IC-2100 V4 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.

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

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

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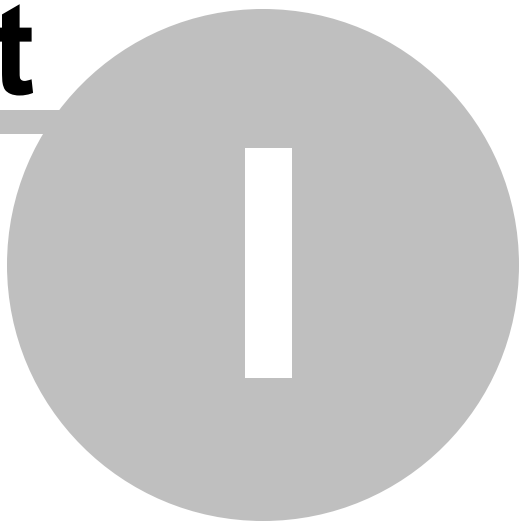
Foreword

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

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

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

Part



1 What Is the Radio Programmer

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

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

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

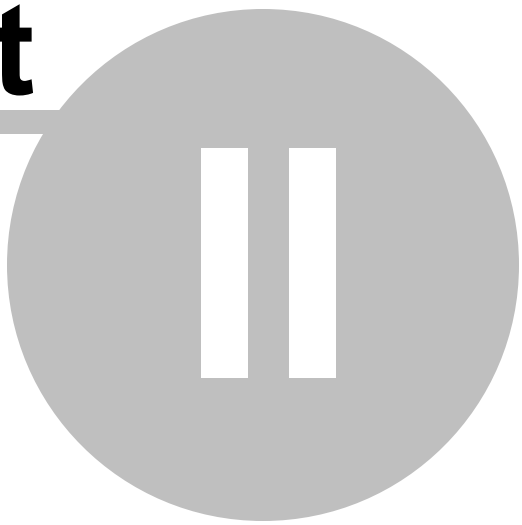
The Programmer also gives you the ability to read a configuration from the radio. The configuration would be stored in a file on your computer to be changed easily. Then, with minimal button pushing, you can send the altered file back to the radio.

Hardware Requirements

Hardware requirements for the Version 4 Programmers include

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

Part

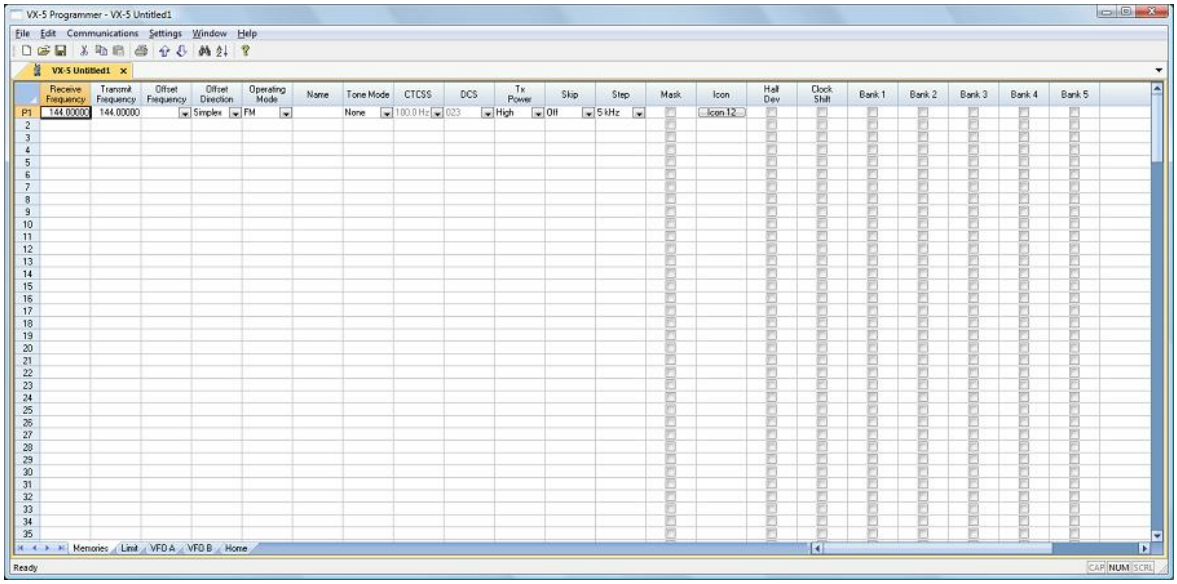


2 Getting Started

Creating the file

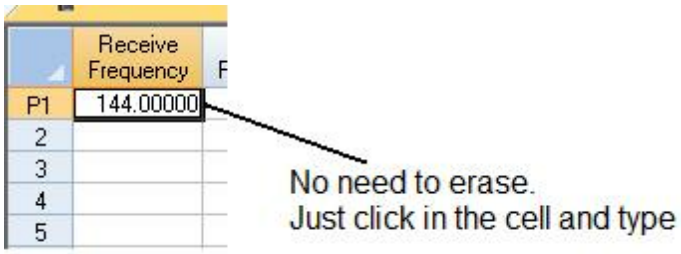
The Programmer gives you an easy way to access details for memory channels and other settings of the radio.

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



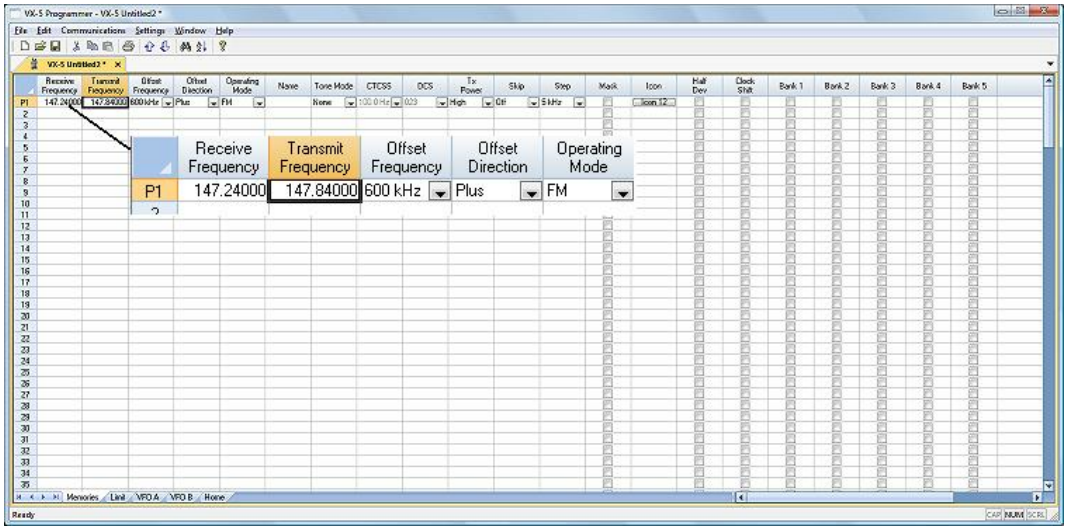
Note: The default file contains memory channel information on several of the screens. This information is needed by the radio to "fill spaces in its little brain". You can change the default entries that you see; but anything that is completed in the default file cannot be left blank. The Programmer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

Enter a receive frequency

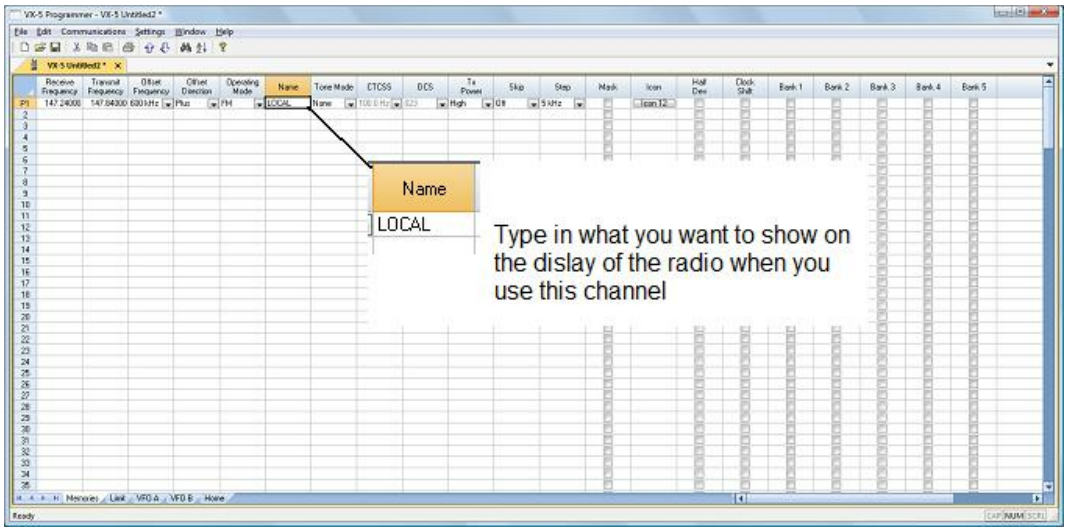


In this example we'll enter 147.240 MHz with standard offset, a Name of Local, and a tone of 100hz.

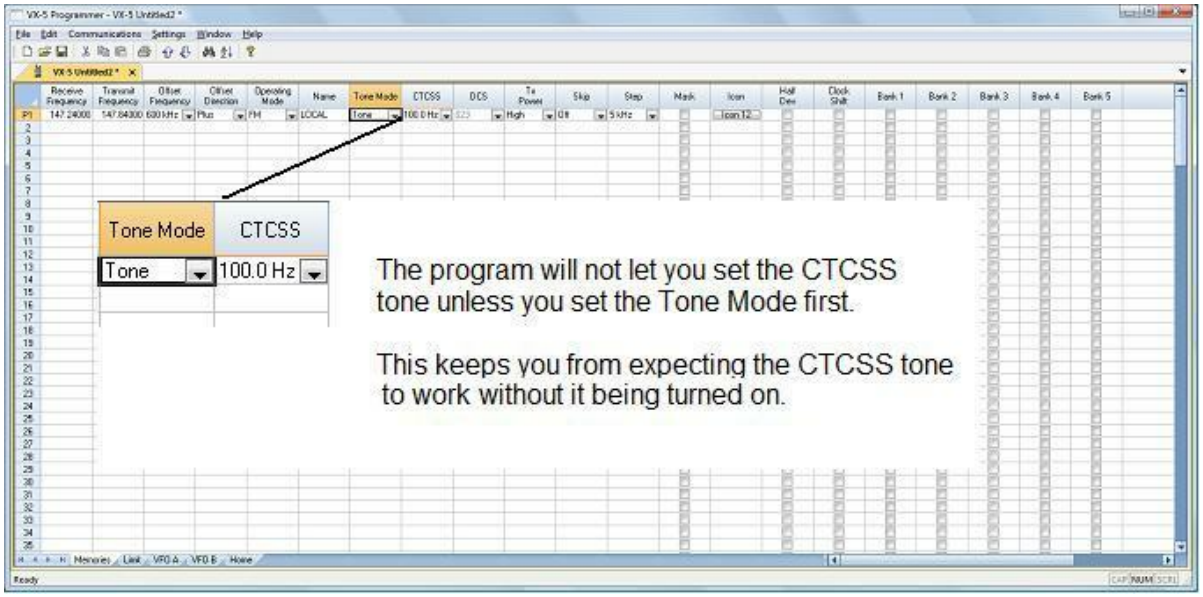
- Type one four seven period two four zero into the receive frequency column.
- Press Enter.
- The program completes much of the channel information with defaults. The Transmit frequency, Offset frequency, Offset Direction and Operating Mode are completed. This satisfies the "Standard offset" requirement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



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



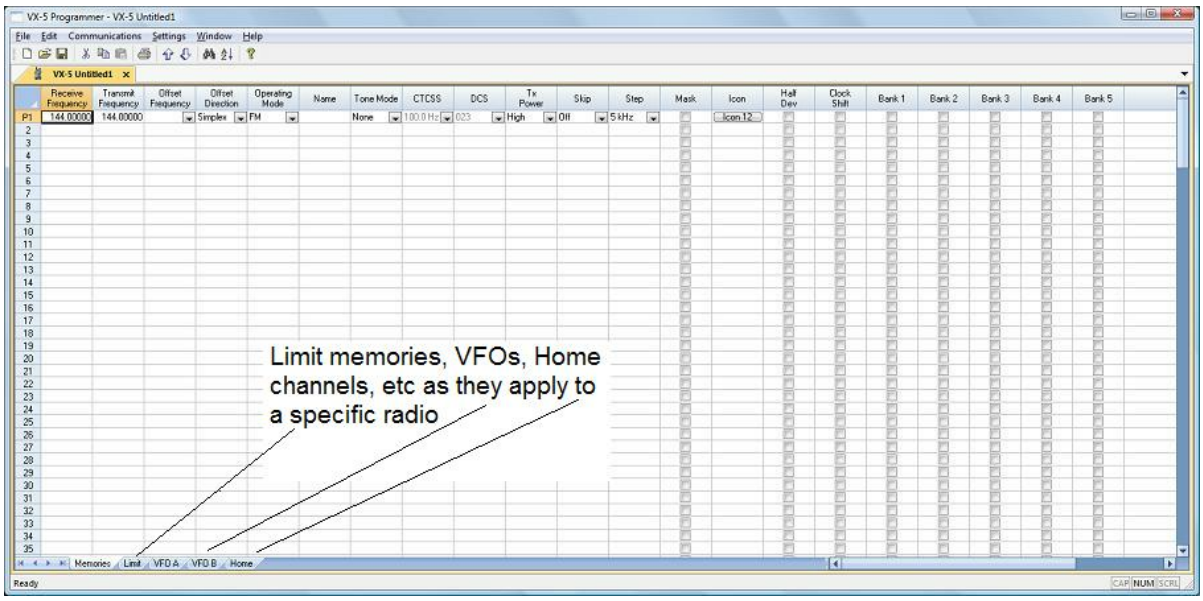
- Press tab to move to the Tone Mode cell. Setting up the tone of 100hz requires TW steps (just as it would if you were doing this from the face of the radio). Turn on Tone Mode AND then set the 100hz tone.



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

for them.

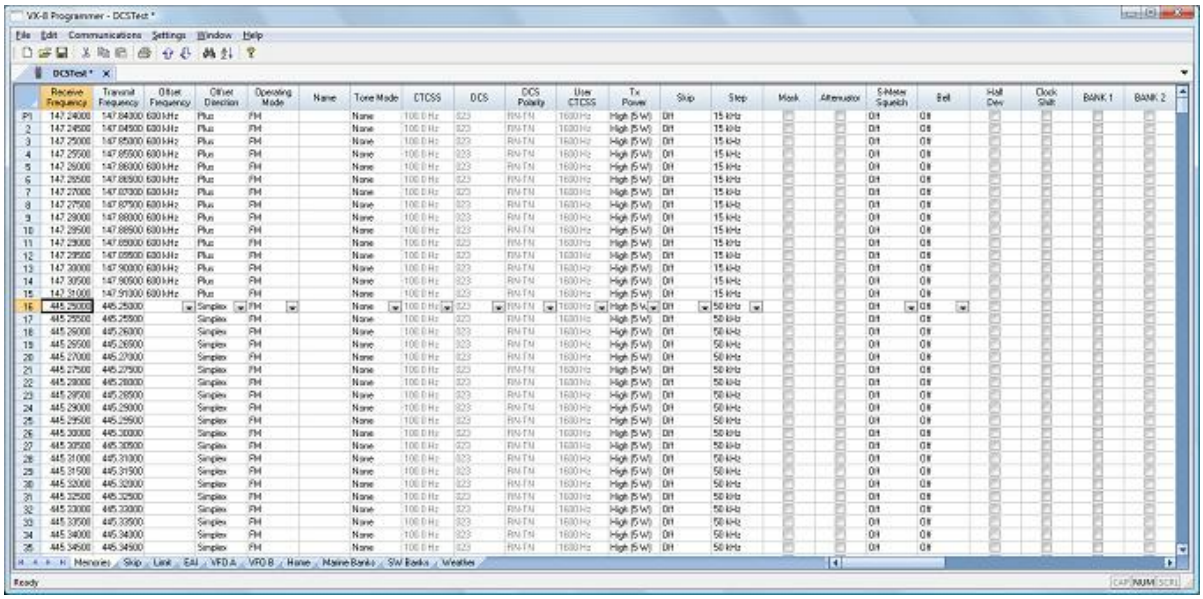
There is more to this radio than just memory channels. So, there is more to the programmer. Tabs at the bottom of the main screen give you access to Limit memories, Home channels, Hypermemories, VFO, Marine and Shortwave channels, that apply to your radio.



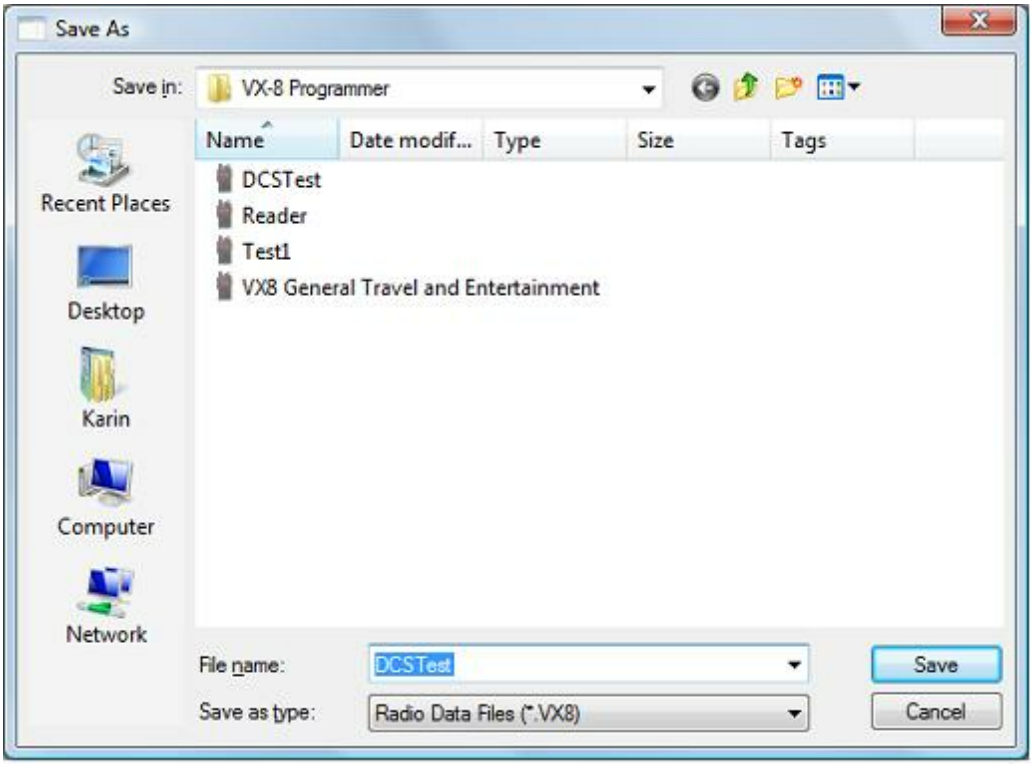
Click a tab. A screen opens with the details that can be entered for these radio functions. You can work with the radio without ever using these tabs. There are default values on these screens that never need to be changed. Make changes for your special activities when you plan to use one of these functions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

Save the file

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



In the menu, click File | Save As



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

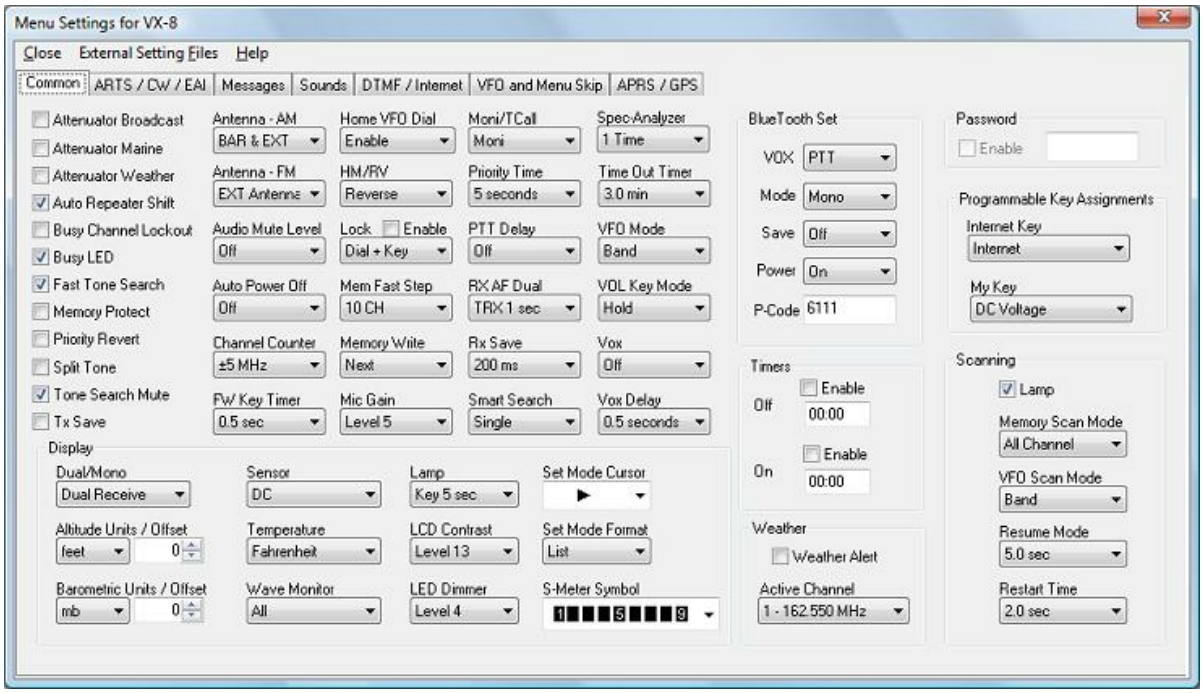
Once you complete this part of the process, the program will open the last file when it starts up.

Even More Radio Functions

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

These options may include, but are not limited to, Lock mode, ARTS details, display brightness and color, DTMF memories, scan resume options, and many others.

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



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

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

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

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

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

The new *RT Systems'* Version 4 programmers have no comport setup. Using the *RT Systems'* USB cable, you attach the cable, attach the radio, and get the programming done.

First: Communications | Get data from

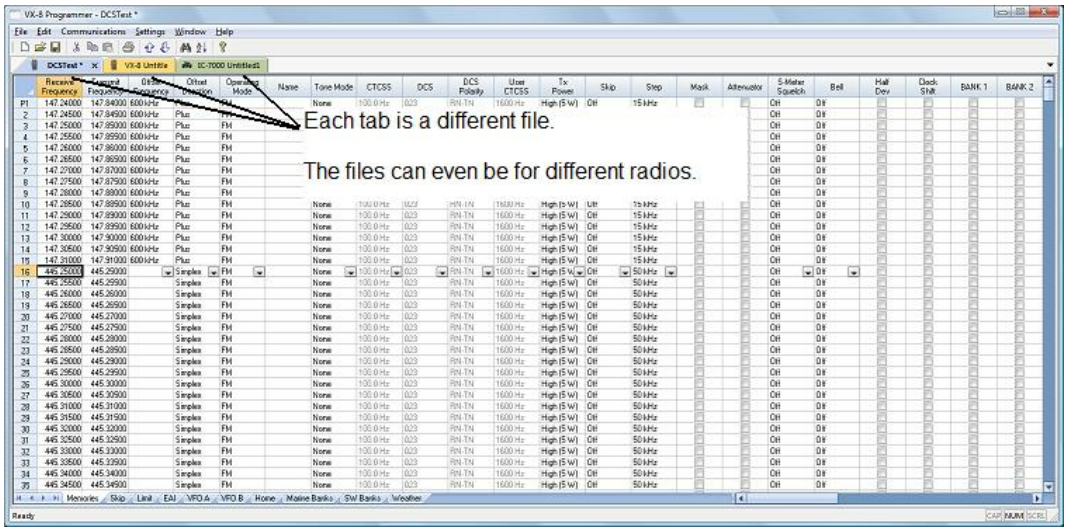
Although you really want to put the details of your file into your new radio so you can use it, doing Get data from with this new radio gets the process started and may help prevent problems sending the file to the radio.

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

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

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

- Follow these steps carefully until this process is complete.
- Open the file that you created earlier. To open a file select File | Open from the menu at the top. Select your file from those in the list. Or with Version 4, your file may already be open in the other tab.



Second: Communications | Send data to

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

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

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

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

Hardware Requirements

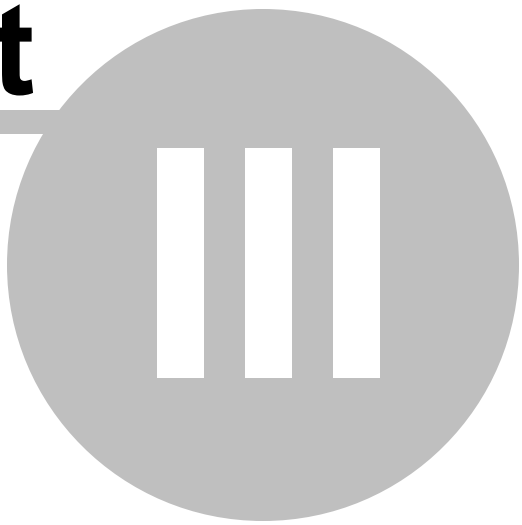
Hardware requirements for the Version 4 Programmers include:

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

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

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

Part



3 Using the Programmer - Overview

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

Working with Programming Files

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

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

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

Creating a New Programming File

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

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

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

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

To save these Global settings

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

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

Creating and using multiple Global settings files

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

To select a settings file for use:

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

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

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

Tying Global Settings to a Memory Channel File

The Version 3 and Version 4 programmers have the option of saving the global settings with the memory channel information. This new feature is not the default for the programmer; but may be valuable under certain programming circumstances (i.e., programming many radios when you want to be absolutely certain that the settings and the frequencies are properly set for a given activity).

To contrast and compare the two Radio Menu Setting options:

- Use Separate file for menu settings (default)

  This is the default for the programmer.

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

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

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

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

  This option is set on the Settings | Preferences screen.

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

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

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

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

Part

4 Viewing and Changing Programming Files

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

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

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

Radio Menu Settings

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

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

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

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

You can find more details on these two options under Using the Programmer -

Overview and ***Radio Menu Settings - General Overview*** in this help. Using individual and separate settings files is the default.

Part 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:

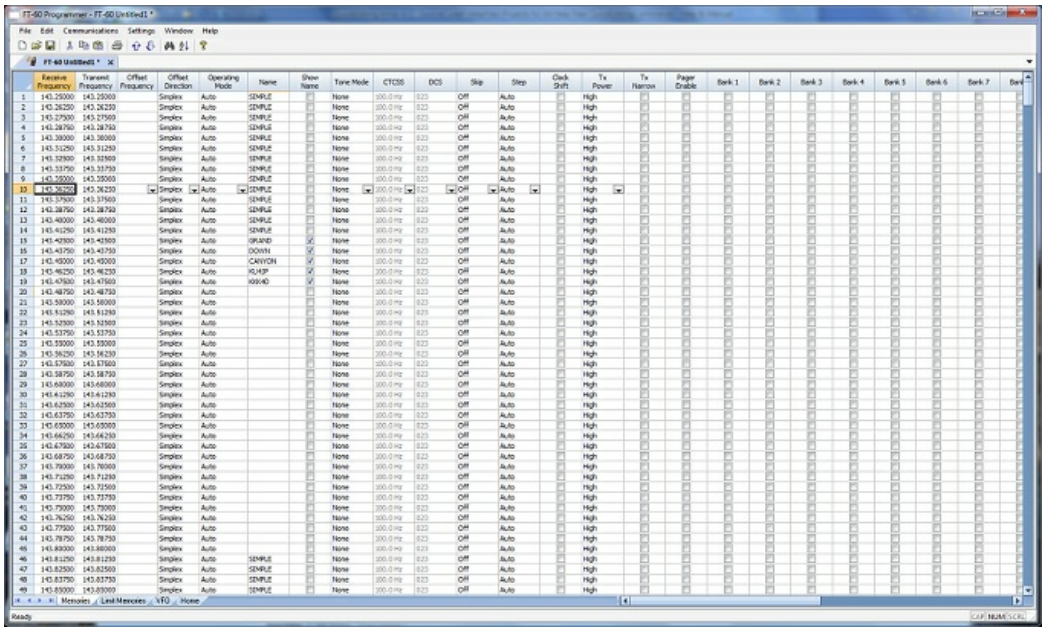
Copy ***all the details*** of a Memory Channel (one or several at once) or Copy ***details within one column*** (from one cell to one or many at one time)

- ***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 (both files Version 3 or Version 4 or even between Version 3 and Version 4 files).***
- ***Data that is not appropriate for where it is to be pasted (i.e., a VHF frequency into a UHF channel) will not be pasted.***

Copying an entire memory channel or group of channels

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

Open the file.

