TMD710 V4 Programmer Help

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TMD710 V4 Programmer Help

by RT Systems, Inc.

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

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

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

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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

I

1 What Is the Radio Programmer

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

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

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

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

Hardware Requirements

Hardware requirements for the Version 4 Programmers include
- A PC running Microsoft Windows: XP, Vista (32 or 64 bit), Windows 7 (32 or 64 bit) or Windows 8 (full version). The programmer will NOT work on Windows 98, ME, NT or 2000.

- The correct RT Systems computer interface cable as shown in the *Radio to Computer Cabling* chapter under *Radio / Computer Data Transfer* section of this help.

Part II
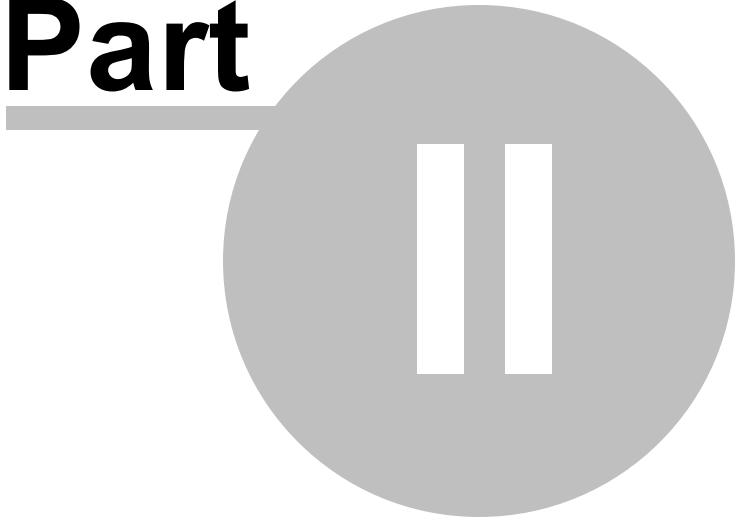
2 Getting Started

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

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

Creating the file

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

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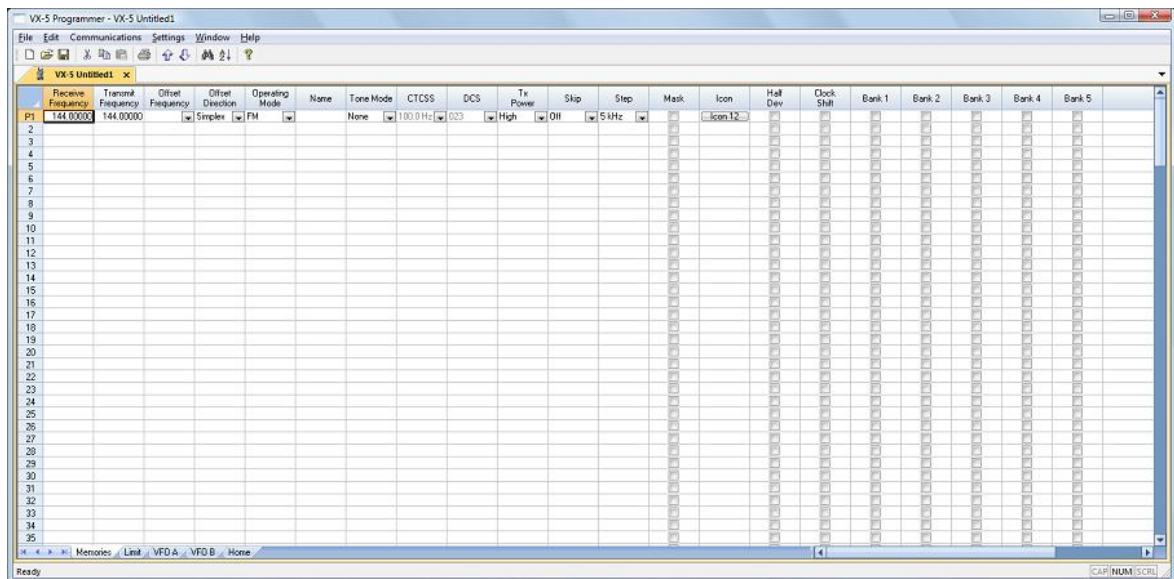
Note: The default file contains memory channel information on several of the screens. This information is needed by the radio to "fill spaces in its little brain". You can change the default entries that you see; but anything that is completed in the default file cannot be left blank. The Programmer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

Enter a receive frequency

No need to erase.
Just click in the cell and type
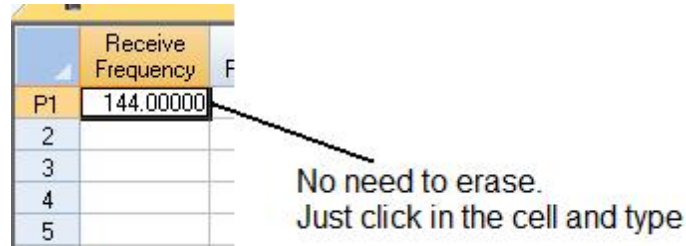
In this example we'll enter 147.240 MHz with standard offset, a Name of Local, and a tone of 100hz.

- Type one four seven period two four zero into the receive frequency column.

- Press Enter.

- The program completes much of the channel information with defaults. The Transmit frequency, Offset frequency, Offset Direction and Operating Mode are completed. This satisfies the "Standard offset" requirement from the original information.
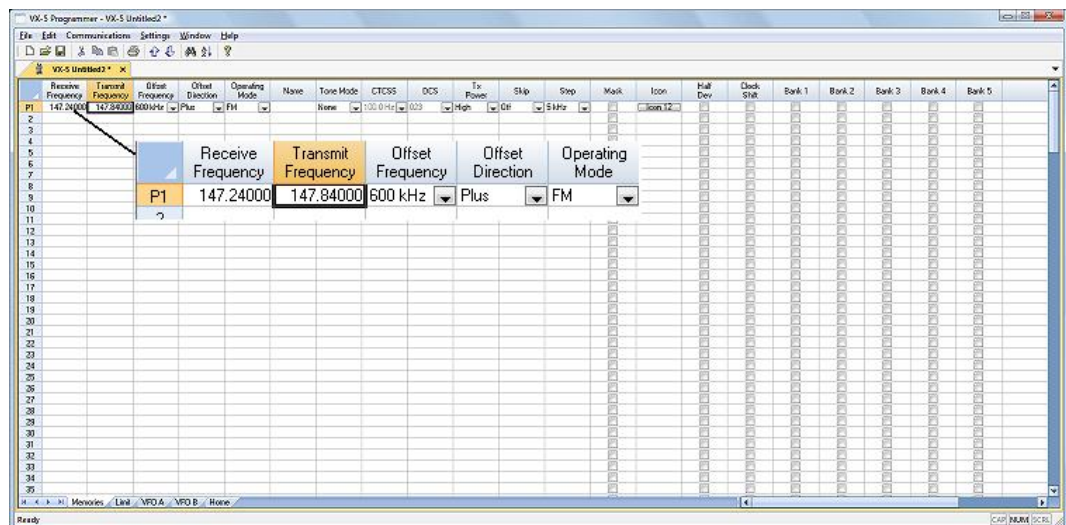
- Press tab or use your mouse to select the Name cell. Type LOCAL. You choose upper or lower case on many radios. On others, only upper case

letters are allowed. The programmer will help you. If a letter or symbol will not work on the radio, you will not be able to enter it here.
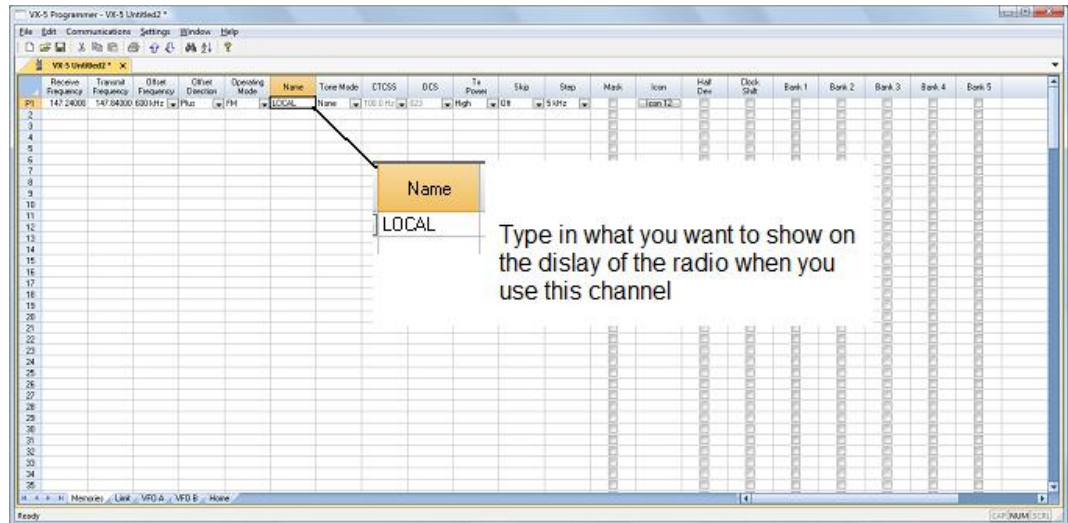
- Press tab to move to the Tone Mode cell. Setting up the tone of 100hz requires TW steps (just as it would if you were doing this from the face of the radio). Turn on Tone Mode AND then set the 100hz tone.
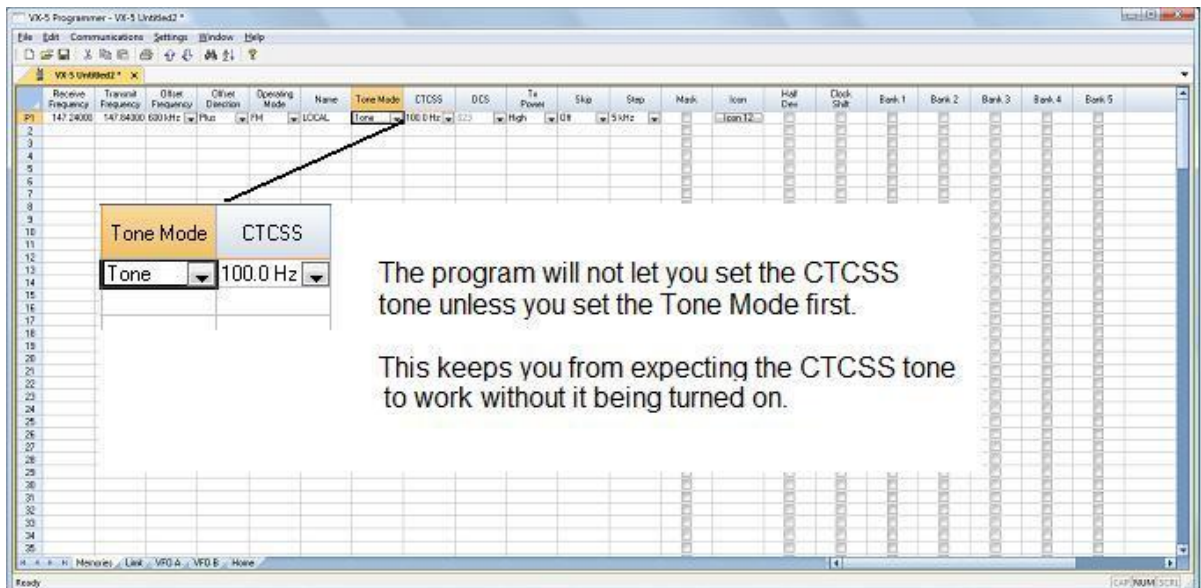
- This channel is ready to use.
- The other columns are set only if you need them for better radio performance. See Regular Memory Channels in this help and the User's Manual for the radio for details on what these features do and the settings for them.

There is more to this radio than just memory channels. So, there is more to the programmer. Tabs at the bottom of the main screen give you access to Limit memories, Home channels, Hypermemories, VFO, Marine and Shortwave channels, that apply to your radio.
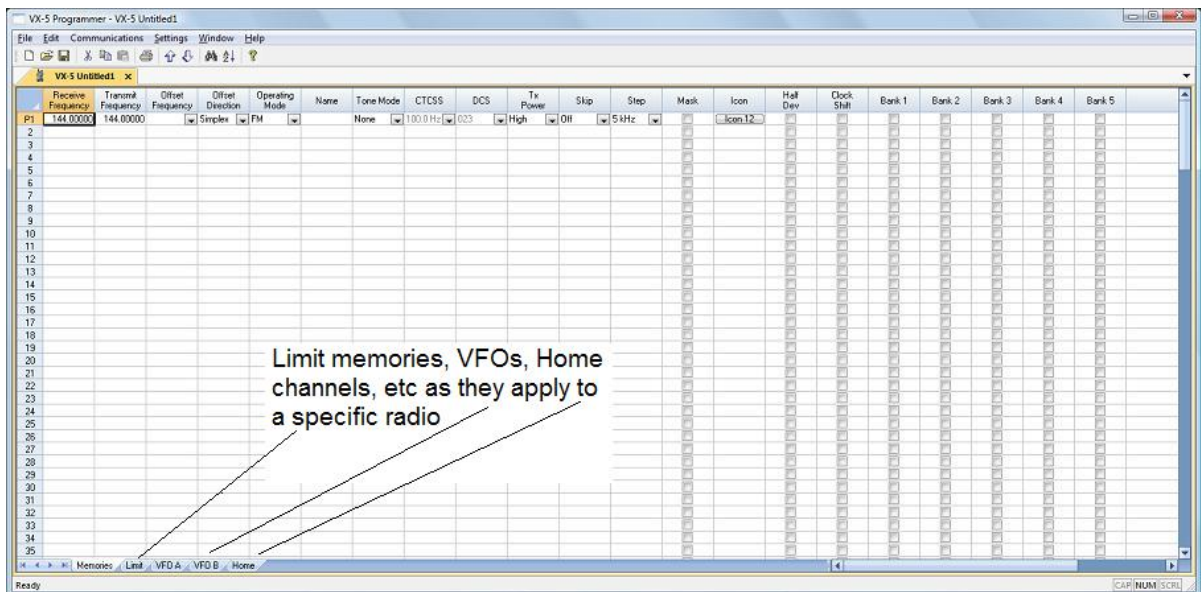
Click a tab. A screen opens with the details that can be entered for these radio functions. You can work with the radio without ever using these tabs. There are default values on these screens that never need to be changed. Make changes for your special activities when you plan to use one of these functions 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
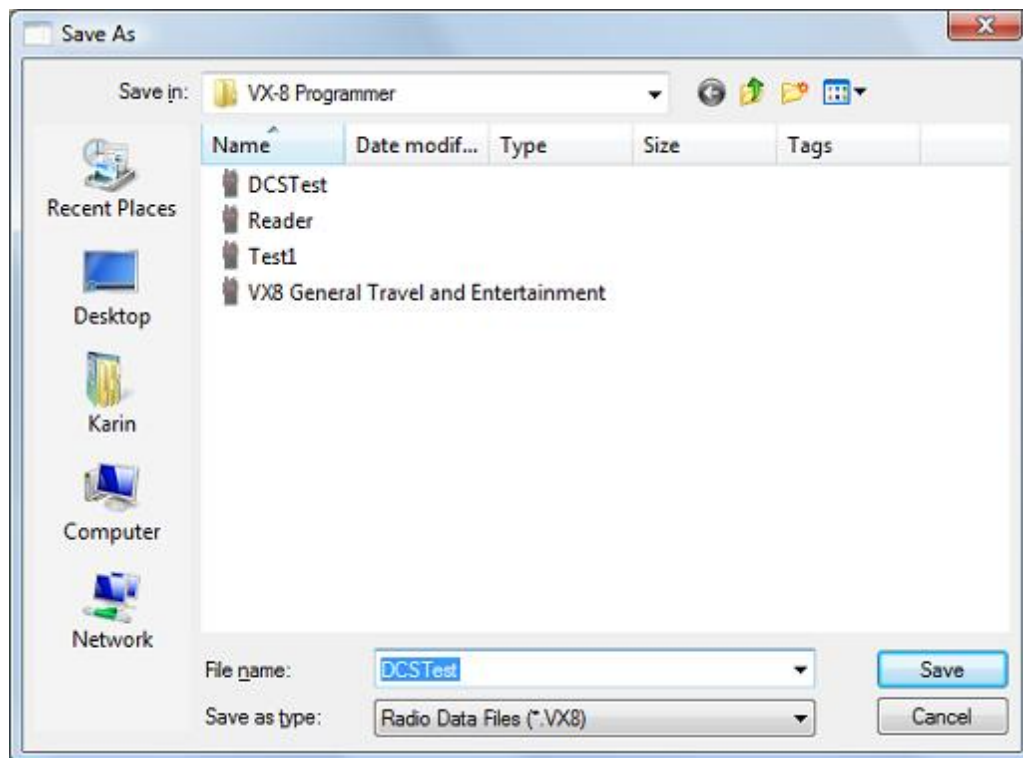
Enter a filename. You can be as descriptive as you want. 256 characters including spaces, upper and lower letters, and much more to describe this file. The programmer will enter the extension so it can find the file later.

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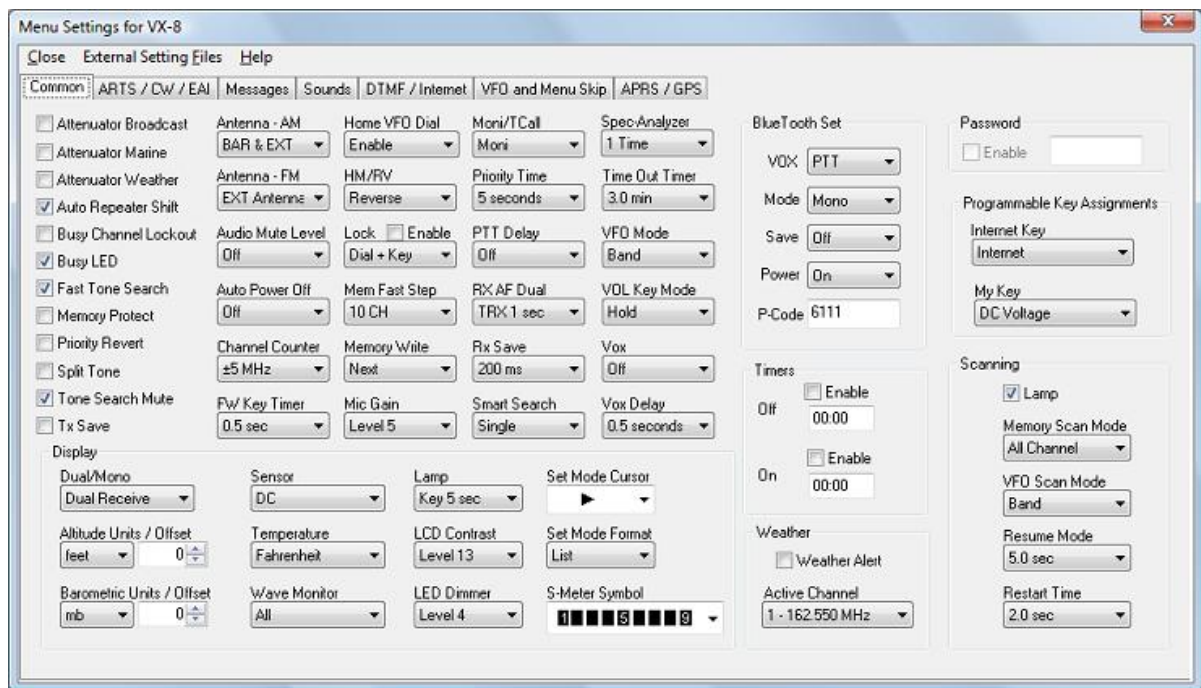
Set the options as you need them to get the performance you want from your radio. The settings shown for your radio will correspond to your radio's features.

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.
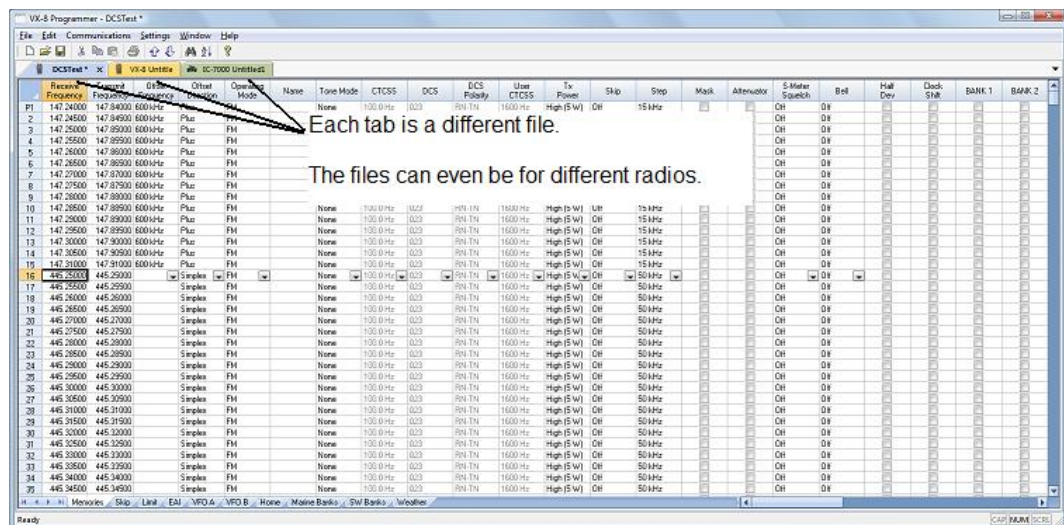
Second: Communications | Send data to

- 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, Windows 7 (32 or 64 bit), or Windows 8 (full version). The Version 4 *RT Systems'* software will not work

on Windows 98, 2000, ME, or NT.

- Version 4 - An open USB port or the RTS-03 USB to serial adapter to work with an original *RT Systems* 9-pin serial cable.

  Note: The Version 4 programmers will not recognize any other cable or USB adapter. They will not work through a serial port.
- The correct RT Systems computer interface cable as shown in the **Radio to Computer Cabling** section of this help.

Part

III
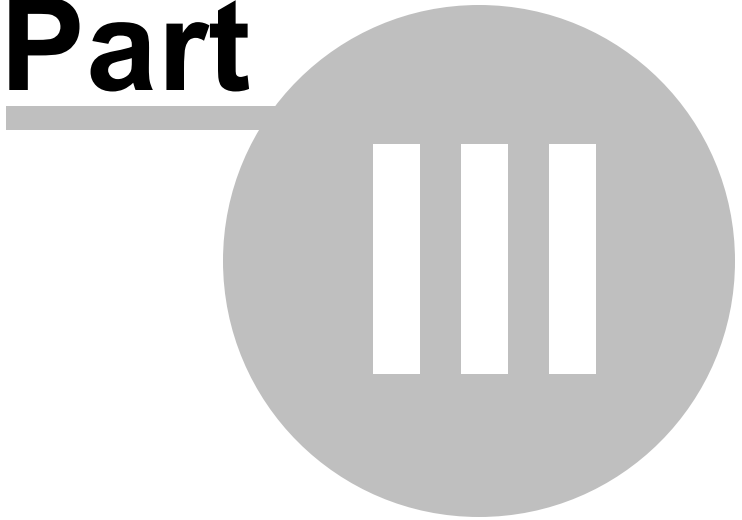
3   Using the Programmer - Overview

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 IV

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
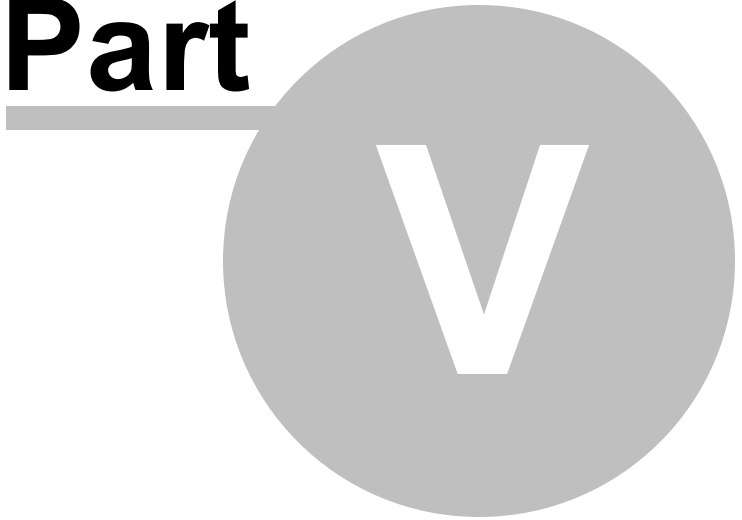
5   Easy Editing in the Grid

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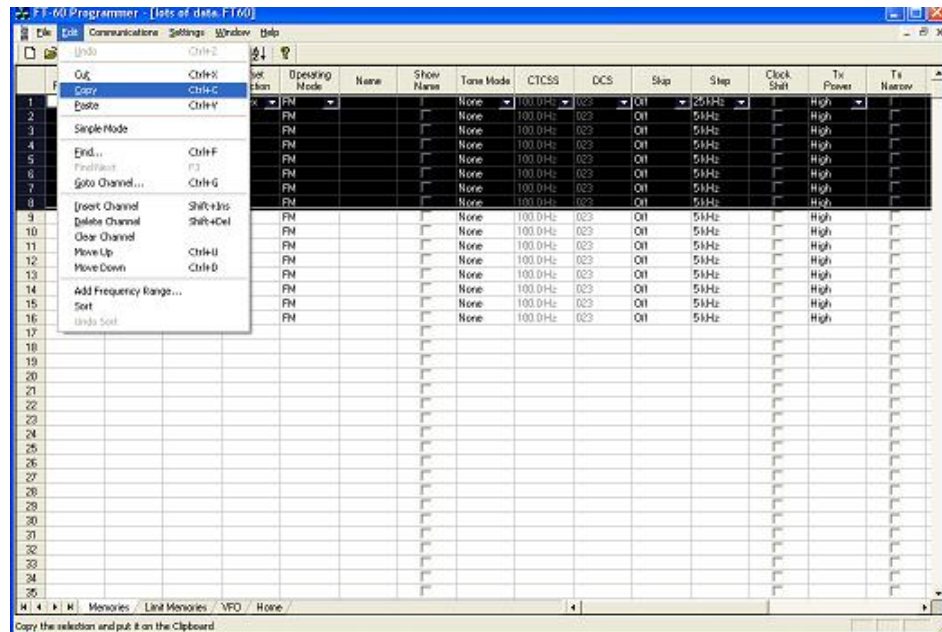
It will appear that nothing has happened. The program in conjunction with built in commands of the operating system of the computer has copied the data. It is waiting for you to Paste it where you want it.

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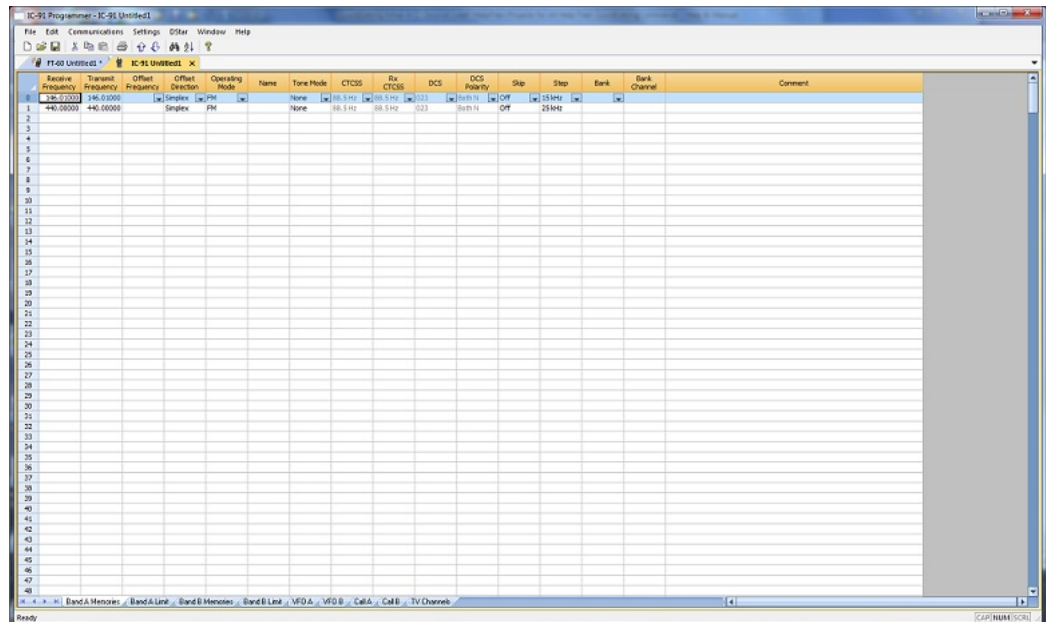
From the menu at the top of the screen, use your mouse to left click on Edit. From the menu that appears, use the mouse to left click on Paste.

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.
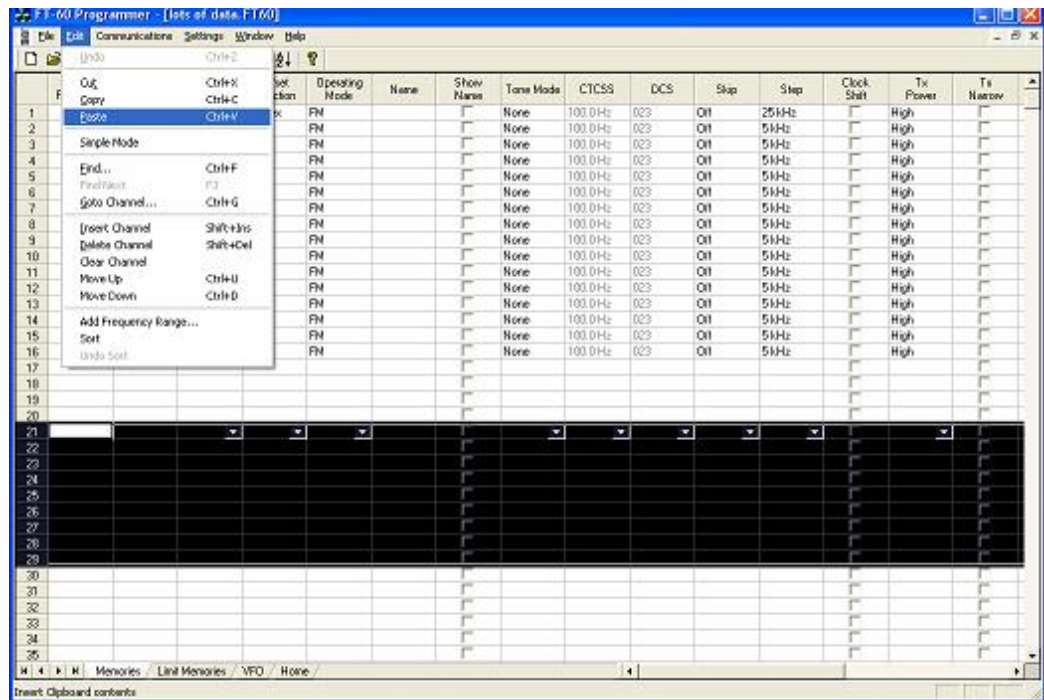
The information is pasted into the selected channels.
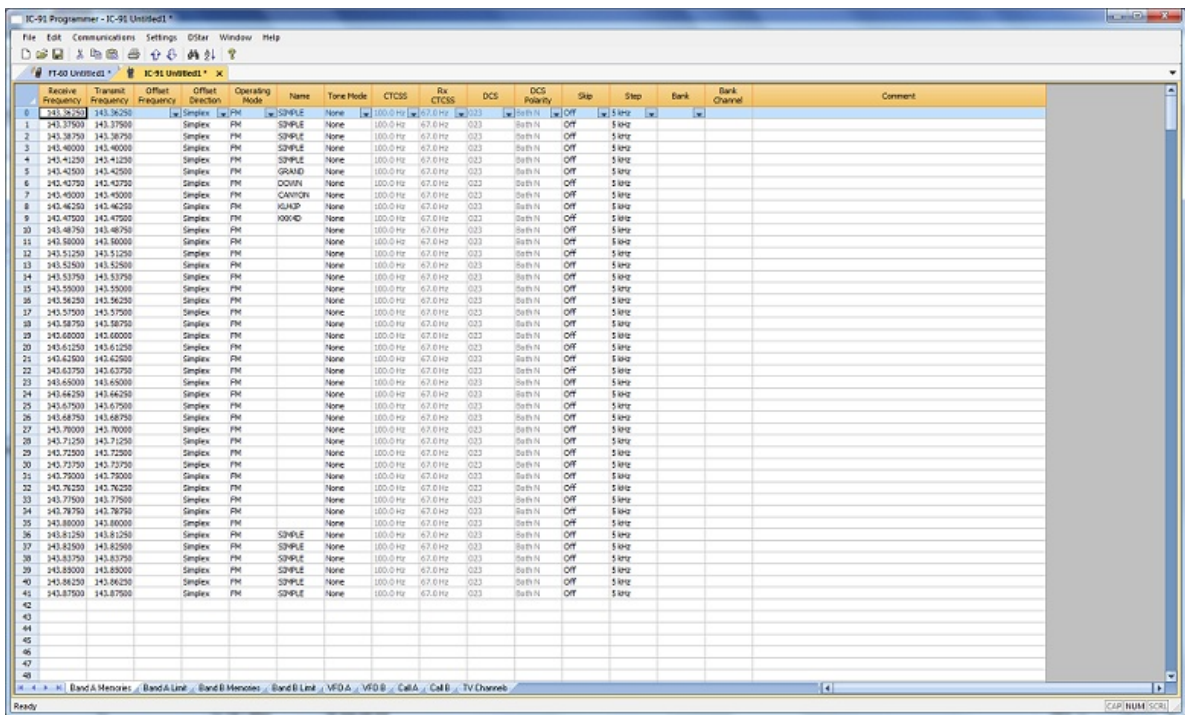
You can make this process even easier by splitting the screen into two parts. Select Window New Vertical Tab Group for this result.

