

# WCS-9700 Radio Programmer Help

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# WCS-9700 Radio Programmer Help

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*by RT Systems, Inc.*

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

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

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

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

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

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

# **WCS-9700 Radio Programmer Help**

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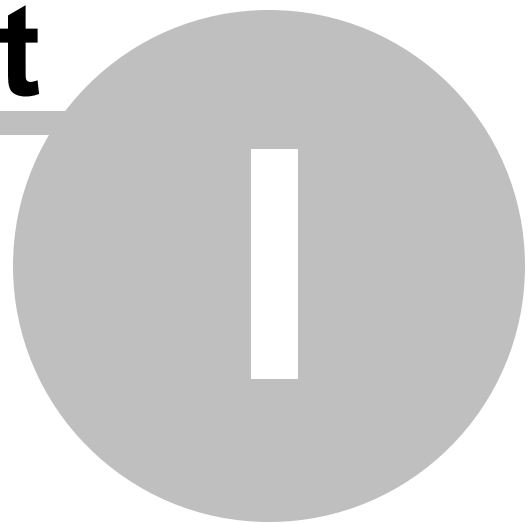
## Foreword

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

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

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

**Part**



## 1 Easy Editing in the Grid

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

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

### Right Click Menu

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

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

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

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

### Edit Menu

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

***Note: You can select several rows at once (to copy, delete, etc) by clicking on the number to the left of the first of the selection then while holding the left mouse button, drag the mouse across the***

***number of each of the channels to be included. This must be a continuous group.***

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

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

## Editing Commands

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

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

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

You can copy two different ways:

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

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

## Copying an entire memory channel or group of channels

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

Open the file.

T-40 Programmer - FT-9700 V1.01

File Edit Communications Settings Window Help

FT-9700 Programmer

Row	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Show Name	Tune Mode	CTCSS	DCS	Skip	Step	Clock Shift	Tx Power	Tx Narrow	Pager Disable	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	
1	143.25000	143.25000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
2	143.26250	143.26250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
3	143.27500	143.27500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
4	143.28750	143.28750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
5	143.30000	143.30000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
6	143.31250	143.31250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
7	143.32500	143.32500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
8	143.33750	143.33750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
9	143.35000	143.35000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
10	143.36250	143.36250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
11	143.37500	143.37500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
12	143.38750	143.38750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
13	143.40000	143.40000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
14	143.41250	143.41250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
15	143.42500	143.42500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
16	143.43750	143.43750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
17	143.45000	143.45000		Simplex	Auto	CATV1		None	100.0 Hz	023	Off	Auto		High											
18	143.46250	143.46250		Simplex	Auto	IC-9700		None	100.0 Hz	023	Off	Auto		High											
19	143.47500	143.47500		Simplex	Auto	IC-9700		None	100.0 Hz	023	Off	Auto		High											
20	143.48750	143.48750		Simplex	Auto	IC-9700		None	100.0 Hz	023	Off	Auto		High											
21	143.50000	143.50000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
22	143.51250	143.51250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
23	143.52500	143.52500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
24	143.53750	143.53750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
25	143.55000	143.55000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
26	143.56250	143.56250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
27	143.57500	143.57500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
28	143.58750	143.58750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
29	143.60000	143.60000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
30	143.61250	143.61250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
31	143.62500	143.62500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
32	143.63750	143.63750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
33	143.65000	143.65000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
34	143.66250	143.66250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
35	143.67500	143.67500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
36	143.68750	143.68750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
37	143.70000	143.70000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
38	143.71250	143.71250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
39	143.72500	143.72500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
40	143.73750	143.73750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
41	143.75000	143.75000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
42	143.76250	143.76250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
43	143.77500	143.77500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
44	143.78750	143.78750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
45	143.80000	143.80000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
46	143.81250	143.81250		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
47	143.82500	143.82500		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
48	143.83750	143.83750		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											
49	143.85000	143.85000		Simplex	Auto	SENRULE		None	100.0 Hz	023	Off	Auto		High											

Ready

CPU: 100%

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.**

FT-60 Programmer - FT-60 Unlabeled1

FileEditCommunicationsSettingsWindowHelp

FT-60 Unlabeled1

Receiver Frequency

Transmitter Frequency

Offset Frequency

Offset Direction

Operating Mode

Name

Show Name

Tone Mode

CTCSS

DCS

Skip

Step

Clock Shift

Tx Power

Tx Name

Pager Enable

Bank 1

Bank 2

Bank 3

Bank 4

Bank 5

Bank 6

Bank 7

Bank 8

1	143.25000	143.25000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
2	143.24250	143.24250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
3	143.23750	143.23750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
4	143.23750	143.23750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
5	143.30000	143.30000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
6	143.31250	143.31250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
7	143.32500	143.32500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
8	143.33750	143.33750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
9	143.35000	143.35000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
10	143.36250	143.36250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
11	143.37500	143.37500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
12	143.38750	143.38750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
13	143.40000	143.40000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
14	143.41250	143.41250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
15	143.42500	143.42500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
16	143.43750	143.43750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
17	143.45000	143.45000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
18	143.46250	143.46250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
19	143.47500	143.47500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
20	143.48750	143.48750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
21	143.50000	143.50000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
22	143.51250	143.51250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
23	143.52500	143.52500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
24	143.53750	143.53750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
25	143.55000	143.55000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
26	143.56250	143.56250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
27	143.57500	143.57500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
28	143.58750	143.58750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
29	143.60000	143.60000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
30	143.61250	143.61250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
31	143.62500	143.62500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
32	143.63750	143.63750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
33	143.65000	143.65000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
34	143.66250	143.66250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
35	143.67500	143.67500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
36	143.68750	143.68750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
37	143.70000	143.70000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
38	143.71250	143.71250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
39	143.72500	143.72500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
40	143.73750	143.73750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
41	143.75000	143.75000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
42	143.76250	143.76250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
43	143.77500	143.77500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
44	143.78750	143.78750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
45	143.80000	143.80000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
46	143.81250	143.81250		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
47	143.82500	143.82500		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
48	143.83750	143.83750		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											
49	143.85000	143.85000		Simplex	Auto	Simplex		None	100.0 Hz	023	OFF	Auto		High											

Ready

143.85000 - 143.85000 - 143.85000

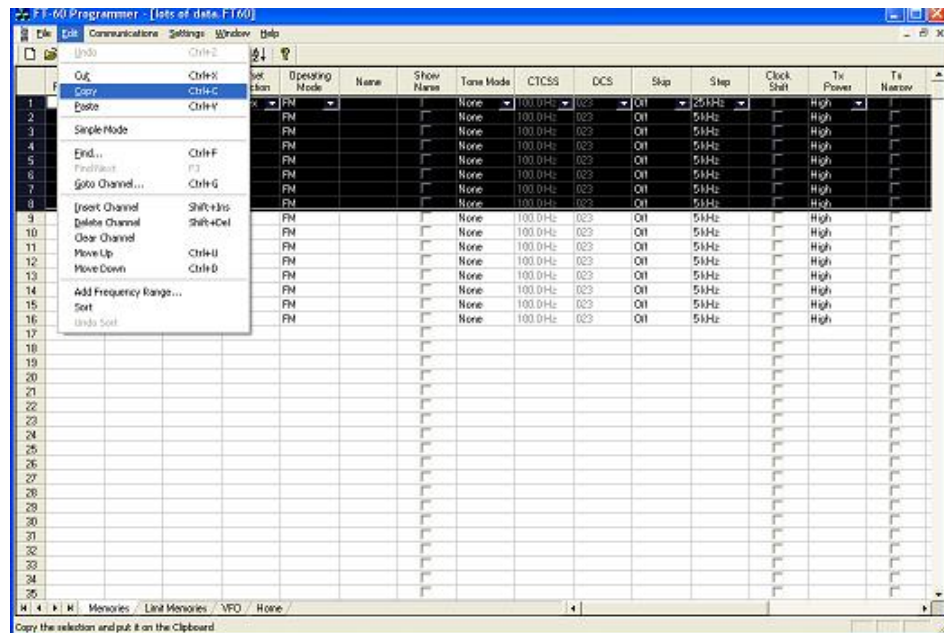
FT-60 Unlabeled1

## Copy Command

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

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

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



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

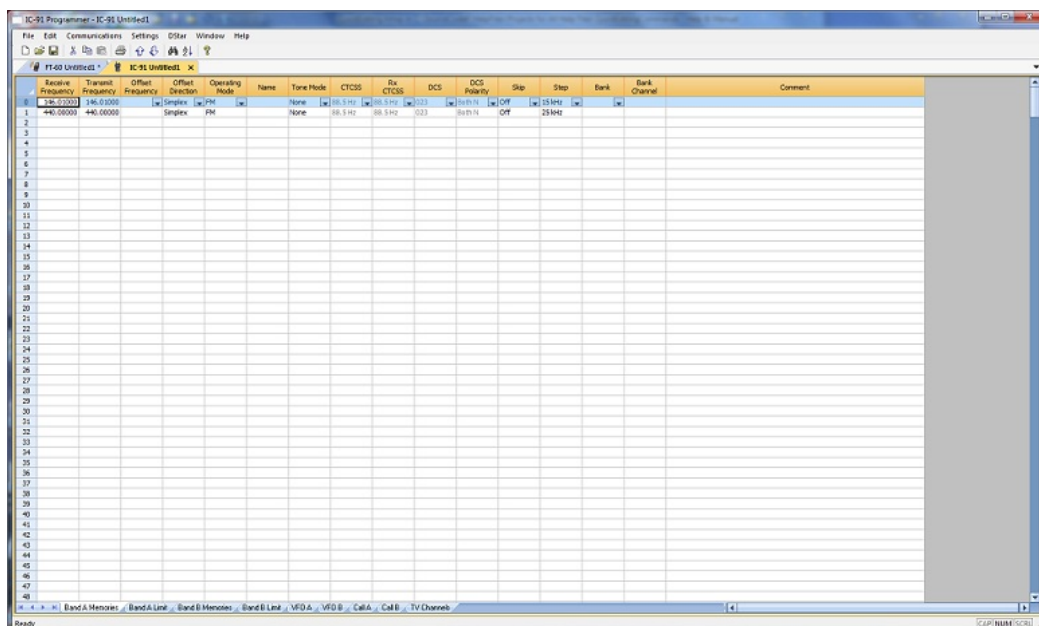
**Paste (Ctrl+V)** - Writes the selected data to the current position of the cursor overwriting the data from that point. The programmers have the ability to copy and paste data in a single column as well as for an entire row.

### Paste Complete Channels

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

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

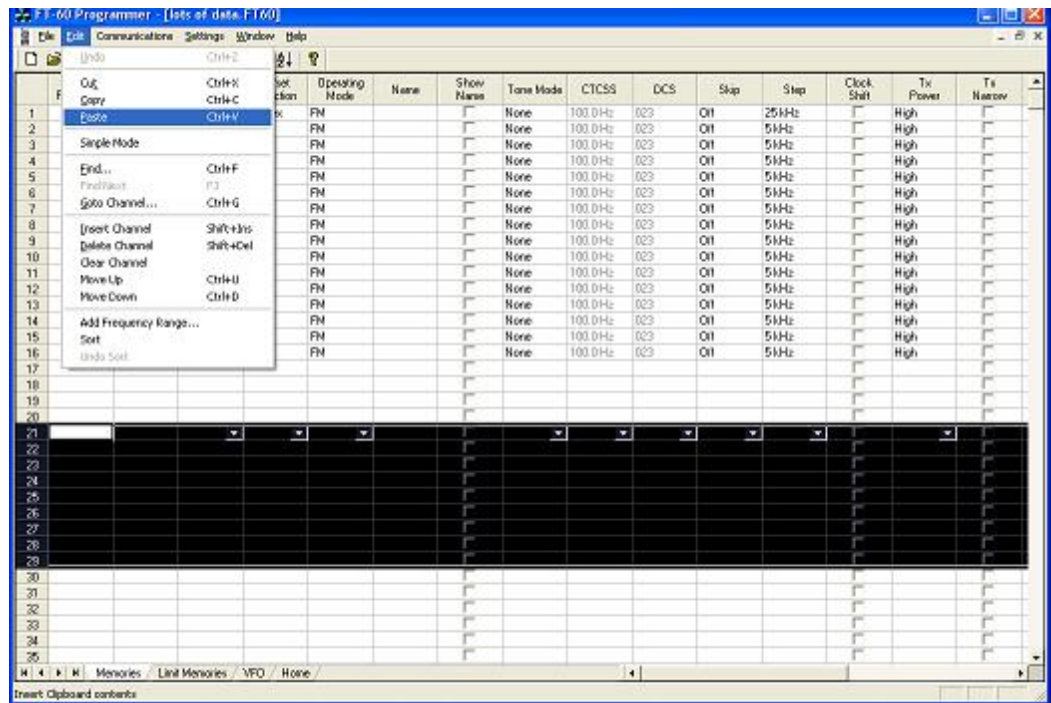




From the menu at the top of the screen, use your mouse to left click on Edit. From the menu that appears, use the mouse to left click on Paste.

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

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



The information is pasted into the selected channels.

The screenshot shows the 'IC-91 Programmer - IC-91 Untitled1' window. The main area is a grid with columns for various radio parameters. The status bar at the bottom indicates 'Ready' and shows tabs for 'Band A Memories', 'Band A List', 'Band B Memories', 'Band B List', 'VFO A', 'VFO B', 'Call A', 'Call B', and 'TV Channels'.

	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Tone Mode	CTCSS	Dx CTCSS	DCS	DCS Polarity	Skip	Step	Bank	Bank Channel	Comment
0	143.5250	143.5625		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
1	143.3750	143.3750		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
2	143.3875	143.3875		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
3	143.4000	143.4000		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
4	143.4125	143.4125		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
5	143.4250	143.4250		Simplex	FM	GRAMD	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
6	143.4375	143.4375		Simplex	FM	COCON	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
7	143.4500	143.4500		Simplex	FM	CANON	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
8	143.4625	143.4625		Simplex	FM	KUADP	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
9	143.4750	143.4750		Simplex	FM	KOONO	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
10	143.4875	143.4875		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
11	143.5000	143.5000		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
12	143.5125	143.5125		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
13	143.5250	143.5250		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
14	143.5375	143.5375		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
15	143.5500	143.5500		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
16	143.5625	143.5625		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
17	143.5750	143.5750		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
18	143.5875	143.5875		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
19	143.6000	143.6000		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
20	143.6125	143.6125		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
21	143.6250	143.6250		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
22	143.6375	143.6375		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
23	143.6500	143.6500		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
24	143.6625	143.6625		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
25	143.6750	143.6750		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
26	143.6875	143.6875		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
27	143.7000	143.7000		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
28	143.7125	143.7125		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
29	143.7250	143.7250		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
30	143.7375	143.7375		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
31	143.7500	143.7500		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
32	143.7625	143.7625		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
33	143.7750	143.7750		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
34	143.7875	143.7875		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
35	143.8000	143.8000		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
36	143.8125	143.8125		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
37	143.8250	143.8250		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
38	143.8375	143.8375		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
39	143.8500	143.8500		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
40	143.8625	143.8625		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
41	143.8750	143.8750		Simplex	FM	SCHULE	None	100.0 Hz	67.0 Hz	023	Both N	OFF	5 kHz			
42																
43																
44																
45																
46																
47																
48																

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

The screenshot displays two windows from the WCS-9700 Radio Programmer software. Both windows show a list of channels with columns for Receive Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Operating Mode, Name, Show Name, Tone Mode, CTCSS, DCS, Skip, and Skip. The right window also includes a 'Tx CTCSS' column. The channels are listed in a table format, with each row representing a specific channel configuration. The software interface includes a menu bar at the top with options like File, Edit, Communications, Settings, Dither, Window, and Help. There are also toolbars with icons for various functions. The bottom status bar shows the current view and some additional information.

## 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.

RT-40 Programmer - Copy and Paste

File Edit Communications Settings Window Help

Copy and Paste

Receive Frequency

Transmit Frequency

Offset Frequency

Offset Direction

Operating Mode

Name

Show Name

Tone Mode

CTCSS

DCS

Skip

Skip Step

Clock Shift

Tx Power

Tx Name

Page Number

Bank 1

Bank 2

Bank 3

Bank 4

Bank 5

Bank 6

Bank 7

Bank 8

Bank 9

1	143.29000	143.29000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
2	143.29250	143.29250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
3	143.29500	143.29500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
4	143.29750	143.29750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
5	143.30000	143.30000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
6	143.31250	143.31250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
7	143.32500	143.32500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
8	143.33750	143.33750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
9	143.35000	143.35000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
10	143.36250	143.36250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
11	143.37500	143.37500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
12	143.38750	143.38750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
13	143.40000	143.40000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
14	143.41250	143.41250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
15	143.42500	143.42500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
16	143.43750	143.43750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
17	143.45000	143.45000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
18	143.46250	143.46250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
19	143.47500	143.47500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
20	143.48750	143.48750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
21	143.50000	143.50000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
22	143.51250	143.51250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
23	143.52500	143.52500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
24	143.53750	143.53750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
25	143.55000	143.55000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
26	143.56250	143.56250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
27	143.57500	143.57500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
28	143.58750	143.58750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
29	143.60000	143.60000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
30	143.61250	143.61250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
31	143.62500	143.62500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
32	143.63750	143.63750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
33	143.65000	143.65000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
34	143.66250	143.66250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
35	143.67500	143.67500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
36	143.68750	143.68750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
37	143.70000	143.70000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
38	143.71250	143.71250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
39	143.72500	143.72500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
40	143.73750	143.73750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
41	143.75000	143.75000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
42	143.76250	143.76250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
43	143.77500	143.77500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
44	143.78750	143.78750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
45	143.80000	143.80000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
46	143.81250	143.81250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
47	143.82500	143.82500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
48	143.83750	143.83750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
49	143.85000	143.85000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
50	143.86250	143.86250		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
51	143.87500	143.87500		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
52	143.88750	143.88750		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										
53	143.90000	143.90000		Simplex	Auto		None	100.0 MHz	023	OFF	Auto		High										

File Edit Communications Settings Window Help

RT-40 Programmer - Copy and Paste

Copy and Paste

File Edit Communications Settings Window Help

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.



