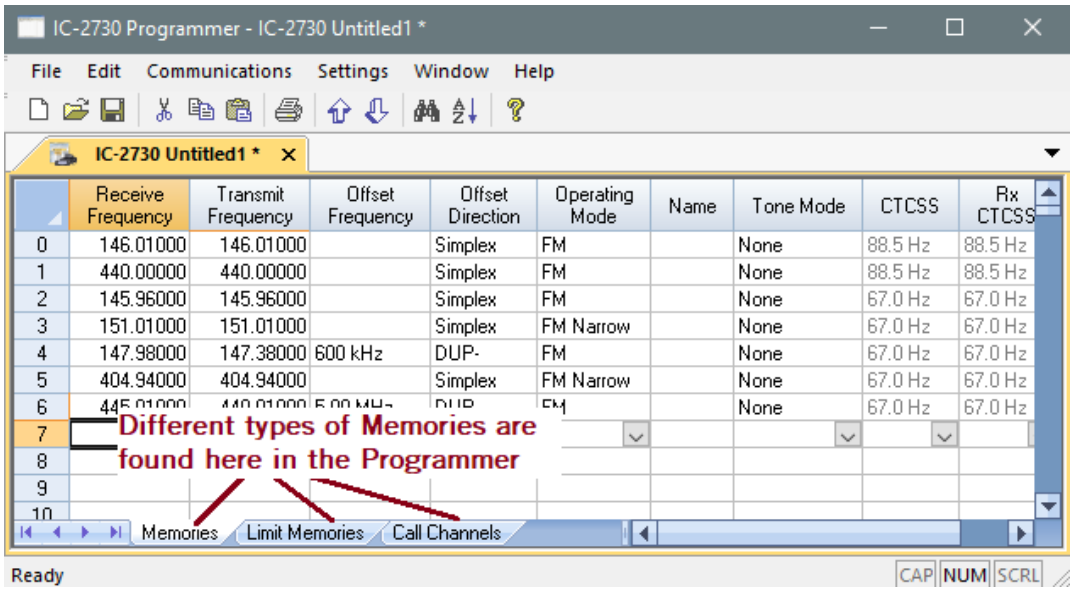
The radio has lots of different types of memory channels. In the Programmer, these all program in a spreadsheet dedicated to that specific memory type. The different types of memory channels can be found through the tabs at the bottom of the spreadsheet. The IC-2730 has three different types of memories.

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

Regular Memory Channels - These memory channels are the ones you will use most often. All radios today have several hundred of these types of memory channels.

Limit Memories - These channels control the top and bottom range of the Programmable Scan.

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



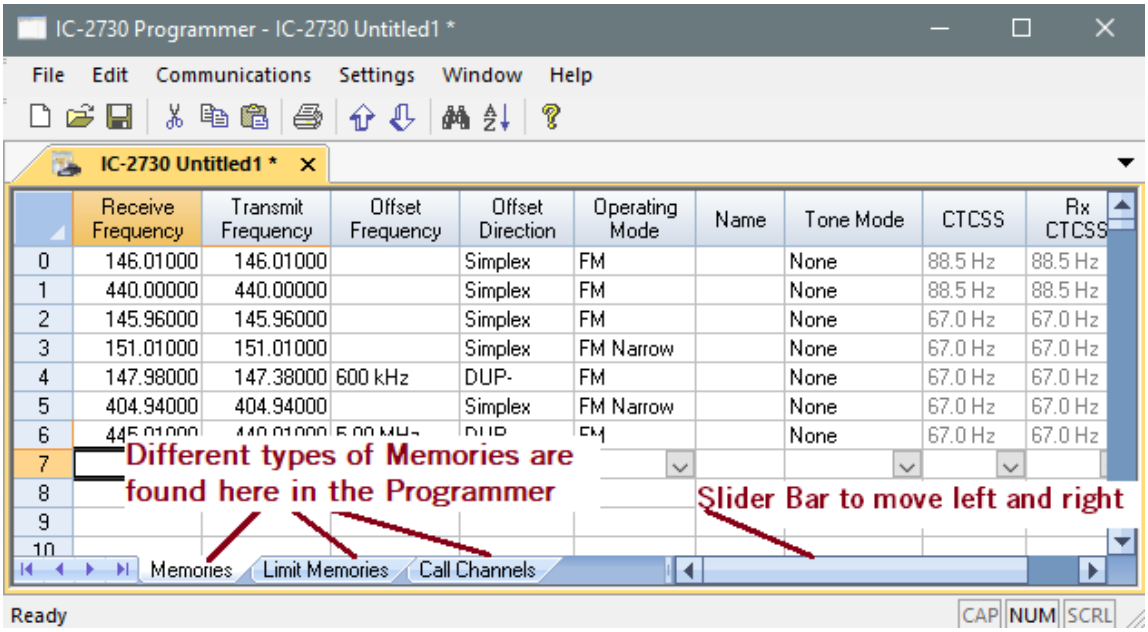
Details on the special editing abilities of the Programmer are included in the ***Easy Editing in the Grid*** section of this Help. Review these details to make data entry even easier.

10.1 Main Page Navigation

The main window of the Programmer is for entering details for the Memory Channels. Memory Channels include:

- **Memories**- 1,000 regular memory channels
- **Limit Memories**- 4 scan edges (2 pair)
- **Call Channel**- 2 call channels

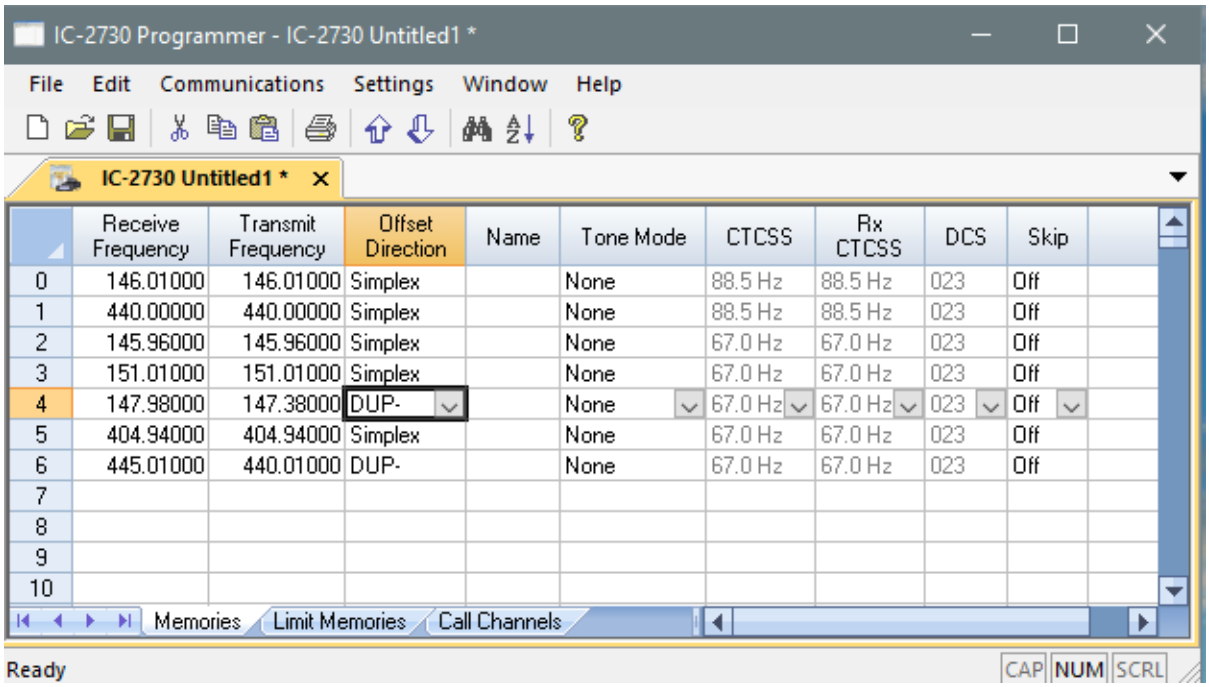
Each of these memory types is addressed on its own, labeled screen. These individual screens are accessed through the tab at the bottom of the Main Window of the Programmer. This makes it easier to enter, review, and manage the data of the radio programming files.



Columns continue on the right side of the screen. Use the bar at the bottom of the screen to move these columns, or press ENTER to go from left to right through each column and corresponding cell.

Make programming even easier. Try Simple Mode in the Programmer.

In Simple Mode, only columns needed for the minimum information required to set up the channel are shown on the screen. Any extra columns are hidden. The hidden columns are filled with default information determined by the Programmer.



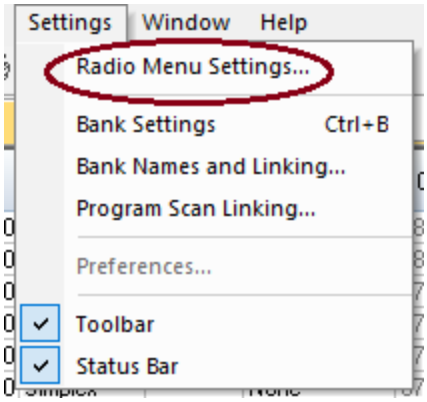
- **To access Simple Mode:**
- **Select the "Edit" tab in the menu toolbar.**
- **From the drop-down list, select Simple Mode.**
- **If a check mark appears next to the words "Simple Mode," then Simple Mode is activated.**
- **To escape Simple Mode:**
- **Select the "Edit" tab in the menu toolbar.**
- **From the drop-down list, select Simple Mode.**
- **The check mark will disappear and all columns will return to the main screen.**

There are numerous features in the Programmer that make data sorting easier. These features include: copy and past, column editing, sort and undo sort.

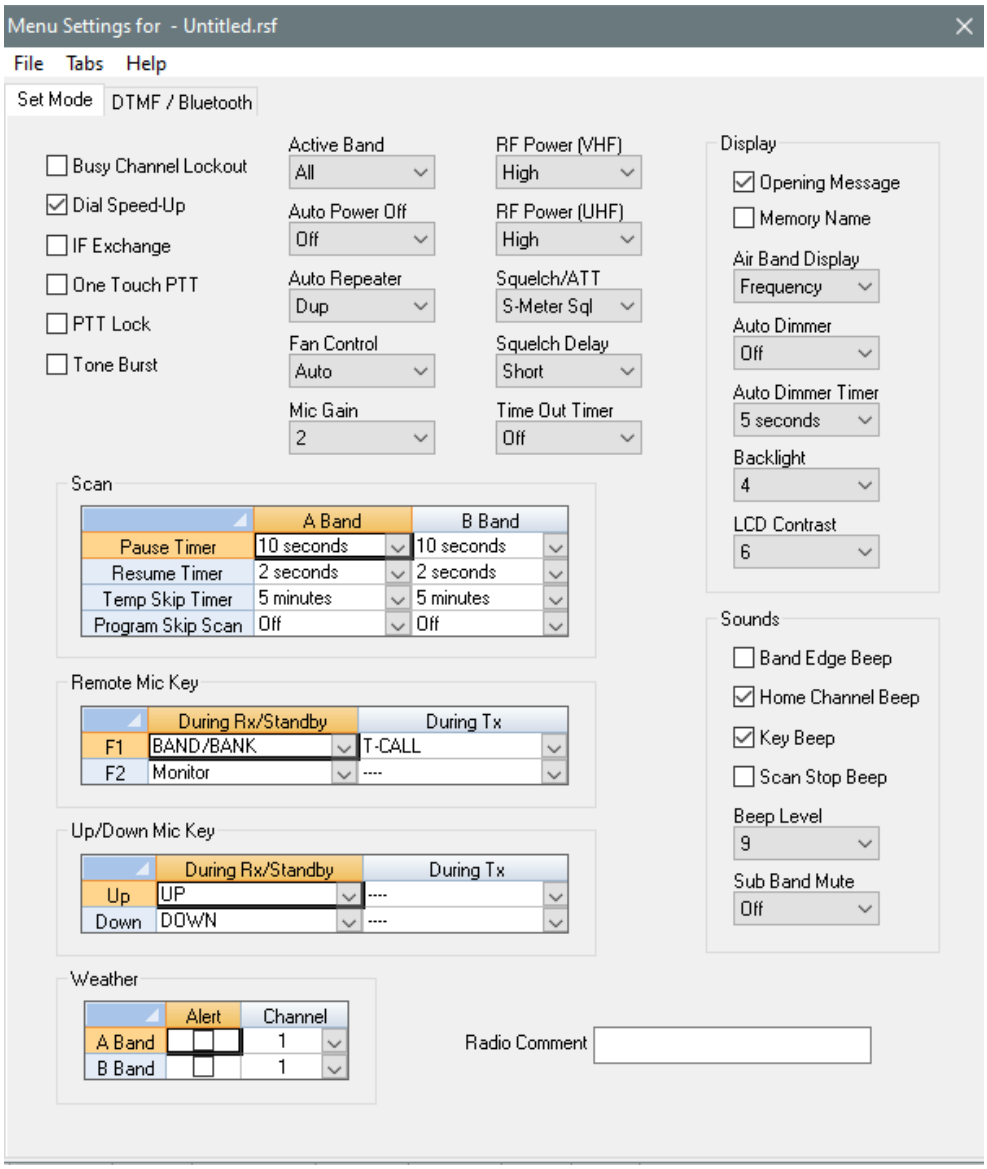
To access these editing features, click the Edit tab and choose the desired editing action. For more details, or help with the commands, see the Quick Editing Commands section under the Help tab at the top of the Programmer.

To access the Settings screen from the Main Window of the Programmer:

- **Locate the Settings tab from the menu toolbar at the top of the page.**
- **Choose Radio Menu Settings from the drop-down list.**



- **From here, the Settings screen will open.**
- **This will open to the Common Tab, which will be the most used setting option for this feature.**
- **Choose the desired Setting you want to change.**



See Radio Menu Settings- Set Mode or Radio Menu Settings- DTMF/Bluetooth for more information on the settings topics above.

10.2 Memory Channel Details

Details that need to be entered for each memory channel include:

Receive Frequency: Enter an acceptable frequency for the Memory channel. Acceptable frequencies are detailed in the operating manual for the radio. The software will accept any frequency within the range of the radio. Unacceptable frequencies cannot be entered.

To help organize your data, you can skip channels. You can also group together like-frequencies for a certain activity. The radio allows for empty memory channels.

All memories must be programmed into the same file. The programming process replaces the channels in the radio with the channels in the file.

Many of the channels must be programmed to satisfy the defaults of the radio. These defaults may include: first memory channel and call channels, for example. The default value can be changed, however the channel must be programmed with an acceptable frequency.

The radio is dual band. You can enter VHF and UHF frequencies in any order.

Transmit Frequency: Enter a specific transmit frequency or let the Programmer calculate this frequency based on the band and a standard band plan.

Note: In the Programmer, you can set offset and other transmit related data for frequencies outside the transmission abilities of the radio. The software will not enable transmission on these frequencies and transmission will be possible only once the radio has been properly modified.

Offset Frequency: The Offset Frequency is the mathematical difference between the transmit and receive frequencies of a repeater.

Icom radios use an Offset Frequency with a Dup+ or Dup- offset direction for every repeater pair.

A **non-standard Offset Frequency** value is entered by typing in both the Receive and Transmit frequencies for the memory channel. The Programmer will calculate the Offset Direction and Offset Frequency automatically.

Offset Direction: The Programmer will make a selection automatically based on the receive frequency and a standard band plan. Occasionally, the details for a particular repeater may differ from the standard band plan, making it necessary for you to make a selection other than the default. If necessary, manually set the Offset Direction to one of the other options available.

Simplex - transmit and receive frequencies are the same.

-DUP - the offset frequency is subtracted from the receive frequency (i.e., the transmit frequency is less than the receive frequency as in RX 145.520 TX 144.920)

+Dup - the offset frequency is added to the receive frequency (i.e., the transmit frequency is greater than the receive frequency as in RX 144.250 TX 144.850)

Operating Mode: Select the appropriate operating mode for the channel.

FM - Used for most amateur band operations.

FM Narrow - Special use in parts of the amateur band where 2.5 kHz deviation is needed. (This will not enable the radio to work on the new, more closely spaced commercial frequencies.)

Name: Enter an alphanumeric tag (up to 6 characters) to easily identify the memory channel.

The choice of frequency, or name display, is a global setting for the radio and can be done in the Programmer. It is an "all or nothing" setting, rather than being an individual setting for each memory channel. This is set in the Settings file. Find it via Settings | Radio Menu Settings | Set Mode tab | Display section | Memory Name.

When a name is entered, it will be displayed on the face of the radio instead of the frequency when the radio is in memory mode. If you need to change the display back to frequency from the face of the radio, select Menu > Exmenu > DISP > Name

Tone Mode: The "Tone" system has two purposes. It allows you to access repeaters that have a tone assigned and it allows for silent monitoring until a call directed toward you is received. The radio offers CTCSS (Continuous Tone Coded Squelch) and DTCS (Digital Tone Coded Squelch) systems to be tailored to your particular needs.

Using tones requires two steps:

1. Set the Tone Mode

2. Make a selection for the CTCSS frequency or DTCS tone.

Note: Values that appear in the CTCSS, Rx CTCSS or DCS column that are not associated with the selected Tone Mode are not used by the radio other than to fill the space in its memory structure. These values will NOT interfere with Tone operation of the channel.

Use of the "Tone" system makes it possible for you to use a local repeater. It can also limit your ability to hear any transmission from that repeater.

Set up the options carefully. If you are not sure, program the same memory channel more than once, with different options selected for Tone Mode. Once you determine which one works, delete the others from the file, then send that altered file to the radio to change its programming.

Set the Tone Mode:

None - No tone system activated. When selected, neither of the columns for selecting a CTCSS or DCS value are active.

Tone - CTCSS tone is activated for ***transmission only***. This mode is used for most repeater operations. When selected, the CTCSS column becomes active to set the tone frequency to be used.

Split Tone - The IC-2730 has the ability to set different tones for ***transmission and reception***. This is the TON.TSQ option of the Tone Squelch function of the radio. When selected, TSQ flashes on the face of the radio when the channel is selected. The tones are set up in the CTCSS column for ***transmission to the repeater*** and RX CTCSS for ***reception by the radio***.

Note: If you set this option for a repeater that does not use it, you will never hear anyone calling you. You will see indication on the display of the radio that a signal is being received, but you will hear no audio. The RX CTCSS tone is blocking the signal. Change Tone Mode to Tone and try again.

T Sql - CTCSS tone squelch is activated for both ***transmission and reception***. This mode is often referred to as Tone Squelch. With this option selected, the Rx CTCSS column becomes active to set the tone frequency to be used for transmission and reception. This radio does not have the option to do different tones for the two functions.

Note: Unless specifically noted in the information you are given for the repeater, do NOT use this mode. If you are not sure, use Tone rather than T Sql.

Incorrect selection of this mode will allow you to access the repeater. However, you will hear nothing. You will know when the repeater is transmitting because of the indication of received signal on your radio.

Reprogram the channel using Tone rather than TSql and try again.

DTCS – The Digital Coded Squelch system is activated for both ***transmission* and *reception*.** Only signals "encoded" with the matching tone will open the squelch: your radio will remain silent otherwise. With this option selected, the DCS column becomes active fro selection of the code to be used.

This radio cannot do two different codes for DCS.

TSql R - Enables the reverse tone squelch function for ***reception***. Signals encoded with the matching tone will be blocked. Your radio will remain silent to there but allow others through that are not transmitting a tone. When this option is selected, the RX CTCSS column becomes active for you to select the CTCSS frequency to block.

DTCS R - Enables the reverse Digital Coded Squelch system for ***reception***. Signals encoded with the matching DCS code will be blocked. Your radio will remain silent to there but allow others through that are not transmitting a code. When this option is selected, the DCS and DCS Polarity columns becomes active for you to customize the settings for this option.

D Code - Enable the Digital Coded Squelch system for ***transmission only***. With this option selected, the DCS and DCS Polarity columns become active to customize the settings for this option.