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.
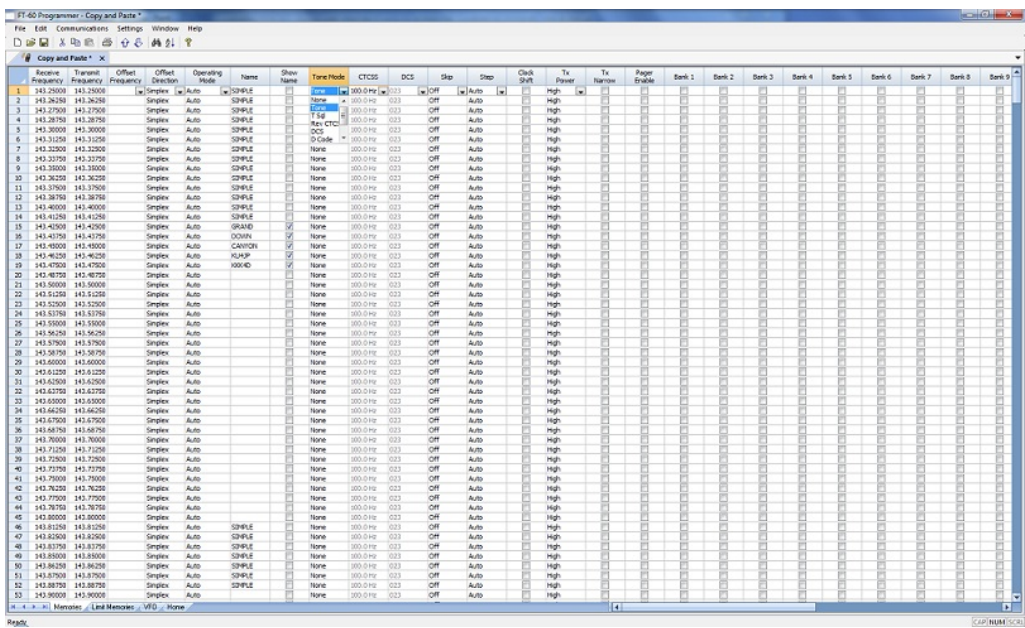
Once the selection is made, the focus will move to the next field. Click back into the Tone Mode field that displays the correct value. When you move back into the field you can copy the information if the field is highlighted with a ring around its border or if the text within is shaded (indicating 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.
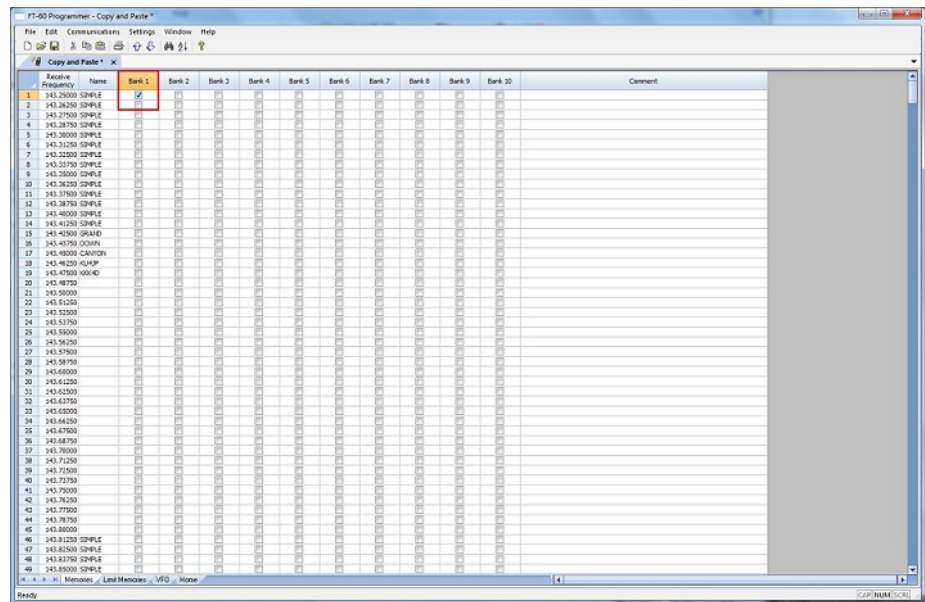
At this point you CANNOT copy this field. Press Tab or Enter to move out of the field.

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.
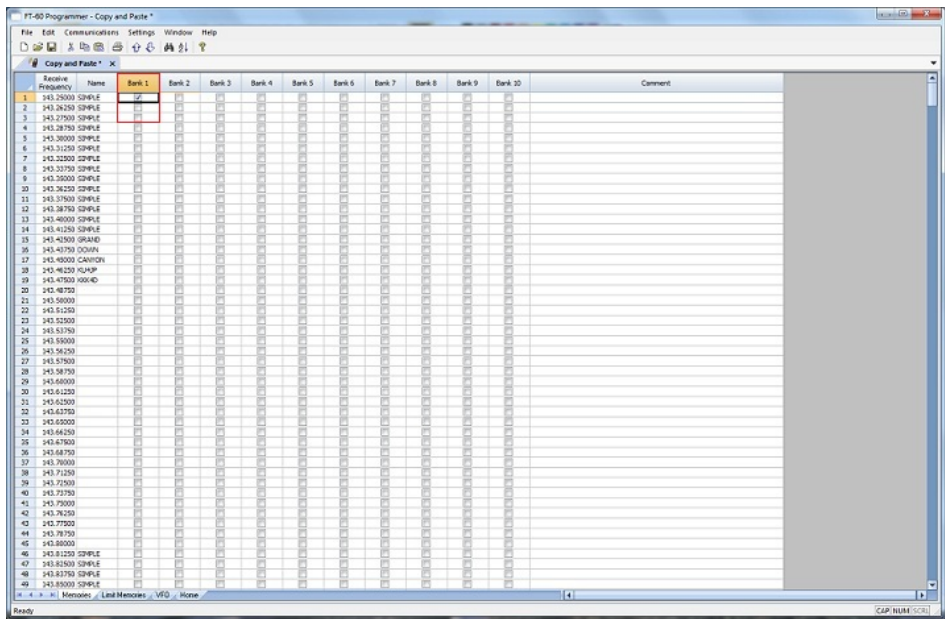
Press and Hold the Shift key while pressing the Down Arrow key to select the rows that will be set with this information.
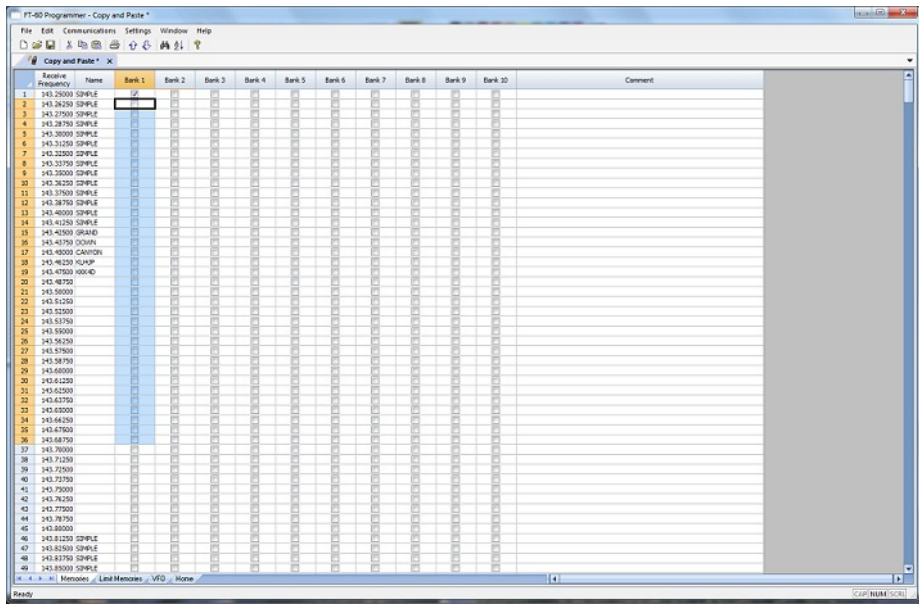
Press Ctrl V to paste the selecting into the fields.
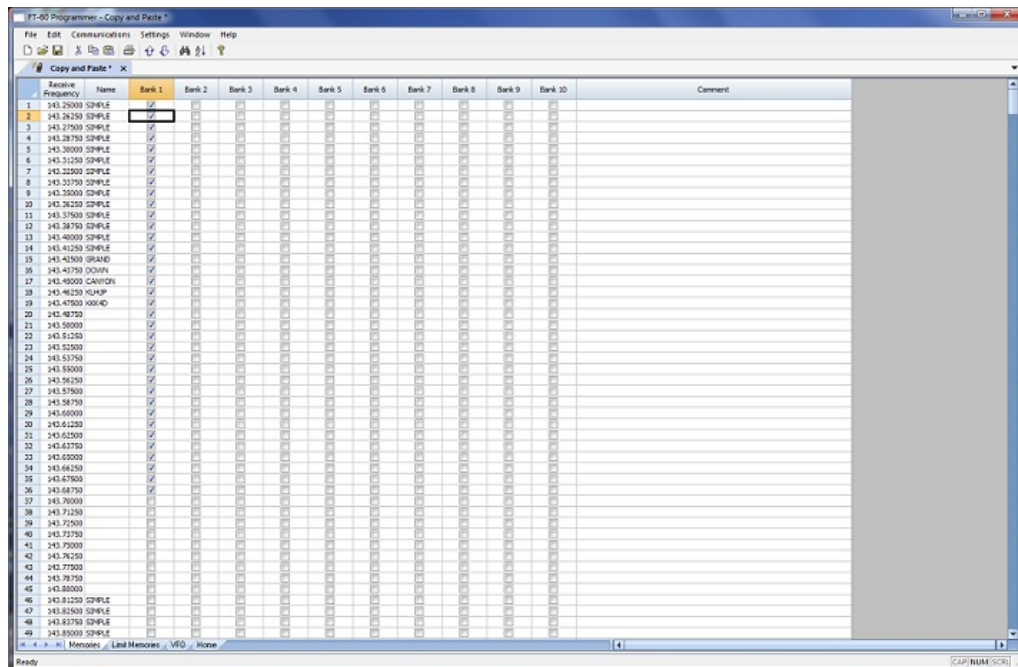
Simple Mode: Hides several of the columns for each memory channel. Those remaining are the ones that are most needed for any memory channel. Those remaining include:

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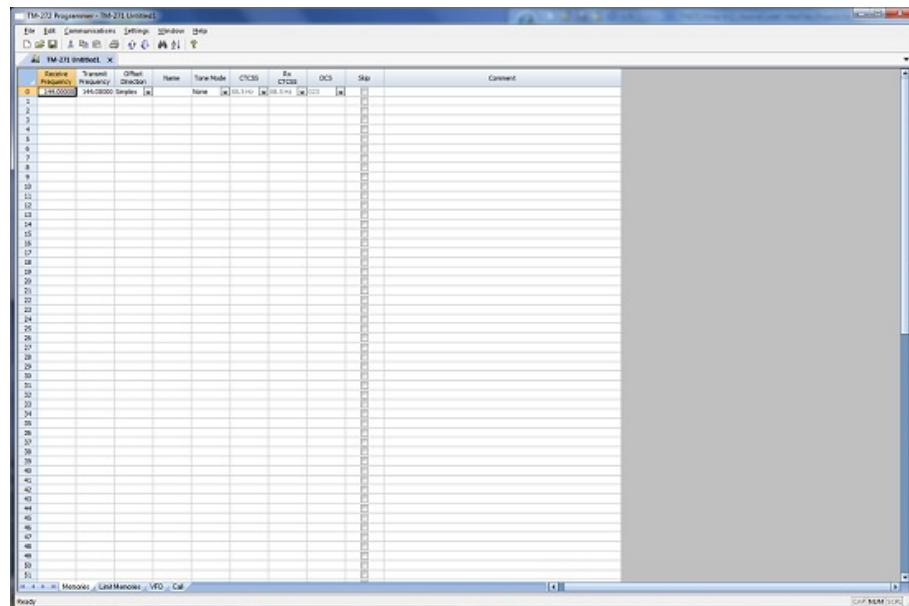
Note: While in Simple Mode, you cannot access the Preferences screen (Settings | Preferences). The columns that are hidden in Simple mode are predetermined by the programmer.

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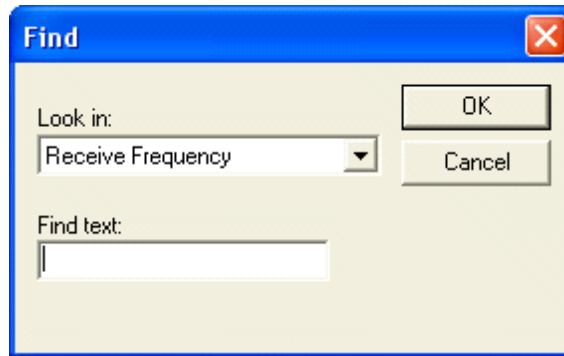
Select the field to be searched (i.e., Receive frequency, Transmit frequency, etc.)

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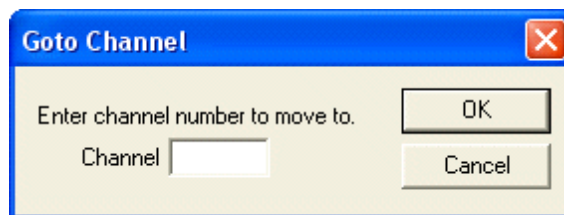
Insert Channel (Shift+Ins) - Inserts a blank row without deleting information present. The current information and all that follows is "pushed-down" to make room. The number of rows inserted will equal the number of rows selected. This is a great way to slip channel information into a list of channels.

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.

Add Frequency List

Starting Frequency [ ] MHz

Number of channels [1] ▲▼

Frequency Step [5 kHz ▼]

[OK]   [Cancel]

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.
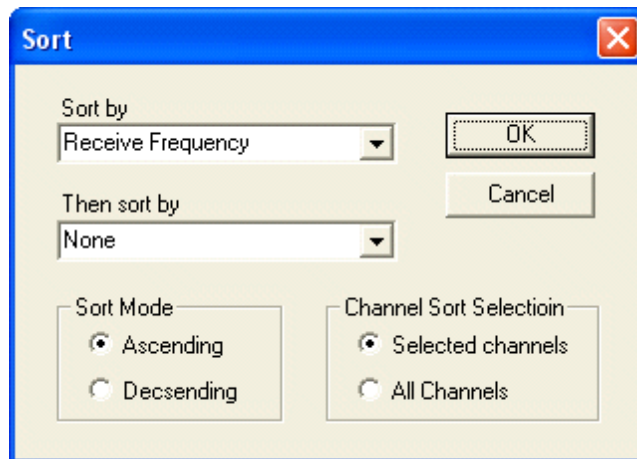
Sort by - Select a column for the initial sort.

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

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

Grid Display
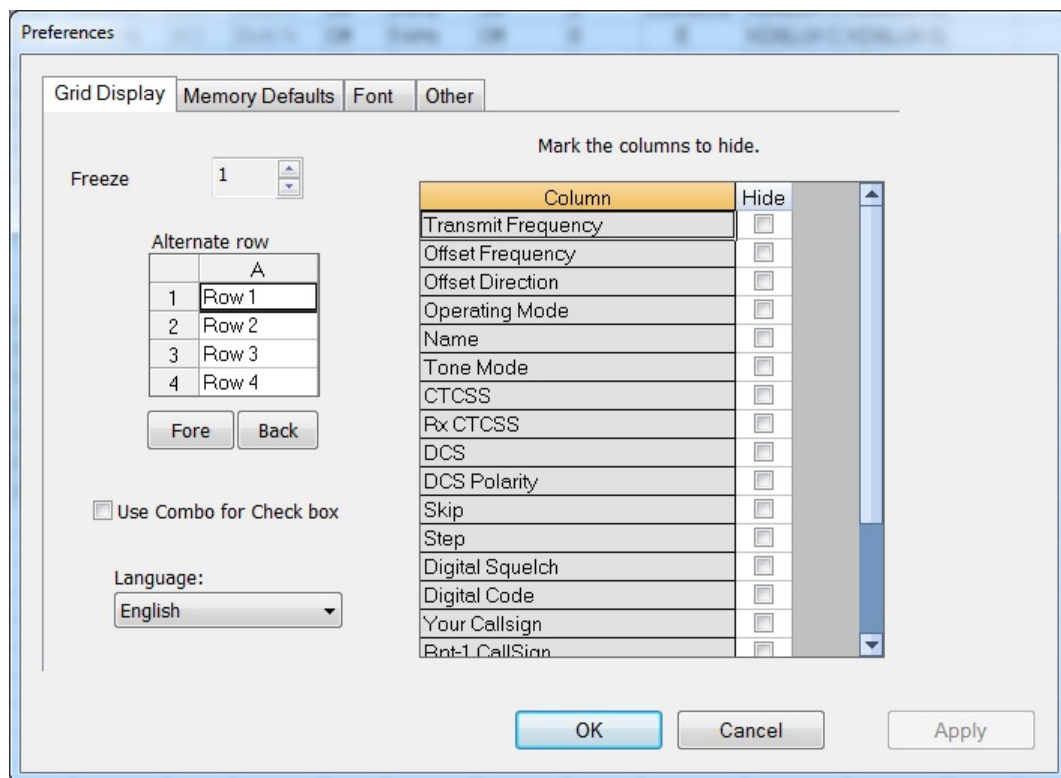
Freeze Columns

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

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

Hidden Columns (Mark the columns to hide)

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

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

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

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

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

Alternate row colors

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

Use Combo for Check box

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

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

Language

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

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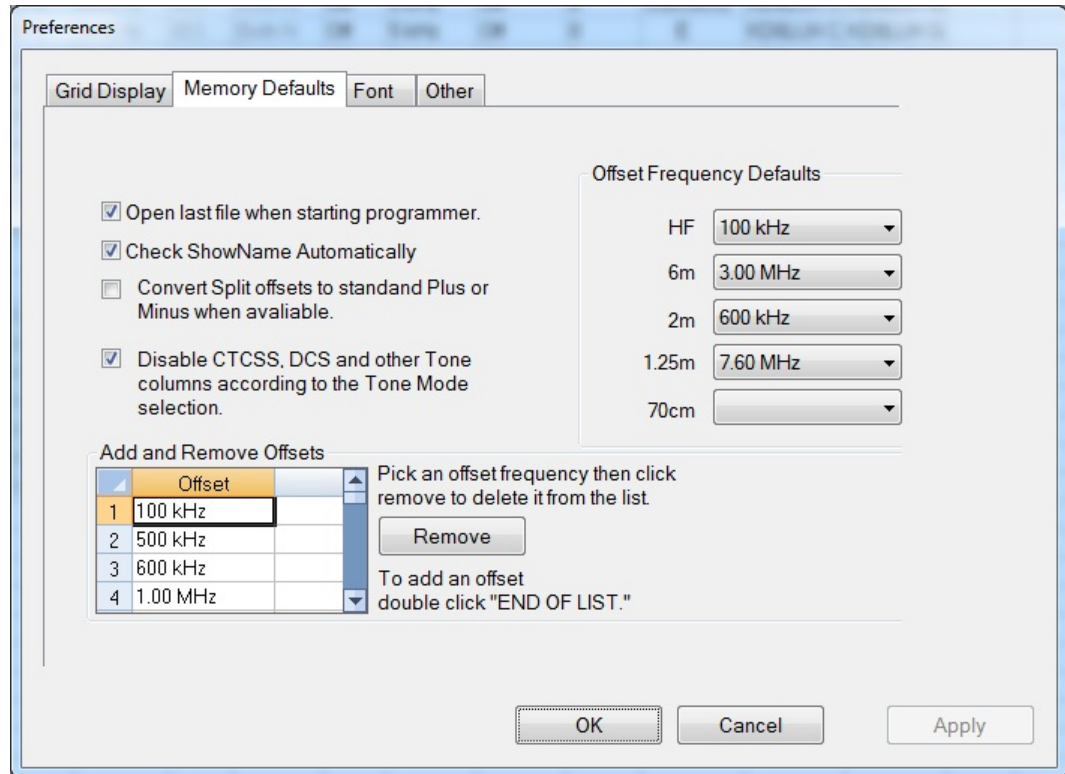
Memory Defaults let you set options that control the defaults of the memory channels. If you are having to change a certain cell repeatedly for the data you enter, you might want to make that change permanent here.

Open last file when starting programmer

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

Check ShowName Automatically

By default, the programmer checks the ShowName column as soon as you enter the first letter of an alpha/numeric tag for the channel. By choice, you can have the programmer not check this box automatically. When

unchecked, the name will not be displayed on the radio. This options affects programmers that use a ShowName column. Not all do since many handle show name as a global setting rather than in each memory channel.

Convert Split offsets to standard Plus or Minus when available

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

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

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

Add and Remove Offsets

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

Offset Frequency Defaults

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

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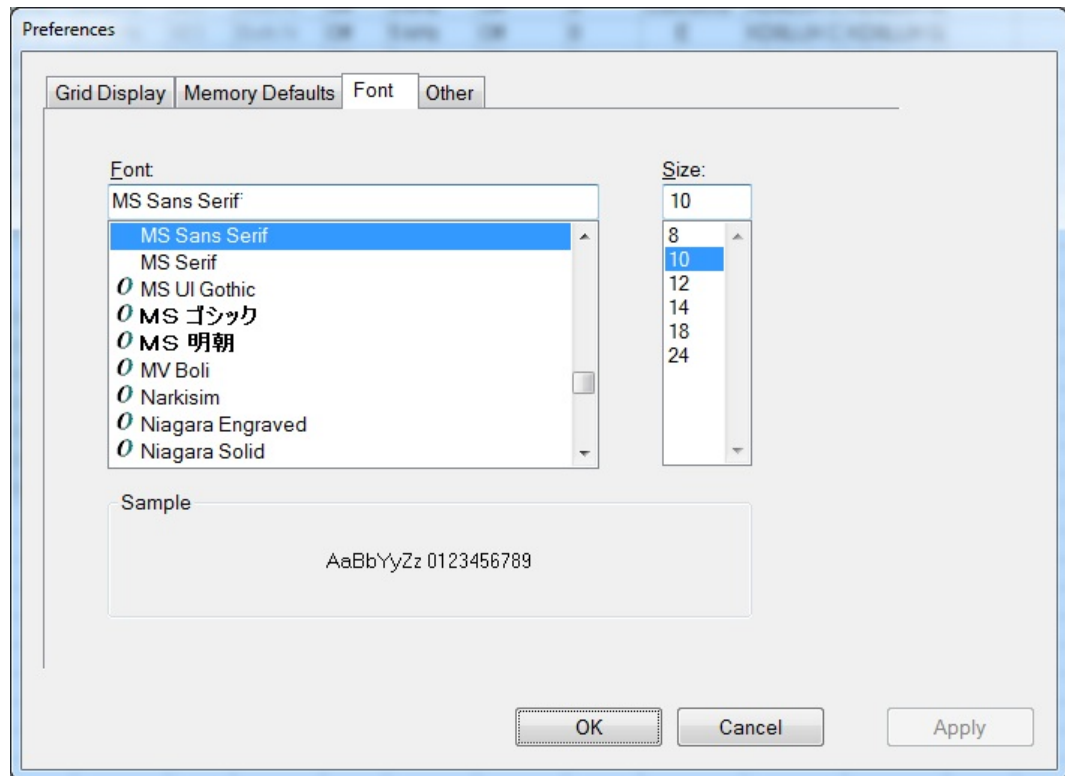
New to the Version 4.5 programmers is the selection of font and size to control display of headers, messages and item identifiers in the programmer. Select any font and size available on your system to make the programmer easier to use.

Other
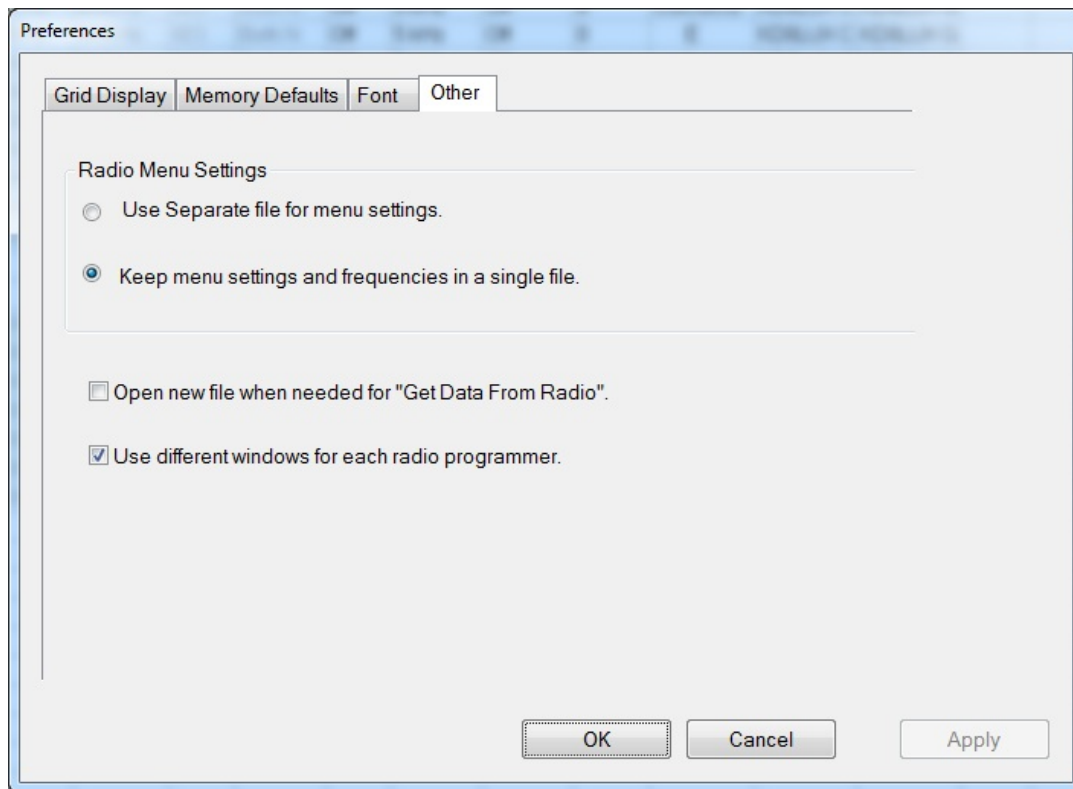
Radio Menu settings

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

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

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

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

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

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

Use different windows for each radio programmer

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

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

Part VII
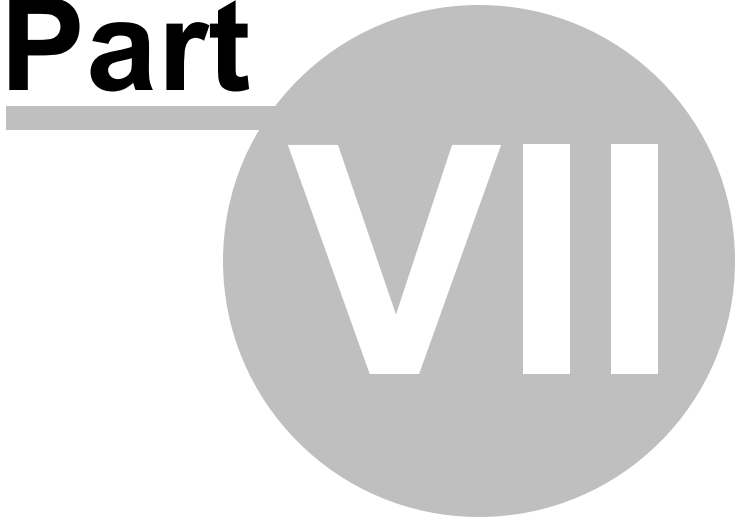
7 Split Screen for Multiple Files

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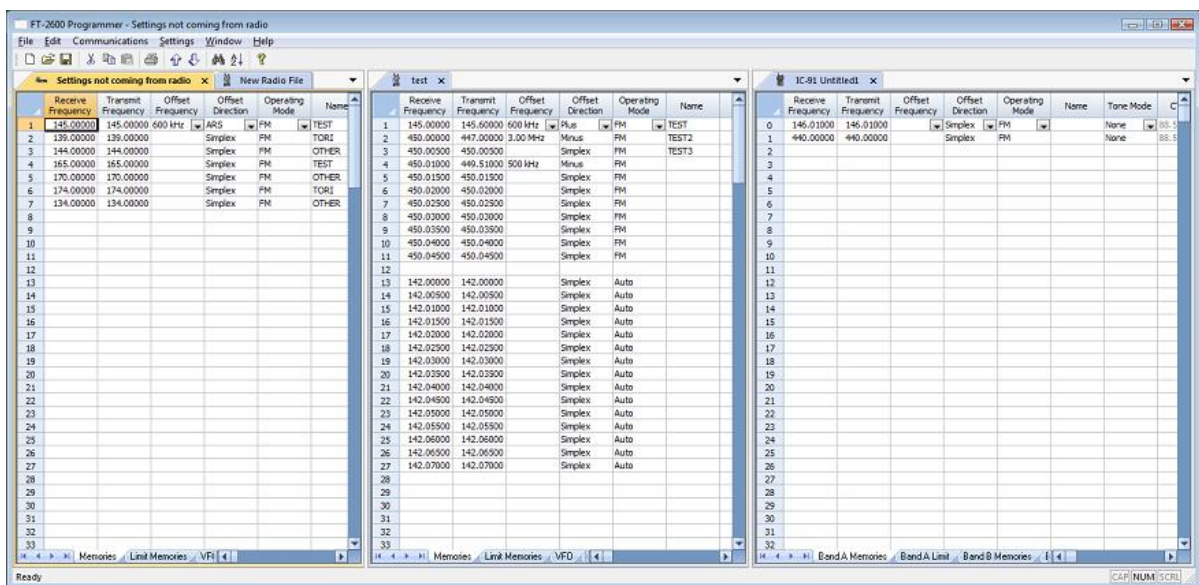
Open the files

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

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

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

A horizontal split is also possible.
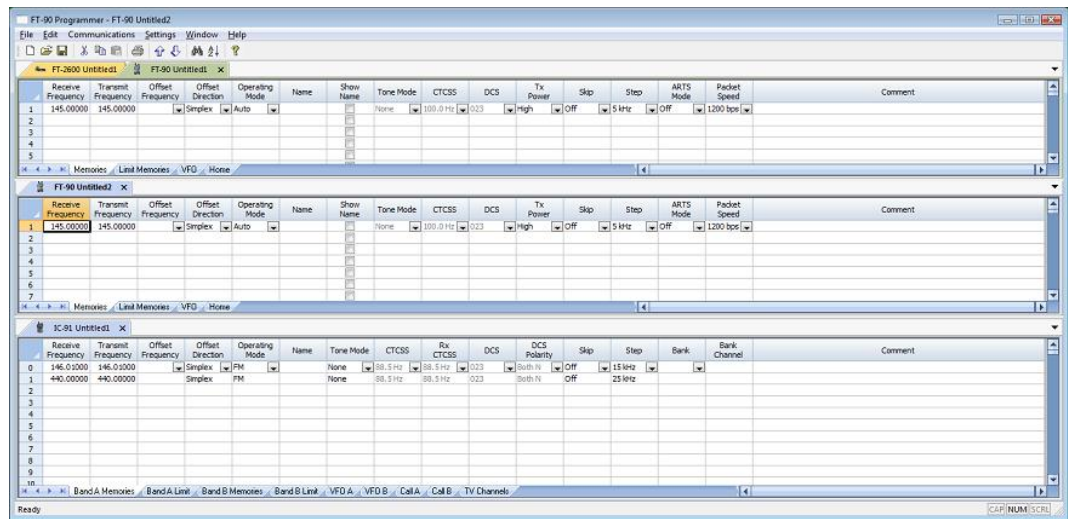
Open the files

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

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

To work with three as shown above, 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 VIII

8   Menu Item Cross Reference

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

Organizing the menu item settings in the TM-D710 and TM-V71 was especially challenging since there are menu items that are universal to the radio and others that can be set differently in each Programmed Memory. In the Programmer these settings are organized to make it easy for you to tell the difference as you customize the settings.