WCS-9700 Radio Programmer - Copy and Paste

FileEditCommunicationsSettingsWindowHelp

Copy and Paste

Receive Frequency

Transmit Frequency

Offset Frequency

Offset Direction

Operating Mode

Name

Show Name

Time Mode

CTCSS

DCS

Skip

Skip

Clock Shift

Tx Power

Tx Name

Page Enable

Bank 1

Bank 2

Bank 3

Bank 4

Bank 5

Bank 6

Bank 7

Bank 8

Bank 9

1	143.2500	143.2500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
2	143.2625	143.2625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
3	143.2750	143.2750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
4	143.2875	143.2875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
5	143.3000	143.3000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
6	143.3125	143.3125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
7	143.3250	143.3250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
8	143.3375	143.3375		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
9	143.3500	143.3500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
10	143.3625	143.3625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
11	143.3750	143.3750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
12	143.3875	143.3875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
13	143.4000	143.4000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
14	143.4125	143.4125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
15	143.4250	143.4250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
16	143.4375	143.4375		Simplex	Auto	COCHN		✓	None	100.0Hz	023	OFF	Auto	High											
17	143.4500	143.4500		Simplex	Auto	CANVCL		✓	None	100.0Hz	023	OFF	Auto	High											
18	143.4625	143.4625		Simplex	Auto	KUHP		✓	None	100.0Hz	023	OFF	Auto	High											
19	143.4750	143.4750		Simplex	Auto	HSB		✓	None	100.0Hz	023	OFF	Auto	High											
20	143.4875	143.4875		Simplex	Auto	HSB		✓	None	100.0Hz	023	OFF	Auto	High											
21	143.5000	143.5000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
22	143.5125	143.5125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
23	143.5250	143.5250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
24	143.5375	143.5375		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
25	143.5500	143.5500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
26	143.5625	143.5625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
27	143.5750	143.5750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
28	143.5875	143.5875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
29	143.6000	143.6000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
30	143.6125	143.6125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
31	143.6250	143.6250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
32	143.6375	143.6375		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
33	143.6500	143.6500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
34	143.6625	143.6625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
35	143.6750	143.6750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
36	143.6875	143.6875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
37	143.7000	143.7000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
38	143.7125	143.7125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
39	143.7250	143.7250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
40	143.7375	143.7375		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
41	143.7500	143.7500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
42	143.7625	143.7625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
43	143.7750	143.7750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
44	143.7875	143.7875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
45	143.8000	143.8000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
46	143.8125	143.8125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
47	143.8250	143.8250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
48	143.8375	143.8375		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
49	143.8500	143.8500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
50	143.8625	143.8625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
51	143.8750	143.8750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
52	143.8875	143.8875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												
53	143.9000	143.9000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High												

Home

Last Memory

WFO

Home

4

WCS-9700 Radio Programmer

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.

RT-60 Programmer - Copy and Paste

File Edit Communications Settings Window Help

Copy and Paste

Receive Frequency

Transmit Frequency

Offset Frequency

Offset Direction

Operating Mode

Name

Show Name

Time Mode

CTCSS

DCS

Skip

Skip

Clock Shift

Tx Power

Tx Name

Page Enable

Bank 1

Bank 2

Bank 3

Bank 4

Bank 5

Bank 6

Bank 7

Bank 8

Bank 9

1	143.2500	143.2500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
2	143.2625	143.2625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
3	143.2750	143.2750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
4	143.2875	143.2875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
5	143.3000	143.3000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
6	143.3125	143.3125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
7	143.3250	143.3250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
8	143.3375	143.3375		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
9	143.3500	143.3500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
10	143.3625	143.3625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
11	143.3750	143.3750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
12	143.3875	143.3875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
13	143.4000	143.4000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
14	143.4125	143.4125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
15	143.4250	143.4250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
16	143.4375	143.4375		Simplex	Auto	DMPLX		None	100.0Hz	023	OFF	Auto	High													
17	143.4500	143.4500		Simplex	Auto	CALLSIGN		None	100.0Hz	023	OFF	Auto	High													
18	143.4625	143.4625		Simplex	Auto	ICLAMP		None	100.0Hz	023	OFF	Auto	High													
19	143.4750	143.4750		Simplex	Auto	KNOXD		None	100.0Hz	023	OFF	Auto	High													
20	143.4875	143.4875		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
21	143.5000	143.5000		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
22	143.5125	143.5125		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
23	143.5250	143.5250		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
24	143.5375	143.5375		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
25	143.5500	143.5500		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
26	143.5625	143.5625		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
27	143.5750	143.5750		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
28	143.5875	143.5875		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
29	143.6000	143.6000		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
30	143.6125	143.6125		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
31	143.6250	143.6250		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
32	143.6375	143.6375		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
33	143.6500	143.6500		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
34	143.6625	143.6625		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
35	143.6750	143.6750		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
36	143.6875	143.6875		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
37	143.7000	143.7000		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
38	143.7125	143.7125		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
39	143.7250	143.7250		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
40	143.7375	143.7375		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
41	143.7500	143.7500		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
42	143.7625	143.7625		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
43	143.7750	143.7750		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
44	143.7875	143.7875		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
45	143.8000	143.8000		Simplex	Auto			None	100.0Hz	023	OFF	Auto	High													
46	143.8125	143.8125		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
47	143.8250	143.8250		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
48	143.8375	143.8375		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
49	143.8500	143.8500		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
50	143.8625	143.8625		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
51	143.8750	143.8750		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
52	143.8875	143.8875		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													
53	143.9000	143.9000		Simplex	Auto	SMPLE		None	100.0Hz	023	OFF	Auto	High													

Home

Less Menus

WFO

Home

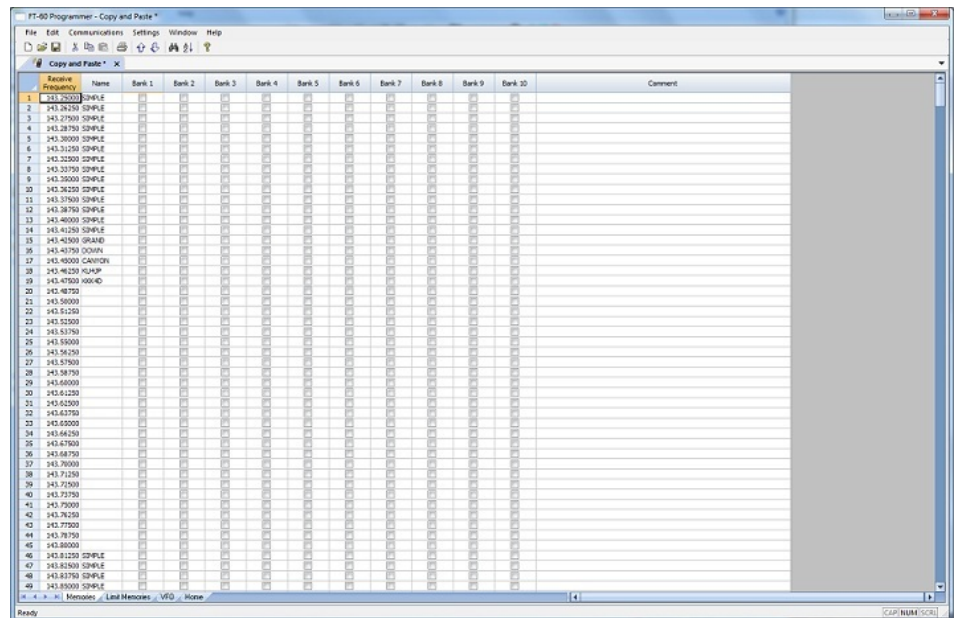
Column editing will address a selection of consecutive cells all at once or individual cells repeatedly. If the items to be changed are not consecutive, you can select and paste repeatedly until all the cells are addresses. You do not have to copy again. The programmer retains the copied value.

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.

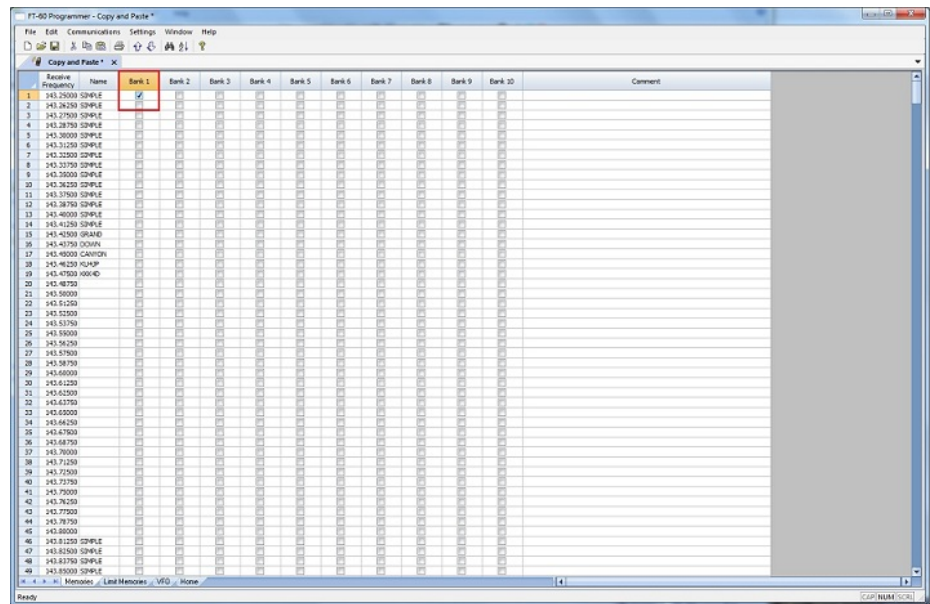
This process varies from the other by how the cells are selected. Check box cells act differently than those that contain text. You can copy from one check box column into another.

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.

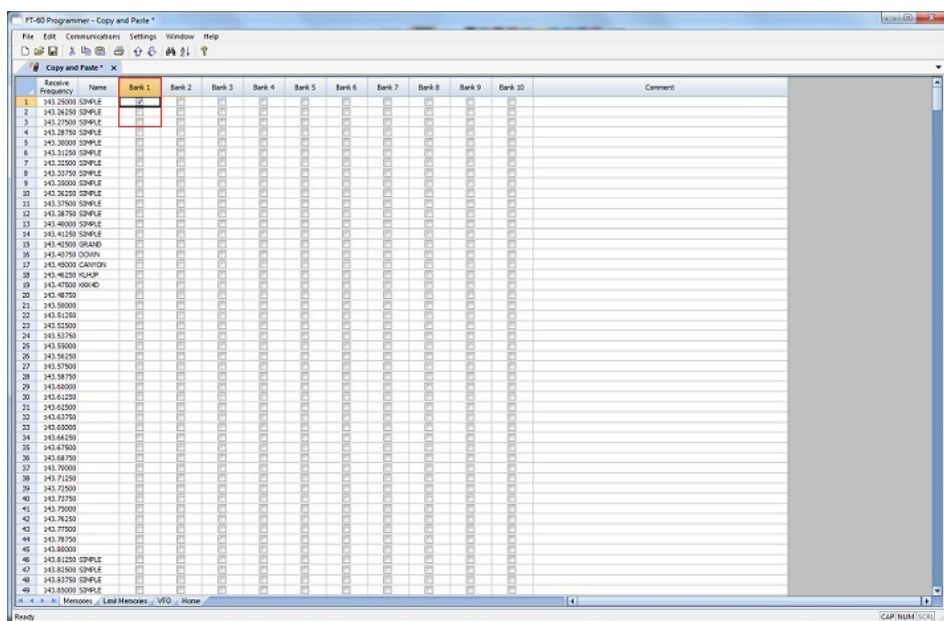


At this point you CANNOT copy this field. Press Tab or Enter to move out of the field.

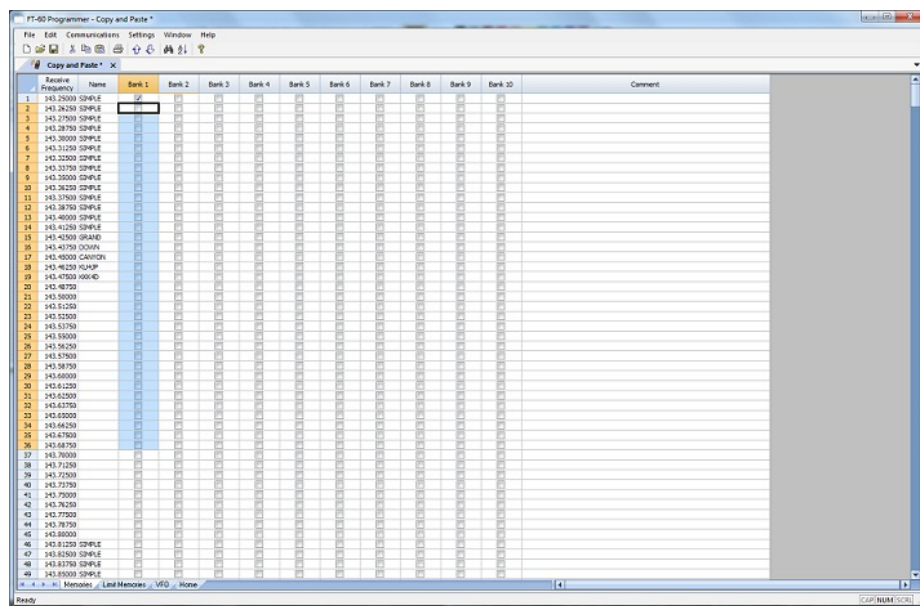
The process is more easily done now with the keyboard rather than the mouse.

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.

Receive Frequency	Name	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 10	Comment
1	143.25000 SIMPLE											
2	143.26250 SIMPLE											
3	143.27500 SIMPLE											
4	143.28750 SIMPLE											
5	143.30000 SIMPLE											
6	143.31250 SIMPLE											
7	143.32500 SIMPLE											
8	143.33750 SIMPLE											
9	143.35000 SIMPLE											
10	143.36250 SIMPLE											
11	143.37500 SIMPLE											
12	143.38750 SIMPLE											
13	143.40000 SIMPLE											
14	143.41250 SIMPLE											
15	143.42500 SIMPLE											
16	143.43750 DOWN											
17	143.45000 CAUTION											
18	143.46250 CLAMP											
19	143.47500 800.00											
20	143.48750											
21	143.50000											
22	143.51250											
23	143.52500											
24	143.53750											
25	143.55000											
26	143.56250											
27	143.57500											
28	143.58750											
29	143.60000											
30	143.61250											
31	143.62500											
32	143.63750											
33	143.65000											
34	143.66250											
35	143.67500											
36	143.68750											
37	143.70000											
38	143.71250											
39	143.72500											
40	143.73750											
41	143.75000											
42	143.76250											
43	143.77500											
44	143.78750											
45	143.80000											
46	143.81250 SIMPLE											
47	143.82500 SIMPLE											
48	143.83750 SIMPLE											
49	143.85000 SIMPLE											

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

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

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

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

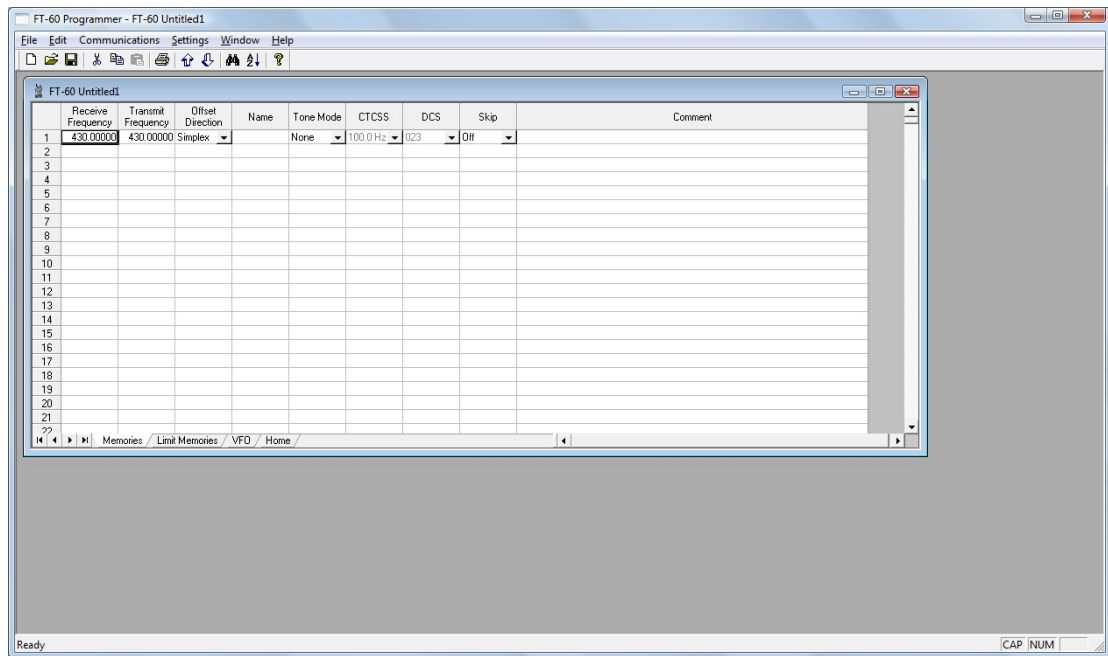
**Name** - This column is for personalized information to identify the channel.

**Tone Mode** - The repeater operator controls this detail for the repeater. There is nothing standard that can be completed automatically. You need

to select the Tone Mode then assign the CTCSS frequency or DCS code as needed for a particular repeater.

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

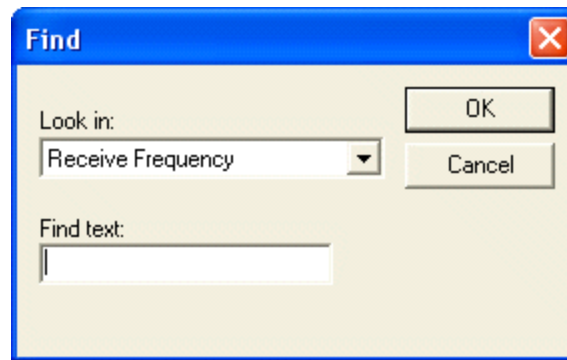
Comment - Personalized notes up to 80 characters. This information remains a part of the file and is not transferred to the radio.