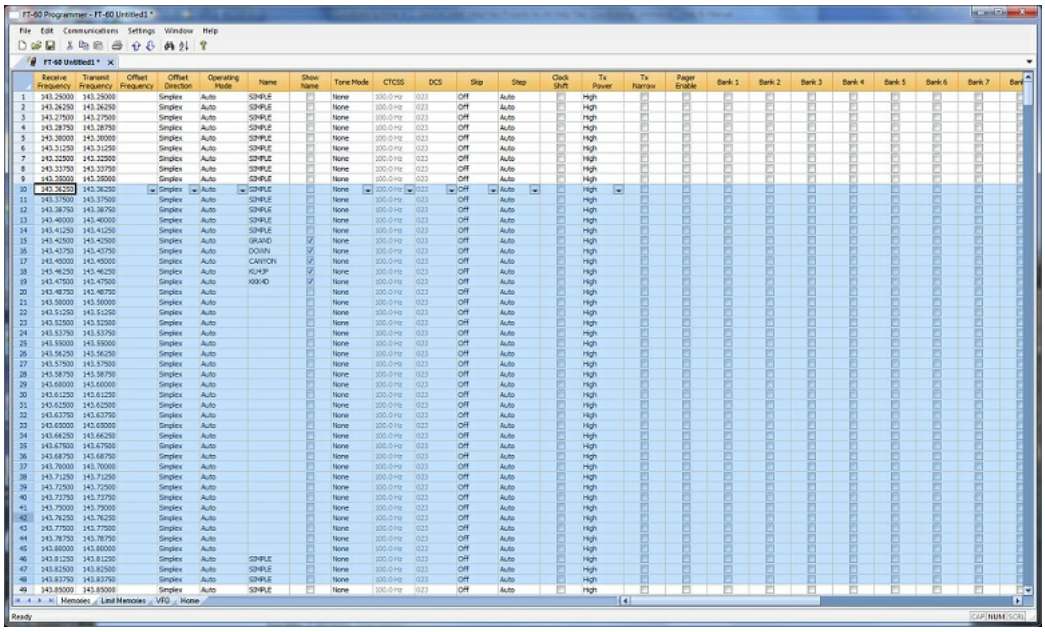


Select the data to be copied.

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

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

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

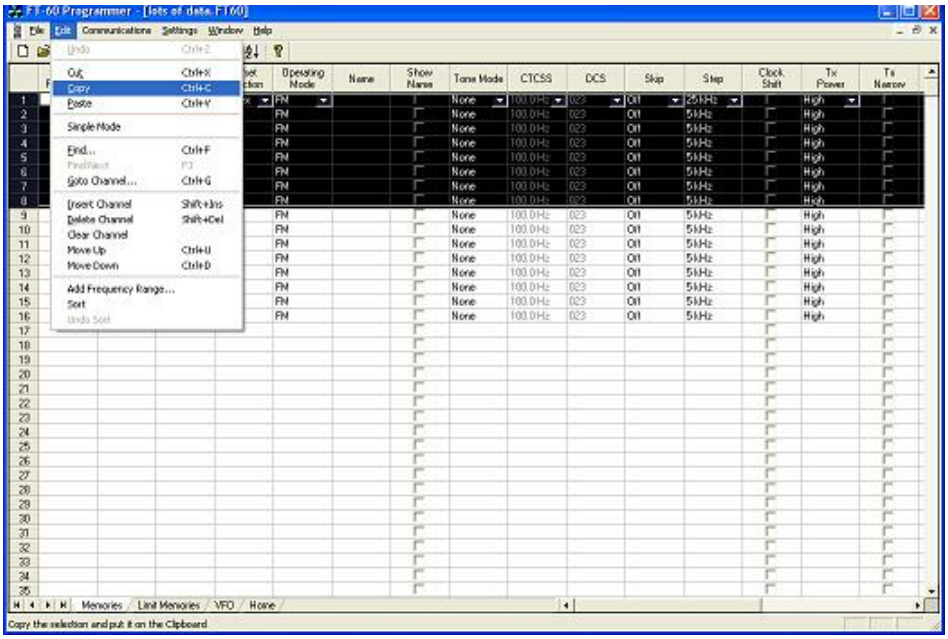


Copy Command

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

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

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



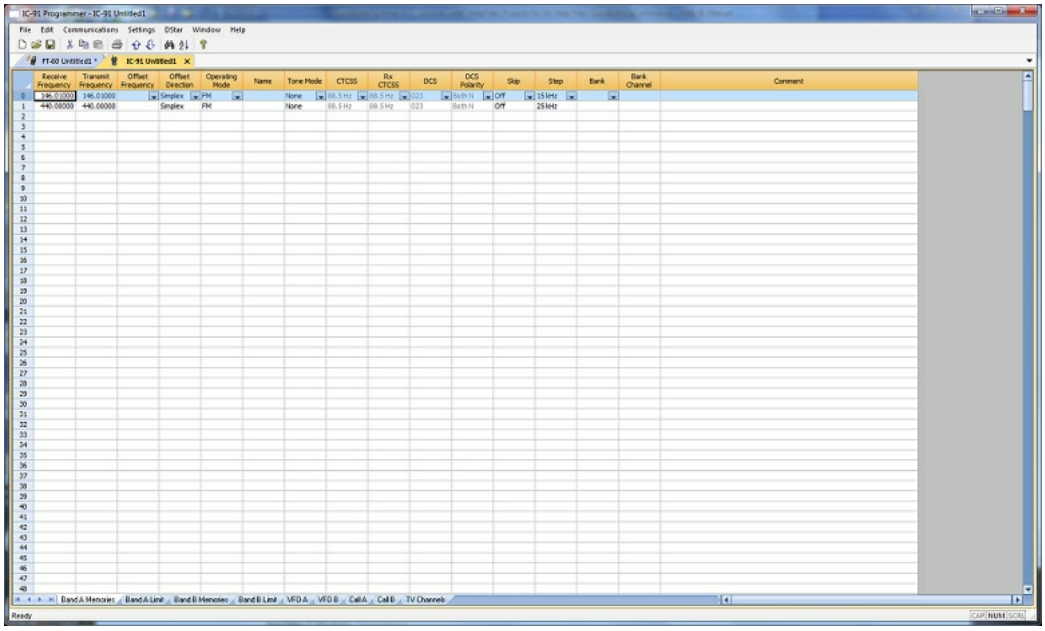
It will appear that nothing has happened. The program in conjunction with built in commands of the operating system of the computer has copied the data. It is waiting for you to Paste it where you want it.

Paste (Ctrl+V) - Writes the selected data to the current position of the cursor overwriting the data from that point.The Version 3 and Version 4 programmers have the ability to copy and paste data in a single column as well as for an entire row.

Paste Complete Channels

Use the mouse to select the channel where you want the data to start. This can be in another file for the same radio or one for any radio for which you use an RT Systems Version 4 programmer.

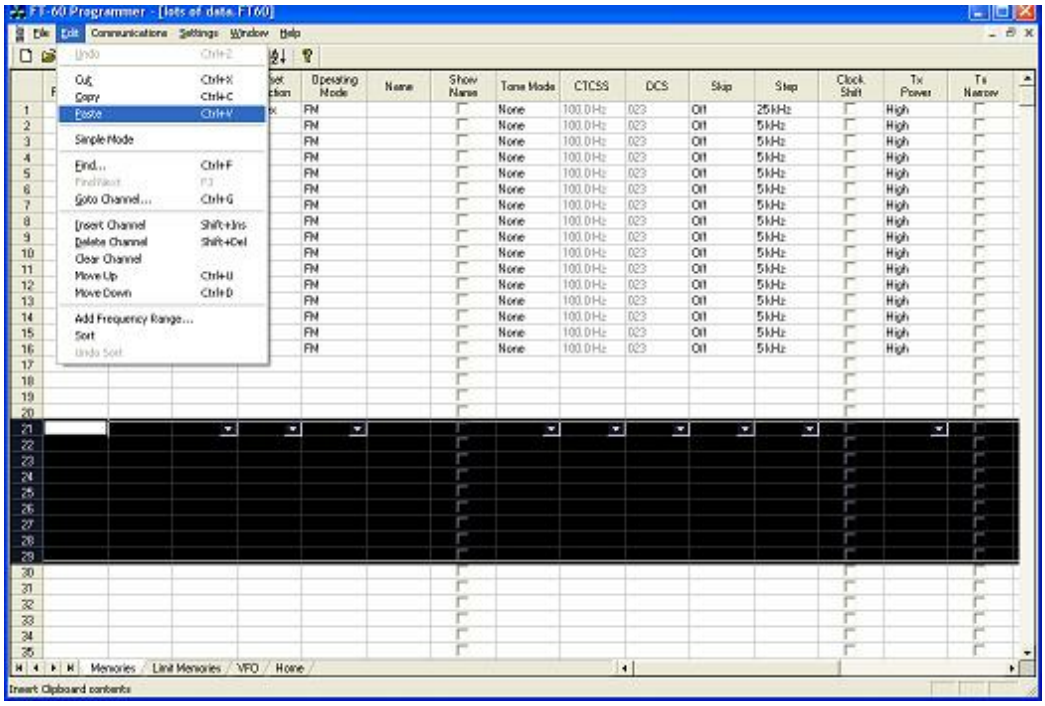
Select the row that is the **first** into which the data is to be pasted. The Paste process will begin in that location with the first copied channel and continue in each channel after that with the rest of the channels that were copied.



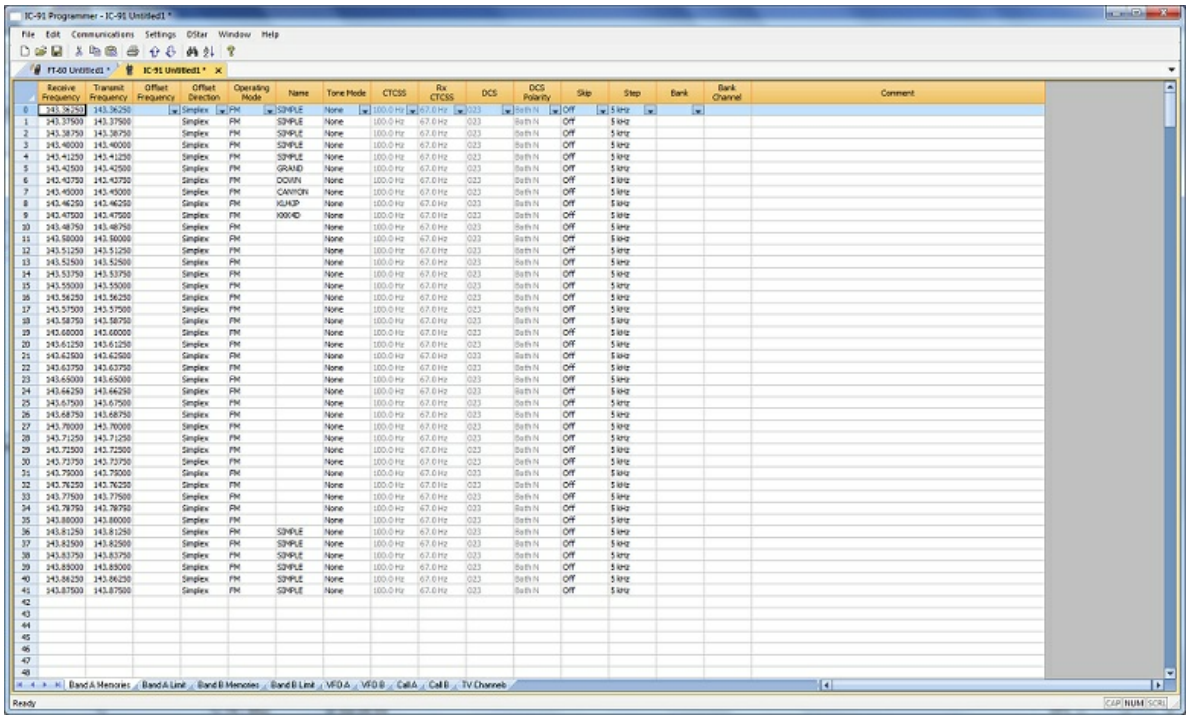
From the menu at the top of the screen, use your mouse to left click on Edit. From the menu that appears, use the mouse to left click on Paste.

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

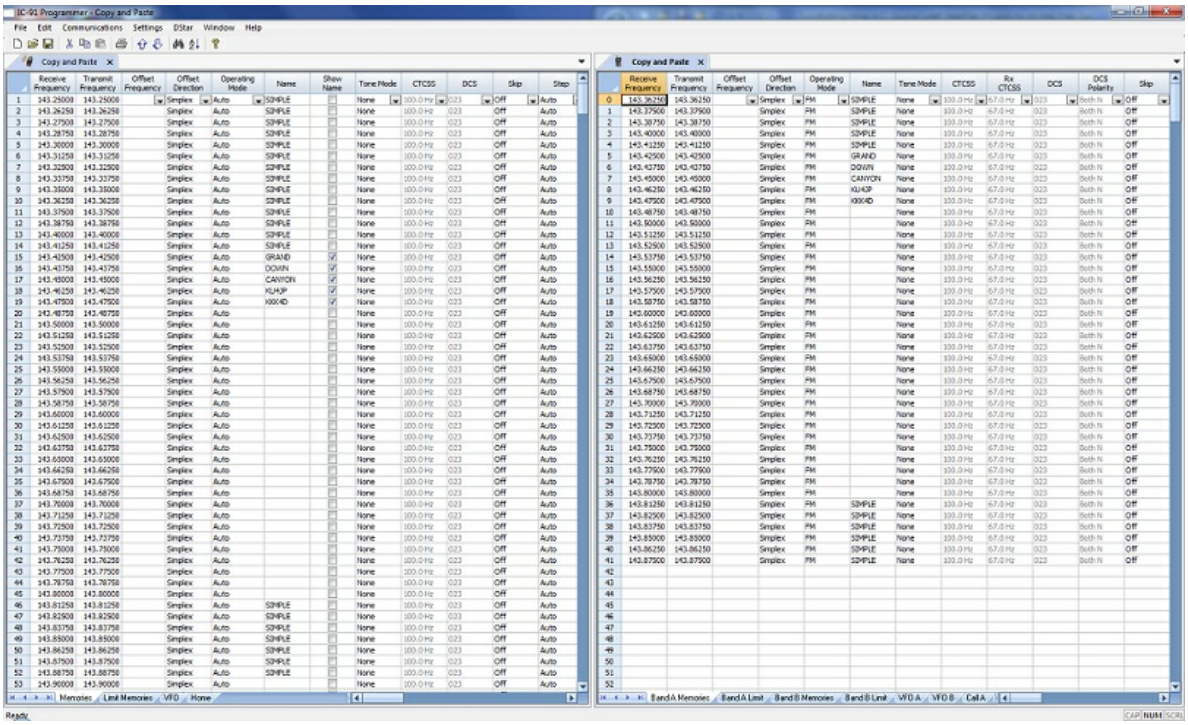
Or while pointing within the highlighted area, right click and select Paste from the menu that opens.



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.



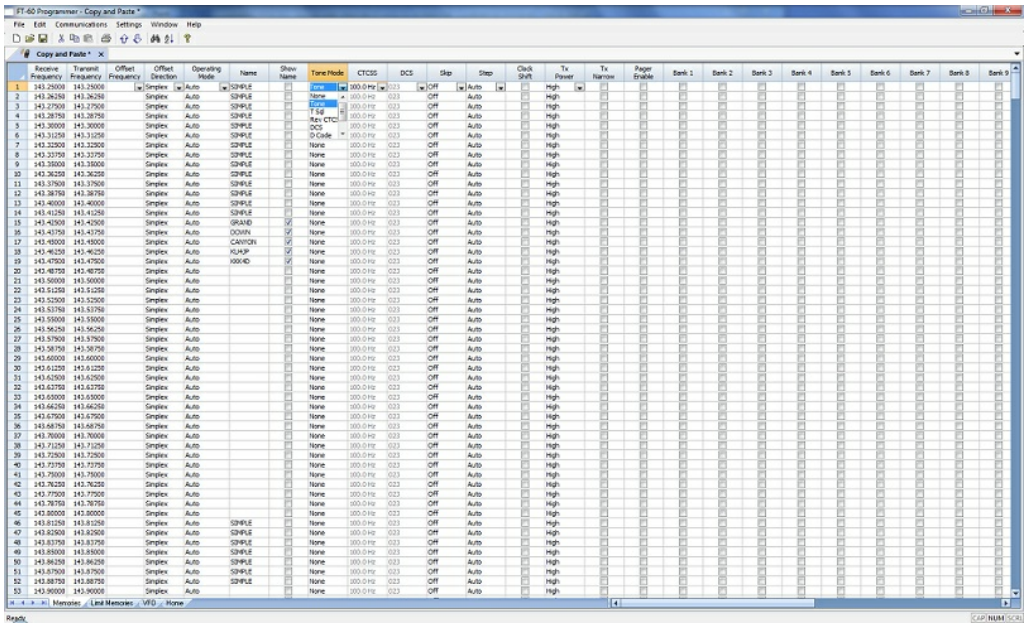
Copying details from one cell to change many rows at once.

- **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.

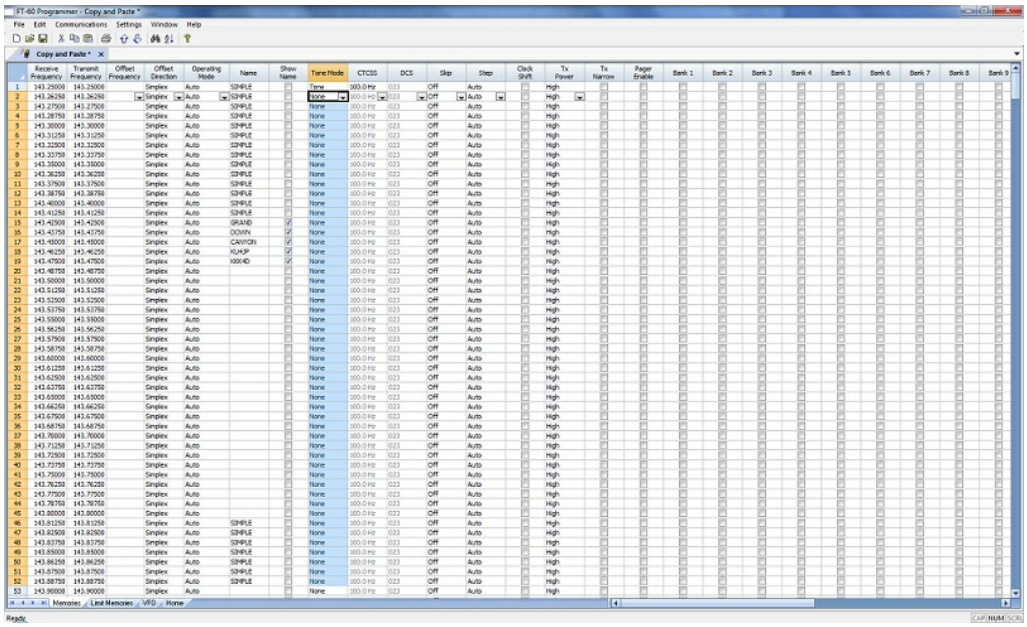
  Make the change by pulling the drop-down and selecting Tone from the list.



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).

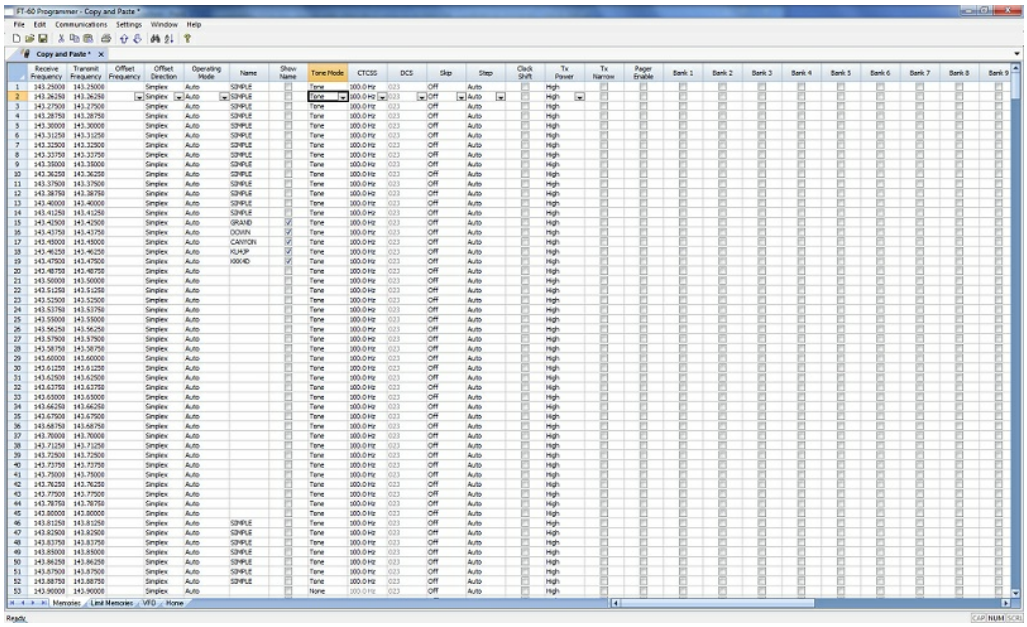
Press Ctrl + C, select Edit | Copy from the menu at the top of the screen, or right click and select Copy from the menu that appears. (Just as with row copying in the first example.)

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.



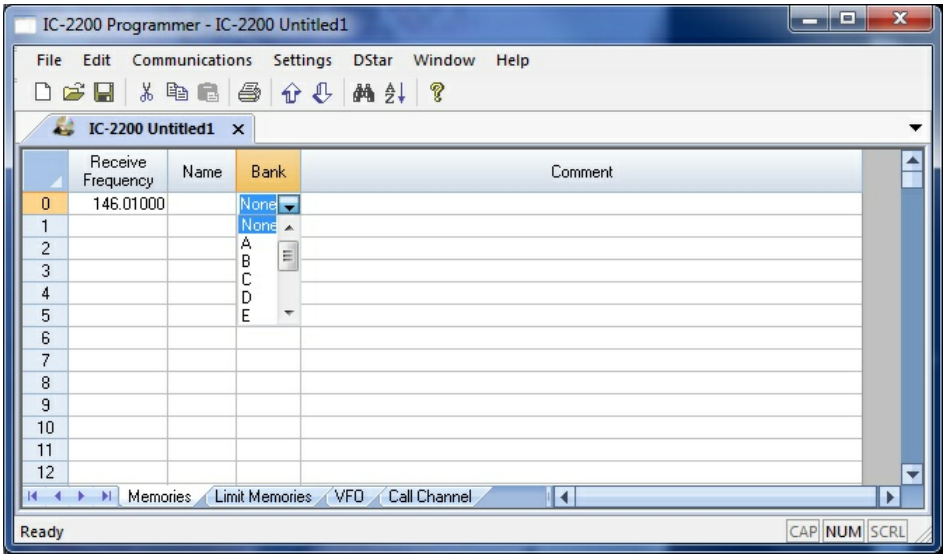
Column editing will address a selection of consecutive cells all at once or individual cells repeatedly. If the items to be changed are not consecutive, you can select and paste repeatedly until all the cells are addresses. You do not have to copy again. The programmer retains the copied value.

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.

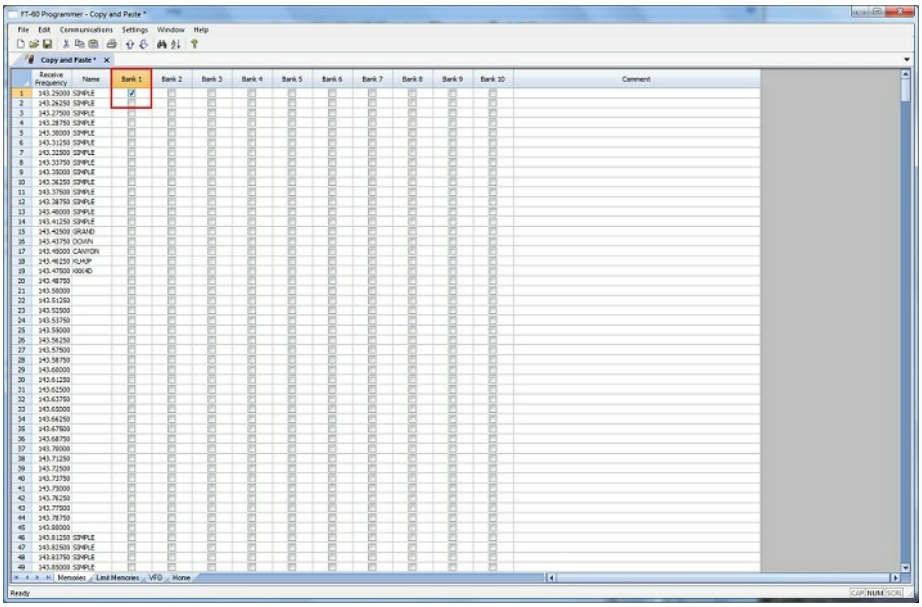
This process varies from the other by how the cells are selected. Check box cells act differently than those that contain text. You can copy from one check box column into another.

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

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



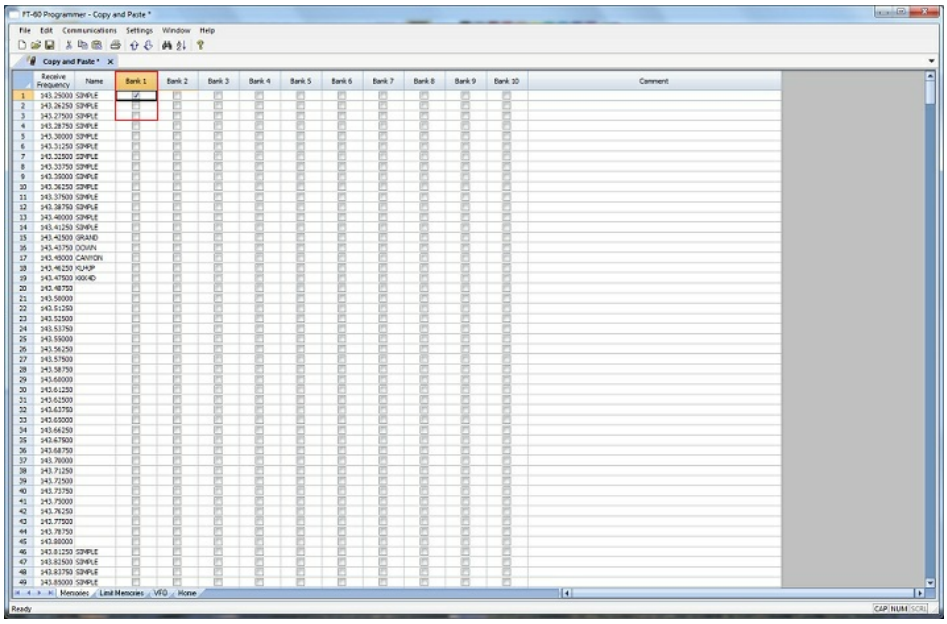
For Channel 1, put a check in the box under Bank 1.



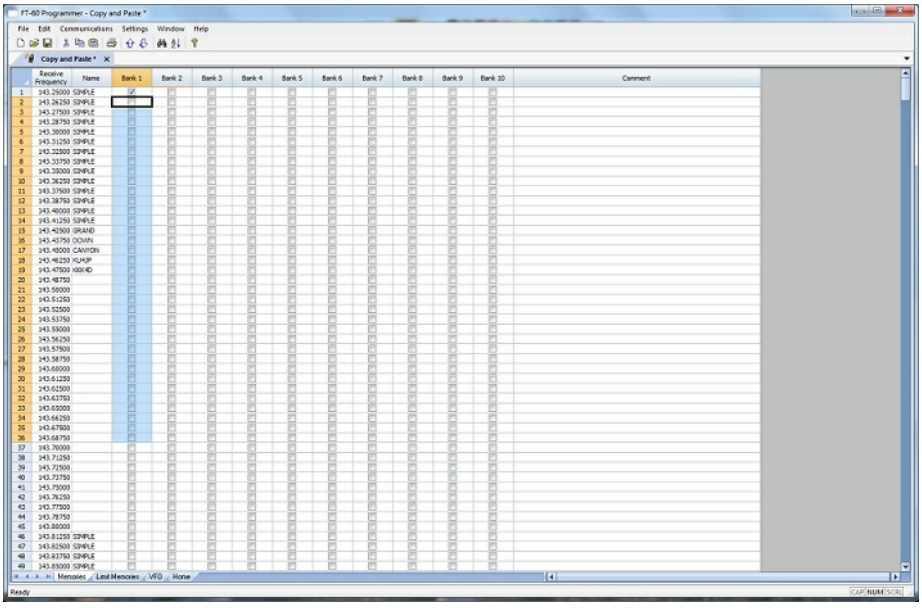
At this point you CANNOT copy this field. Press Tab or Enter to move out of the field.