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 | Main Settings tab | Password

- Click on Settings in the menu at the top of the screen

- Select Radio Menu Settings from the menu that opens

- Select the Main Settings tab

- The option, Password, is on that screen

This section is presented in separate sections by menu item number to make the lists of menu items more manageable. Select the group from the contents at the left then look for the specific menu item you need to address.

8.1   Menu Items 000 - 400

Menu Item numbers 000 - 499.

The location in the Programmer is described as a "path". For example if you were looking for Item number 109 Time Out Timer you would find

Settings | PM 0-5 Menu Settings | Common tab | Time Out Timer

- Click on Settings in the menu at the top of the screen

- Select any one of PM 0-5 Menu Settings from the menu that opens

- Select the Common tab

- The option, Time Out Timer, is on that screen

	Set Mode	
Item No.	Radio display	In the Programmer
	Audio	
000	Key Beep	Settings	PM 0-5 Menu Settings	Common tab	Audio section	Key Beep (checkbox) (This item can be set separately in each Programmable Memory)
001	Beep Volume	Settings	PM 0-5 Menu Settings	Common tab	Audio section	Volume (This item can be set separately in each Programmable Memory)
002	Ext Speaker	Settings	PM 0-5 Menu Settings	Common tab	Audio section	External Speaker (This item can be set separately in each Programmable Memory)
003	Announce	Settings	PM 0-5 Menu Settings	Common tab	Audio section	Voice Announce group	Announce (This item can be set separately in each Programmable Memory)
004	Announce Language	Settings	PM 0-5 Menu Settings	Common tab	Audio section	Voice Announce group	Language (This item can be set separately in each Programmable Memory)
005	Announce Volume	Settings	PM 0-5 Menu Settings	Common tab	Audio section	Voice Announce group	Volume (This item can be set separately in each Programmable Memory)

006	Announce Speed	Settings | PM 0-5 Menu Settings | Common tab | Audio section | Voice Announce group | Speed (This item can be set separately in each Programmable Memory)
007	Playback Repeat	Settings | PM 0-5 Menu Settings | Common tab | Audio section | Voice Storage group | Playback Repeat (checkbox) (This item can be set separately in each Programmable Memory)
008	Playback Interval	Settings | PM 0-5 Menu Settings | Common tab | Audio section | Voice Storage group | Playback Interval (secs) (This item can be set separately in each Programmable Memory)
009	Continuous Recording	Settings | PM 0-5 Menu Settings | Common tab | Audio section | Voice Storage group | Continuous Recording (checkbox) (This item can be set separately in each Programmable Memory)
	Tx / Rx	
100	Programmable VFO	Not addressed in the Programmer.
101	Step	Main screen | Step - This item can be set independently for each memory channel.
102	Modulation	Main screen | Operating Mode - This item can be set independently for each memory channel.
103	VHF AIP	Settings | PM 0-5 Menu Settings | TX/RX/Repeater tab | Receive section | VHF Bank AIP (checkbox) (This item can be set separately in each Programmable Memory)
104	UHF AIP	Settings | PM 0-5 Menu Settings | TX/RX/Repeater tab | Receive section | UHF Bank AIP (checkbox) (This item can be set separately in each Programmable Memory)
105	S-Meter Squelch	Settings | PM 0-5 Menu Settings | TX/RX/Repeater tab | Receive section | A-Band or B-Band S-Meter Sql (checkboxes). This item can be set independently for A-Band and B-Band operations. (This item can be set separately in each Programmable Memory)
106	S-Meter SQL Hangup Time	Settings | PM 0-5 Menu Settings | TX/RX/Repeater tab | Receive section | S-Meter Sql Hangup (This item can be set separately in each Programmable Memory)
107	Mute Hangup	Settings | PM 0-5 Menu Settings | TX/RX/Repeater tab | Receive section | Mute Hangup (This item can be set separately in each

	Time	Programmable Memory)
108	Beat Shift	Settings | PM 0-5 Menu Settings | TX/RX/Repeater tab | Receive section | Beat Shift (checkbox)
109	TOT	Settings | PM 0-5 Menu Settings | Common tab | Time Out Timer (This item can be set separately in each Programmable Memory)
110	Weather Alert	Settings | PM 0-5 Menu Settings | TX/RX/Repeater tab | Weather Alert section | A-Band and B-Band (checkboxes). This feature can be engaged independently for A-Band and B-Band operations. (This item can be set separately in each Programmable Memory)

Memory

200	Memory Name	Main screen | Name - This item can be set independently for each memory channel
201	Recall Method	Settings | PM 0-5 Menu Settings | Common tab | Memory section | Recall Method (This item can be set separately in each Programmable Memory)
202	Lockout	Main screen | Skip - This item can be set independently for each memory channel
203	Group Link	Settings | PM 0-5 Menu Settings | Common tab | Memory section | Group link (This item can be set separately in each Programmable Memory)
204	EchoLink Memory	Settings | Radio Menu Settings | DTMF/Echolink/Weather tab | Echolink section | Name and Code
205	EchoLink Speed	Settings | Radio Menu Settings | DTMF/Echolink/Weather tab | Echolink speed

DTMF

300	DTMF Hold	Settings | Radio Menu Settings | DTMF/Echolink/Weather tab | DTMF Hold (checkbox)
301	DTMF Memory	Settings | Radio Menu Settings | DTMF/Echolink/Weather tab | DTMF section | Name and Code
302	DTMF Speed	Settings | Radio Menu Settings | DTMF/Echolink/Weather tab | DTMF Speed
303	DTMF Pause	Settings | Radio Menu Settings | DTMF/Echolink/Weather tab | DTMF Delay

304	DTMF Key Lock	Settings	Radio Menu Settings	DTMF/Echolink/Weather tab	Echolink section	DTMF Mic Key Lock (checkbox)
	Repeater	
400	Offset Frequency	Main Screen	Offset Frequency - This item can be set independently for each memory channel.
401	Auto Repeater Offset	Settings	PM 0-5 Menu Settings	Common tab	Auto Repeater Offset (checkbox) (This item can be set separately in each Programmable Memory)
402	1750 Tx Hold	Settings	PM 0-5 Menu Settings	Common tab	1750 Hz Transmit Hold (checkbox) (This item can be set separately in each Programmable Memory)
403	Repeater Mode	Settings	Radio Menu Settings	Main Settings tab	Repeater Operation section	Mode
404	Repeater TX Hold	Settings	Radio Menu Settings	Main Settings tab	Repeater Operation section	TX Hold (500ms)
405	Repeater ID	Settings	Radio Menu Settings	Main Settings tab	Repeater Operation section	ID (edit field)
406	Repeater ID TX	Settings	Radio Menu Settings	Main Settings tab	Repeater Operation section	ID Transmit

8.2   Menu Items 500

Menu Item numbers 500.

The location in the Programmer is described as a "path". For example if you were looking for Item number 516 APO (Auto Power Off) you would find

Settings | PM 0-5 Menu Settings | Common tab | Auto Power Off

- Click on Settings in the menu at the top of the screen

- Select any one of PM 0-5 Menu Settings from the menu that opens

- Select the Common tab

- The option, Auto Power Off, is on that screen

Set Mode		
Item No.	Radio display	In the Programmer
AUX		
500	Power On Message	Settings	PM 0-5 Menu Settings	Common tab	Power On Message (This item can be set separately in each Programmable Memory)
501	Brightness	Settings	PM 0-5 Menu Settings	Common tab	Display Brightness (This item can be set separately in each Programmable Memory)
502	Auto Brightness	Settings	PM 0-5 Menu Settings	Common tab	Auto Brightness (checkbox) (This item can be set separately in each Programmable Memory)
503	Backlight Color	Settings	PM 0-5 Menu Settings	Common tab	Backlight Color (This item can be set separately in each Programmable Memory)
504	Contrast	Settings	PM 0-5 Menu Settings	TX/RX/Repeater tab	TM-D710 section	Display Contrast (This item can be set separately in each Programmable Memory)
505	Display Reverse Mode	Settings	PM 0-5 Menu Settings	TX/RX/Repeater tab	TM-D710 section	Display Reverse Mode (This item can be set separately in each Programmable Memory)

507	Panel PF1	Settings | PM 0-5 Menu Settings | Common tab | Panel PF Key section | PF1 (This item can be set separately in each Programmable Memory)
508	Panel PF2	Settings | PM 0-5 Menu Settings | Common tab | Panel PF Key section | PF2 (This item can be set separately in each Programmable Memory)
509	Mic PF1 (PF)	Settings | PM 0-5 Menu Settings | Common tab | Mic PF Key section | PF1 (This item can be set separately in each Programmable Memory)
510	Mic PF2 (MR)	Settings | PM 0-5 Menu Settings | Common tab | Mic PF Key section | PF2 (This item can be set separately in each Programmable Memory)
511	Mic PF3 (VFO)	Settings | PM 0-5 Menu Settings | Common tab | Mic PF Key section | PF3 (This item can be set separately in each Programmable Memory)
512	Mic PF4 (Call)	Settings | PM 0-5 Menu Settings | Common tab | Mic PF Key section | PF4 (This item can be set separately in each Programmable Memory)
513	Mic Key Lock	Settings | PM 0-5 Menu Settings | Common tab | Mic Key Lock (checkbox) (This item can be set separately in each Programmable Memory)
514	Scan Resume	Settings | PM 0-5 Menu Settings | Common tab | Scan resume (This item can be set separately in each Programmable Memory)
515	Visual Scan	Settings | PM 0-5 Menu Settings | Tx/Rx/Repeater tab | TM-D710 section | Visual Scan (This item can be set separately in each Programmable Memory)
516	APO	Settings | PM 0-5 Menu Settings | Common tab | Auto Power Off (This item can be set separately in each Programmable Memory)
517	Ext Data Band	Settings | PM 0-5 Menu Settings | Common tab | External Data Band (This item can be set separately in each Programmable Memory)
518	Ext Data Speed	Settings | PM 0-5 Menu Settings | Common tab | External Data Speed (This item can be set separately in each Programmable Memory)
519	PC Port Baud Rate	***Not addressed in the radio. A change to this option makes it impossible to transfer data between the radio and the***

		computer.
520	SQC Source	Settings | PM 0-5 Menu Settings | Common tab | SQC Output Source (This item can be set separately in each Programmable Memory)
521	Auto PM Store	Settings | PM 0-5 Menu Settings | Common tab | Auto PM Store (checkbox) (This item can be set separately in each Programmable Memory)
522	Remote ID	Settings | Radio Menu Settings | Main Settings tab | Remote Control section | ID
523	Remote Answer Back	Settings | Radio Menu Settings | Main Settings tab | Remote Control section | Answer Back
524	Date	Not addressed in the Programmer.
525	Time	Not addressed in the Programmer.
526	Time Zone	Settings | PM 0-5 Menu Settings | TX/Rx/Repeater tab | TM-D710 section | Time Zone (This item can be set separately in each Programmable Memory)
527	Display Partition Bar	Settings | PM 0-5 Menu Settings | Common tab | Display Partition Bar (checkbox) (This item can be set separately in each Programmable Memory)
528	Comport Baudrate	Settings | PM 0-5 Menu Settings | TX/Rx/Repeater tab | TM-D710 section | COM Port Speed (This item can be set separately in each Programmable Memory)
529	Int. Data Band (Packet)	Settings | PM 0-5 Menu Settings | TX/Rx/Repeater tab | TM-D710 section | Internal Data Band (This item can be set separately in each Programmable Memory)

8.3   Menu Items 600 (APRS)

Menu Item numbers 600.

The location in the Programmer is described as a "path". For example if you were looking for Item number 607 Position Comment you would find

Settings | PM 0-5 Menu Settings | APRS 1 tab | Position Comment

- Click on Settings in the menu at the top of the screen

- Select any one of PM 0-5 Menu Settings from the menu that opens

- Select the APRS 1 tab

- The option, Position Comment, is on that screen

Set Mode		
Item No.	Radio display	In the Programmer
Basic Settings		
600	My Callsign	Settings	PM 0-5 Menu Settings	APRS 1 tab	My Callsign (This item can be set separately in each Programmable Memory)
	Beacon Type	Settings	PM 0-5 Menu Settings	APRS 1 tab	Beacon Type (This item can be set separately in each Programmable Memory)
Internal TNC		
601	Data Band	Settings	PM 0-5 Menu Settings	APRS 1 tab	Internal TNC section	Data Band (This item can be set separately in each Programmable Memory)
	Data Speed	Settings	PM 0-5 Menu Settings	APRS 1 tab	Internal TNC section	Data Speed (This item can be set separately in each Programmable Memory)
	DCD Sense	Settings	PM 0-5 Menu Settings	APRS 1 tab	Internal TNC section	DCD Sense (This item can be set separately in

		each Programmable Memory)
	Tx Delay	Settings | PM 0-5 Menu Settings | APRS 1 tab | Internal TNC section | TX delay (This item can be set separately in each Programmable Memory)

GPS Port

602	Baud Rate	Settings | PM 0-5 Menu Settings | APRS 1 tab | GPS Port section | Baud Rate (This item can be set separately in each Programmable Memory)
	Input	Settings | PM 0-5 Menu Settings | APRS 1 tab | GPS Port section | Input (This item can be set separately in each Programmable Memory)
	Output	Settings | PM 0-5 Menu Settings | APRS 1 tab | GPS Port section | Output (This item can be set separately in each Programmable Memory)

Waypoint

603	Format	Settings | PM 0-5 Menu Settings | APRS 1 tab | Waypoint section | Format (This item can be set separately in each Programmable Memory)
	Name	Settings | PM 0-5 Menu Settings | APRS 1 tab | Waypoint section | Name (This item can be set separately in each Programmable Memory)
	Output	Settings | PM 0-5 Menu Settings | APRS 1 tab | Waypoint section | Output (This item can be set separately in each Programmable Memory)

Com Port

604	Output	Settings | PM 0-5 Menu Settings | APRS 1 tab | COM port Output (This item can be set separately in each Programmable Memory)

My Position

605	Name	Settings | PM 0-5 Menu Settings | APRS 2 tab | My Position section | Name (This item can be set separately in each Programmable Memory)
	Latitude	Settings | PM 0-5 Menu Settings | APRS 2 tab | My Position section | Latitude (This item can be set separately in each Programmable Memory)
	Longitude	Settings | PM 0-5 Menu Settings | APRS 2 tab | My Position section | Longitude (This item can be set separately in each Programmable Memory)
Beacon Information		
606	Speed	Settings | PM 0-5 Menu Settings | APRS 1 tab | Beacon Information | Speed (This item can be set separately in each Programmable Memory)
	Altitude	Settings | PM 0-5 Menu Settings | APRS 1 tab | Beacon Information | Altitude (This item can be set separately in each Programmable Memory)
	Position Ambiguity	Settings | PM 0-5 Menu Settings | APRS 1 tab | Beacon Information | Position Ambiguity (This item can be set separately in each Programmable Memory)
Position Comment		
607	Position Comment	Settings | PM 0-5 Menu Settings | APRS 1 tab | Position Comment (This item can be set separately in each Programmable Memory)
Status Text		
608	Text	Settings | PM 0-5 Menu Settings | APRS 2 tab | Status Text | Name (This item can be set separately in each Programmable Memory)
	Tx Rate	Settings | PM 0-5 Menu Settings | APRS 2 tab | Status Text | Tx Rate (This item can be set separately in each Programmable Memory)
Packet Filter		

	Position Limit	Settings | PM 0-5 Menu Settings | APRS 1 tab | Packet Filter Type section | Position Limit [miles] (This item can be set separately in each Programmable Memory)
609	Type	Settings | PM 0-5 Menu Settings | APRS 1 tab | Packet Filter Type section | Check or uncheck any or all of the 6 options that apply to your operations. (This item can be set separately in each Programmable Memory)
Station Icon		
610	Station Icon	Settings | PM 0-5 Menu Settings | APRS 1 tab | Station Icon section (This item can be set separately in each Programmable Memory)
Beacon Tx Algorithm		
	Method	Settings | PM 0-5 Menu Settings | APRS 1 tab | Beacon Tx Algorithm section | Method (This item can be set separately in each Programmable Memory)
	Initial Interval	Settings | PM 0-5 Menu Settings | APRS 1 tab | Beacon Tx Algorithm section | Initial Interval (This item can be set separately in each Programmable Memory)
611	Decay Algorithm	Settings | PM 0-5 Menu Settings | APRS 1 tab | Beacon Tx Algorithm section | Decay Algorithm (checkbox) (This item can be set separately in each Programmable Memory)
	Proportional Pathing	Settings | PM 0-5 Menu Settings | APRS 1 tab | Beacon Tx Algorithm section | Proportionals Pathing (checkbox) (This item can be set separately in each Programmable Memory)
Packet Path		
612	Type	Settings | PM 0-5 Menu Settings | APRS 1 tab | Packet Path section | Type (This item can be set separately in each Programmable Memory)
Network		

613	Network	Settings	PM 0-5 Menu Settings	APRS 1 tab	Network (This item can be set separately in each Programmable Memory)
	Voice Alert	
614	Voice Alert	Settings	PM 0-5 Menu Settings	APRS 1 tab	Voice Alert (This item can be set separately in each Programmable Memory)
	CTCSS Frequency	Settings	PM 0-5 Menu Settings	APRS 1 tab	Voice Alter section	CTCSS Frequency (This item can be set separately in each Programmable Memory)
	Weather Station	
615	TX	Settings	PM 0-5 Menu Settings	APRS 2 tab	Weather Station section	Tx (checkbox) (This item can be set separately in each Programmable Memory)
	TX Interval	Settings	PM 0-5 Menu Settings	APRS 2 tab	Weather Station section	Tx Interval (This item can be set separately in each Programmable Memory)
	Digipeat	
616	Digipeat	Settings	PM 0-5 Menu Settings	APRS 2 tab	DIGIPEAT (checkbox) (This item can be set separately in each Programmable Memory)
	UI Functions	
617	Time	Settings	PM 0-5 Menu Settings	APRS 2 tab	UICheck Time [secs] (This item can be set separately in each Programmable Memory)
618	UIDIGI	Settings	PM 0-5 Menu Settings	APRS 2 tab	UIDIGI (checkbox) (This item can be set separately in each Programmable Memory)
	Alias	Settings	PM 0-5 Menu Settings	APRS 2 tab	UIDIGI section	Aliases (This item can be set separately in each Programmable Memory)

	UIFlood	Settings | PM 0-5 Menu Settings | APRS 2 tab | UIFLOOD (checkbox) (This item can be set separately in each Programmable Memory)
619	Alias	Settings | PM 0-5 Menu Settings | APRS 2 tab | UIFLOOD section | Aliases (This item can be set separately in each Programmable Memory)
	Substitution	Settings | PM 0-5 Menu Settings | APRS 2 tab | UIFLOOD section | Substitution (This item can be set separately in each Programmable Memory)
620	UITrace	Settings | PM 0-5 Menu Settings | APRS 2 tab | UITRACE (checkbox) (This item can be set separately in each Programmable Memory)
	Alias	Settings | PM 0-5 Menu Settings | APRS 2 tab | UITRACE section | Alias (This item can be set separately in each Programmable Memory)
	User Phrase	
621	User Phrases	Settings | PM 0-5 Menu Settings | APRS 3 tab | User Phrases (This item can be set separately in each Programmable Memory)
	Auto Message Reply	
622	Reply	Settings | PM 0-5 Menu Settings | APRS 2 tab | Auto Message Reply (checkbox) (This item can be set separately in each Programmable Memory)
	Text	Settings | PM 0-5 Menu Settings | APRS 2 tab | Auto Message Reply section | Text (This item can be set separately in each Programmable Memory)
	Reply To	Settings | PM 0-5 Menu Settings | APRS 2 tab | Auto Message Reply section | Reply to (This item can be set separately in each Programmable Memory)
	Group Filtering	
623	Message	Settings | PM 0-5 Menu Settings | APRS 3 tab | Group

		Filtering section | Message Group Code (This item can be set separately in each Programmable Memory)
	BLN (Bulletin)	Settings | PM 0-5 Menu Settings | APRS 3 tab | Group Filtering section | Bulletin Group Code (This item can be set separately in each Programmable Memory)
	Sound	
624	RX Beep	Settings | PM 0-5 Menu Settings | APRS 2 tab | Sound section | Rx Beep (This item can be set separately in each Programmable Memory)
	Special Call	Settings | PM 0-5 Menu Settings | APRS 2 tab | Sound section | Special Call (edit box) (This item can be set separately in each Programmable Memory)
	APRS Voice	Settings | PM 0-5 Menu Settings | APRS 2 tab | Sound section | APRS Voice (checkbox) (This item can be set separately in each Programmable Memory)
	Interrupt Display	
625	Display Area	Settings | PM 0-5 Menu Settings | APRS 3 tab | Interrupt Display section | Display area (This item can be set separately in each Programmable Memory)
	Auto Brightness	Settings | PM 0-5 Menu Settings | APRS 3 tab | Interrupt Display section | Auto Brightness (checkbox) (This item can be set separately in each Programmable Memory)
	Change Color	Settings | PM 0-5 Menu Settings | APRS 3 tab | Interrupt Display section | Change Color (checkbox) (This item can be set separately in each Programmable Memory)
	Display Unit 1 and 2	
626	Seed, Distance	Settings | PM 0-5 Menu Settings | APRS 3 tab | Display Units section | Speed, Distance (This item can be set separately in each Programmable Memory)
	Altitude, Rain	Settings | PM 0-5 Menu Settings | APRS 3 tab | Display Units section | Altitude, Rain (This item can be set separately in each Programmable Memory)

	Temperature	Settings | PM 0-5 Menu Settings | APRS 3 tab | Display Units section | Temperature (This item can be set separately in each Programmable Memory)
627	Position	Settings | PM 0-5 Menu Settings | APRS 3 tab | Display Units section | Position (This item can be set separately in each Programmable Memory)
	Grid Format	Settings | PM 0-5 Menu Settings | APRS 3 tab | Display Units section | Grid Format (This item can be set separately in each Programmable Memory)

NAVITRA Functions

	Group Mode	Settings | PM 0-5 Menu Settings | APRS 3 tab | NAVITRA Group Mode (checkbox) (This item can be set separately in each Programmable Memory)
628	Group Code	Settings | PM 0-5 Menu Settings | APRS 3 tab | NAVITRA Group section | Group Code (This item can be set separately in each Programmable Memory)
629	Message	Settings | PM 0-5 Menu Settings | APRS 3 tab | NAVITRA Messages (This item can be set separately in each Programmable Memory)

8.4   Menu Items 700 - 900

Menu Item numbers 700 - 999.

The location in the Programmer is described as a "path". For example if you were looking for Item number 516 APO (Auto Power Off) you would find

Settings | PM 0-5 Menu Settings | Common tab | Auto Power Off

- Click on Settings in the menu at the top of the screen

- Select any one of PM 0-5 Menu Settings from the menu that opens

- Select the Common tab

- The option, Auto Power Off, is on that screen

Set Mode		
Item No.	Radio display	In the Programmer
**Sky Command**		
700	Commander Callsign	Settings	PM 0-5 Menu Settings	TX/Rx/Repeater tab	Sky Command II section	Commander callsign (This item can be set separately in each Programmable Memory)
701	Transporter Callsign	Settings	PM 0-5 Menu Settings	TX/Rx/Repeater tab	Sky Command II section	Transporter callsign (This item can be set separately in each Programmable Memory)
702	Tone Frequency	Settings	PM 0-5 Menu Settings	TX/Rx/Repeater tab	Sky Command II section	Tone Frequency (This item can be set separately in each Programmable Memory)
703	Sky Commander	Settings	PM 0-5 Menu Settings	TX/Rx/Repeater tab	Sky Command II section (This item can be set separately in each Programmable Memory)
**AUX 2**		
998	Power On Password	Settings	Radio Menu Settings	Main Settings tab	Password

999	Reset	This item is not addressed from the Programmer.

Part
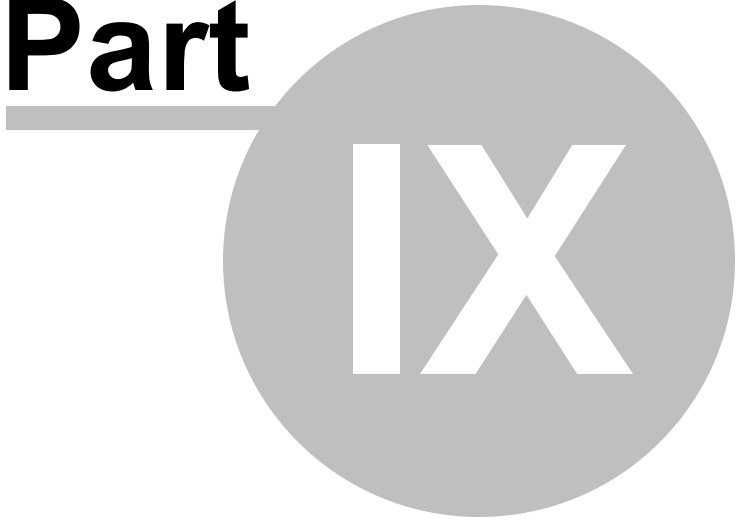
IX

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.

Home (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 Regular Memory Channels

Enter the details for the memory channels on the screen of the program that first opens.
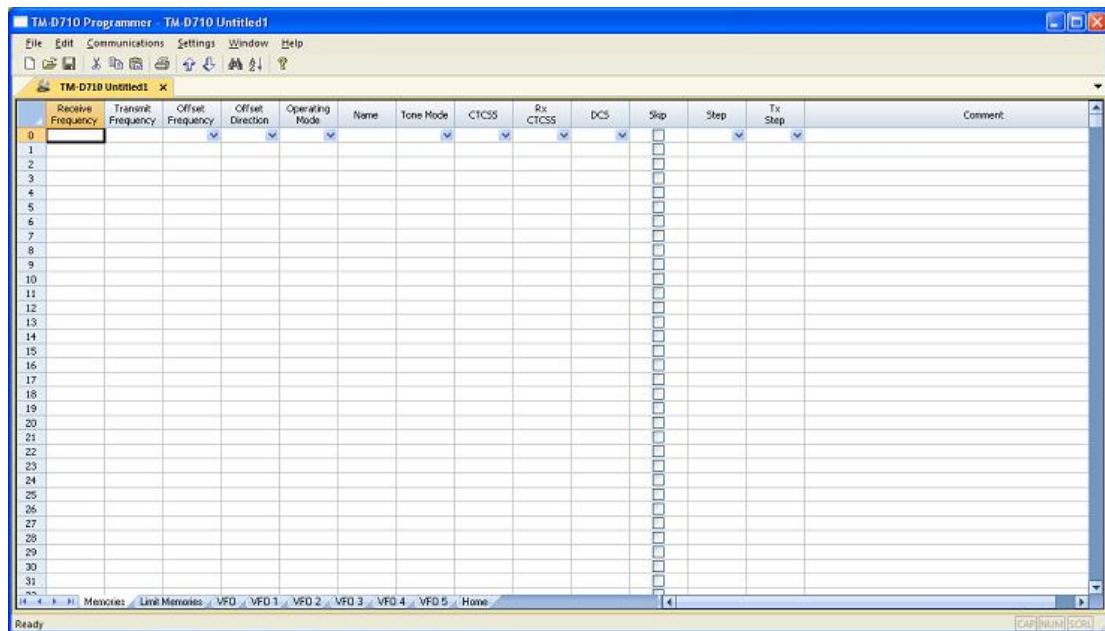
- All details associated with the memory channels are programmed from this screen.

- These are not all the functions of the radio. Other features are set once for the radio to use no matter which memory channel you're on. These other items are set on the Settings screen accessed through Settings | Radio Menu Settings from the menu at the top of the screen.

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

*Make programming extra easy. Try **Simple Mode** in the software for even less to enter.* .
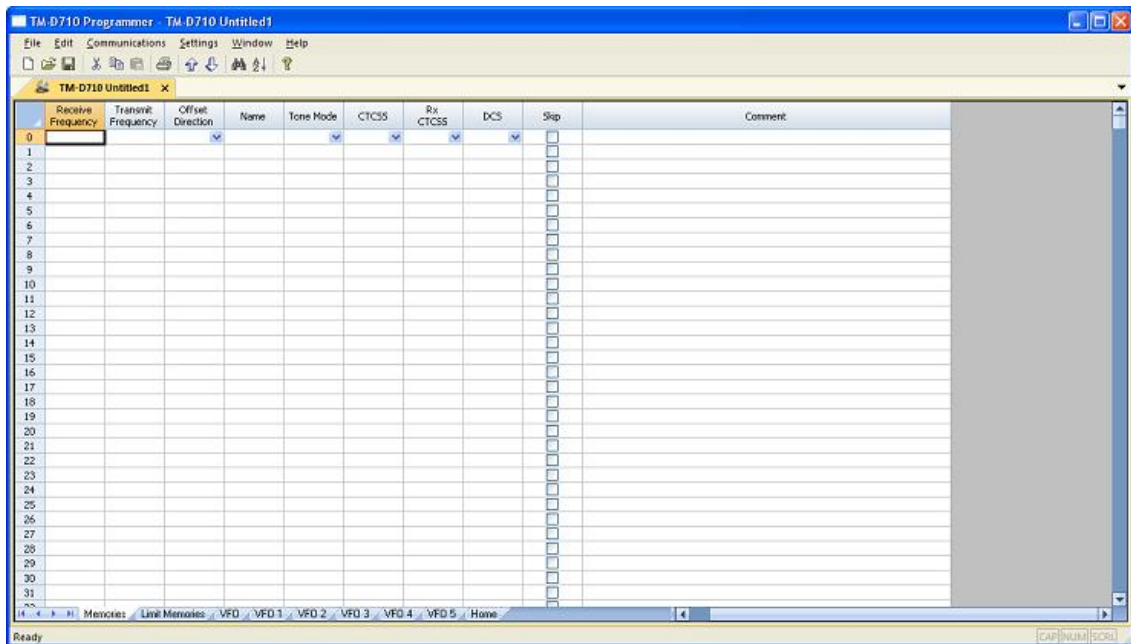
- In Simple Mode the columns needed for the minimum information to set up the channel are shown on the screen. Extra columns are hidden and filled with default information.

- To put the screen into Simple Mode, select Edit | Simple Mode from the menu. While in Simple Mode, you cannot access the Preferences screen. The Programmer controls what columns are hidden while in this mode

Details to be entered for Memory Channels

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

- Unacceptable frequencies for the radio cannot be entered into the Programmer.

- The first memory channel must be programmed.