T DCS - Enable CTCSS tone for ***transmission*** and DCS for ***reception.*** With this option selected, the CTCSS, DCS and DCS Polarity columns become active to customize the settings for this option.

D Tone - Enable the Digital Coded Squelch system for ***transmission*** and CTCSS tone for ***reception.*** With this option selected, the RX CTCSS, DCS and DCS Polarity columns become active to customize the settings for this option.

Note: Use of the T DCS or D Tone options make it possible to have many options to keep interference our of your repeater. Split Tone (two CTCSS tones) is not the only way to accomplish what you need in a crowded setting.

CTCSS: Select one frequency to be used in Tone mode. This is the sub-audible tone that will be transmitted for access to a repeater. You will not hear it, but the repeater will. The field becomes active only when Tone Mode is set to an option that uses it.

RX CTCSS: Receive CTCSS. Select one frequency to be used for T Sql. This is the sub-audible tone that will be transmitted for access to a repeater and will be used by the radio to clock incoming signals. This field becomes active only when Tone Mode is set to an option that uses it.

DCS: Select one DCS code to be used with the DTCS modes. This field becomes active only if Tone Mode is set to one of the DTCS options.

> ***If any of these fields is not active, the value you see on screen is there only to complete the memory structure of the radio. It is not being used by the radio for the Tone Mode option you have selected for this channel.***

DCS Polarity: Select the polarity of the DCS tone for advanced use of this feature. Options include Both N (NN, default), TN-RR, TR-RN and Both R (RR) where T = Transmit, N = Normal, First R of pair = Receive and Second R of pair = Reversed.

> ***Note: Both the DCS code and polarity must match for a signal to be heard when received.***

Skip: Set the scanning preference for each memory channel. The Memory Skip function allows for faster scanning speeds.

> Off: The channel is scanned whenever scanning is used (it is not skipped).
>
> Skip: Marks selected memory channel to be skipped during scanning although these channels remain available for manual selection.
>
> PSkip: Marks the selected frequency to be skipped during VFO scanning. These remain available for manual selection. This option works in conjunction with the Program skip scan which is engaged for A Band and B Band separately. Turn this option on in the Settings file (Settings | Radio Menu Settings | Set Mode | Scan | Program Skip Scan).

Step: Set the tuning step for each memory channel. This value is critical for VFO mode much more so that memory mode since you will be tuning manually while in VFO.

Bank: Set the bank in which this channel will be used. A memory assigned to a bank remains available for use when the radio is not in Bank mode. When in Bank mode, only the channels assigned to a certain bank are available. More details on memory banks are found in the Using Memory Banks section of this help.

Comments: An identifying comment up to 80 characters for the memory channel. This information is not transferred to the radio. This information is simply for identifying the memory channels. This information can be included in a printout of your file.

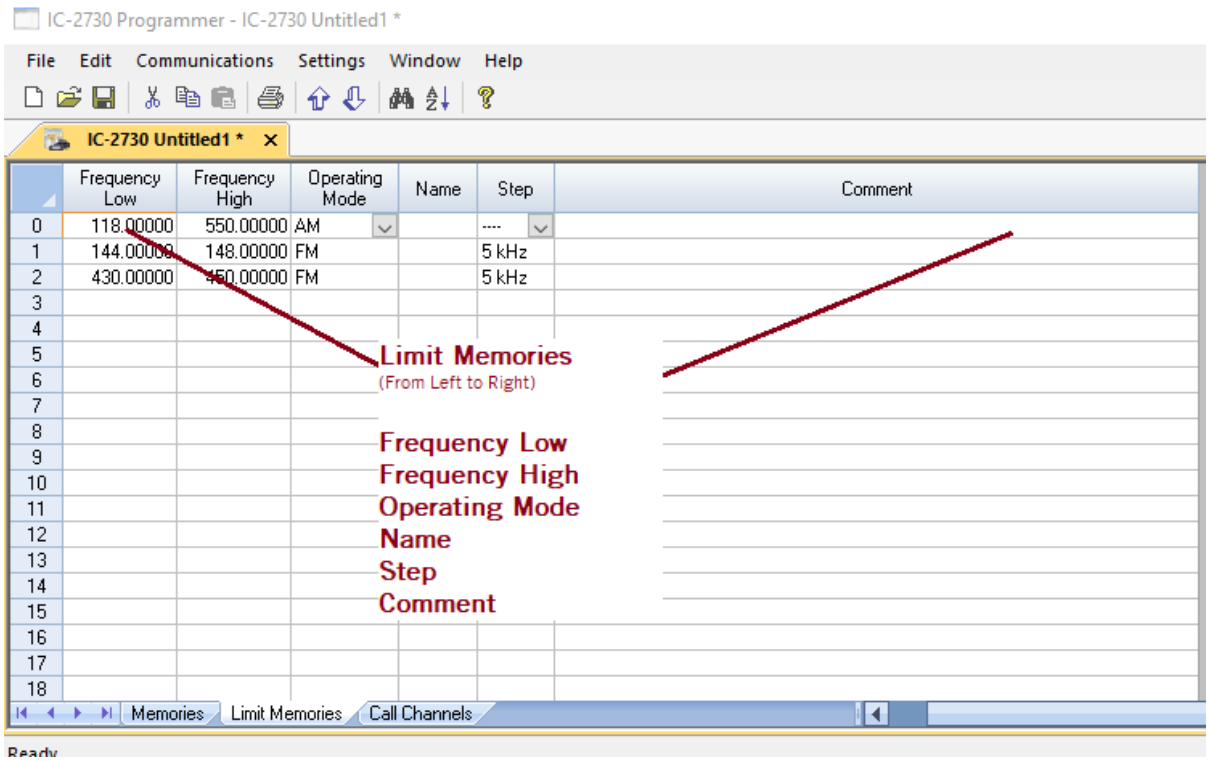
10.3 Limit Memories

Limit Memories are used by the radio for Program Scan. This feature allows you to set sub-band limits for VFO scanning. Using Program Scan, the radio will scan repeatedly between the frequencies entered as Frequency Low and Frequency High.

Note: You must enter a lesser value frequency into the lower frequency than that of the higher frequency for Program Scan to function properly.

For example, in North America, you might wish to set up a limit of 144.300 MHz to 148.000 MHz to prevent encroachment into the SSB/CW or "Weak Signal," portion of the band below 144.300 MHz. You would enter 144.300 as the Frequency Low and 148.000 as Frequency High. Set Operating Mode, Name and Step for this pair. Then, using P1 scanning, your listening would be limited between the two frequencies.

In the Limit Memory channels, **Step** becomes very important since scanning will increment the frequency by the value in the Step field beginning at the lower frequency. Set your value carefully to be sure you do not miss frequencies that might be active in your range.



Details to be entered for Limit Memories:

Frequency Low - Set the low frequency of the scan range.

Frequency High - Set the high frequency of the scan range.

Operating Mode - AM/AM Narrow or FM/FM Narrow. The Programmer sets this based on the low and high frequencies entered in the first two columns.

Name - Enter a name for the Program Scan group. This name is displayed when you are selecting the Program scan (in place of PROG00 - PROG24) to use.

Step- In Limit Memory Channels, Step is important since Step controls the frequencies included while scanning. The process increments the frequency by the value of the Step field. Choose your values small enough to be sure you do not miss channels in your range and large enough that you move through your range at a reasonable speed.

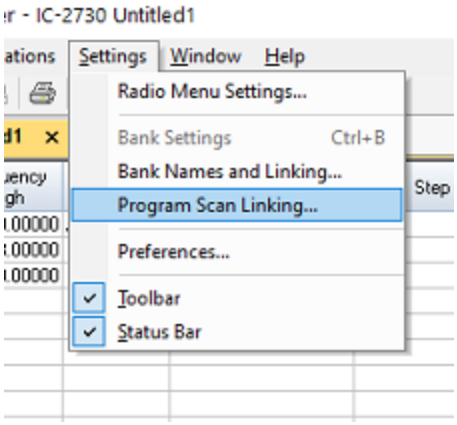
Comment- An identifying comment for the memory channel. This information is not transferred to the radio. This information is simply for identifying the memory channel in the Programmer. This information can be included in a printout of your file.

Program Scan Linking

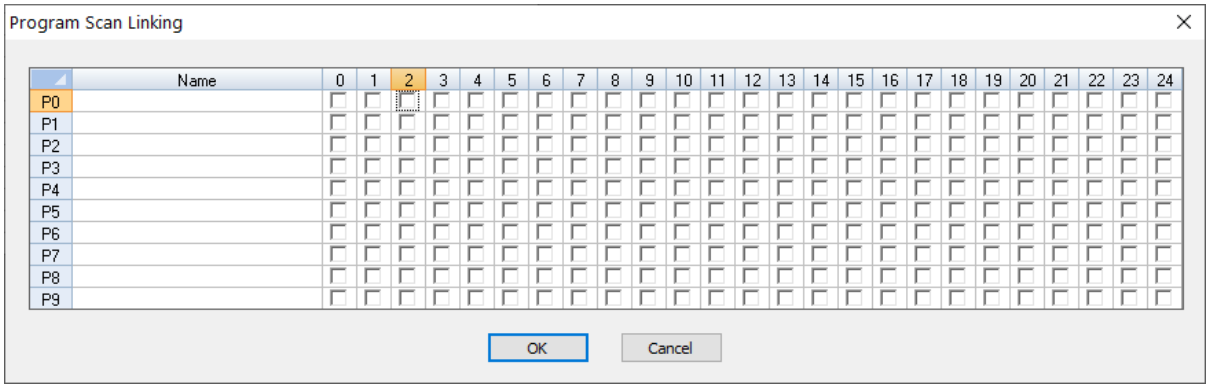
Linking banks of channels for scanning causes the radio to scan all the channels in the linked banks. Use of this feature allows you to scan more than one bank at a time. Just as memory channel banks can be linked for scanning, so can Program Scan ranges.

Memory banks offer two linked scan groups. Details on linking memory banks is discussed in detail in the XXXX section of this help. Program Scan Linking offers 10 different linked groups.

Access the Program Scan Linking from the Settings menu at the top of the screen.



The screen opens for Program Scan Linking



Onto this screen enter:

Name - This is a name for the linked scan. It is different from the name you gave the Limit Memory. This name will be used when selecting the Linked group to use.

Check to select - Each column represents a Limit memory that you set up on the Limits Memory screen of the programmer. See the image at the top of the page. The 1-24 corresponds to the numbers to the left of each row on that screen. Once checked, the frequencies in both those ranges will be included when this Program Scan Linking group is selected.

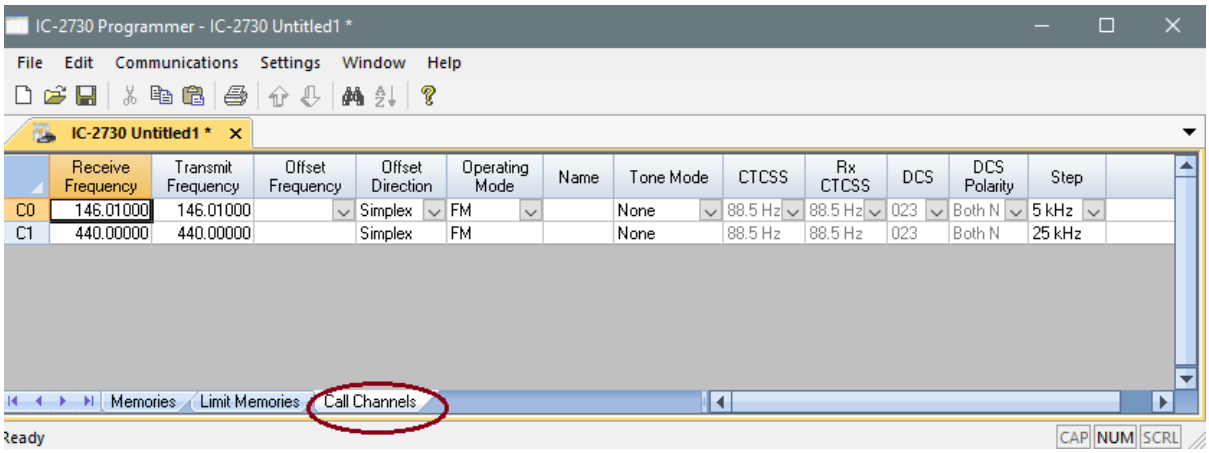
Linked Program Scan is a VFO scanning function. More details about use of this feature of the radio and how to access it can be found in the User's Manual for the radio.

10.4 Call Channel

The Call Channel memories provide convenient access to often used frequencies,

- This radio Programmer has the option to set up 2 call channels.
- The Call Channel memories are programmed in the 'Call Channel' tab of the Programmer.
- These channels are pre-programmed in the radio and while the frequency can be changed to another frequency within the band, these channels cannot be left blank.

Call Channel Editing in Regular Editing Mode:



The information to be programmed for the Call Channels is the same information for regular Memory channels. See Memory Channel Details for information about each field.

To recall the Call channels, press the [MR/CALL] button repeatedly until C0 or C1 appears on the screen as the channel designation. Use the tuning knob to change between the two Call channels. Call channels call be recalled independently on A Band or B Band of the radio.

10.5 Using Memory Banks

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

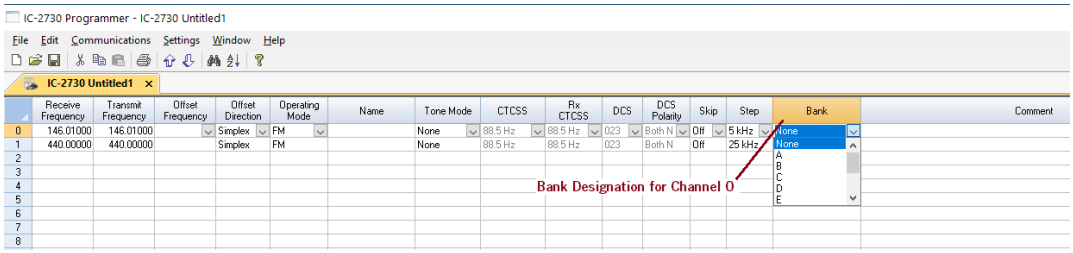
- Putting all your VHF and UHF ham repeaters into Bank A. If you use your radio mainly for "hamming" you would operate in Bank A most of the time so you can scan without having to listen to all the other traffic.
- Then put your Fire and Rescue channels into Bank B. When you're on the scene of an emergency, you would operate in Bank B to eliminate interference from the amateur traffic.
- If you travel for business to one other location repeatedly, put the channels for that location into Bank C. When you are there, you operate in Bank C. Then when you scan for activity, you scan 10 channels instead of the 100 you now have in memory.

Remember, if one of these repeaters is the same as one in your "home" group: even if that sameness includes Tone mode and value, you must program those details as a separate memory channel for the radio to be able to put it into a different memory bank. The Programmer makes that easy to do using copy and paste... just remember to touch up that bank designation.

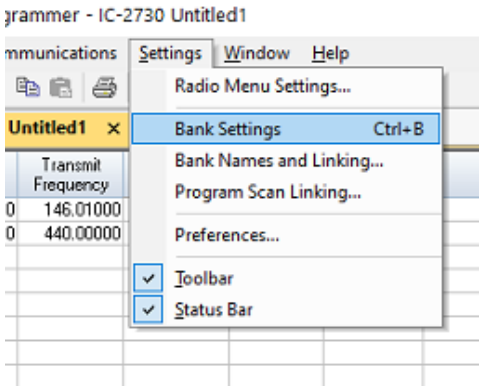
This is a simple example. The types of activities may not even apply to you; but the concept is the same no matter what the activities.

Memory Bank Assignments

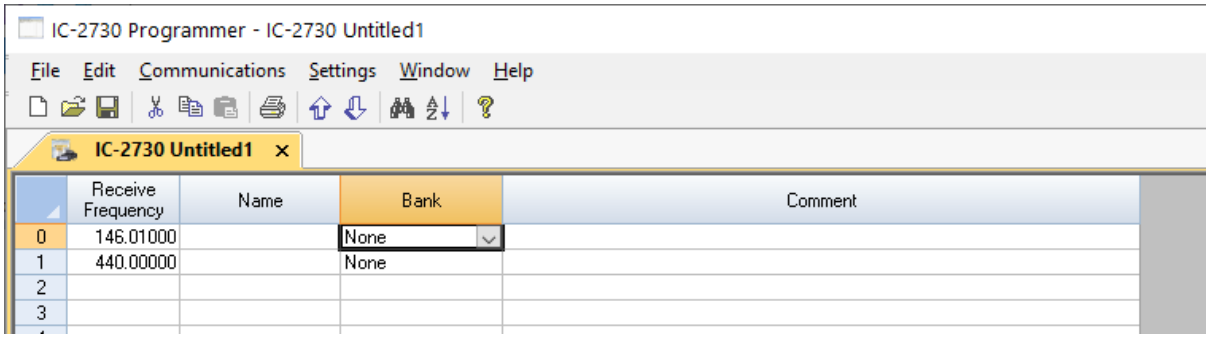
To assign a memory channel to a bank, select the bank designation in the Bank column for that channel.



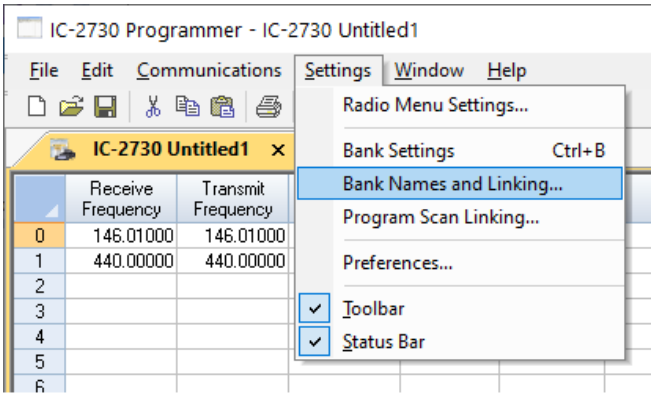
This can be made easier to do using Bank Settings which hides columns from the memory channel screen as you work to assign channels to banks. Access Bank Settings from the Settings menu at the top of the screen or click Ctrl B on your keyboard.



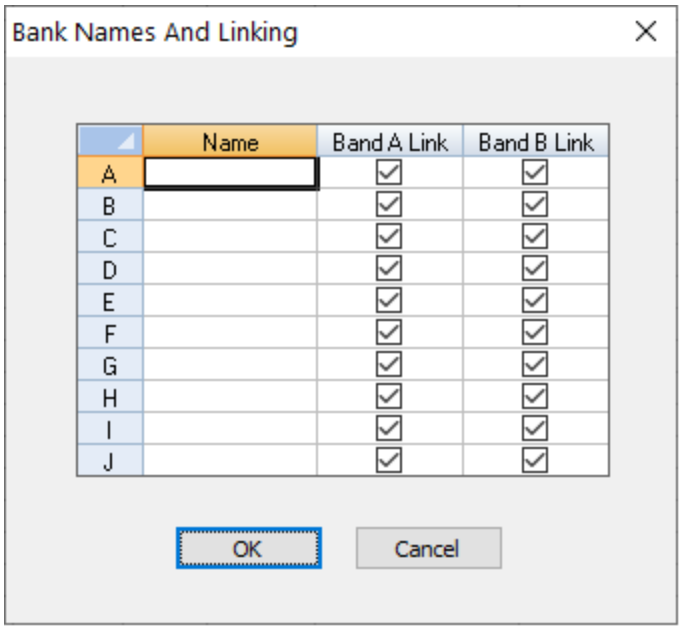
The main screen of the programmer changes to make working with Bank settings easier. You are left with what you need to easily identify the channel with Receive Frequency and Name.



Banks can be named to make selection in the Programmer and from the face of the radio easier. This is done in Bank Names and Linking accessible from the Settings menu of the programmer.



The Bank Names and Linking screen opens



Enter details for the Memory Banks.

Name - This name will appear on the radio when you are selecting the memory bank to use.

Band A Link - This combination (all by default) of banks will be used when scanning memory channels on the A side of the radio.

Band B Link - This combination (all by default) of banks will be used when scanning memory channels on the B side of the radio.