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

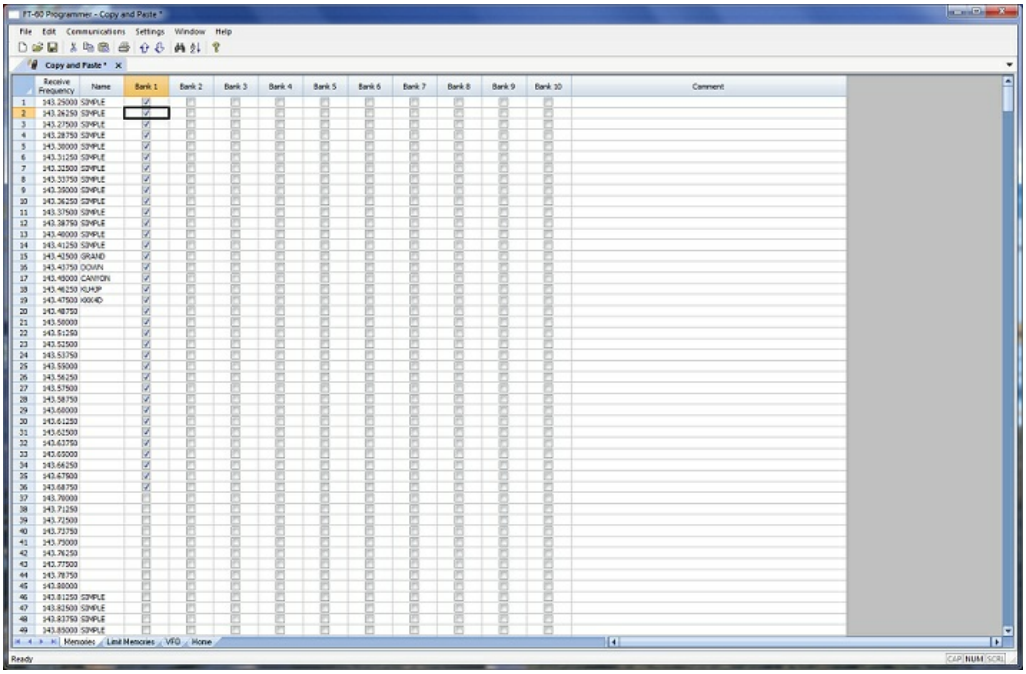
Press Right Arrow to move focus back into the Bank 1 column. Notice that there is now a black border on that cell. The cell is now ready to be copied. Press Ctrl C or select Edit from the menu then copy from the list that opens to copy the cell.



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.

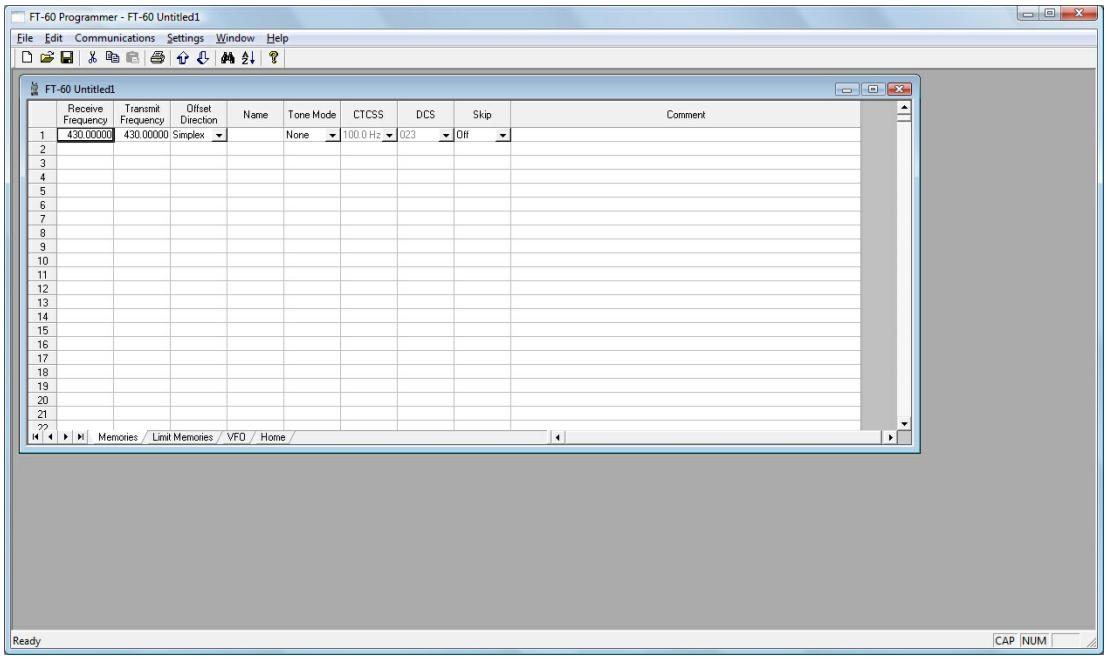
Name - This column is for personalized information to identify the channel.

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.

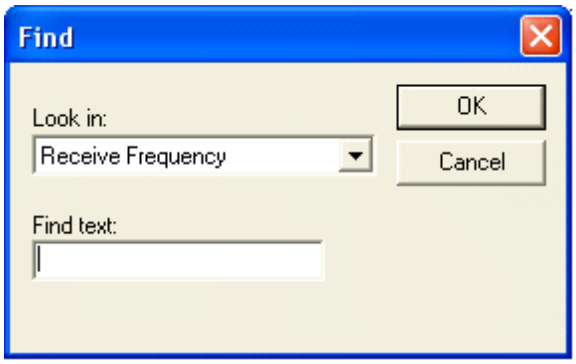
Comment - Personalized notes up to 80 characters. This information remains a part of the file and is not transferred to the radio.



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.



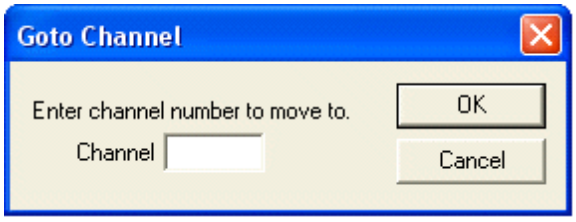
Select the field to be searched (i.e., Receive frequency, Transmit frequency, etc.)

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.

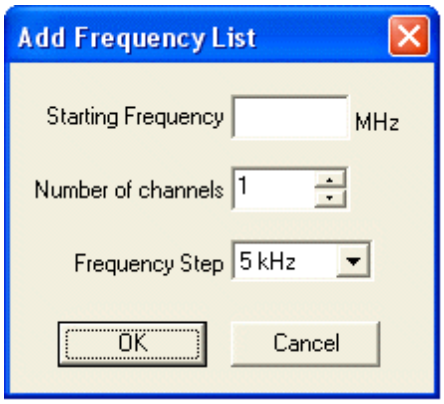
Delete Channel (Shift+Del) - Removes the selected row. All the data following the deleted row is "pulled-up" to eliminate the blank row. Beware!! Deleted data cannot be recovered. Neither the Insert nor the Paste commands write the data to the grid. If you accidentally delete data, exit the Programmer 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.

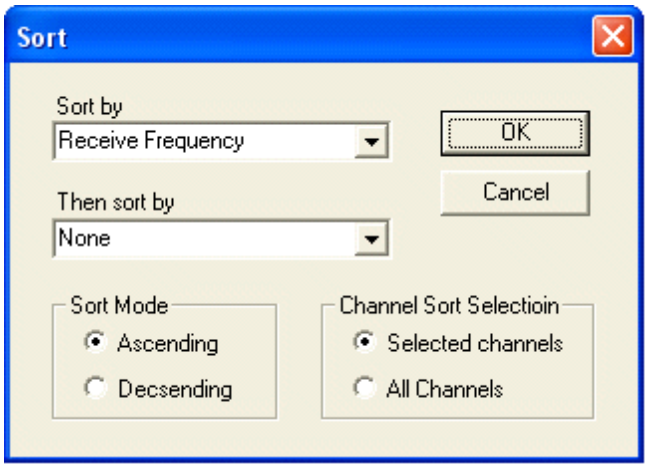
Frequency Step - Enter the value that will separate each of the frequencies in these channels. Select 5kHz to 200 kHz.

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

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

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

Sort - Great for data management or to arrange your channels permanently for a special use. The version 3 and Version 4 programmers have the ability to Undo a sort. You can now sort the list on a given parameter, touch-up a group of entries, then put the list back in its original order with the changes that you made. When this option is selected you are presented with a window for selection of the options.



Sort by - Select a column for the initial sort.

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

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

Channel Sort Selection - Selected Channels to sort only a group 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 Version 3 or Version 4 programmers where the fields are consistent between the radio programmers.

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

Quick File Access Commands

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

Ctrl O (Control letter "O") - File | Open. Presents the box from which the file type is selected just as File | Open. Select the type of file to be opened. The programmer will look in the location of that last file for that particular file type. (i.e., you can open an FT-60 file while working with the FT-7800 programmer as long as you have the Version 3 or Version 4 module for the FT-60. With both open, you can copy and paste between the files or send each to the proper radio without having to close and reopen the Version 3 or Version 4 programmers separately.)

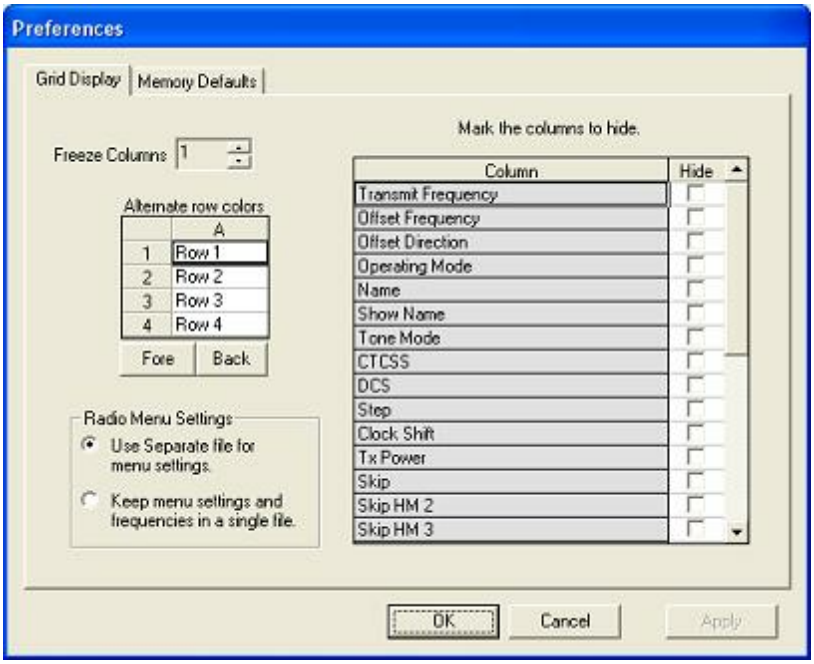
Ctrl M - Automatically create a new file for the programmer being used. Eliminates having to select the file type first.

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

Part VI

6 Screen Appearance and Default Options

The screen of the programmer can be customized to make data entry that much easier. Options for screen appearance are accessed under Settings | Preferences from the menu on the main screen of the programmer. This screen appears when that option is selected:



Freeze Columns

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

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

Hidden Columns (Mark the columns to hide)

Selected columns can be marked as hidden which removes them from the screen display. During editing, these fields are completed with default

information for the radio. This option is a global setting and will affect every file, new or existing.

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

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

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

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

Alternate row colors

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

Radio Menu Settings

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

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

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

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

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

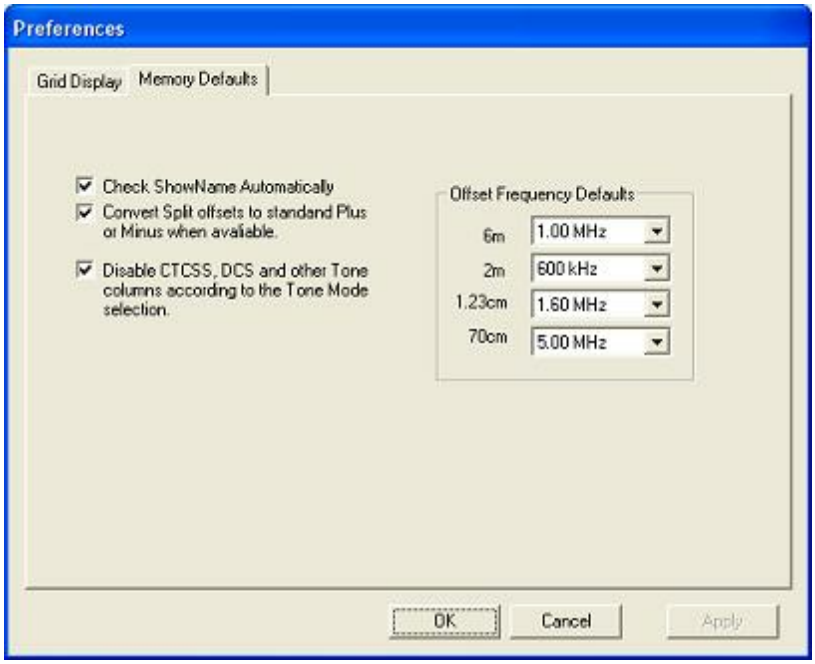
The pros and cons of both of these option are discussed in detail in the Using the Programmer - Overview section of this help.

Memory Defaults

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

To access the Memory Defaults screen,

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



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

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

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

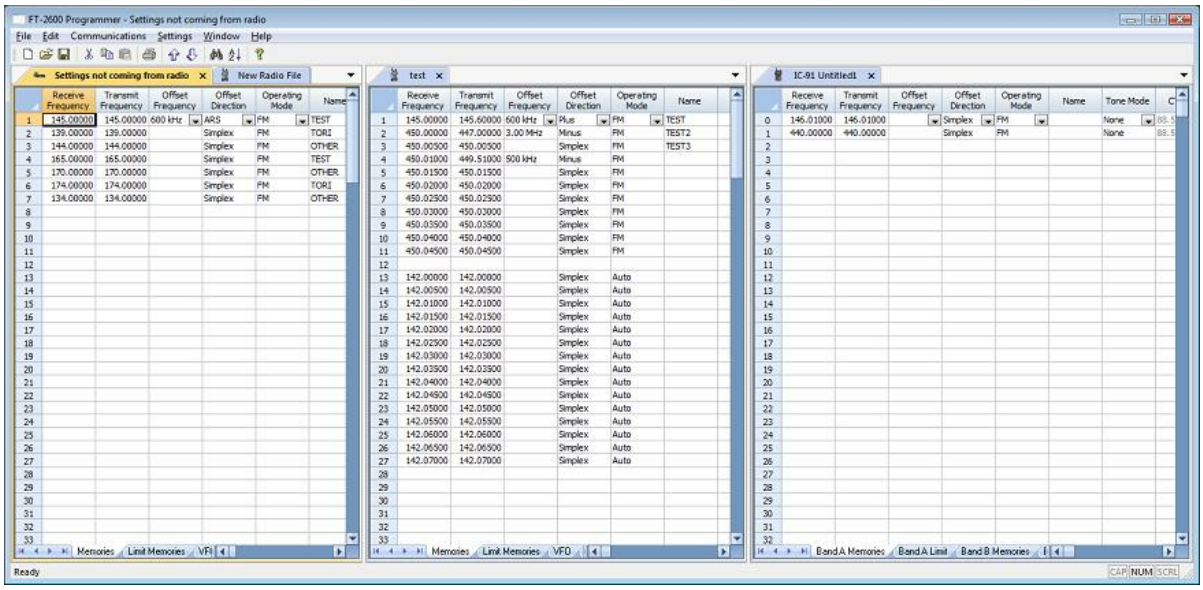
Disable CTCSS, DCS and other Tone columns according to the Tone Mode selection - Beginning in the Version 3 programmer and continuing into future versions, the programmers have been designed to help you enter information for tones used for repeater access. You cannot enter a tone unless you have selected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

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

Part VII

7 Split Screen for Multiple Files

The Version 4 programmer can display more than one file simultaneously in the programmer's main window. Opening several files at once makes it even easier to copy and paste between them (even files for different radios from different manufacturers) or just to compare the frequency lists.



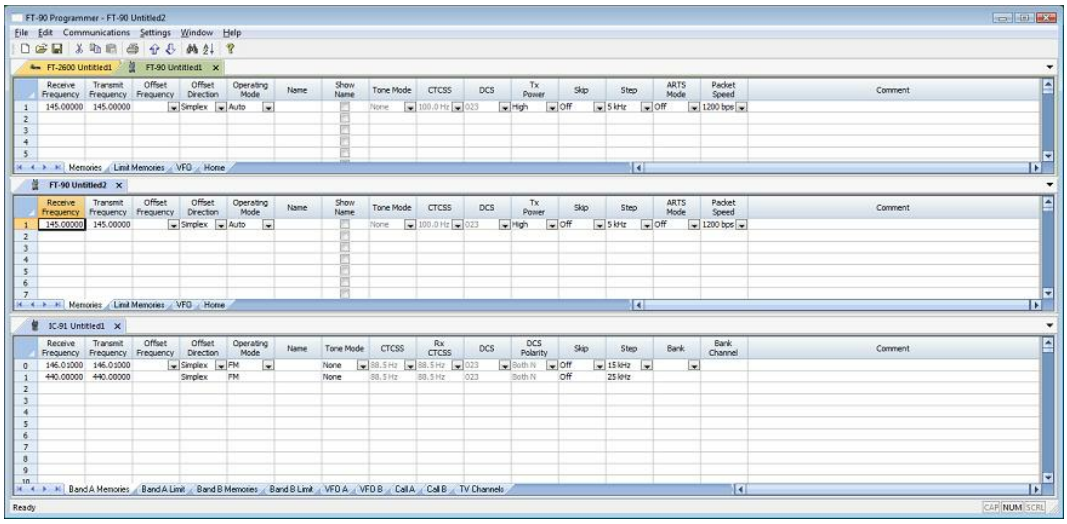
Open the files

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

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

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

A horizontal split is also possible.



Open the files

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

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

To work with three as shown above, simple 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

Set Mode	
Menu Item	Programmer Item
Display backlighting	Settings | Radio Menu Settings | Common tab | Dimmer
Display Color	Settings | Radio Menu Settings | Common tab | Display Color
Repeater Tone	Main page | CTCSS. This item is set independently for each memory channel. This item can be set only once Tone Mode is set to an "rt" (tone - encode) option.
Subaudible Tone	Main page | RX CTCSS. This item is set independently for each memory channel. This item can be set only once Tone Mode is set to a "CT" (tone squelch - encode/decode) option.
Offset Frequency	Main page | Offset frequency
Tuning step	VFO tab | Step
Scan Resume	Settings | Radio Menu Settings | Common tab | Scan Resume
Initial Set Mode	

Beep Tone	Settings | Radio Menu Settings | Common tab | Beep
Time Out Timer	Settings | Radio Menu Settings | Common tab | Time Out Timer
Auto repeater	Settings | Radio Menu Settings | Common tab | Auto Repeater
Auto Power Off	Settings | Radio Menu Settings | Common tab | Auto Power Off
Repeater Lock Out	Settings | Radio Menu Settings | Common tab | Repeater Lockout
Squelch Delay	Settings | Radio Menu Settings | Common tab | Squelch Delay
DTMF Speed	Settings | Radio Menu Settings | DTMF tab | DTMF Speed
Microphone Address	Settings | Radio Menu Settings | Common tab | Mic Address
Other Options	
DTMF Memories	Settings | Radio Menu Settings | DTMF tab | DTMF Memories
Frequency lock	Settings | Radio Menu Settings | Common tab | Lock
F1 / F2 Keys	Settings | Radio Menu Settings | Common tab | F1 key and F2 key
Tx Power	Settings | Radio Menu Settings | Common tab | Tx Power

Part

9 Programming Memory Channels

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

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

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

Call Channels - These are special memory channels that have one button access from the face of the radio. See the operating manual for the radio for details of how to access these memories from the face of the radio.

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

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

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

9.1 Call Channels

The radio has one Call channel for one touch access.

Information to be entered is the same as that for regular memory channels. See Regular Memory Channels for details on the information in these fields.

9.2 Limit Memories

Used as the scan edges for programmed scanning. When using programmed scanning, the radio repeatedly scans between two used-programmed frequencies checking for activity within this specified range.

There are three pairs of Limit memories (scan edges) available.

Information to be entered is the same as that for regular memory channels. See Regular Memory Channels for details on the information in these fields.

9.3 Regular Memory Channels

The Main window of the Programmer is for entering detail for the memory channels.

Each of these memory types is addressed on its own screen. Those individual screens are accessed through the tab of the same name at the bottom of the main screen of the Programmer. The spreadsheet design of these screens makes it easy to enter, review, and manage data your radio programming files.

Columns continue off the right side of the screen. Use the bar at the bottom of the screen to move to these columns or press ENTER to step through each column.

For easier editing, columns can be hidden and rows can be made alternate colors using the selections of the Preferences screen. Select Settings | Preferences in the menu to access these screen options.

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

There are lots of features in the Programmer that make data editing easier. These include, copy and paste, column editing, sort, and unsort. See the ***Quick Editing Commands*** in this Help for details.

Details to be entered for each memory channel include:

Receive Frequency: Enter an acceptable receive frequency for your radio as detailed in the radio's operating manual. The Programmer will help you by warning you if the frequency is not valid for the radio.

Channels can be skipped to help you organize the memory information. You will

not see these "blanks" as you tune through the memory channels of the radio.

Transmit Frequency: Enter a specific transmit frequency or let the Programmer calculate this frequency based on the offset.

This field is always available; however the transmit frequency for an "odd split" is the only value that must be entered manually.

Icom radios handle "splits" by calculating an Offset Frequency and setting the Offset Direction to a +Dup or –Dup.

Simply enter the Receive and Transmit frequencies.

The Programmer will do the rest of the calculations for you.

Acceptable transmit frequencies are specified in the operating manual for the radio.

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

Offset Frequency: Available standard offsets include 500 and 600 kHz; 1.0, 1.6, 3.0, 5.0, 7.6, 10.0, and 99.0 MHz.

Icom radios use an Offset Frequency for every channel.

This does not mean that you have to calculate and enter this value.

If you have both the receive and transmit frequencies to be entered for a given memory channel (other than that of a local repeater with a standard offset), simply enter the receive then the transmit frequencies.

The Programmer will calculate the offset and set the Offset Direction appropriately.

The Offset Frequency is set to blank when a channel is set to Simplex.

Icom radios handle all frequency pairs with an Offset Frequency and Offset Direction. With an Offset Frequency to four decimal places, there is no need for ***"odd splits"*** .

A ***non-standard Offset Frequency*** value is entered by typing it into the Offset Frequency field after the Receive Frequency has been entered. Then select Plus or Minus in the Offset Direction column. The Programmer calculates the Transmit

Frequency.

Alternately, you can enter the Receive and Transmit frequencies into the appropriate fields and let the Programmer calculate the Offset Frequency and Offset Direction for the pair.

Values are entered as an exact value including the decimal to denote kHz.

For example to enter the following information: RX: 146.650 and Offset Frequency: .650

- In the Receive Frequency field enter 146.650. Press tab until you are in the Offset Frequency field (ignore any information that the Programmer has completed by default).
- The Offset Frequency entered would be .650 (decimal – six – five – zero). Without the decimal, the Programmer uses the entered value as 650 Mhz—a lot more than you wanted! Enter this value and press tab until you are in the Offset Direction field.
- Select +Dup for the Offset Direction. The Transmit Frequency becomes 147.300.

As another example, given the pair RX: 147.255 and TX: 145.940

- Enter 147.255 (one – four – seven – period – two – five - five) into the receive frequency field. Press tab or enter to advance to the Transmit Frequency field.
- Enter 145.940 (one – four – five – period – nine – four – zero) into the Transmit Frequency field. Press tab or enter to leave this field.
- The resulting offset for this pair us 1.315 MHz. This value appears automatically in the Offset Frequency field. The Offset Direction is set Automatically to –Dup.

The default Offset Frequency depends on the band of the Receive Frequency being entered (i.e., 2M Band is always 600 kHz, 430 Band is always 5.0 MHz, etc).

Any value that appears in the Offset Frequency field will be ignored by the radio when the Offset Direction is set to Simplex.

Offset Direction: The transmit frequency is calculated as follows

Simplex - transmit and receive frequencies are the same;

-Dup - the offset frequency is subtracted from the receive frequency;

+Dup - the offset frequency is added to the receive frequency;

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

FM Narrow works only in the European version of this radio. The US version does not have this option as verified by stepping through the set menu on the radio. This can also be verified on page 58 of the Icom's Instruction Manual for the radio.

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

Show Name: Click the box to activate display of the Name entered for the memory channel.

While operating the radio, pressing the [ANM] key while in memory or call channel mode switches the channel name or number On and Off.

To access other set mode options on the radio, it is necessary to first turn off the Name display.

Tone Mode: Use of the tone systems works two ways on your radio. The most common use for tones is access to a local repeater. Alternately, in a special situation, you can have your radio remain silent until a call is received with a corresponding tone.

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

Use of the tone systems requires two steps: Set the Tone Mode **AND** Select the tone to be used.

Set the Tone Mode:

None - No tone system activated. With this option selected, neither of the columns for selecting a CTCSS or DCS value is active.

Tone - CTCSS tone is activated for transmission only (this mode is used for many if not most repeater operations). This mode is often referred to as Encode. With this option selected, the CTCSS column becomes active for selection of the tone frequency to be used. Be sure to set the tone frequency for this channel.

T Sql - CTCSS tone squelch is activated for both transmission and receive (only signals "encoded" with the matching tone will open the squelch: your radio will remain silent otherwise). This mode is often referred to as Encode/ Decode. With this option selected, the RX CTCSS column becomes active for selection of the tone frequency to be used. The radio uses only one CTCSS frequency for both encode and decode. Be sure to set the tone frequency for this channel.

Note: Unless specifically noted in the information you are given about the repeater, most amateur repeaters do NOT use this mode. If you select this mode incorrectly, you will be able to access the repeater; however, you will hear nothing when the repeater transmits. You will know the repeater is transmitting because you will see an indication of a received signal on your radio; but you will hear no sound. Reprogram the channel using Tone rather than TSql and try again.

CTCSS: Select one of 50 tone frequencies to be used in the Tone mode. This is the sub-audible tone that will be transmitted for access to a repeater (i.e., you will not hear it; but the repeater will). **This field becomes active only when Tone is selected as the Tone Mode.**

- This value is set independently for each memory channel.
- The value set in this field is ignored if Tone Mode is set to anything other than Tone.
- The value in this field is ignored when Tone Mode is set to TSql.

RX CTCSS: Select one of 50 tone frequencies to be used in the Tone Sql mode. This is the sub-audible tone that will be transmitted for access to a repeater and must be received by your radio before it will hear an incoming signal. This field becomes active only if Tone Mode is set to TSql.

Note: This is NOT the tone used for normal repeater access. Unless the repeater is specially set up for this option (fire-rescue, emergency services or commercial repeaters as examples), your radio will be able to activate the repeater; but it will hear nothing back. You will see an indication on your radio is receiving a signal; however, you will hear nothing. In this case, change your setting to Tone with the same value set in the CTCSS column and try again.

- This value is set independently for each memory channel.

- The value set in this field is ignored if Tone Mode is set to anything other than TSql.
- The value in this field is ignored when Tone Mode is set to Tone.

Skip: Set the scanning preference for each memory channel.

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.

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

9.4 VFO Memories

The VFO memories provide "temporary" channels for quick access. The VFO memory is temporary since it is lost when the radio is tuned while in VFO mode. There is no one button to press to access the programming channel once the tuning knob is turned while using the radio.

The VFO memory is temporary. It appears when the file is freshly sent to the radio; however, it is lost if the radio is manually tuned while in VFO mode.

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

In the Programmer, memory information does not have to be programmed into VFO before being programmed into the memory channels. Memory channel information is entered directly into the spreadsheet that appears when the Programmer opens.

To program the VFO memory

- Select the VFO tab at the bottom of the screen.

- Only a frequency in that band can be entered.
- The information to be entered is the same as that for regular Memories except that the VFOs do not have an alpha label.

See Regular Memory Channels for details of the data to be entered for each field.

Part

10 Radio Menu Settings

Radio Menu Settings are menu items that are global to the operation of the radio. These features affect the radio whether you are in VFO or Memory mode.

These options are set from the Radio Menu Settings screen in the Programmer. This screen is accessed through Settings | Radio Menu Settings (View | Settings in earlier versions) from the menu on the main screen.

Check boxes that toggle features on or off, drop down boxes that list all selections, and blank boxes into which you enter personalized selections add to the ease of programming the radio with the Programmer.

Included in this Help are brief descriptions of the features to be controlled and how to set them in the Programmer. The operating manual of the radio should be used to provide any other explanation of the feature and its use after programming.