    Note: When working in a default file you will find several channels (Call, VFO, etc) preprogrammed. While you can change the information in these channels, they cannot be blank. The radio must have acceptable data in these memory locations.

Transmit Frequency: Enter a specific transmit frequency or let the Programmer calculate this frequency based on the offset. This field is always available; however the transmit frequency for an "odd split" is the only value that must be entered manually.

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

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

If the difference between the two frequencies is *not divisible by 50*, this pair is referred to as a split.

If the difference is *divisible by 50*, the Programmer will automatically calculate the Offset frequency and set the Offset direction properly for working this repeater.

To enter the details for a "split pair":

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you monitor when awaiting a call. This will be the frequency of the repeater.

- Press Enter. The Programmer will fill the remaining columns with default information which may or may not be right for your particular situation.

- The Transmit field will be active as indicated by the dark border. Enter the Transmit Frequency from the information you have. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)

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

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

Offset Frequency: Standard offsets include 100, 500, and 600 kHz and 5.0, 70.0, and 1.0000 MHz. The most common standards are 600 kHz for the 2M band and 5.0 MHz for the 440 MHz band.

Kenwood radios can use an Offset Frequency of any value in 50 kHz steps (i.e., any value ending in .x00 or .x50 where x is any digit from 0 to 9) with a Plus or Minus Offset Direction.

This gives you the ability to use the Reverse function of the radio although your frequency pair is not separated by a standard offset value.

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

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

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

Offset Direction

The programmer assigns an offset direction based on a generally accepted band plan. This is not to say that every repeater aligns exactly with that plan. If the details for your repeater differ from the programmer's defaults, you are free to change this field to any one of the options shown.

Simplex - Transmit and receive frequencies are the same. When set to Simplex, no value appears in the Offset Frequency column. The radio will transmit and receive on the SAME frequency.

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

Plus - The Offset Frequency is added to the receive frequency yielding the frequency on which you will be transmitting.

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

Operating Mode: Assign FM ($\pm$ 5 kHz), Narrow FM ($\pm$ 2.5 kHz), or AM as appropriate for the frequency. This value can be set and stored independently for each memory channel.

Name: Enter an Alpha/Numeric tag (up to 8 characters) for a memory channel to provide an easy reminder of the function of a particular channel. The name is shown along with the frequency on the display of the radio.

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

> It sends the sub-audible signal needed to gain access to a "toned" repeater (Tone / encode).

> It uses a sub-audible tone to block signals into your radio (decode) AND sends the sub-audible signal needed to gain access to the repeater (encode). Your radio remains silent until a signal with the same tone is heard. (T Sql = Tone Squelch)

Use of either of the tone systems requires two steps: Turning on the Tone Mode and Setting the CTCSS tone frequency or DCS code. The Programmer makes sure that you complete both by blocking access to the tones until a Tone Mode is selected. (Since the function will not work unless it is turned on... we make you turn it on first.)

 The Tone Modes include:

> **None** - No tone system activated. Even if the CTCSS, RX CTCSS. and DCS Code columns are set to a value, the radio will not open the repeater since the tone functionality is not engaged.

> **Tone** - CTCSS tone generator is activated for *transmission only* This mode is used for many if not most repeater operations.When this option is selected, the CTCSS column becomes available.

>> Select the tone frequency from those in the list. The value must be in the list.

>> The values that appear in the RX CTCSS and DCS columns are ignored by the radio when this option is being used for Tone Mode.

> *Tone is commonly used on repeaters not so much to limit access by radio operators; but to limit access from signals of nearby repeaters. Setting a Tone on a repeater helps keep out interference.*

> *If the information you were given about a repeater does not specify otherwise and you are given a CTCSS value along with other details, set Tone Mode to Tone. You will be right a majority of the time.*

> **T Sql** - CTCSS tone squelch is activated for *both transmission and reception using one CTCSS tone for both.* In this mode only signals set

up with the same tone will open the squelch. Your radio remains silent otherwise.

Select the tone frequency from those in the Rx CTCSS list. The value must be in the list.

The values that appear in the CTCSS and DCS columns are ignored by the radio when this option is being used for Tone Mode.

Note: Be aware that many repeaters do not return tones with the output signal. If you can see activity as indicated by the signal strength meter on the face of the radio but you cannot hear anything even when you adjust volume and squelch on with the knobs on the radio, you probably have Tone Mode set to TSql when it should be set to Tone. Or, you have an incorrect RX CTCSS value set.

TSql is being more widely used with today's amateur repeaters. It remains, however, a lesser used option than Tone. Do not select TSql unless the specific instructions for your activity tell you to do so.

DCS - Digital Coded Squelch mode is activated for *transmission and reception using one DCS code for both*. This mode is used in many commercial systems; however, some amateur repeaters have begun to use it also. DCS is a digital code while Tone uses an analog value. When this option is selected, the DCS column becomes available. Select the code from those in the list. The value must be in the list.

The radio uses the DCS Code for both transmissions and reception. These work just like TSql functionality.

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

CTCSS: Select one of 42 tone frequencies to be used with Tone mode of "Tone". This field is active only if Tone Mode is set to Tone. A value that appears in this field is ignored if Tone Mode is set to TSql or DCS. This is the frequency that is sent to the repeater to allow access.

Rx CTCSS: Select one of 42 tone frequencies to be used with Tone mode of "TSql". This field is active only if Tone Mode is set to TSql. The tone squelch function uses a tone to access the repeater AND block signals from being received by your radio. The Kenwood radio uses the one value in this field to do both functions. A value that appears in this field is ignored if Tone Mode is set to Tone or DCS.

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

> *Note: Kenwood radios use a system of 42 CTCSS tones. Other radios use as many as 50 tones. When you copy from another file there may be a problem if the CTCSS value from the original data does not equal a value available in the Kenwood. Should this happen, the program defaults to 67.0 for the CTCSS frequency. After using copy and paste, check the CTCSS tones for 67.0Hz and verify that this value is correct for that repeater.*

Skip: Marks selected memory channel to be *skipped during scanning* *(Memory Channel Lockout).* These channels remain available for manual selection by turning the knob.

> Unchecked - the channel is included when scanning memory channels.

> Checked - the channel is omitted when scanning memory channels.

Step: The frequency that the radio is on changes by the value of the step when tuning manually (in VFO).   In VFO, this value could keep you from returning to your original frequency. The Programmer will help you with this value. An incorrect value will be corrected before the file is sent to the radio making the radio operate properly.

Tx Step: When saving a split pair, the Kenwood radio requires a step value for both the receive frequency (step) and the transmit frequency (Tx step). The Programmer will help you with this value. An incorrect value will be corrected before the file is sent to the radio thus making the radio operate properly.

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

9.2   Limit Memories

This feature allows you to set sub-band limits for VFO scanning. Three conditions apply to the frequencies assigned to the lower and upper limit channels for a given pair must.

> 1) The lower limit channel must be a lower frequency than that of the upper limit channel.
>
> 2) The two frequencies must be in the same band.
>
> 3) The step size must be the same in the two channels.

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

The Limit Memory channels are entered on the Limit Memories page accessed through the tab of the same name at the bottom of the screen. The same information as that entered for any memory channel is entered for these. See the Regular Memory Channels section of this Help for the details about the information to be entered.

In the Limit Memory channels, **Step** becomes much more important since you plan to begin scanning from one of these channels. Remember that scanning will increment the frequency by the value in the Step field. Choose your value to be sure you do not miss channels in your range.

> *Note: If the step size differs between the lower limit and the upper limit channels, the radio will perform a VFO scan rather than a Program Scan (i.e., it will ignore the limits and scan the entire band).*

The option for Scan Resume can be set from the Programmer. This item is found in the Setting file which is accessed by selecting Settings | PM 0 - 5 Menu Settings from the menu at the top of the screen. Scan Resume is found on the Common tab for each Programmable Memory. This option can be set independently in each of the six Programmable Memories.

To use Program scan once the limits are set, saved and sent to the radio,

> Select the desired band
>
> Press the [VFO] button

Rotate the Tuning control knob to select a frequency within your desired range.

> *Note: If the frequency is within more than one Program Scan range, the range stored in the lower channel number will be used. Consider this carefully when setting up the ranges. If range 1 and range 2 overlap, be sure to begin scanning range 2 on a frequency that is within range 2 but outside of range 1 or the radio will scan range 1.*

Press the [VFO] button to start scanning at the current frequency.

To halt the scan, press [VFO] again

9.3   VFO - VFO 5 Memories

The TM-D710 has six sets of VFO channels. These VFO frequencies exist in each of the six Programmable Memory accessed through the PM key on the face of the radio.

The Programmable Memory (PM) channels store operating environments for quick recall. These different VFOs would be available for immediate recall along with the customized settings when a Programmable Memory is recalled. The memory channels are always available no matter which Programmable memory is operational.

The VFO memory provides "temporary" frequency storage for quick access. The VFO memory is temporary since it is lost when the radio is tuned while in VFO mode.

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

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

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

To program the VFO memory, select the VFO(1-5) tab at the bottom of the screen. Enter a frequency that is appropriate for the band. The details that you enter will replace the default of the radio. Simply type over the information shown to make the changes.

> *Note: The VFOs must contain a frequency appropriate for the band. They CANNOT BE BLANK.*

The information to be entered is the same as that for regular Memories except that the VFO's do not have an alpha label available to be programmed. See the Regular Memory Channel in this Help for details of the fields.

In VFO mode, **Step** is important to ensure that you can tune manually to a certain frequency. Pay careful attention to this column when programming the VFOs.

9.4   Home (Call) Channel

The Call channel memory provides convenient, one-touch access to your most often used frequency in the 2M and 440 MHz bands.

Call/Home channel memories are programmed on the Home tab of the Programmer.

The information to be programmed for the Call Channels is the same as that for the regular Memories. See Regular Memory Channels for the details of each item to be programmed.

Call Scan

Use Call Scan to monitor both the Call channel for the active band and the currently selected VFO frequency or the currently selected Memory channel.

To use this function
- Select a Memory channel or VFO frequency.

- Press **CALL** for 1 second to start Call scan. - The MHz decimal blinks to indicate the scan is in progress.

- Press **CALL** again to quit scanning.

Note: If your radio seems to "run off" from the channel or frequency check that this feature is not engaged. You may have set it accidentally by holding the CALL button a little too long.

Part X
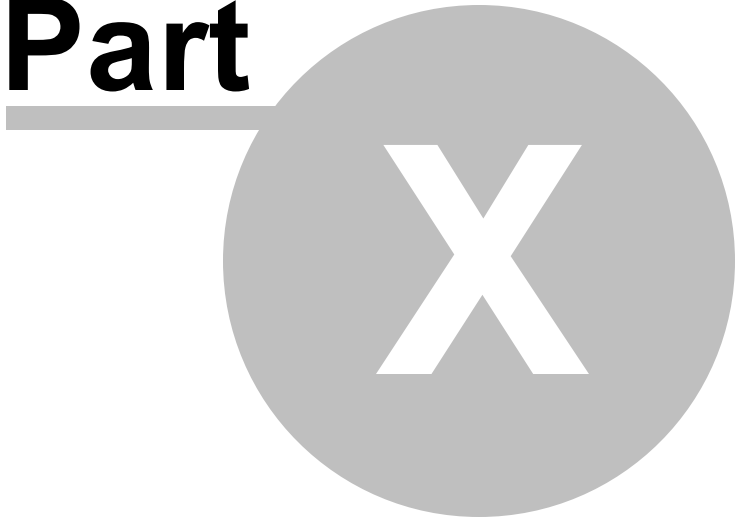
10   Programming Other Set Menu Items

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

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

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

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

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

The Programmer offers three options for managing the global settings:

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

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

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

The three options are discussed in detail below. Once you decide, set the Programmer

for the option that you want on the Preferences screen (Settings | Preferences) in the Programmer.

Set and Forget

This is the default of the Programmer.

Not using the Radio Menu Settings (Settings | Radio Menu Settings) settings can result in your radio "acting funny" every time you program it. That's because something is getting reset in the radio by a setting in this file.

From the main screen of the Programmer, select Settings | Radio Menu Settings. Explore these screens. If you fear you have made changes you don't want, click the "X" at the upper right of the Settings screen. Answer No to the prompt to save. Then click the "X" again to close. The screen will close without saving anything you have done.

Details for the options on this page are found on several pages of this Help. Each page contains the details for the options on that page. The information there can help you decide how best to customize a setting.

Once you complete your selections:

- Click File | Save

- If you are working in a default file (Untitled.rsf), you will be prompted for a filename.

- Enter a name for this file. This can be the same as the name you're using for the memory channel information or it can be a name unique to these settings. If you're at a loss, use "Settings".

- Click Save to close the Save dialog

- Click File | Exit to close the Settings screen.

The Programmer will take it from here making sure these customized settings go to the radio along with the memory channel information.

Creating and using multiple global settings files

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

Having multiple memory channel files (."radio name") and multiple global setting files

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

When a new file is begun, the *same settings used in the last settings file saved* will be used automatically. You need not re-enter the settings each time, nor are you forced to always begin a new file by renaming an existing file. You need only enter memory channel details.

To select a settings file for use:

- Select Settings | Radio Menu Settings from the main page of the Programmer.

- From the Radio Menu Settings screen, select File | Open. A list of settings files will be presented. - Do not change the Files of Type selection at the bottom. The Programmer presents appropriate files to choose from.

- Select the file you want to use and click Open.

- Verify that this is the settings file that you want to use. Check also that the proper filename appears in the titlebar at the top of the Menu Settings window.

- Click File | Save to reset the Programmer to use this file.

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

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

Beginning with the Version 3 Programmers, and continuing into the current version, is the option of saving the global settings with the memory channel information.

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

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

- From the main screen of the Programmer, select Settings | Preferences

- Click OK to close this screen.

- From the main screen of the Programmer, select Settings | Radio Menu Settings.

- Make changes as needed.

- Click Close | Apply changes and close (if you want to save) or Discard all changes and close (if you think you're made mistakes and need to return to the last time you saved this file).

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

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

- From the Menu Settings screen, select External Setting Files

- From that menu select Open

- Select a settings file from the list presented. The settings file must be for the same radio.

- To set these to be used in this file, select Close | Apply changes and close.

The settings from the other file will be saved to this file and sent to the radio with this memory channel programming.

10.1 Radio Menu Settings - Main

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

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

10 MHz Mode - Enable to allow the VFO receive frequency to be tuned in 10 MHz steps. This function can be set in software only. It cannot be enabled or disabled from the face of the radio.

Key Lock - Disable buttons of the radio other than [Power] and [PTT]. When engaged LOCK appears on the display of the radio. To disengage this feature from the face of the radio, press and hold the [F] key for one second (or until the LOCK indication appears or disappears).

Channel Display - This function is more than just a change to the display on the face of the radio. When engaged, ONLY Memory channels are accessible.

The display of the radio displays CH XXX (where XXX is a channel number) rather than a frequency.

To control this feature from the face of the radio, hold the [LOW] key during power On.

This feature cannot be engaged if there are no memory channels in the radio. Although the option can be checked in the Programmer, the setting will be ignored by the radio.

When engaged, the radio cannot be reset.

Data Terminal

Set the **PR1 Pin Output Level** independently for Packet Mode and Echolink Sysop Mode.

Set the **RKD Pin Input Sensitivity** independently for Packet (1200 bps) Mode and Echolink Sysop Mode.

Repeater Operation - See details for this advanced feature of the radio in the Repeater Operations section of this Help. This is an advanced function of the radio for use in special operations.

Remote Control - Control your mobile radio with a properly equipped HT through properly sent DTMF tones. See the section in the Help on Remote Control for more details on this feature. The options to be set in the Programmer for this function include:

Password - Enter up to 5 letters and digits then check to enable passworded access to your radio. This will be the first think that appears when the radio powers on. This option cannot be enabled as blank to keep you from locking yourself out of your own radio.

> *Note: Notice there is ONE password for this radio. The password is not saved separately for each programmable memory.*
>
> *Although there are six programmable memories that can be customized for use by different people, there is only one password. If your radio is being shared between several people, everyone with the right to use the radio will have to know the password.*

Mic Sensitivity - Set to High, Medium, or Low to suit your voice.

EchoLink Rx Monitor - Configure the audio output while in Echolink Sysop Mode. Options include:

CTCSS/DCS - Audio is heard when a signal with a matching DCS or CTCSS tone is received.

Busy Only - Audio is heard whenever a signal is received.

Other options for Echolink are found on the DTMF / Echolink / Weather tab of the Settings file.

Memory Group Names - Memory channels are grouped by channel number into ten

groups. Group 1 contains channels 0-99, Group 2 has channels 100 - 199, etc., through Group 9 with channels 900 - 999

SQC Output Logic - Set the logic level from the SQC data terminal to High or Low.

> *Note: The other option for SQC operations, SQC Output Source, is found at Settings | PM 0 - 5 Menu Settings | Common | SQC Output Source.*
>
> *These two items are separated in the Programmer since one can have one value while the other can be set differently in each PM.*

Selected PM - Set from 0 to 5 for the Programmable Memory to be used when the radio is programmed.

Programmable Memory Name - Enter a name of up to 16 characters to help identify this PM.

10.1. .1   Repeater Operations Details

First and foremost, the repeater operations described here are NOT needed to simply access your local repeater. These are advanced functions of the radio intended for use under special, pre-determined circumstances with advanced setup.

For those of you who want to simply talk on and listen to local repeaters, do not activate these functions. take care that you do not engage this function accidentally. It is not disengaged even with a full reset on the radio. Further, you are unable to perform any transceiver functions while in Repeater mode.

This feature can be engaged only from the face of the radio. You cannot accidentally turn this on from the Programmer. To engage or disengage Repeater Operations, press and hold [TONE] while powering on the radio. When Repeater Operations is engaged, the PTT and LOCK icon blink on the display.

The TM-D710 is capable of functioning like a repeater by receiving a signal on one band and retransmitting it on the other. This function is commonly know as Cross-band repeating. It is often used to give an HT the ability to access a distant repeater that it can hear but cannot hit with 5 watts of power.

For example:

Given you want to use a 2 meter repeater. Set the HT to a simplex 440 MHz frequency (listen for one that is not in use and use low power since the mobile radio and the HT are not far apart).

Set one side of the mobile radio to the same 440 Mhz frequency with offset direction set to Simplex. Set the other side to the details for the repeater (Receive frequency, offset and tone).

When you transmit with the HT on the 440 Mhz frequency, the mobile radio will hear that signal and retransmit it on the 2 meter settings.

The signal returning from the repeater will be heard by the mobile radio and retransmitted to the HT on the 440 Mhz frequency.

The TM-D710 has three modes for Repeater Operations. After selection, turn the transceiver power OFF; then press [TONE] + Power ON. When repeater mode is ON, the PTT and LOCK icons blink. To return to normal operation, turn the transceiver OFF, then press [TONE] + Power ON.

Cross Band - If a signal is being received on the TX band, the radio switches the current RX band to the TX band. This is useful when joining a

group talk. Plan ahead, participants in a group talk should set the Tx and Rx frequencies on different bands and repeater operations to Cross Band to keep from missing any of the conversation.

Locked TX (Band A or Band B) - The radio uses the same band to receive or transmit a signal.

The options to be set in the Programmer for this function include:

Tx Hold (500 ms) - Check to set the radio to remain in transmit mode for 500 ms after a signal drops (this gives the radio a "tail" just like that you hear from the repeater.)

Mode - Set to Cross Band or Single band operation.

ID Transmit - Set to Off, Voice, or Morse for callsign transmission every 10 minutes as required by FCC rules for amateur transmissions.

Note: To use Voice, you must have the VGS-1 option installed. When using this option, the ID Transmit function will use channel 3 as the callsign.

ID - Enter your callsign for repeater identification.

Note: If ID Transmit is set to Morse, the callsign will be transmitted at 20 words per minute.

10.1.8 Remote Control

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

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

10 MHz Mode - Enable to allow the VFO receive frequency to be tuned in 10 MHz steps. This function can be set in software only. It cannot be enabled or disabled from the face of the radio.

Key Lock - Disable buttons of the radio other than [Power] and [PTT]. When engaged LOCK appears on the display of the radio. To disengage this feature from the face of the radio, press and hold the [F] key for one second (or until the LOCK indication appears or disappears).

Channel Display - This function is more than just a change to the display on the face of the radio. When engaged, ONLY Memory channels are accessible.

The display of the radio displays CH XXX (where XXX is a channel number) rather than a frequency.

To control this feature from the face of the radio, hold the [LOW] key during power On.

This feature cannot be engaged if there are no memory channels in the radio. Although the option can be checked in the Programmer, the setting will be ignored by the radio.

When engaged, the radio cannot be reset.

Data Terminal

Set the **PR1 Pin Output Level** independently for Packet Mode and Echolink Sysop Mode.

Set the **RKD Pin Input Sensitivity** independently for Packet (1200 bps) Mode and Echolink Sysop Mode.

Repeater Operation - See details for this advanced feature of the radio in the Repeater Operations section of this Help. This is an advanced function of the radio for use in special operations.

Remote Control - Control your mobile radio with a properly equipped HT through properly sent DTMF tones. See the section in the Help on Remote Control for more details on this feature. The options to be set in the Programmer for this function include:

Password - Enter up to 5 letters and digits then check to enable passworded access to your radio. This will be the first think that appears when the radio powers on. This option cannot be enabled as blank to keep you from locking yourself out of your own radio.

> *Note: Notice there is ONE password for this radio. The password is not saved separately for each programmable memory.*
>
> *Although there are six programmable memories that can be customized for use by different people, there is only one password. If your radio is being shared between several people, everyone with the right to use the radio will have to know the password.*

Mic Sensitivity - Set to High, Medium, or Low to suit your voice.

EchoLink Rx Monitor - Configure the audio output while in Echolink Sysop Mode. Options include:

CTCSS/DCS - Audio is heard when a signal with a matching DCS or CTCSS tone is received.

Busy Only - Audio is heard whenever a signal is received.

Other options for Echolink are found on the DTMF / Echolink / Weather tab of the Settings file.

Memory Group Names - Memory channels are grouped by channel number into ten

groups. Group 1 contains channels 0-99, Group 2 has channels 100 - 199, etc., through Group 9 with channels 900 - 999

SQC Output Logic - Set the logic level from the SQC data terminal to High or Low.

>*Note: The other option for SQC operations, SQC Output Source, is found at Settings | PM 0 - 5 Menu Settings | Common | SQC Output Source.*
>
>*These two items are separated in the Programmer since one can have one value while the other can be set differently in each PM.*

Selected PM - Set from 0 to 5 for the Programmable Memory to be used when the radio is programmed.

Programmable Memory Name - Enter a name of up to 16 characters to help identify this PM.

10.1.8.1 Remote Control Details

An advanced feature of the radio allows you to control the TM-D710 with an appropriately equipped HT through DTMF tones. This function can be performed by any HT with DTMF functionality; however, if it lacks the remote control function, all tones will be sent manually from the face of the HT.

Preparation on the HT includes:

> Programming the same three digit ID to initiate remote control on the mobile radio

> Setting up a UHF frequency for sending the tones to the mobile radio

> Setting up a VHF frequency for receiving the Answer Back tones from the mobile radio.

> *Note: This setup is a function of the HT and is not addressed in the Programmer for the TM-D710. I*

Two options are set in the Programmer for the mobile radio in preparation for remote control operations:

> **Answer Back** - Check to enable answer back from the mobile radio to the HT as confirmation that a signal was received. The three digit ID is sent by the mobile radio as the Answer Back.

> **ID** - To prevent control of the radio from an unauthorized source, this process is initiated through a three digit code established in the HT and the mobile radios. Enter this code in the ID field of the Remote Control section. Set the same code in the HT or send the code manually if the HT does not have remote control functionality.

Once setup is complete, engage remote control on the mobile radio by pressing the [REV] key while turning on the power. The CTRL and LOCK icons will appear on the face of the radio when this function is engaged.

While in Remote Control mode, the DTMF keys of the HT will function as shown in the table below. The mobile radio will perform the specified function when the DTMF tone is received.

Operation	DTMF Command
Access your mobile via the remote unit	A***#

Operation	DTMF Command
(where *** is your 3-digit secret number)	
End access via the remote unit	A #
DCS On	1
Tone On	2
CTCSS On	3
DCS Off (all signalling Off)	4
Tone Off (all signalling Off)	5
CTCSS Iff (all signalling Off)	6
Call mode On	7
VFO Mode On	8
Transmit Power (press to toggle between High, Medium and Low)	0
Frequency (VFO Mode) or Memory Channel (Memory Mode) direct entry	A XXXXXXX
DCS code (when DCS is on) Tone frequency (when Tone is on) or CTCSS frequency (when CTCSS is on) setup	B XXX (DCS code) BA XXX (Tone / CTCSS frequency)
Repeater Operation On (Cross-band or Locked-band)	C
Repeater Operation Off	D
Step the frequency or Memory channel down	*
Step the frequency or Memory channel up	#

Note: If you are using an HT that does not have a remote control function, manually send "AXXX#YA#" where "XXX' is the pre-established 3-digit secret number programmed in the mobile radio and "Y" is a single digit control command as shown in the table.

If you do not send the "A#" at the end of the string you will not have to send the "AXXX#" at the beginning of the next control command; however, the mobile radio will remain ready to receive commands from any station capable of sending DTMF tones.

Unless you are working with a series of commands that will be sent one immediately following the next, it is best to End access with the "A#" suffix on each command and re-establish access with your secret code through the "AXXX#" prefix to prevent someone else from making changes you don't expect.

10.1.9 Password

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

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

10 MHz Mode - Enable to allow the VFO receive frequency to be tuned in 10 MHz steps. This function can be set in software only. It cannot be enabled or disabled from the face of the radio.

Key Lock - Disable buttons of the radio other than [Power] and [PTT]. When engaged LOCK appears on the display of the radio. To disengage this feature from the face of the radio, press and hold the [F] key for one second (or until the LOCK indication appears or disappears).

Channel Display - This function is more than just a change to the display on the face of the radio. When engaged, ONLY Memory channels are accessible.

The display of the radio displays CH XXX (where XXX is a channel number) rather than a frequency.

To control this feature from the face of the radio, hold the [LOW] key during power On.

This feature cannot be engaged if there are no memory channels in the radio. Although the option can be checked in the Programmer, the setting will be ignored by the radio.

When engaged, the radio cannot be reset.

Data Terminal

Set the **PR1 Pin Output Level** independently for Packet Mode and Echolink Sysop Mode.

Set the **RKD Pin Input Sensitivity** independently for Packet (1200 bps) Mode and Echolink Sysop Mode.

Repeater Operation - See details for this advanced feature of the radio in the Repeater Operations section of this Help. This is an advanced function of the radio for use in special operations.

Remote Control - Control your mobile radio with a properly equipped HT through properly sent DTMF tones. See the section in the Help on Remote Control for more details on this feature. The options to be set in the Programmer for this function include:

Password - Enter up to 5 letters and digits then check to enable passworded access to your radio. This will be the first think that appears when the radio powers on. This option cannot be enabled as blank to keep you from locking yourself out of your own radio.

> *Note: Notice there is ONE password for this radio. The password is not saved separately for each programmable memory.*
>
> *Although there are six programmable memories that can be customized for use by different people, there is only one password. If your radio is being shared between several people, everyone with the right to use the radio will have to know the password.*

Mic Sensitivity - Set to High, Medium, or Low to suit your voice.

EchoLink Rx Monitor - Configure the audio output while in Echolink Sysop Mode. Options include:

CTCSS/DCS - Audio is heard when a signal with a matching DCS or CTCSS tone is received.

Busy Only - Audio is heard whenever a signal is received.

Other options for Echolink are found on the DTMF / Echolink / Weather tab of the Settings file.

Memory Group Names - Memory channels are grouped by channel number into ten

groups. Group 1 contains channels 0-99, Group 2 has channels 100 - 199, etc., through Group 9 with channels 900 - 999

SQC Output Logic - Set the logic level from the SQC data terminal to High or Low.

> *Note: The other option for SQC operations, SQC Output Source, is found at Settings | PM 0 - 5 Menu Settings | Common | SQC Output Source.*
>
> *These two items are separated in the Programmer since one can have one value while the other can be set differently in each PM.*

Selected PM - Set from 0 to 5 for the Programmable Memory to be used when the radio is programmed.

Programmable Memory Name - Enter a name of up to 16 characters to help identify this PM.

10.2   Radio Menu Settings - DTMF/Echolink/Weather

DTMF - Dual Tone Multi-Frequency

The keys on the microphone keypad function to generate DTMF tones. These DTMF tones are used today for autodial functions (phone calls through amateur repeaters) or for access to Internet functions. For more information about the availability of these functions in your area, contact your local repeater operator.

The radio have 10 memories (automatic dialer) for storing a DTMF strings (Code) of up to 16 digits in each channel.

These memories can be labeled with an alpha/numeric strings (Name) for easier identification.

The options to be set in the Programmer include:

> **Name** - An identifying alpha/numeric string of up to 9 characters.
>
> **Code** - The DTMF string. You can store up to 16 digits.
>
> **DTMF Hold** - Activate this function to remain in transmit mode, after beginning to press keys when making a call.
>
> **DTMF Mic Key Lock** - This function will lock the DTMF transmission keys so that they will not transmit if they are accidently pressed. Check to inhibit DTMF transmission.
>
> **DTMF Delay** - Adjust the delay between selection of a DTMF memory and transmission of the tones.
>
> **DTMF Speed** - Change the speed at which the tones are transmitted for improved communication between the radio and the repeater. Some repeaters may not respond correctly if at fast speed; if that happens, change the speed to Slow.

Echolink - EchoLink®, a registered trademark of Synergenics, LLC, is a system that links amateur radio stations together using the Internet and allows you to enjoy speech communication with other operations via the worldwide network, using VoIP (voice-over-IP) technology.

There are many access points for EchoLink (called EchoLink nodes), such as repeater stations and link stations that connect to the Internet.

Using DTMF codes transmitted from a transciever to access a nearby EchoLink node, it is possible to communication with amateur radio stations located at many places in the world.

If the EchoLink software is installed on your personal computer, without using any transceiver, it is possible to communicate as a single user directly via your personal computer. This is a major feature of EchoLink

In Sysop mode, EchoLink forms a gateway between the Internet and a local RF channel, such as a simplex frequency or a nearby repeater. This allows other stations in the system to communicate with mobile or portable users in your area.

For operation details, PC hardware requirements, and information about EchoLink nodes, visit the official site at www.echolink.org.

There are 10 EchoLink memory channels available. This function is used for accessing nearby relay stations using DTMF codes or by transmitting a control command.

Name - Enter an alpha/numeric string of up to 8 characters to identify this Echolink memory.

Code - Enter the DTMF string of up to 8 characters needed for Echolink access.

EchoLinkSpeed - Set the transmission speed for the tones to Fast or Slow for improved communication between the radio and the repeater. Some repeaters may not respond correctly if at fast speed; if that happens, change the speed to Slow

Note: The radio cannot communicate with the Programmer if the Echolink Sysop Mode is on.

Weather Channel - you can program weather channels, if using a K-type (USA and Canada) transceiver model.

The radio comes preprogrammed with ten NOAA weather channel frequencies.

Rx Frequency - Appears only as reference for the other programmable information.

Rx Step - This value must be set appropriately for the frequency entered.

Name - Enter an alpha/numeric string of up to 8 characters to identify a Weather channel.

10.3   Programmable Memories (PM0 - PM5)

The TM-D710 has settings that are associated with memory channels; others that are set only once in the radio; and others that can be set independently six different times: once for each programmable memory.

In the Programmer, these items are found in specific areas that help you easily set them as they are designed to be used by the radio.

Memory Channel items are found in the ***spreadsheet on the main page*** of the Programmer.

Set Menu Items that can be set only once are found on the screens that open when you select ***Settings | Radio Menu Settings*** from the menu at the top of the screen.

Programmable Memory items, the ones that can be set independently for each programmable memory, are found when you select ***Settings | PM0 - PM5 Menu Settings*** from the menu at the top of the screen.   These screens contain the same options. The radio will use the setting within the Programmable Memory that is currently active on the radio.

Programmable Memories

Programmable Memories... maybe not the best name for these since they are NOT memory channels for frequencies other than VFOs.