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

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

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



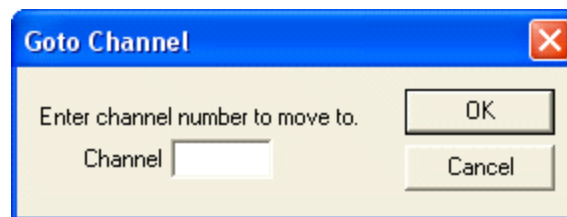
Select the field to be searched (i.e., Receive frequency, Transmit frequency, etc.)

Enter the text (or numbers) to be found.

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

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

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



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

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

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

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

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

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

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



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

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

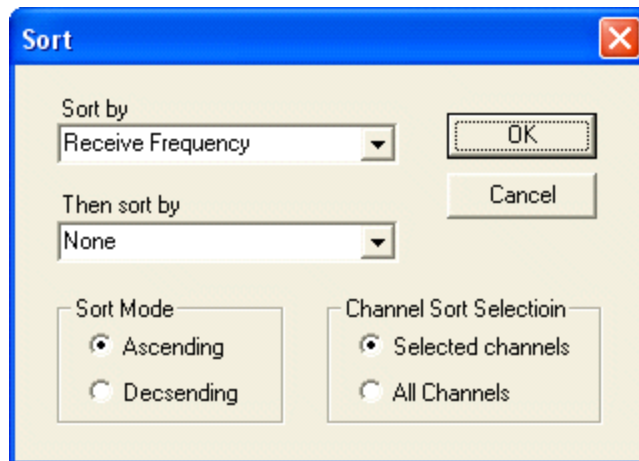
Frequency Step - Enter the value that will separate each of the frequencies in these channels. Select 5kHz to 200 kHz.

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

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

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

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



Sort by - Select a column for the initial sort.

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

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

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

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

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

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

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

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

## Quick File Access Commands

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

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

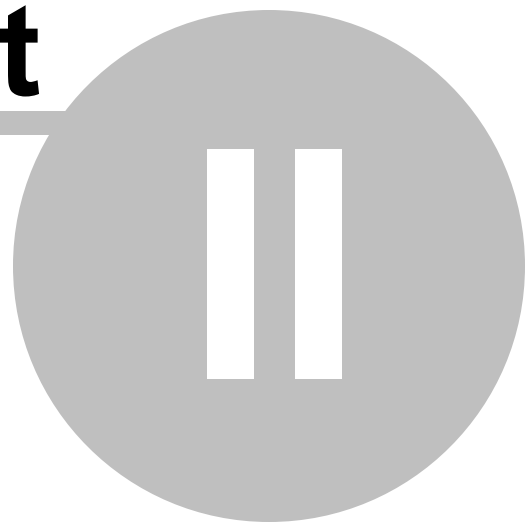
**Ctrl M** - Automatically create a new file for the programmer being used. Eliminates having to select the file type first.

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



# Part

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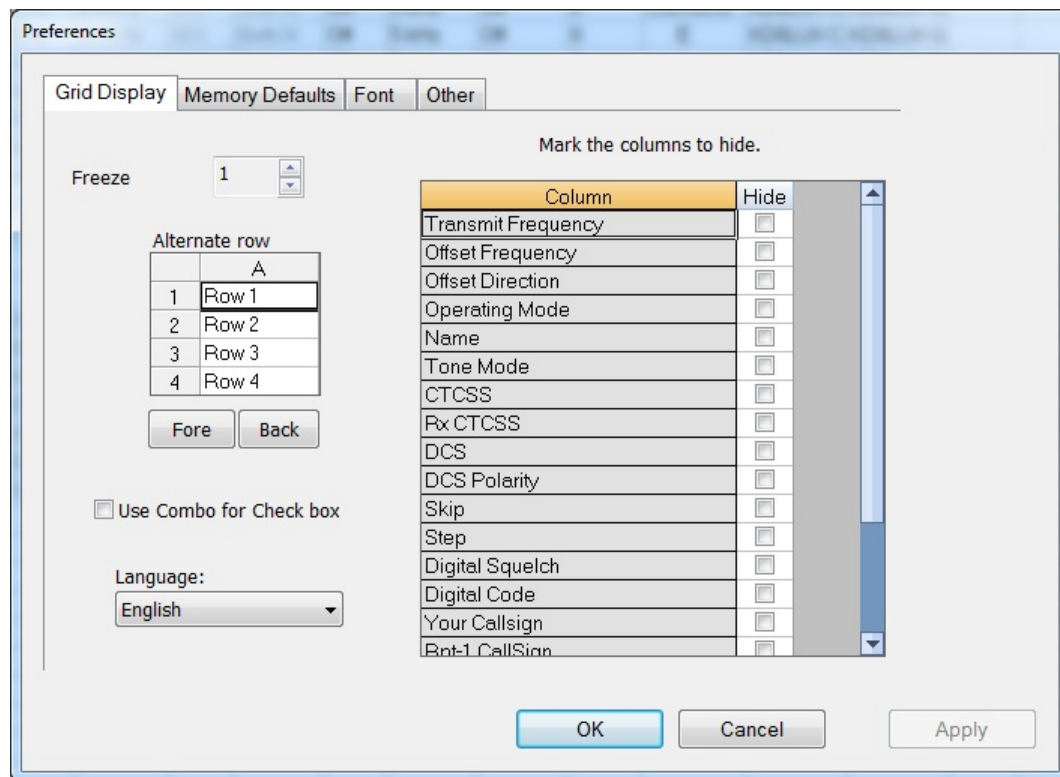
## 2 Screen Appearance and Default Options

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

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

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

### Grid Display



## Freeze Columns

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

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

## Hidden Columns (Mark the columns to hide)

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

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

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

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

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

## Alternate row colors

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

## Use Combo for Check box

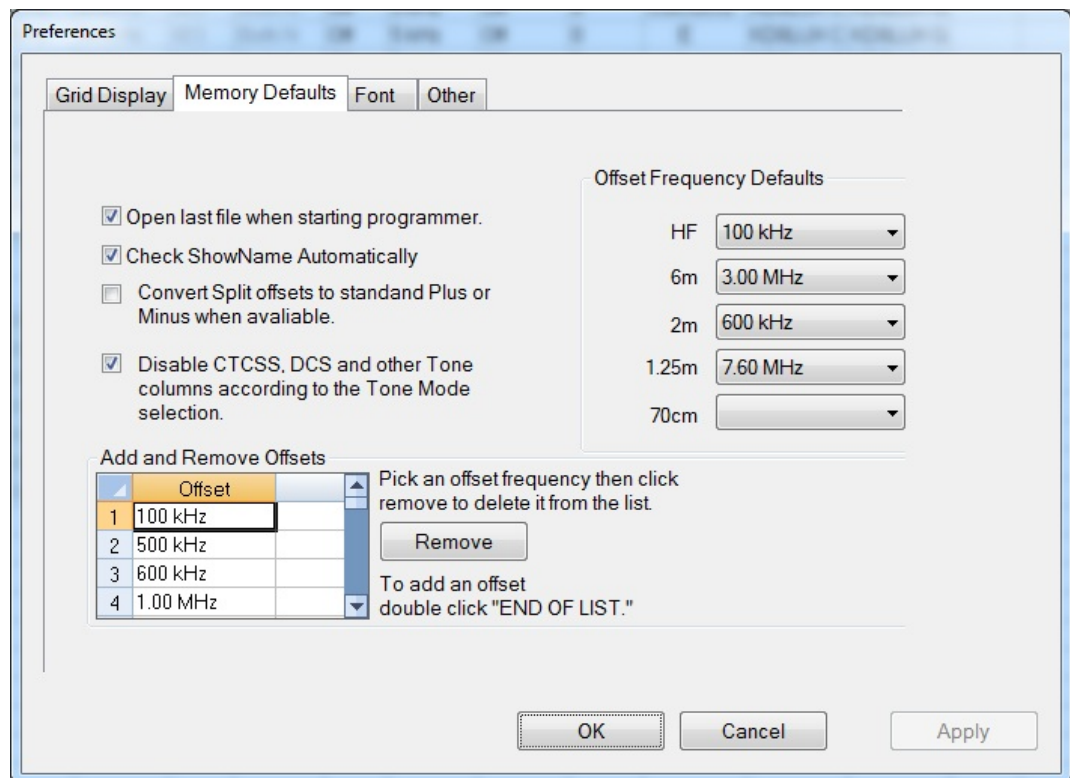
On some systems the checkbox option does not work and you are not able to make selections for banks, show name or other options with check boxes. The check boxes will be missing from the cell.

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

## Language

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

## Memory Defaults



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

### Open last file when starting programmer

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

### **Check ShowName Automatically**

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

### **Convert Split offsets to standard Plus or Minus when available**

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

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

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

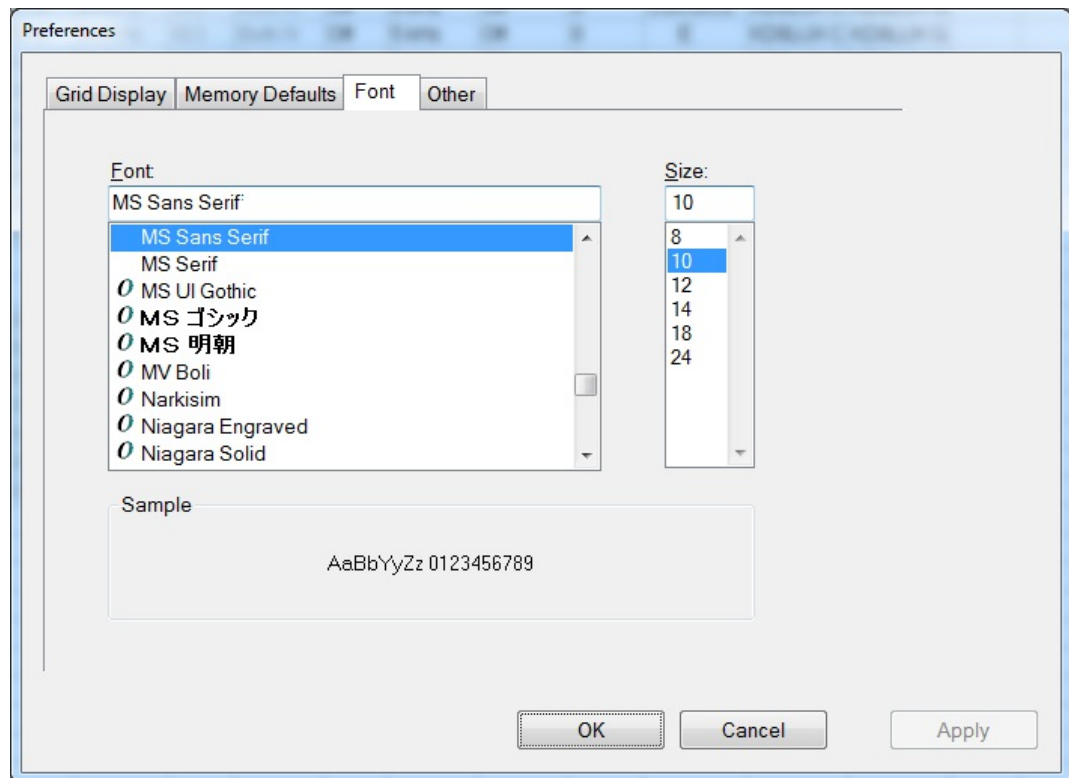
### **Add and Remove Offsets**

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

### **Offset Frequency Defaults**

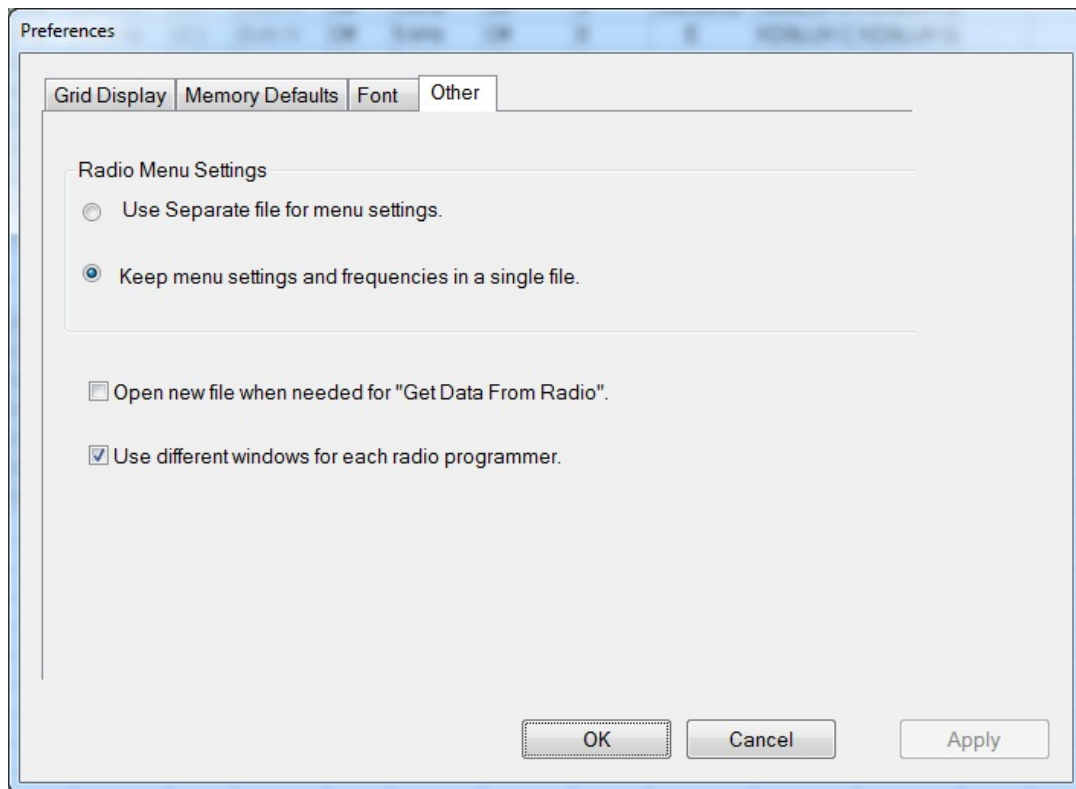
Select a value in each field for the programmer to use when you enter channel information. This value is used for channel information entered into any of the memory channel types (Memory, Limit memories, VFO, Home, etc).

## **Fonts**



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

## Other



### Radio Menu settings

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

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

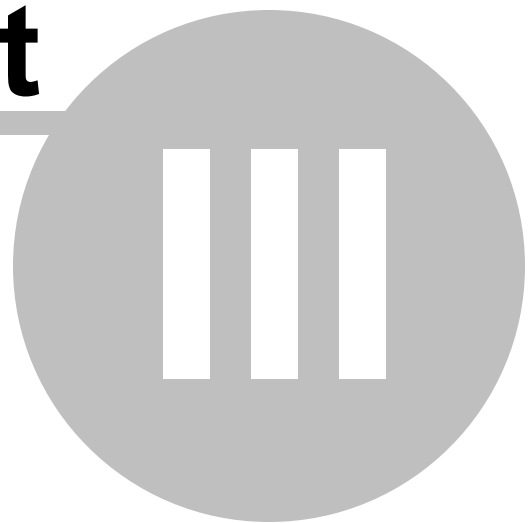
By default the programmer opens each of the programmers installed on this machine (Version 4 or 4.5) in the same master window. Each file occupies a separate tab. The titlebar of the main window identifies the programmer associated with the file in a particular tab. If you name your files as "the radio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

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



# Part

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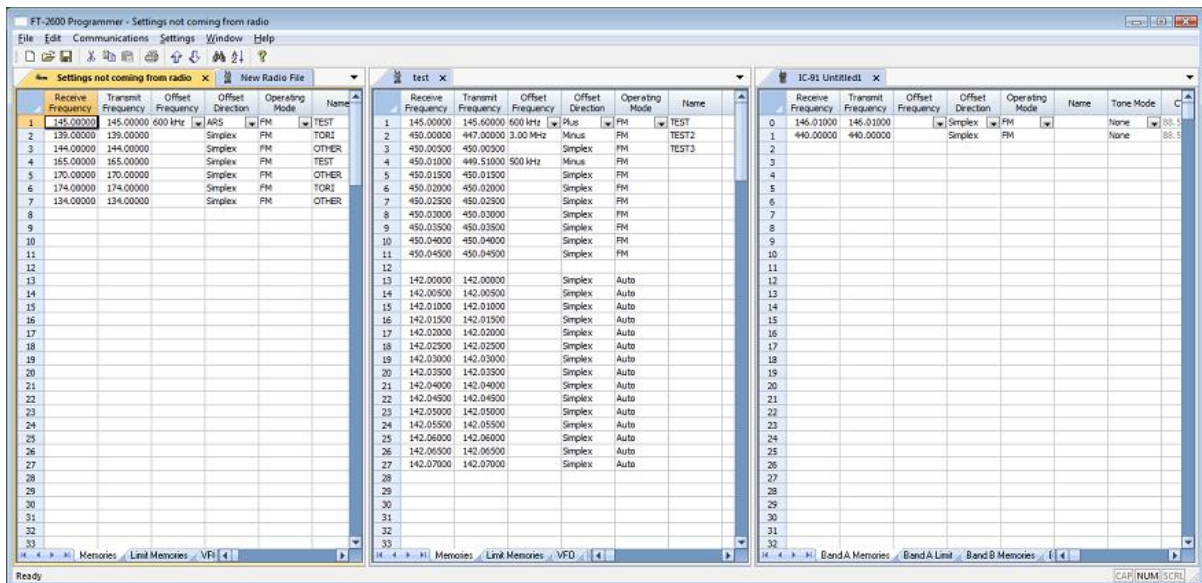


### 3 Split Screen for Multiple Files

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

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

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



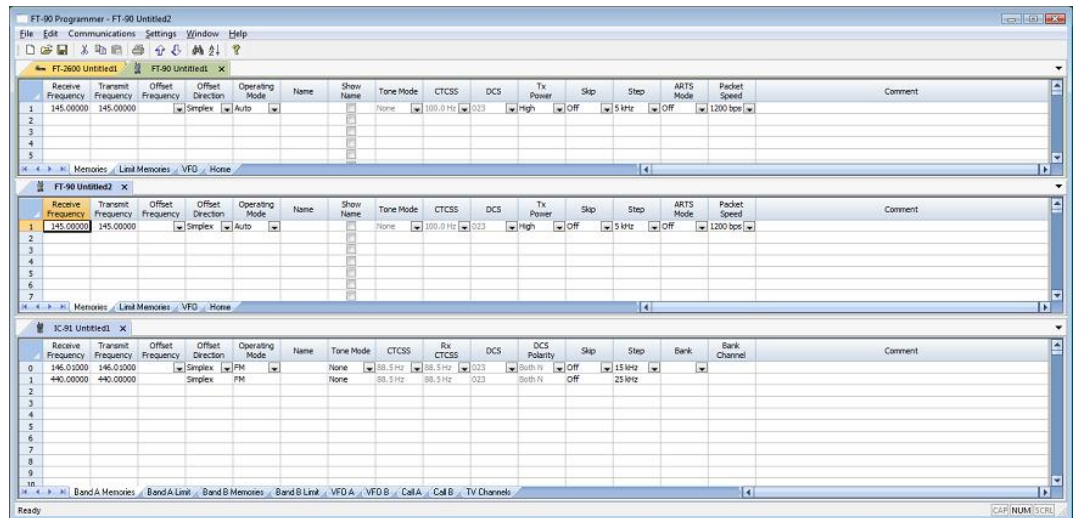
Open the files

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

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

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

A horizontal split is also possible.