The Programmer offers two options for managing the global settings.

Create and use multiple global settings files

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

The two options are described below. The selection between these two options is set on the Preferences screen that is accessed from Settings | Preferences in the Programmer.

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 titlebar 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.

The entries on this screen are made for you to "Set and Forget". Once settings are customized, you are prompted to save before exiting. Failure to save will return the settings to factory defaults (even for the file in which you are currently working). Once the settings are saved, they will be repeated in each new file created with the Programmer.

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.

Alternate global settings file option

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.

To contrast and compare the two Radio Menu Setting options: Use Separate file for menu settings (default)

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

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

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

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

This option is set on the Settings | Preferences screen.

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

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

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

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

10.1 Settings - Common

The following options are set on the Common page in the Settings page of the Programmer

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

Auto Repeater - Enables/ disables the Automatic Repeater Shift and Tone functions of the radio. (USA Version only of the radio). Options for this item are

On 1 – Auto repeater is On. Tone Encoder is Off.

On 2 – Auto repeater is On and tone encoder is On.

Note: The tone mode frequency (CTCSS or RX CTCSS) is not changed by the auto repeater function. Reset these frequencies as necessary.

Beep - The key/button beeper provides useful audible feedback whenever a button is pressed. The Programmer toggles the beeper function On (checked) and Off (unchecked). Default is On.

Dimmer – Set how bright the front panel display of the radio will be.

Display Color – Set the screen color to Amber or Green

F1 Key and F2 Key - Assign functions to the F1 aqnd F2 microphone keys.

Lock – Check to engage Frequency lock. When engaged, the tuning dial and switches are locked. [PTT], [MONI], [VOL] and [SQL] remain active while other switches on the radio are locked to prevent accidentally changing channels during operations.

This option can be used in conjunction with microphone lock function which is engaged from the face of the radio only as it disengages when the radio is powered off.

Mic Address – Set the address for the microphone to prevent interference form other HM-90 wireless microphones. Set the address in the microphone to the same with the dip switches in the mic.

Radio Comment - An alpha/numeric string of up to 16 characters. This string is sent to the radio with the other details of the file. It is maintained there; however there is no way to display it on the radio's screen. It will be read from the radio during the Get data from process.

Repeater Lockout – Inhibit transmission when a signal is being received. Set to

Off - Lockout is not engaged

RP - Transmission is inhibited when the tone squelch is closed

BU - Transmit is inhibited when a signal is received

Scan Resume – Select how the radio will resume scanning after stopping on a signal during scanning.

SCT-5 /10/15 - Scanning pauses for 5/10/15 seconds while receiving a signal.

SCP-2 - Scanning pauses until the signal disappears and then resumes 2 seconds later.

SCT-EP - Scanning pauses on a frequency that is not busy and resumes 2 seconds after a signal appears.

Squelch Delay – Set squelch delay to short or long to prevent repeated opening and closing of the squelch during reception of the same signal. Changing this setting can help prevent "clipping" of the first of a signal during a conversation as the squelch stays open to hold the signal even during a pause between participants.

Time Out Timer - To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission after 1-30 minutes. The feature can be set to Off or 1-30 minutes.

Tx Power – Set output power to High, medium or low. This one setting affects all transmissions from the radio.

10.1.6 F1/F2 Keys

The following options are set on the Common page in the Settings page of the Programmer

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

Auto Repeater - Enables/ disables the Automatic Repeater Shift and Tone functions of the radio. (USA Version only of the radio). Options for this item are

On 1 – Auto repeater is On. Tone Encoder is Off.

On 2 – Auto repeater is On and tone encoder is On.

Note: The tone mode frequency (CTCSS or RX CTCSS) is not changed by the auto repeater function. Reset these frequencies as necessary.

Beep - The key/button beeper provides useful audible feedback whenever a button is pressed. The Programmer toggles the beeper function On (checked) and Off (unchecked). Default is On.

Dimmer – Set how bright the front panel display of the radio will be.

Display Color – Set the screen color to Amber or Green

F1 Key and F2 Key - Assign functions to the F1 aqnd F2 microphone keys.

Lock – Check to engage Frequency lock. When engaged, the tuning dial and switches are locked. [PTT], [MONI], [VOL] and [SQL] remain active while other switches on the radio are locked to prevent accidentally changing channels during operations.

This option can be used in conjunction with microphone lock function which is engaged from the face of the radio only as it disengages when the radio is powered off.

Mic Address – Set the address for the microphone to prevent interference form other HM-90 wireless microphones. Set the address in the microphone to the same with the dip switches in the mic.

Radio Comment - An alpha/numeric string of up to 16 characters. This string is sent to the radio with the other details of the file. It is maintained there; however there is no way to display it on the radio's screen. It will be read from the radio during the Get data from process.

Repeater Lockout – Inhibit transmission when a signal is being received. Set to

Off - Lockout is not engaged

RP - Transmission is inhibited when the tone squelch is closed

BU - Transmit is inhibited when a signal is received

Scan Resume – Select how the radio will resume scanning after stopping on a signal during scanning.

SCT-5 /10/15 - Scanning pauses for 5/10/15 seconds while receiving a signal.

SCP-2 - Scanning pauses until the signal disappears and then resumes 2 seconds later.

SCT-EP - Scanning pauses on a frequency that is not busy and resumes 2 seconds after a signal appears.

Squelch Delay – Set squelch delay to short or long to prevent repeated opening and closing of the squelch during reception of the same signal. Changing this setting can help prevent "clipping" of the first of a signal during a conversation as the squelch stays open to hold the signal even during a pause between participants.

Time Out Timer - To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission after 1-30 minutes. The feature can be set to Off or 1-30 minutes.

Tx Power – Set output power to High, medium or low. This one setting affects all transmissions from the radio.

10.1.7 Lock

The following options are set on the Common page in the Settings page of the Programmer

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

Auto Repeater - Enables/ disables the Automatic Repeater Shift and Tone functions of the radio. (USA Version only of the radio). Options for this item are

On 1 – Auto repeater is On. Tone Encoder is Off.

On 2 – Auto repeater is On and tone encoder is On.

Note: The tone mode frequency (CTCSS or RX CTCSS) is not changed by the auto repeater function. Reset these frequencies as necessary.

Beep - The key/button beeper provides useful audible feedback whenever a button is pressed. The Programmer toggles the beeper function On (checked) and Off (unchecked). Default is On.

Dimmer – Set how bright the front panel display of the radio will be.

Display Color – Set the screen color to Amber or Green

F1 Key and F2 Key - Assign functions to the F1 aqnd F2 microphone keys.

Lock – Check to engage Frequency lock. When engaged, the tuning dial and switches are locked. [PTT], [MONI], [VOL] and [SQL] remain active while other switches on the radio are locked to prevent accidentally changing channels during operations.

This option can be used in conjunction with microphone lock function which is engaged from the face of the radio only as it disengages when the radio is powered off.

Mic Address – Set the address for the microphone to prevent interference form other HM-90 wireless microphones. Set the address in the microphone to the same with the dip switches in the mic.

Radio Comment - An alpha/numeric string of up to 16 characters. This string is sent to the radio with the other details of the file. It is maintained there; however there is no way to display it on the radio's screen. It will be read from the radio during the Get data from process.

Repeater Lockout – Inhibit transmission when a signal is being received. Set to

Off - Lockout is not engaged

RP - Transmission is inhibited when the tone squelch is closed

BU - Transmit is inhibited when a signal is received

Scan Resume – Select how the radio will resume scanning after stopping on a signal during scanning.

SCT-5 /10/15 - Scanning pauses for 5/10/15 seconds while receiving a signal.

SCP-2 - Scanning pauses until the signal disappears and then resumes 2 seconds later.

SCT-EP - Scanning pauses on a frequency that is not busy and resumes 2 seconds after a signal appears.

Squelch Delay – Set squelch delay to short or long to prevent repeated opening and closing of the squelch during reception of the same signal. Changing this setting can help prevent "clipping" of the first of a signal during a conversation as the squelch stays open to hold the signal even during a pause between participants.

Time Out Timer - To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission after 1-30 minutes. The feature can be set to Off or 1-30 minutes.

Tx Power – Set output power to High, medium or low. This one setting affects all transmissions from the radio.

10.1.8 Mic Address

The following options are set on the Common page in the Settings page of the Programmer

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

Auto Repeater - Enables/ disables the Automatic Repeater Shift and Tone functions of the radio. (USA Version only of the radio). Options for this item are

On 1 – Auto repeater is On. Tone Encoder is Off.

On 2 – Auto repeater is On and tone encoder is On.

Note: The tone mode frequency (CTCSS or RX CTCSS) is not changed by the auto repeater function. Reset these frequencies as

necessary.

Beep - The key/button beeper provides useful audible feedback whenever a button is pressed. The Programmer toggles the beeper function On (checked) and Off (unchecked). Default is On.

Dimmer – Set how bright the front panel display of the radio will be.

Display Color – Set the screen color to Amber or Green

F1 Key and F2 Key - Assign functions to the F1 aqnd F2 microphone keys.

Lock – Check to engage Frequency lock. When engaged, the tuning dial and switches are locked. [PTT], [MONI], [VOL] and [SQL] remain active while other switches on the radio are locked to prevent accidentally changing channels during operations.

This option can be used in conjunction with microphone lock function which is engaged from the face of the radio only as it disengages when the radio is powered off.

Mic Address – Set the address for the microphone to prevent interference form other HM-90 wireless microphones. Set the address in the microphone to the same with the dip switches in the mic.

Radio Comment - An alpha/numeric string of up to 16 characters. This string is sent to the radio with the other details of the file. It is maintained there; however there is no way to display it on the radio's screen. It will be read from the radio during the Get data from process.

Repeater Lockout – Inhibit transmission when a signal is being received. Set to

Off - Lockout is not engaged

RP - Transmission is inhibited when the tone squelch is closed

BU - Transmit is inhibited when a signal is received

Scan Resume – Select how the radio will resume scanning after stopping on a signal

during scanning.

SCT-5 /10/15 - Scanning pauses for 5/10/15 seconds while receiving a signal.

SCP-2 - Scanning pauses until the signal disappears and then resumes 2 seconds later.

SCT-EP - Scanning pauses on a frequency that is not busy and resumes 2 seconds after a signal appears.

Squelch Delay – Set squelch delay to short or long to prevent repeated opening and closing of the squelch during reception of the same signal. Changing this setting can help prevent "clipping" of the first of a signal during a conversation as the squelch stays open to hold the signal even during a pause between participants.

Time Out Timer - To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission after 1-30 minutes. The feature can be set to Off or 1-30 minutes.

Tx Power – Set output power to High, medium or low. This one setting affects all transmissions from the radio.

10.1.9 Radio Comment

The following options are set on the Common page in the Settings page of the Programmer

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

Auto Repeater - Enables/ disables the Automatic Repeater Shift and Tone functions of the radio. (USA Version only of the radio). Options for this item are

On 1 – Auto repeater is On. Tone Encoder is Off.

On 2 – Auto repeater is On and tone encoder is On.

Note: The tone mode frequency (CTCSS or RX CTCSS) is not changed by the auto repeater function. Reset these frequencies as necessary.

Beep - The key/button beeper provides useful audible feedback whenever a button is pressed. The Programmer toggles the beeper function On (checked) and Off (unchecked). Default is On.

Dimmer – Set how bright the front panel display of the radio will be.

Display Color – Set the screen color to Amber or Green

F1 Key and F2 Key - Assign functions to the F1 aqnd F2 microphone keys.

Lock – Check to engage Frequency lock. When engaged, the tuning dial and switches are locked. [PTT], [MONI], [VOL] and [SQL] remain active while other switches on the radio are locked to prevent accidentally changing channels during operations.

This option can be used in conjunction with microphone lock function which is engaged from the face of the radio only as it disengages when the radio is powered off.

Mic Address – Set the address for the microphone to prevent interference form other HM-90 wireless microphones. Set the address in the microphone to the same with the dip switches in the mic.

Radio Comment - An alpha/numeric string of up to 16 characters. This string is sent to the radio with the other details of the file. It is maintained there; however there is no way to display it on the radio's screen. It will be read from the radio during the Get data from process.

Repeater Lockout – Inhibit transmission when a signal is being received. Set to

Off - Lockout is not engaged

RP - Transmission is inhibited when the tone squelch is closed

BU - Transmit is inhibited when a signal is received

Scan Resume – Select how the radio will resume scanning after stopping on a signal during scanning.

SCT-5 /10/15 - Scanning pauses for 5/10/15 seconds while receiving a signal.

SCP-2 - Scanning pauses until the signal disappears and then resumes 2 seconds later.

SCT-EP - Scanning pauses on a frequency that is not busy and resumes 2 seconds after a signal appears.

Squelch Delay – Set squelch delay to short or long to prevent repeated opening and closing of the squelch during reception of the same signal. Changing this setting can help prevent "clipping" of the first of a signal during a conversation as the squelch stays open to hold the signal even during a pause between participants.

Time Out Timer - To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission after 1-30 minutes. The feature can be set to Off or 1-30 minutes.

Tx Power – Set output power to High, medium or low. This one setting affects all transmissions from the radio.

10.1.10 Repeater Lockout

The following options are set on the Common page in the Settings page of the Programmer

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

Auto Repeater - Enables/ disables the Automatic Repeater Shift and Tone functions of the radio. (USA Version only of the radio). Options for this item are

On 1 – Auto repeater is On. Tone Encoder is Off.

On 2 – Auto repeater is On and tone encoder is On.

Note: The tone mode frequency (CTCSS or RX CTCSS) is not changed by the auto repeater function. Reset these frequencies as necessary.

Beep - The key/button beeper provides useful audible feedback whenever a button is pressed. The Programmer toggles the beeper function On (checked) and Off (unchecked). Default is On.

Dimmer – Set how bright the front panel display of the radio will be.

Display Color – Set the screen color to Amber or Green

F1 Key and F2 Key - Assign functions to the F1 aqnd F2 microphone keys.

Lock – Check to engage Frequency lock. When engaged, the tuning dial and switches are locked. [PTT], [MONI], [VOL] and [SQL] remain active while other switches on the radio are locked to prevent accidentally changing channels during operations.

This option can be used in conjunction with microphone lock function which is engaged from the face of the radio only as it disengages when the radio is powered off.

Mic Address – Set the address for the microphone to prevent interference form other HM-90 wireless microphones. Set the address in the microphone to the same with the dip switches in the mic.

Radio Comment - An alpha/numeric string of up to 16 characters. This string is sent to the radio with the other details of the file. It is maintained there; however there is no way to display it on the radio's screen. It will be read from the radio during the Get data from process.

Repeater Lockout – Inhibit transmission when a signal is being received. Set to

Off - Lockout is not engaged

RP - Transmission is inhibited when the tone squelch is closed

BU - Transmit is inhibited when a signal is received

Scan Resume – Select how the radio will resume scanning after stopping on a signal during scanning.

SCT-5 /10/15 - Scanning pauses for 5/10/15 seconds while receiving a signal.

SCP-2 - Scanning pauses until the signal disappears and then resumes 2 seconds later.

SCT-EP - Scanning pauses on a frequency that is not busy and resumes 2 seconds after a signal appears.

Squelch Delay – Set squelch delay to short or long to prevent repeated opening and closing of the squelch during reception of the same signal. Changing this setting can help prevent "clipping" of the first of a signal during a conversation as the squelch stays open to hold the signal even during a pause between participants.

Time Out Timer - To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission after 1-30 minutes. The feature can be set to Off or 1-30 minutes.

Tx Power – Set output power to High, medium or low. This one setting affects all transmissions from the radio.

10.1.11 Scan Resume

The following options are set on the Common page in the Settings page of the Programmer

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

Auto Repeater - Enables/ disables the Automatic Repeater Shift and Tone functions of the radio. (USA Version only of the radio). Options for this item are

On 1 – Auto repeater is On. Tone Encoder is Off.

On 2 – Auto repeater is On and tone encoder is On.

Note: The tone mode frequency (CTCSS or RX CTCSS) is not changed by the auto repeater function. Reset these frequencies as necessary.

Beep - The key/button beeper provides useful audible feedback whenever a button is pressed. The Programmer toggles the beeper function On (checked) and Off (unchecked). Default is On.

Dimmer – Set how bright the front panel display of the radio will be.

Display Color – Set the screen color to Amber or Green

F1 Key and F2 Key - Assign functions to the F1 aqnd F2 microphone keys.

Lock – Check to engage Frequency lock. When engaged, the tuning dial and switches are locked. [PTT], [MONI], [VOL] and [SQL] remain active while other switches on the radio are locked to prevent accidentally changing channels during operations.

This option can be used in conjunction with microphone lock function which is engaged from the face of the radio only as it disengages when the radio is powered off.

Mic Address – Set the address for the microphone to prevent interference form other HM-90 wireless microphones. Set the address in the microphone to the same with the dip switches in the mic.

Radio Comment - An alpha/numeric string of up to 16 characters. This string is sent to the radio with the other details of the file. It is maintained there; however there is no way to display it on the radio's screen. It will be read from the radio during the Get data from process.

Repeater Lockout – Inhibit transmission when a signal is being received. Set to

Off - Lockout is not engaged

RP - Transmission is inhibited when the tone squelch is closed

BU - Transmit is inhibited when a signal is received

Scan Resume – Select how the radio will resume scanning after stopping on a signal during scanning.

SCT-5 /10/15 - Scanning pauses for 5/10/15 seconds while receiving a signal.

SCP-2 - Scanning pauses until the signal disappears and then resumes 2 seconds later.

SCT-EP - Scanning pauses on a frequency that is not busy and resumes 2 seconds after a signal appears.

Squelch Delay – Set squelch delay to short or long to prevent repeated opening and closing of the squelch during reception of the same signal. Changing this setting can help prevent "clipping" of the first of a signal during a conversation as the squelch stays open to hold the signal even during a pause between participants.

Time Out Timer - To prevent accidental prolonged transmissions, the transceiver has this feature that automatically halts a continuous transmission after 1-30 minutes. The feature can be set to Off or 1-30 minutes.

Tx Power – Set output power to High, medium or low. This one setting affects all transmissions from the radio.

10.2 Settings - DTMF

DTMF Settings

Enter phone numbers in autodial memories.

Number - Enter up to 16 digits. Valid digits are 0 to 9 and A to F. You can use * for E and # for F (regardless of the state of the check box described below). You can also add spaces and/or dashes for readability as you enter the number; they will not be saved.

Use * for E and # for F - Check this box to cause E and F tones to be displayed as * and # symbols respectively.

DTMF Speed – Set the speed of the DTMF transmission to best suit the repeater being used for this function.

Part

11 Radio / Computer Data Transfer

Data flow two ways: from the computer to the radio or from the radio to the computer. Even when you are sending a file to the radio, some data must be sent from the radio to the computer to ensure that the two are "talking" before transfer of the file ever gets started.

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

Details for this process are contained in these sections:

Communications | Get Data From - Always the best place to start. Even if there is nothing in your radio. It gets the data "flowing" between the two.

Communications | Send Data To - This process programs the radio with the details of the file that is on the screen. If the file is blank, you will have a blank radio. Be sure you see your frequencies on the screen before you start this part of the process.

Radio to Computer Cabling - Check the photos to be sure you are using the correct cabling for your radio.

Comport Setup - There is no comport setup in Version 4. The Programmer automatically finds the *RT Systems* USB cable for you.

11.1 Communications | Get Data From

Uploads the contents of the radio memory to the computer. This function is often referred to as "reading" the radio since memory information is "read" from the radio.

This step is recommended before the first file is sent to the radio; however, it is not a requirement. Files with frequency information can be created in the Programmer without executing this step.

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

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

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

Answer "yes" if you want to lose all the information that appears on the screen. Answer "no" if you don't want to lose several hours of work spent creating the file on the screen. To prevent loss of information, first do File | New to open a new (default) file. Then while looking at that file, do Communications | Get data from radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

Once you complete Communications | Get data from radio, return to your file a) select the tab at the top of the page; or b) select File | Open and open the file from the list presented (if you closed it some time during the process.)

The Get Data From process (reading the radio)

- Connect the cables properly to the radio. See the Radio to Computer Cabling section of this Help for details of that cabling.
- The cable connects to the 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.
- The screen that opens has details for completing the process to get data from the radio (read the radio).

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

- 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 "blue bar" does not appear and fill immediately, cancel the process and try again.

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

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

When the Get Data From process is complete, the Programmer will return to the spreadsheet of the main window where the information taken from the radio is displayed. This information is ready to be edited and saved.

The radio can remain connected to the computer while changes are being made in the Programmer. These changes are not reflected in the radio until you complete the Send Data To process in the Programmer. Leave the radio in CLONE mode or turn it off while it is connected to the radio. If it is on in normal mode, it may "act funny" since the PTT line is active in the programming cabling.

If you are doing major editing, turn the radio off and remove the cloning cable. Then return to the Programmer for editing the file. Once your editing is complete, connect the radio to the computer and complete the Send Data To process to transfer the changes to the radio.

Troubleshooting

- 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.

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

  If this is "nothing on the radio", check that your keys are not locked. Turn the radio off. Unlock the keys. Then turn the radio back on in CLONE mode and try again.

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

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

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

11.2 Communications | Send Data To

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

Note: In the Version 3 or newer Programmers, you can have files open for several different radios at one time. The Programmer can send a file only to the radio it is for. The title bar at the top of the Programmer tells you which radio the file is for.

You can open and send a file created for one radio to another; however, you must open that file as one for the receiving radio with the Programmer specifically for that radio. See the File | Open section

of this Help for details on this process.

Connect the radio to the computer

The USB-29A cable connects to the ear/speaker jack on the back of the radio.

Current File

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

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

Settings File

Check your global menu settings under Settings | Radio 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 Radio Menu Settings section of this Help.

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 file.
- Do Communications | Send Data To with the same memory channel file. The menu settings will be sent with the memory channel information.

Completing the "Send Data To" Process

When you execute the Communications | Send Data To command, you are presented with instruction for putting the radio into clone mode.

Read the screen carefully. The steps differ with each model. 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 letting you know that the process is being completed.

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

With the radio off, remove the cloning cable. The radio is ready to power-up and use with the newly programmed settings.

Note: The radio may be in VFO mode even after it is programmed. This is a normal mode of the radio and the one you found it in the first time you turned it on. Press the [M/Call] key to put the radio into memory mode.

Troubleshooting

Communications | Get Data From Radio required first

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

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

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

To complete this process:

1) Select File | New from the menu at the top of the screen.

2) Turn off the radio.

3) Select Communication | Get Data From Radio from the menu at the top of the screen.

4) Complete the process detailed on the screen.

5) Once the process is complete, click the tab at the top of the screen showing your filename. The file that you want to send to the radio will be displayed on the screen.

6) Select Communications | Send Data To Radio from the menu at the top of the screen.

7) Complete the process following each step carefully to program these channels into the radio.

Modified Radio

If your radio has been modified, you need to read from the radio (Get Data From) into a new file before you attempt to write data to the radio. When the Get Data From process is used, even if the radio is not yet programmed, the Programmer gets the data it needs to know that the radio is modified.

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

The radio is not programmed after the process is complete

This could indicate several things. Most of those are specific to the radio. The most general error is not an error in programming; but the need to put the radio into Memory mode once programming is complete. Many of the radios return to VFO when they are programmed. Press the appropriate key on the radio (See the operating manual for your specific model to identify the key press that changes the radio from VFO to memory mode. It will be detailed there.) Once in memory mode the information programmed will be available for use.

Several of the radios are not programmed when the download process is complete. These radios have encountered an error during the programming process. Try the process again. If it continues to fail, first, be sure you are using the latest version of the Programmer by updating from the Check for Update link under Help in the menu of the main screen of the Programmer. If the problem persists, send the file that you are attempting to send to the radio. We will examine it for any problem that might exist in the data.

Check the cabling between the radio and the computer by disconnecting and reconnecting at all connections. Try the process again.

If you have problems sending a certain file to the radio

Cancel the Send Data To process and execute Get Data From. Be sure to open a New file (File | New) into which the data will be read from the radio. This prevents loss of data in the file that you are sending to the radio. Getting data from the radio is a less critical process that can help get communications established.

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

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.

If necessary, contact ***RT Systems'*** tech support for assistance.

11.3 Radio to Computer Cabling

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

The USB-29A, a blue cable with a 3.5mm stereo plug, is the correct cable for the IC-2100 radio. This cable is included in the WCS-2100-USB kit.

The cable connects to the speaker jack on the back of the radio.

11.4 Comport Setup

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

Troubleshooting

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

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

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

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

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

Part XII

12 File Maintenance

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

Remember, with the exception of the Icom IC-7000, all other programmers erase everything in the radio and replace it with what is in the file. Be sure everything you want in the radio is in the file that is sent. This is an "all or nothing" process.

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

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

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

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

Close - Closes the current file.

Save - Saves the current file.

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

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

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

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

Print - Prints the current file

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

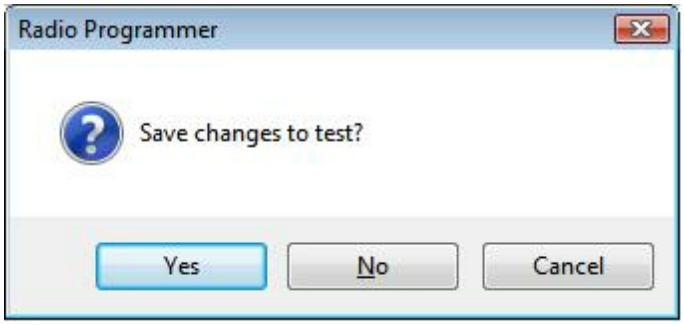
Files 1-4 - Up to four files that you last worked in and saved.

Exit - Closes the programmer.

12.1 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.

12.2 File | New

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

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

If you have been working to create a file with memory channels, use File | New before using Communications | Get data from to prevent losing all the work you have done in

this file. The Get data from process will replace the information in the open file with what is in the radio.

Other Radio Menu Settings and a New File

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

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

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

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

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

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

12.3 File | Open

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

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

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

Opening a file with the Version 3 or Version 4 programmer (One Version 3 or Version 4 programmer installed)

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

Opening ANY Version 3 file

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

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

12.3.1 Opening files from older programmers

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

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

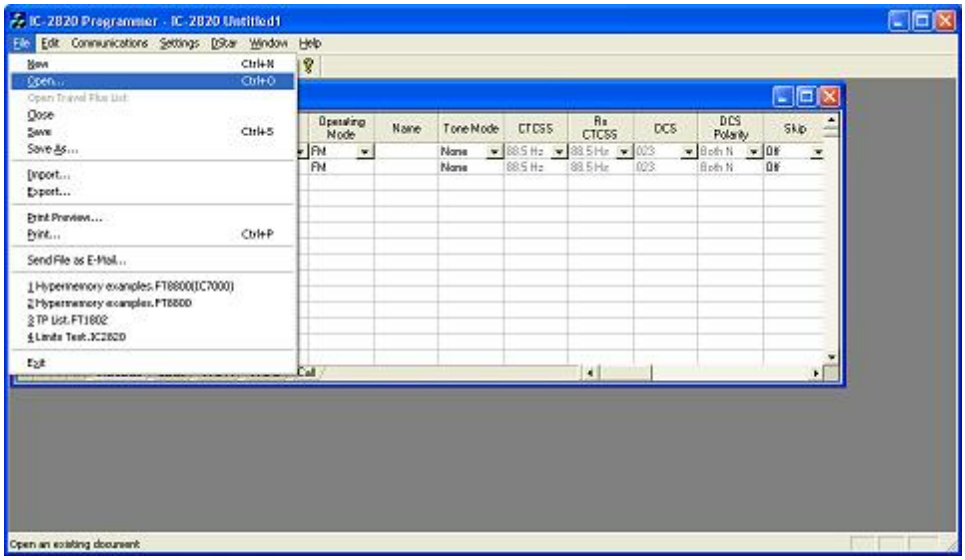
In this example, a file for the Yaesu FT-60 that was created in the original ADMS-1J programmer (an .rdf file) will be opened in the Version 3 programmer for the FT-60. This process is the same in the Version 4 programmers although the screens will look

a little different.

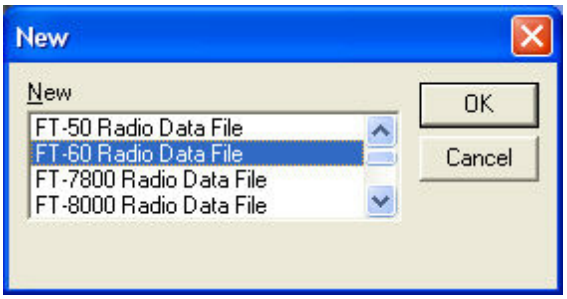
Directory selections may vary on your system depending on your choices in the original programmer. This example is designed based on defaults from the original programmers.