Programmable Memories (PM) are memories of a sense. They "remember" settings for many features of the radio.   Your radio uses the same memory channels (frequencies) in all the PMs.

The TM-D710 has six Programmable Memories (PM). These contain menu item settings that can be configured not once but six different ways. PMs are useful in several scenarios.

If you share your radio with someone, each of you can configure many details of the radio as you want for optional performance.

Since display brightness and color are two of these options, you might want to set your radio differently for your morning and evening commute to make it more visible in changing light conditions.

ARPS settings are included in these options. With two button presses, you can access different ARPS characteristics for a different activity.

The MIC and Panel PF key settings can be customized for different activities. Change to those differences without having to access the radio's menu. Simply change to a different Programmable Memory to activate those new settings.

Set up different Memory Group Linking. While the radio accesses all the memory channels in each of the Programmable Memories, setting Group Linking differently gives you control over what memory channels are included when you scan. Set your amateur repeaters in one PM, your train frequencies in another, your fire and police frequencies in a third PM. Now you can scan for that specific activity without having to wait through the activity from the others.

These are just a few suggestions for using the Programmable Memories. The combinations are endless given how many features of the radio are included in the Programmable Memory options.

With just a little thought and organization, your radio will operate six different ways with just two button presses. How easy is that!!

10.3.1   Menu Settings - Common

1750 Hz Transmit Hold - Check to enable transmission of the 1750 Hz tone automatically when the PTT is pressed. This is different than transmitting the tone through a PF key and very useful when a repeater (usually in Europe) needs the tone with each transmission.

> *Note: When engaged, the 1750 Hz tone is not transmitted continually while the PTT is pressed. It is transmitted only at the beginning of each transmission.*

Auto Brightness - check to enable. The display of the radio will light up every time a key is pressed.

Auto PM Store - If you are using Programmable Memories (PM), this is an option to consider carefully.

Off (unchecked) - Any changes made to the radio options that can be set within a Programmable Memory will not be saved to the configuration of that PM unless you use the steps to store it manually. With this option Off, when you leave then return to a PM, it will be just as you set it up from the Programmer.

On (checked) - Any changes made to the radio options that can be set within a Programmable memory will be saved to the configuration of that PM automatically. Be careful with your experimentation from the face of the radio is this option is set to On. You will not be able to return to the configuration you established with the Programmer unless you send the file to the radio again (or you remember how all the options were set.)

> *Note: This setting affects any of the options you see in the Programmer on the PM0 - PM5 screens. Other settings of the radio (those found on the Radio Menu Settings screens) and saved memory channels are retained by the radio no matter how this option is set.*

> *Remember, there are three "parts" of this radio...*

> *1) Memory Channels that are available no matter which PM is active.*

> *2) Radio Menu Settings that are used by the radio no matter which PM is active.*

3) Programmable Memories (or menu items) that are set differently for each Programmable memory and make your radio function differently depending on the PM in use.

Auto Repeater Offset - When engaged, the radio automatically selects an offset direction, offset frequency (based on the offset frequency setting, Menu item 400, in the radio), and activates the Tone functions according to the frequency entered. This option is useful when operating the radio in VFO mode. It does not affect the memory channels since those values are stored in the radio when it is programmed.

This option does not affect how the Programmer sets the Offset Direction, Offset Frequency and Tone Mode. The Programmer sets up the Offset Direction and Offset Frequency based on a standard band plan. Tone Mode is left for you to configure since this information can vary widely based on the discretion of the repeater owner.

Display Partition Bar - Turn on or off the vertical line that separates the dual display of the radio.

Mic Key Lock - Check to lock the PF keys on the microphone.

Auto Power Off - A background function that monitors the radio for activity and turns it off after the time set. Activities on the radio (transmissions, changes to set menu items, manual tuning) reset the timer to zero.

Note: Even with Beep volume set to off, the radio will beep and APO will appear on the display one minute prior to power off.

Backlight Color - Set the color of the display to that most suitable for your activities. You may want one color while your spouse can see another more clearly.

Display Brightness - Set the brightness of the display to that most suitable for your activities. You might need it brighter in the morning when the sun is up as compared to in the evening when you drive after dark.

Power On Message - Each time the transceiver is turned ON, the default word "HELLO" appears on display for approximately 2 seconds. A different message can be programmed in place of the default message.

External Data Speed - Set to 1200 or 9600 bps for Packet data.

External Data Band - Set the receive and transmit combination for A Band and B Band during Packet operations.

Scan Resume - Configure how the radio will respond when a signal is heard during scanning.

> Time - The radio remains on a signal for 5 seconds then resumes scanning even if the signal is still active.
>
> Carrier - The radio remains on a signal until it is lost for 2 seconds.
>
> Seek - Scanning stops on a busy signal and does not resume automatically.

SQC Output Source - Set the condition for which the SQC output terminal becomes active. SQC is the squelch control signal output to the computer function of Echolink operations. Set this option to:

> Off - SQC Output remains inactive.
>
> Busy - When a signal is received on the data band, the SQC output becomes active.
>
> SQL - When CTCSS/DCS is ON and a matching signal is received, the SQC output becomes active. When CTCSS/DCS is OFF, the SQC output becomes active when any signal is received.
>
> Tx - While transmitting, the SQC output becomes active.
>
> Busy or Tx - When the conditions of BUSY and TX (as described here) are met, the SQC output becomes active.
>
> SQL or Tx - Then the conditions of SQL and TX (as described here) are met, the SQC output becomes active.

Time Out Timer - Set the length of time the radio will transmit continually before returning automatically to receive mode.

Memory Settings

Recall Method - Set to Current or All Bands. Current allows you to recall only those memory channels with frequencies within the current band. All Bands allows you to recall all programmed memory channels.

Note: AM channels cannot be recalled on the B Band.

Bands: 118 MHz: 118 ~ 135.995 MHz
144 MHz   136 ~ 199.995 MHz
aka: 2 Meter Band or VHF Band
220 MHz   200 ~ 299.995 MHz
300 MHz   300 ~ 399.995 MHz
430/440 MHz   400 ~ 523.995 MHz
aka: 440 Ham Band or UHF Band
1200 MHz   800 ~ 1299.990 MHz
aka: 1.2 GHz Ham Band (cellular blocked US version)

Group Link - The memory channels of the radio are preset into Groups (100 channels per group: 0-99, 100-199, etc) based on channel number. Use these groups to your advantage as you separate memories into the groups by assigning them to specific channels numbers. Neither the radio nor the Programmer care if you leave blank channel between programmed channels.

Group Link allows you to combine memory groups for scanning. Up to ten memory groups can be linked. Group Link allows you to use Group Scan. If you plan to use this scanning function, you must assign a group to Group Link.

Enter 0 through 9 separated by a space to combine groups. For example 1 3 7 would cause the radio to scan groups 1, 3, and 7 when using Group Scanning.

Note: When combining groups for scanning, the same group can be included repeatedly. The radio will scan that group each time the group number appears giving it extra coverage.

You must set up a Group Link even if it is only one Memory Group entered repeatedly to use Group Scan.

Audio Settings

Key Beep - Check to enable an audible tone when a key is pressed.

Volume - Set the volume for the tone that is heard when a key is pressed.

Voice Announce Settings - These options affect the performance of the radio with the optional VGS-1 Voice unit.

    Announce - Auto or Manual to control what functions are announced and whether that announcement is triggered manually through a button press

or automatically when a change is made from the face of the radio. When set to Manual, a PF key of the microphone must be set to Voice to trigger the announcement.

Volume - Adjust the volume for the announcement.

Speed - Adjust how fast or slow the announcement is made.

Language - Select from English or Japanese.

External Speaker - Configure internal/external speaker functions.

Mode	Speaker Setup	Band Output		
		Internal Speaker	External SP1	External SP2
MODE 1	None	A, B	-	-
	SP1 only	x	A, B	-
	SP2 only	A	-	B
	SP1, SP2	x	A	B
MODE 2	None	A, B	-	-
	SP1 only	x	A, B	-
	SP2 only	B	-	A
	SP1, SP2	x	B	A

Voice Storage Settings - Another function of the optional VGS-1 Voice Unit. The radio will ignore these settings if the VGS-1 is not installed.

Playback Interval - Set the time interval for how often the memo/ message is played back.

Playback Repeat - Check to play back the memo/message repeatedly.

Continuous Recording - Check to engage continuous recording of received signals on the control band. The last 30 seconds of recorded signals are retained.

Mic / Panel PF Keys - Set a function from the menu items of the radio to be accessed with a single key press.

Note: There are many functions of the radio that can be accessed only through the Mic or Panel PF keys.

For example: When using the VGS-1 Voice Module, a PF key must be

programmed to [VGS] to access the functions of that option.

You manually transmit the 1750 Hz tone with a PF key.

To have direct entry for a frequency from the microphone, a PF key must be set to [Enter].

The Weather Channels can be accessed only through a PF key. PF1 on the front panel is programmed to access the Weather Channels by default.

There are others. Use the details in the operating manuals for the radio for more details on the option you plan to change.

10.3.2 Menu Settings - Tx / Rx / Repeater

Included here 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.

A-Band / B-Band RF Power - Select the transmit power of the bands. Its generally a good idea to select lower power if the communications is clear. This lowers the risk of interfering with others on the band, and allows battery operation to last longer before a recharge is needed.

Band Select -

Transmit Band - Select either the A-Band or the B-Band

Control Band - Select the band to be controlled. This feature is useful if you have a compatible transceiver (handheld) that can be used as a remote control of your radio. This is handy when you want to control your radio from another location.

Note: While in Remote Control Mode, the DTMF keys of the handheld will function as shown in the table below. Each time you press the desired key, it will automatically send the corresponding command to the controlled band.

If using a band without a remote control function, manually send "AXXX#YA#" where "XXX" is a 3-digit secret number and "Y" is a single-digit control command. If you do not add "A#" to the end, you can skip sending "AXXX#" next time; however, the control band may be accidently controlled by other operators.

Operation	DTMF Command
Access your mobile via the remote unit (where *** is your 3-digit secret number)	A *** #
End access of your mobile via the remote unit	A #
DCS ON	1
Tone ON	2
CTCSS ON	3
DCS OFF (all signalling OFF)	4
Tone OFF (all signalling OFF)	5
CTCSS OFF (all signalling OFF)	6
Call mode ON	7
VFO mode ON	8
Memory mode ON	9
Transmit power (press to toggle between High, Medium, and Low)	0
Frequency (in VFO mode) or Memory channel (in Memory mode) directy entry	A XXXXXXX
DCS code (when DCS is ON), Tone frequency (when Tone is ON), or CTCSS frequency (when CTCSS is ON) setup	B XXX (DCS code) BA XXX (Tone/ CTCSS frequency)
Repeater (Cross-band or Locked-band) ON	C
Repeater OFF	D
Step the frequency or Memory channel down	*
Step the frequency or Memory channel up	#

Band Mask - If you have no plans to use specific bands, you can hide the frequency display of the unused band(s). This saves power consumption and makes it simpler to read the information you need.

Weather Alert - Available only in the USA and Canada. When activated, this function will check for a received NOAA 1050 Hz tone. When tone is received, the weather alert tone will sound. Select the band for activating the weather alert.

> *Note: Whether or not the Weather Alert is activated, you can still access the weather channels. The Weather Alert simply notifies you of activity on the weather channels.*

Receive Settings

A-Band / B-Band S-Meter Sql - S-Meter Squelch causes the squelch to open only when a signal with the same or greater strength than the S-Meter setting is received. This function relieves you from constantly resetting the squelch when receiving weak signals/stations that you're not interested in.

Beat Shift - Enabling this function prevents interference when the transceiver's microprocessor and the CPU's clock's signals appear on the same spots of the reception frequencies.

Mute - Mutes the audio received on another band while receiving or transmitting on the Tx band.

UHF / VHF Band AIP - Advanced Intercept Point helps eliminate interference (common in crowded urban areas) and reduce audio disortion. Can only be used on the VHF/UHF bands.

Mute Hangup - Adjust the time interval between when you receive a signal and when the speaker is muted.

S-Meter Sql Hangup - Adjust the time interval between when the received signals drop and when the squelch closes.

Sky Command II Settings - allows remote control of specific transceivers; one transceiver operates as a control station called "Commander" and the other transceiver is called "Transporter". This system functions as an interface between the Commander and the Transporter, and allows you to be portable instead of operating from one specific location.

Note: Operation of SKY COMMAND SYSTEM II may not be permitted in certain countries. Check your local laws before operating.

Commander / Transporter Callsigns - Callsigns consisting of a maximum of 6 characters plus an optional "-" followed by an SSID of 1 through 15 (up to 9 digits total).

Note: The built-in TNCs of the Commander and Transporter communicate with each other; therefore, you must program different callsigns as the identifications of the TNCs.

Tone Frequency - Select the same VHF and UHF frequencies for both the Commander and Transporter.

Note: Be sure to configure the squelch to an appropriate level for both the VHF and UHF band on the Commander and Transporter. If the squelch is not set to an appropriate level, the transceivers may enter a BUSY state due to noise signals and be unable to transmit.

When in SKY COMMAND mode, the mic keys of the Commander will function as shown below.

Key	Function
[1] (PWR)	Power ON/ OFF
[2] (RX)	HF frequency receive ON/ OFF
[3] (MODE)	Modulation mode switch
[4] (RIT)	RIT ON/ OFF
[5] (XIT)	XIT ON/ OFF
[6] (CLR)	RIT offset or XIT offset clear
[7] (SPLIT)	Split-frequency ON/ OFF
[8] (M>V)	Transfer from Memory to VFO
[9] (A/B)	In VFO mode: VFO A/ VFO B switch In Memory Recall mode: no change
[0] (SYNC)	Current settings retrieve (from HF transceiver)
[A] (MONI)	To monitor the UHF band on the Commander
[B] (M/V)	VFO/ Memory Recall mode switch
[C] (UP)	XIT/ RIT offset frequency increase
[D] (DOWN)	XIT/ RIT offset frequency decrease
[*] [1] (FAST)	In LSB, USB, or CW mode: 10 Hz/ 1 kHz switch In FM or AM mode: 1 kHz/ 10 kHz switch
[#] [2] (ENTER)	In VFO mode: frequency entry ON In Memory Recall mode: channel number entry ON
[PTT]	To transmit audio on an HF frequency

TM-D710 Settings

COM Port Speed - adjust the speed at which the computer and transceiver exchange data when the transceiver is connected to your computer.

Display Contrast - Display visibility changes depending on variable conditions such as lighting conditions between night and daytime, as well as temperature. Use this function to select the best visual contrast.

Display Reverse Mode - change the display status (backlight color) to Negative or Positive.

Internal Data Band - select how data will be transmitted and received.

Time Zone - select your time zone.

Visual Scan - this feature graphically and simultaneously shows how all frequencies in the selected range are busy. Select the center frequency and the number of channels.

10.3.3   Menu Settings - APRS 1

APRS Beacon - The Automatic Packet Reporting Systems was
designed to support rapid, reliable exchange of information for local, tactical real-time
information, events or nets. All relevant information is transmitted immediately to
everyone in the net and every station captures that information for consistent and
standard display to all participants. Since the primary objective is consistent exchange
of information between everyone, APRS established standard formats not only for the
transmission of POSITION, STATUS, MESSAGES, and QUERIES, it also establishes
guidelines for display so that users of different systems will still see the same consistent
information displayed in a consistent manner (independent of the particular display or
mapping system in use).

Included here 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.

My Callsign - Program your callsign using a maximum of 9 alphanumeric characters.
You may include SSID characters in the string. You cannot send any data using
NOCALL.

Note: Refer to the website for SSID: http://aprs.org/aprs11/SSIDs.txt

Beacon Type - select APRS data format (APRS or NAVITRA) for sending.

Internal TNC Settings - The TH-D72 has a built-in TNC (Terminal Node
Controller) modem in the transceiver for packet communication. The embedded
microcomputer supports not only the radio functions, but also data communication
application programs such as APRS.

*Note: Close distance between the radio antenna and personal
computer may cause interferences.*

Data Band - select how data will be transmitted and received.

A-Band - A band receives and transmits

B-Band - B band receives and transmits

A:Tx B:Rx - A band transmits and B band receives

A:Rx B:Tx - A band receives and B band transmits

Note: Select A:Tx B:Rx or A:Rx B:Tx if APRS networks which use two separate frequencies become available in the future.

Data Speed - select 1200 or 9600 bps for the data transfer rate, depending on TNC. The default setting of 1200 bps is standard among current APRS networks.

DCD Sense - select the method for inhibiting the built-in TNC from transmitting.

D or RxD Band - when the data band is no longer busy, the packet is transmitted.

Both Bands - when the bands are no longer busy, the packet is transmitted.

Ignore DCD - Transmission is not inhibited and the packet is transmitted immediately.

Tx Delay - set the transmission delay time between transmitting the APRS data and transmitting a flag code prior to the APRS data.

Note: When the other station has activated their Save Mode, set a longer delay time.

GPS Port Settings

Baud Rate - Set the communication speed of the external GPS or equipment connected to the GPS terminal. To set from the face of the radio, enter Menu mode and access menu item 330.

Note: The speed is set to 4800 bps (NMEA) and 9600 bps (IPS format: SONY) when a GPS receiver is connected.

It does not correspond to the Garmin - TXT format.

Input - Select APRS input.

Off - conduct APRS communications without using a GPS receiving or weather station.

GPS - conduct APRS communications using a GPS receiver. Verify your position data by pressing the [POS] key.

Weather (Davis) - conduct APRS communications using a Davis weather station. Verify your weather data by pressing the [WXI] (PF) key.

Note: Vantage PRO2™ - operation verification model (as of April 2011). See your operating manual for information & compatible software details.

Weather (Peet Bros.) - conduct APRS communications using a Peet Bros. weather station. Verify your weather data by pressing the [WXI] (PF) key.

Note: ULTIMETER® 2100 - operation verification model (as of April 2011).

Output - Select APRS output.

Waypoint - the waypoint information is forwarded. Received callsign and positioning data is displayed as the waypoint data through the device connected to your GPS receiver or on the GPS receiver display.

DGPS - Differential GPS information is forwarded. Received differential information is sent to the GPS receiver.

COM Port Output - outputs or verifies data from the PC (USB port) after receiving packet and TNC command data from the ARPS data communications.

APRS Lock - prevents accidental frequency changes and/or transmissions when enabled.

OFF - can transmit on internal data band by pressing [PTT]

ON - prevents frequency change. Also, prevents scan performance using the [VFO], [MR], [ENT], and [MHz] keys or the Tuning control.

ON & PTT - prevents frequency change, and transmissions are prevented when [PTT] key is pressed.

ON & TNC - prevents frequency change and, while in APRS mode, exiting the mode is prevented when [TNC] key is pressed.

ON & PTT & TNC - prevents frequency change, and accidental pressing of the [PTT] AND [TNC] keys will not affect change.

Position Comment - select one of the 15 predetermined position comments.

Note: Never select EMERGENCY unless it is necessary. This causes

the Emergency Alarm on all stations to sound. If you select EMERGENCY, a confirmation message appears.

Waypoint Settings

Format - select the type of sending format: NMEA, MAGELLAN, and KENWOOD.

Name - select the length of the waypoint name (6, 7, 8, or 9 characters).

Output - select the extent of waypoint data you want to send.

<u>All</u> - all information is sent.

<u>Local</u> - If the position limit is ON, all data within the position limit is sent. If it is OFF, then all waypoint data is sent.

<u>Filtered</u> - permitted information using the packet filter is sent.

Beacon Information Settings

Speed - select whether or not to transmit speed information.

Altitude - select whether or not to transmit altitude information.

> *Note: When the beacon type is NAVITRA, this information will not appear on the display.*

Position Ambiguity - In cases where you do not know or do not want to report your precise locations, select the number of digits not to be included in your packets (1 to 4, or Off). See the example table:

OFF	1-DIGIT	2-DIGIT	3-DIGIT	4-DIGIT
33°50.43	33°50.4	33°50.	33°5 .	33° .
118°13.72	118°13.7	118°13.	118°1 .	118° .

> *Note: When the beacon type is NAVITRA, this information will not appear on the display.*

Packet Filter Type - check the type(s) you want to receive. Options include Weather, Mobile, NAVITRA, DIGI, Object, and Others. If all types are checked, you will receive all types of data.

Position Limit (Miles) - Specify a distance from your location to prevent receiving APRS packets from others located outside the specified distance. This is especially useful when too many APRS packets in the area disturbs your APRS activities.

Packet Path Settings - a packet path is the digipeat route of the packet data
sent from My station.

Type - select the packet path type:

New-N Paradigm - digipeat type commonly used in North America, but is also now used worldwide.

RELAY Paradigm - digipeat type commonly used in Europe.

State/Section/Region - this method is used when packet is relayed within a limited area. Packet paths are specified by using abbreviations (for example, in American, CA represents California, AZ represents Arizona, etc.)

Others - this method is used when the path is directly to a specific individual. A character string is needed for the data to be relayed.

WIDE 1-1 -

Total Hops - select the relay step number.

Path is VIA: - confirm the settings contents.

Station Icon - select an icon that will be displayed on the monitors of other stations as your ID. Set an icon that represents your operational status (for example, setting an aircraft or balloon icon to a fixed station will cause confusion).

You can display and set the following icons:

W	KENWOOD (\K)	👁	Eyeball (/E)
⚡	Lighthouse (\L)	🏫	School (/K)
☀	Satellite (\S)	💻	PC user (/L)
☼	SUNNY (\U)	🎈	Balloon (/O)
📻	RADIO (\Y)	🚓	Police (/P)
◆	ARRL (\a)	🚐	RV (/R)
⬢	RACES (\c)	🚀	SHUTTLE (/S)
⚑	Gale Flags (\g)	🚌	SSTV (/T)
HAM	HAM store (\h)	⛵	Sailboat (/Y)
▦	WorkZone (\j)	🚶	Person (/[)
🚩	Speedpost (Value Singpost) (\m)	▲	DF station (\\)
▲	Triangle (\n)	🌐	WX (Weather station) (/_)
◎	Small circle (\o)	📡	Dish Antenna (/´)
🚩	Tornado (\t)	🚲	Bicycle (/b)
✖	Wreck (\x)	H	HOSPITAL (/h)
◈	Sheriff (/!)	🚙	Jeep (/j)
✹	Digipeater (/#)	🚚	Truck (/k)
◆	GATEway (/&)	⚐	Mic-E Repeater (/m)
✈	Aircraft (/')	▬	Node (/n)
✚	Red Cross (/+)	🚀	ROVER (/p)
🏠	Home (/-)	🚶	QSO Repeater (/r)
✖	X (/.)	⛵	Boat (/s)
•	Red Dot (//)	🚛	Truck (18-wheeler) (/u)
🔥	Fire (/:)	🚐	Van (/v)
⛺	Portable (Tent) (/;)	?	Big Question Mark (\.)
🏍	Motorcycle (/<)	●	IRLP/EchoLink (\0)
🚂	REILROAD ENGIN (/=)	🚋	APRStt (\A)
🚗	Car (/>)		
💾	BBS (/B)		
🛶	Canoe (/C)		

Note: APRS icon codes (symbols/tables) are sometimes updated. Please refer to the following official APRS websites (as of April 2011):
http://www.aprs.org/symbols/symbolsX.txt
http://aprs.org/symbols/symbols-new.text

==User Symbol== -

Beacon Tx Algorithm Settings

Method - select the operation method for transmitting packets.

Manual - each press of the [BCON] key transmits your packet.

PTT - your packet transmits upon releasing the switch after you press/hold and speak into the microphone. To operate, press [BCON] to turn ON, then press and hold [PTT] and speak into microphone. Release [PTT] to transmit APRS packet. To turn function off, press [BCON] again.

Note: You cannot retransmit packet until selected Initial Interval time expires. Wait until "BCON" is blinking on display panel to transmit.

Auto - packets are automatically transmitted at selected intervals periods. Press [BCON] to turn ON function; press [BCON] key again to turn OFF.

SmartBeaconing - after manually transmitting position one time, your position data is automatically transmitted using the time interval set under "SmartBeaconing" (Settings | Radio Menu Settings | APRS 3 tab | Smart Beaconing). Press [BCON] to turn ON function; press [BCON] key again to turn OFF.

Note: After setting Smart Beaconing, the Tx Interval Time, Decay Algorithm, and Proportional pathing features will no longer operate.

Initial Interval - set the interval time for automatically transmitting APRS packets.

Note: While signals are present, an APRS packet does not transmit after the set interval. Once the signals drop, then the transmitting is executed.

Decay Algorithm - if there is no change of information over a period of elapsed time, the data is transmitted based on timed intervals of a Decay Algorithm (1 minute, 2 minutes, 4 minutes, 8 minutes, 16 minutes, 32 minutes, 32 minutes, 32 minutes, etc.).

Note: Should the position data change, the data transmission interval reverts back to the settings selected in the Initial Interval or Proportional Pathing.

Proportional Pathing - after a period of elapsed time, the transmit packet path changes with each transmission. See your radio's operating manual for

information and details of this function.

> *Note: When jointly used with the Decay Algorithm function, and the speed is 1 knots or slower, the Decay Algorithm pattern is used; however if the speed is 3 knots or faster, the pattern changes to Proportional Pathing.*

Voice Alert - notifies other stations (that have the Voice Alert function ON), with matching tone (CTCSS) frequencies, by emitting beacon tones, as to whether or not they are within communication range.

> Off - disabled
>
> On - a CTCSS frequency is added to the transmitted packet (VA appears above displayed frequency)
>
> Rx Only - a CTCSS frequency is not added to the transmitted packet (VAR appears above displayed frequency)
>
> *Note: If built-in data band is set to Cross Band, the Voice Alert function will not operate.*
>
> *Voice Alert takes precedence even when TONE, CTCSS, and DCS are set. When VA is ON, you cannot set/change the TONE, CTCSS, and DCS selections.*
>
> *The TONE will disrupt the demodulation of the packet if the speed is 9600 bps. It is recommended to set the packet speed at 1200 bps.*

CTCSS Frequency - allows you to ignore (not hear) unwanted calls from others. To hear calls from specific persons, select the same CTCSS tone frequencies to communicate or share information with each other.

Network - set the method in which packet data is transmitted without other stations or making a connection.

> APRS - commonly set for normal use (default setting). When messages or meteorological data is transmitted, "APK102" is added to the packet, following your callsign. There are no restrictions on received packets.
>
> ALTNET - select for restrictions on received packets. When messages or meteorological data is transmitted, your character string is added to the packet, following your callsign.

10.3.4 Menu Settings - APRS 2

APRS Beacon - The Automatic Packet Reporting Systems was
designed to support rapid, reliable exchange of information for local, tactical real-time information, events or nets. All relevant information is transmitted immediately to everyone in the net and every station captures that information for consistent and standard display to all participants. Since the primary objective is consistent exchange of information between everyone, APRS established standard formats not only for the transmission of POSITION, STATUS, MESSAGES, and QUERIES, it also establishes guidelines for display so that users of different systems will still see the same consistent information displayed in a consistent manner (independent of the particular display or mapping system in use).

Included here 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.

Status Text - a desired comment, using a maximum of 42 alphanumeric characters, to transmit with your position data. There are 5 memory channels to preprogram.

> **Status Tx Rate** - number of times on which to transmit. 1/**X** means the status text will be transmitted **X** number of times. Options include OFF and 1/1 ~ 1/8 (APRS only).

My Position - Five memory channels are available for storing/naming position data.

> **Select** - select the memory number to program and store data.

> **Name** - enter alphanumeric characters, plus special ASCII, characters up to 8 digits.

> **Latitude** - enter the north/south latitude.

> **Longitude** - enter the east/west longitude.

Sound Settings

> **Rx Beep** - sounds a beep each time an APRS packet is received.   Select an option:

All - beep sounds for all received messages, including duplicate and/or invalid data.

All New - beep sounds when message and new packet data are received at your station address.

Mine - beep sounds when a message is received at your station address and your transmitted data is received by a digipeater.

Message Only - beep sounds only when message is received at your station address.

Off - no beep sound.

Tx Beep (Beacon) - sounds a beep each time your position information is transmitted. Beep options are:

Off - No sound

On - sounds when beacon is automatically transmitted or when using the PTT switch.

Note: Depending on the congestion level of the channel, the beep sound may be delayed when using the internal TNC DCD sense function.

APRS Voice - (requires the optional VGS-1 unit). Enable to allow announcement of the callsign of the sender each time a message is received.

Special Call - set callsigns of stations from which you want to receive a special call sound notification.

DIGIPEAT (My Callsign) - Enable or disable to use the TH-D72 as a digipeater.

If enabled as a digipeater, set your Callsign (Settings | PM 0-5 Menu Settings | APRS 1 tab | My Callsign in the Programmer). The digipeat completion flag (*) is added to your callsign and will then process the relay.

UICheck Time [secs] -

UIDIGI - set whether or not a UI digipeat is run.

Aliases -

UIFLOOD - set whether or not UIFLOOD digipeat runs.

Alias -

Substitution -

<u>ID</u> - your station's callsign is embedded. If there's already a callsign in the relayed UI frame, your station's callsign will replace it.

<u>Noid</u> - the callsign is not embedded or replaced.

<u>First</u> - If there's already a callsign in the relayed UI frame, it remains; however, if a callsign does not exist, your station's callsign is embedded.

UITRACE - set whether or not the UITRACE digipeat runs.

Alias -

Auto Message Reply - enable or disable programmed message that automatically responds to a received message when you are unable to answer.

Text - Enter your reply message of alphanumberic characters, including special ASCII characters.

Reply To - enter the specific callsign you would like your message to automatically reply to.

Weather Station Settings

Tx - enable or disable transmission of meteorological data obtained from the weather station.

Tx Interval - set the time period interval at which the meteorological data is transmitted. The interval can be set to 5, 10, or 30 minutes. Verify by viewing MY WEATHER STATION (press [F], [WXi]).

Note: This data is transmitted with the APRS standard format (altitude/longitude and time information)

10.3.5 Menu Settings - APRS 3

APRS - The Automatic Packet Reporting Systems was designed to support

rapid, reliable exchange of information for local, tactical real-time information, events or nets. All relevant information is transmitted immediately to everyone in the net and every station captures that information for consistent and standard display to all participants. Since the primary objective is consistent exchange of information between everyone, APRS established standard formats not only for the transmission of POSITION, STATUS, MESSAGES, and QUERIES, it also establishes guidelines for display so that users of different systems will still see the same consistent information displayed in a consistent manner (independent of the particular display or mapping system in use).

Included here 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.

User Phrases - similar to a the computer function of a clipboard image which allows you to paste phrases into the message compilation mode. You can create up to 4 phrases, each consisting of up to 32 characters.

Interrupt Display Settings

Display Area - select the display area:

Entire Always - the received new data, duplicate data, and station data appear on the full display, while other data appears only at the top of the display.

Entire - the received new data appears on full display, while other data appears only at the top of the display.

Half - the received new data appears on the left half of the display only, while the other data appears only at the top of the display.

Off - the received new data appears only at the top of the display.

Note: When an emergency message or a message designated for your station is received, the received data appears on the full display, even if the display method is set to HALF or OFF.

When a status message is received, it is displayed on half of the screen.

Auto Brightness - Enables the blacklight to turn on when message is received.

Change Color - Enables the backlight color to change when message is received.

Group Filtering Settings

Message Group Code: - use this to exchange messages only among your group members.

Bulletin Group Code: -

Display Units Settings

Speed,Distance - select to [mi/h, mile], [km/h, km], or [knots, nm].

Altitude,Rain - select to [feet, inch] or [m, mm].

Temperature - select to [°F] or [°C]

Grid Format - select to [Maidenhead Grid], [SAR Grid (CONV)], or [SAR Grid (CELL)]

Position - select to [dd°mm. mm'] or [dd°mm' ss.s"]

NAVITRA Group Mode - select to turn on Group mode.

Group Code: - Enter 0 to 9, A to Z.

NAVITRA Messages - create up to 5 phrases, each consisting of up to 20 characters.

Decay Algorithm Stopped (knots) -

Proportional Pathing Moving (knots) -

Smart Beaconing - optimizes beacon transmission based on driving direction and speed.

Low Speed - 2 ~ 30 mi/h, km/h, or knots. If lower than this, beacons are transmitted at the time interval specified under SLOW RATE.