Open the files

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

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

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

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

**Part**

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**IV**

## 4 D-Star Settings

D-Star technology is the next step for advanced use of amateur radio. Using a system of repeaters and the Internet, this system enables long distance communication as easily as communicating with a local repeater.

Using the D-Star system involves detailed setup of identifying information. Fields are provided in the Programmer to address these details.

Options for D-Star are set in three different places in the programmer. The placement of these options has to do with how the radio uses the option.

**Memory Specific Settings** are set in each memory channel. These can be copied and pasted between files: even files for different D-Star radios.

***Note: Icom has gone through several iterations while developing the format for many of the D-Star options in the radios.***

***One that changed quite a lot since it was first introduced are the RPT1, RPT2 and Your callsign. In earlier radios, this information was limited. Because of this limitation, the programmer cannot copy from a file that has an unlimited number of RPT1, RPT2 and Your callsigns into a file for another that can handle only a limited number of callsigns. You will have to handle this information manually after copying the other details for the channels to be sure that you work within the limitation of the earlier radio. The IC-2200 and the ID-800 are two that have this limitation.***

**Global D-Star Settings** are set once for use whenever you are using the D-Star functionality of the radio. These options are completed in the fields found under D-Star | Digital (D-Star) Settings menu item at the top of the screen.

**General Digital Settings** are again set once for use whenever you are using the D-Star functionality of the radio. These settings are more universal to the radio. They are set in the programmer on the Settings screen which is found under Settings | Radio Menu Item Settings menu item at the top of the screen. These options are set once in the Settings file of the programmer and remain set even if you begin a new file.

### Memory Specific Settings

***Any memory channel of the radio including Limit Memories, Regular Memories, Call channels and VFOs can be programmed with D-Star settings.***

In a specific memory channel, the D-Star fields become active once a ***receive frequency is entered*** and the ***Operating Mode is set to DV*** (digital voice) or ***DD*** (digital data)

With a digital mode selected as the operating mode, the columns for Tone are disabled since these functions are not used while in digital mode. Any value that appears in a disabled column is not used by the radio.

The fields specific for D-Star operations are filled automatically when you use the D-Star Calc(ulator) included with the programmer. See details of that feature in the D-Star Calculator section of this help.

***Note: Use D-Star | Show D-Star Columns to hide columns not associated with the D-Star options. This makes it easier to edit the D-Star channel details.***

The columns specific to D-Star operation setup include:

**Digital Squelch** - Set to DSQL for digital call sign squelch or CSQL for Digital code squelch. DSQL uses My Callsign and CSQL uses the Digital Code set for this memory channel.

**Digital Code** - Select a digital code to be used with CSQL.

**Your Callsign** - Enter the call sign to be used for the Your Call Sign function.

**Rpt-1 / Rpt-2 Callsign** - Enter the call sign to be used for Repeater 1 and Repeater 2. Call signs entered here are saved to the Rpt 1 Callsign and Rpt 2 Callsign lists, respectively, as seen on the D-Star Settings screen. An option there allows you to stop these entries from being saved.

Once a callsign is saved to the repeater callsign list. This list is a part of the radio's memory structure. It is used if you are setting up D-Star functionality in the field. As for use of this list with the programmer, you can select a callsign from the list by double clicking in the Rpt-1 or Rpt-2 Callsign box on the main screen. The list will be presented from which a selection can be made.

***Note: A Callsign does not have to be in the repeater list to be used in a memory channel. The radio uses the repeater list for "on-the-fly" operations engaged while in the field. Changes can be made to this***

*list by selecting D-Star | Digital (D-Star) settings from the menu at the top of the screen.*

## Global D-Star Settings

These options are found on the screen that opens when D-Star | Digital (D-Star) Settings is selected from the menu at the top of the Programmer. This information is available for use by every D-Star channel in the current file.

The information entered on this settings screen is **File Specific**. It will not be available in another file for the radio. If you need to use this information in another file, start that file with a Save As in this file.

The Global D-Star settings include:

**My Callsigns** - Enter your callsign. Callsigns can be entered for others operating on D-Star on your radio. Be sure you know how to change the My Callsign designation from the face of the radio to allow someone else to use your radio without having to reprogram it. Set Selected My Callsign to let the radio know which one of the Callsigns to use.

**Note** - An additional four character piece of information that is sent with the My Callsign. When entered, My callsign is followed by a "/" and the four characters. Some use it to identify their radio, IC91, 2820, etc. Others might use their name, Bob, Paul, Pete, etc. You could use it to identify where your location, car, boat, camp, Sta1, etc.

***Note: Given the radio has slots for six My Callsign/Note combinations, there is no reason the My Callsign could not be the same with different notes (i.e., KD4DXX/home : KD4DXX/car: KD4DXX/park: KD4DXX/camp). Then with minimal effort, the user can send the changed data by simply changing the My Callsign selection from the face of the radio.***

**Your Callsigns** - The callsign of the party you are calling. Leave set to CQCQCQ for non-specific communications.

**Rpt Callsigns** - The callsign of the repeater with its extension. There is no need to worry about where to find these details for any repeater. The D-Star calculator feature of the programmer has that information built right in. See the **D-Star Calculator** section of this help for more details.

**D-PRS** - Digital Position Reporting System. Uses the selected My Callsign as Text message 1 to transmit positioning information. This Calc will incorporate this information into the message in Text Message 1. Be sure

that field is blank before clicking Calc for the D-PRS to get accurate positioning information.

**Tx Messages** - Five messages of up to 20 characters each. The first is used for D-PRS if that option is engaged. Check one to be transmitted when the radio is programmed with this file. The others are there to be easily accessed from the face of the radio.



## 4.1 D-Star Calculator

The RT Systems programmer provides an easy way to find the details for the D-Star repeaters you want to use. The D-Star Calculator (accessed in the menu from DStar | DStar Calc) has information on repeaters from all over the world.

RT Systems maintains the information in the DStar Calc published in the programmers. Updates to this information are supplied through updates to the programmer. If you know of a correction or of a new repeater, please e-mail details to [techsupport@rtsystemsinc.com](mailto:techsupport@rtsystemsinc.com). We will be happy process your information for the next update.

The D-Star Calc in the programmer helps you by entering the details for a repeater in the correct format for D-Star operations.

Shown here is the main page of the calculator.

**Note:** The numbers in red in the figure are for identification only. These help you find the specific field for the explanation that follows. You will not see these numbers when you use the DStar Calc in the programmers.

**1: Source** - Begin here. This is the repeater you will "hit". Just as in analog communications, you must "hit the repeater" to be able to communicate with the system. The repeater does the magic.

**Country** - Select the country in which you are located.

**State** - Where applicable. In some countries this option is blank

**City** - Select a city near you or near where you will be if you are traveling. Remember, you must be able to "hit this repeater".

**Callsign** - The callsigns are those of the repeaters located in that city. You may have been told to use one in particular. If you don't see it in the list, try a different city. If it does not matter, select the first callsign and evaluate the available frequencies associated with it. The frequencies appear in the next box. You may need to select a different callsign if you need 440MHz or 2M frequencies only for your particular radio.

**2: DVAP Hotspot** - A device used if you do not have a DStar repeater in range. This device attaches to your computer with an Internet connection. The device converts your signal for use over the Internet. Everything you can do through a local repeater (link to reflector, link to repeater, callsign or repeater routing, talking, unlinking, echo test, etc.) you can do through a DVAP.

**Frequency** - Enter the frequency for your DVAP. The most common is 146.5500

**Name** - Enter a name to display on the screen of your radio when this channel is in use.

**3:** Displays information for the Source setup you are using. This information will be a part of the resulting channel programming.

**4: Destination** - The fields in this group refer to the output signal: where the signal is to be heard. This is the beauty of D-Star. You can talk to the local repeater and be heard anywhere around the world.

The programmer will create four channels for you automatically: Talk, Echo, Status and Unlink. You can stop the automatic creation by unchecking the appropriate box.

Described here are what these channels do and why you might need them (especially at first).

**Talk** - This is your CQCQCQ channel. This is the one on which you talk to the world. This is the most important of the four and often the only one needed depending on what other commands you use on the repeater or through the DVAP.

**Echo** - This is the most important function if you are new to DStar or new to an area. When you use the Echo channel stating your callsign and the message of "Testing", if you hit the repeater, your transmission in your voice will be repeated to you. Depending on the clarity and strength of the returned message, you will know if that repeater is good for you to use. Once you identify the repeater you plan to use, especially if you stay in one place and will be using this repeater exclusively, you may want to eliminate this channel to make room for others.

**Status** - This function commands the repeater to tell you its "linked" status. Some repeaters report this information verbally while others scroll the status in the message text of your radio. That information will include an indication of the reflector or repeater to which it is linked. If the repeater is not linked

**Unlink** - This function unlinks the local repeater from the remote one.

**11:** Information for the channel appears at the bottom of the D-Star Calc screen as you make your selections. Frequency, RPS1(Source), RPT2(Destination), and Your Call are displayed just as they will be programmed into the memory channel. Review this information and make changes to the fields on the screen if needed.

**12: Channel Name** - Enter an name for the channel. This information is for display on the radio only. It does not affect how the radio handles the other settings.

**13: Channel Number** - Select the Channel number this information will be assigned to. The D-Star Calc will overwrite a channel that is already programmed.

**14: AutoIncrement** - Check this box to advance the channel number automatically. This is handy if you are programming several channels.

**15: Screen Options**

**Apply** - Assigns the information to the selected channel and leaves the D-Star Calc open.

**OK** - Closes the D-Star Calc.

**Cancel** - Closes the D-Star Calc without applying changes to the radio file.



## 4.2 DStar Settings

Using the DStar Calculator in the program is a great way to easily set up details for the memory channels. There are other options that the radio needs set so it's ready to operate on DStar.

Access the DStar Settings through Dstar | Dstar Settings at the top of the main screen.

D-Star Settings

☒ Automatically insert callsigns entered in memory channels

**1**

My Callsigns	Note
M01	
M02	
M03	
M04	
M05	
M06	

Selected My Callsign  
M01 KORTX

Selected Tx Message  
Off

**2**

Tx Messages	
1	
2	
3	
4	
5	
GPS	

D-PRS  
☐ Use

**3**

Your Callsign	Name
U01	CQCQCQ Use Repeater
U02	U Unlink Repeater
U03	I Repeater Status
U04	E Echo Test
U05	REF001AL link to REF001A
U06	REF001BL link to REF001B
U07	REF001CL link to REF001C
U08	REF002AL link to REF002A
U09	REF002BL link to REF002B
U10	REF002CL link to REF002C
U11	REF003AL link to REF003A
U12	REF003BL link to REF003B
U13	REF003CL link to REF003C
U14	REF004AL link to REF004A
U15	REF004BL link to REF004B
U16	REF004CL link to REF004C
U17	REF005AL link to REF005A
U18	REF005BL link to REF005B
U19	REF005CL link to REF005C
U20	REF006AL link to REF006A

OK Cancel

**Note:** This screen is a sample of those found in the programmers for the DStar radios. Options in each radio will vary depending on the design of that radio.

- 1.** The **My Callsigns** option must be set for the radio to access a DStar repeater. Enter your callsign here. Remember: your callsign must be registered with the Trust server to make calls with DStar. You can complete that registration at [www.kd0lux.org](http://www.kd0lux.org). Registration is a two step process. If you don't get the e-mail with details of the second step within two business days, contact RT Systems.

**Note:** The note is four characters that will transmit with your callsign and Tx Message. This is a good place for your name, radio model, location, or any other information you want to broadcast that does not exceed 4 characters.

**Select My Callsign:** You can see by the list that the radio will store six callsigns. This would be good if you share your radio with a group. Select which of the callsigns will be used when the radio is first programmed with this file. This option can be changed from the menu of the radio to make the radio usable by someone else in the group whose callsign is in the list.

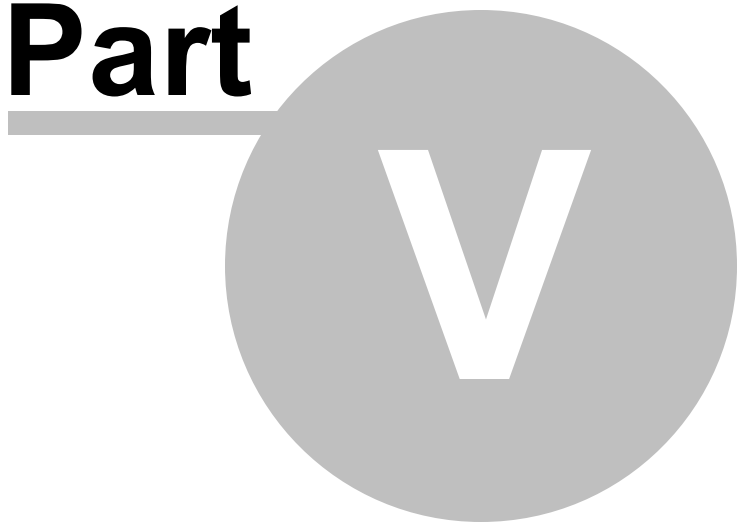
**2. Tx Messages** is an optional field. This is a fixed length field for more information that is transmitted with your callsign. This could include your name, radio type, or location. This information is used by the receiving station to identify you and call you back personally.

**Selected Tx Message:** You can see by the list that the radio will store several text messages. This would be good for different information to be transmitted for special events. Select which of the messages will be used when the radio is first programmed with this file. This option can be changed from the menu of the radio.

**D-PRS** - This conversion routine changes the information entered in the GPS string to TBC2 formatted APRS string . D-PRS is not a protocol but a conversion specification. Use this tool to make the GPS data presentable to APRS.

**3. Your Callsign** is also an optional field. This is a list of Your Callsigns for the radio. You will become familiar with this list if you use DR Memories for DStar transmissions. This list is often lost when the radio is reset and must be set up again by sending a file to the radio. Note: There are now more reflectors than there are memory locations in the Your Callsign list of the radio. You can do lots of editing here to be sure your favorites are available in the radio and those you don't use are removed.

**Part**



## 5 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. In the IC-9700 these are separated into VHF, UHF and 1.2G sections just as they are separated in the radio.
- [Scan Limits](#) - Upper and lower limits for use in scanning.
- MemoPad Memories - The contents of the quick save memories you assigned from the face of the radio.
- DR Memroies - Special memories for D-Star activities. Details can be found in the [D-Star Settings](#) section of this Help.
- [Call Channels](#) - Two memory channels with one touch access. One for each the 2M and 440 MHz bands.
- [Satellite Memories](#) - Memory "pairs" that work together for satellite uplinks (U) and downlinks (D).
- [GPS Memories](#) - Special GPS Memory information. These contain GPS details rather than frequency details.

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.



## 5.1 Regular Memory Channels

The Main window of the Programmer is for entering details for the "regular" memory channels. These are the memory channels for 2M, 440MHz and 1.2 GHz frequencies that you'll use most often. You will enter repeater details, details for weekly nets, and simplex frequencies where you meet your friends regularly on sideband. Your DStar memory channels will be set up here with all the details to make those worldwide contacts.

Columns continue off the right side of the screen. Use the bar at the bottom of the screen to move to these columns or press ENTER to step through each column. For easier editing, columns can be hidden and rows can be made alternate colors using the selections of the Preferences screen. Select Settings | Preferences in the menu to access these screen options.

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

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

### Details to be entered for each memory channel include:

**Receive Frequency:** Enter a receive frequency for the memory channel. Acceptable frequencies are detailed in the operating manual for the radio. The software will accept any frequency within the range of the radio. Unacceptable frequencies cannot be entered into the Programmer.

***Note: VHF, UHF and 1.2G frequencies are entered onto separate pages of the program (just as they are handled separately by the radio). Access the correct tab at the bottom of the screen for your frequency.***

***When using the D-Star calculator in the program, you will be offered only the frequencies that can be used on the selected sheet. If you are on the VHF sheet and are looking for a 440MHz repeater in the***

***calculator, it will not be found. Move to the UHF sheet to access the UHF frequencies in the calculator.***

**Transmit Frequency:** Enter a specific transmit frequency or let the Programmer calculate this frequency based on the offset. Acceptable transmit frequencies are detailed in the operating manual for the radio. The software will accept any frequency within the range of the radio.