To open an existing file from the original programmer:

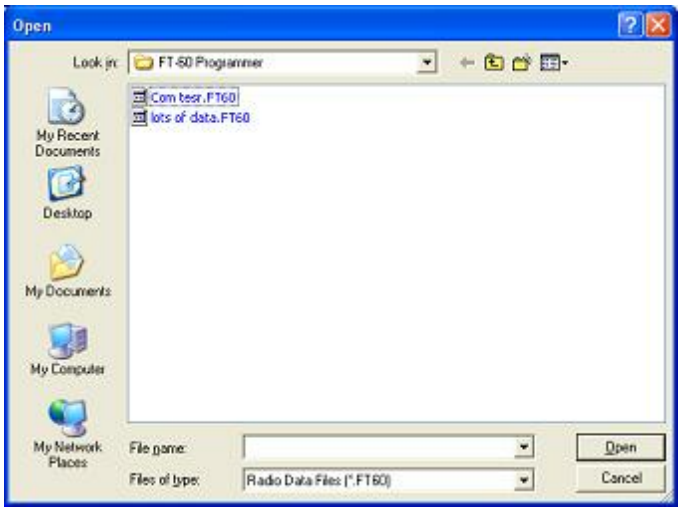
- In the V3 Programmer, select File | Open.



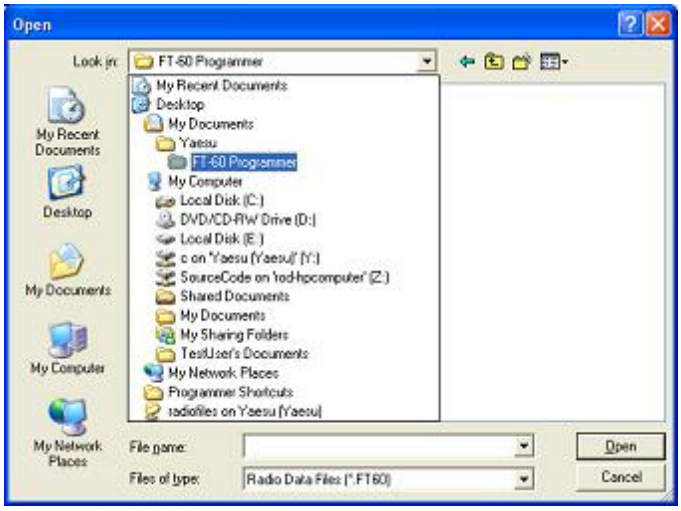
- If you have several Version 3 programmers installed, you will need to select FT-60 Radio Data File from the list in box that opens next. This step is omitted if only one programmer is installed.



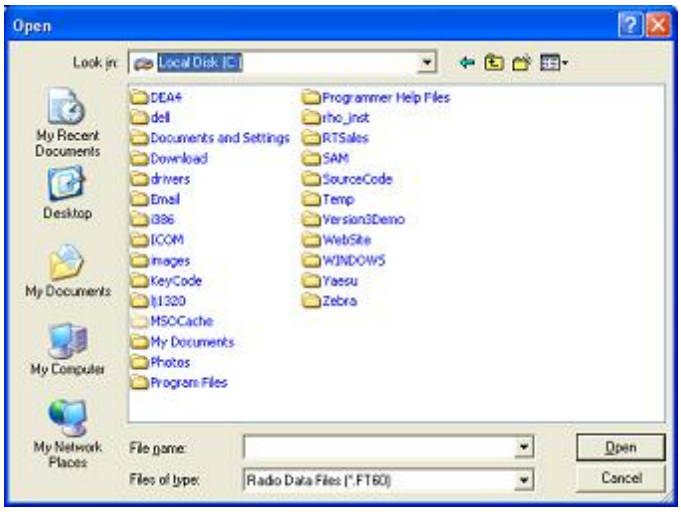
- An Open Dialog appears



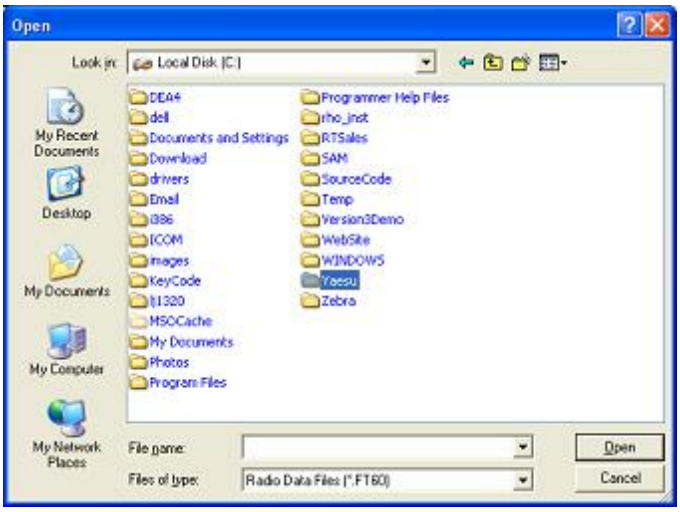
- Since the Version 3 programmer is geared to look in its own directory, we need to "find" the original file to be opened (We must change filing cabinet drawers as the old analogy was described.) Use your mouse to left click the down arrow to the right of the Look In box. A directory listing appears.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



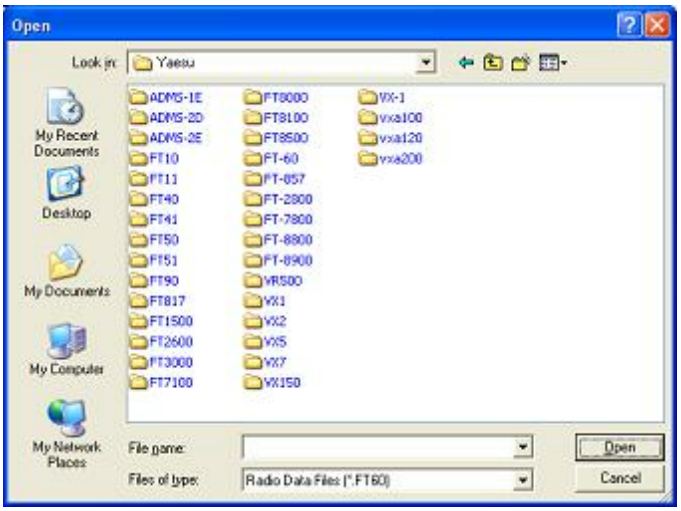
- Use your mouse to left click on Local Disk (C) in the list. On your machine this wording can vary a little. In general, you're looking for that "(C)" to know you've made the correct selection.



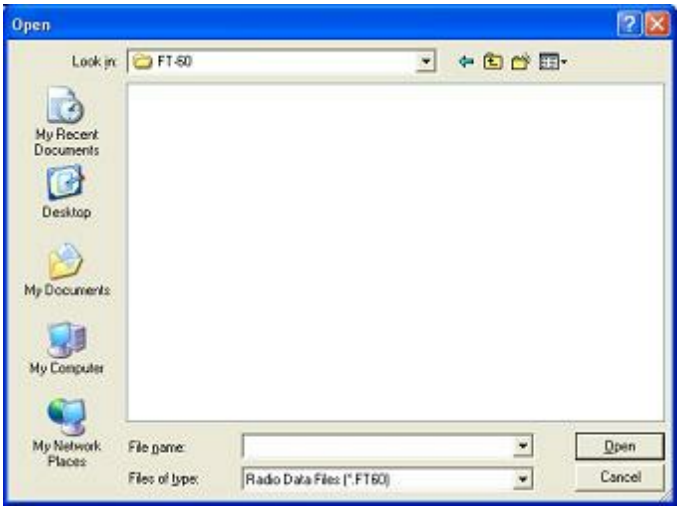
- What you see now are directories (the ones with the little yellow folders) and files. Find the little yellow folder that says Yaesu next to it. Put your mouse on it and Left click. Once Yaesu is highlighted, let go of the mouse button, move the pointer to the Open button, then use your mouse to left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



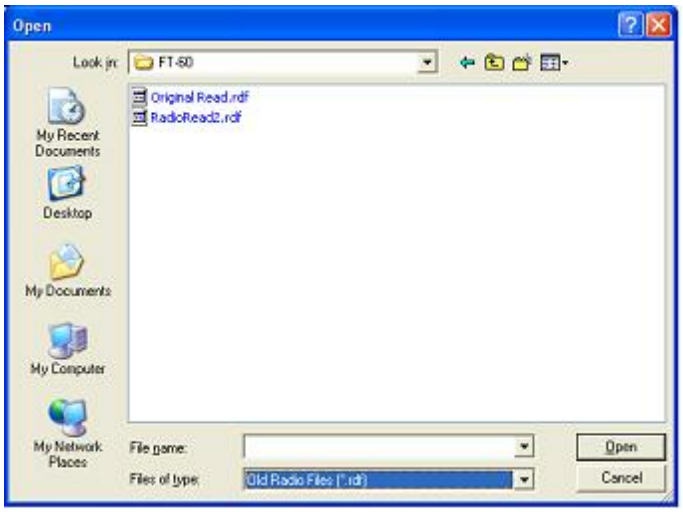
- After clicking Open, the contents of the Yaesu directory appear.



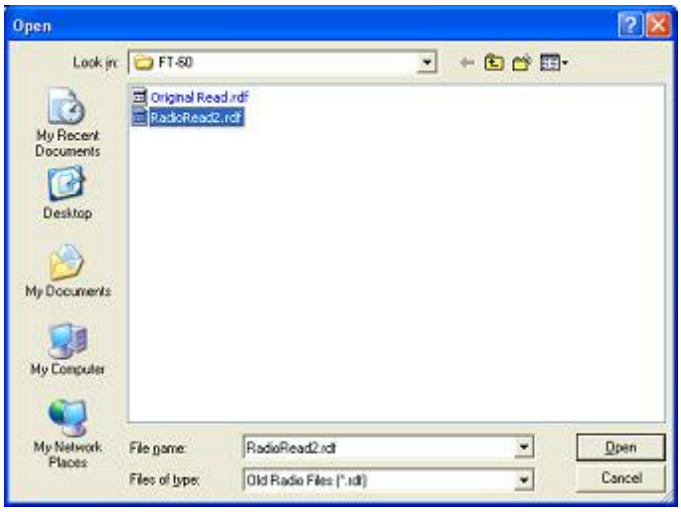
- In this example, there are lots of directories (the ones with the little yellow folders) since all the original programmers were installed on this machine. In your case, there is probably only one directory (little yellow folder). In either case, find the FT-60 directory (the one with the little yellow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



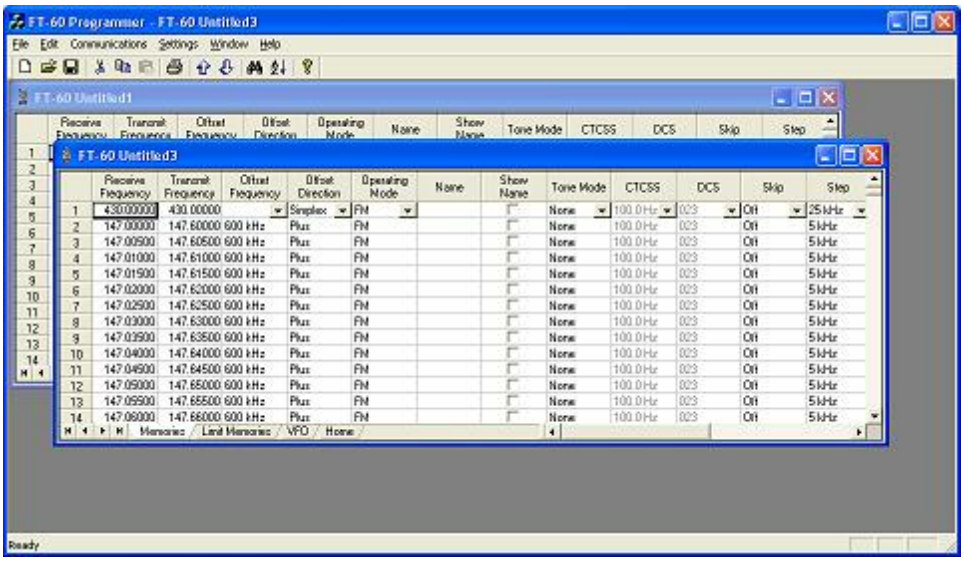
- Yes, a blank screen appears. This is normal. At the bottom of that screen, find the "Files of type" box. Use the left mouse button to click on the down arrow at the right of that box. Select Old Radio Files (*.rdf) from that list. The names of the available files will appear on the screen.



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

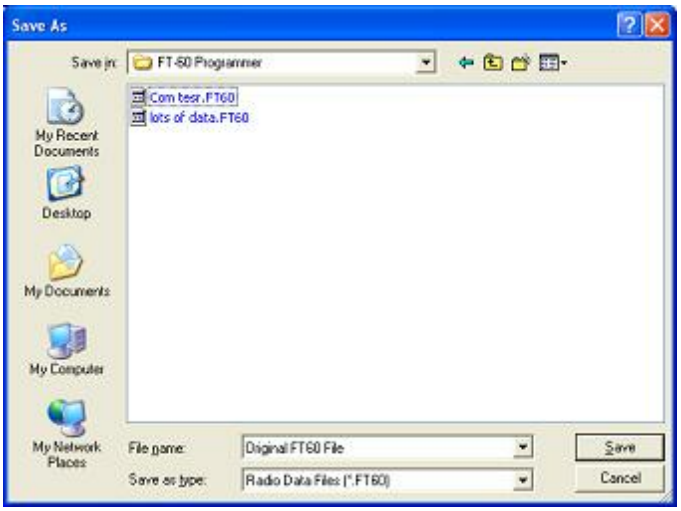


- Release the left mouse button. Move the pointer to Open. Click the left mouse button once to open the file.



- All the data of the original file is converted into a new Version 3 file for the FT-60.

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



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

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

12.3.2 Opening a V3 or V4 file from a different radio

The Version 3 programmers have the ability to "share" memory channel information between radios. It makes o difference if the radios are from the same manufacturer or not. As long as both files are from an RT Systems' Version 3 programmers, they can be used by the Version 3 programmer for any other radio.

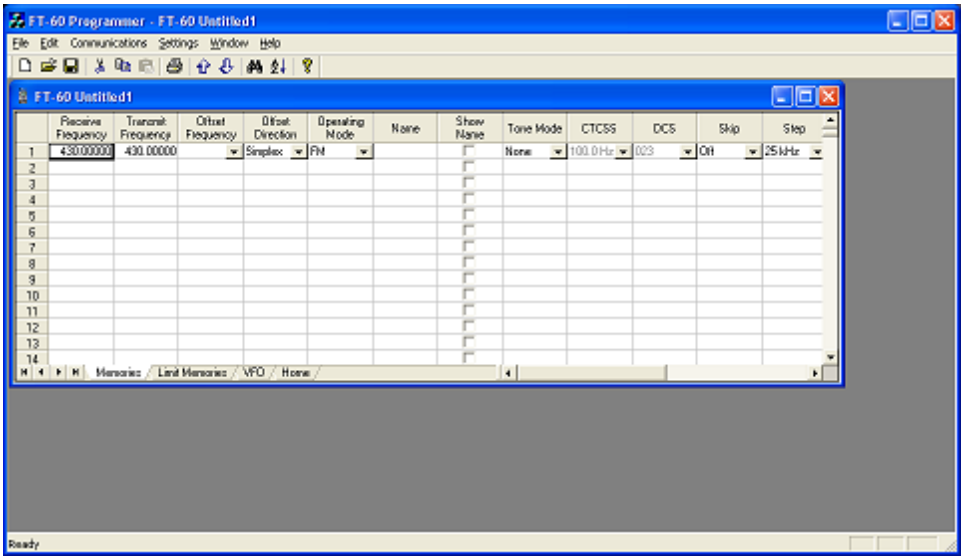
To open a Version 3 file from a different radio:

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

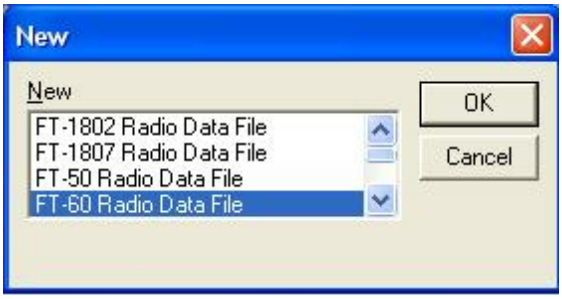
Files that you create in Version 3 can now be shared easily with anyone else who has a Version 3 programmer. Simply post the Version 3 file for anyone to download.

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

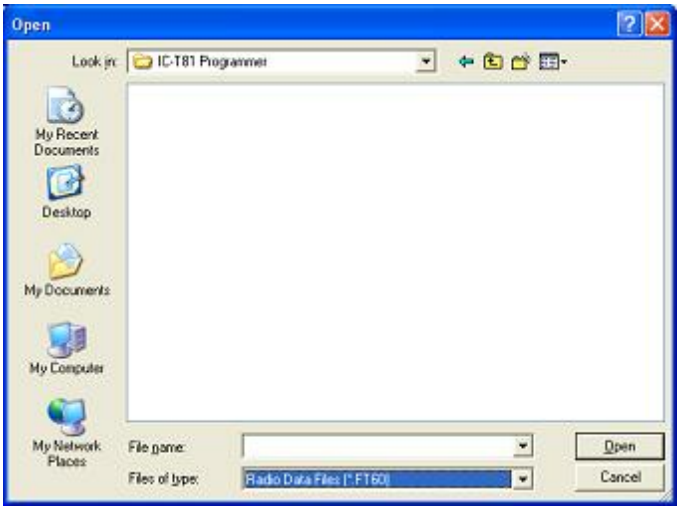
- Open the FT-60 Version 3 programmer.



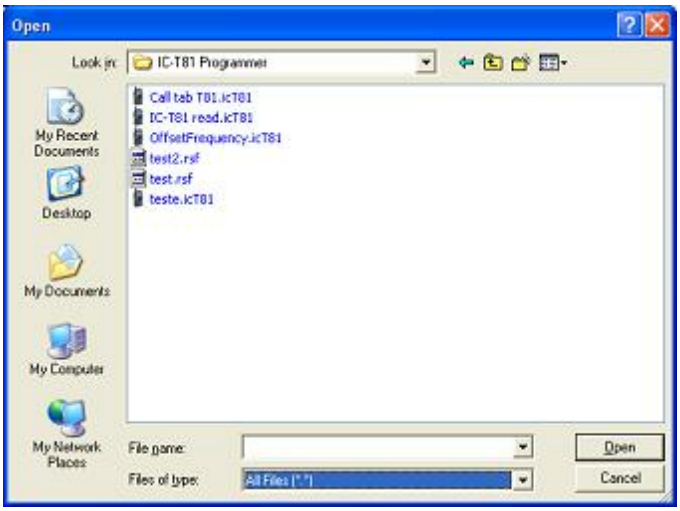
- From the menu at the top of the screen, select File | Open. A box appears from which you select the programmer for the ***radio to be programmed (in this case, the FT-60).***



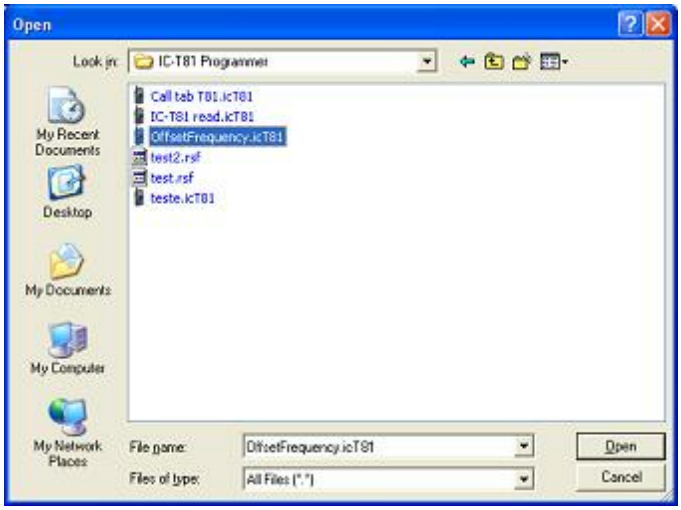
- An Open Dialog box appears. By default it is looking in the FT-60 directory since it is trying to help you find an FT-60 programming file. You will change directories to where the file is stored that you want to open. (Note: If you received the file via e-mail or from an Internet site, you chose where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



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

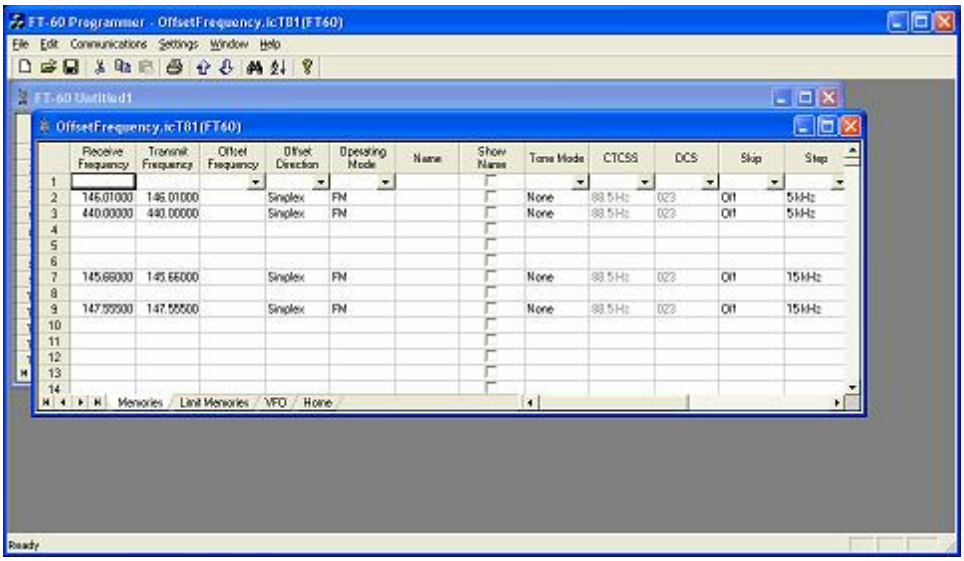


- A listing will appear with more than just the file that you're looking for. Everything in that directory is listed. Your file will be in the list. Select the file from the list.



- Click Open in the lower right corner.

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



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

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

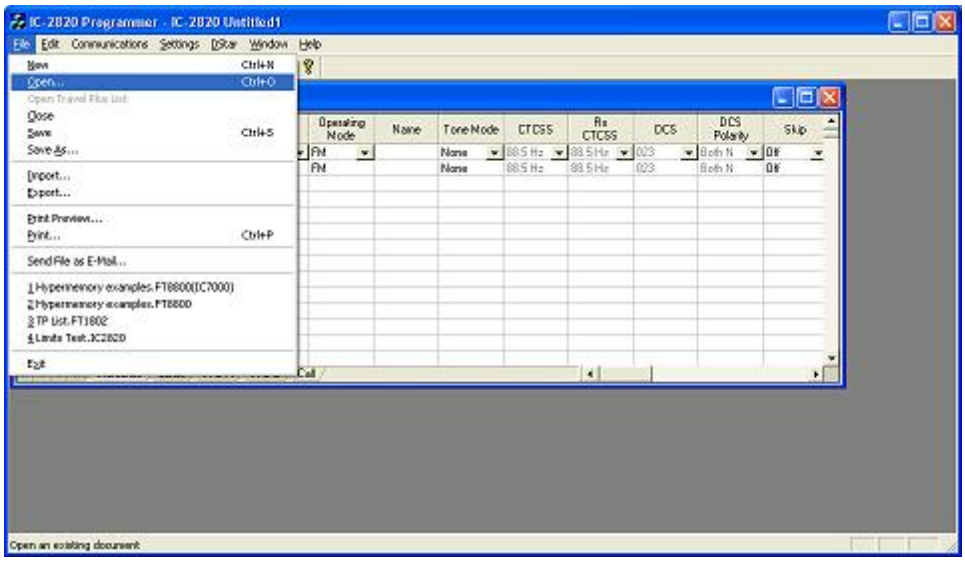
Alternately, you can send this file to the radio just as it is...other than channel 1 needing to be programmed with something allowable for the radio.

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

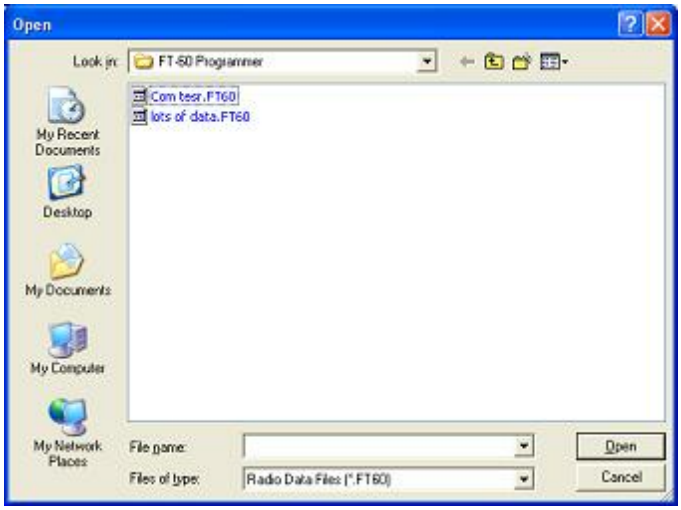
12.3.3 Opening a V3 or V4 file

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

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



- A Windows Open dialog appears.

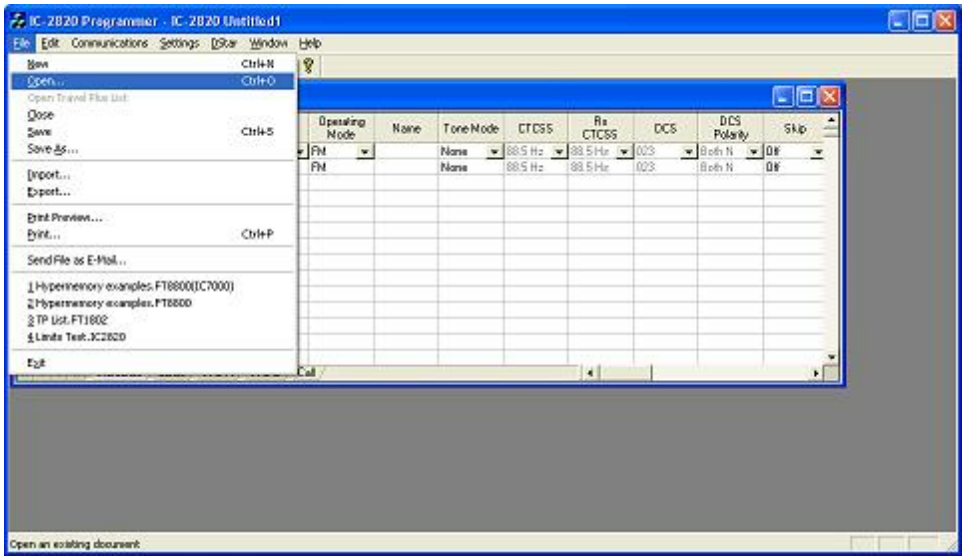


- Select the file that you want to open from the list presented. Click the Open

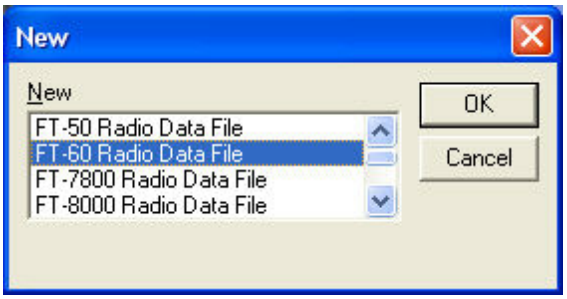
button at the bottom right. This files opens in the programmer.

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

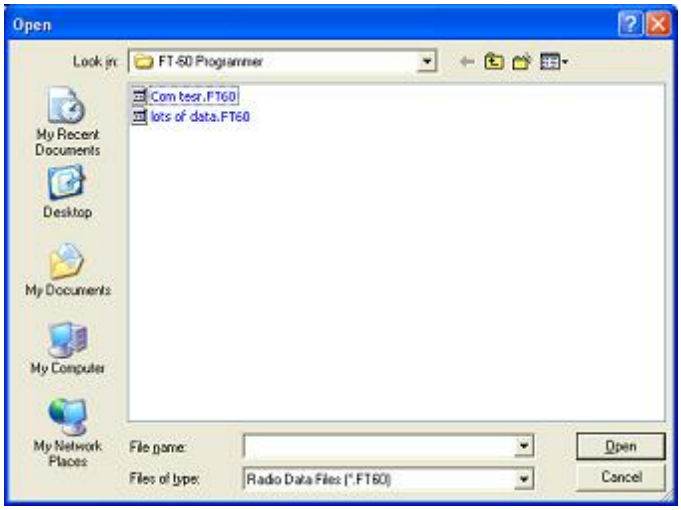
- Select File|Open from the menu at the top of the screen.