High Speed - 2 ~ 90 mi/h, km/h, or knots. If faster than this, beacons are transmitted at the time interval specified under FAST RATE.

SmartBeaconing Operation:

Speed	Transmission Interval	Corner Pegging
Above the HIGH SPEED	FAST RATE	Operates normally
Under HIGH SPEED Over LOW SPEED (Only when the set HIGH SPEED ≧ LOW SPEED)	The interval is calculated using the following formula: (Transmission Interval = FAST RATE x HI SPEED ÷ Speed)	Operates normally
Below the LOW SPEED	SLOW RATE	Will not operate

Slow Rate - 1 ~ 100 minutes

Fast Rate - 10 ~ 180 seconds

Transmission Interval Example:
(with LOW SPEED = 5, HIGH SPEED = 70, SLOW RATE = 30 min, FAST RATE = 120 sec)

Speed	Interval
80	120 seconds (2 minutes)
70	120 seconds (2 minutes)
50	168 seconds (2 minutes 48 seconds)
30	280 seconds (4 minutes 40 seconds)
20	420 seconds (7 minutes)
10	840 seconds (14 minutes)
5	1680 seconds (28 minutes)
0	1800 seconds (30 minutes)

Turn Angle - driving direction change, minimum value setting (5 ~ 90 degrees)

Turn Slope - driving direction change, additional value setting (1 ~ 255 (10 degrees/speed))

Turn Time - minimum time delay between each beacon transmission by change of direction (5 ~ 80 seconds)

Corner Pegging Operation Example:
(with TURN ANGLE = 30°, TURN SLOPE = 24)

Speed	TURN SLOPE	TURN SLOPE ÷ Speed (1)	TURN ANGLE (2)	Turn Threshold (3)=(1)+(2)
60	24 (x10)	4°	30°	34°
50	24 (x10)	6°	30°	36°
30	24 (x10)	8°	30°	38°
20	24 (x10)	12°	30°	42°
10	24 (x10)	24°	30°	54°
5	24 (x10)	40°	30°	78°

- When the value of [Turn Threshold] exceeds 120°, it is calculated as 120°.

Part XI
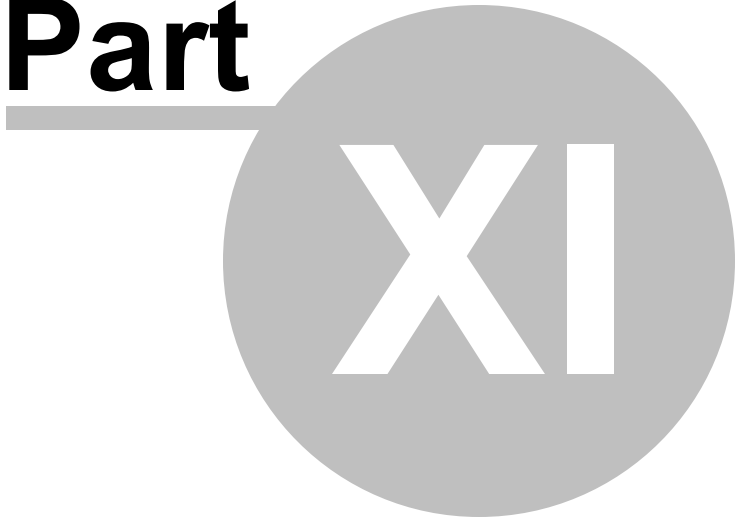
11 Radio / Computer Data Transfer

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 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.

Get Data From TM-D710

1. Insert the USB-K5G cable into the PC jack on the back of the TM-D710.

2. Turn the radio on.

3. Click OK to start transferring the data.

[OK]   [Cancel]

- 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 <u>immediately</u>, 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

- "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-K5G cable connects to the PC jack on 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 Programming Other Set Menu Items 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.

Send Data To TM-D710

1. Insert the USB-K5G cable into the PC jack on the back of the TM-D710.

2. Turn the radio on.

3. Click OK to start transferring the data.

OK   Cancel

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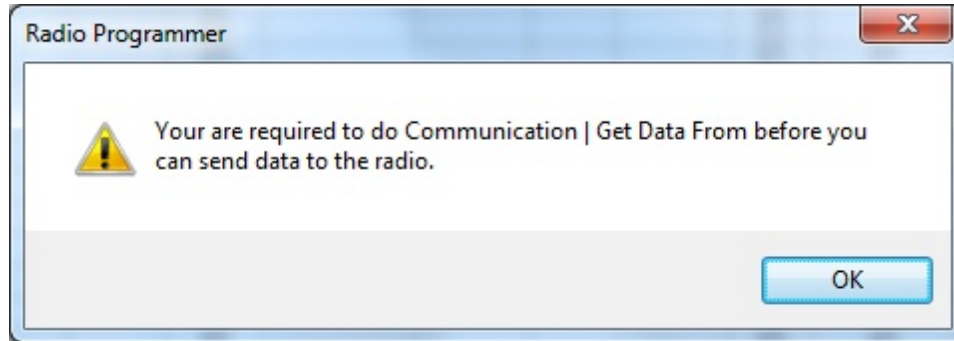
The first time you attempt to send your file to the radio, this message may appear.

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.

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-K5G, a gray cable with an 8-pin mini din plug, is the correct cable for the TM-D710 radio. This cable is included in the KRS-D710 kit.

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
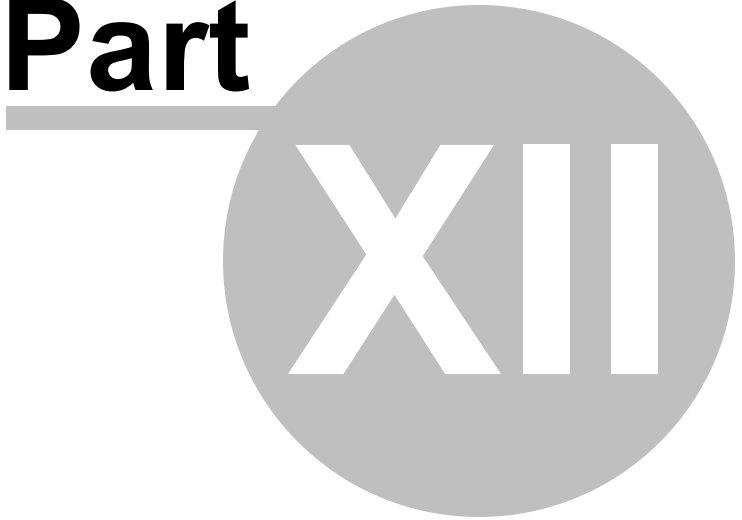
12 File Maintenance

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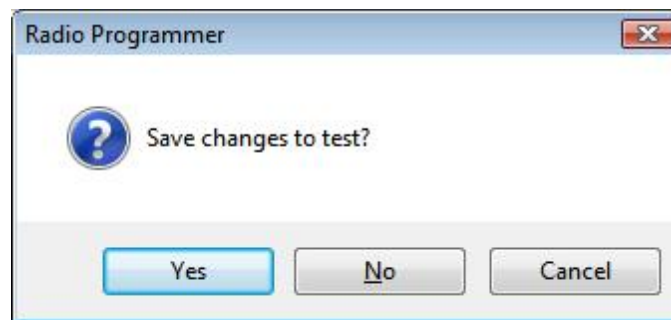
Files 1-4 - Up to four files that you last worked in and saved.

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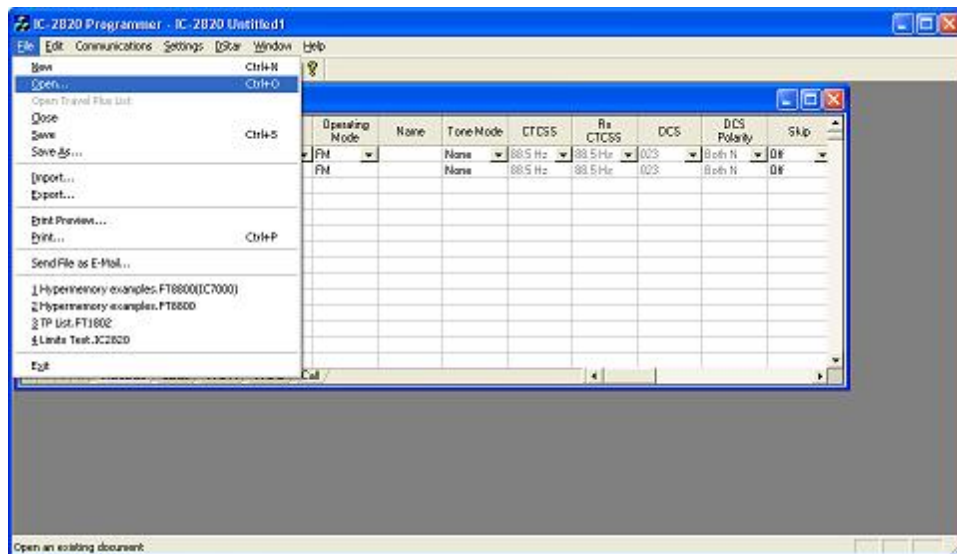
- If you have several Version 3 programmers installed, you will need to select FT-60 Radio Data File from the list in box that opens next. This step is omitted if only one programmer is installed.
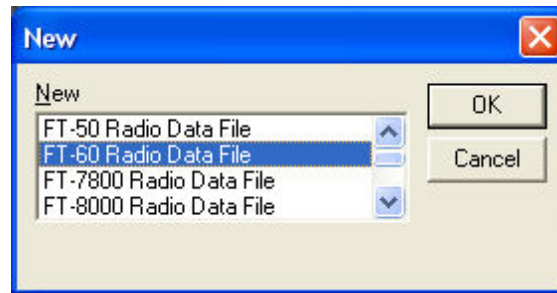
- An Open Dialog appears

- 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.
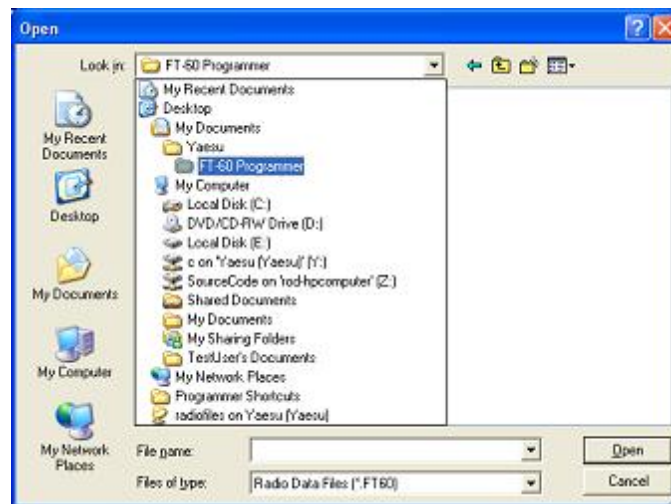
- Use your mouse to left click on Local Disk (C) in the list. On your machine this wording can vary a little. In general, you're looking for that "(C)" to know you've made the correct selection.
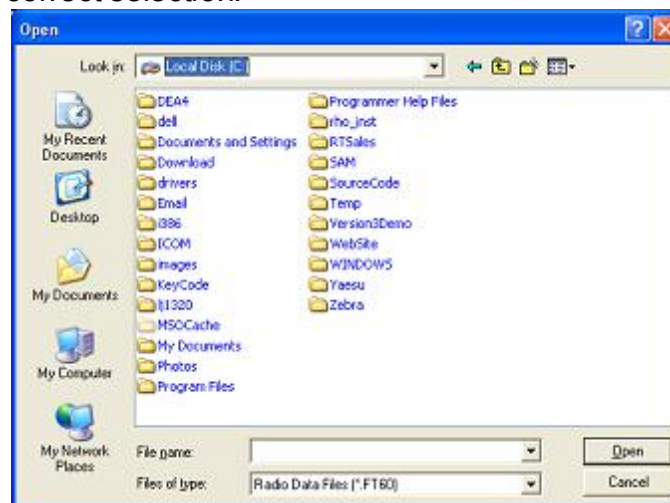
- What you see now are directories (the ones with the little yellow folders) and files. Find the little yellow folder that says Yaesu next to it. Put your mouse on it and Left click. Once Yaesu is highlighted, let go of the mouse button, move the pointer to the Open button, then use your mouse to left click on the Open button.
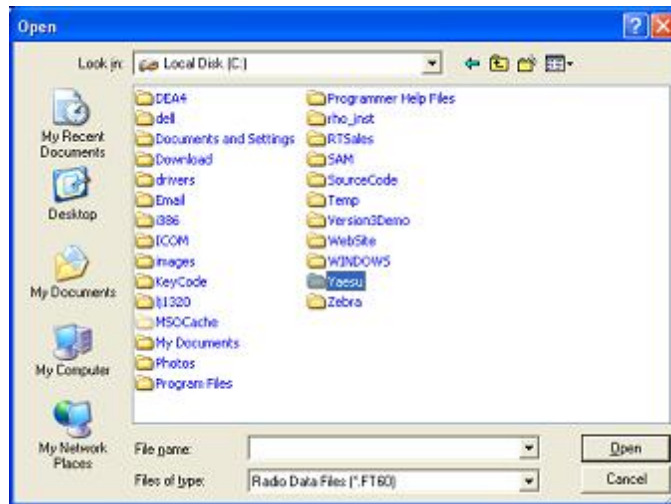
- After clicking Open, the contents of the Yaesu directory appear.
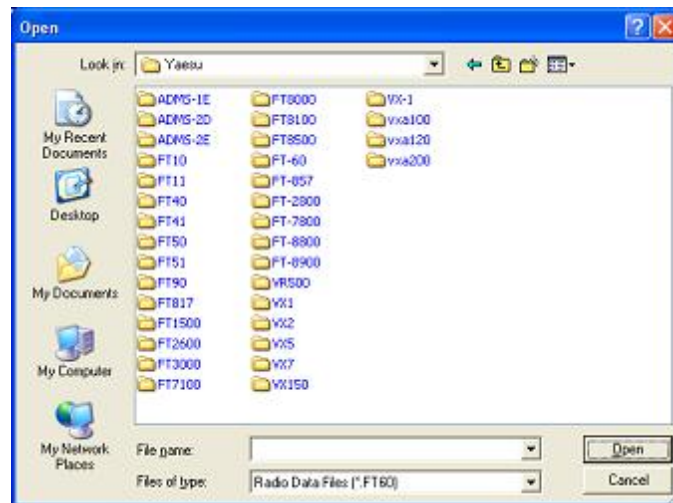
- In this example, there are lots of directories (the ones with the little yellow folders) since all the original programmers were installed on this machine. In your case, there is probably only one directory (little yellow folder). In either case, find the FT-60 directory (the one with the little yellow 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.
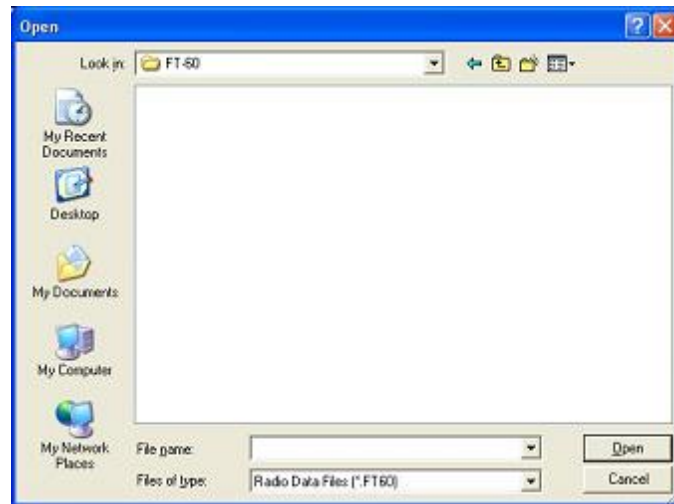
- Yes, a blank screen appears. This is normal. At the bottom of that screen, find the "Files of type" box. Use the left mouse button to click on the down arrow at the right of that box. Select Old Radio Files (*.rdf) from that list. The names of the available files will appear on the screen.


- 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.
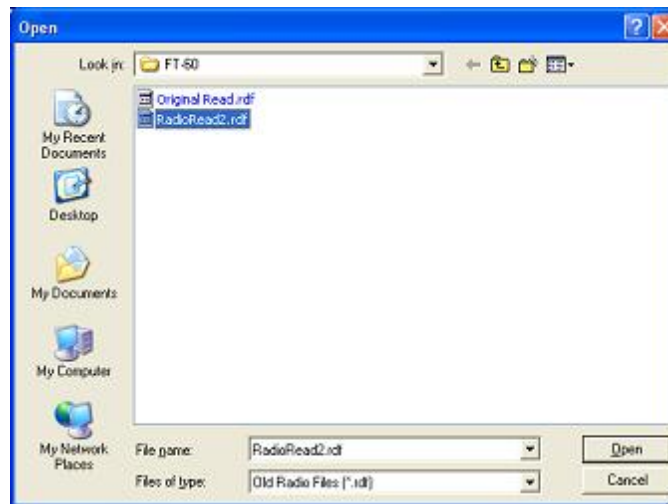
- Release the left mouse button. Move the pointer to Open. Click the left mouse button once to open the file.
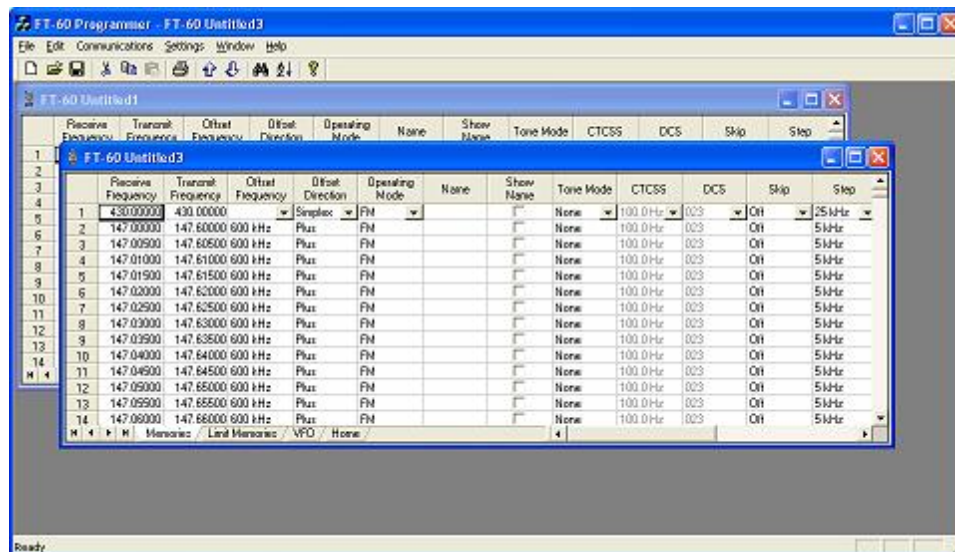
- All the data of the original file is converted into a new Version 3 file for the FT-60.

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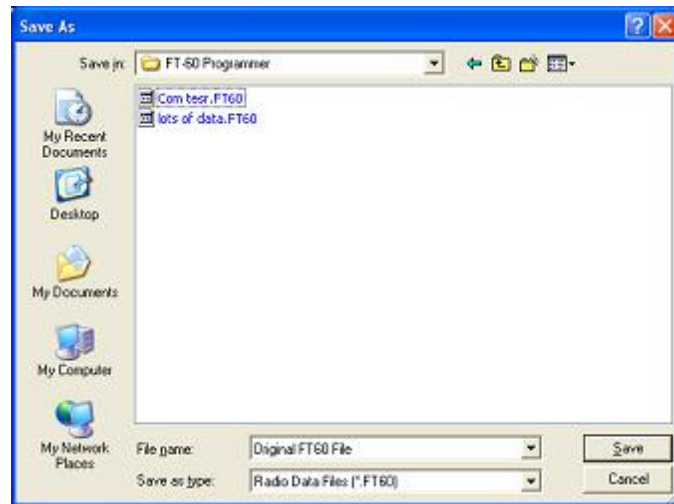
- Enter a filename in the File name field at the bottom of this screen. Use your left mouse button to click Save.

  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.
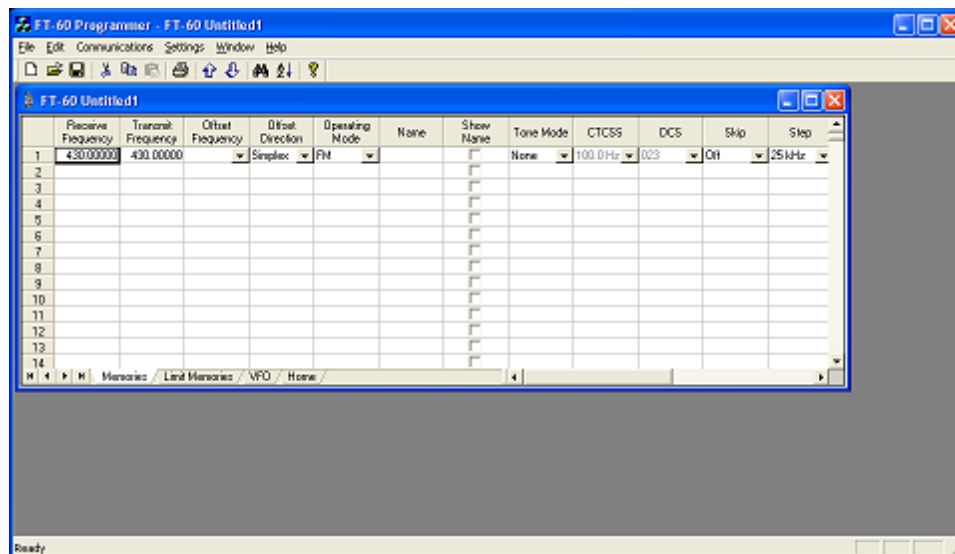
- From the menu at the top of the screen, select File | Open. A box appears from which you select the programmer for the *radio to be programmed (in this case, the FT-60).*
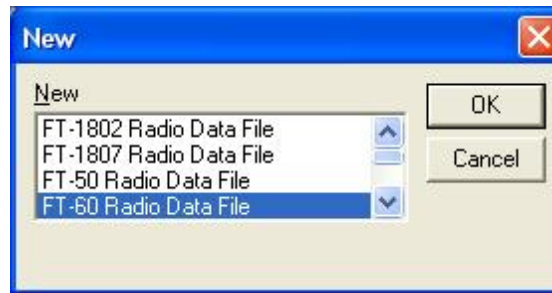
- An Open Dialog box appears. By default it is looking in the FT-60 directory since it is trying to help you find an FT-60 programming file. You will change directories to where the file is stored that you want to open.   (Note: If you received the file via e-mail or from an Internet site, you chose 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 (*.*).
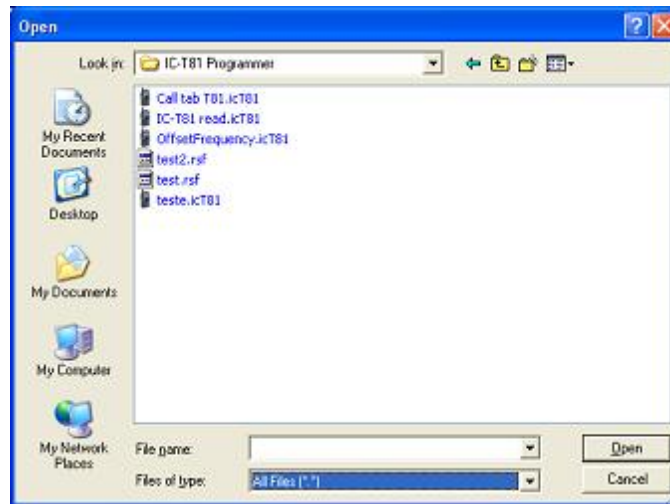
- A listing will appear with more than just the file that you're looking for. Everything in that directory is listed. Your file will be in the list. Select the file from the list.
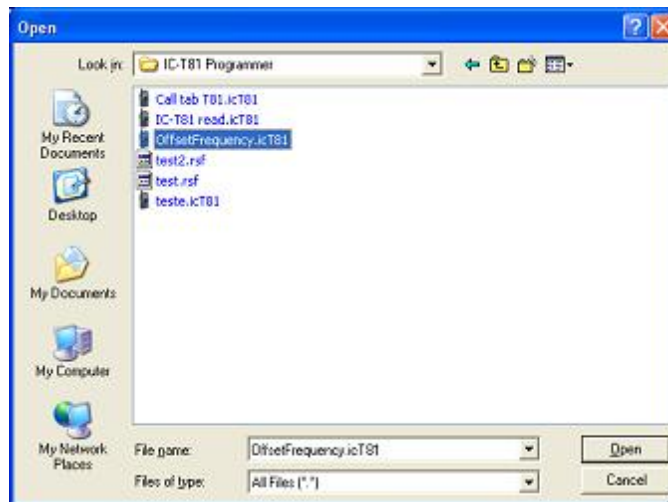
- Click Open in the lower right corner.

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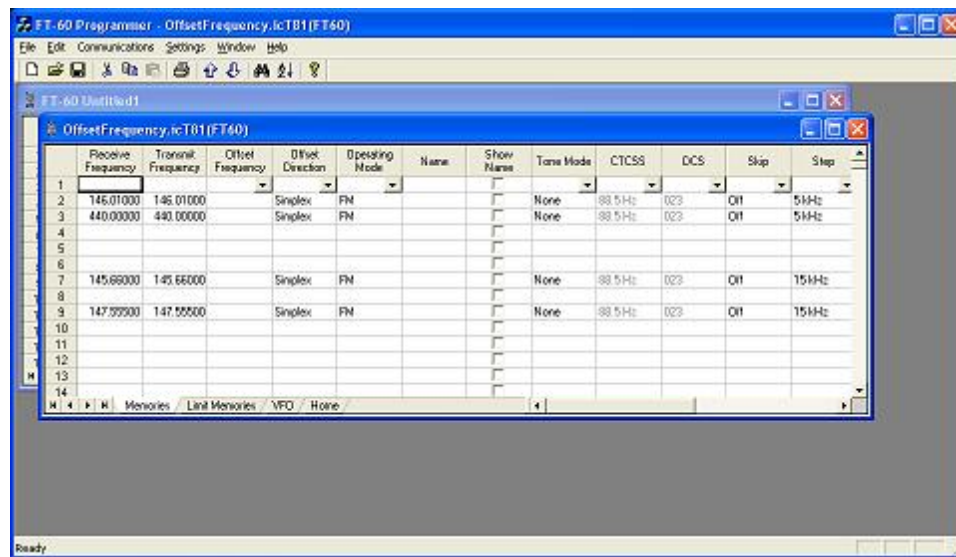
Creation of this file did not disturb the original file. The memory channel information was not removed from the original. A copy was made by the programmer for the conversion.

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)

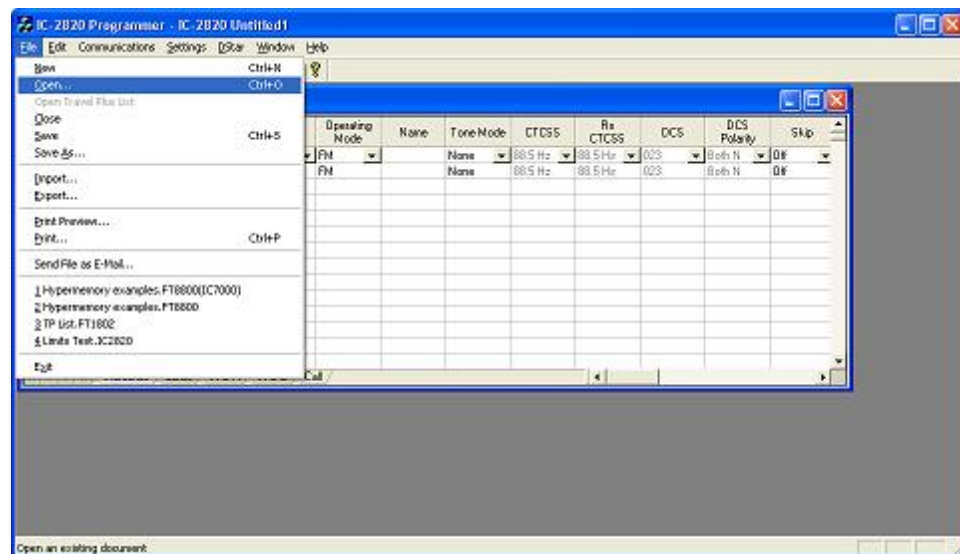- Select File|Open from the menu at the top of the screen.
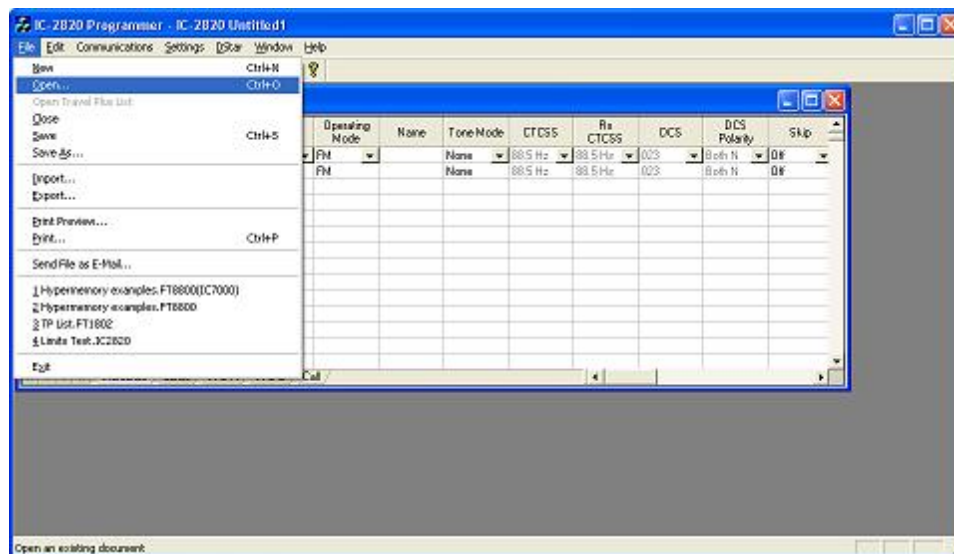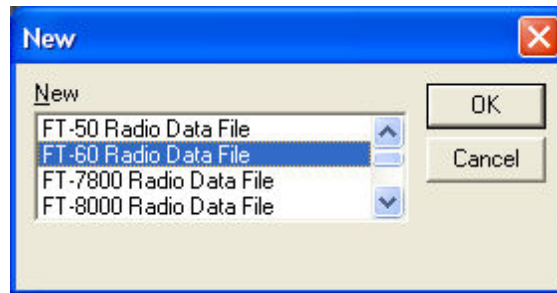

- A Windows Open dialog appears.