***Note: Although in the Programmer you can set offset and other transmit related data for frequencies outside the transmission abilities of the radio, the software will not enable transmission on these frequencies. Transmission will be possible only if the radio is properly modified.***

***For some D-Star activities, you need an Offset Direction of +Dup or -Dup with an Offset Frequency of 0.00Khz. You have complete control of these fields for the channel. Simply make changes as needed to set up for the device you're using. Since with D-Star you often set up multiple channels, you can make this change later for all the channels with column copy and paste rather than having to change each channel individually.***

**Offset Frequency:** The mathematical difference between the transmit and receive frequencies of a repeater. Icom radios handle all repeater frequencies with an Offset Frequency (the difference between the transmit and receive frequency) and an Offset Direction (+ or -).

Icom radios use an Offset Frequency of 0 to 9.99900 MHz with a Plus or Minus Offset Direction for the 144/430 Bands and 0 to 99.999900 MHz for the 1.2 Ghz band.

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

Simplex - transmit and receive frequencies are the same;

-DUP - the offset frequency is subtracted from the receive frequency (i.e., the transmit frequency is less than the receive frequency as in RX 145.520 TX 143.425) The transmit frequency shifts down from the receive frequency.

**+DUP** - the offset frequency is added to the receive frequency (i.e., the transmit frequency is greater than the receive frequency as in RX 144.250 TX 147.335) The transmit frequency shifts up from the receive frequency.

**Operating Mode:** Select the appropriate operating mode for the channel. The selections listed here are not included in all Icom radios. Chose from those available for your model:

LSB or USB - Lower or upper sideband.

CW or CW-R - CW mode for Morse Code

RTTY or RTTY-R - RTTY digital mode

FM - Amateur band repeater operations

AM - For listening on aviation frequencies. Transmission is not available.

DV - Digital mode. This mode must be selected for the memory channel before the D-Star columns become available.

DD - For digital operations in 1.2Ghz band.

**Data:** Available only for LSB, USB, AM or FM operating modes.

Operating data mode allows you to operate SSTV, RTTY (AFSK), PSK31, JT65B and FT8 with optional equipment and software for the activity.

**Name:** Enter an Alpha/Numeric tag (up to 16 characters) to easily identify that memory channel. The Programmer allows entry of characters that are allowable in the radio.

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

Using tones requires two steps:

- 1) Selecting the Tone Mode and
- 2) Making a selection for the CTCSS frequency or DTCS tone.

***Note: Values that appear in the CTCSS, Rx CTCSS or DCS column that are not associated with the selected Tone Mode are not used by***

***the radio other than to fill the space in the its memory structure.  
These values will NOT interfere with Tone operation of the channel.***

Use of the "Tone System" is limited to the FM operating mode.

Use of the "Tone" system can make it possible for you to use a local repeater. It can also limit your ability to hear a transmission from that repeater. The details governing use of the system depend completely on your situation. The repeater operator is in complete control.

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

### **Set the Tone Mode:**

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

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

**TSql** - CTCSS tone squelch is activated for ***both transmission and reception***. Only signals with the same tone will open the squelch: your radio will remain silent otherwise. This mode is often referred to as Tone Squelch. With this option selected, the RX CTCSS column becomes active to set the tone frequency to be used for ***both transmission and reception***. The radio uses only one CTCSS frequency for both transmission and reception.

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

**DTCS** - The Digital Coded Squelch system is activated for ***both transmission and reception***. Only signals with the matching tone will open the squelch: your radio will remain silent otherwise. With this option selected, the DCS column becomes active to set the code to be used. The radio uses only one DCS code for both ***both transmission and reception***.

**D Code** - The Digital Coded Squelch system is activated for **transmission only**. With this option selected, the DCS column becomes active to set the code to be used. The radio uses only one DCS code for both **transmission only**.

**T DCS** - The CTCSS tone system is activated for **transmission** and the Digital Coded Squelch system is activated for **reception**. Only signals with the matching tone will open the squelch: your radio will remain silent otherwise. With this option selected, the CTCSS and DCS columns become active to set the CTCSS frequency to be transmitted and the DCS code to be used for reception.

**D Tone** - The Digital Coded Squelch system is activated for **transmission** and the CTCSS tone system is activated for **reception**. Only signals with the matching tone will open the squelch: your radio will remain silent otherwise. With this option selected, the RX CTCSS and DCS columns become active to set the code to be used.

**Split Tone** - The CTCSS tone system is activated for **both transmission and reception**. Only signals with the matching tone will open the squelch: your radio will remain silent otherwise. With this option selected, both the CTCSS and RX CTCSS columns become active to set the CTCSS frequencies to be used. In this mode, the radio can use **different** CTCSS frequencies for transmission to the repeater and reception by the radio. The radio uses two separate CTCSS frequencies from **transmission and reception**.

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

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

**Note:** *This is NOT the tone used for normal repeater access. Unless the repeater is specially set up for this option (fire-rescue, emergency services or commercial repeaters as examples), your radio will be able to activate the repeater; but it will hear NOTHING back. You will see an indication on your radio is receiving a signal; however, you will hear nothing.*

***In this case, change your setting to Tone with the same value set in the CTCSS column and try again.***

**DCS:** Select one of 104 DTCS codes to be used in the DTCS mode. This is the code associated with a 3-tone sub-audible sequence that will be transmitted for access to a repeater and must be received by your radio before it will hear an incoming signal. This field becomes active only if Tone Mode is set to DTCS.

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

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

**Scan select:** Assign the channel to a select group 1, 2,3, or 1,2 and 3. This organizes the channels into scan groups. When selected, only this group of channels will be included in scanning.

Leaving this option off (no selection) will include then channel when scanning outside a select group.

**These columns for the D-Star settings are disabled for a memory channel until Operating Mode is set to DV.**

**Digital Squelch** - Set to DSQL for digital call sign squelch or CSQL for Digital code squelch. DSQL uses My Callsign and CSQL uses the Digital Code set for this memory channel.

**Digital Code** - Select a digital code to be used with CSQL.

**Your Callsign** - Enter the call sign to be used for the command for the repeater. Your callsign is the command for general talk (CQCQCQ), connect to xx (xxx####L) etc.

**Rpt-1 / Rpt-2 Callsign** - Enter the call sign of the repeater and the incoming and gateway commands.

***Note: While all the details of a DStar channel can be entered manually, the programmer has a built in tool and database that will do all the work for you. Use the DStar Calculator (found under DStar***

*Calc from the menu at the top of the screen) to have the programmer complete the channel as needed for proper DStar communications.*

*Use of the DStar Calculator is detailed at [www.rtsystemsinc.com](http://www.rtsystemsinc.com) in the How To Videos or the [D-Star Settings section](#) of this Help.*

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

## 5.2 Scan Limits

Used as the frequency ranges for the Programmed Scan function. Three ranges are available for each band. Enter an upper and lower frequency to scan between the pair.

The tuning step for scanning is set as a global setting for each mode in each band (other than DD). This is done in the programmer under Settings | Radio Menu Settings | Common 2 tab | Tuning Step grid. Customize these as needed for optimum frequency coverage during scanning.

Details to be entered are the same as those for [Regular Memory Channels](#) other than Scan Select as these channels cannot be included in that function.



## 5.3 DR Memories

DR Memories are used with D-Star activities both as repeaters to be accessed directly if you are near that repeater or as outgoing repeater to be linked to.

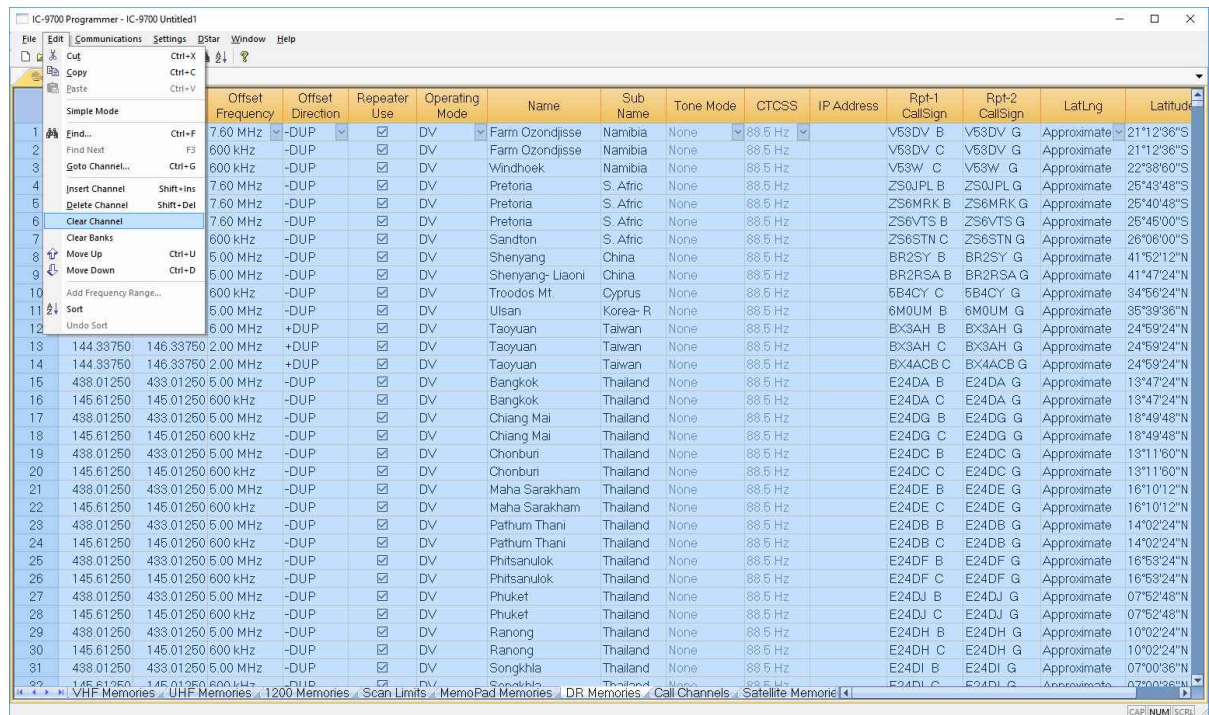
The IC-9700 contains an impressive list of Dstar repeaters from around the world. Having so much to choose from may be both overwhelming and difficult. The list can be customized for your use with the DStar Calc found on this page.

The process would go something like this...

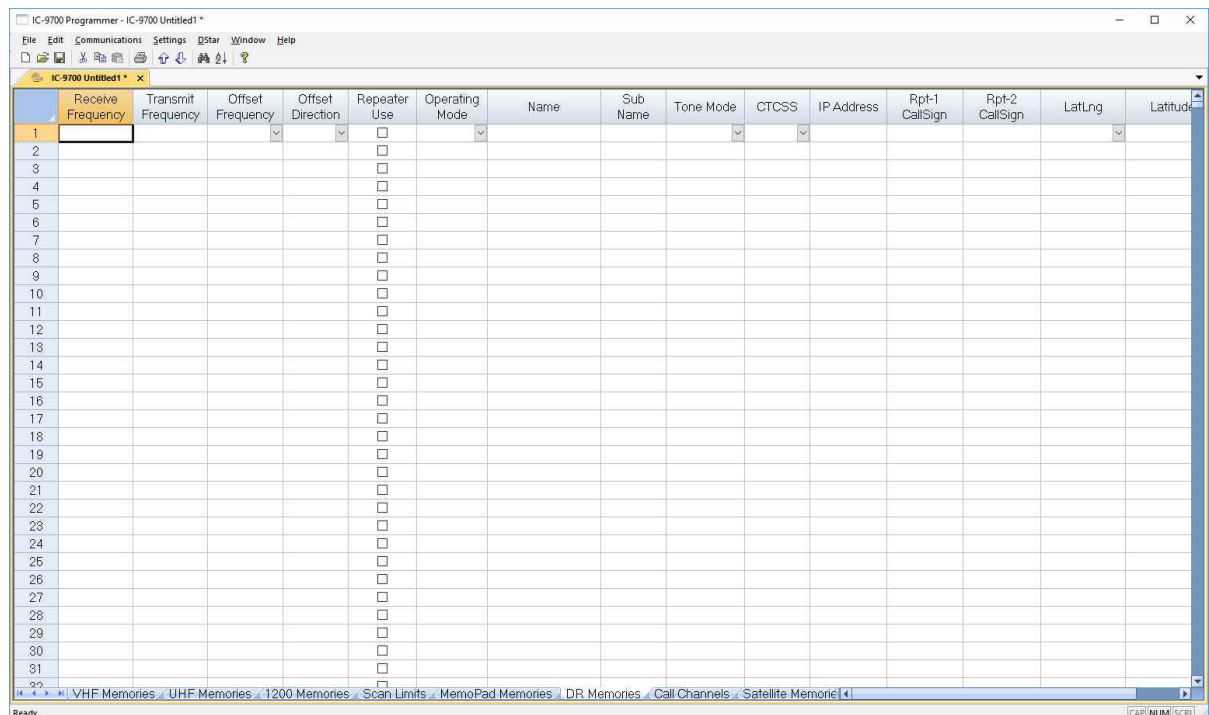
Channel	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Repeater Use	Operating Mode	Name	Sub Name	Tone Mode	CTCSS	IP Address	Rpt-1 Call Sign	Rpt-2 Call Sign	Lat/Lng	Latitude
1	439.50000	431.90000	7.60 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Farm Ozondjisse	Namibia	None	88.5 Hz		V63DV B	V63DV G	Approximate	21°12'36"S
2	145.60000	145.00000	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Farm Ozondjisse	Namibia	None	88.5 Hz		V63DV C	V63DV G	Approximate	21°12'36"S
3	145.70000	145.10000	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Windhoek	Namibia	None	88.5 Hz		V63W C	V63W G	Approximate	22°38'00"S
4	438.26250	430.66250	7.60 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Pretoria	S. Afric	None	88.5 Hz		ZS0JPL B	ZS0JPL G	Approximate	25°43'48"S
5	438.27500	430.67500	7.60 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Pretoria	S. Afric	None	88.5 Hz		ZS6MRK B	ZS6MRK G	Approximate	25°40'48"S
6	438.25000	430.65000	7.60 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Pretoria	S. Afric	None	88.5 Hz		ZS6VTS B	ZS6VTS G	Approximate	25°45'00"S
7	145.82500	145.22500	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Sandton	S. Afric	None	88.5 Hz		ZS6STN C	ZS6STN G	Approximate	26°06'00"S
8	439.70000	434.70000	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Shenyang	China	None	88.5 Hz		BR2SY B	BR2SY G	Approximate	41°52'12"N
9	439.72500	434.72500	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Shenyang-Liaoni	China	None	88.5 Hz		BR2RSA B	BR2RSA G	Approximate	41°47'24"N
10	145.63750	145.03750	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Troodos Mt.	Cyprus	None	88.5 Hz		5B4CY C	5B4CY G	Approximate	34°56'24"N
11	439.50000	434.50000	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Ulsan	Korea-R	None	88.5 Hz		6M0UM B	6M0UM G	Approximate	35°39'36"N
12	433.33750	439.33750	6.00 MHz	+DUP	<input checked="" type="checkbox"/>	DV	Taoyuan	Taiwan	None	88.5 Hz		BX3AH B	BX3AH G	Approximate	24°59'24"N
13	144.33750	146.33750	2.00 MHz	+DUP	<input checked="" type="checkbox"/>	DV	Taoyuan	Taiwan	None	88.5 Hz		BX3AH C	BX3AH G	Approximate	24°59'24"N
14	144.33750	146.33750	2.00 MHz	+DUP	<input checked="" type="checkbox"/>	DV	Taoyuan	Taiwan	None	88.5 Hz		BX4ACB C	BX4ACB G	Approximate	24°59'24"N
15	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Bangkok	Thailand	None	88.5 Hz		E24DA B	E24DA G	Approximate	13°47'24"N
16	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Bangkok	Thailand	None	88.5 Hz		E24DA C	E24DA G	Approximate	13°47'24"N
17	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Chiang Mai	Thailand	None	88.5 Hz		E24DG B	E24DG G	Approximate	18°49'48"N
18	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Chiang Mai	Thailand	None	88.5 Hz		E24DG C	E24DG G	Approximate	18°49'48"N
19	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Chonburi	Thailand	None	88.5 Hz		E24DC B	E24DC G	Approximate	13°11'60"N
20	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Chonburi	Thailand	None	88.5 Hz		E24DC C	E24DC G	Approximate	13°11'60"N
21	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Maha Sarakham	Thailand	None	88.5 Hz		E24DE B	E24DE G	Approximate	16°10'12"N
22	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Maha Sarakham	Thailand	None	88.5 Hz		E24DE C	E24DE G	Approximate	16°10'12"N
23	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Pathum Thani	Thailand	None	88.5 Hz		E24DB B	E24DB G	Approximate	14°02'24"N
24	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Pathum Thani	Thailand	None	88.5 Hz		E24DB C	E24DB G	Approximate	14°02'24"N
25	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Phitsanulok	Thailand	None	88.5 Hz		E24DF B	E24DF G	Approximate	16°53'24"N
26	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Phitsanulok	Thailand	None	88.5 Hz		E24DF C	E24DF G	Approximate	16°53'24"N
27	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Phuket	Thailand	None	88.5 Hz		E24DJ B	E24DJ G	Approximate	07°52'48"N
28	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Phuket	Thailand	None	88.5 Hz		E24DJ C	E24DJ G	Approximate	07°52'48"N
29	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Ranong	Thailand	None	88.5 Hz		E24DH B	E24DH G	Approximate	10°02'24"N
30	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Ranong	Thailand	None	88.5 Hz		E24DH C	E24DH G	Approximate	10°02'24"N
31	438.01250	433.01250	5.00 MHz	-DUP	<input checked="" type="checkbox"/>	DV	Songkhla	Thailand	None	88.5 Hz		E24DI B	E24DI G	Approximate	07°00'36"N
32	145.61250	145.01250	600 kHz	-DUP	<input checked="" type="checkbox"/>	DV	Songkhla	Thailand	None	88.5 Hz		E24DI C	E24DI G	Approximate	07°00'36"N

Now, let's clear some channels to work with. Click on the "1" in the blue box at the left. Then hold the mouse and drag down across the channel numbers of those channels you want to clear (We'll do a screen full for this example... you do as many as you want up to the entire list).