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



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



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

12.4 File | Print

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

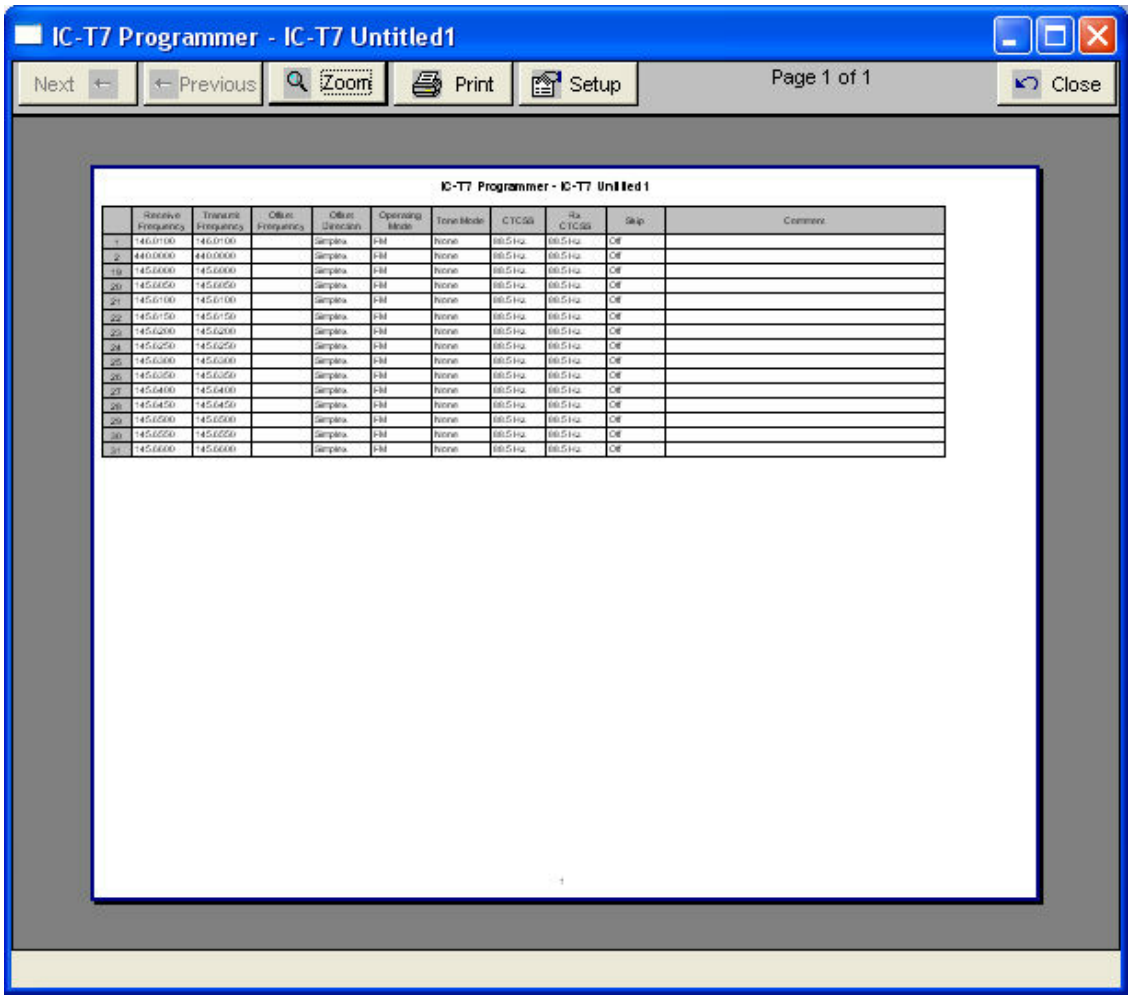
- When this command is selected, a print dialog will give you the opportunity to setup your printer.
- Hidden columns are not printed. A printout can be customized (including increasing type size) by deliberately hiding columns before printing. To hide column, select Settings | Preferences from the menu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

12.5 File | Print Preview

This new feature of the Version 3 programmers lets you preview the data to be printed before you waste paper sending it to the printer.
With the file open that you want to print, select File | Print Preview.

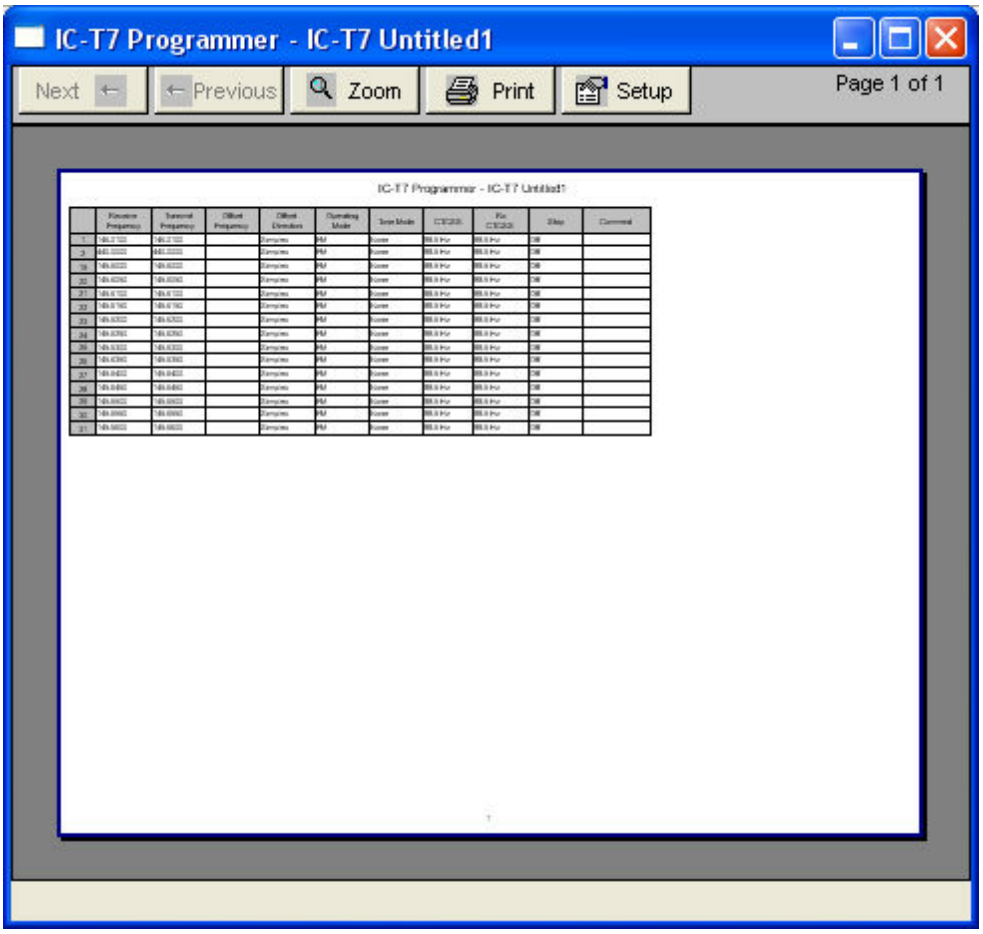
You will notice first that the screen changes. It is filled with the data that will be printed. This is just a temporary change. The order of your channels has not been changed in the file.

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



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

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



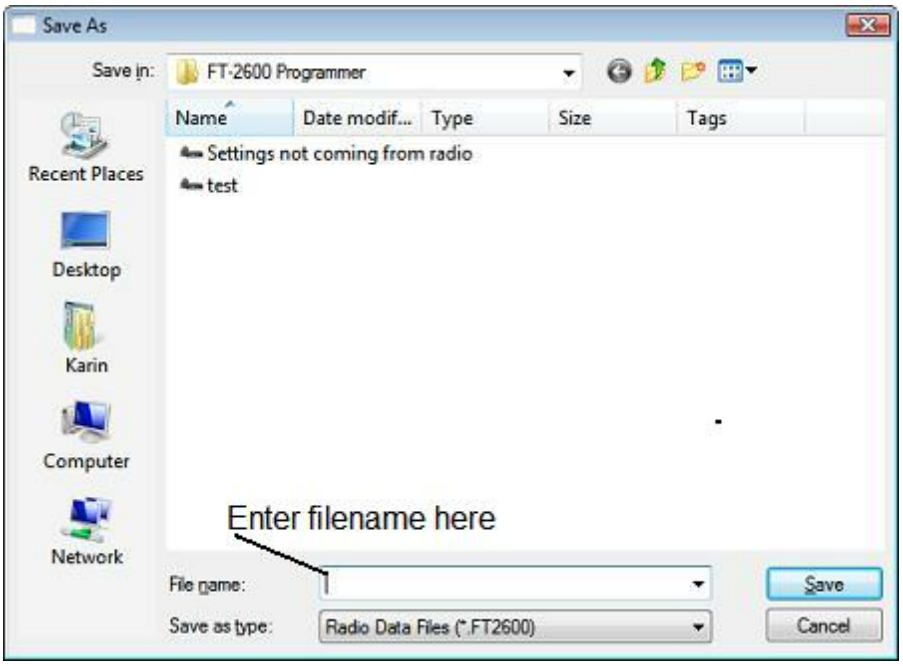
Under Printer setup, change the margins to print on as much of each page of paper as possible. Again, this can make it possible for all the columns to fit on one (or half the number of) page.

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

12.6 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.



12.6.1 File | Save

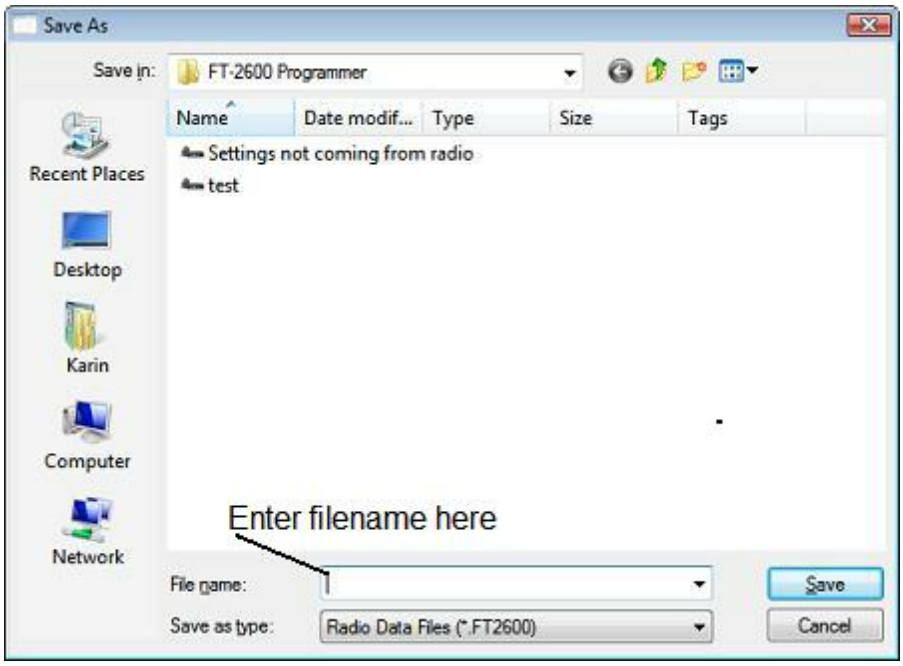
Saves the current file to your computer hard drive.

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.

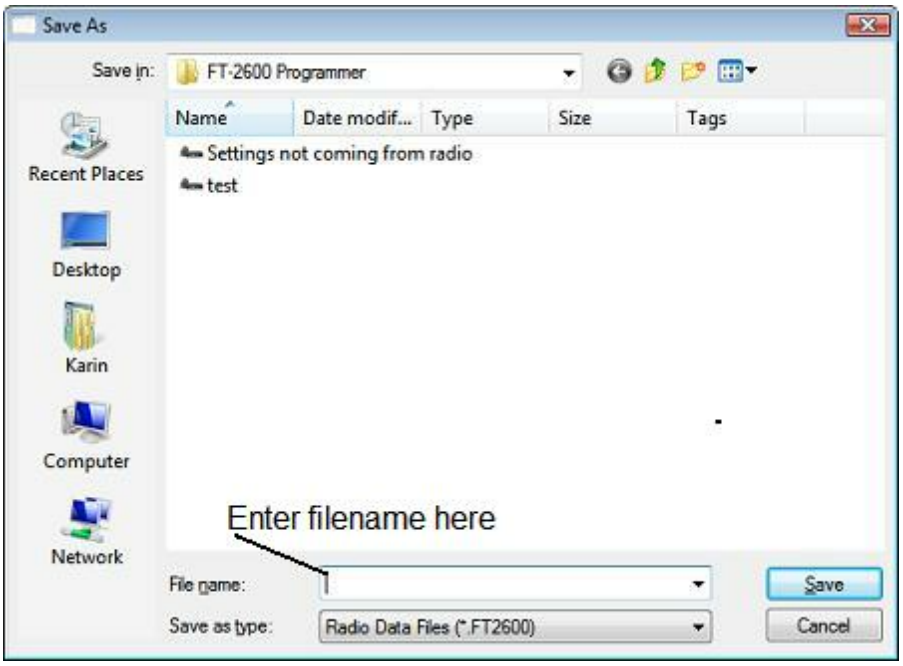
When saving a file, let the Programmer do the work. All you need to enter is the name you want for the file.

12.6.2 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 XIII

13 ARRL TravelPlus*

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

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

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

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

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

*TravelPlus is a product of the American Amateur Radio League.
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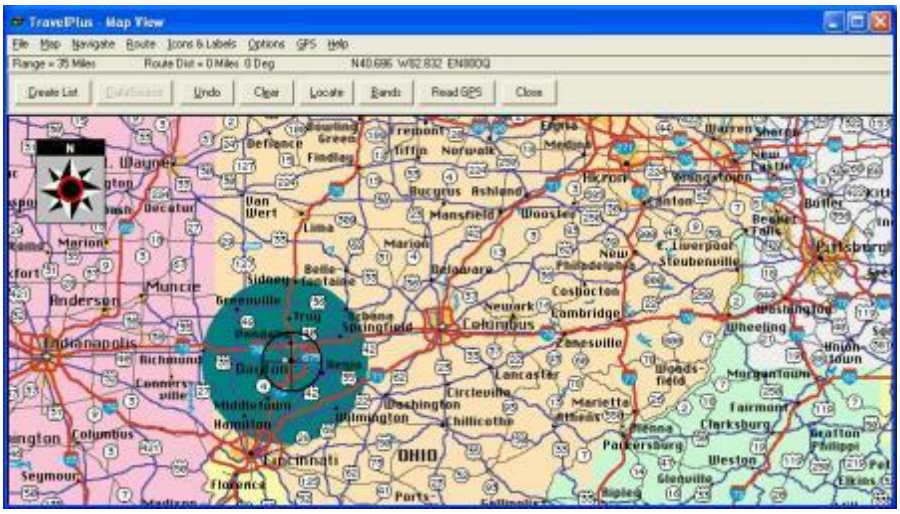
13.1 Creating a list in TravelPlus*

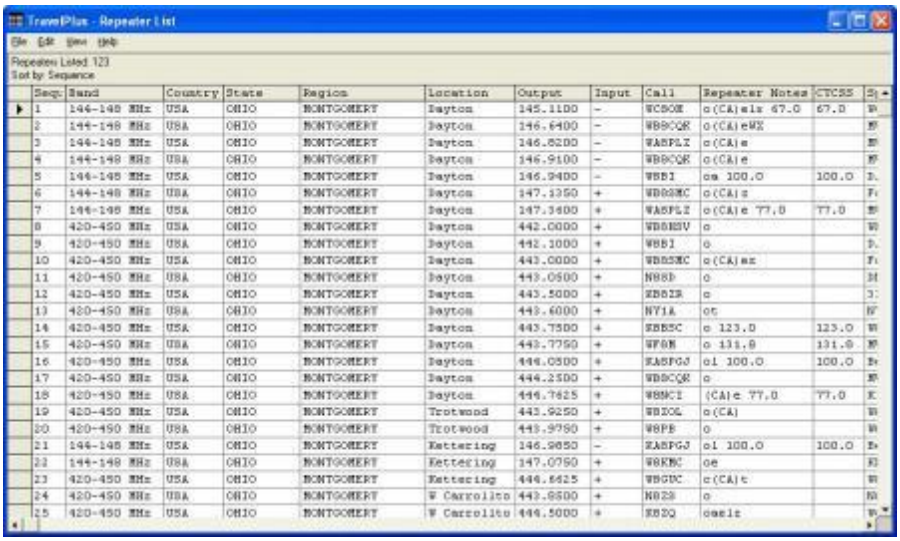
RT Systems' Version 4 programmers have a feature that opens a TravelPlus* list in the radio programmer. This makes the data available for creating files for programming your radio without the need to import the data from a file.

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

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



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



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)eMX		W
3	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	146.8200	-	WA8PLZ	o(CA)e		W
4	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	146.9100	-	WB8CQK	o(CA)e		W
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	+	WB8SMC	o(CA)s		F
7	144-148 MHz	USA	OHIO	MONTGOMERY	Dayton	147.3600	+	WA8PLZ	o(CA)e 77.0	77.0	W
8	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	442.0000	+	WB8HSV	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	+	WB8SMC	o(CA)ex		F
11	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.0500	+	N8SD	o		M
12	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.5000	+	KB8IR	o		D
13	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	443.6000	+	NY1A	os		W
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 131.8	131.8	W
16	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	444.0500	+	KA8PGJ	ol 100.0	100.0	D
17	420-450 MHz	USA	OHIO	MONTGOMERY	Dayton	444.2500	+	WB8CQK	o		W
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	+	WB2OGL	o(CA)		W
20	420-450 MHz	USA	OHIO	MONTGOMERY	Trotwood	443.9750	+	W8PB	o		W
21	144-148 MHz	USA	OHIO	MONTGOMERY	Kettering	146.9650	-	KA8PGJ	ol 100.0	100.0	D
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)c		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	+	KB2Q	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 (Version 4 only). If the programmer is already running, switch to it now to create a file from this list for programming the radio.

*TravelPlus is a product of the American Amateur Radio League.
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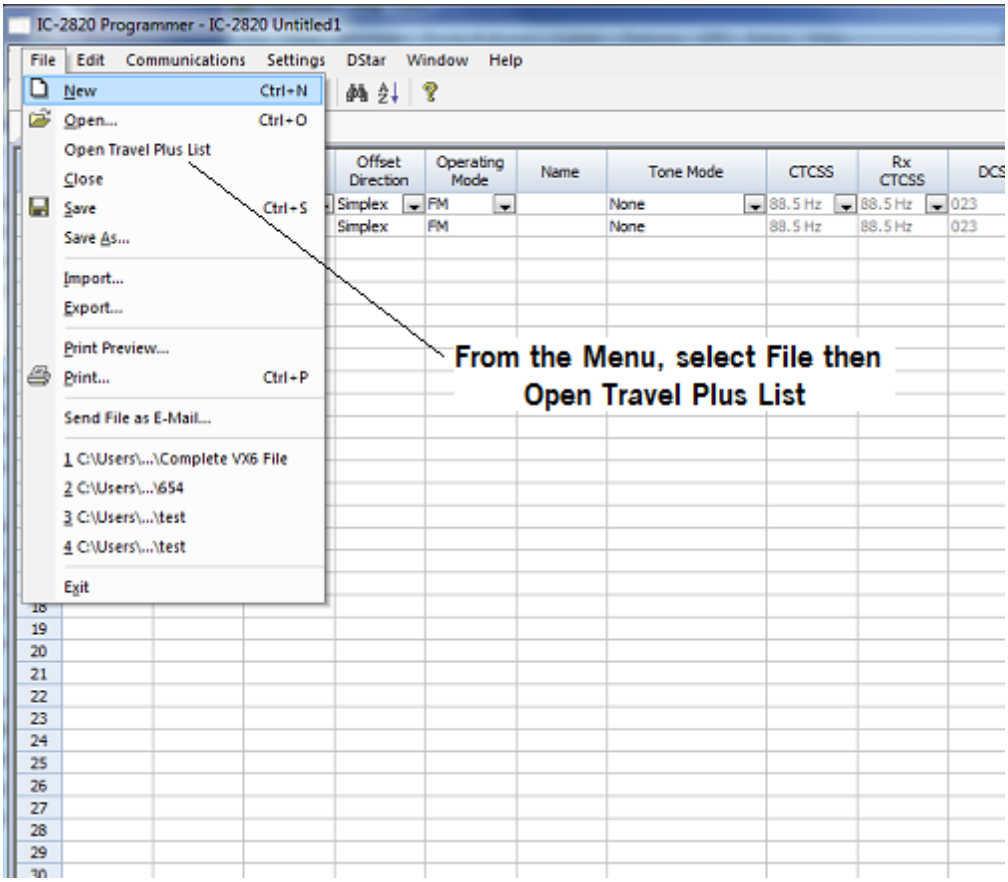
13.2 Opening the list in the Programmer

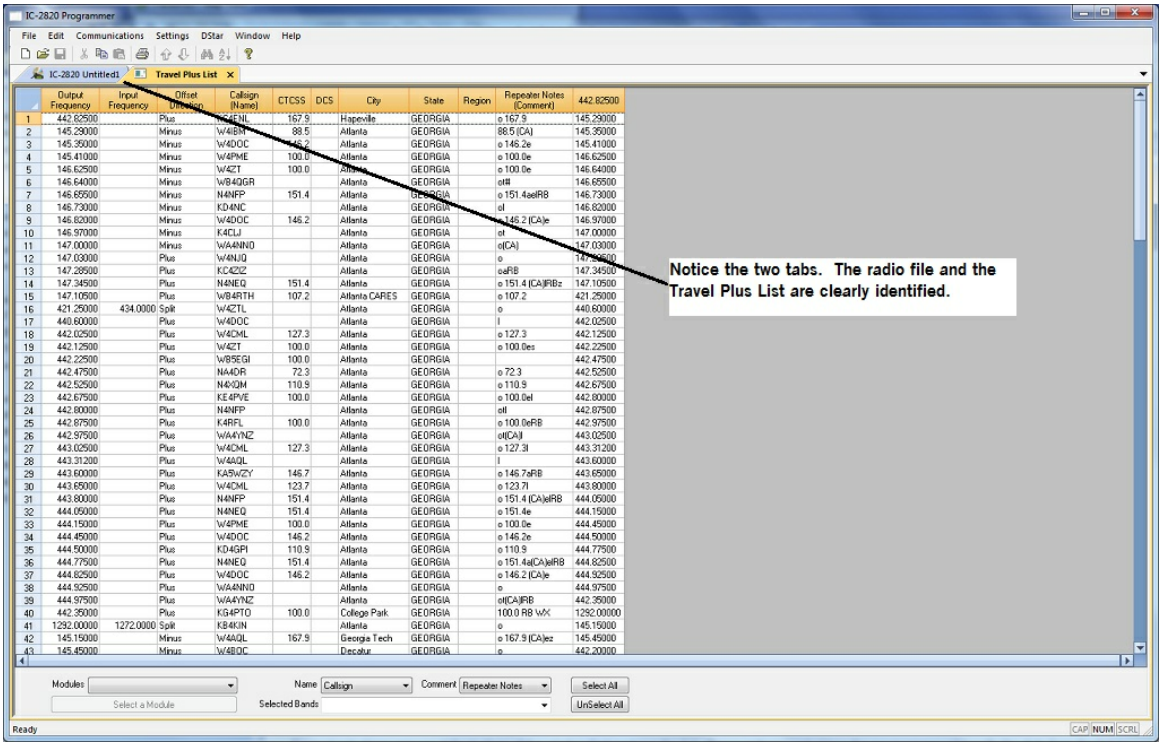
Once you have created a list in TravelPlus* (Version 10.0 or higher), open any one of the Version 4 programmers installed on your machine.

To access the list:

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



- The list appears in the window of the programmer



Customizing the list for the radio file:

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

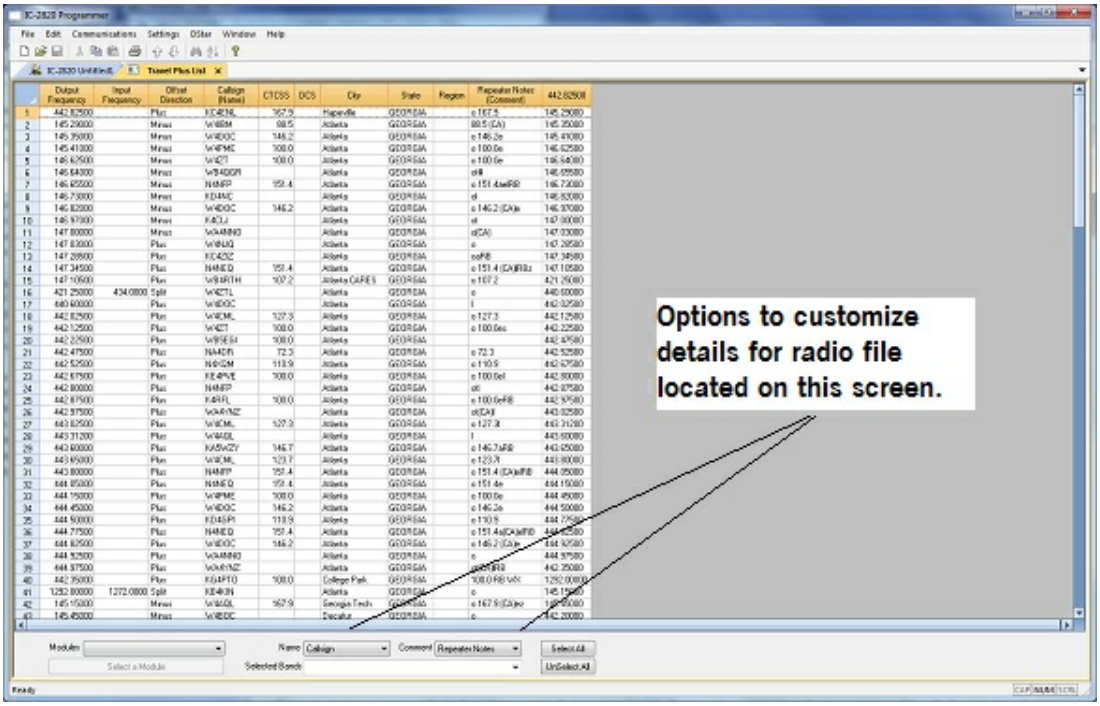
- Selected Bands: Lists the bands of the frequencies in the list. All the bands are selected by default. Uncheck those that you don't want as part of the file for the radio.

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

  If you do not eliminate the bands that cannot be used by your radio, the resulting radio file will contain blanks for each frequency the programmer

removes during file creation. Although the radio does not care, you may not want all those blanks in your radio file.

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



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

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

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

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

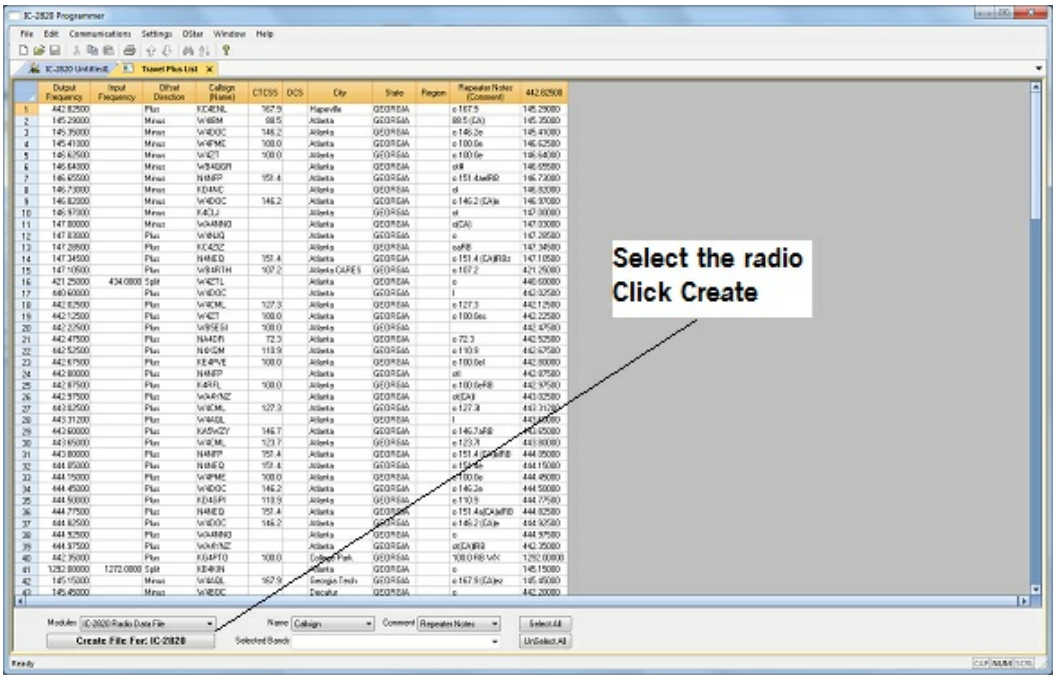
- Comment: The TravelPlus* list contains information that does not "match" directly to a column in the radio programmer.One of the columns in the programmer accept data from these columns is the Comment field.