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

You can have only two linked combinations...so choose carefully.

Now that you have everything set up for using You will need to know how to access memory banks from the face of the radio.

Memory Bank Recall

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

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

- If the radio is not in memory mode, press [MR CALL] on radio's face until you are in memory mode. The rest of this won't work if the radio is not in memory mode.

  Remember, you can put the radio into Memory mode for the A (left) and B (right) sides independently. Use the [MR CALL] button for each side.

- Now that you are in Memory mode with all your channels, you want to put the radio into Bank Mode. Press and hold the [Main Band] key for 1 second to enter Bank Mode.

  Again, the radio has two [Main Band] keys: one for each side. You will put the radio into Bank mode on each side, using the button for that side, independently.

- The radio will display Bank-A or the name of Bank-A that you entered. Turn the [DIAL] to select the desired Bank.
- Press [Main Band] button for that side again to lock in the selection.
- Now when you turn the knob, you will see only the channels assigned to the selected bank.

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

[MR Call] (to access memory mode... if necessary)

[Main Band] for 1 second (to access Bank mode)

Turn KNOB to select the bank you want.

Press [Main Band] (for the same side) to save selection.

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

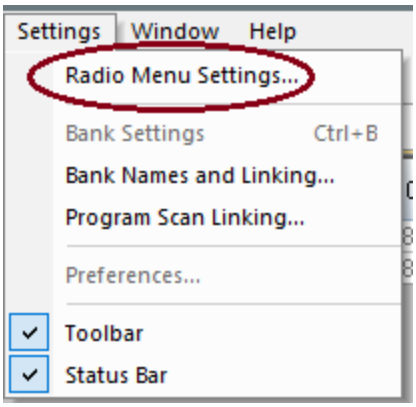
Part

11 Programming Other Set Menu Items

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

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

The global settings are entered on the screens access from **Settings | Radio Menu** Settings in the menu at the top of the main screen. Do not miss these settings, as getting them the way you want them can significantly enhance the performance of your radio.



Details for the options are found in sections of this help file that correspond to the screens in the Programmer where you will find that option. Each of these options start in the Programmer from **Settings | Radio Menu Settings**.

- **To find these settings:**
- **Locate and click the Settings tab in the menu toolbar at the top of the screen.**
- **Select Radio Menu Settings from the drop-down menu.**
- **From here, a radio menu settings screen will pop up. Choose from the 'Set Mode' tab or 'DTMF/Bluetooth' tab and you can easily change the radio settings.**

Radio Menu Settings - General Overview - This is a general discussion of how the Programmer handles these settings relative to the memory channel file. There are several options available to make it as easy as possible for you to maintain the memory channels and settings that you use in your radio.

Radio Menu Settings - Set Mode - The more common of the Set Mode options of the radio. Those not associated with GPS or Digital functions.

Radio Menu Settings - DTMF/Bluetooth - A separate tab of the settings screen. Fields here address options for DTMF functionality.

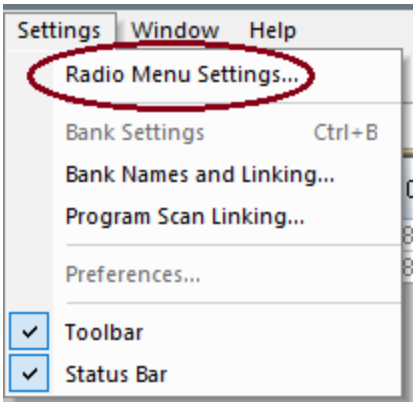
11.1 Radio Menu Settings - General Overview

When programming your radio, there are details that you enter into a memory channel, as well as options that are set once for the radio to use, regardless of the memory channels you are on or if you are in VFO mode. There is more to this radio than just what can be programmed in a memory channel. Features that cannot be changed for each memory channel include: Beep, Squelch, PTT Lock, etc.

Radio Menu Settings are menu items that are global to the operation of the radio. These items are set from the Radio Menu Settings screen in the Programmer.

To Access these Settings, go to:

- **Settings | Radio Menu Settings**



The Programmer offers three options for managing the Global settings. See also, Main Page Navigation for more details about these 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 it 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.

Details for the Three Settings Options are:

Set and Forget

This is the default of the Programmer.

Not using the Radio Menu Settings can result in your radio "acting funny" every time you program it. That is 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 file name.
- 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 are 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 appear automatically in this new file. You need not re-enter the settings each time, nor are you forced to always begin a new file by renaming an existing file. Your settings are retained and 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 file name appears in the title bar at the top of the Menu Settings window.
- Click File | Save to reset the Programmer to use this file.
- Select File | Exit to close this screen. These settings will be sent to the radio with the memory channel file until you change this file selection again.

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

Programmers have the option of saving the global settings with the memory channel information.

This feature is good in two ways. 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.

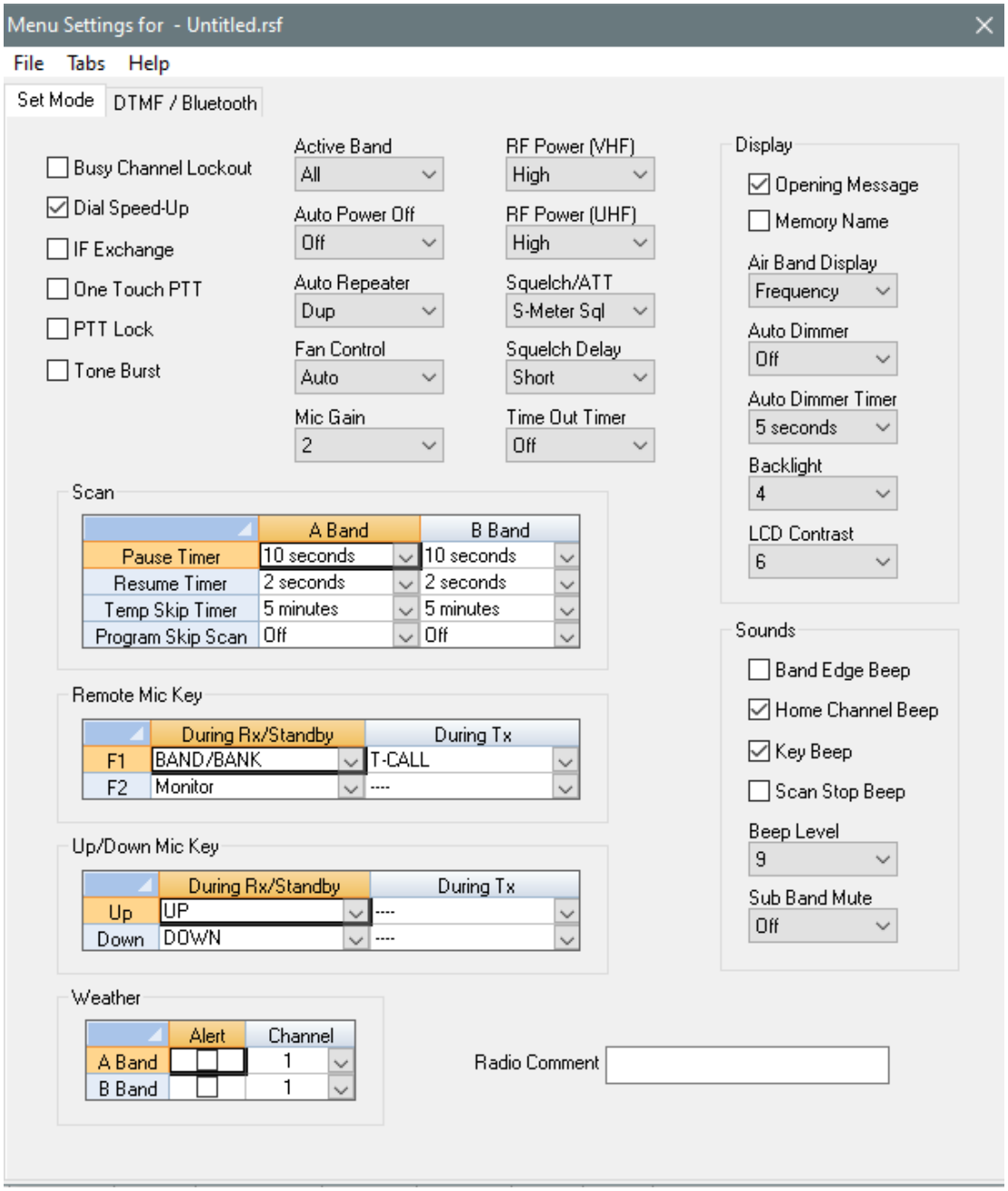
Another feature of this option is the ability to use the settings from a settings file that you already created.

- From the Menu Settings screen, select External Settings 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.

11.2 Radio Menu Settings- Set Mode

Included here are descriptions of the features and how to set them in the Programmer. The User Manual of the radio should be used to provide any other explanation of the feature and its use after programming. All features can be set through both the radio face and the Programmer.



Active Band: Selects the frequency selecting condition when using the dial or up and down buttons on the microphone. Options include

All - Operating frequency increment continuously.

Single - The operating frequency increments within the current band. When using the radio, press the [Band-Mode] then rotating [Dial] selects the band.

Ham - The operating frequency will be limited to the ham bands.

Auto Power Off: Set the timer to turn the radio off automatically after a specified period when no key operations are performed. The radio will beep when it turns off automatically.

Auto Repeater Shift: The USA and Korean version radios automatically activate repeater settings (DUP -, DUP +, and tone encoder ON/OFF) when the operating frequency falls within the general repeater output frequency range.

This function is useful if you plan to use VFO tuning on the radio for frequencies that are not yet set in memory. This option does not affect actions of the Programmer.

Off: The auto repeater function is not engaged.

Dup: Auto Repeater is On. Tone encode is Off.

Dup.Ton: Auto Repeater is On. Tone Encode is On.

General repeater output frequency range

Frequency Range	Duplex Direction
145.200 - 145.495 MHz 146.610 - 146.995 MHz	Dup -
147.000 - 147.395 MHz	Dup +
442.000 - 444.995 MHz	Dup +
447.000 - 449.995 MHz	Dup -

Note: The offset frequency and repeater tone frequency are not changed by the auto repeater function. You set these values as needed for the repeater that is being accessed.

Busy Channel Lockout: Engage to prevent the radio from transmitting when a signal is being received.

Dial Speed-Up: Engage to automatically increase the tuning dial speed when rapidly rotating the tuning [DIAL]

Display: Change the characteristics of the display.

Opening Message: Check to engage or disengage the Icom message.

Memory Name: Check to show memory names for the memory channels.

Note: This is a global setting that turns the names on for ALL memory channels for which a name has been assigned. If a name is not assigned, the frequency is displayed.

While operating the radio check the frequency for the channel by setting Name in the Display section of the Extended Menu to Off.

Air Band Display: Set to Frequency or Channel ID for those channels you program with air band frequencies.

Auto Dimmer: Engage the auto-dimmer function and set the dimmer level.

Auto Dimmer Timer: Set the timer after which the radio engages the dimmer.

Backlight: Set the backlight brightness.

LCD Contrast: Set the contrast for the radio display.

Fan Control: Set the options for the cooling fan control.

Auto: The fan operates during transmit and for 2 minutes after transmission or continuously until the temperature of the radio drops below the internal temperature setting. Excessive heat can damage your radio. Be sure the body of the radio is mounted in a place that is well ventilated.

Slow/ Mid / Fast : The fan operates continuously at the speed set.

IF Exchange: Check to engage the exchange of the Intermediate Frequency between left and right bands to avoid interference.

Mic Gain: Sets microphone sensitivity from high to low for optimum performance as personal voice characteristics demand. Making a change here could help eliminate an over driven signal or improve weak audio.

One Touch PTT: Check to make the PTT a "sticky switch". One press causes the radio to transmit until another press causes it to stop. You no longer have to hold the PTT switch while you talk. Be careful using this option. With this option engaged, an accidental bump might put you on the air unexpectedly.

PTT Lock: Check to lock the PTT switch and prohibit transmissions. This option is easily disengaged using the [MENU/lock] key on the face of the radio.

Radio Comment: Enter a comment to help you identify this file. This information is not sent to the radio.

RF Power (VHF)/(UHF): Set power output for VHF and UHF operations to High, Mld or Low. The output wattage for each of these is controlled by the radio and detailed in the owners manual for the unit.

Remote Mic Key: Set the options for the F1 and F2 keys of the microphone. Options can be set to function differently during Standby/Receive times and during Transmissions.

Scan: Set the options for scanning by the radio. Options are set independently for the A Band and B Band band of the radio. (the two sides of the display)

Pause Timer: Set the length of time that the radio holds on a receive signal. Scanning continues automatically after this time whether or not the signal is lost. Select Hold to stop scanning until the signal is lost.

Resume Timer: Set the length of time until scanning resumes after the signal is lost. Select Hold to stop scanning for the length of time set in the Pause Timer even if the signal is lost. With Hold selected, you can resume scanning by rotating the [DIAL]

Note: The Resume Timer must be set to a time shorter than the Pause Timer for the Resume Timer to work properly.

Temp Skip Timer: Use this option to "temporarily" skip busy frequencies during VFO scanning. Set the time here for this option. See page 44 of the Instruction Manual for the radio for more details on the operation of this function.

Program Skip Scan: Turn on the ability to skip memory channels set to P-Skip. This option is good for those busy channels you want stored in memory but you don't want to listen to when scanning. The P-Skip option is set

independently for each memory channel from Skip option on the main screen of the programmer.

Sounds: Set the options for the sounds of the radio.

Band Edge Beep: Set to sound a beep when you tune into or out of the AIR, VHF or UHF band frequency range when rotating the dial.

Home Channel Beep: Set to sound a beep when you select the Home Channel

Key Beep: Set to sound a beep when you push a key.

Scan Stop Beep- Set to sound a beep when scanning stops on a signal.

Beep Level - Set the loudness of the beep.

Sub Band Mute: Set to:

Mute: the audio of the SUB band when a signal is received on the MAIN band.

Beep: when the signal is lost on the SUB band.

Mute and Beep: to do both to the signal on the SUB band relative to the activity on the Main band.

Squelch/ATT: Activates the option for S-Meter squelch or RF attenuation as controlled with the squelch knob on the face of the radio. Each of these functions prevents distortion of a desired signal by very strong RF signals near the desired frequency or when very strong electric fields, such as from a broadcasting station, are present at your location. With this option engaged, you could have trouble hearing weak signals. Set this option to Off when working an area with little interference where you want to listen for weaker signals.

Squelch Delay: Select squelch delay from short to long to prevent repeated opening and closing of the squelch during reception of the same signal.

Time Out Timer: To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission. The feature can be set to Off (transmission continues until the repeater times out or until you address the radio again) or to 3, 5, 15, or 30 minutes.

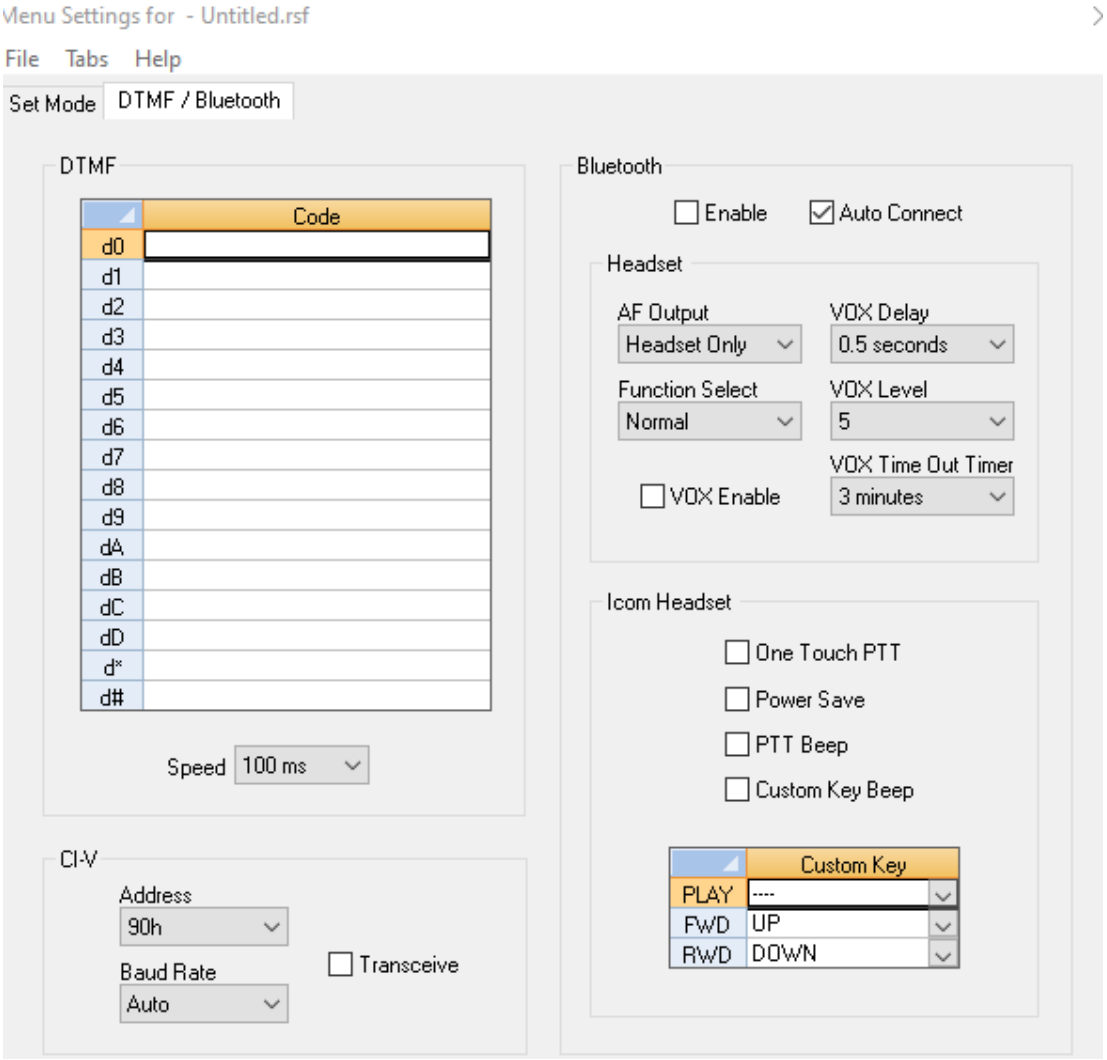
Up/Down Mic Keys: Set the options for the Up and Down keys of the microphone. Options can be set to function differently during Standby/Receive times and during Transmissions.

Weather: Turn on the Weather Alert function and select the channel to be used. This option can be set independently for A Band and B Band.

11.3 Radio Menu Settings- DTMF/Bluetooth

DTMF

DTMF Code: Sequences are used for: Auto Patch, Accessing Repeaters, Controlling other Equipment, Internet access, etc. The transceiver has 16 DTMF memory channels for storage of often used sequences. These sequences are up to 24 digits each.



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

Enter Auto Dial Memories:

Numbers - The tones that will be transmitted are entered into the DTMF fields numbered 1-16. Allowable characters are 0-9, A, B, C, D, *, # and space (for a pause).

Speed - DTMF speed is the rate at which DTMF memories send the individual characters. Adjusting this speed can help accommodate operating needs of an individual system.

Bluetooth

Set the options to connect a Bluetooth device to the radio.

Enable: check to enable Bluetooth connection to the radio.

Auto-Connect: check to enable auto-connect for the Bluetooth when the Bluetooth device is ready and near the radio.

Headset: set the settings for the Bluetooth headset.

AF Output: choose the audio function output. This can either be through the headset or the headset *and* the speaker.

Function Select: select the function of the headset. This can be normal, microphone, push-to-talk main, or push-to-talk controller.

VOX Delay: choose the voice operation exchange delay time from the drop-down menu.

VOX Enable: check to enable voice operation exchange.

VOX Level: choose the voice operated exchange level. This can either be off, or an option between 1-10.

VOX Time Out Timer: choose the voice operated exchange time out timer time from the drop-down menu.