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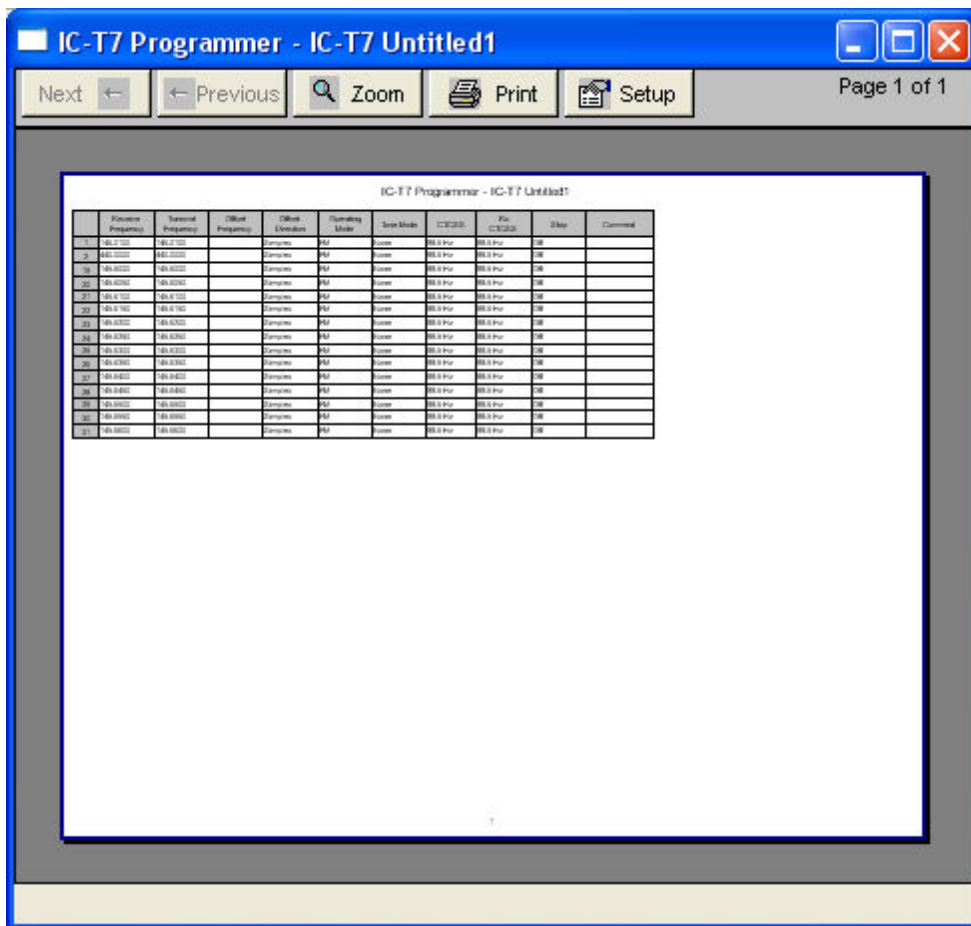
Under Printer setup, change the margins to print on as much of each page of paper as possible. Again, this can make it possible for all the columns to fit on one (or half the number of) page.

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.
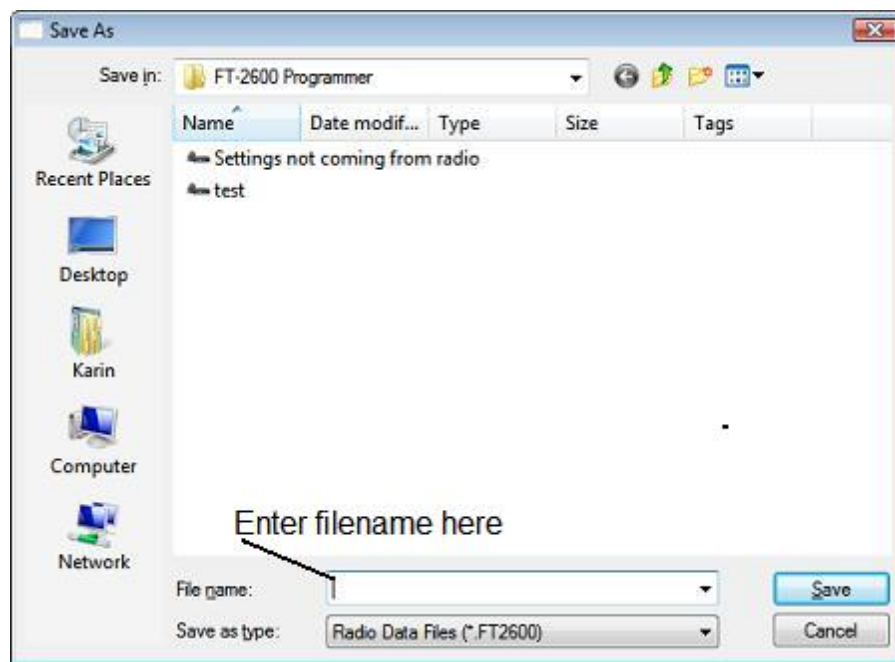
12.6.1 File | Save

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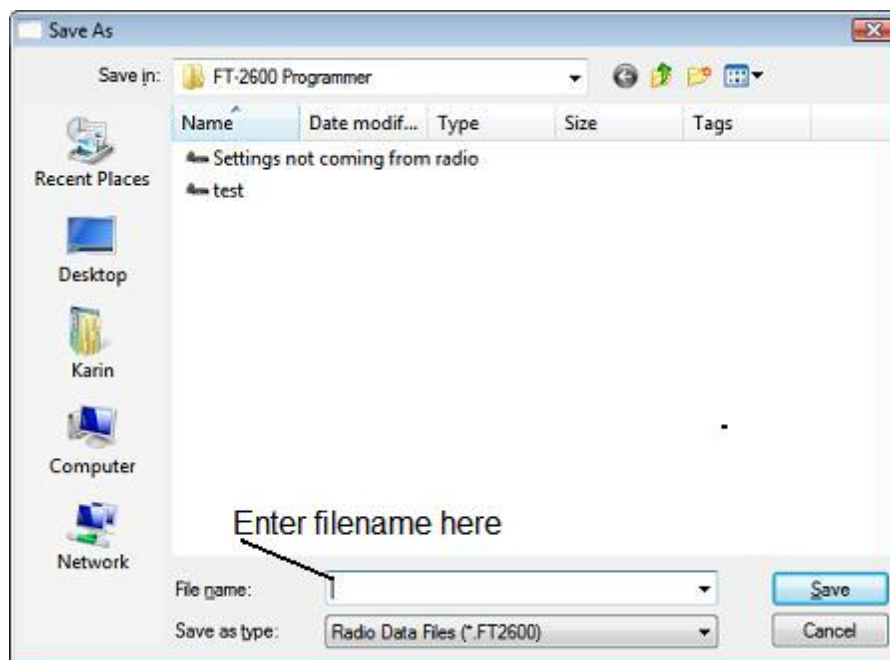
The filename can be any combination of characters and spaces including numbers and letters.

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.
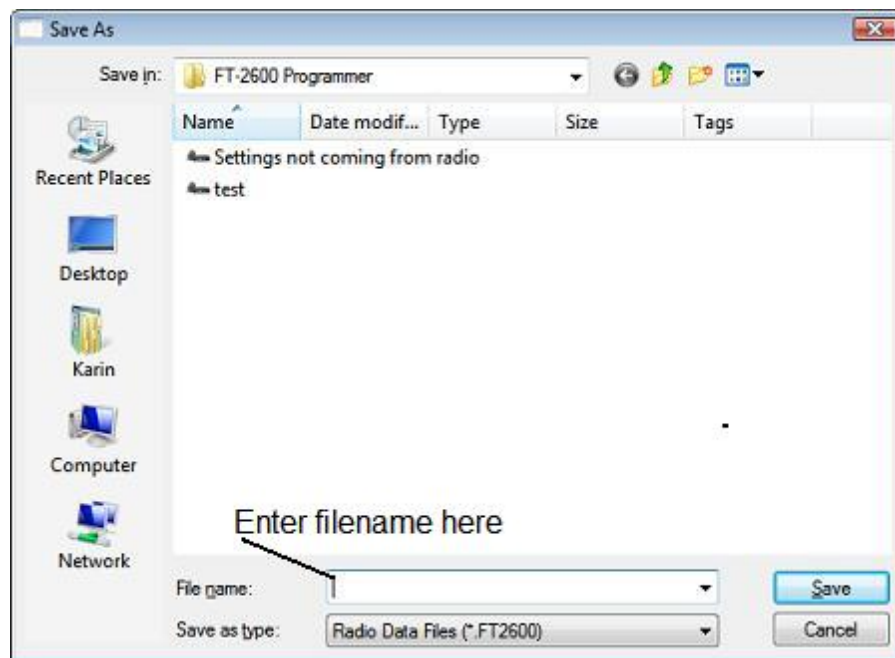
- The title bar of the window changes to reflect the new filename.

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

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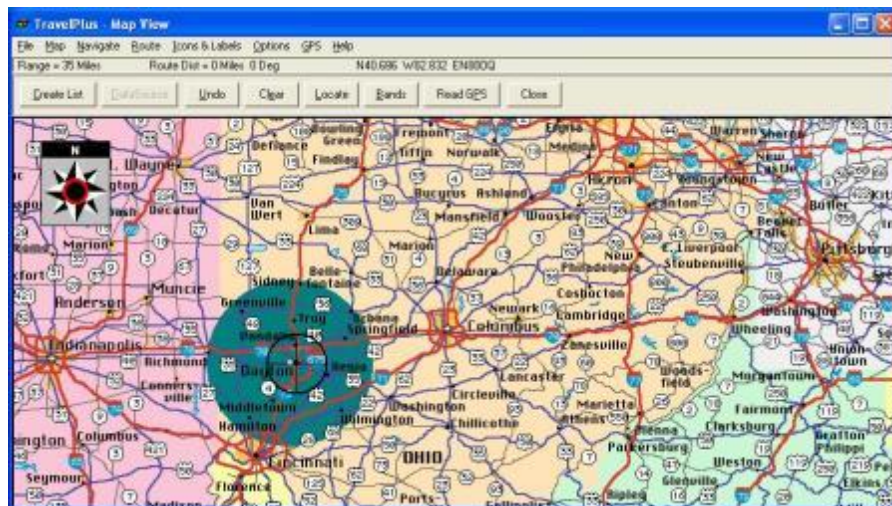
Once you have the area defined on the map, click the Create List button from the top of the screen. TravelPlus* displays the list of repeater frequencies found within your search area.

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.

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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)

From the Menu, select File then
Open Travel Plus List
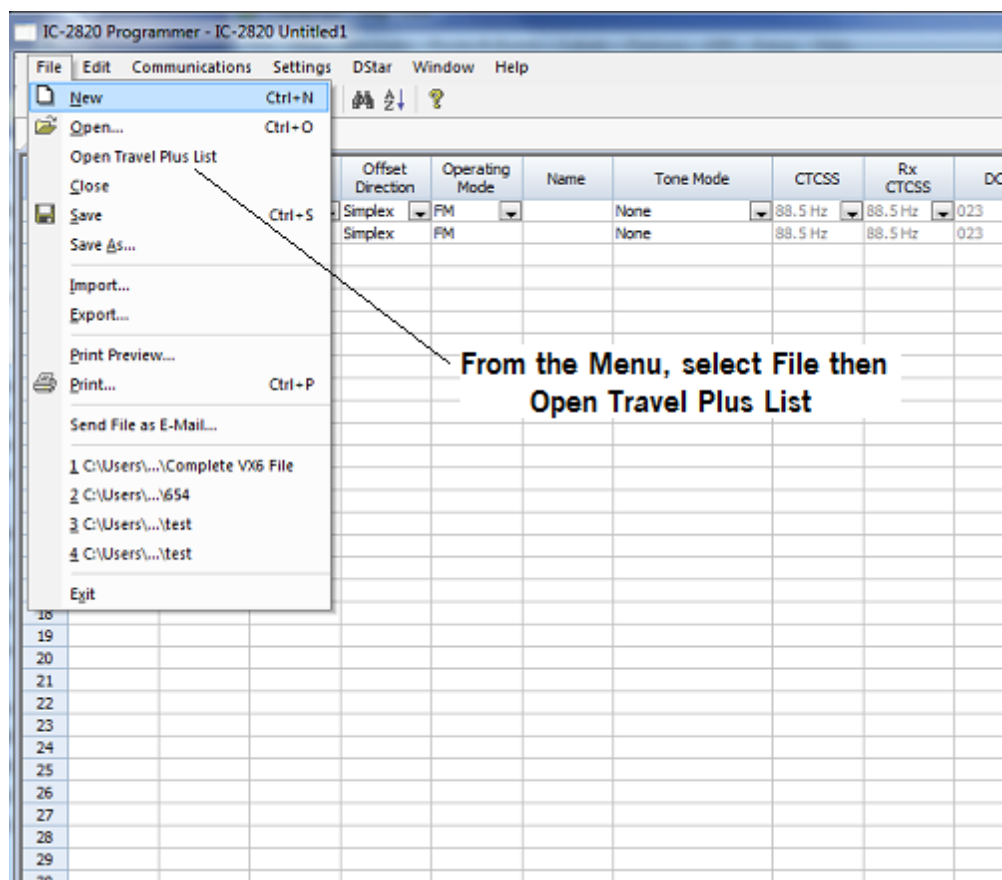
- The list appears in the window of the programmer

Notice the two tabs. The radio file and the Travel Plus List are clearly identified.
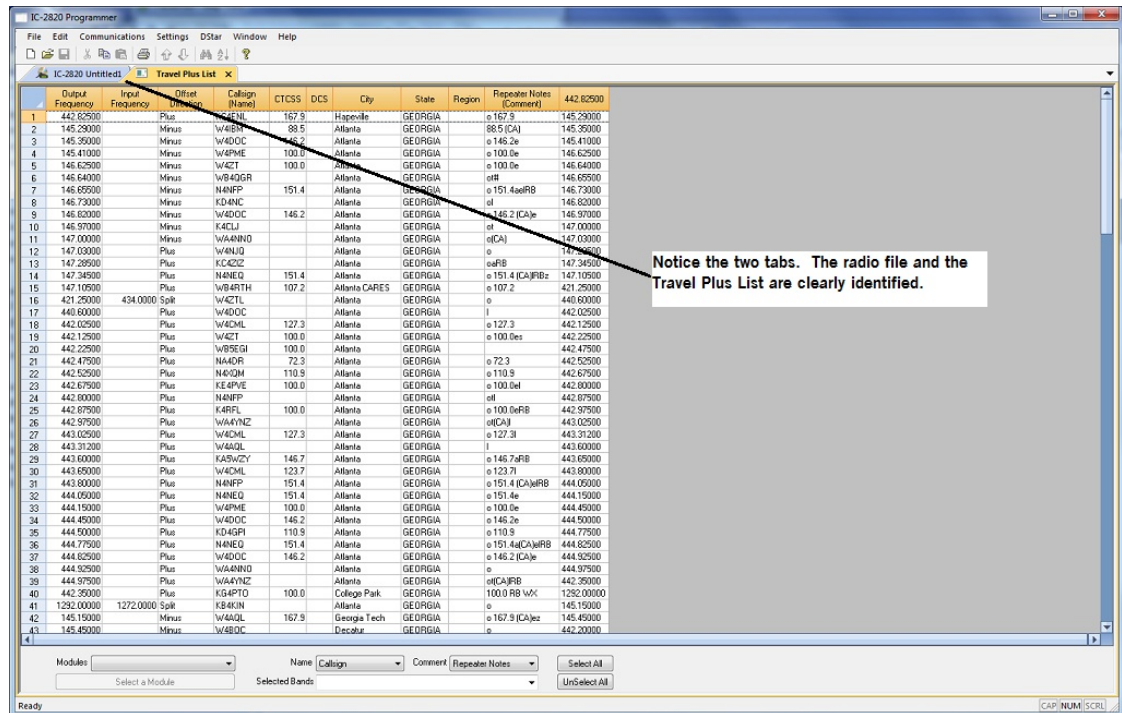
Customizing the list for the radio file:

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.)

Options to customize details for radio file located on this screen.
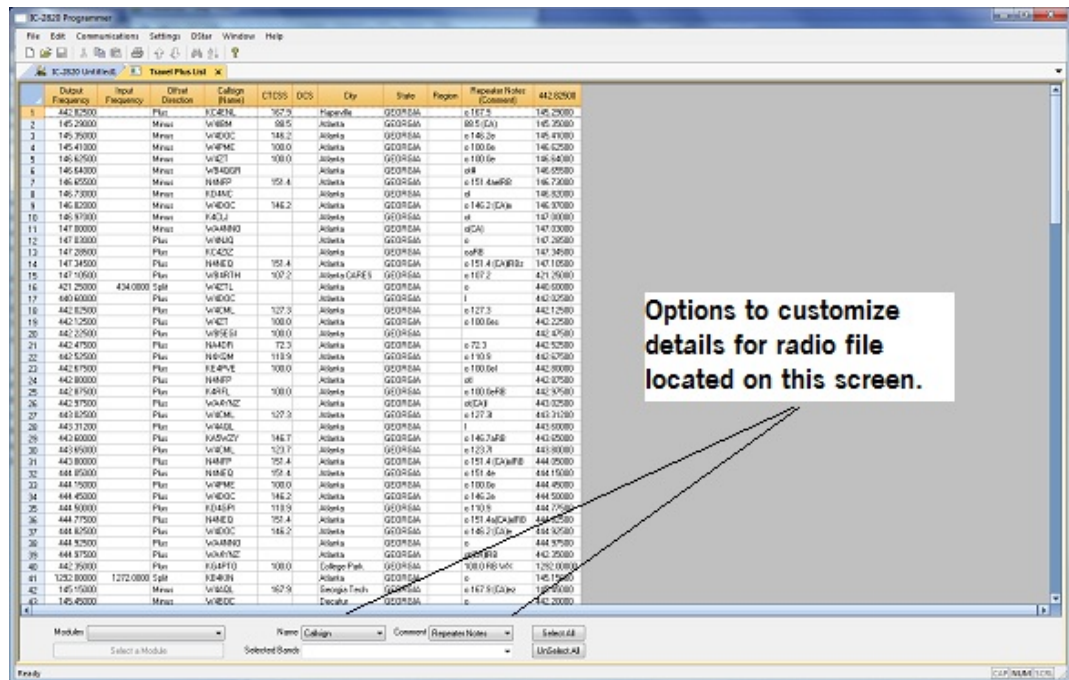
- <u>Name</u>: The TravelPlus* list contains information that does not "match" directly to a column in the radio programmer. One of the columns in the programmer accept data from these columns is the Name field.

  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.

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

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

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

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

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

The resulting file appears in its own tab.

The file is ready to be sent to the radio.

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

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.
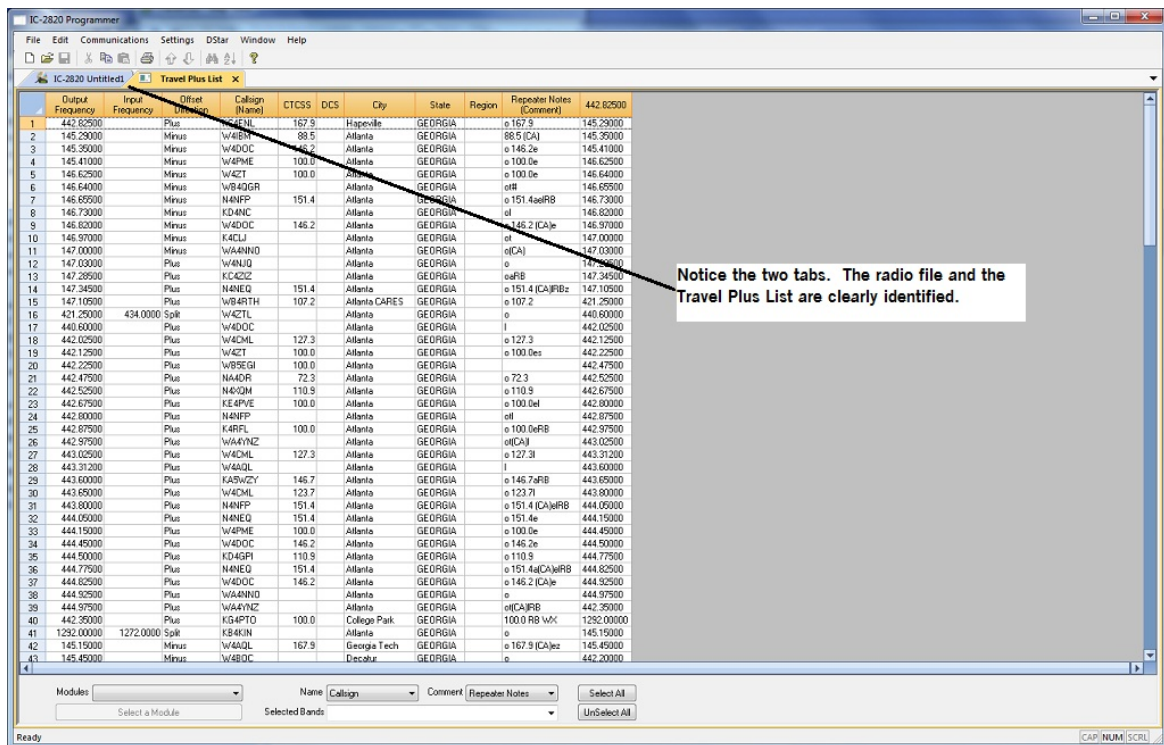
- Select a group of channels.

    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.
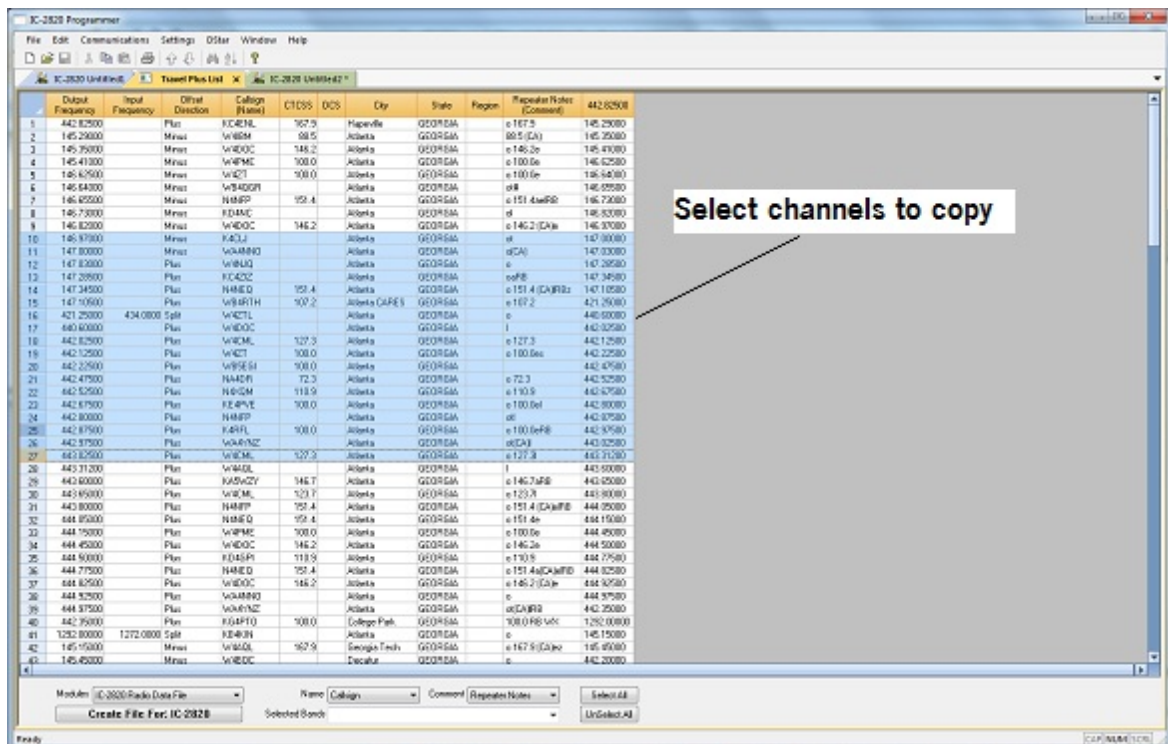
- Copy the channels

    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

XIV

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.

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.
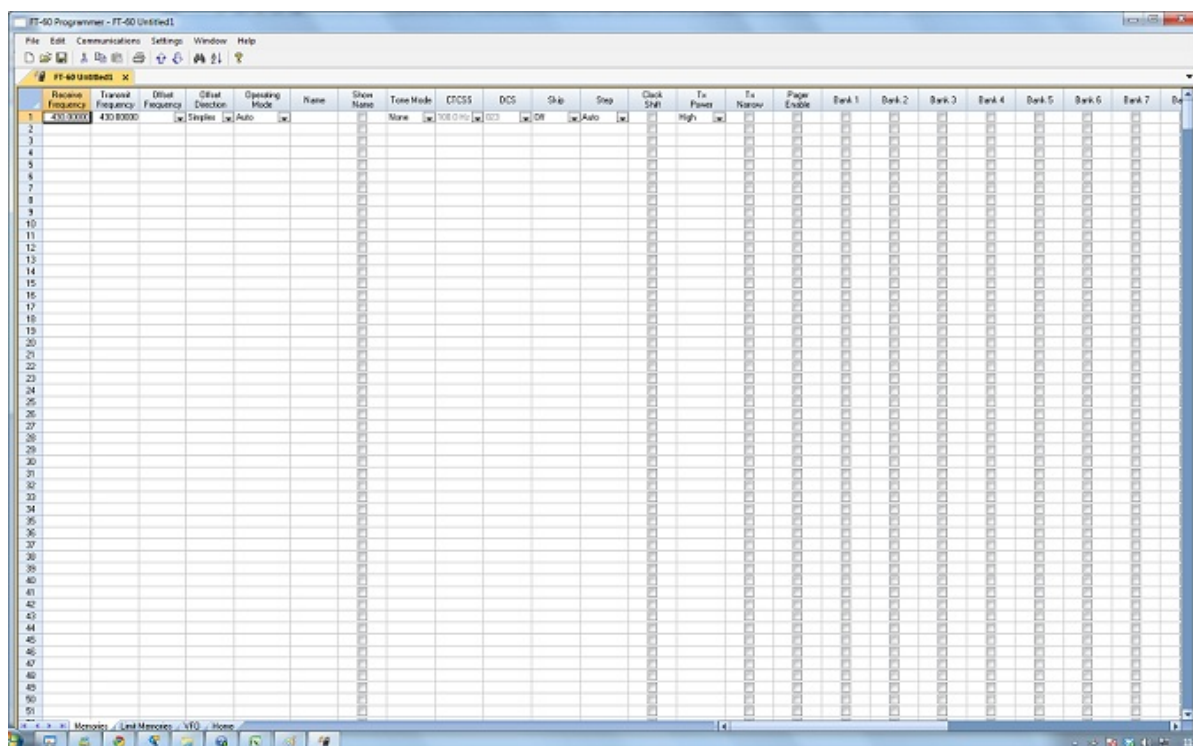
14.3   Step 3

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.
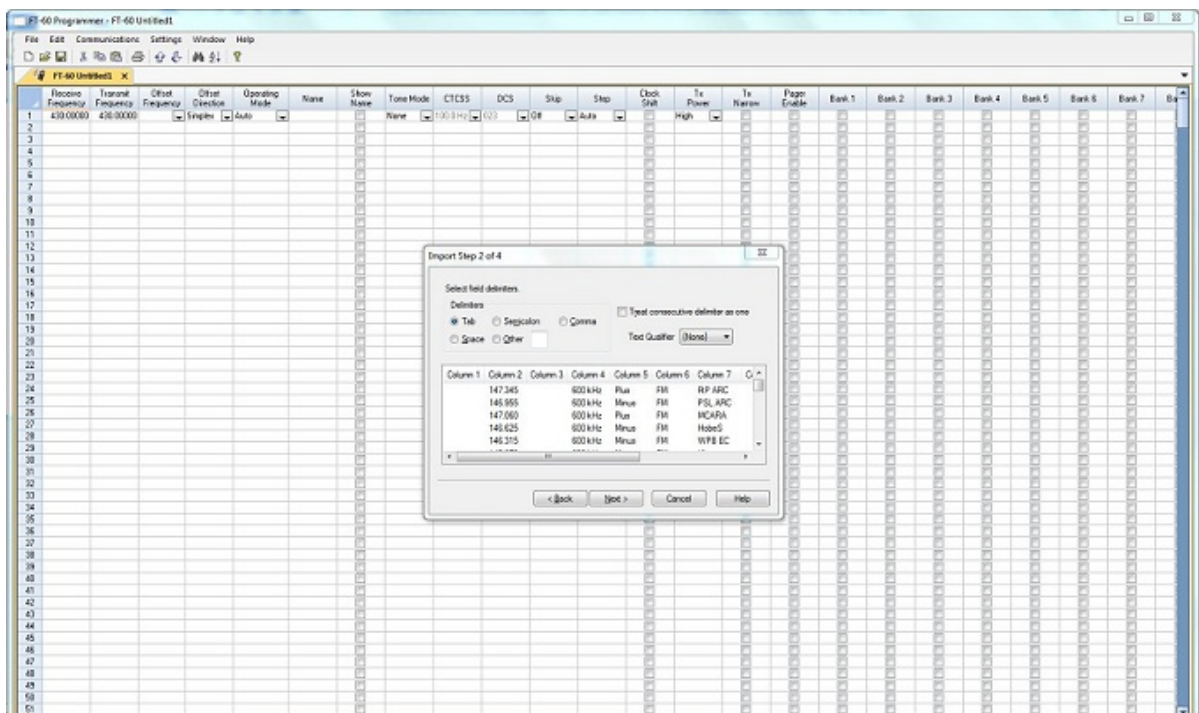
14.4   Step 4

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.
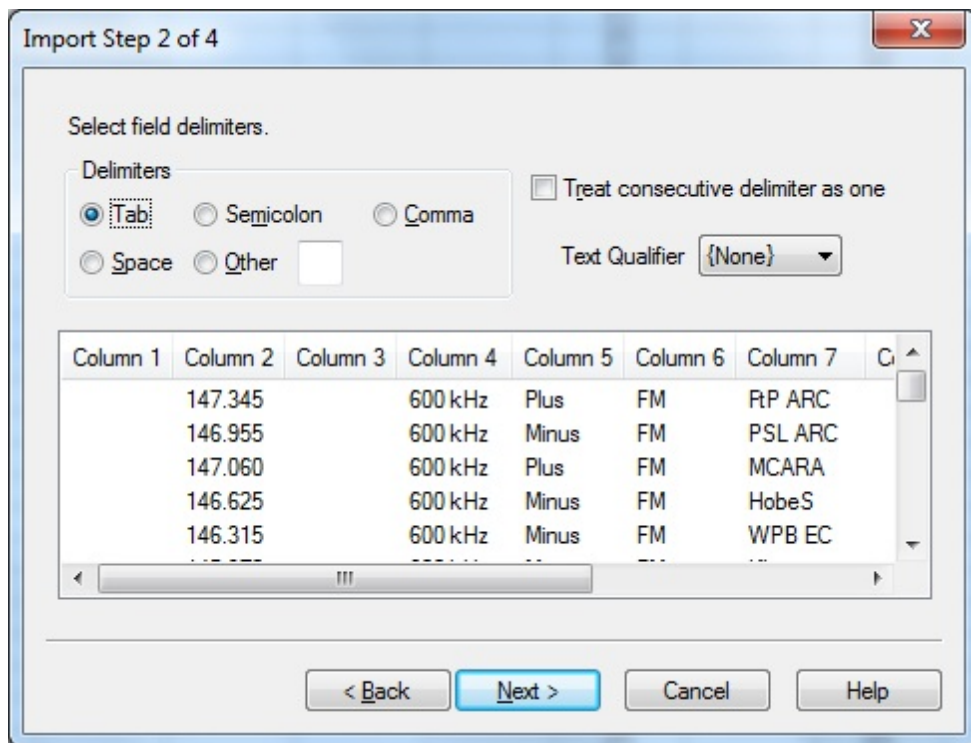
Click Next to continue.