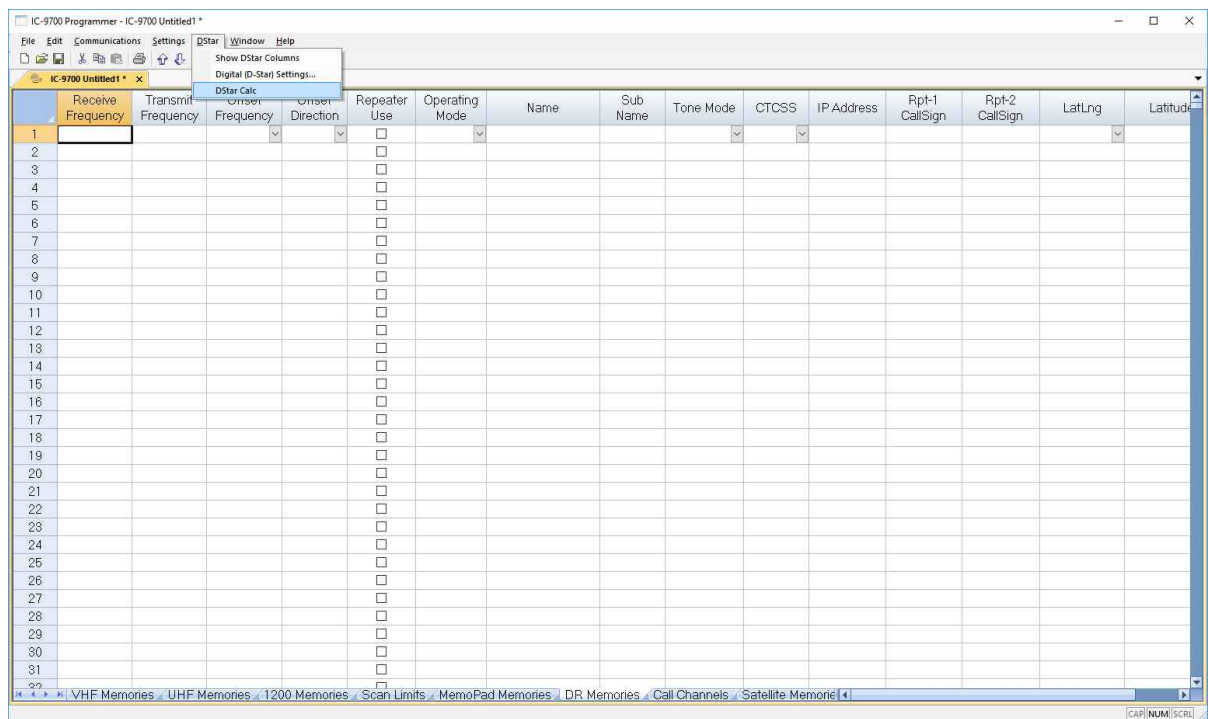
Once highlighted, click Edit at the top of the screen. Then Clear Channel (deletes these and leaves all others in place).



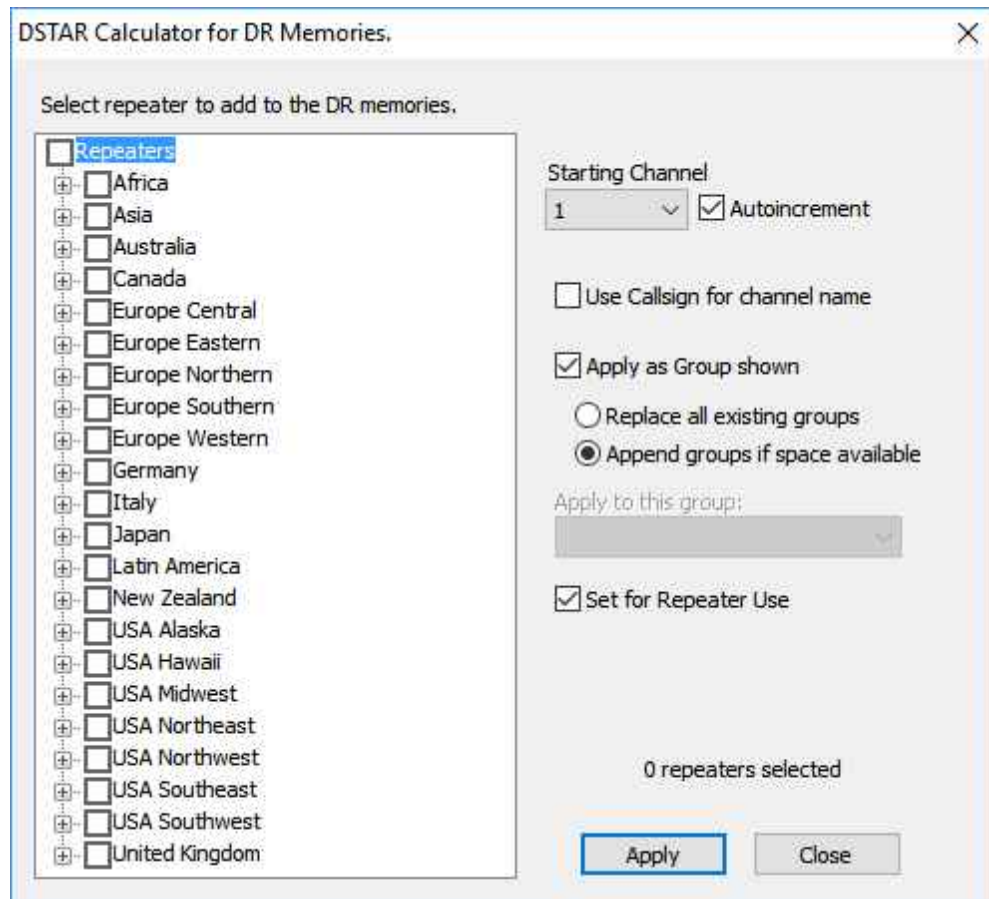
The result is this.



Now, let's put back what we want and will use most often. From the menu at the top, select DStar | DStar Calc

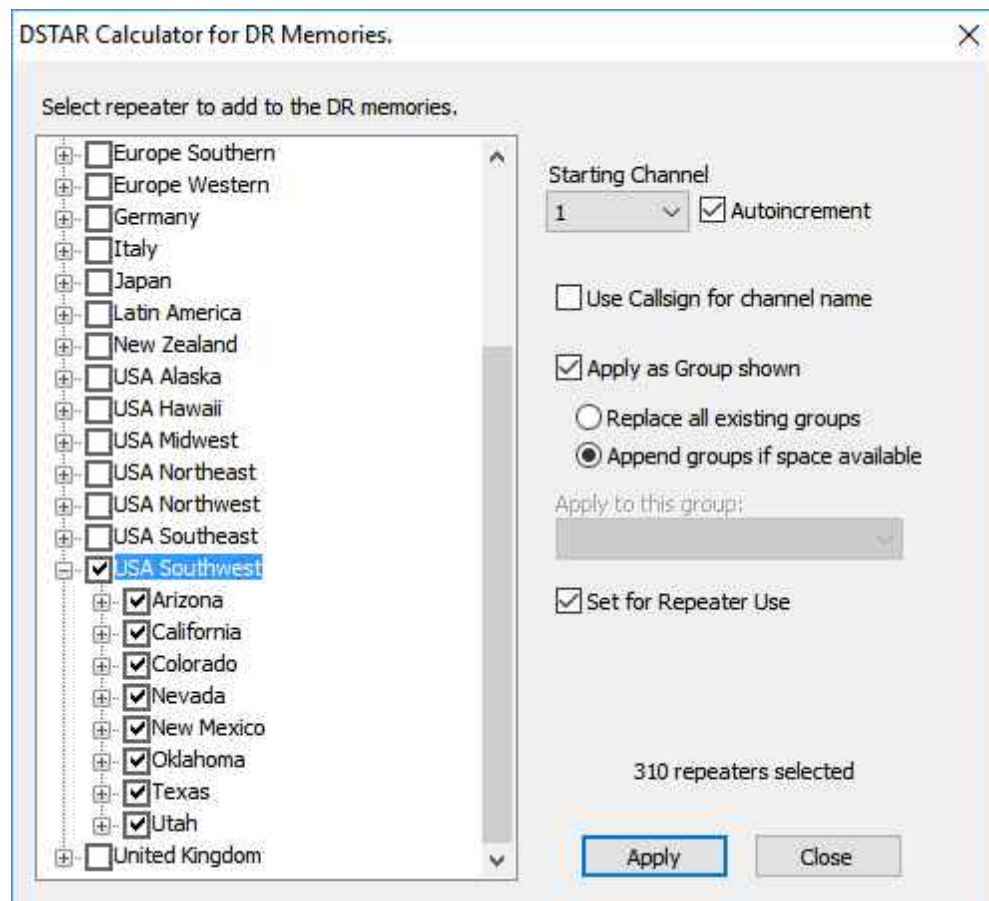


The on-board calculator opens. This list reflects the list of the Trust Server that you find from other sources on the Internet. It is built right in to the RT Systems program.



Since I am in the Southwest and want only those repeaters, I expand the calculator for USA Southwest and with one click have 310 repeaters ready to set up for my use. Still a lot to work through when looking for the one I want.... but less than what is in the original list.

Click Apply.



The resulting file begins with the Arizona repeaters and continues from there.



IC-9700 Programmer - IC-9700 Untitled1 *															
IC-9700 Untitled1 *															
	Receive Frequency	Name	Sub Name	Tone Mode	CTCSS	IP Address	Rpt-1 CallSign	Rpt-2 CallSign	Lat/Lng	Latitude	Longitude	UTC Offset	Bank	Comment	
1	445.86000	Globe	Arizona	None	94.8 Hz		N7CI B	N7CI G	Exact	33°16'56"N	110°49'17"W	-07:00 22:		Arizona Globe	
2	440.73750	Goodyear	Arizona	None	94.8 Hz		KG7HBZ B	KG7HBZ G	Exact	33°28'33"N	112°24'20"W	-07:00 22:		Arizona Goodyear	
3	1284.00000	Kingman	Arizona	None	94.8 Hz		W7KDS A	W7KDS G	Exact	36°21'23"N	114°00'24"W	-07:00 22:		Arizona Kingman	
4	445.90000	Kingman	Arizona	None	94.8 Hz		W7KDS B	W7KDS G	Exact	36°21'23"N	114°00'24"W	-07:00 22:		Arizona Kingman	
5	145.13500	Kingman	Arizona	None	94.8 Hz		W7KDS C	W7KDS G	Exact	36°21'23"N	114°00'24"W	-07:00 22:		Arizona Kingman	
6	445.95000	Kingman	Arizona	None	94.8 Hz		KR7MC B	KR7MC G	Exact	36°13'09"N	113°59'10"W	-07:00 22:		Arizona Kingman	
7	145.14500	Kingman	Arizona	None	94.8 Hz		KR7MC C	KR7MC G	Exact	36°13'09"N	113°59'10"W	-07:00 22:		Arizona Kingman	
8	1285.85000	Mesa	Arizona	None	94.8 Hz		KE7JFH A	KE7JFH G	Exact	33°29'34"N	111°38'26"W	-07:00 22:		Arizona Mesa	
9	445.97500	Mesa	Arizona	None	94.8 Hz		KE7JFH B	KE7JFH G	Exact	33°29'34"N	111°38'26"W	-07:00 22:		Arizona Mesa	
10	145.12500	Mesa	Arizona	None	94.8 Hz		KE7JFH C	KE7JFH G	Exact	33°29'34"N	111°38'26"W	-07:00 22:		Arizona Mesa	
11	1284.25000	Mount Lemmon	Arizona	None	94.8 Hz		K7RST A	K7RST G	Exact	32°26'26"N	110°46'60"W	-07:00 22:		Arizona Mount Lemmon	
12	445.90000	Mount Lemmon	Arizona	None	94.8 Hz		K7RST B	K7RST G	Exact	32°26'26"N	110°46'60"W	-07:00 22:		Arizona Mount Lemmon	
13	147.41000	Mount Lemmon	Arizona	None	94.8 Hz		K7RST C	K7RST G	Exact	32°26'26"N	110°46'60"W	-07:00 22:		Arizona Mount Lemmon	
14	445.80000	Oro Valley	Arizona	None	94.8 Hz		W7AI B	W7AI G	Exact	32°21'06"N	110°58'30"W	-07:00 22:		Arizona Oro Valley	
15	1283.90000	Phoenix	Arizona	None	94.8 Hz		W7MOT A	W7MOT G	Exact	33°34'41"N	112°34'26"W	-07:00 22:		Arizona Phoenix	
16	440.81250	Phoenix	Arizona	None	94.8 Hz		W7MOT B	W7MOT G	Exact	33°34'41"N	112°34'26"W	-07:00 22:		Arizona Phoenix	
17	145.13500	Phoenix	Arizona	None	94.8 Hz		W7MOT C	W7MOT G	Exact	33°34'41"N	112°34'26"W	-07:00 22:		Arizona Phoenix	
18	1248.75000	Sahuarita	Arizona	None	94.8 Hz		KR7ST A	KR7ST G	Exact	31°57'40"N	110°58'35"W	-07:00 22:		Arizona Sahuarita	
19	445.95000	Sahuarita	Arizona	None	94.8 Hz		KR7ST B	KR7ST G	Exact	31°57'40"N	110°58'35"W	-07:00 22:		Arizona Sahuarita	
20	145.11500	Sahuarita	Arizona	None	94.8 Hz		KR7ST C	KR7ST G	Exact	31°57'40"N	110°58'35"W	-07:00 22:		Arizona Sahuarita	
21	1285.00000	Scottsdale	Arizona	None	94.8 Hz		KF7CUF A	KF7CUF G	Exact	33°31'14"N	111°54'11"W	-07:00 22:		Arizona Scottsdale	
22	445.95000	Scottsdale	Arizona	None	94.8 Hz		KF7CUF B	KF7CUF G	Exact	33°31'14"N	111°54'11"W	-07:00 22:		Arizona Scottsdale	
23	145.12500	Sierra Vista	Arizona	None	94.8 Hz		K7RDG C	K7RDG G	Exact	31°31'11"N	110°11'26"W	-07:00 22:		Arizona Sierra Vista	
24	445.73750	Tucson	Arizona	None	94.8 Hz		W7NFL B	W7NFL G	Exact	32°19'26"N	111°07'07"W	-07:00 22:		Arizona Tucson	
25	1284.60000	Williams	Arizona	None	94.8 Hz		K7NAZ A	K7NAZ G	Approximate	36°15'01"N	112°11'22"W	-07:00 22:		Arizona Williams	
26	445.78750	Williams	Arizona	None	94.8 Hz		K7NAZ B	K7NAZ G	Approximate	36°15'01"N	112°11'22"W	-07:00 22:		Arizona Williams	
27	145.11500	Williams	Arizona	None	94.8 Hz		K7NAZ C	K7NAZ G	Approximate	36°15'01"N	112°11'22"W	-07:00 22:		Arizona Williams	
28	1287.82500	Anaheim	Californ	None	94.8 Hz		W6HRO A	W6HRO G	Exact	33°50'42"N	117°56'32"W	-08:00 22:		California Anaheim	
29	449.84000	Anaheim	Californ	None	94.8 Hz		W6HRO B	W6HRO G	Exact	33°50'42"N	117°56'32"W	-08:00 22:		California Anaheim	
30	147.57000	Anaheim	Californ	None	94.8 Hz		W6HRO C	W6HRO G	Exact	33°50'42"N	117°56'32"W	-08:00 22:		California Anaheim	
31	444.50000	Auburn	Californ	None	94.8 Hz		K6IOK B	K6IOK G	Exact	38°56'57"N	121°08'33"W	-08:00 22:		California Auburn	
32	446.87000	Blue Ridge Berry	Californ	None	94.8 Hz		W6CPAR B	W6CPAR G	Approximate		008°00'28"E	-08:00 22:		California Blue Ridge Berryessa Natur	
33	145.58500	Blue Ridge Berry	Californ	None	94.8 Hz		W6CPAR C	W6CPAR G	Approximate		008°00'28"E	-08:00 22:		California Blue Ridge Berryessa Natur	
34	1286.52500	Chico	Californ	None	94.8 Hz		K6CHO A	K6CHO G	Approximate	39°44'24"N	121°50'08"W	-08:00 22:		California Chico	

Now you have the list you want for the area you travel.

## 5.4 Call Channels

The Call channel memories provide convenient, access to two most used frequency in each band.

The information to be programmed for the Call channels is the same as that for the regular Memory channels other than Scan Select. See [Regular Memory Channels](#) for the details

## 5.5 Satellite Memories

Satellite information describes the location of the satellite, its pass schedule for your area, its uplink and downlink frequencies where applicable. This information is available from many sources especially the Internet.

The IC-9700 has a total of 99 memory channel pairs for upline and downlink frequencies for satellite communications.

Program different frequencies to each line. The upper of each pair is for the downlink (receive, Rx) frequency in the main band and the lower line is for the uplink (transmit, Tx) frequency in the sub band. The pairs of satellite memories must contain frequencies in different bands.

Information for the satellite memories is the same as that for regular memory channels (other than scan select as these memories cannot be included for that function). You can find details for each of the options on the [Regular Memory Channels](#) page of this help.



## 5.6 GPS Memories

### GPS Memories

GPS memories are used with GPS alarm to cause an alarm to sound when a target comes into the alarm area. The area can be a caller station, all GPS memories, a selected GPS memory group or a selected GPS memory.

### GPS Memory Group Names

GPS Memory group names are entered into the programmer under Settings | Bank Names and Linking | GPS Memory Group | Names

Enter up to 16 characters for the name of the group.

**Part**

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**VI**

## 6 Radio Menu Settings

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

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

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

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

The Programmer offers two options for managing the global settings.