CI-V

Set options for remote operations for the radio through the CI-V port.

Address: Computer Interface 5. Does not need to be changed, the Programmer sets it automatically.

Baud Rate: the rate that information is transferred. Should be left on auto.

Transceive: check to enable transceive.

Icom Headset

Set options for Icom Headset operations for the radio through the Programmer.

One Touch PTT: click to enable one touch push-to-talk for the headset.

Power Save: click to enable power save mode.

PTT Beep: click to enable the push-to-talk beep tone.

Custom Key Beep: click to enable the use of custom key beep tones.

Custom Key: can be setup through the drop-down buttons under the columns PLAY, FWD, RWD. These create custom key functions.

Part XII

12 Radio / Computer Data Transfer

Data flows two ways: from the computer to the radio and 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. This needs to be done to ensure that the computer and radio are connected before the transfer of files ever get started.

In either case, ***be sure to follow the directions presented on the screen carefully***. The wrong button press can result in communications failure that could reset your radio to factory defaults.

Details for this process are contained in these sections:

Communications | Get Data From- Always the best place to start. Even if there is nothing in your radio, it allows the data to begin flowing between the radio and the computer.

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, as well as the correct connection set up for the radio.

Troubleshooting- There is no comport setup in Version 4. The Programmer automatically finds the *RT Systems* USB cable for you. Check here for some troubleshooting help for your radio.

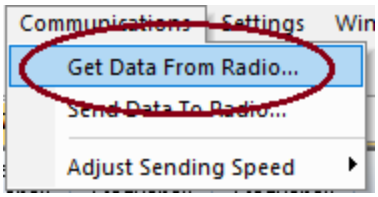
12.1 Communications | Get Data From

This function uploads the contents of the radio memory to the computer. This function is often referred to as 'reading the radio,' since memory information is being taken in by the computer.

This step is ***recommended*** before the first file is sent to the radio. It is not a requirement. A file with frequency information can be created in the Programmer without executing this step.

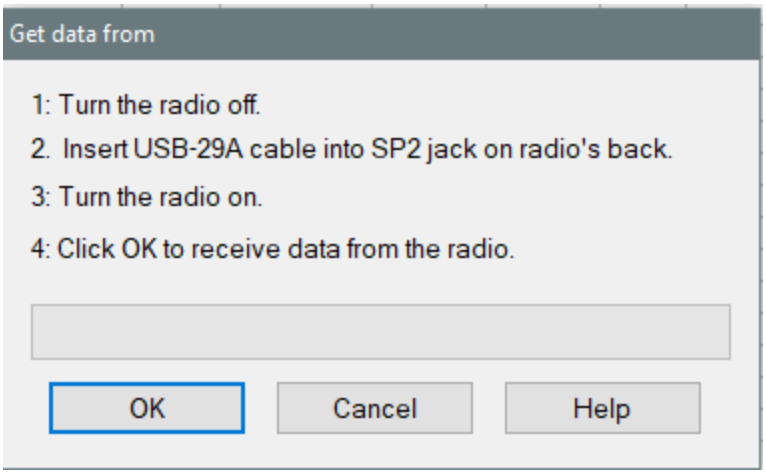
The Get Data From process (reading the radio)

- Connect the cables properly to the radio. See the Radio to Computer Cabling section of this Help for details.
- The cable connects to the SP2 speaker jack on the back of the radio.
- 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.
- Select Communications | Get Data From Radio from the menu toolbar.



- The screen that opens has details for completing the process to get data from the radio.

Read the screen carefully. The steps differ with each model. All the steps you need to do are listed on this screen.



- A transfer status bar is displayed immediately on the computer screen to let you know that the computer is receiving the data from the radio. If the green bar does not appear and fill immediately, cancel the process and try again.

Note: If the green bar does not appear and begin to fill immediately, the first steps in troubleshooting are as follows:

- ***Do NOT turn the radio off. Do these steps exactly as listed here.***
- ***Cancel the process on the computer.***
- ***Once the screen closes, select Communications | Get Data From radio from the main page of the Programmer.***
- ***When the screen opens, skip to step 4 and click OK without doing anything on the radio.***

When the 'Get Data From Radio' 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 Radio' process in the Programmer. The radio can be left alone or turned off while it is connected to the computer.

If you are doing major editing, turn the radio off and remove the cloning cable. Then, return to the Programmer to edit the file. Once your editing is complete, connect the

radio to the computer and complete the 'Send Data To Radio' process to transfer the changes to the radio.

Troubleshooting

- 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 'Turn the Radio On,' press the power button to turn the radio on. If pressing a key is needed as part of a step, it will be included with the instructions on the 'Get Data From Radio' screen.

- "Nothing" happens when I press the button indicated on the second screen of the 'Get Data From Radio' process:

  If this is nothing on the radio, check to make sure that your keys are not locked. If your keys are locked, turn the radio off, unlock the keys, then turn the radio back on. Retry the process.

  If there is nothing on the computer, check the cable connections between the radio and the computer. This usually means that the status bar does not appear and begin to fill.

- The Programmer reports that the cable is not found even though you know that it is ***properly*** plugged into the computer and radio. While this could be a bad cable and you should be sure that you are using the RT Systems cable for this radio, Windows sometimes has problems loading the drivers for the USB cable. For details about loading drivers for the RT Systems cables, see the information available on our website at Installing Windows Drivers.

- 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.

12.2 Communications | Send Data To

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

Current File

The Programmer can work with several radio files at one time. There is no need to close extra files before executing the 'Send Data To Radio' process. The current file will be sent to the radio during this process.

The current file is the one that appears in the main window of the Programmer. What you see on the screen is what is sent to the radio.

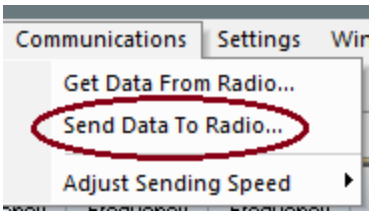
Settings File

Check your 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 frequency file that you create. Details on these settings can be found in the Programming Other Set Menu Items section of this Help file.

If the radio acts funny after it is programmed:

- Check the Radio Menu Settings found under Settings | Radio Menu Settings. These are global settings that are not tied to any one memory channel. When you program your radio with a file from the computer, these settings go with the memory channel details.
- Make changes to the settings as needed.
- Save the settings files.
- Do Communications | Send Data To Radio with the same memory channel file. The menu settings will be sent with the memory channel information.

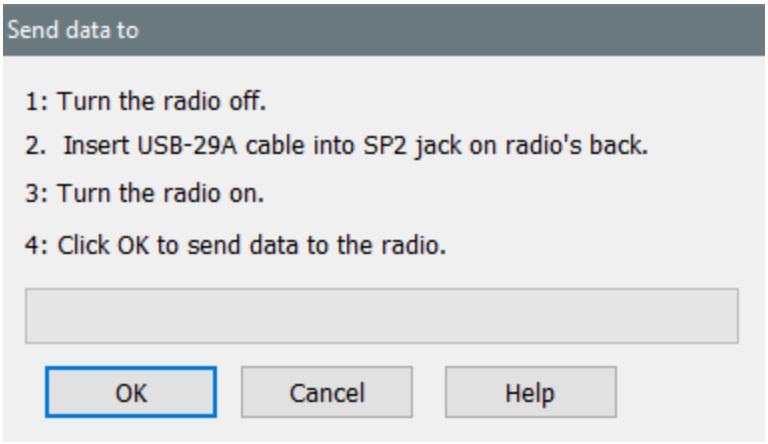


Completing the 'Send Data To Radio' process:

Use the USB-29A cable to connect from the computer to the SP2 speaker jack on the side of the radio.

When you execute the Communications | Send Data To Radio command, you are presented with the instruction for this radio.

Read the screen carefully. Pressing the wrong button will result in no response, or the wrong response for the process.



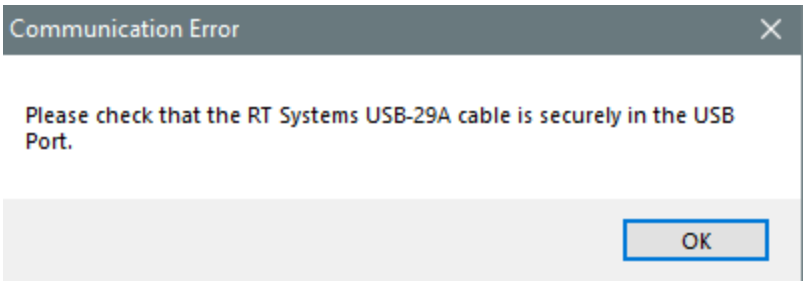
Follow the steps on this screen. When you click OK, a progress bar appears immediately. This lets you know that the process is being completed.

When the transfer is complete, the transfer status window disappears and the Programmer returns to the main window.

Turn the radio off and remove the cable. The radio is ready to power-up and use its newly programmed settings.

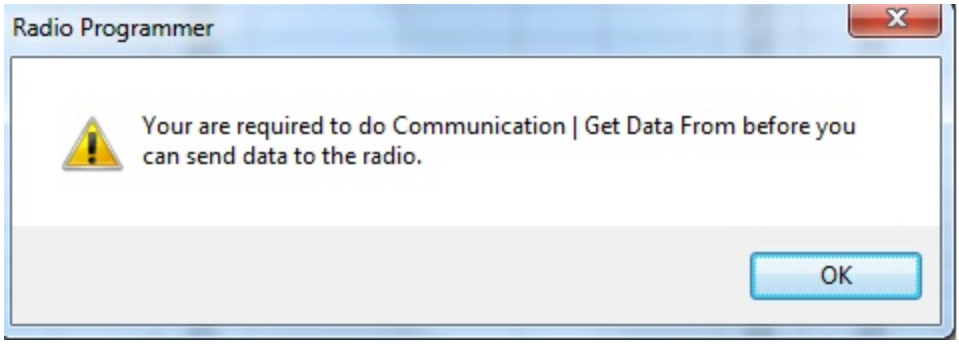
Troubleshooting

Cable Not Found



Well, you know the cable is properly plugged in. This could be a bad cable. However, sometimes Windows has problems loading the drivers for the USB cable. For details about loading drivers for RT Systems cables, see the information available on our website at Installing Windows Drivers.

Communications | Get Data From Radio required first



The first time you attempt to send your file to the radio, a message may appear requiring you to complete the 'Get Data From Radio' process.

This indicates that you have not read the configuration of the radio into the Programmer.

There are details that the Programmer can only get 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 toolbar.

2. Turn off the radio.
3. Select Communication | Get Data From Radio from the menu toolbar.
4. Complete the process. The details for this radio will be listed on the screen.
5. Once the process is complete, click the tab at the top of the screen showing your File Name. 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 toolbar.
7. Complete the process. Follow each step carefully to program these channels into the radio.

Modified Radio

If your radio has been modified, you need to perform the 'Get Data From Radio' process to get information into a new file before you attempt to write data to the radio. When the 'Get Data From Radio' process is used, the Programmer learns that the radio is modified. This is true even if the radio is not yet programmed.

When you use the 'Get Data From Radio' function 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 which are specific to the radio. The most general error is not an error in programming, but instead the need to put the radio in Memory mode once the programming is complete. See Radio Use Once Programmed for more details on how to put your radio into Memory Mode.

If it continues to fail:

1. Be sure you are using the latest version of the Programmer.
2. If the problem persists, send the file that you are attempting to send to the radio. We will examine it for any problems that might exist in the data.
3. Check the cabling between the radio and the computer by disconnecting and reconnecting all connections, then try the process again.

If you have problems sending a certain file to the radio

Cancel the 'Send Data To Radio' process and execute 'Get Data From Radio.' Be sure to open a New file into which the data will be read from the radio. This can be done by clicking File | New File in the menu toolbar. 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.

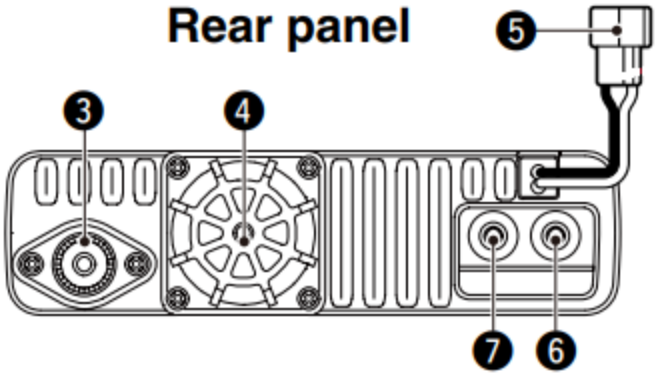
The radio must be connected to the computer with the proper cables for that radio. See Radio to Computer Cabling in this Help file for details and pictures.

If necessary, contact RT Systems' technical support for assistance.

12.3 Radio to Computer Cabling

The radio must be connected to the computer with the proper cables for that radio. The IC-2730 uses a USB-29A cable.

The USB-29A is a blue cable with a 3.5mm stereo plug. This cable attaches to the computer through a USB port. The cable attaches to the radio through the SP2 speaker jack on the back of the radio (#6 shown here). Be sure the radio is properly and completely plugged into the jack.



IC-2730 Rear View - Use #6 for Programming

This connection is how the radio is programmed. This cable in included in the WCS-IC2730-USB Kit. This cable can be used on many of the Icom hand held and mobile radios.

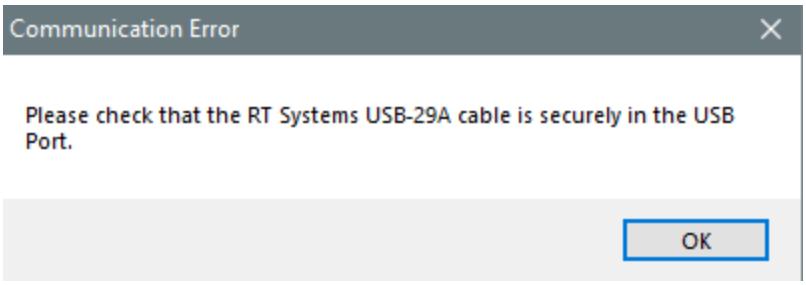
USB-29A Cable

12.4 Com Port Setup

The Programmer find the USB cable automatically. Occasionally, there are issues with the USB connection that need troubleshooting.

Troubleshooting

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



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

- The *RT Systems'* USB cable; or
- The *RT Systems'* original serial cable connected to the computer via the RT Systems' 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 process can take up to a minute. 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. Even though it may be the same brand of radio, the steps are different for the 'Get Data From Radio' or 'Send Data To Radio' functions.

Occasionally, some Windows machines have issues loading drivers. See Windows Driver Installation for RT Systems USB Cables for more information on solving this issue.

Part XIII

13 File Maintenance

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

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

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

New - Create a new file in any Version 3 Programmer you have installed.

Open - Open an existing file in any of the Version 3 Programmers you have installed.

Close - Closes the current file.

Save - Saves the current file.

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

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

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

Print Preview - Lets you see the formatted information on the screen before it prints.

Print - Prints the current file.

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

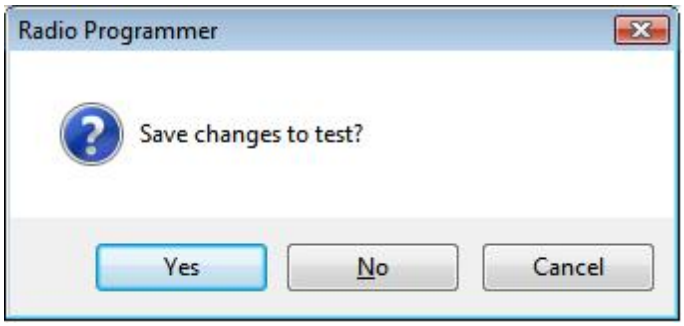
Files 1-4 - Up to four files that you last worked in and saved.

Exit - Closes the Programmer.

13.1 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.

13.2 File | New

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

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

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

Other Radio Menu Settings and a New File

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

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

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

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

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

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

13.3 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.

13.4 File | Print

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

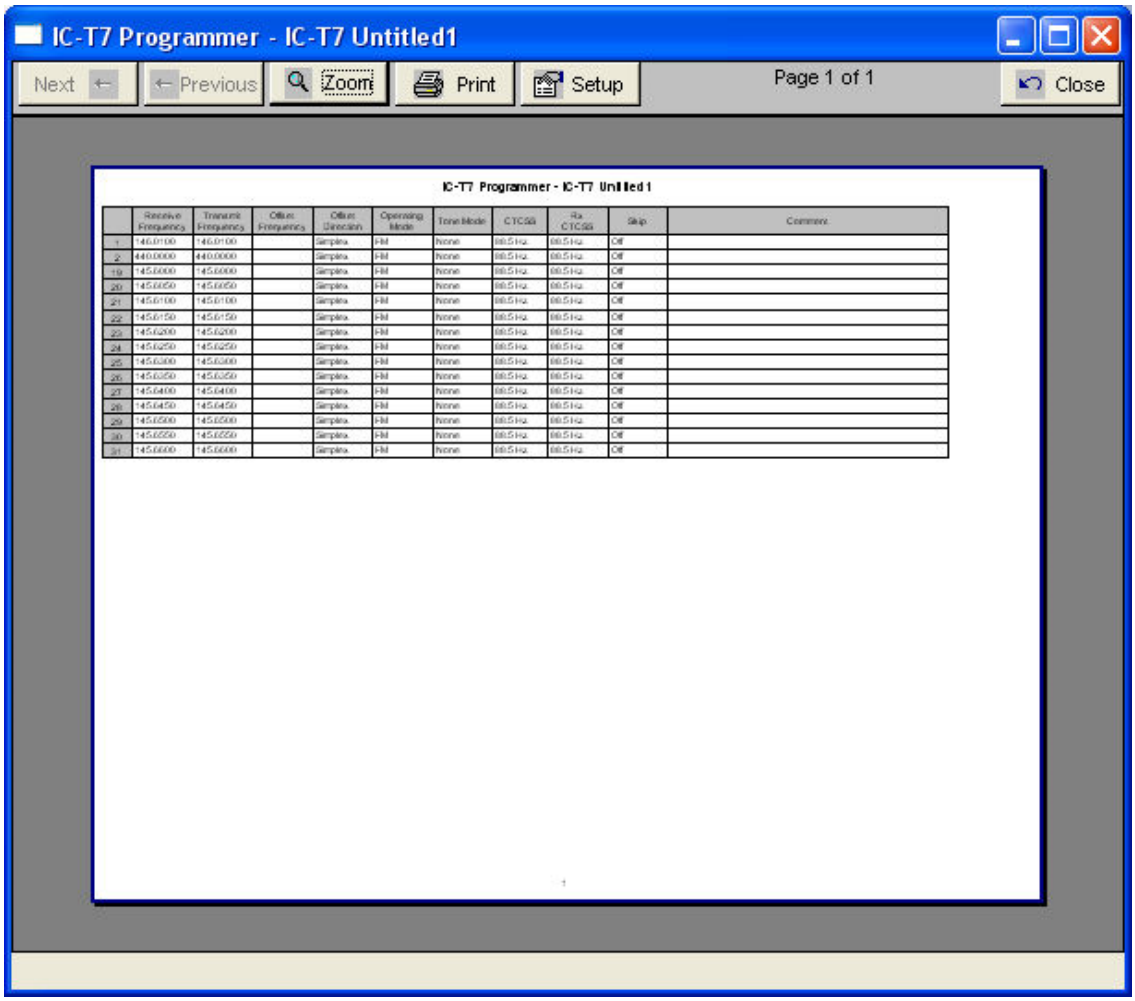
- When this command is selected, a print dialog will give you the opportunity to setup your printer.
- Hidden columns are not printed. A printout can be customized (including increasing type size) by deliberately hiding columns before printing. To hide columns, select Settings | Preferences from the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

13.5 File | Print Preview

This feature of the Programmers lets you preview the data to be printed before you waste paper sending it to the printer.
With the file open that you want to print, select File | Print Preview.