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

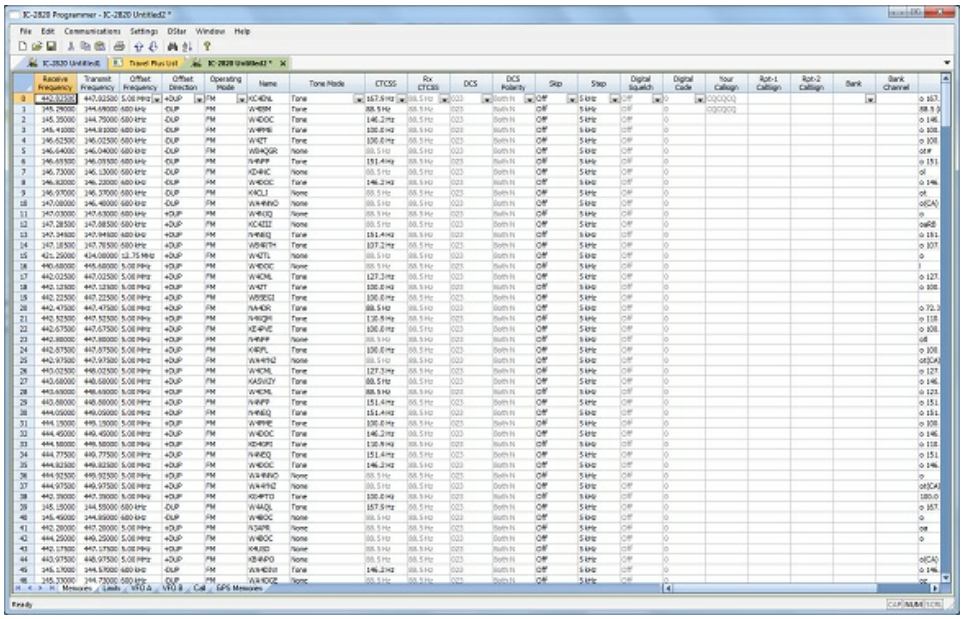
  By default, the programmer associates City from the TravelPlus* list to Comment in the programmer.

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

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



The resulting file appears in its own tab.



The file is ready to be sent to the radio.

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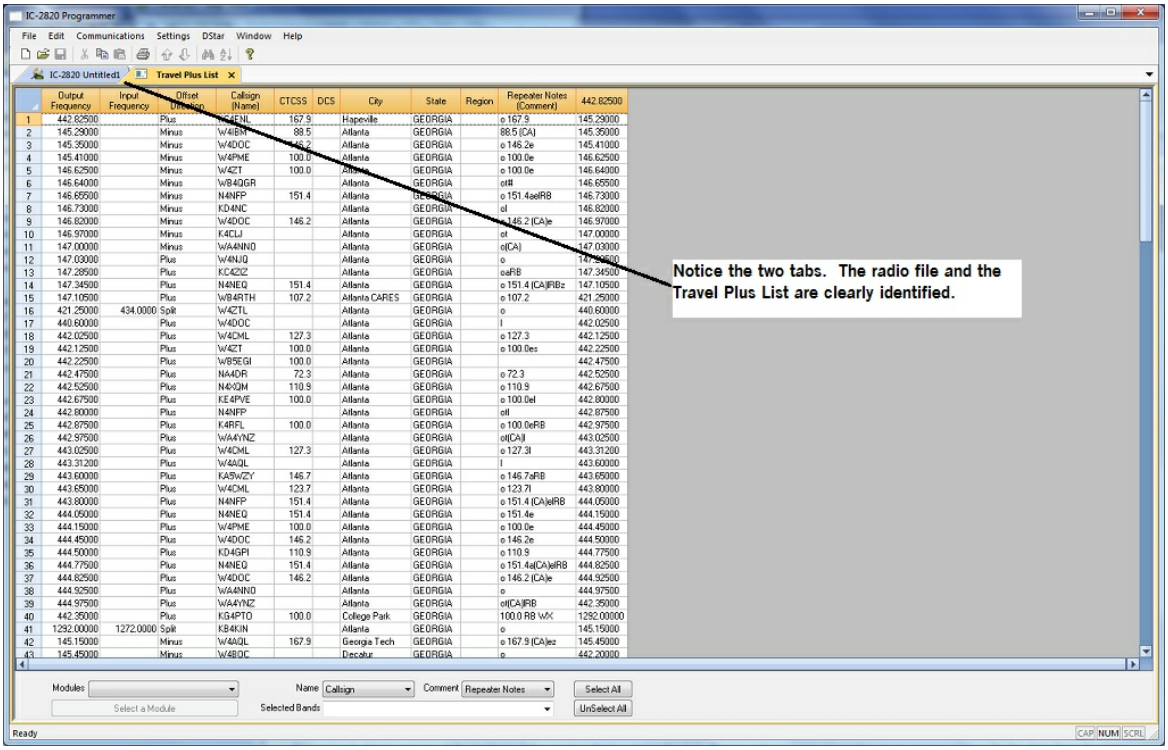
13.3 Using the TravelPlus* List with existing programmer file

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

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

- Begin by creating your list in TravelPlus* as detailed in Creating a List in TravelPlus* in this help.
- Open the programmer.
- Open the file into which the frequencies are to be inserted.

- Access the TravelPlus* list through the link in the file menu. Both the list and the file are now open in the programmer. Working in reduced screen mode is helpful with this process to let you see both files at one time.

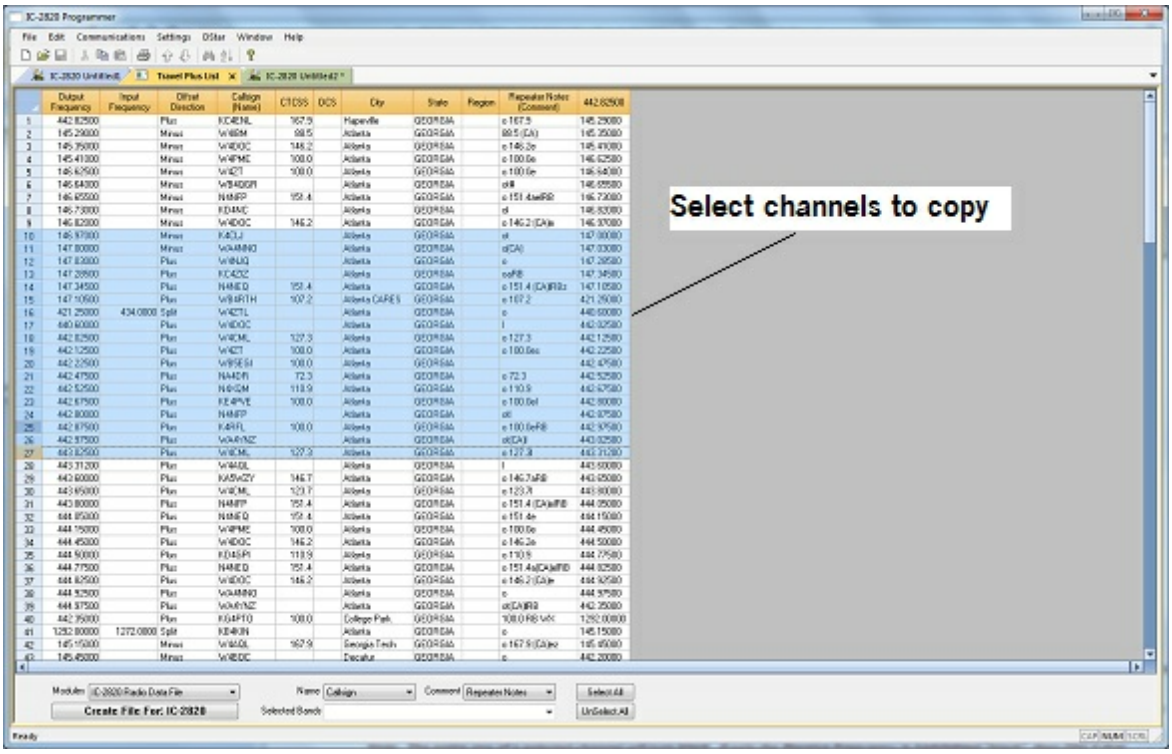


- Select a group of channels.

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

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

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



- Copy the channels

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

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

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

- Use the mouse to click into the programmer file.

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

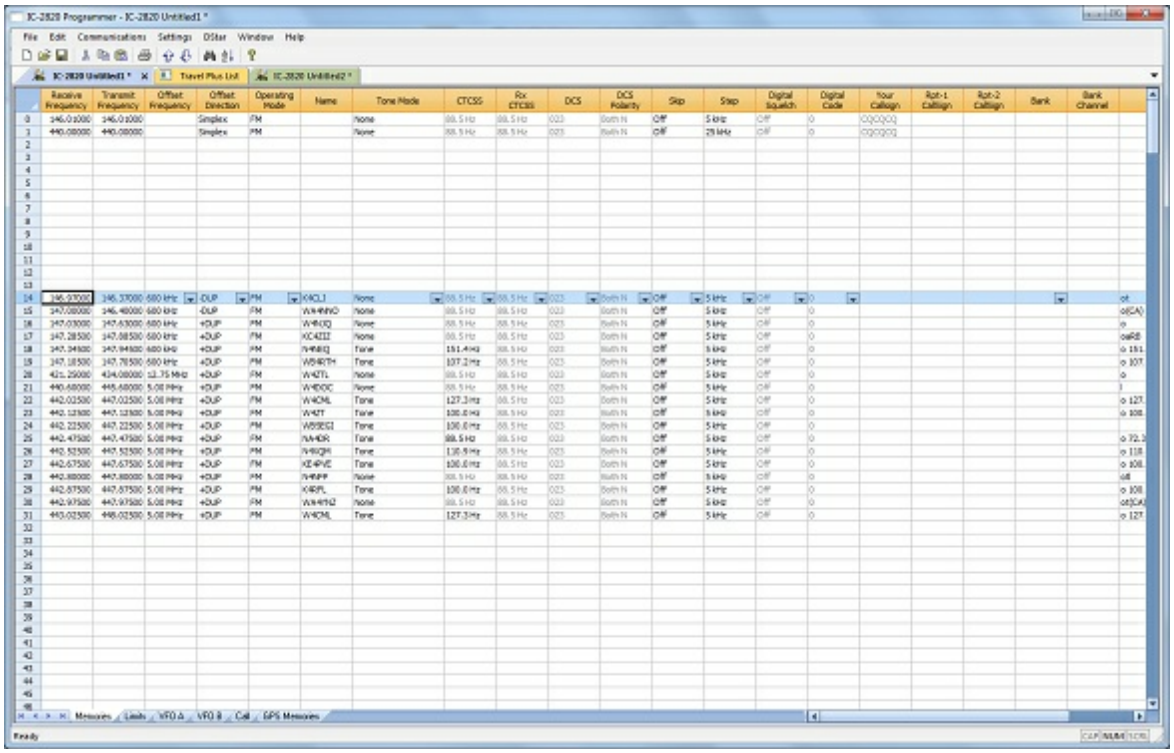
  Alternately, you can select Window | Tile to have the programmer display the two windows equally in the main window.

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

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

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

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



- Save the programmer file to make this change permanent.

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

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

- Send the file to your radio.

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Part

14 Copying From an Excel Spreadsheet

The Programmer can handle information copied from an Excel spreadsheet.

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

Limitations for use of another commercial spreadsheet program include:

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

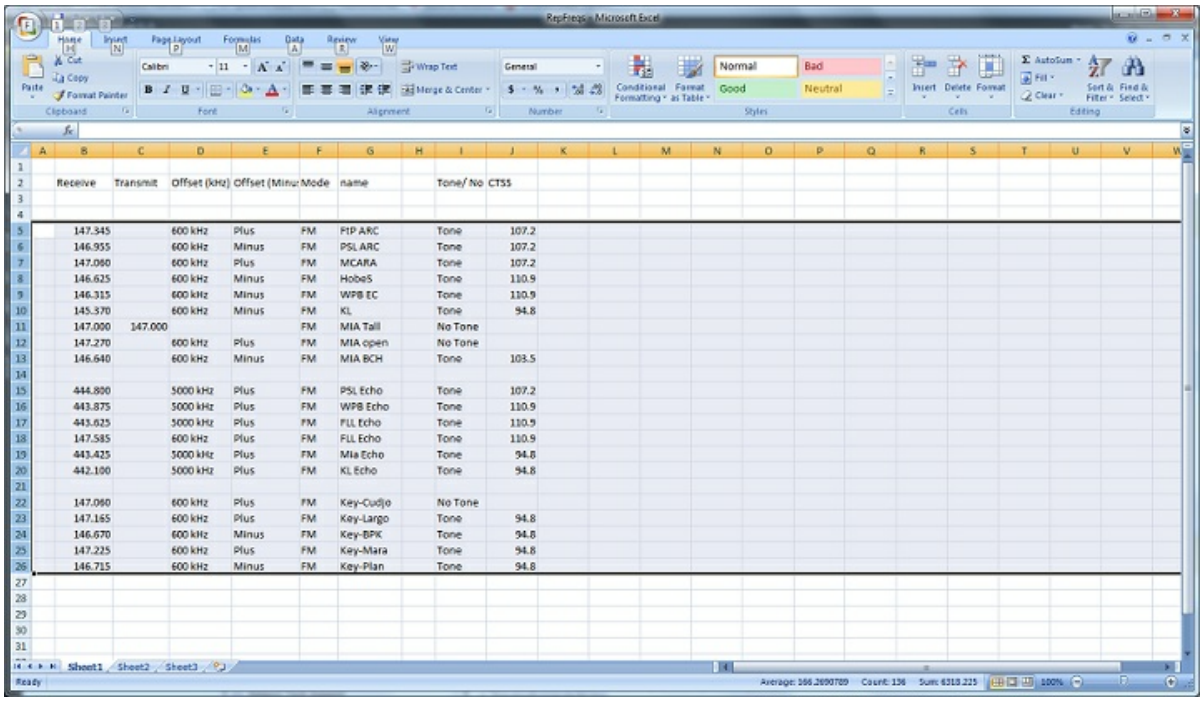
Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.

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.



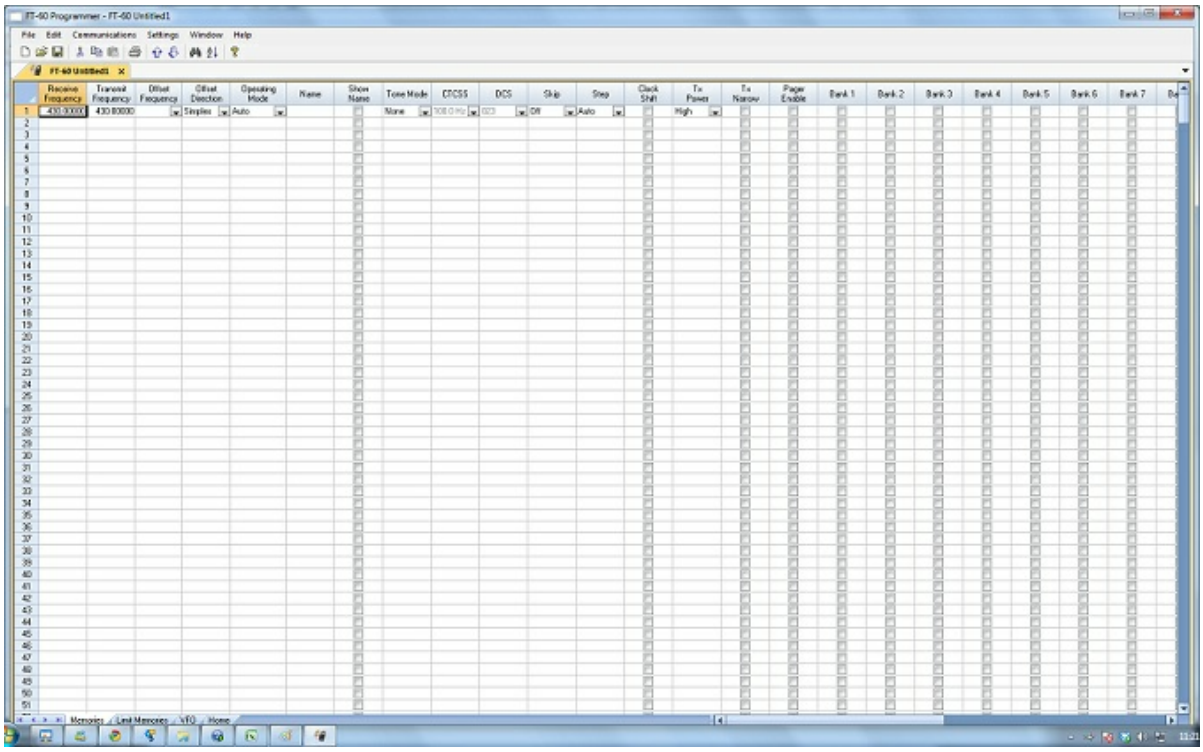
Receive	Transmit	Offset (kHz)	Offset (Minus	Mode	name	Tone/ No	CTSS
147.345		600 kHz	Plus	FM	FtP ARC	Tone	107.2
146.955		600 kHz	Minus	FM	PSL ARC	Tone	107.2
147.080		600 kHz	Plus	FM	MCARA	Tone	107.2
146.625		600 kHz	Minus	FM	HobeS	Tone	110.9
146.315		600 kHz	Minus	FM	WPB EC	Tone	110.9
145.370		600 kHz	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.

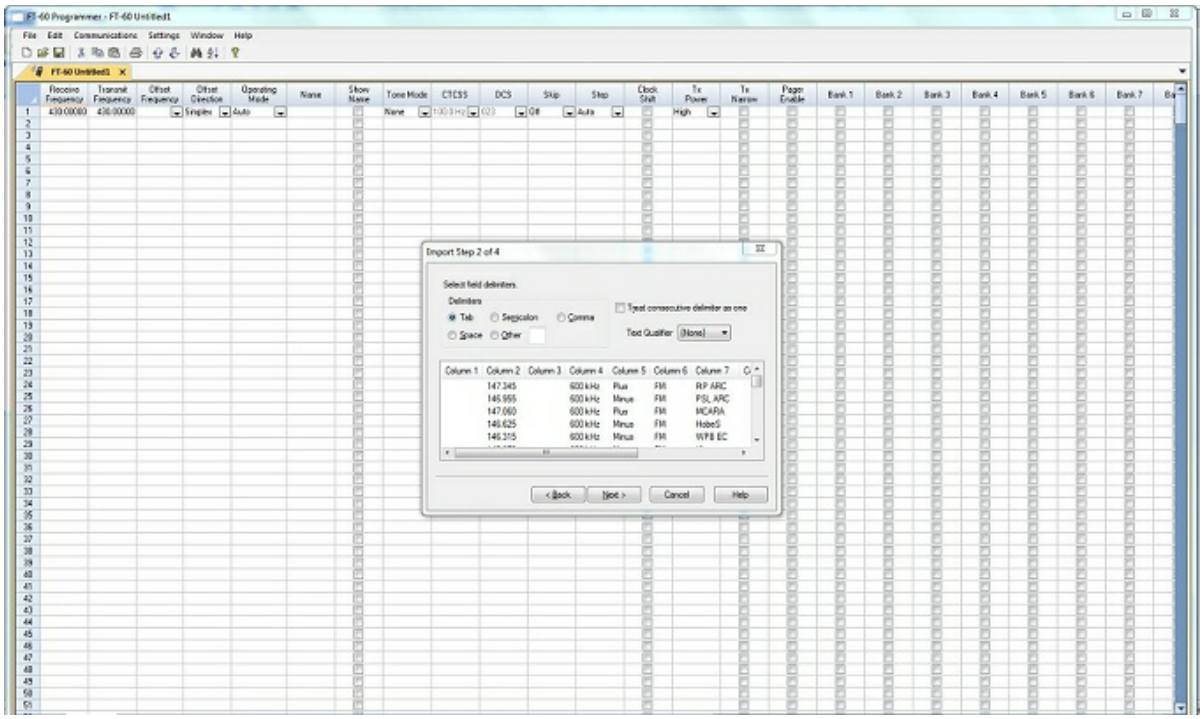
Note: The FT-60 is used here as an example. The process works the same for any RT Systems Version 4 programmer although column names may differ or not be available.



14.3 Step 3

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

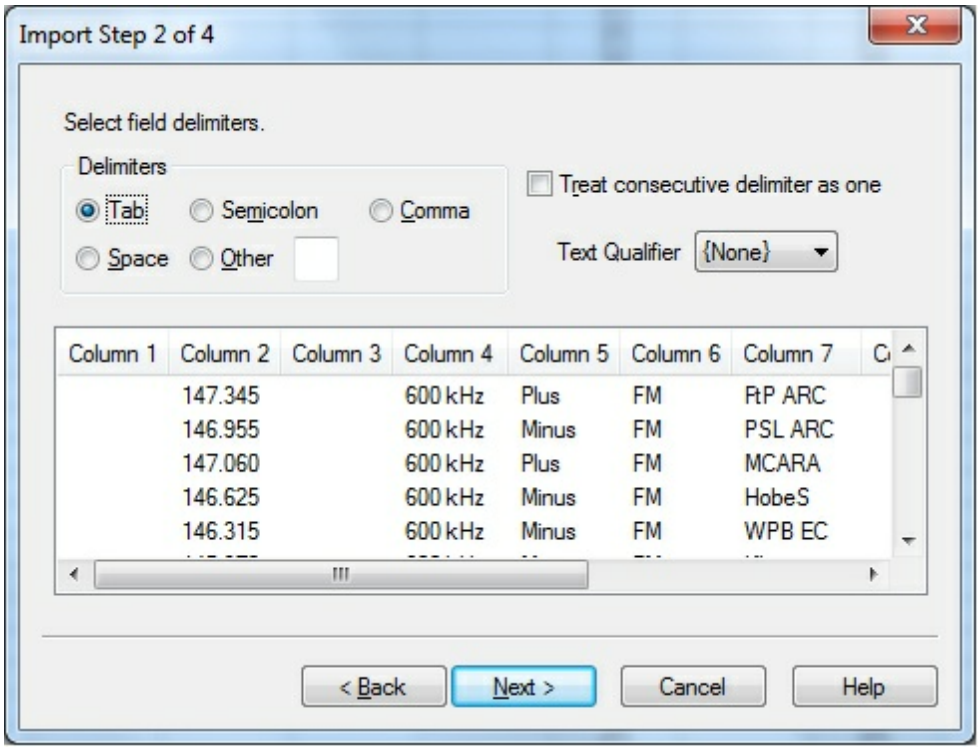
A window opens to complete the process.



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.

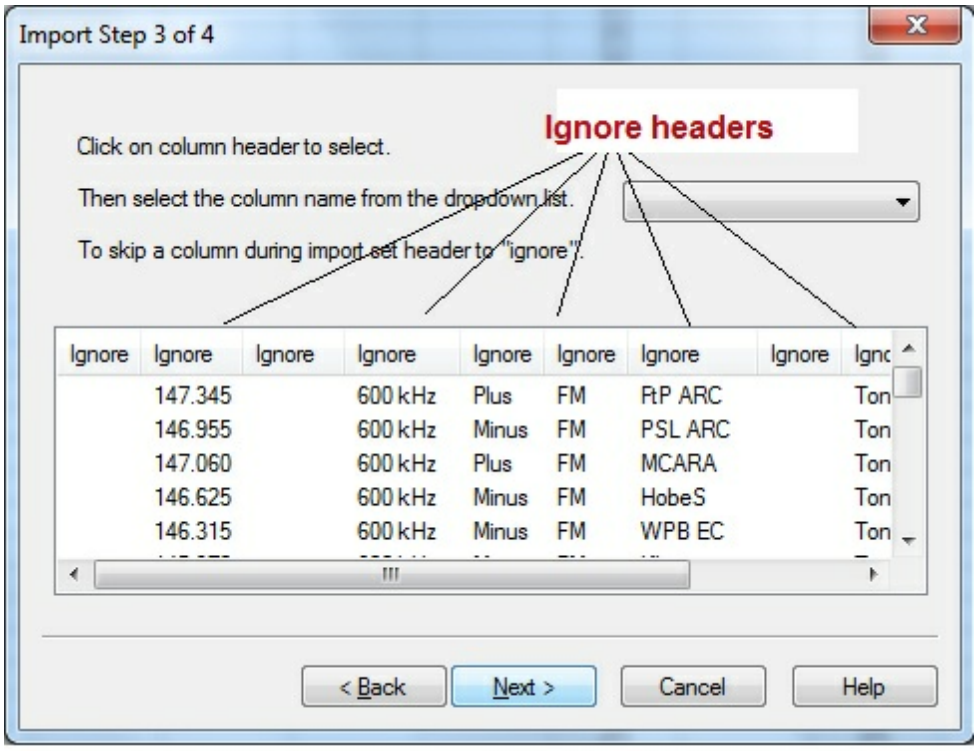


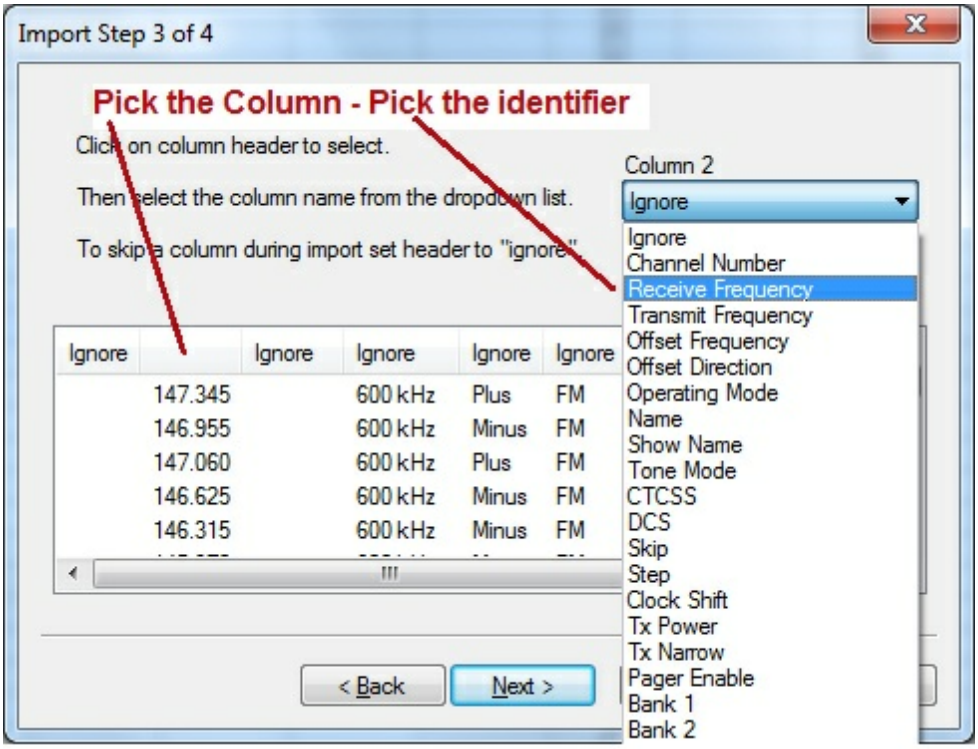
Click Next to continue.

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.

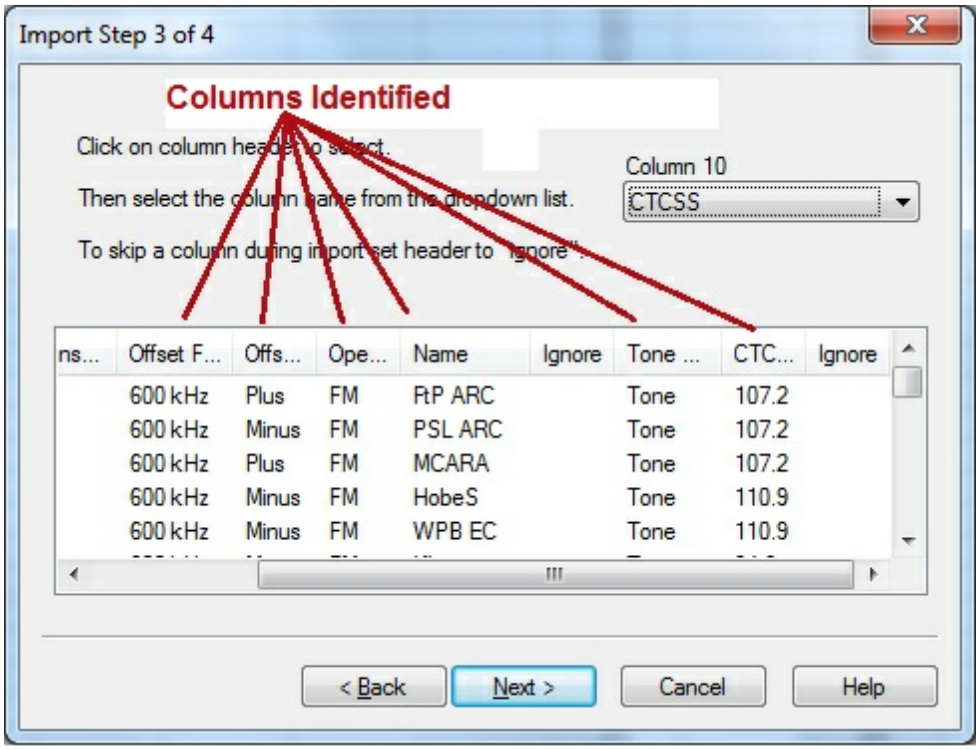
The programmer makes no assumptions and will set any non-matched column to "Ignore". The data in an ignored column will not be used in this process.