- **You can create and use multiple global settings files**
- **Save these settings as part of the file with the memory information.**

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

### Creating and using multiple global settings files

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

To select a settings file for use:

- Select Settings | Radio Menu Settings from the main page of the Programmer.
- From the Radio Menu Settings screen, select File | Open. A list of settings files will be presented.
- Select the file you want to use and click Open.

- Verify that this is the settings file that you want to use. Check also that the proper filename appears in the titlebar at the top of the Menu Settings window.
- Select File | Exit to close this screen. These settings will be sent to the radio with each memory channel file until you change this file selection again.

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

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

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

## Alternate global settings file option

Programmers have the option of saving the global settings with the memory channel information. This new feature is not the default for the Programmer; but may be valuable under certain programming circumstances.

To contrast and compare the two Radio Menu Setting options:

Use Separate file for menu settings (default)

- This option is based on a "Set and Forget" plan. Once the global settings are configured to your liking and saved, you do not have to repeat this process. This configuration does not change with a new memory channel file.
- The last settings file saved is the one that will be used when a memory file is sent to the radio.
- You can save several different settings files (i.e., one for your radio and a different one for your son's radio). Then easily match the settings to the radio being programmed without having to make changes in the file repeatedly.

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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.

## 6.1 Settings \_ Common

**CW Normal Side** - Sets the carrier point in the CW normal mode. Select LSB or USB for the carrier point in CW transmissions.

**Keyboard Layout** - Changes the on-screen keyboard layout of the radio between English, German and French.

**Keyboard Type** - Sets the keyboard entry type on the face of the radio to Ton-Key or Full Keyboard.

**MemoPad Quantity** - Sets the number of Memo Pad channels.

**Mic Up/Down Speed** - Selects the steps per second when changing an operating frequency by holding down the mic's [UP]/[DOWN] buttons.

**RF/Sql Control** - Sets the outer control operation. Set to

Auto: Functions as an RF gain control in the SSB, CW and RTTY modes.  
Functions as a squelch control in the AM, FM, DV and DD modes.

SQL - Functions as a squelch control in all modes. Eliminates RF gain control.

RF+SQL - Functions not only as an RF gain control, but also as a squelch control in all modes.

**[NOTCH] Switch AM/SSB** - Sets the notch function used in the SSB or AM mode.

**AFC Limit** - Sets whether to limit the operating range of the AFC (Automatic Frequency Control) function or not.

**FM/DV Center Error** - Turns the FM/DV Center Error indication On or Off. The Main./Sub band indicator shows the received signal deviation. When an off-center signal is received, the indicator blinks green.

**SSB/CW Sync(hronous) Tuning** - Turns the Displayed Frequency Shift function On or Off. This function automatically shifts the frequency to match the CW pitch with the operating mode is toggled between SSB and CW.

**SSB TBW** - The transmit filter width for SSB and SSB-D modes can be set to Wide, Mid, or Narrow. By default, the widths are set to the following:

SSB Wide:	100 Hz to 2900 Hz
SSB Mid	300 Hz to 2700 Hz
SSB Nar	500 Hz to 2500 Hz
SSB-D	300 Hz to 2700 Hz.

**Note:** *The values for Wide, Mid and Narrow and SSB-D can be adjusted in the table found on the Tone Control/Scope page of the Settings of the programmer. Customize Wide, Mid, High for optimum performance.*

**PTT Lock** - Check to disable the PTT

**Monitor** - Check to engage the Monitor function which enables you to monitor your transmit audio. Use this function to check the voice characteristics while adjusting transmit audio parameters.

**Monitor Level** - Adjust Monitor audio output.

**Reference Adjust** - Adjust the reference level of the spectrum scope.

**Screen Capture (power)** - Assigns the screen capture function to the power button.

**Screen Capture File** - Sets the format for the Screen Capture function to PNG or BMP.

**Time Out Timer** - Sets the time after which continuous transmission will end.

**Dial** - Set the following as they apply to the Main Dial of the radio.

Main Dial Auto TS - Set the Auto Tuning Step function to control the tuning step automatically when rapidly rotating the [Main Dial].

1 Hz Mode - Check to engage 1hz fine tuning in SSB, CW and RTTY modes.

Satellite 1 Hz Mode - Check to engage 1hz fine tuning in Satellite mode.

## Display

BW (Bandwidth) Popup (FIL) - Selects whether or not to display the IF filter width and shift value when you switch the IF filter.

BW (Bandwidth) Popup (PBT) - Selects whether or not to display the PBT shift value during PBT operations with the [MULTI] key.

Meter Peak Hold - Turns the Meter Peak Hold (Bar) function On or Off.

Memory Name - Turns the memory name display in the memory mode on or off.

MN-Q Popup - Turns the Manual Notch filter width display on or off.

Power On Check - Selects whether or not to display the RF power level at power on.

Opening Message - Selects whether or not to display the opening message at power on.

Opening Message - Enter text for the opening message

Scroll Speed - Set the scrolling speed of the message, call sign, or other text displayed on the radio.

Radio Comment - Change the text of the embedded radio comment.

Display Font - Select the font for the frequency readout.

Display Type - Set the display background color to = Black or B = Blue.

Display Language - Set to English or Japanese. This option is available on the radio only if System Language is set to Japanese.

System Language - Set the system language of the radio to English or Japanese. To control the characters in the DR screen or Menu mode, set Display Language to Japanese.

***Note: See the statement from Icom in the User's Manual on page 8-17 about setting this option to Japanese.***

LCD Backlight - Set the backlight brightness.

TX Meter Select - (Meter Display selection) - Select one of six different transmission parameters (PO, SWR, ALC, COMP, VO and ID) for your convenience.

Screen Saver - Set the time of not activity after which the screen of the transceiver automatically turns off.

Position Format - Selects the format for Latitude/Longitude display.

Altitude/Distance - Select the format to display distance and elevation.

Speed Units - Select the format to display the speed.

Temperature - Select the format for temperature display.

Barometric - Set the format to display the barometric pressure.



Rainfall - Select the format to display the amount of rainfall.

Wind Speed - Select the format to display the wind speed.

## Sub Band Mute (Tx)

Check to mute the received audio of the SUB band when you transmit. The default for each is OFF. Check to engage mute for one or all the options.

## Lock

[Speech/Lock] Switch - Selection the action of this key to control the options engaged through a long or short touch of that button. The first option shown is always the push while the second is the option when the key is held down.

Lock Function - This function electronically locks the [Main Dial] or the panel display and all keys and dials other than [AF->RF/SQL], Power and [Speech/Lock].

## Quick Split

Quick Split - Check to enable the Quick Split function. This function automatically turns on the split function and sets the frequency and mode that is not displayed (VFO A or VFO B) according to the Split Offset setting.

***Note: If you are operating in VFO and your radio is not acting as you expect with independence of VFO A and VFO B, check to see if this option is on and disengage it if necessary.***

Split Lock - Check to engage the Split Lock function. The Split Lock function enables you to adjust the transmit frequency while holding down the [XFC] key even while the Dial Lock function is activated.

***Note: To prevent accidentally changing the receive frequency by rotating the [Main Dial], use both the Split Lock and Dial Lock functions.***

Split Offset - Set the Split offset between - 9.999 and +9.999 MHz. The split offset is the difference between the receive and transmit frequencies for the Quick Split function.



## 6.2 Settings \_ Common 2

### Scan

Scan Speed - Set Slow or Fast scan speed

Scan Resume - Check to engage Scan Resume

Checked - When a signal is detected, the scan pauses for 10 seconds, then resumes whether or not the signal is lost. If the signal does not last for 10 seconds, scanning resumes 2 seconds after the signal disappears.

Unchecked - When a signal is detected, scanning ceases. It must be started again manually if desired.

Pause Timer - When Scan Resume is On, adjust the Scan Pause timer (the 10 second default can be adjusted here). Set to 2-20 seconds which causes scanning to resume after that time whether the signal is lost or not, or Hold which causes scanning to halt until the signal is lost.

Resume Timer - When Scan Resume is On, adjust the Scan Resume timer (the 2 second default can be adjusted here). Set to 0 seconds to resume immediately upon the loss of a signal (remember, this could cause scanning to resume just because someone pauses in a conversation; 1-5 seconds, or Hold which causes scanning to halt even after the signal is lost.

Temporary Skip Timer - Control the radio's performance with Skip channels.

5/10/15 min - Skip channels are skipped for the set period of time.

While scanning - Skip channels are skipped whenever the radio is scanning.

While Powered On - Shipped channels are skipped until the receiver power is turned off.

***Note: This timer works during VFO scan, Memory scan and DR scan.***

***Channels are marked as a Temporary Skip channel during scanning from the face of the radio. During scanning, push the [QUICK] button then Temporary Skip Set to designate the channel or frequency for this function.***

***Up to 20 channels or frequencies can be marked for Temporary Skip.***

***The Temporary Skip designation is canceled when the timer expires or when the radio is powered off.***

Main Dial Scan - Set to control how scanning reacts when the main dial is rotated during scanning.

## Mic Gain

Mic Gain - Set the microphone sensitivity for optimum performance for your voice. Higher values make the microphone more sensitive to your voice.

COMP SSB - Check to engage Speech Compression which increases the average RF output power and improves readability at the receiving station. This function compresses the transmitter audio input to increase the average audio output level. Turn this option on when working long distance communications or when propagation conditions are poor.

COMP Level SSB - The COMP level is best set on the radio while speaking into the mic and watching the meter. The option here in the programmer allows you to see what this feature is set to at the time you Got Data from the radio. Adjustments can be made in the program.

## Vox

Set options to control Voice Activated keying on the radio. Remember, with Vox engaged, everything you say is transmitted.

VOX Engaged - Check to turn the option on.

Vox Gain - Adjust the VOX gain for more sensitivity to your voice. A higher setting results in more sensitivity.

Anti-Vox - Adjust the Anti-Vox gain for less sensitivity to the received audio from a speaker or headphones.

Vox Delay - Set the delay for normal pauses in speech before returning to receive.

Vox Voice Delay - Set voice delay to prevent clipping of the first few syllables of a transmission when switching to transmit.

***Note: When using the VOX voice delay, turn off the Monitor function to prevent transmitted audio from being echoed.***

## Beep

Beep Level Limit - Check to limit the volume of the beep up to the specified level.

Confirmation Beep - Check to engage a beep sound when a switch is pushed or the touch panel is touched. The sound "confirms" the action.

Level - Set the output level of the beep.

Beep Sound Main/Sub - Set the audio frequency for the beeps.

## Tuning Step

The tuning step controls the value between frequencies when tuning the radio in VFO with the [MainDial]. You want the values set high enough that you move quickly to a desired frequency but small enough that you don't miss something getting there.

Set the tuning step for each mode in each band. Note: The tuning step in DD mode is preset in all but the 1.2Ghz band where it can be adjusted in the table.

## Satellite Tuning Step

Working satellites is different from regular listening. Many more variables come into play as you chase after a receiver hundreds of miles away and moving.

Set the tuning step for each mode to a value low enough that you cover all the frequencies in the Doppler shift. Remember, when tracking, the frequencies change together based on this value and the type of tracking you have engaged. See the Satellite section of Icom's User's Manual for the radio for more details.

## Voice TX

Transmission of recorded audio data

Auto Monitor - Check to engage the Automatic Monitor function for recorded audio transmissions.

On - Automatically monitors transmit audio when sending a recorded audio

Off - Monitors transmit audio only when the monitor function is on.

Tx Level - Set the volume at which the transmission is sent.

Repeat Time - Set the repeat interval to repeat the voice transmission. The transceiver repeatedly transmits the recorded content at this interval.

Mic Gain (REC) - Set the mic gain for optimum recording.

## Time Set

NTP Function - Uncheck to disengage the functionality that automatically obtains the current time from the NTP server. The default for the radio is On (it will attempt to check for the time automatically).

NTP Server Address - Set the NTP server address (Addresses can be found by searching the internet for nist server addresses)

UTC Offset - Set the offset from Greenwich Mean Time for your location.

GPS Time Correct - Select whether or not the time data is automatically corrected by a received GPS sentence.

## PreAmp/ ATT / IP

These values are set independently for each band.

Pre Amp - The preamp amplifies received signals in the receiver front end to improve the signal-to-noise ratio and sensitivity. A preamp is used when working weak signals. The internal preamp can be turned on or off for each band.

An External PreAmp can be used with the radio. To use an external preamp, you need to set External Pamp on for each band. With this option set to Inhibit, the function of the external preamp is halted.



## 6.3 Settings \_ Band Settings

These options are set independently for each band.

**RF Power:** Set the output power level for transmission.

**Note: Remember two things**

*1) By FCC rules, you should use the minimum power required to make the contact. That is not always high or 100% power. and*

*2) If your antenna is not properly tuned, more power out yields more SWR which not only reduces your signal out but also can be dangerous to your radio (although most radios have protection from excessive SWR that can include turning the radio off or at least reducing the power out). Using less power, until you can get your antenna tuned for the frequency, could net more contacts since you will be putting more signal out the antenna and less power back down the feedline.*

**Tx Power Limit:** Set On to limit the transmission output to the level set in Limit Power. Set Off to eliminate this limit.

**Limit Power:** Set limit value for transmission output.

**Tx Delay:** Set timing for transmissions for each operating band. This feature is used with external equipment initiates its transmission later than the radio to prevent reflected wave that could damage the equipment. Delaying the timing prevents the reflected wave.

**NB:** Noise Blanker - Engage or disengage for each band. The noise blanker can help eliminate pulse-type noises such as the noise from car ignitions.

*Note: If you are using this radio in a mobile setting, it is really best if you turn it on and off from the face of the radio and not through the electrical system of the vehicle. In the past, radios did not do well and could lose all their programming when hit with an electrical "bump" when the vehicle was started. The easiest protection was to turn the radio off with it's power button before turning the vehicle off then turning it on again with its power button after the vehicle is running. Newer radios handle this better... but it's better to be safe than without any of your programmed repeaters and other settings.*



**NB Level/Depth/Width:** Adjust the characteristics of the noise blanker feature for optimum performance of your radio.

**NR:** Noise Reduction - Engage the noise reduction function that reduces random noise and enhances other signals that are buried in the noise.

**NR Level:** Adjust the noise reduction level.

**RIT:** Turn the Receive Incremental Tuning function On or Off. The RIT function shifts the receive frequency without shifting the transmit frequency.

**Note: To use this function, the RIT Frequency must be set.**

**RIT Frequency:** Enter a value from -9.999 to +9.999 for use by the RIT feature. What you are entering is similar to a tuning step.

**dF Span:** Select a value to establish a scanning range above and below the displayed frequency when dF Scan is engaged. This value can be set independently for each band.

**Program Scan Edge:** Select the Programmed Scan Edge to use for that function. The frequencies for the Programmed Scan Edges are entered in the programmer on the PS Limits page. See the tabs at the bottom of the main screen of the programmer.

**Select Memory Scan:** Select the Memory Scan group to scan for a given band. Memory channels as assigned to the Select Memory Scan groups using the Scan Select column on the Memories sheet of the programmer.

**Note: If you want a channel in more than one Select Scan group, you will need to enter that channel as a new memory channel. This is done easily with copy and paste in the programmer then make the change to that one option (Scan Select) to have that frequency included in a second group.**

**Remember though, when you scan all memories, you will hear this frequency repeatedly during that activity.**

**While this may be a good solution for the National Calling frequency so that it appears in all the groups you'll be using while you travel, it might not be the best solution for NOAA weather that will cause scanning to stop repeatedly.**

**AFC:** Turn on or off the Automatic Frequency Control for FM or DV activities. This function automatically tunes the receive frequency when the signal being received goes off-frequency or the receive signal shifts mode.

**1/4:** Turn the 1/4 tuning step function on or off. This function reduces the dial speed for finer tuning control.

***Note: The Auto TS function for the main dial takes priority over the 1/4 tuning step function.***

**Auto Repeater** - The Auto Repeater function automatically turns the duplex operations and tone encoder on or off (USA version only) Set to:

Off - the radio does not shift automatically based on frequency.

Dup - Turns on the repeater shift function only. The repeater shifts up or down based on a predetermined bandplan.

Dup+Tone - Turns on the repeater shift setting and the tone encoder (CTCSS to the repeater) function.

## Auto Repeater Edges (USA Only)

Set Offset Direction for distinct ranges of the bands. This value is used in conjunction with Auto Repeater Shift when engaged.

## User Band Edge

Band Edge Beep:

Off - The Band Edge Beep function is not engaged.

On - A beep sounds when you tune outside of or back into the default amateur band's frequency range. This is the default for this option.

On (User) - A beep sounds when you tune outside of or back into a user programmed amateur band's frequency range.

On (User) & TX Limit - A beep sounds when you tune outside of or back into a user programmed amateur band's frequency range and transmitting is inhibited outside the programmed range.

Set the upper and lower frequencies for operations in the Amateur radio bands.

These limits can be used to remind you that you are leaving a range or can actually prevent transmission outside your license class by the selection chosen for Band Edge Beep.

They can be small ranges within a band to be used for contesting, CW, QRP operations, etc. Any activity that is done is less than an entire band.

***Note: Band Edges must be in increasing order by frequency. They cannot overlap. It can take a little manipulation to the preset ranges to allow a range to be inserted.***

## 6.4 Settings - Tone Control/Scope

### Tone Control

**Bandpass Filter:** A bandpass filter is a device that passes frequencies within a certain range and rejects frequencies outside that range. Set the upper and lower cut off frequencies for the SSB, AM, FM, DV, CW, and RTTY modes. Values range from Off to 2400 Hz and should total no more than 3000 Hz (the limit of the filter).

**Note:** *When this item is set, the TX and RX Bass and Treble items are set to 0.*

**Tone Control:** Set Bass and Treble level of receive and transmit audio for each SSB, AM, FM and DV. Values range from -5 to +5. When the Bandpass filter is used, this option is returned to 0 by the radio.