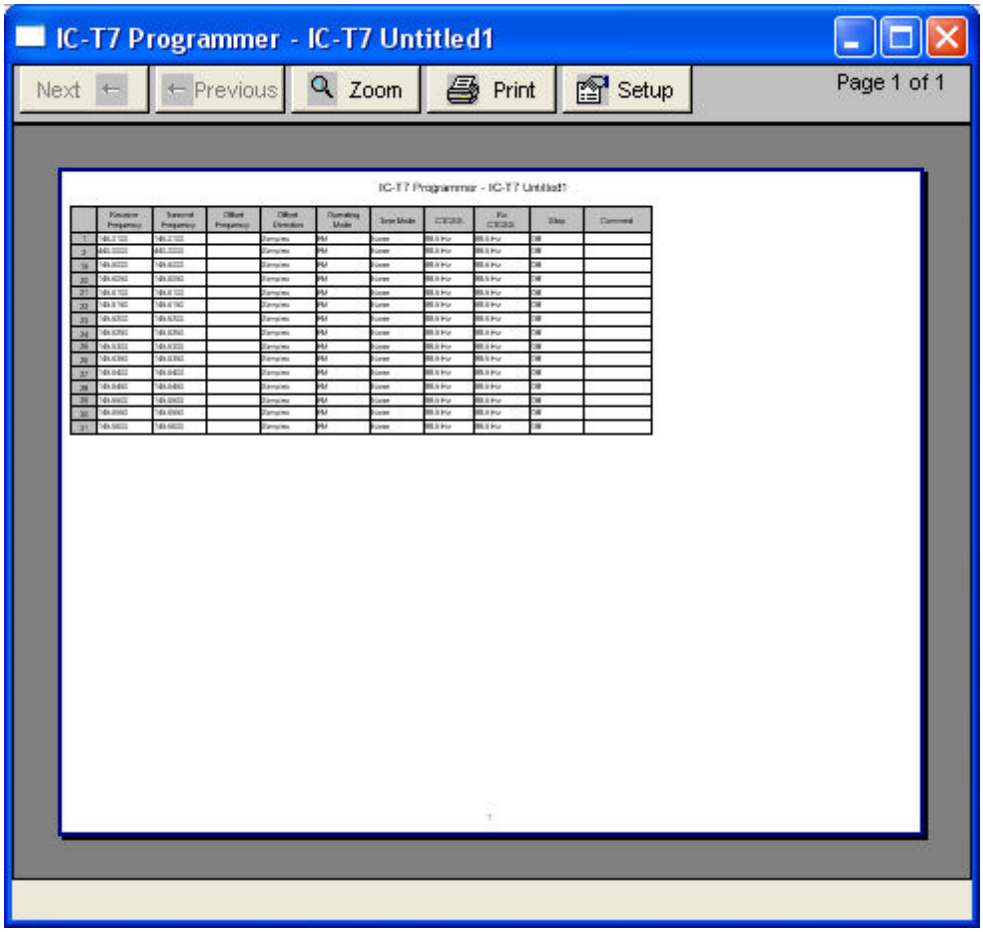
You will notice first that the screen changes. It is filled with the data that will be printed. This is just a temporary change. The order of your channels has not been changed in the file.

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



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

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



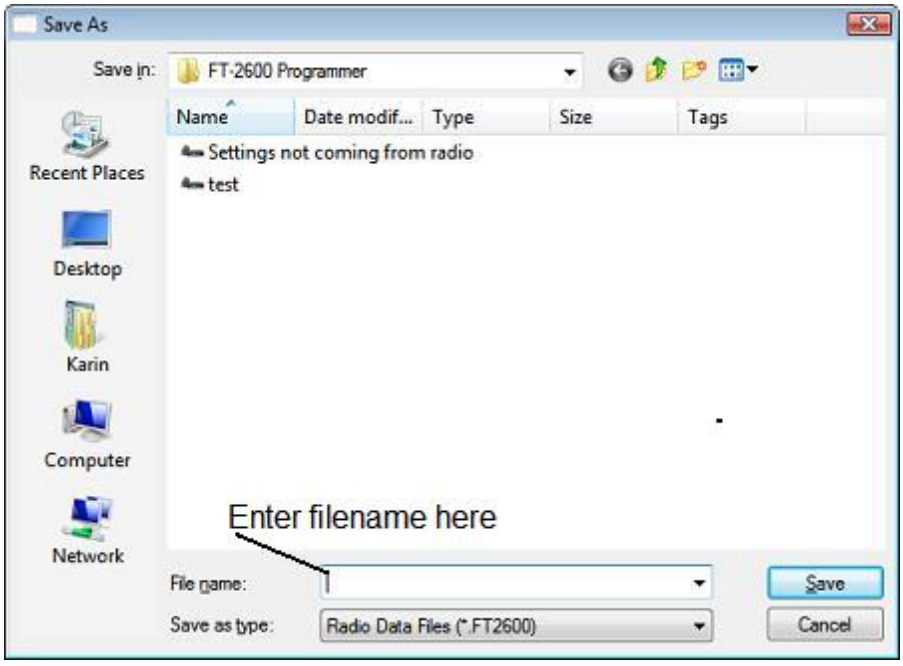
Under Printer setup, change the margins to print on as much of each page of paper as possible. Again, this can make it possible for all the columns to fit on one (or half the number of) page.

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

13.6 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.



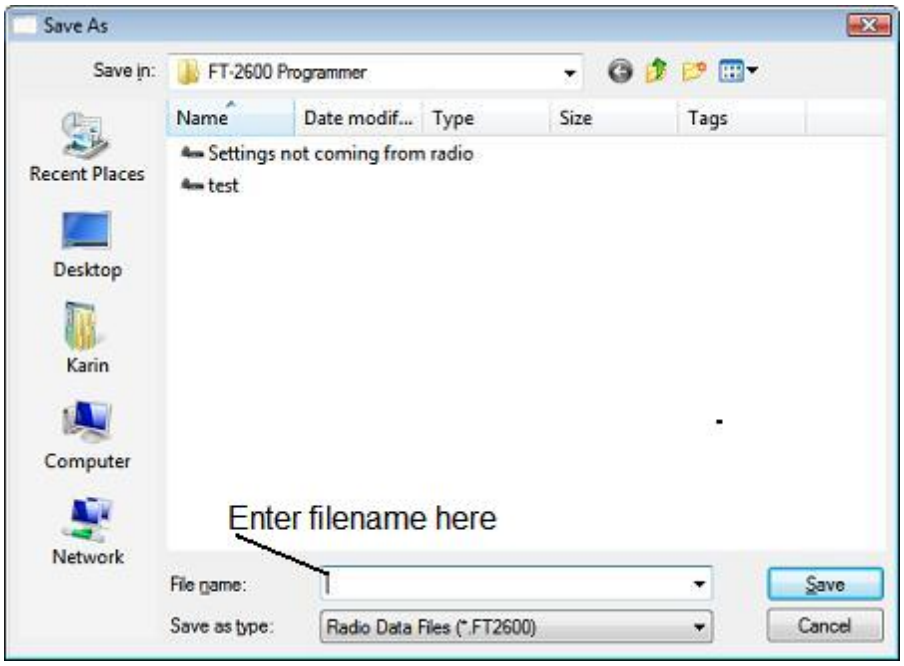
13.6.1 File | Save

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.



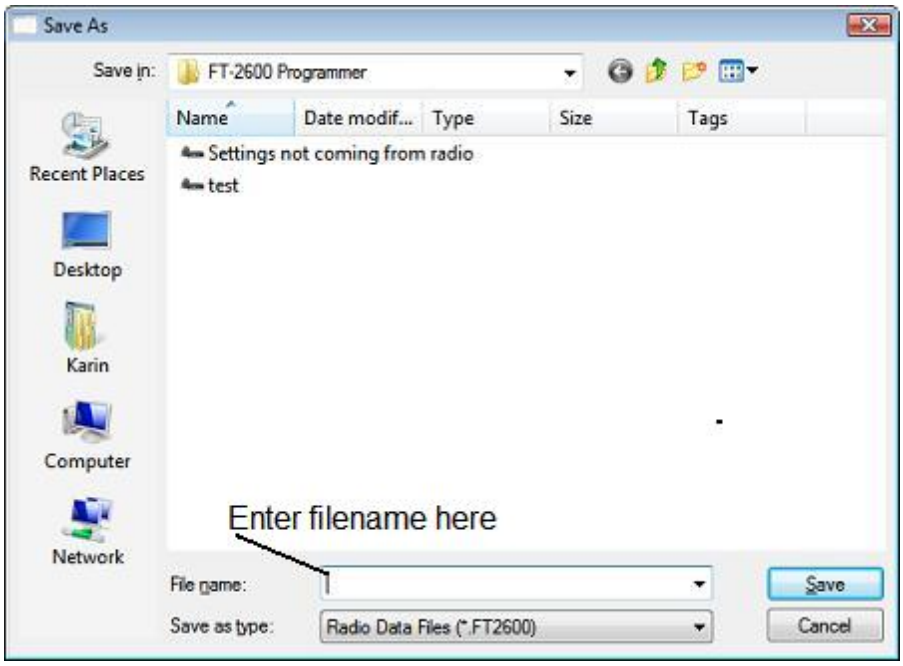
The filename can be any combination of characters and spaces including numbers and letters.

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

13.6.2 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

14 Copying From an Excel Spreadsheet

The Programmer can handle information copied from an Excel spreadsheet.

Although this process is valid for transferring data between these programs, it is not recommended for original file creation. It can be tedious getting all the information into the original Excel file that you are copying from. For example, why struggle to find information for the offset frequency and offset direction for your Excel list when the Programmer will complete this information automatically when frequencies are entered there.

Limitations for use of another commercial spreadsheet program include:

- The spreadsheet program will know none of the limitations of the radio. It will allow you to enter any value in any space. You will have to enter transmit and receive frequencies, CTCSS tones, and DCS codes carefully to be sure they are imported correctly to the radio.
- You will need to organize your data carefully. The Programmer will import all the items from a single column as the same thing. This can cause an odd split to be entered as Simplex or a non-standard offset to be ignored if non-similar data is listed in the same column.

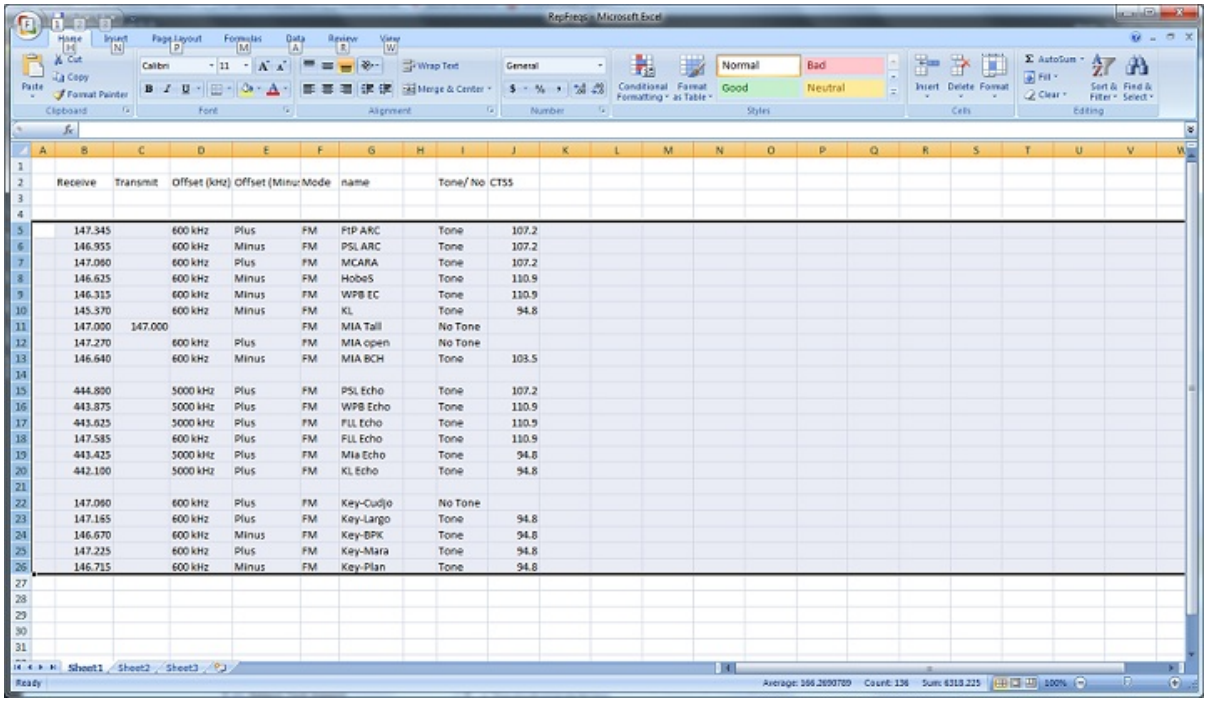
Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.

14.1 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.



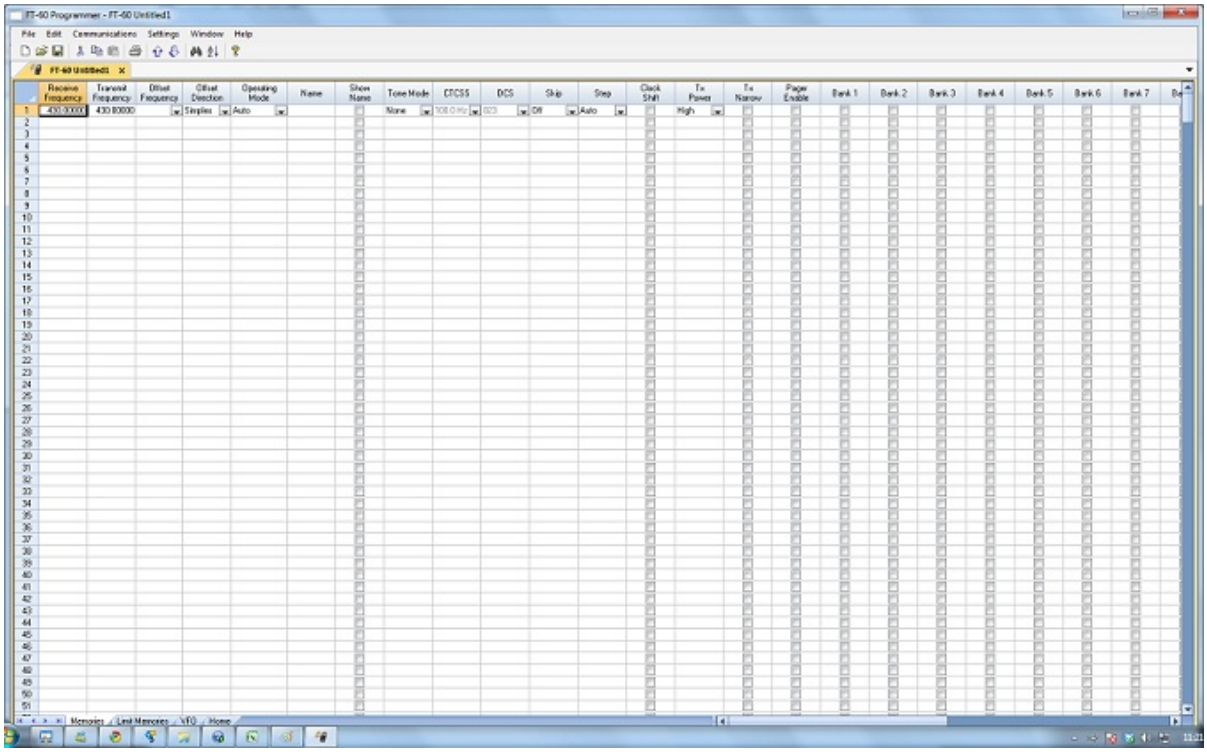
Receive	Transmit	Offset (kHz)	Offset (Minus	Mode	name	Tone/ No	CTSS
147.345		600 kHz	Plus	FM	PtP ARC	Tone	107.2
146.955		600 kHz	Minus	FM	PSL ARC	Tone	107.2
147.060		600 kHz	Plus	FM	MCARA	Tone	107.2
146.625		600 kHz	Minus	FM	HobeS	Tone	110.9
146.315		600 kHz	Minus	FM	WPB EC	Tone	110.9
145.370		600 kHz	Minus	FM	KL	Tone	94.8
147.000	147.000			FM	MIA Tall	No Tone	
147.270		600 kHz	Plus	FM	MIA open	No Tone	
146.640		600 kHz	Minus	FM	MIA BCH	Tone	103.5
444.800		5000 kHz	Plus	FM	PSL Echo	Tone	107.2
443.875		5000 kHz	Plus	FM	WPB Echo	Tone	110.9
443.625		5000 kHz	Plus	FM	FLL Echo	Tone	110.9
147.585		600 kHz	Plus	FM	FLL Echo	Tone	110.9
443.425		5000 kHz	Plus	FM	Mia Echo	Tone	94.8
442.100		5000 kHz	Plus	FM	KL Echo	Tone	94.8
147.060		600 kHz	Plus	FM	Key-Cudjo	No Tone	
147.165		600 kHz	Plus	FM	Key-Largo	Tone	94.8
146.670		600 kHz	Minus	FM	Key-BPK	Tone	94.8
147.225		600 kHz	Plus	FM	Key-Mara	Tone	94.8
146.715		600 kHz	Minus	FM	Key-Plan	Tone	94.8

14.2 Step 2

Open the Programmer to which the data is to be pasted.

It is recommend that you import into a new file to prevent loss of data from an existing file. Channel information can be copied to an existing file, and put exactly where you want it, after the process of copying from Excel is complete.

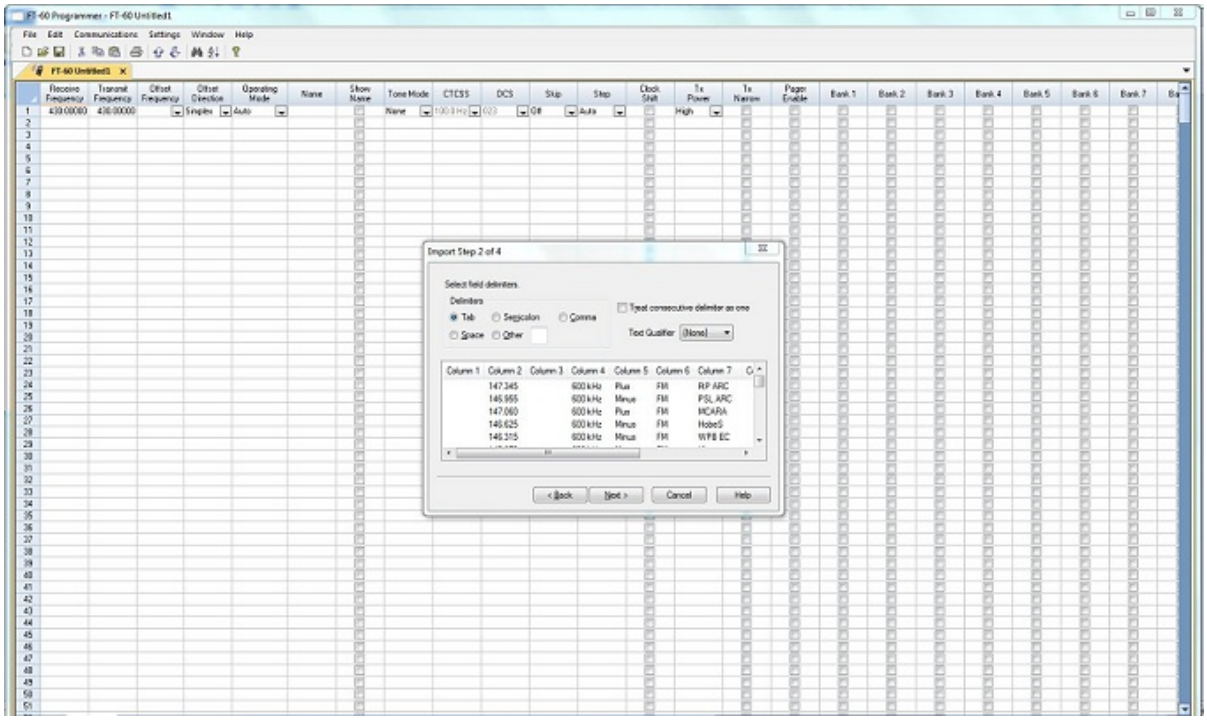
Note: The FT-60 is used here as an example. The process works the same for any RT Systems Programmer (Version 4 or higher). Column names shown in the screen shots of this example may differ or not be available for your particular radio.