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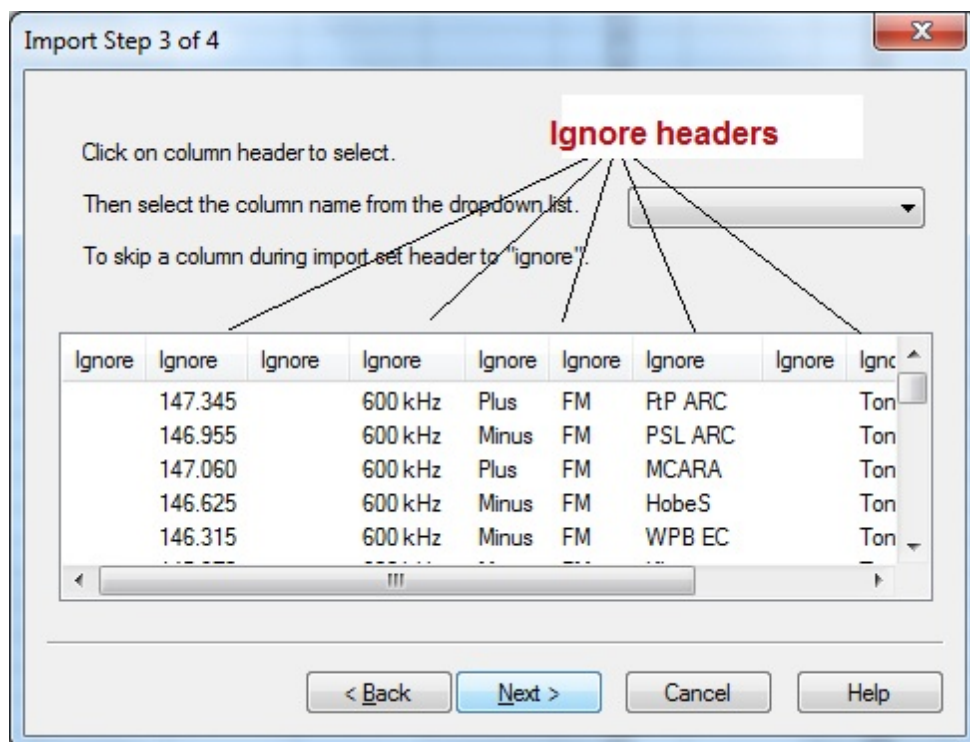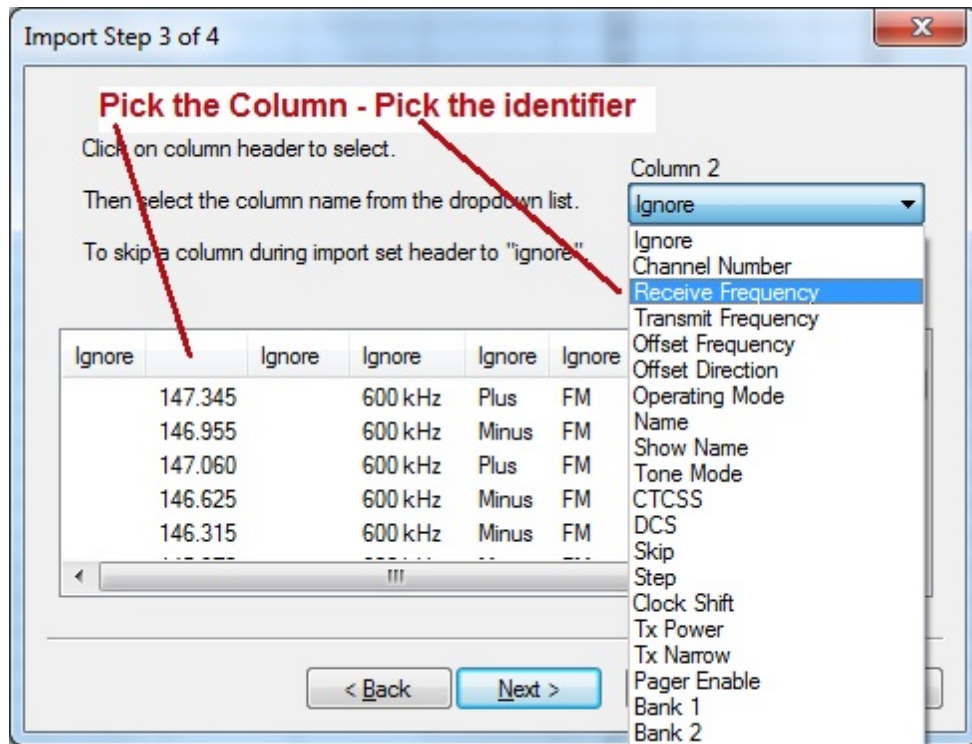
The column header changes to show your selection. Be sure to identify each of the columns you want used. The data in an "ignored" column will be set to defaults in the resulting file. Your specifics will not be used.
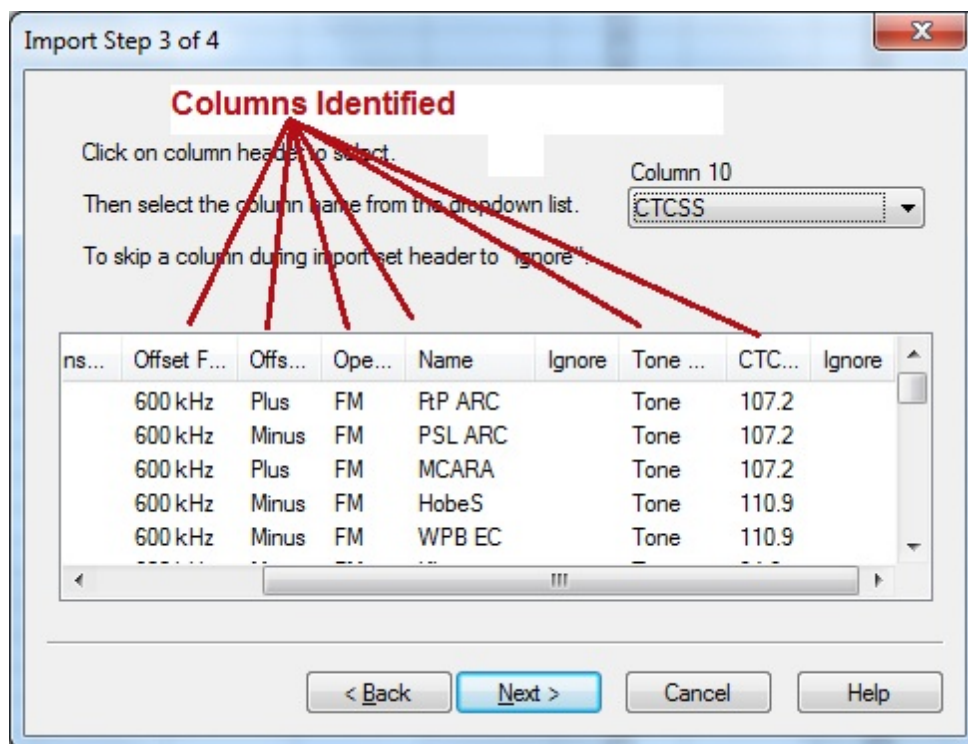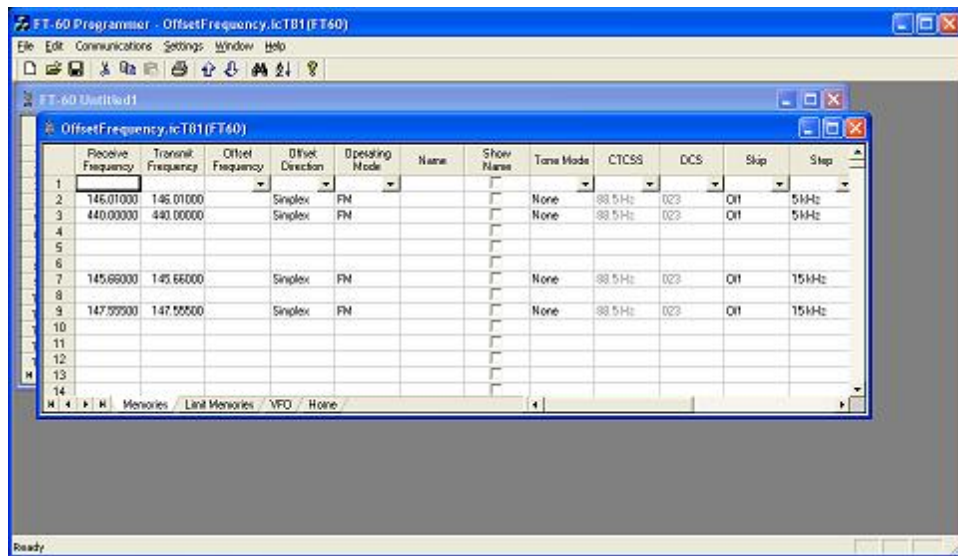
Click Next to continue.

14.6 Step 6

Complete the options on the final screen and click Finish.
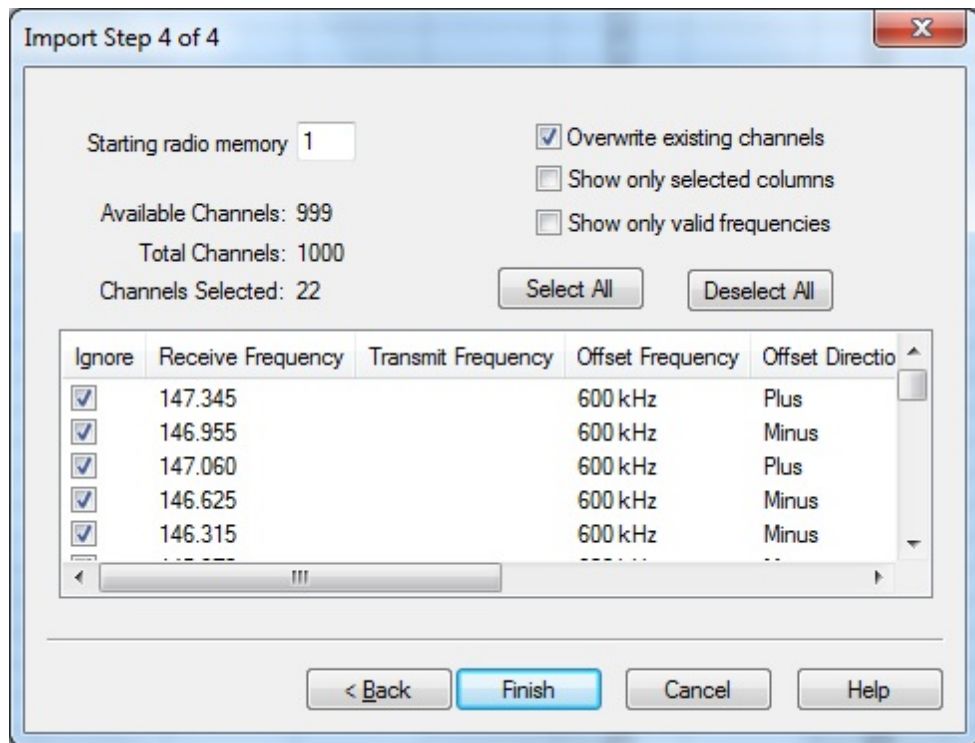
The resulting file contains the data just as it was in the Excel spreadsheet.

Part XV

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 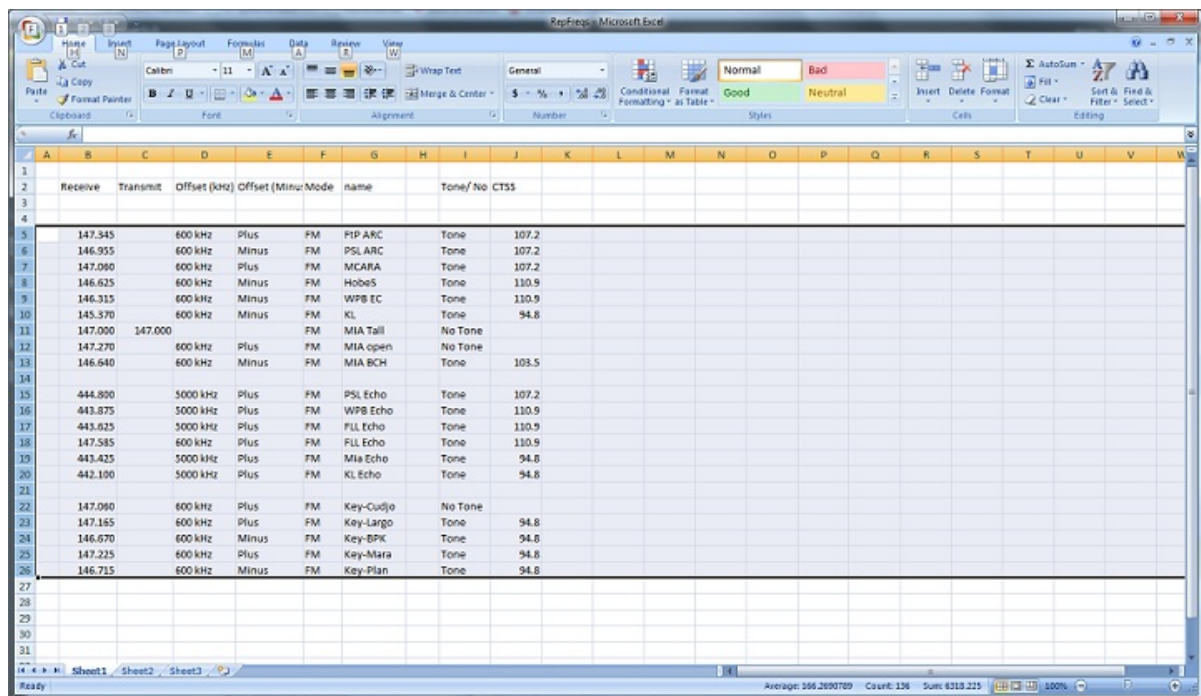imported just like the Programmer wants it. Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is

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 | New.

It is always best to import to an "Untitled" or new file. The new file is used as a temporary stopping point for the data. This way, if the results as not quite as you expected, you simply close the file without saving and begin again... in another new file.

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

If you want the data to be a part of an existing file, use copy and paste to move it from the new file to exactly where you want it in the existing file.

Importing

In the Programmer select File | Import.

From the Import Radio File dialog that opens, select the file to be opened.
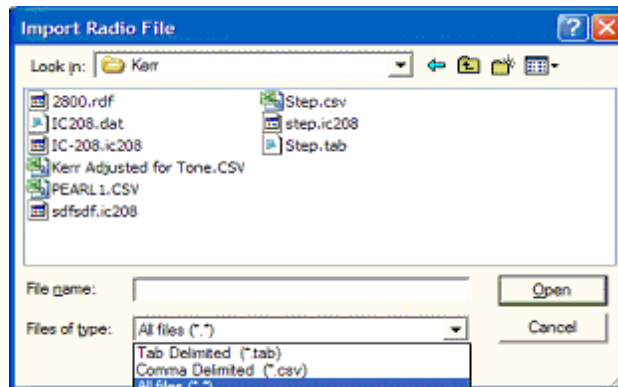
This screen gives you the ability to find and open the file to be imported.

- Use "Look in:" at the top to change directories as needed

- Use "File of type:" at the bottom to show other files in the directory you selected. Since the most common file types are *.csv and *.tab you may need to change types for your file to appear.

- Once your file is highlighted, select Open to proceed.

Import Step 1 of 4: Identify one or more of the first rows of data to be omitted
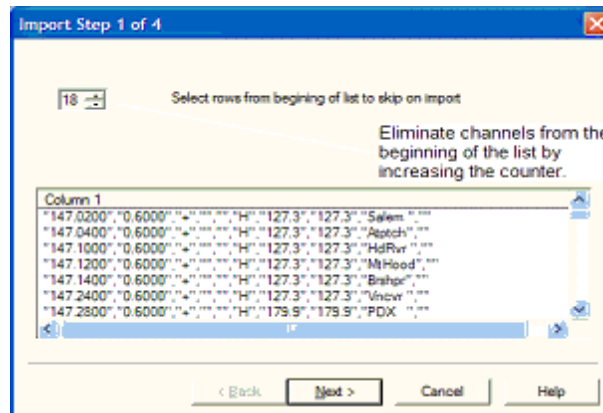
This screen was used originally to omit headers, columns without data, from the import. This is no longer necessary.

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

This step remains useful for eliminating a number of memory channels from the import process. For example if your file contains more channels than are allowed by the radio. You could eliminate multiple channels here rather than later in the import process.

Click Next to continue.

15.3 Import - Step 2

Import Step 2 of 4: Identify the delimiters (separators) used in your file.
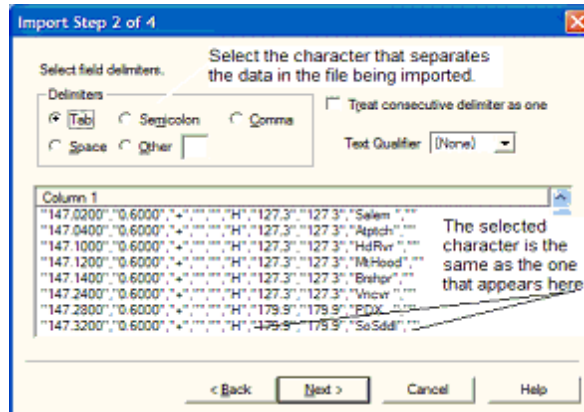
The data in the file to be imported is separated by tabs, semicolons, commas, space or other non-text characters. Select from the list at the top of the screen or enter the one you used.

Once you select the correct delimiter, the data will properly separate into columns.
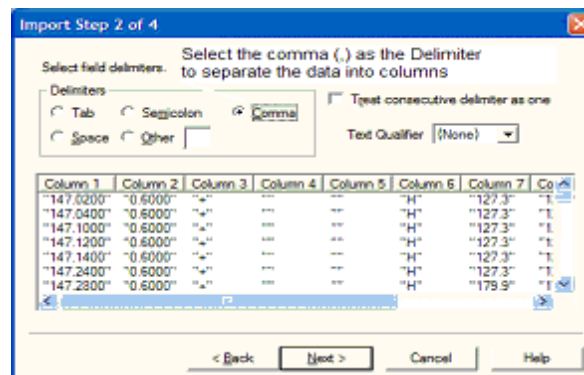
Examine the data to be sure that it is ready for the Programmer to process. Look at the data in the window. Select the proper Text Qualifier if you have single or double quotes within a data field. With quotes present, the import process will handle all the data

incorrectly resulting in a blank file. Once selected, the quotes are removed and the data appears as shown.
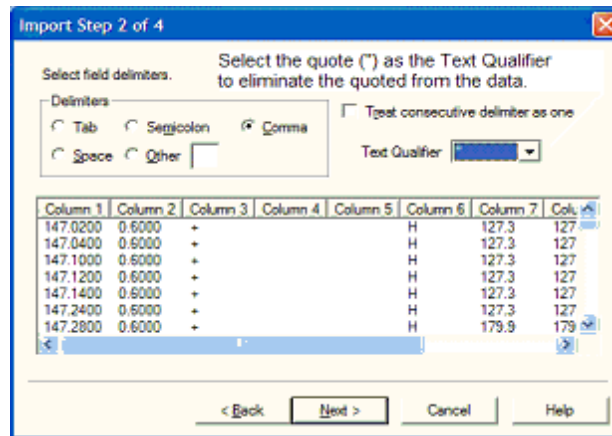
Click Next to continue.

15.4 Import - Step 3

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

The Programmer will make an attempt to identify the information in your file. In this step of the process, you can make corrections to the assignments the Programmer has made and identify other columns that you want imported.
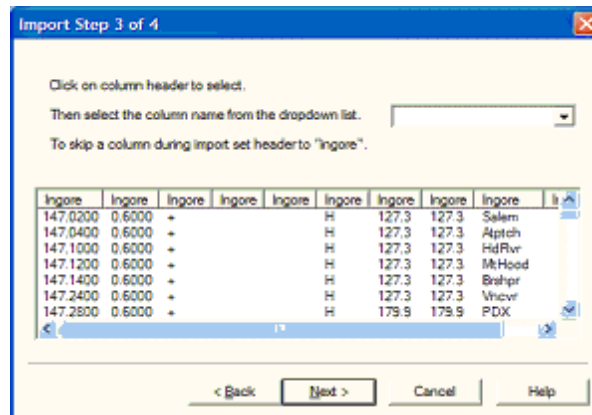
For the columns to be imported, select the header of the column (the little grey box just above the column) then select the proper identifier from the drop down list at the top of the screen
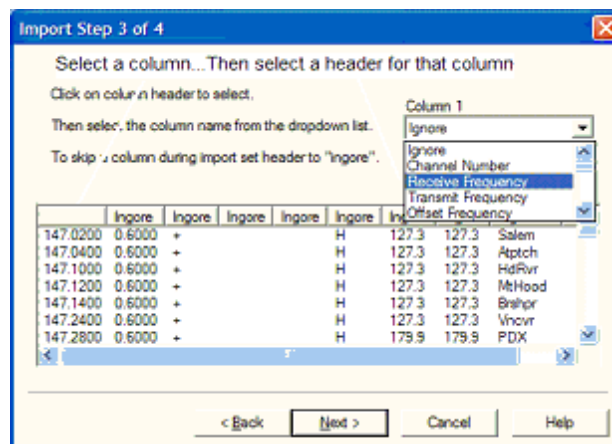
You need to identify only those columns to be imported.
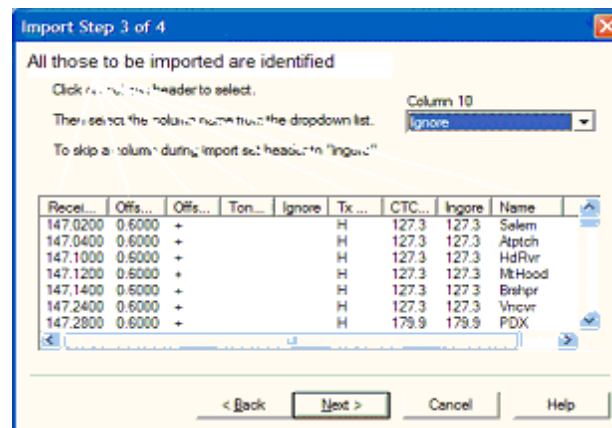
Click <u>Next</u> to continue.

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.
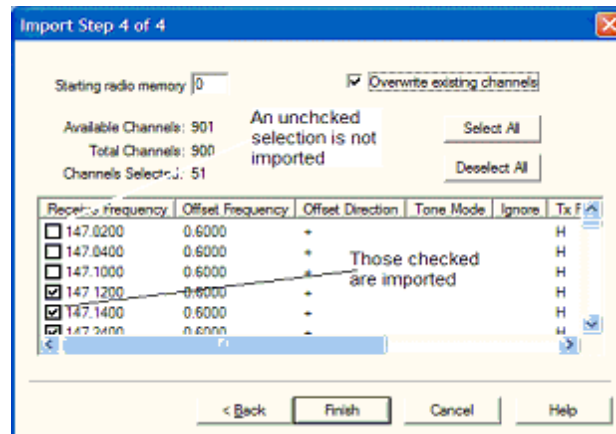
Since the data can be imported into an existing file, use the boxes at the top of the screen to place the data in the file where you want it to appear.

- 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
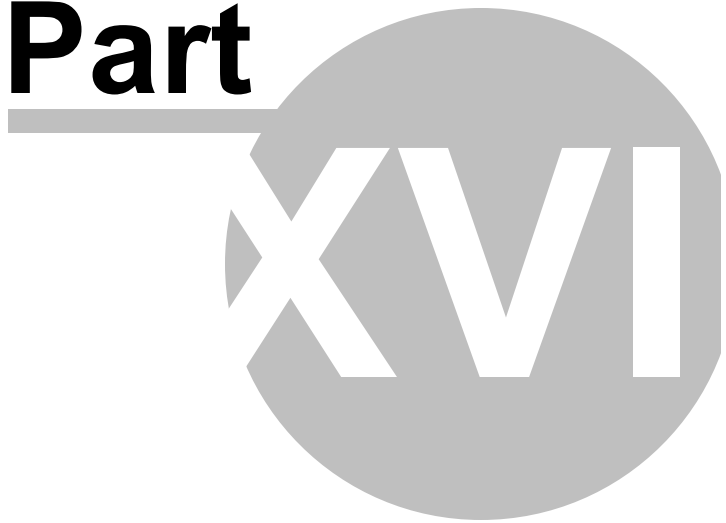
17 Troubleshooting

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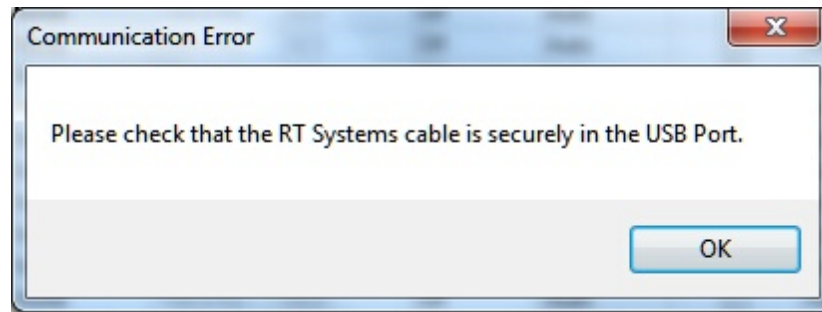
This message can appear when you are attempting to get data from the radio or send data to the radio. There can be several causes. The most common are:

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 RT Systems cable it must use for a specific radio.

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

Interference from other applications

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

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

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

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

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

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

Defective Cable

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

determine if the cable is at fault and a replacement is needed.

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

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

USB Driver Installation

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

The information in the radio does not match that of the file.
Click OK for more information about this error.
Click Cancel to cancel and try again.

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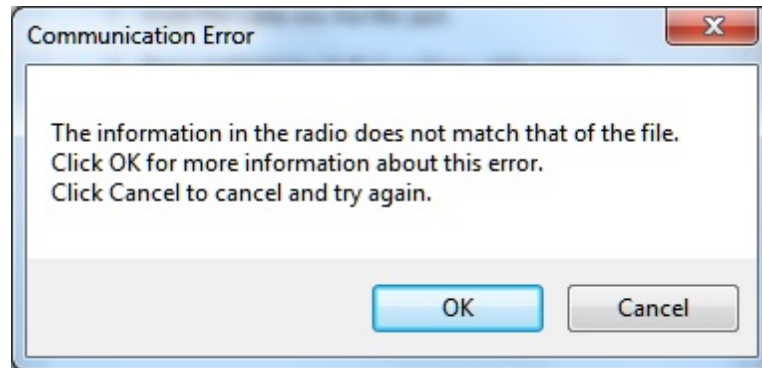
This error is raised when you attempt to send a file to a radio that is modified before the programmer is given that information.

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 <u>RTS-03 USB</u> to*

  serial adapter.

No other USB cable will be recognized by the programmer.

RT Systems' programmers address over 100 different radios. Of those, some program through the speaker jack, some through the mic jack, some through the data jack and some through the CAT port.   These ports must be addressed by the correct RT Systems cable for communications to be successful.

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

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

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

Icom specific issue for Clone mode

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

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

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

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

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

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

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

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

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

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

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

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

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

Windows Version Compatibility

The Version 4 Programmer is designed to work with Windows XP, VISTA (32 or 64 bit) or Windows 7 (32 or 64 bit) and Windows 8 (full version).

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

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

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

several days while it finds what it needs.

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

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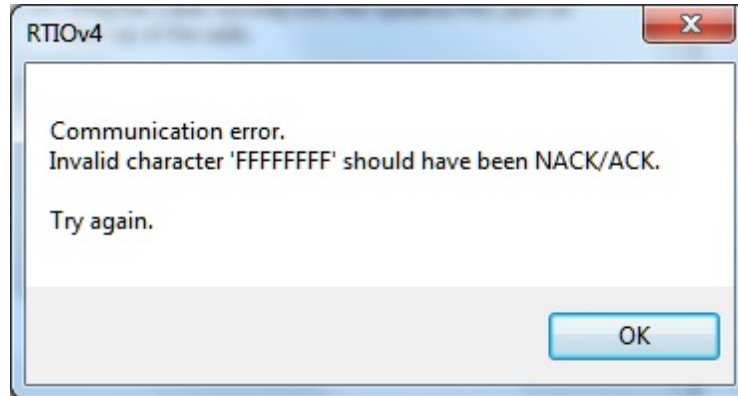
As ugly as this error appears. it actually is only a generic message saying the Communication process failed. Try again after reading the hints here.

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

Cancel all Communications screens that are open in the programmer.

Open a new file (File | Open 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.
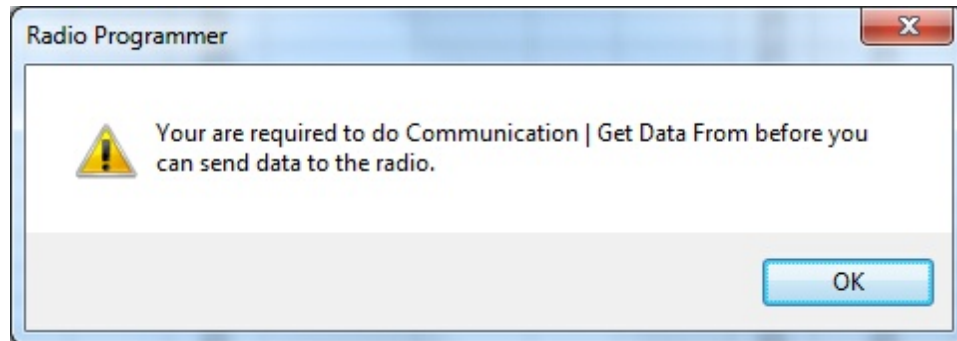
This indicates that you have not read the configuration of the radio into the programmer.

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 XVII

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.

> WIth the frequency changing by 5kHz steps, the frequency changes from 154.030 to 154.035 to 154.040 (oops... lost the 3 in the second position... let's try something else).

> Change Step to 12.5 kHz (see Operator's Manual for your radio. This is generally done in the Set menu; however a shortcut key on the face of the radio may give you easier access to this menu item.)

> With the frequency changing by 12.5kHz steps, the frequency changes from 154.025, to 154.0375 (hey, at least I have the fourth digit now), to 154.050... oops, missed the 154.03125 completely. Again, can't get there tuning on the face of the radio.

> Try other Step values until you're satisfied that the radio just cannot be made to do that frequency.

Step 2:

Compare your frequency to this list. If you find it here, it will work. Note: "x' represents any number.

1. xxx.xx500 - Generally only 5 or 0 allowed in the third position with all 0s after that. A few exceptions are shown below.

2. xxx.x12500 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.

3. xxx.x375 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.

4. xxx.x625 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.

5. xxx.x875 - Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.

Comparing 154.03125:

There is a 1 in the third position after the decimal. By Rule 1, this is not allowed for an amateur radio.

The frequency does not fit into any of the others that allow 4 digits after the decimal.

Step 3: Do the math.

Allowable frequencies (in Hz) must be evenly divisible by 5000 or 12500 or 6250 Hz.

Convert your frequency to Hz:

154.03125 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

XIX

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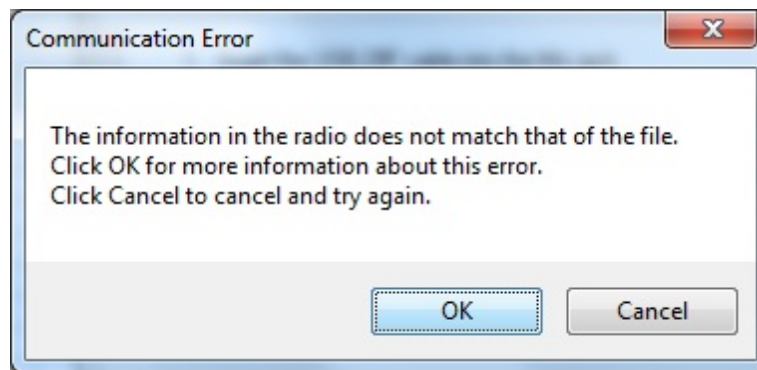
Below are various steps offered as corrections. At the end of each section try again to transfer data to the radio again.

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

XX
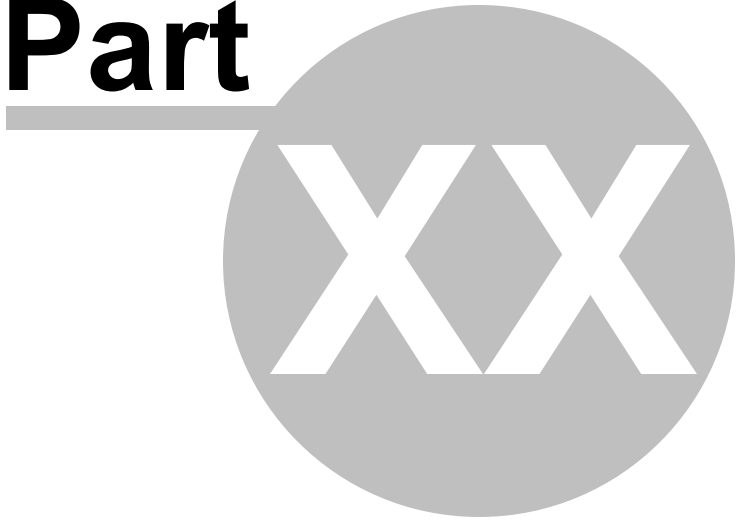
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    8:30AM until 4:00 PM (Mountain Time)
    7:30AM until 3:00 PM (Pacific Time)

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.