The column header changes to show your selection. Be sure to identify each of the

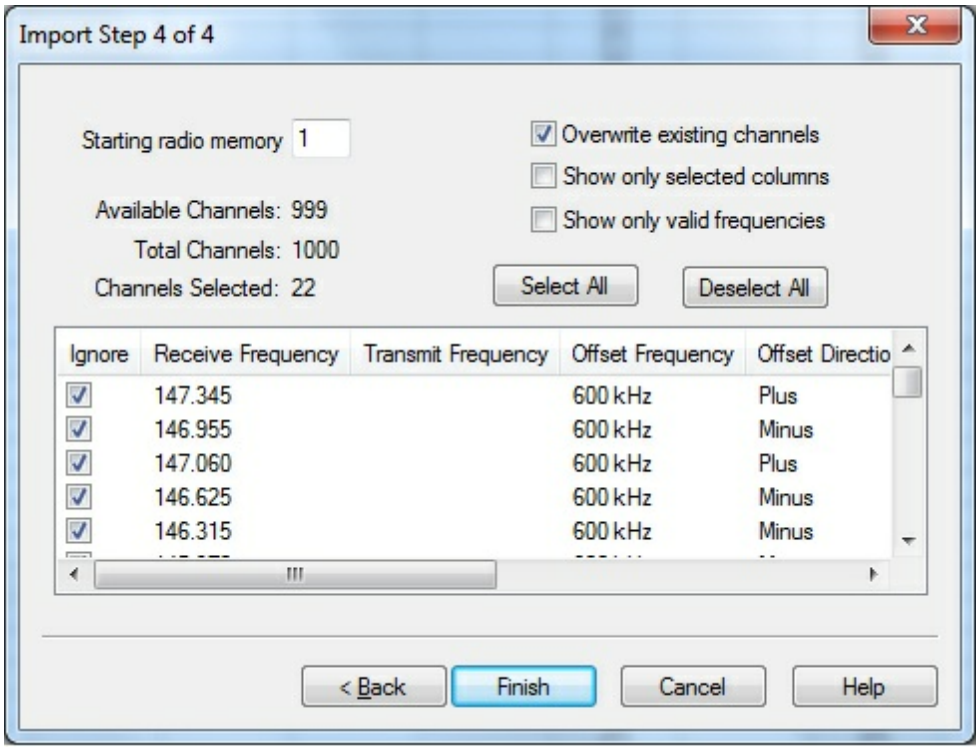
columns you want used. The data in an "ignored" column will be set to defaults in the resulting file. Your specifics will not be used.



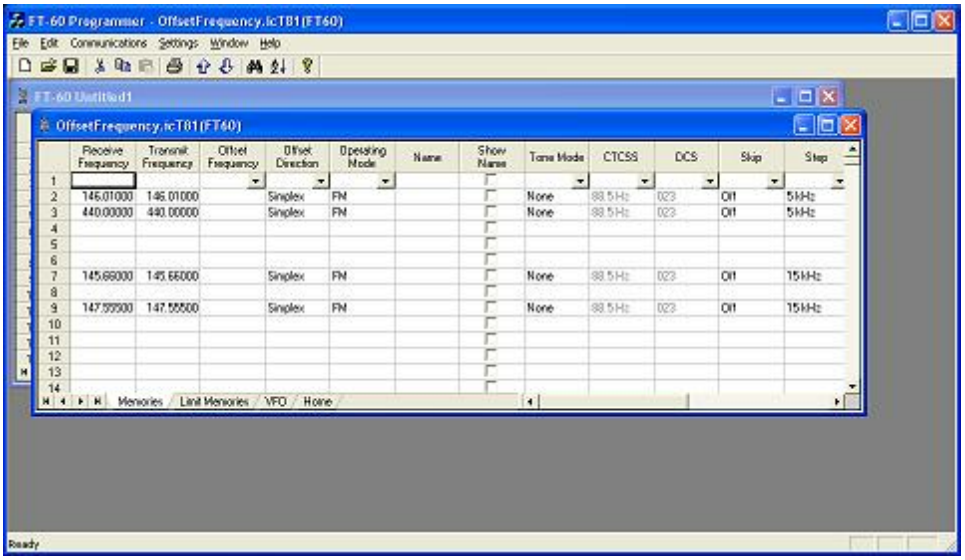
Click Next to continue.

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

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

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

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

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

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 lost saved, answer No. If you have made changes, answer Yes and proceed through the warnings again to save the file again.

Limitations for use of another commercial spreadsheet program include:

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

The Import File

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

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

- If the "Overwrite existing channels" option is checked: The information will

be inserted into the specific channel no matter what is in the file at that location now . While the channel numbers can help to organize the information being imported, it can result in data being overwritten in the process

- If the "Overwrite existing channels" option is unchecked: The information from the file being imported will be skipped if there is already information in the channel. The data in the existing radio file will not be overwritten.

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

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

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

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

This information can be omitted from the file.

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

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

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

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

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

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

Non-Standard Offsets

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

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

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

Offset Direction: The Offset Direction lets the Import process know whether to add

(plus) or subtract (minus) the Offset Frequency from the Receive Frequency when calculating the Transmit Frequency for the memory channel.

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

NOTE: Be sure to use Offset Direction if your file contains + and &endash; in this column. Using Offset Frequency for this column will result in all channels being imported as simplex.

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

Name: Enter an Alpha/Numeric tag (up to 8 characters) for the memory channel to provide an easy reminder of the function of a particular frequency. Not all radios have this available for each memory channel. Consult your Users' Manual for details.

Tone Mode: Use of the tone systems of the radio allows for silent monitoring until a call is received with a corresponding tone. Tone mode also allows access to repeaters that are made private with a PL tone. Most radios offer CTCSS (Continuous Tone Coded Squelch System) or DCS (Digital Coded Squelch) to be tailored to your particular needs. Consult your Users' Manual for details specific to your model.

Use of either of the tone systems requires two steps. Your import file will handle these steps in THREE (3) columns.

- Step 1: Turning on Tone Mode

  There are now so many different tone modes and combinations of them, we recommend that you use the designation just as it appears in the Programmer for your radio to identify the Tone Mode to be used. Examples would include but not be limited to:

  - None - Tone mode off
  - Tone - Encode
  - T Sql - Encode/Decode
  - DCS - DCS Tone
  - Others specific to your radio as detailed in the Tone Mode column of the programmer.

- Step 2: Setting the tone frequency (CTCSS) or selecting the code for the tone (DCS).

  Note: The CTCSS tone frequencies and the DCS tone codes should be stored in TWO separate columns in your file to be imported. The

import process does not separate. It will ignore incorrect values leaving the tone set incorrectly for the channel.

- **CTCSS Tone**: Enter one of the 50 tone frequencies in the format MHz decimal kHz with only one digit to the right of the decimal.

  This value must be entered exactly as shown in the chart in the Users Manual. A value that is not in the table will result in an incorrect tone value setting in the resulting Programming file.

  This value is set independently for each memory channel.

- **DCS Code**: Enter one of the 104 codes in a three digit format (This will appear as two digits if you editor does not show leading zeroes. Two digits are acceptable when the third is a leading zero).

  This value must be entered exactly as shown in the chart in the Users Manual.

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

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

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

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

Skip or 1 to mark the channel to be skipped.

PScan or 2 to mark the channel as Preferential Scan

Step: The frequency being used by the radio changes by the value of the step when tuning manually. This value is used by the radio in Memory Tune mode. This value is not critical in memory mode since the original memory channel frequency can be retrieved by exiting Memory Tune mode.

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

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

Enter On or 1 / Off or 0

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

Enter High / Med / Low

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

Comments: Enter an identifying comment up to 80 characters.

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

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

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

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

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

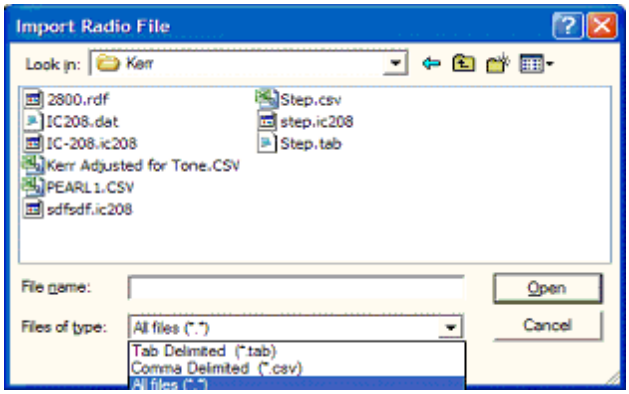
To save as a text file, select File | Save (in the spreadsheet program). In the Save file window, select a different file type from the selection at the bottom of the screen. Acceptable formats are those that specify Text (i.e., .cvs, or .txt file extension).

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 | Import.

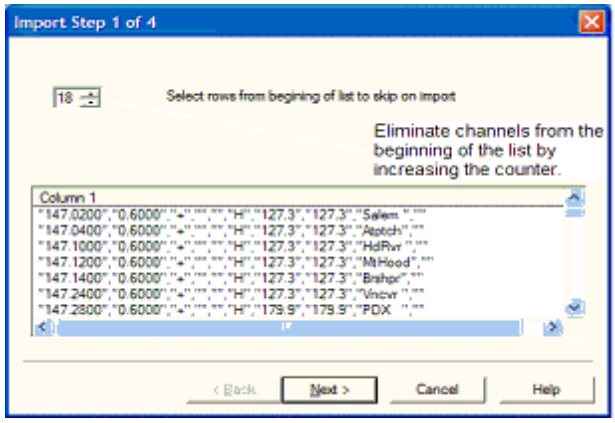
From the Import Radio File dialog that opens, select the file to be opened.



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.

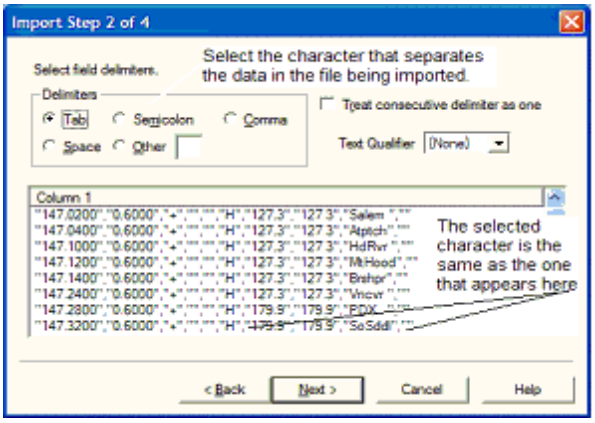
Actually, it is recommended that you leave the headers to help you more easily identify the information in a later step.

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.

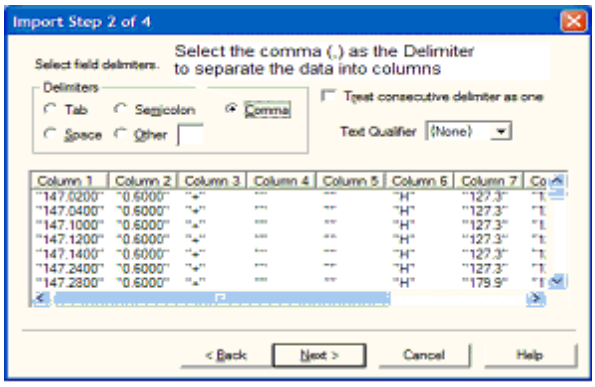
15.3 Import - Step 2

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

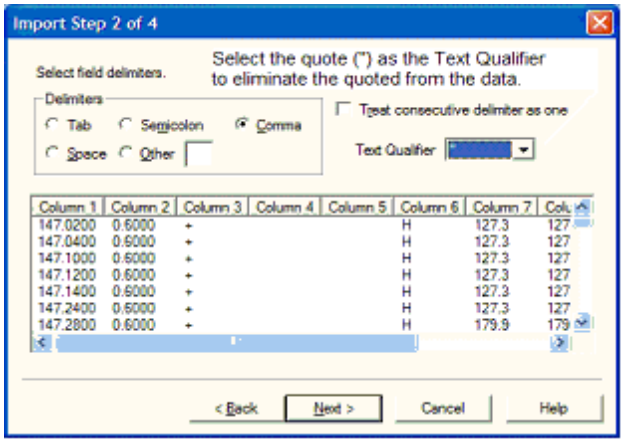


The data in the file to be imported is separated by tabs, semicolons, commas, space or other non-text characters. Select from the list at the top of the screen or enter the one you used.

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.

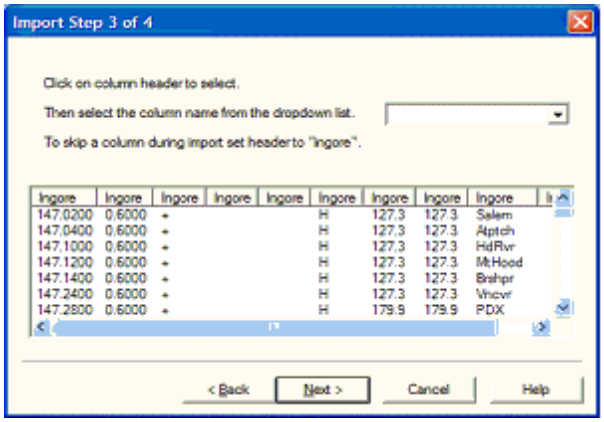


Click Next to continue.

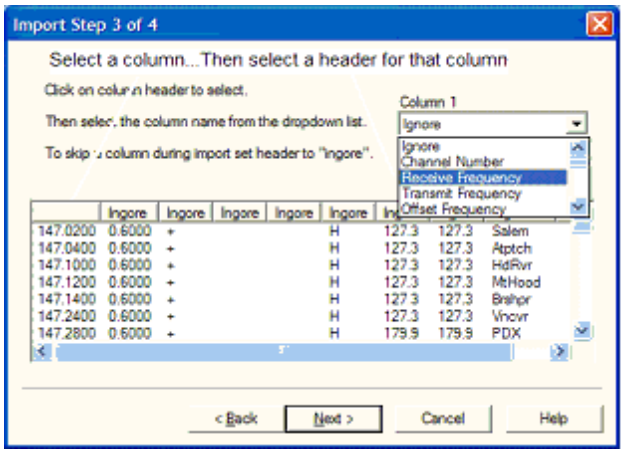
15.4 Import - Step 3

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

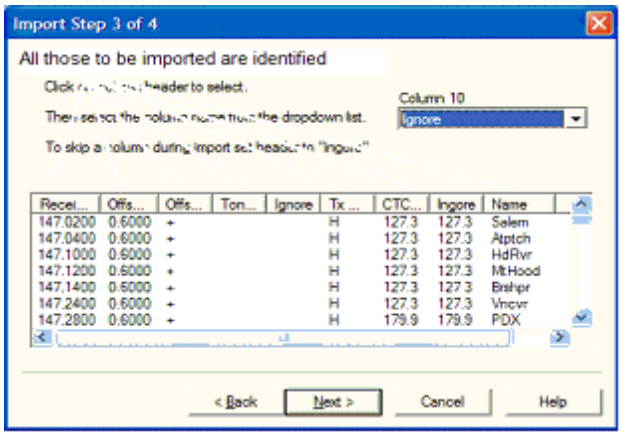
The Programmer will make an attempt to identify the information in your file. In this step of the process, you can make corrections to the assignments the Programmer has made and identify other columns that you want imported.



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.

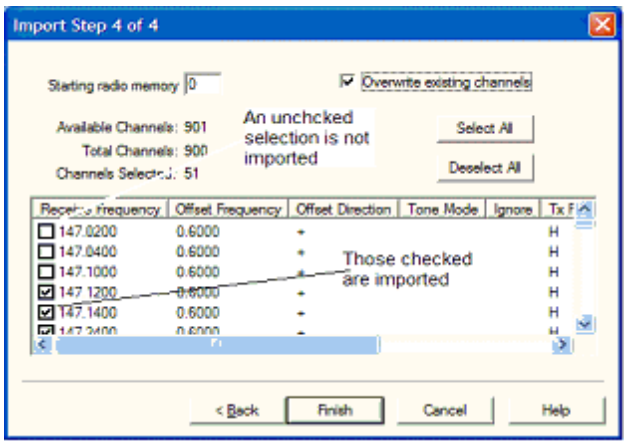


Click Next to continue.

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

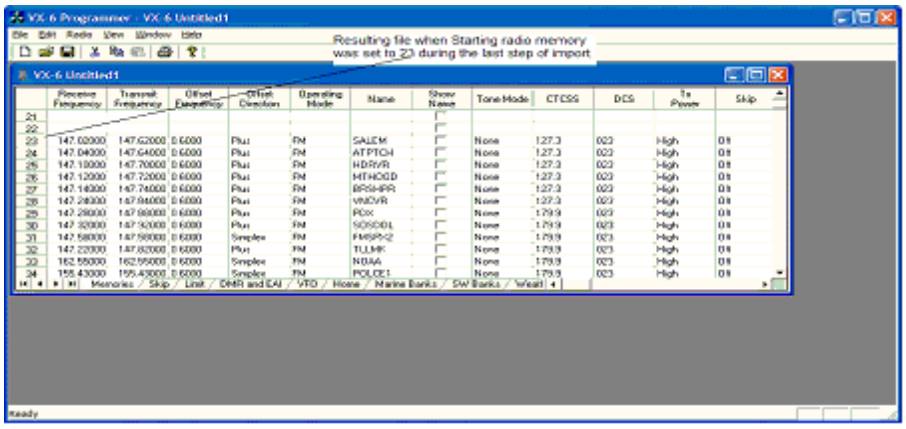
than at the beginning (i.e., At the end of a list that has the last channel of 21. Enter 22 in this box to begin with the next memory channel of that file).

- 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 1and 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 is someone asks you for a "csv" or Excel file.

You control two parts of export

What is exported from the file

Where the exported file is saved on your hard drive.

What is exported from the file

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

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

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

Where the exported file is saved on your hard drive

Select the section of the file to be exported.

Click File | Export

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

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

Part XVI

17 Troubleshooting

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

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

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

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

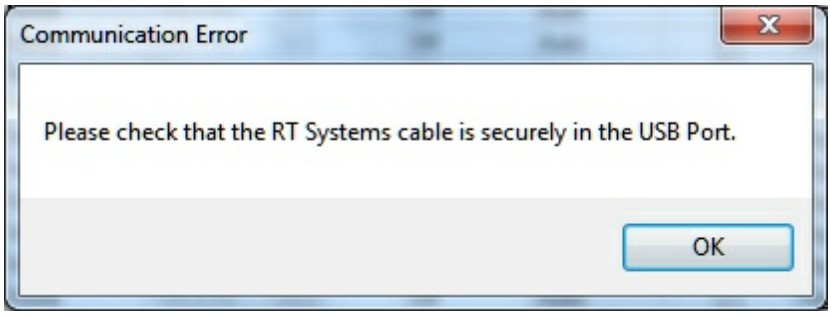
This message will be raised by the programmer when you select Communications | Get data from radio with a file open that is not a new (default) file into which no entries have been made.

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

Answer "yes" if you want to lose all the information that appears on the screen. Answer "no" if you don't want to lose several hours of work spent creating the file on the screen. To prevent loss of information, first do File | New to open a new (default) file. Then while looking at that file, do Communications | Get data from radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

Once you complete Communications | Get data from radio, return to your file a) select the tab at the top of the page; or b) select File | Open and open the file from the list presented (if you closed it some time during the process.)

Program cannot find cable



This message can appear when you are attempting to get data from the radio or send data to the radio. There can be several causes. The most common are:

The cable is not attached to the computer or you have the wrong programming cable attached. The cable for this radio is pictured in the ***Computer to radio cabling*** section of this help.

The communications process was accessed too quickly after the cable was attached. It can take some computers a minute or more to recognize the cable properly. Give the computer a little more time and try again.

The problem may lie in the electronics of the cable. If this is the first time you have attempted this process, contact RT Systems for assistance. This can be corrected easily in just a few minutes with the computer and an Internet connection. *Note: This can be corrected using a machine that has an Internet connection that you don't plan to use for the programming software. The software for the radio does not have to be installed to complete the correction.*

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

Interference from other cables attached

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

The process looks at each USB device attached. Other items attached, especially other programming cables, may cause the programmer to wrongly identify the cable it

must use for a specific radio.

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

Interference from other applications

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

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

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

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

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

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

Defective Cable

Cables from RT Systems are 100% tested prior to packaging. Even with this level of control, occasionally a cable fails in the field. Contact RT Systems tech support if to determine if the cable is at fault and a replacement is needed.

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

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

USB Driver Installation

On some systems running Windows 2000 or early versions of XP, the drivers for the cable will need to be installed manually. This is a normal thing in the USB world and is easily done.
We are *RT Systems* will be happy to help you through this process.

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

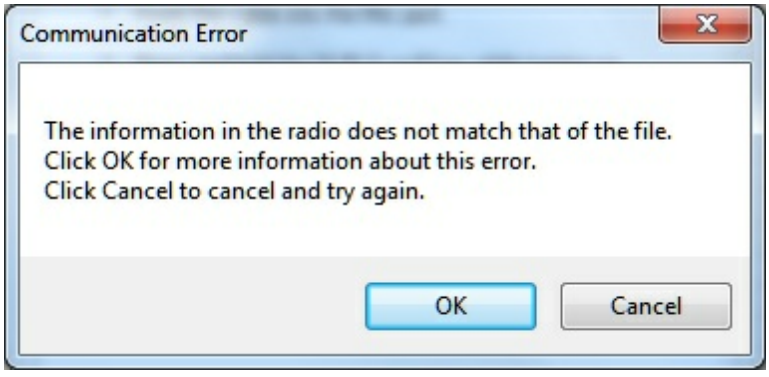
The drivers have been installed on your machine in the following directory.

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

Run the New Hardware Wizard twice. The first time use ftdibus.ini in that directory. The second time use ftdiport.ini in that same directory.

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

Modified Radio



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

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

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

Cabling to properly address the radio

The Version 4 RT Systems Programmers work only with the

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

No other USB cable will be recognized by the programmer.

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

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

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

At the time of this writing (2009), none of the Yaesu VHF/UHF mobile radios used the USB-62 cable with its 8-pin plug. We have seen this tried. It will not work. The mobile radios that program through the data jack require a 6-pin mini din connection on the

cable. Check the cabling specified in the help for the radio that you're programming to be sure that you're using the right one to address the radio.

Icom specific issue for Clone mode

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

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

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

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

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

> The keys on the face of the radio are locked. Turn the radio off and back on in normal mode to check for the Lock symbol on the screen. Unlock the keys and try again.
>
> You have pressed the designated key too long or not long enough. Try again until you get the feel for the process.

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

Many Yaesu radios have a key sequence that starts Clone mode without having to select that option from a startup menu: the radio simply comes on in Clone mode.

With CLONE displayed on the face of the radio, a button is pressed to begin communications.

If the radio comes on displaying CLONE; but then is unresponsive when the button is pressed to begin (i.e., the screen does not change from Clone) check these two common causes:

First, be sure you are using the correct cabling for the radio being programmed. If an adapter was included with the kit, use it.

Check that the keys are not locked. To check, turn the radio off. Turn it back on in normal mode and check for the Lock symbol on the screen. Unlock the keys from the face of the radio and try again.

Windows Version Compatibility

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

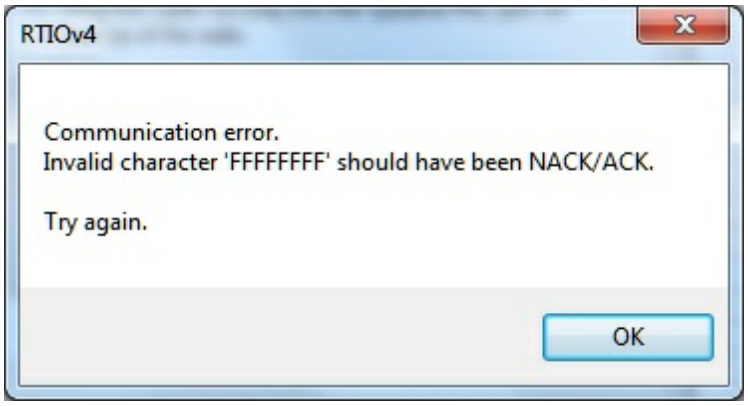
RT Systems no longer supports use of the programmers on Windows 98, Windows 98SE, Windows 2000, or Windows ME.

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

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

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

NACK/ACK Error



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

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

Cancel all Communications screens that are open in the programmer.

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

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

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

Click OK

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

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

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.

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.

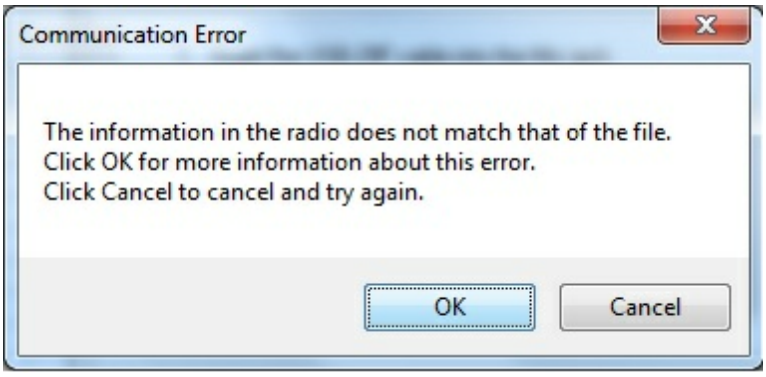
For this particular frequency to work in your particular radio, it is necessary that the radio have a 6.25 kHz step available in the Step option of the Set menu.

Part

19 Hardware Error Troubleshooting

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

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



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

Try this First

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

1. Create a new file (press Ctrl M on the keyboard or select File | New from the menu at the top of the screen). This protects the file that you are trying to send to the radio.

2. Select Communications | Get data from Radio from the menu at the top of the screen.

3. When this is completed successfully, return to your file (click to tab at the top of the screen that displays the filename or select File | Open to reopen your file.)

4. Select Communications | Send data to Radio. Be careful to follow these steps shown on this screen. Generally, they are different from the Get Data from radio steps.

Radio Issues

"Error" is displayed on the radio.

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

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

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

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

The radio never goes to CLONE.

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

1. The keys on the radio may be locked. Turn the radio off then back on in normal mode to check for a lock symbol on the screen. If the keys are locked, unlock them. Once unlocked, power off the radio and begin the Communications process again.
2. The key specified is "touchy" and responds if it is touched just the right way.

This has been the case on several of the mobile radios. Try again with a shorter or longer touch on the button. When you get that touch just right, the radio will respond.

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

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

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

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

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

Radio is not on at the time of data transfer.

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

General Issue

Followed the Steps Incorrectly or executed the wrong process.

Get data from the radio:

1. Go to “Communications” in the top menu.
2. Click “Get Data from Radio”.
3. Read and follow each step. (Remember, the keystrokes are different for each

radio. They are detailed for a particular radio on the Get Data from radio screen. The trick is to follow each step... one at a time.)

Send data to the radio:

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

Cable Issues

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

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

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

Check that the cable is securely in the USB Port.

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

Check that the cable is plugged into the radio securely.

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

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

Part

20 Contact Us

RT Systems, Inc.
510 Compton Street, Suite 105
Broomfield, CO 80020

Technical support	303-586-6510
Fax	770-216-1836
Technical Support Hours	Monday through Friday 10:30AM until 6:00 PM (Eastern Time) 9:30AM until 5:00 PM (Central Time) 8:30AM until 4:00 PM (Mountain Time) 7:30AM until 3:00 PM (Pacific Time) Other times by appointment. Call or e-mail to make arrangements.
Web Page	www.rtsystemsinc.com Program updates Answers to frequently asked questions can be reviewed under FAQs on our site.
E-mail	techsupport@rtsystemsinc.com Should you choose to send a message via e-mail, be sure to include at the very least the following details: • The radio with which you use the Programmer • The version number of the Programming software

(found in the Programmer under Help | About)

Based on the information given, we will respond as quickly as possible.

Be sure that rtsystemsinc.com is set as an acceptable address for your e-mail program. Or watch for your response in your spam or junk mail folder.

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