14.3 Step 3

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

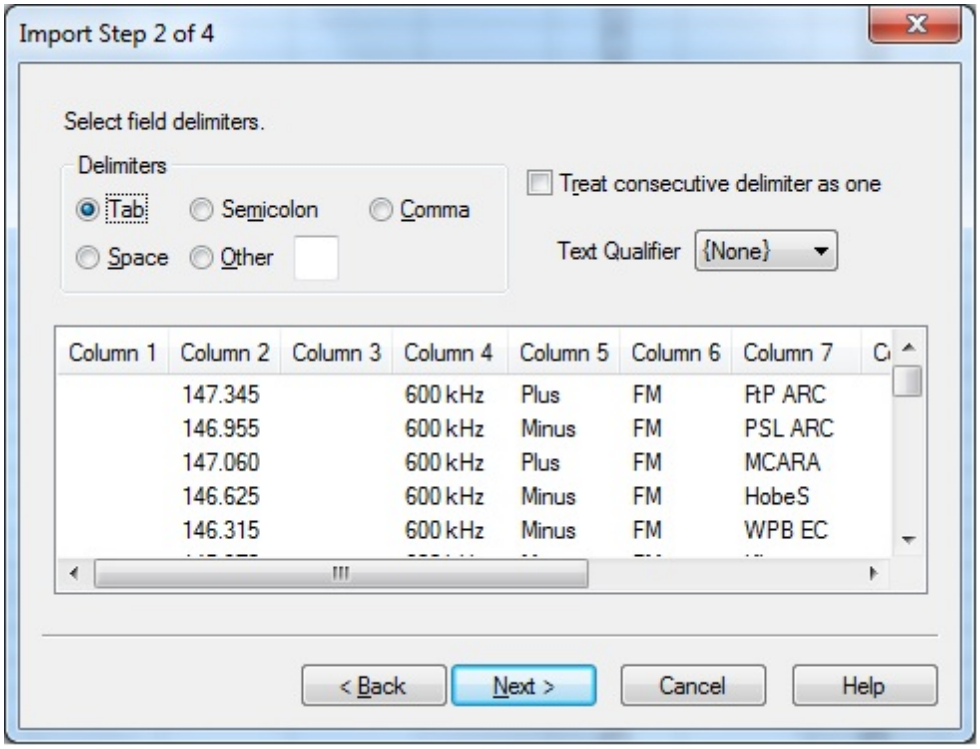
A window opens to complete the process.



14.4 Step 4

On this screen, you may need to use the Text Qualifier to remove quotes from your data.

The data should be appear as it does in this image: without quotes and separated into columns.

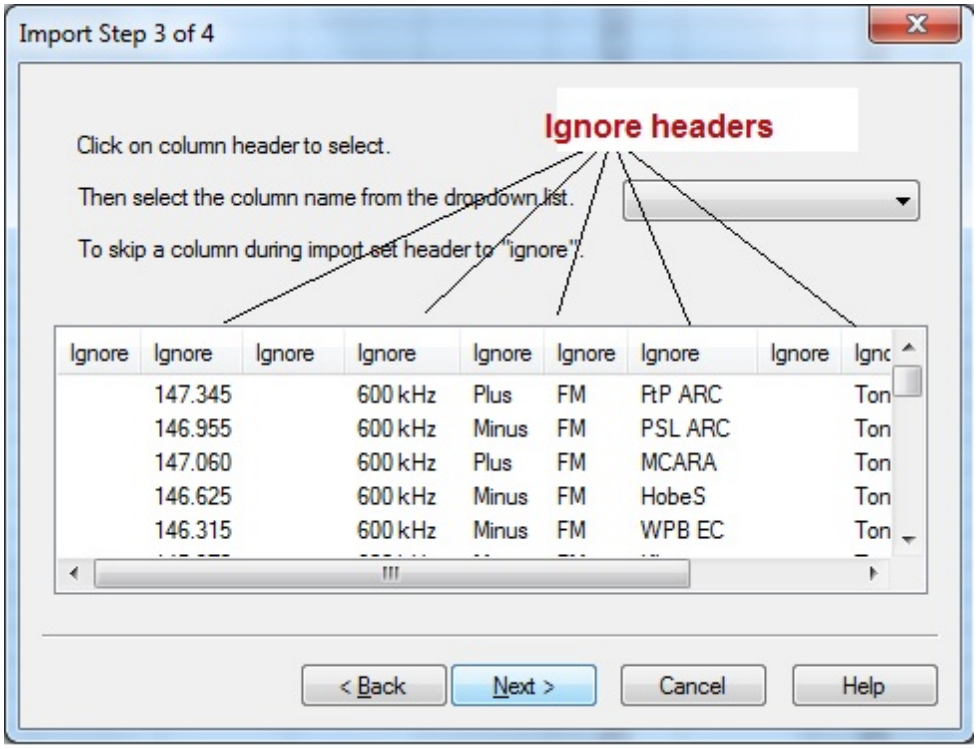


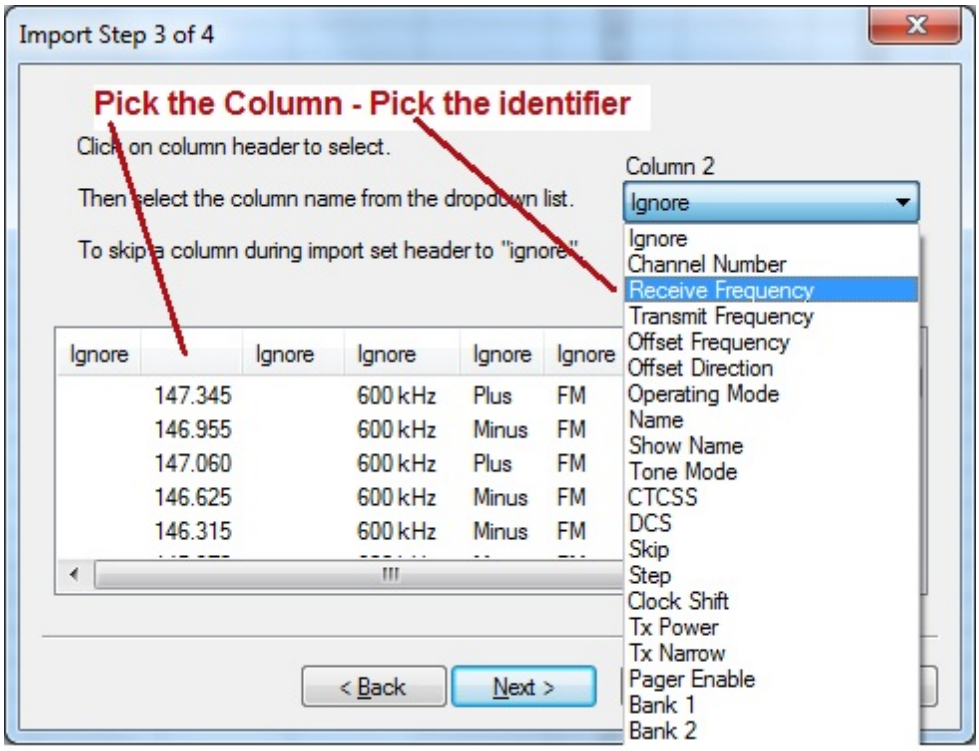
Click Next to continue.

14.5 Step 5

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

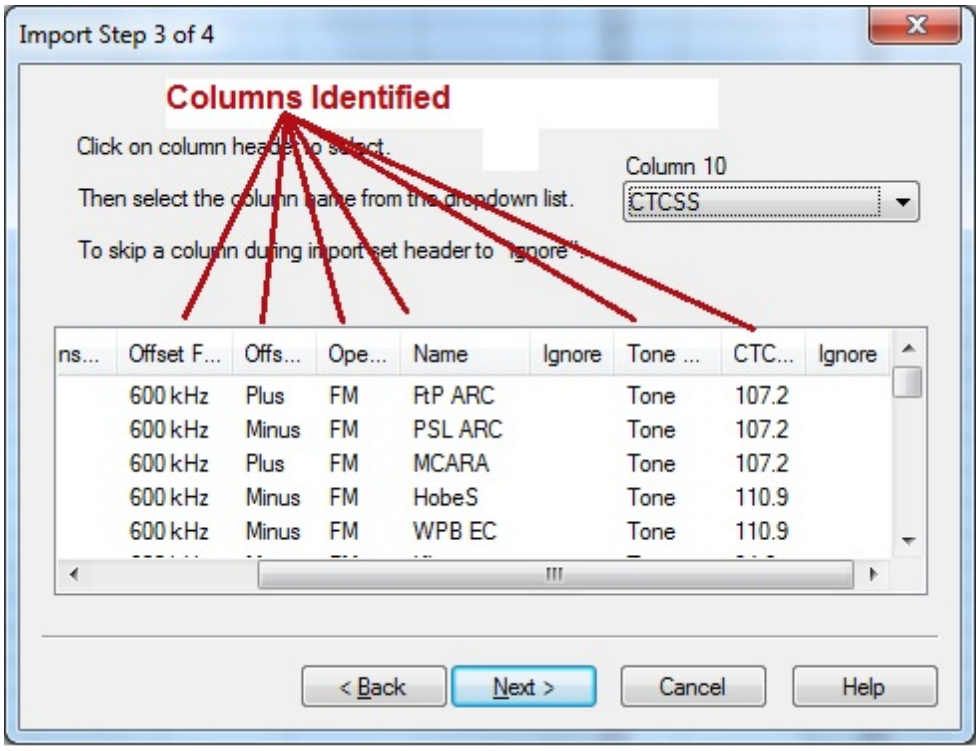
The Programmer makes no assumptions and will set any non-matched column to "Ignore". The data in an ignored column will not be used in this process.





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

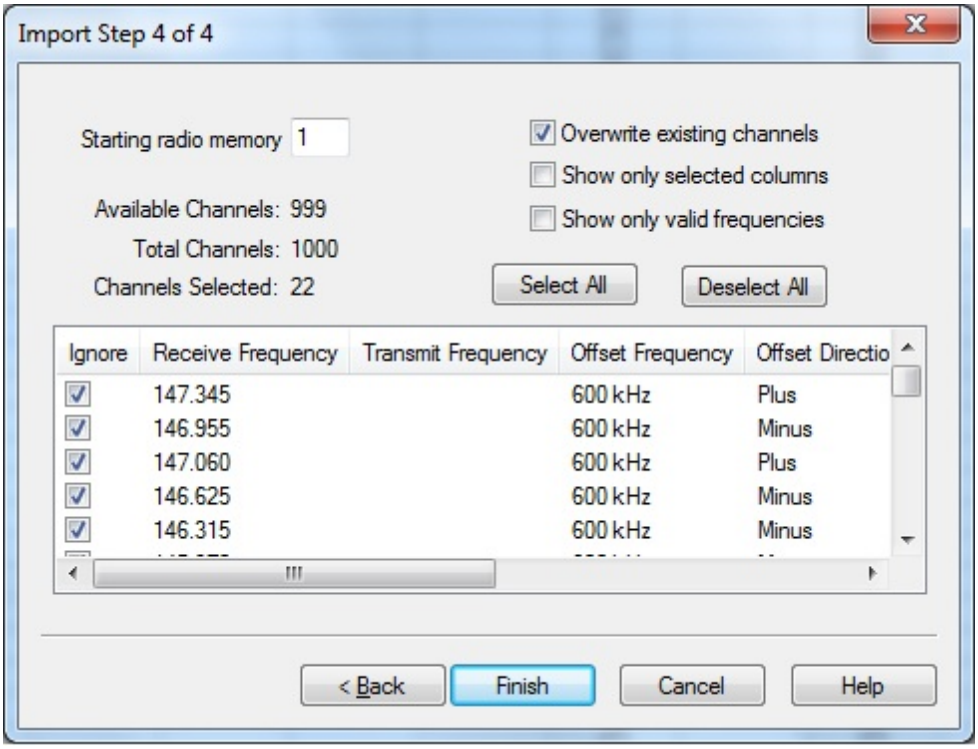
You ONLY need Receive frequency to import. The Programmer will set everything else for the channel to defaults which means you will lose other important information (names, tones, etc.) if you don't take the time to tell the Programmer that this information is available in the file.



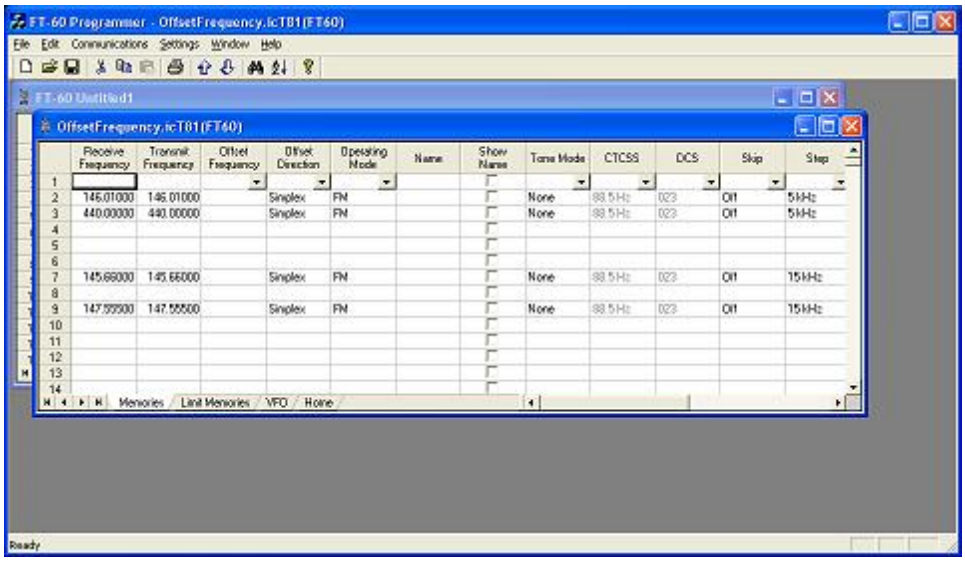
Click Next to continue.

14.6 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.



Part

15 Importing a file

The Programmer can Import data from delimited text files. These files can be created using the Export feature of the Programmer for another radio, Travel Plus for Repeaters by ARRL, commercial spreadsheet programs, or text editors.

Limitations for use of another commercial spreadsheet program include:

- The spreadsheet program will know none of the limitations of the radio. It will allow you to enter any value in any space. You will have to enter transmit and receive frequencies, CTCSS tones, and DCS codes carefully to be sure they are imported correctly to the radio.
- You will need to organize your data carefully. The Programmer will import all the items from a single column as the same thing. This can cause an odd split to be entered as Simplex or a non-standard offset to be ignored.

The easiest way to begin a text file for your Programmer is to Export a file from the Programmer first. In that exported file, you will see column headers for the details that the Programmer expects to import. You will also see the format of the information. You can edit or add to this file with any commercial spreadsheet program or text editor.

Note: The new features of the Programmer include the ability to enter a series of channels by entering just a beginning frequency and the number to be entered, column editing, copy and paste of one or multiple rows of data, rearrangement of columns, hiding columns that need not be edited, and automatic completion of data based on band defaults for a frequency entered. Given that the Programmer is designed for the data of the radio, you might find editing in the Programmer easier than using another spreadsheet program.

The file to be imported must contain, at a minimum, Receive frequency to define a valid memory channel. The Programmer will fill the rest of the details for that channel with defaults just as if that frequency had been entered.

The Programmer makes no assumptions about the information available. If a piece of information is omitted, the Programmer imports the memory as a simplex channel and fills other fields with defaults.

Although this process is very valid for transferring data from one radio Programmer to another and for using the data from other sources such as ARRL Travel Plus, it is not recommended for original file creation. It can be tedious getting all the information into the file to be imported just like the Programmer wants it. Let the Programmer help you

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

15.1 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 how it was created and saved.

Try opening the file in Microsoft Excel or other commercial spreadsheet program. If everything looks good there carefully save the file in as delimited text (this could be called several different things in the program that you are using. If the first one you try does not produce the file format that you want, try selecting a different File Type during the save process. The details for this process are included below for Microsoft Excel.

Open the file that you created during the save process in Notepad. As before, if the display is legible data separated by commas you are well on your way. If, however, the data appears in one very long line, you should return to the original source to extract the data with line feed breaks at the end of each record.

If the Notepad display has orderly lines of legible data separated by commas, it is ready for use by the Programmer. It is fine if you see two commas right together. The process can handle a blank field.

Saving an Excel file for import

If you work on a file in Excel for import to the Programmer, that file must be saved as a comma delimited file before you leave Excel. The Programmer cannot import an Excel file with all its formatting codes. What it can work with is the "flat file" output of that file.

- In Excel, select File | Save as.
- In the Save As window change the Save as Type to CSV (comma delimited) *.csv
- Enter a file name for the output file. Pay attention to the drive and directory to which the file is being saved. You will need to be able to find the file later for use during import.

- Excel will raise a warning(s) about worksheets and formatting that will be lost if the file is saved in this format. Answer to the affirmative (OK or Yes) to the message(s); eliminating the formatting is exactly what you want.
- When you exit Excel, you will be asked again if you want to save the *.csv file. If you have made no changes since you last saved, answer No. If you have made changes, answer Yes and proceed through the warnings again to save the file again.

Limitations for use of another commercial spreadsheet program include:

- The spreadsheet program will know none of the limitations of the radio. It will allow you to enter any value in any space. You will have to enter transmit and receive frequencies, CTCSS tones, and DCS codes carefully to be sure they are imported correctly to the radio.
- You will need to organize your data carefully. The Programmer will import all the items from a single column as the same thing. This can cause an odd split to be entered as Simplex or a non-standard offset to be ignored if the data is not in a column labeled correctly or is mixed in with dissimilar data.

The Import File

The Import function is designed to assimilate some if not all of the following pieces of information for use by the Programmer. As radio features vary, so will the information to be imported (i.e., frequency ranges, the way offsets are handled, special options such as mask, clock shift, etc.)

The very best way to begin an Import file is to export a file from the Programmer. That will give you the headers for the columns that the Programmer expects and formatting for the data in each.

Remember, you need only Receive frequency to import a file. All other details will be set to defaults for the field during the import process. As with all computer functions, the more information you can give it and the more accurate that information, the easier the process and the more accurate the results.

Channel Number: If your file has channel numbers and you opt to use this column during import, your resulting file might not be what you expect.

- If the "Overwrite existing channels" option is checked: The information will be inserted into the specific channel no matter what is in the file at that location now . While the channel numbers can help to organize the information being imported, it can result in data being overwritten in the process.
- If the "Overwrite existing channels" option is unchecked: The information from the file being imported will be skipped if there is already information in the channel. The data in the existing radio file will not be overwritten.

It is always recommended that you import into a new file to prevent data loss in an existing radio file. Once the information is in the Programmer file, it can be copied into an existing file. With the copy process, you have more control of where the data is inserted into the file.

Receive Frequency: The very least a file must have to be imported is the receive frequency. This may be called the "output frequency" depending on whether you're referring to the radio or the repeater. If the column header is "Receive Frequency", the import process will recognize this label and identify the information automatically.

- Acceptable receive frequencies are detailed in the User's Manual for the radio. In the text file, the frequency should be entered in the format "MHz decimal kHz" (i.e., 146.450) with up to five digits following the decimal.
- Although unacceptable frequencies can be entered into the text file, they will not be imported into the Programmer. They will result in a blank memory channel when import is completed.

Transmit Frequency: Enter a specific transmit frequency in the format "MHz decimal kHz" (i.e., 146.450) with up to five digits following the decimal.

This information can be omitted from the file.

- If you are importing repeater information where all the repeaters have standard offsets (none operates on an "odd" split) the import process will calculate the Transmit Frequency from other information in the file.

This information must be included in a separate column for an "odd split".

- The column can be empty other than the specific information for those few "odd split" repeaters. The import process will calculate the Transmit Frequency from other information in the file for the other channels.
- Acceptable transmit frequencies are detailed in the manual for your radio.

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

Offset Frequency: This is the amount that the Receive Frequency changes to produce the Transmit Frequency. Standard offsets in the Programmer include 100, 500, and 600 kHz (0.1, 0.5 and 0.6 MHz) and 1.0, 1.6, 3.0, 5.0, and 7.6 MHz.

- In Yaesu radios any value in 50 kHz increments can be used as an offset (i.e., .650, .550, .050).
- In an Icom radio, there are no Splits. Everything must be entered with an exact Offset Frequency.
- The Offset Frequency is used by the radio along with the Offset Direction to calculate the Transmit Frequency. The Programmer does the same.
- This is one place that the import process will make an assumption for you. It uses 600 kHz for the offset for VHF and 5 MHz for the offset for UHF if no other offset is specified.

Non-Standard Offsets

The Offset Frequency can be used in conjunction with Offset Direction for a value in 5 kHz steps (i.e., any value ending in .xx5 where x is any digit from 0 to 9). This gives you the ability to use the Reverse function of the radio although your frequency pair is not separated by a standard offset value. This is considered a non-standard offset.

To use a non-standard offset in your text file enter the Receive Frequency. Then enter the Offset Frequency as an exact value including the decimal to denote kHz. For example, given the pair 146.650 and 147.300, the Offset Frequency entered would be .650 (decimal six five zero). The Offset Direction is Plus or Minus. With these three pieces of information, the import process will setup this memory channel correctly for use by the radio with the most functionality.

Note: You may see this import with one of the standard Offset Frequencies; however, once the file is saved, closed and reopened, the Plus or Minus and the Offset Frequency value as entered will appear.

Offset Direction: The Offset Direction lets the Import process know whether to add (plus) or subtract (minus) the Offset Frequency from the Receive Frequency when calculating the Transmit Frequency for the memory channel.

Enter Plus, Minus, + or - for the process to recognize the command.

Note: Be sure to use Offset Direction if your file contains + and &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 your editor does not show leading zeroes. Two digits are acceptable when the third is a leading zero).

  This value must be entered exactly as shown in the chart in the User's Manual.

  A value that is not in the table will result in an incorrect tone value setting.

  This value can be set independently for each memory channel that uses a DCS tone.

Skip: Marks selected memory channel to be *skipped during scanning*. This field should contain one of the following:

Scan, 0, or Stop to include the channel to be scanned.

Skip or 1 to mark the channel to be skipped.

PScan or 2 to mark the channel as Preferential Scan.

Step: The frequency being used by the radio changes by the value of the step when tuning manually. This value is used by the radio in Memory Tune mode. This value is

not critical in memory mode since the original memory channel frequency can be retrieved by exiting Memory Tune mode.

Enter 5/10/12.5/15/20/25/50 or 100 as needed.

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

Enter On or 1 / Off or 0

Tx Power: The output power can be set individually for each memory channel to address the exact needs of each operation.

Enter High / Med / Low

Half Deviation: Enter On or Off as needed for the channel.

Comments: Enter an identifying comment up to 80 characters.

You can see by the details here that creating a file for import can be a tedious process. Although this process is very valid for transferring data from one radio Programmer to another and for using the data from other sources such as ARRL Travel Plus, it is not recommended for original file creation.

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

The comma-delimited file can contain this information in any order. It must contain only the Receive frequency to be a valid memory channel. The Programmer makes no assumptions about the information available. If a piece of information is omitted, the Programmer imports the memory as a simplex channel and fills other fields with defaults.

This data can be entered in any order. You will identify the specifics to the Programmer during the Import process. If you find after several entries that you need another column for additional information, simply add it at the end. The Programmer will correct the order when it imports.

Save the data in your file often to prevent loss. Be sure to save the file as text with delimiters (separators) rather than as a worksheet of the program in which you are working. The Programmer cannot use a worksheet created by the other program.

To save as a text file, select File | Save (in the spreadsheet program). In the Save file window, select a different file type from the selection at the bottom of the screen. Acceptable formats are those that specify Text (i.e., .cvs, 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.

15.2 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 as not quite as you expected, you simply close the file without saving and begin again... in another new file.

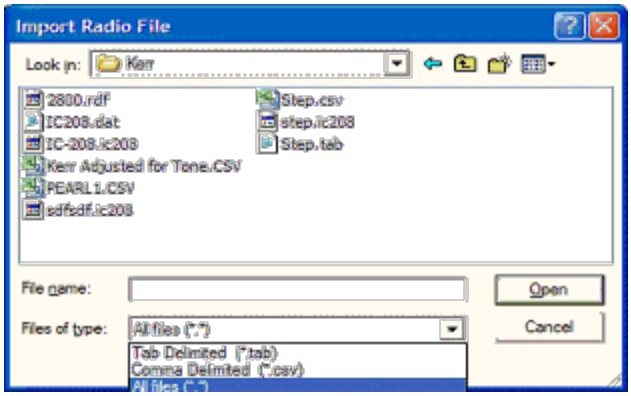
Working in a new file eliminates the possibility that existing data will be overwritten and lost during the import process. From there use the tools available in the Programmer (copy and pate, column editing, sort and unsort, etc) to get the data just as you want it.

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.

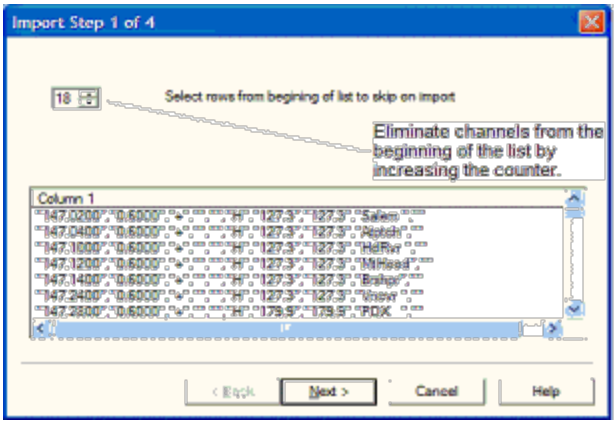


This screen gives you the ability to find and open the file to be imported.

- 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.

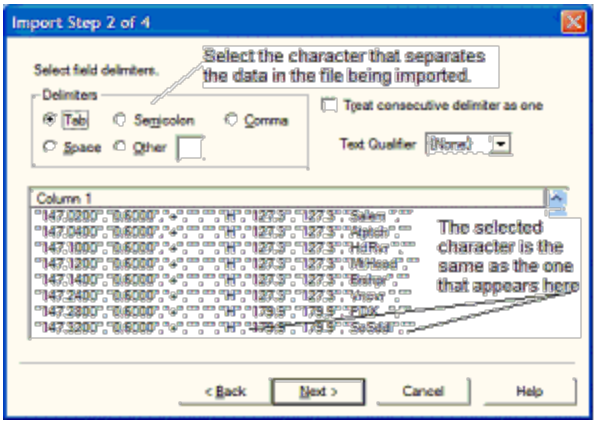
Actually, it is recommended that you leave the headers to help you more easily identify the information in a later step.

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.

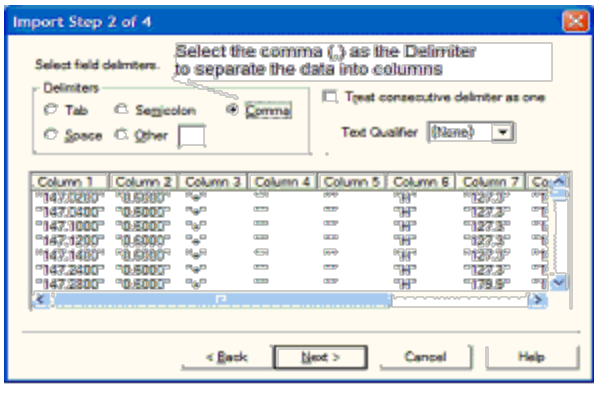
15.3 Import - Step 2

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



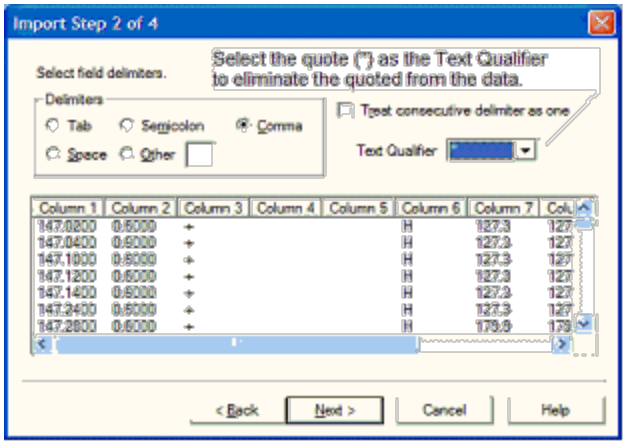
The data in the file to be imported is separated by tabs, semicolons, commas, space or other non-text characters. Select from the list at the top of the screen or enter the one you used.

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.

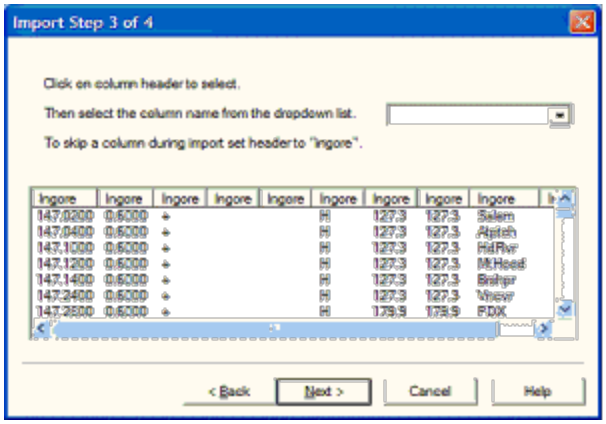


Click Next to continue.

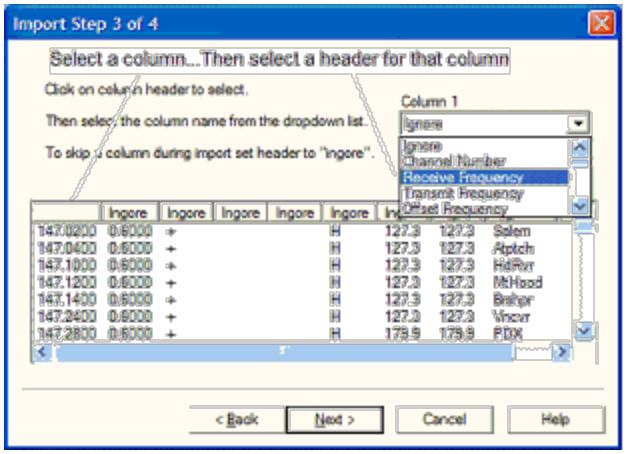
15.4 Import - Step 3

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

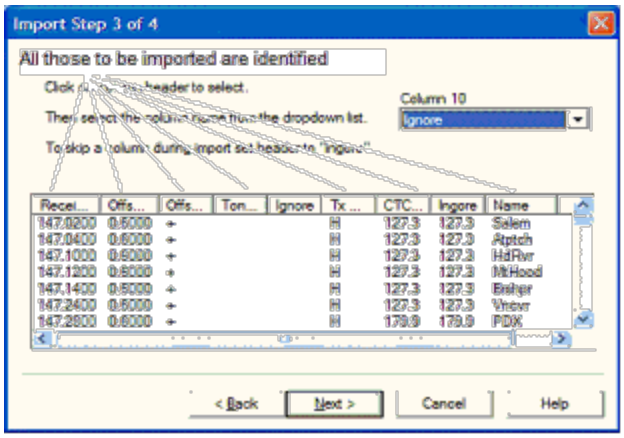
The Programmer will make an attempt to identify the information in your file. In this step of the process, you can make corrections to the assignments the Programmer has made and identify other columns that you want imported.



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.

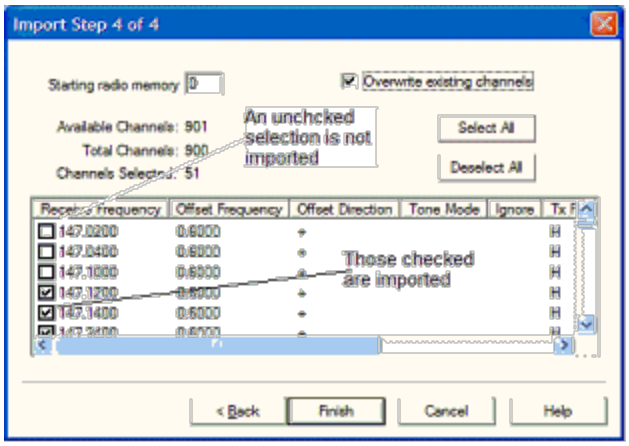


Click Next to continue.

15.5 Import - Step 4

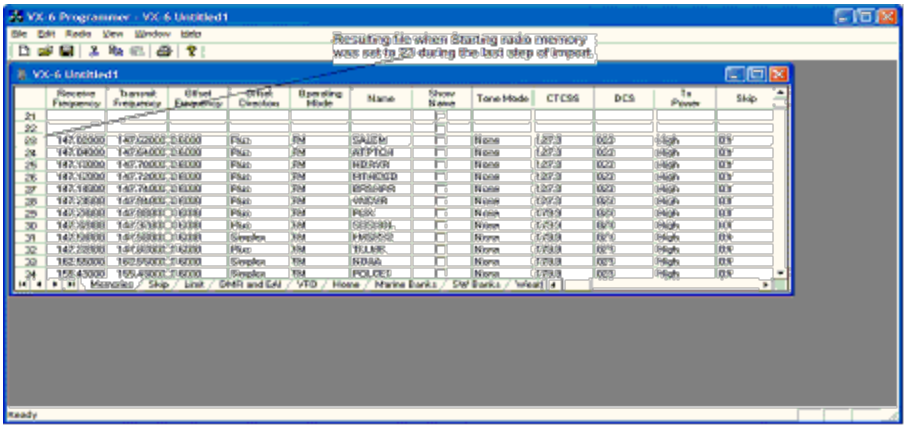
Import Step 4 of 4: Limit the channels that are imported by the Programmer

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 compete the process. The resulting file in this example would look like this:



Part XVI

16 Export

The Programmer can export, "convert" , the data of a radio programming file to a flat file for use in other programs. This will create the file that you need if someone asks you for a ".csv" or Excel file.

You control two parts of export:

What is exported from the file.

Where the exported file is saved on your hard drive.

What is exported from the file

The file created through export contains the data on the screen that is open when the process is begun.

If a radio has Right Memories and Left Memories, it will export the data of the Right Memories when you are viewing that screen when the process is begun and the data from the Left memories if you are viewing that screen.

Each export should be directed to a separate file. If you use the same filename, you will replace the data from the first export with that of the next.

Where the exported file is saved on your hard drive

Select the section of the file to be exported.

Click File | Export.

A Save dialog box opens. You have complete control of the filename and location of the file on your hard drive in the options in that Save dialog box.

Pay close attention to the filename and directory designation of the resulting file. You want to be able to find it easily later.

Part XVI

17 Common Troubleshooting

Technical support is available from *RT Systems* at the times and number shown in the *Contacting RT Systems* of this help.

As issues are addressed by Tech Support personnel, the issue and the result are often detailed on the Support page of www.rtsystemsinc.com. Check there for additional information that might pertain to the exact issue you are seeing with your radio.

Detailed here are several of the more common problems that you may want to check before you contact technical support.

"The data from the radio will overwrite this file. Continue?"

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

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

Answer "YES" if you want to lose all the information that appears on the screen. Answer "NO" if you do not want to lose several hours of work spent creating the file on the screen.

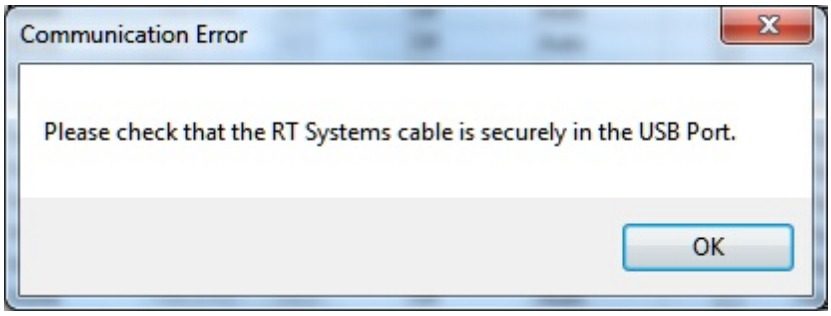
To prevent loss of information:

- First, do File | New to open a new (default) file.
- Then while looking at that file, do Communications | Get Data From Radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

Once you complete Communications | Get Data From Radio, return to your file and either:

- Select the tab at the top of the page
- Or select File | Open and open the file from the list presented (if you closed it some time during the process).

Program cannot find cable



This message can appear when you are attempting to "Get Data From Radio" or "Send Data To Radio." There can be several causes. For More details, see the Cannot Find Cable section in this Help.

Interference from other cables attached

The Programmer is designed to find the cable to be used by this radio for programming. This process is done through special identifying numbers programmed into the electronics of the USB connector.

The process looks at each USB device attached. Other items attached, especially other programming cables, may cause the Programmer to wrongly identify the RT Systems cable it must use for a specific radio.

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

Interference from other applications

Your radio is not the only device you attach to your computer for programming or data interchange. IPads, iPods, Palm Pilots and other PDA devices, printers, cameras and others all install programs for their use. Unfortunately, many of these programs run constantly looking to be used any time a cable is attached.

These programs take control of the cable even if it is not for their device. This renders the cable useless for its intended purpose.

You may not even be aware that these programs are running. You may have sold the device months ago; but unless you took steps to permanently disable the software for it, the problem remains. These programs run start whenever the computer is started or brought back from hibernation then run in the background with little indication that they are there.

Begin checking by hovering over each icon at the lower right of your screen. Those in the task bar. A name will appear as you pass over each. You may recognize the one that needs to be disabled. Usually an option to Exit or Close will be available from a right click menu. Do not worry about exiting something you might need. The application will begin again when you restart your computer.

After addressing a program, check in the Programmer. You should be able to click 'OK' on the Communications | Get Data From screen and have the process continue instead of raising the error message.

Tech support at RT Systems will be glad to help you with this, but we are limited given this is an issue specific to the applications running on your machine.

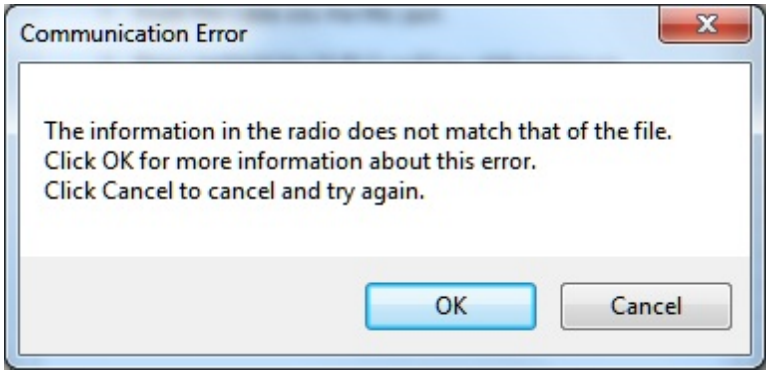
Defective Cable

Cables from RT Systems are 100% tested prior to packaging. For more information on what to do if a cable fails, see the Defective Cable section of this Help.

USB Driver Installation

On some systems the drivers for the cable will need to be installed manually. We at *RT Systems* will be happy to help you through this process, or see the USB Driver Installation section of this Help.

Modified Radio



This error is raised when you attempt to send a file to a radio that is modified before the Programmer is given that information.

If your radio has been modified, you must complete Communications | Get data From Radio into a new file before you attempt to write data to the radio. When the Get Data From radio process is used, even if the radio is not yet programmed, the Programmer gets the data it needs to learn that the radio is modified.

When you use Communications | Get data From for the sake of establishing communications, you need to save the file ONLY if you want to save the memory data that is currently in the radio. The Programmer already has what it needs. The option to save is available should you want to save the pre-programmed data.

Cabling to properly address the radio

The RT Systems Programmers work only with the RT Systems' USB cables
No other USB cable will be recognized by the Programmer.

RT Systems' Programmers address over 400 different radios. Of those, some program through the speaker jack, some through the microphone jack, some through the data jack and some through the CAT port. These ports must be addressed by the correct RT Systems cable for communications to be successful.

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

Specific to the FT-857/D and FT-897D: The cable used for programming is the USB-62 cable with the 8-pin mini din plug. This plug is attached to the CAT jack on the back of the radio. Forcing this connector into the data port will ruin the plug and could damage

the radio. There have been cases where the power pin and the PTT were connected (since you never know which pin will go which way when you force them out of place) causing several hundred dollars in damage. Check to be sure you are connecting the cable to the matching jack before forcing the pins into the holes.

At the time of this writing (2009), none of the Yaesu VHF/UHF mobile radios used the USB-62 cable with its 8-pin plug. We have seen this tried. It will not work. The mobile radios that program through the data jack require a 6-pin mini din connection on the cable. Check the cabling specified in the Help for the radio that you are programming to be sure that you are using the right one to address the radio.

Icom specific issue for Clone mode

Other than the Icom IC-R10, at the time of this writing, Icom radios are ***NOT*** put into CLONE mode for programming from RT Systems' Programmers. For more details, see the Clone Mode section of this help.

Yaesu Radio does not go into Clone mode after initial menu selection

Many Yaesu radios, hand held and mobiles, access Clone mode from a start up menu. For more details, see the Clone Mode section of this help.

Yaesu Radio does not change to Tx or Clone Out when button is pressed

Many Yaesu radios have a key sequence that starts Clone mode without having to select that option from a start up menu. For more details, see the Clone Mode section of this help

Windows Version Compatibility

The RT Systems Programmers are designed to work with Windows XP (SP3), VISTA (32 or 64 bit) or Windows 7 (32 or 64 bit) and Windows 8 and 8.1 (full version).

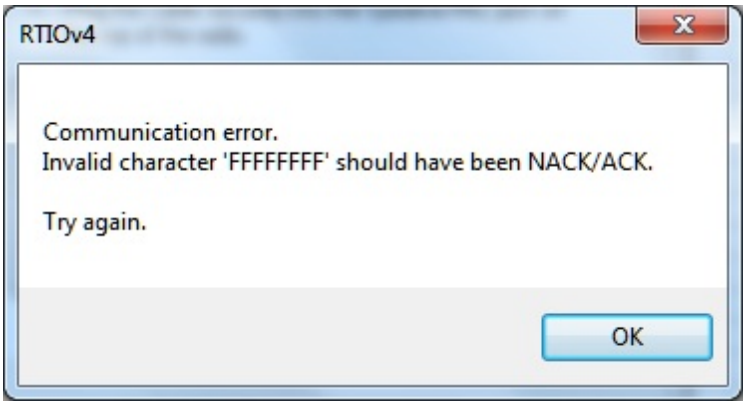
RT Systems no longer supports use of the Programmers on Windows 98, Windows 98SE, Windows 2000, or Windows ME.

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

If the machine has been out of service for several years, set it up with an Internet connection and Automatic Updates activated. Let it sit for several days while it finds what it needs.

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

NACK/ACK Error



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

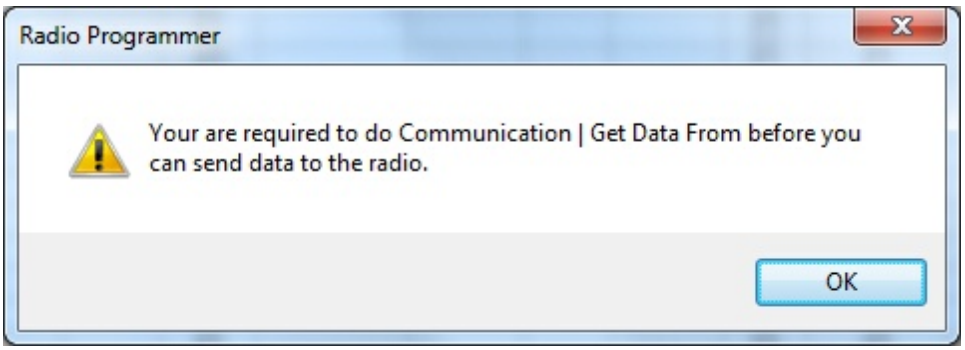
- Do NOT turn the radio off. It may display Error. It is not terrible unhappy and is still in Clone Mode.
- Cancel all Communications screens that are open in the Programmer.
- Open a new file (File | Open from the menu at the top of the screen).
- Select Communications | Get data from radio. Doing Get Data from often gets the process going.
- Skip the steps for putting the radio into Clone mode. It is already there.

- Click OK.
- Press the key as instructed to begin the process (sometimes you need to press it twice. Once to return to Clone mode, then again to begin the process).

Once Get Data From Radio is successful, attempt Send Data To Radio. In this scenario, you can skip the steps to put the radio into Clone mode since it usually remains in Clone mode after Get Data From Radio is completed.

17.1 Get Data from Radio Required

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



This indicates that you have not read the configuration of the radio into the Programmer.

There are details that the Programmer can get only from the radio. Even if the radio is not yet programmed, these "background" details are necessary for the Programmer to send a file to your radio successfully.

It is good habit to use the 'Get Data From Radio' function to make sure the computer and radio are "talking" to each other.

This can, however, come with some issues if you are not careful.

When using the 'Get Data From Radio' process, you will be prompted with this question:

"The data from the radio will overwrite this file. Continue?"

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

Answer "YES" if you want to lose all the information that appears on the screen.
Answer "NO" if you do not want to lose several hours of work spent creating the file on the screen.

To prevent loss of information:

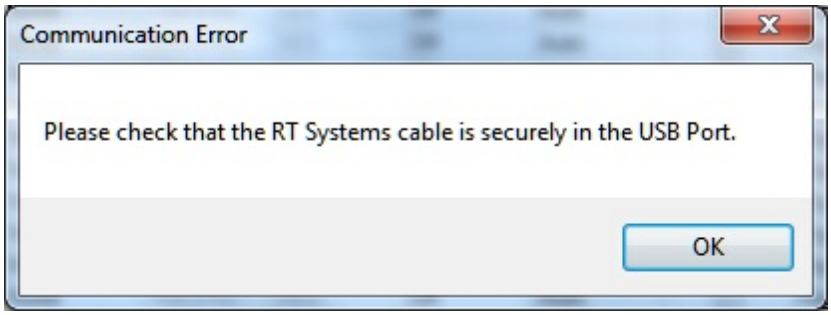
- First, do File | New to open a new (default) file.
- Then while looking at that file, do Communications | Get Data From Radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

Once you complete Communications | Get Data From Radio, return to your file and either:

- Select the tab at the top of the page
- Or select File | Open and open the file from the list presented (if you closed it some time during the process).

17.2 Cannot Find Cable

Program cannot find cable



This message can appear when you are attempting to Get Data From the radio or Send Data To the radio. There can be several causes. The most common are:

- The cable is not attached to the computer or you have the wrong programming cable attached. The cable for this radio is pictured in the ***Computer / Radio Cabling*** section of this help.
- The communications process was accessed too quickly after the cable was attached. It can take some computers a minute or more to recognize the cable properly. Give the computer a little more time and try again.
- The problem may lie in the electronics of the cable. If this is the first time you have attempted this process, contact RT Systems for assistance. This can be corrected easily in just a few minutes with the computer and an Internet connection.

Note: This can be corrected using a machine that has an Internet connection that you don't plan to use for the programming software. The software for the radio does not have to be installed to complete the correction.

- HotSync, the program for the Palm Pilot, is running on this computer. Hotsync immediately takes control of an available comport. Since the RT Systems programming cable establishes a comport, Hotsync takes control before you have a chance to use it. Look for the icon, red and blue arrows chasing each other, in the tray at the right of the task bar. If found, right click and exit. That program will load again when you re-boot your computer. You will need to disable this software any time you program your radio.

17.3 USB Driver Installation

USB Driver Installation

On some systems, the drivers for the cable will need to be installed manually. This is a normal issue in the USB world and is easily done.
We at *RT Systems* will be happy to help you through this process.

With the USB cable detached from the computer, start the New Hardware Wizard from the indication for the device in the Device Manager.

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

C:\Program Files (x86)\Common Files\RTSystems V5\RT Drivers\USBComDrivers

Then attach the cable again. Check in Device Manager to be sure it is now listed under Ports (Com and Lpt) with a comport designation assigned.

17.4 Clone Mode Issues

Icom specific issue for Clone mode

Other than the Icom IC-R10, at the time of this writing, Icom radios are NOT put into CLONE mode for programming. CLONE mode is used only when you transfer data from one radio to another.
The process for programming the radio from the computer is simple. When the instructions say to "Turn the radio on", do just that, press the power button to turn it on. If pressing a key is needed as a part of this step, it will be included with the instructions on the Get data from screen.

Yaesu Radio does not go into Clone mode after initial menu selection

Many Yaesu radios, handheld and mobiles, access Clone mode from a startup menu. When you turn the radio on holding the specified key, you are in that menu with several options of radio functions. Clone is only one of these options.

Once the Clone option is found in that menu, another key on the radio is pressed to activate that mode. You know the option has been activated when the radio cycles off and back on. Only then is it in Clone mode and ready to program.

If the radio does not cycle off and back on when that next button is pressed, one of the following may address the issue:

The keys on the face of the radio are locked. Turn the radio off and back on in normal mode to check for the Lock symbol on the screen. Unlock the keys and try again.

You have pressed the designated key too long or not long enough. Try again until you get the feel for the process.

Yaesu Radio does not change to Tx or Clone Out when button is pressed

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.

17.5 Defective Cable

Defective Cable

Cables from RT Systems are fully tested prior to packaging. Even with this level of control, occasionally a cable fails in the field. Contact RT Systems tech support to determine if the cable is at fault and a replacement is needed.

A replacement can be initiated when you send a copy of your receipt as proof of purchase and the issue has been diagnosed with a tech support representative at RT Systems. In this case, a replacement will be sent immediately with a prepaid label for return of the defective item. The replacement will be sent to the address on the receipt.

If the receipt is not available, return the original cable for replacement. A replacement cable will be sent immediately when the defective item is received at our location.

17.6 Buttons Being Locked

Some radios come with a Key Lock button, typically on the face of the radio. When this button is engaged, it prevents the user from using other buttons/functions on the radio.

If this happens, locate the lock button on your radio. If you need help finding your lock button, or the button set up with the lock feature, the location of this button will be outlined in either the Help file specific to your radio, or in your radio user's manual.

Disengage the lock button in order to regain usability for the other buttons/functions. Whether or not this requires a long press or short press, depends on the radio and the way the buttons may have been set up in the Programmer.

Often times, you can look under Settings | Radio Menu Settings, locate the lock button function, and see if it is turned on/off (checked) or if it requires a long or short press from the radio face (this will typically be under Radio Buttons).

17.7 Firmware Updates

RT Systems' Programmer Updates

Occasionally, the Programmer needs updates. Failure to update the Programmer may result in issues with getting your radio programmed the way you would like. Updates can be found on the Support portion of www.rtsystemsinc.com.

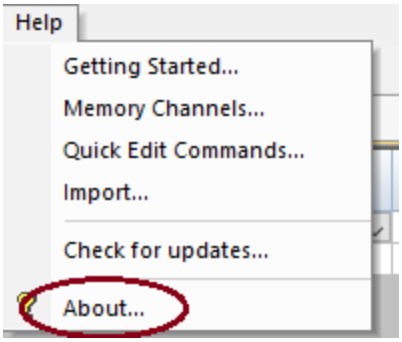
To Update Your Firmware:

- Before you begin, it is important to make sure none of the RT Systems Programmers are running in the background. Restarting your computer is a good option to ensure the Programmer(s) is closed.
- Locate the updater for the Programmer version you have.

- Click the updater and let it run.
- A pop-up box for the download will appear. From here, click 'Run.'
- If the screen appears with a list of files, click the 'Update' button at the bottom of the screen.
- After the update finishes, run the Programmer as usual. Everything will be up-to-date.

To find out what version you have:

- Go to Help in the menu toolbar.
- Select 'About' from the bottom of the drop-down menu.



- After you choose 'About,' the following screen will appear. Here, you will be able to locate the version you have.

Part XVI

18 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.

Wlth 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 x 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.

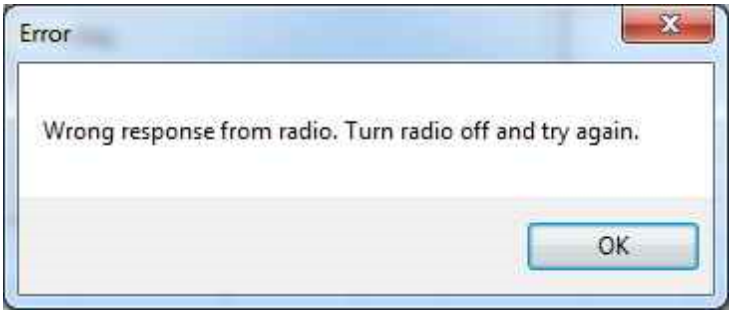
As discussed earlier, both the Reference Step and the Step of the radio are used to determine a valid frequency. Models vary. While this frequency passed

the validity test for certain amateur radios, that in no way implies that it will work on your particular radio.

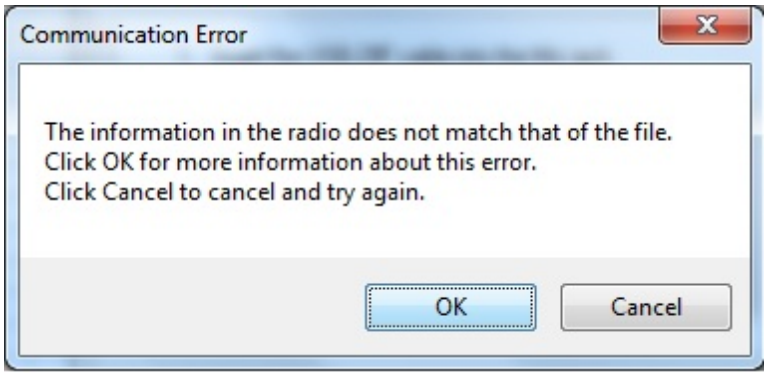
For this particular frequency to work in your particular radio, it is necessary that the radio have a 6.25 kHz step available in the Step option of the Set menu.

Part

19 Hardware Error Troubleshooting



This error is VERY common in the radios that use the 2-pin plug into the mic jack. It is resolved by pushing the cable again... a little harder so that it seats completely into the mic jack.



"Well of course the information in the radio and the file do not match. I just made changes to the file and I want the different information in the radio!!"

This is a common first reaction to this error. However, that is not the file information involved in this error. There are several causes for this error. They include incorrect key strokes on the radio, interference on the computer by another application or device, a faulty cable or the presence of a radio that has been modified for out of band use.

Below are various steps offered as corrections. At the end of each section try again to transfer data to the radio again.

Try this First

The error most likely indicates that "behind the scenes" information about the radio does not match that of a factory radio. This is most common when a radio has been modified for out of band transmission.

1. Create a new file (press Ctrl M on the keyboard or select File | New from the menu at the top of the screen). This protects the file that you are trying to send to the radio.
2. Select Communications | Get Data From Radio from the menu at the top of the screen. Complete the steps of the process.
3. When this is completed successfully, return to your file (click to tab at the top of the screen that displays the filename or select File | Open to reopen your file.)
4. Select Communications | Send Data To Radio. Be careful to follow these steps shown on this screen. Generally, they are different from the Get Data From radio steps.

Radio Issues

"Error" is displayed on the radio.

"Behind the scenes" information about the radio does not match that of a factory radio. This is most common when a radio has been modified.

1. Create a new file (Ctrl M or File | New)
2. Execute Communications | Get Data From Radio. This is the only way this "behind the scenes" information can be obtained for your radio.
3. When this is completed successfully, return to your file.
4. Execute Communications | Send Data To Radio being careful to follow these steps since they are different from the Get Data From radio steps.

The radio does not change when "OK" clicked on the screen in the Programmer (never indicates receive).

There is no communication between the radio and the computer. Check through the Cable issues to be sure you are using the right cable and that it is connected properly to the radio and to the computer.

The radio never goes to CLONE.

On many radios you hold buttons during power on to access a startup menu. Once you select the clone option of the menu (the radio is ***NOT YET IN CLONE MODE***), you press a key to accept the CLONE option. When you press the button to access the startup menu option, the radio does not change.

1. The keys on the radio may be locked. Turn the radio off then back on in normal mode to check for a lock symbol on the screen. If the keys are locked, unlock them. Once unlocked, power off the radio and begin the Communications process again.

2. The key specified is "touchy" and responds if it is touched just the right way. This has been the case on several of the mobile radios. Try again with a shorter or longer touch on the button. When you get that touch just right, the radio will respond.

3. The wrong cable is being used. This is true for several of the hand held radios that use the 4-pin plug. If you attempt this process with a stereo plug, the radio will not respond when you attempt the cloning process.

The radio never went into send (TX) mode (Get data from radio process).

Now that the radio is in Clone mode, one more button press is required to start the data transfer (Get Data From) or to make the radio ready to receive the data (Send Data To).

1. The wrong cable is being used. This is true for several of the hand held radios that use the 4-pin plug. If you attempt this process with a stereo plug, the radio will not respond when you attempt to access the Clone option of the startup menu.

2. The keys on the radio are locked. Turn the radio off then back on in normal mode to check for a lock symbol on the screen. Once the keys have been unlocked, power off the radio and begin the Communications process again

Radio is not on at the time of data transfer.

This can get the process "out of sync". Cancel the Communications screen on the computer. Then access that screen again and start over with turning the radio on in Clone mode. Be sure the battery is charged on your handheld radio or that you are connected to external power to prevent an unexpected shutdown during this process.

General Issue

Followed the Steps Incorrectly or executed the wrong process.

Get data from the radio:

1. Go to “Communications” in the top menu.
2. Click “Get Data From Radio”.
3. Read and follow each step. (Remember, the keystrokes are different for each radio. They are detailed for a particular radio on the Get Data From Radio screen. The trick is to follow each step... one at a time.)

Send data to the radio:

1. Go to “Communications” in the top menu.
2. Click “Send Data to Radio”.
3. Read and follow each step. (Remember, the keystrokes are different for each radio. They are even different for this process than they were for the Get Data From Radio process. They are detailed for a particular radio on the Send Data To Radio screen. The trick is to follow each step... one at a time.)

Cable Issues

Check that you are using the correct cable for this radio.

Many radios have jacks that will accommodate the programming cable from a different radio. Although the cable fits in the jack, the radio does not accept programming through the wrong jack.

You can see the cables for each radio by clicking on Programming Cable Chart.

Check that the cable is securely in the USB Port.

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

Check that the cable is plugged into the radio securely.

On cables with 6- or 8-pin round din plugs, you may want to check that the pins are not bent in such a way that they are making a bad connection. Unplug the cable from the radio and check by looking at the pins in the plug.

On cables with 4, 6, or 8 pin modular plugs that address the mic jack, push the cable toward the connector to be sure the modular plug is plugged into the mic jack completely. There can be a good bit of play between the mic jack and the plug. Hold the cable securely until the process is complete.

Part

20 Contact Us

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267 S Davis Road
LaGrange, GA 30241

Technical support	404-806-9561
Fax	770-216-1836
Technical Support Hours	Monday through Friday 10:00 AM until 6:00 PM Eastern 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. See it Done: How To Videos
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.