**SSB TX Bandwidth:** Customize Wide, Mid and Narrow ranges for SSB transmit bandwidth (TBW).

**Note:** *Assign Wide, Mid or Narrow to SSB operations in the SSB TBW section of the Common 1 tab of the Programmer.*

**SSB-D TX Bandwidth:** Customize Wide, Mid and Narrow ranges for SSB-D transmit bandwidth (TBW).

**Note:** *Assign Wide, Mid or Narrow to SSB operations in the SSB-D TBW section of the Common 1 tab of the Programmer.*

### Scope

The spectrum scope enables you to display the activity on the selected band as well as the relative strengths of various signals.

**Main/Sub:** Set options for the main and sub bands independently.

Mode: Select Center or Fixed mode for the spectrum scope

Center displays signals around the operating frequency within the selected span. The operating frequency is always displayed at the center of the screen.

**Fix** - Displays signals and the RX marker within a specified frequency range. The frequency range is established in the Scope Fixed Edges table on this same page of the programmer. Three ranges are available for each band.

Span: Select the scope's scan. This can be set independently for the Main and Sub bands.

Sweep: Set the sweep speed to Fast, Mid or Slow independently for the Main and Sub bands.

**Scope During TX**: For use in the Center mode. Set on or off display of the Tx signal.

**Waterfall Display**: Check to turn on the Waterfall display

**Waterfall Marker Auto-Hide**: Check to automatically hide the marker in the Waterfall zone.

**Waveform Color**: Choose a color for Current, Line and Man Hold.

**Averaging**: Set FFT scope waveform averaging function. Options include:

Off - The FFT scope screen refreshes at each sweep time. This setting displays the critical spectrum.

2-4 - The FFT scope screen averages 2 to 4 sweeps to smoothly display the spectrum.

**Center Types**: Select the center frequency of the spectrum scope screen. This option affects the display only when working in the Center mode. Select from:

Filter: Displays the center frequency of the selected filter at the center of the spectrum scope screen.

Carrier Point Center: Displays the carrier point frequency of the selected operating mode at the center of the spectrum scope screen.

Carrier Point Center (Abs Freq): In addition to the carrier point center setting above, the actual frequency is displayed at the bottom of the scope (Abs Freq => Absolute Frequency).

**Max Hold**: Set how the peak level holding function works. Select from:

Off: Does not hold the peak spectrum.

10s Hold: Holds the peak spectrum for 10 seconds

On: Continuously holds the peak spectrum.

**Marker Position**: For use with the FIX type scope screen. This option controls display of the marker on the spectrum scope screen. Select from:

Filter Center: Display the Marker on the center frequency of the selected filter.

Carrier Point: Display the Marker on the carrier point frequency of the selected operating mode.

**Reference Level**: While monitoring a weak signal that is buried in the noise floor or monitoring a strong signal with some stronger signals nearby, adjusting the Reference level of the screen helps to see these signals on the scope.

***Note: While this option can be set from within the programmer, it sounds like one that you will be well served to know how to use from the face of the radio as its use is truly driven by conditions and the reception of other signals.***

**Waterfall Peak Color**: Set the signal level that the Waterfall displays in the peak color.

**Waterfall Size**: Set the Waterfall height in the expand scope screen. The options include:

Small: The Waterfall display is the same height as the Normal scope screen, only the FFT scope expands.

Mid: The Waterfall height expands at the same ratio with the FFT scope.

Large: Only the Waterfall height expands.

**Waveform Type**: Select the outline waveform display. Select from:

Fill: The waveform is drawn in color without an outline.

Fill + Line: The waveform is drawn in color with an outline.

**Video Bandwidth**: Set video band width to Narrow or Wide.

## FFT Scope (Audio Scope)

These options control the FFT (Fast Fourier Transform) scope zone when operating in the Center mode.

**Attenuator:** Select the value for the attenuator of the FFT scope.

**Waterfall Display:** Check to engage the Waterfall display for the FFT scope.

**Waveform Type:** Select the outline waveform display for the FFT scope screen. Select from:

Fill: The waveform is drawn in color without an outline.

Fill + Line: The waveform is drawn in color with an outline.

**Waveform Color:** Choose a color for the FFT scope display.

## Oscilloscope

These options control the oscilloscope functionality and display.

**Level:** Set this options to 0dB, -10dB, -20dB or -30dB

**Sweep Time:** Set the sweep time for the oscilloscope.

**Waveform Color:** Choose a color for the oscilloscope display.

## 6.5 Settings -DV/DR Mode

These settings are for the DV and DD operating modes.

### DV Set

**Auto Reply:** The automatic reply function replies to calls by a station that specified your call sign. Options include:

Off - No automatic reply is sent

On - A reply of your own call sign is sent. No audio is sent.

Voice - Replies with your call sign and any auto reply message recorded on the SD card. That message can be up to 10 seconds. If no message is found to send, your own call sign will be sent. The transmission can be monitored.

***Note: This option is automatically turned Off when you press the radios PTT or Transmit button. On or Voice is disabled.***

**DD Packet Output:** Set the condition for outputting the packets in the DD mode. Options include:

Normal - Packet is outputted when

1) A call addressed to your own call sign or a non-call sign specific call (CQCQCQ) is received.

2) An EMR signal is received

3) A break-in call is received

All - All packets are outputted.

**DD Tx Inhibit (Power On):** Inhibit digital transmissions when the radio is powered on.

**Digital Monitor:** Sets the desired monitoring mode during DV mode operation from AUTO, DIGITAL and ANALOG.

AUTO: The transceiver sets monitoring mode to FM and DV according to the received signal. (default)



DIGITAL: Monitors in DV mode.

ANALOG: Monitors in FM mode.

**Digital Repeater Set**: Set to On to automatically store the callsign of a digital repeater that is different than what is programmed in RPT1 and RTP2. The stored repeater's call sign can be re-called when selecting the repeater call sign. (default: OFF)

**Display Type (RX History)**: Control display of data in the top screen of the RX history. Select from

Call Sign - Displays the repeater or Your Call sign.

Name - Displays the repeater or Your name. - When the repeater or Your Name is not entered in the repeater list or Your Call Sign memory, the call sign will be displayed.

**DV Data Tx**: Set this option for how data input from the PC via the data jack on the radio is transmitted. Options include

PTT: The data is transmitted when the [PTT] on the radio is pushed. (default)

AUTO: The data is transmitted automatically.

### DV Fast Data

On - Check to engage fast data mode.

GPS Data Speed - Set the GPS data speed for the DV data sent using DV Fast Data mode.

Slow - Sends data in the slow speed mode (approximately 960 bps)

Fast - Sends GPS data in the fast speed mode (approximately 3480 bps)

TX Delay (PTT) - Set the Tx delay for data send in DV Fast Data mode.

**DV Auto Detect**: Check to engage detection of FM signals even when operating in digital mode. Select:

OFF: DV mode indicator blinks, however the transceiver receives in DV mode even if non-DV mode signals are heard. (default)

ON: DV mode indicator blinks and the transceiver monitors the signal in FM signal.

**EMR AF Level**: Set the audio output level for reception of an EMR (Enhanced Monitor Request) communication mode signal.

**Reply Position Display**: Select whether or not to display the caller's position data when the data is included in the Auto Replay signal.

**Rx Call sign Display**: When a call is received this option controls the display of the call sign of the calling station. Options include:

Off - The function is turned off and the call sign is not displayed.

Normal - The call sign and message of the calling station scroll once.

Rx Hold - The call sign and message scroll once then the call sign is displayed on the radio until the signal disappears.

Hold - The call sign and message scroll once then the call sign continues to be displayed until the signal disappears. When the signal disappears, the call sign and message display each for 2 seconds.

**Rx Position Indicator**: Select whether or not to display the indicator when the position data is included in the signal received in the DV mode.

**Rx Position Display**: Select whether or not to display in a dialog when the calling station's position data is included in the signal received in the DV mode. Options include:

Off - No display

On(Main/Sub) - The data is displayed when the calling station's position data is included.

On (Main only) - The data is displayed when the calling station's position data is included on a signal received on the Main band only.

**Rx Position Display Timer**: Control how long the RX position data is displayed. Select from

5,10,15,30 seconds - The data is displayed for the selected period.

Hold - The data is displayed until you operate the radio again.

**RX Record (RPT):** The radio can record the data of up to 50 individual calls. When the received signal includes a status message ("UR?" or "RPT?") that is sent back from the access repeater, you can record all of these messages or only the latest one in the RX History. Set this option to All or Latest Only.

**Standby Beep:** Sets On (checked) or Off (unchecked) the option for an audible beep that is heard when the communicating station finishes transmitting or the receive signal disappears while in the DV mode

**Tx Callsign Display:** Selects callsign display function from Your Callsign, My Callsign, and OFF. When this setting is set to YOUR or MY, the transceiver automatically indicates the programmed information from the Your or My callsign fields during DV mode transmission. The default is Your Callsign.

## DR Mode Settings

**Filter** - Set the IF filter of the DR mode from the DV and FM modes. Set this option for each of the three bands.

**Noise Reduction** - Engage and set level of noise reduction independently for Main and Sub bands. The DSP noise reduction function reduces noise and enhances desired signals buried in the noise to improve reception of weak signals.

**RIT** - The RIT (Receiver Incremental Tuning) function shifts the receive frequency per the offset frequency while the transmit frequency remains unchanged. Engage the RIT function and set the RIT offset frequency independently for Main and Sub bands.

**Digital Squelch** - Engage and set the Digital Squelch code to be used for the Main and Sub bands when operating in VFO. Digital Squelch can be assigned to each memory channel independently. That assigned value will be used during memory operations.

## 6.6 Settings - GPS Set Mode

**GPS Select:** Adjust your mode of data entry for entering your GPS position information from the face of the radio. Set to:

Manual - Manual entry of GPS position information in Manual Position (Latitude), Manual Position (Longitude) and Manual Position (Altitude)

***Note: This information can be entered through the programmer in the options found under Manual Position on the GPS screen of the settings file. Remember though, if you set through Manual entry a special set of details and do not set GPS select to Manual, your details may be lost when the radio automatically gathers information for your current location.***

External GPS - The radio automatically receives its position information from an external GPS unit.

Off - The GPS receiver is not in use.

**Compass Direction:** Set the display type of the compass. Options include

Heading Up: The top of the compass represents the direction of your course heading.

North Up: The top of the compass represents north.

South Up: The top of the compass represents south.

**Receiver Baudrate:** Select the radio at which the GPS receiver transfers data. Select 4800 or 9600 bps.

**Manual Position:** Enter the information that the radio will use for Latitude, Longitude and Altitude.

**Position Display:** Select the display type for "RX" on the GPS Position screen. Options include:

Latest (Main/Sub): The position data of the station received last is displayed.

Main: The position data for the station received on the Main band is displayed.

Sub: The position data for the station received on the Sub band is displayed.

**Alarm Area (Group):** Sets GPS alarm active range within 00'05? to 59'59? in 1 sec. (00'01?) steps. The default is: 00'15?. The GPS alarm will sound when the target position enters this area.

**Alarm Area (Rx/Memory):** Set GPS alarm active range to LIMITED, EXTENDED or BOTH.

LIMITED: GPS alarm will sound when a target position enters 500 m\*(547 Y)\* range.

EXTENDED: GPS alarm will sound when a target position enters 1 km\*(1094 Y)\* range.

BOTH: GPS alarm will sound when a target position enters either 500 m\*(547 Y)\* or 1 km\*(1094 Y)\* range. (default)

**Alarm Select:** Select the target station(s) for the GPS alarm functions. Select from:

Off - Turns off the function.

Rx - The last position data received from a station is used for the GPS alarm function.

Group - All memories in the GPS memory or in the selected GPS memory group are used for the GPS alarm function. Groups are assigned to the GPS memories on the GPS memories tab of the programmer.

Memory - Only one memory in the GPS memory is used for the GPS alarm function.

**Alarm Group:** Select the group to be used when Alarm Select is set to Group.

**Alarm Memory:** Select to one memory to be used when Alarm Select is set to Memory.

**Note:** *While this option can be set and sent to the radio, it will not be used by the radio if no GPS memories are stored.*

**GPS Tx Mode** - Select an operating mode to transmit position data received from a GPS receiver. Your choice is based on the requirement of the receiving program or device. Set to:

Off - Turns off GPS transmissions

D-PRS - Transmits position data D-PRS mode. This code is based on APRS code. -

NMEA - Transmits position data in NMEA mode.

**GPS Auto TX Timer** - Set the interval from Off (no automatic transmission, however manual transmission is still possible) to 30 minutes for automatic transmission of GPS position data and programmed GPS message.

## NMEA

**GPS Sentence:** Select up to 4 of 6 standard GPS sentences.

***Note: When 4 sentences are selected the GPS Auto TX timer will set automatically to 10 sec if it is set to a lesser value.***

**GPS Message:** Enter up to 20 alpha/numeric characters for a customized message.

***Note: For reception of the GPS Message by some radios, it will be necessary to turn off the GSV sentence. Some radios are not compatible with the GSV sentence and if heard, will not be able to display the GPS message properly.***

## D-PRS

D-PRS is a system that sends APRS data across a digital signal. Set options here for that transmission.

**Format Selected** - This is the transmission format. Select from

Position - Transmit mobile or base condition.

Object - Transmit a message with the position data and time information

Item - Transmit information that needs no time information along with position data.

Weather - Transmit weather information received from a weather device.

**Unpronto Address** - Enter an unpronto address of up to 56 alpha/numeric characters. Identification of an unpronto address is done through other sources then entered here.

Once the Format is selected, set the options for it using the tab for that format.

## Position

SSID - Select a designation to be added to your callsign to assist in identifying a station's type. The options include

-- If a callsign includes a space, the space will be changed to "-" and a character after the space will be used as the SSID

(-0) No SSID is added. If a callsign includes a space, any character or digit after the space will be deleted.

(-1 to -15) Adds an SSID of -1 to -15 to your call sign.

(-A to -Z) Adds an SSID of -A to -Z to your call sign.

Altitude - Select whether or not to transmit the altitude data in addition to the position data.

Power - This selection is available for the radio to use only if Data Extension is set to Power/Height/Gain/Directivity. With this option for Data Extension the TX Power level is transmitted in addition to the position data.

Gain - Transmit the gain of your antenna along with the position data.

Time Stamp - Enter either the DHM or HMS format to transmit the current UTC time as a time stamp.

Data Extension - Select Off - nothing is transmitted; Data - Power/Height/Gain/Directivity are sent in addition to the data; Course/Speed - Course and speed data are sent in addition to the data while the object is moving.

Height - Transmit the height of your antenna along with position data.

Directivity - Transmit the directivity of the antenna that is being used for a base station in addition to position data.

Comment - Enter and select a comment to be transmitted with position data.

Symbol - Set the symbol character for the radio to send. The symbol generally represents your means of transportation or location. Four options can be set.

## Object

SSID - Select a designation to be added to your callsign to assist in identifying a station's type. The options include

-- If a callsign includes a space, the space will be changed to "-" and a character after the space will be used as the SSID

(-0) No SSID is added. If a callsign includes a space, any character or digit after the space will be deleted.

(-1 to -15) Adds an SSID of -1 to -15 to your call sign.

(-A to -Z) Adds an SSID of -A to -Z to your call sign.

Data Type - Set the object station's status to transmit in addition to the position data. Set to

Live - the object station is valid

Killed - the object station is invalid

Power - Select the power level to be transmitted along with the position data.

Gain - Transmit the gain of your antenna along with the position data.

Time Stamp - Enter either the DHM or HMS format to transmit the current UTC time as a time stamp.

Data Extension - Select Off - nothing is transmitted; Data - Power/Height/Gain/Directivity are sent in addition to the data; Course/Speed - Course and speed data are sent in addition to the data while the object is moving.

Height - Transmit the height of your antenna along with position data.

Directivity - Transmit the directivity of the antenna that is being used for a base station in addition to position data.

Comment - Enter and select a comment to be transmitted with position data.

Symbol - Set the symbol character from the radio to send. The symbol generally represents your means of transportation or location. .

Name - Set an object station name of up to 9 characters to transmit in addition to position data.

Enter details for Latitude, Longitude, Altitude, Course, and Speed to be sent according to the Data Extension selection.

## Item



SSID - Select a designation to be added to your callsign to assist in identifying a station's type. The options include

-- If a callsign includes a space, the space will be changed to "-" and a character after the space will be used as the SSID

(-0) No SSID is added. If a callsign includes a space, any character or digit after the space will be deleted.

(-1 to -15) Adds an SSID of -1 to -15 to your call sign.

(-A to -Z) Adds an SSID of -A to -Z to your call sign.

Data Type - Set the object station's status to transmit in addition to the position data. Set to

Live - the object station is valid

Killed - the object station is invalid

Power - Select the power level to be transmitted along with the position data.

Gain - Transmit the gain of your antenna along with the position data. Time Stamp - Enter either the DHM or HMS format to transmit the current UTC time as a time stamp.

Data Extension - Select Off - nothing is transmitted; Data - Power/Height/Gain/Directivity are sent in addition to the data; Course/Speed - Course and speed data are sent in addition to the data while the object is moving.

Height - Transmit the height of your antenna along with position data.

Directivity - Transmit the directivity of the antenna that is being used for a base station in addition to position data.

Comment - Enter and select a comment to be transmitted with position data.

Symbol - Set the symbol character for the radio to send. The symbol generally represents your means of transportation or location. .

Name - Set an object station name of up to 9 characters to transmit in addition to position data.

Enter details for Latitude, Longitude, Altitude, Course, and Speed to be sent according to the Data Extension selection.

## Weather

SSID - Select a designation to be added to your callsign to assist in identifying a station's type. The options include

-- If a callsign includes a space, the space will be changed to "-" and a character after the space will be used as the SSID

(-0) No SSID is added. If a callsign includes a space, any character or digit after the space will be deleted.

(-1 to -15) Adds an SSID of -1 to -15 to your call sign.

(-A to -Z) Adds an SSID of -A to -Z to your call sign.

Time Stamp - Enter either the DHM or HMS format to transmit the current UTC time as a time stamp.

Comment - Enter and select a comment to be transmitted with position data.

Symbol - Set the symbol character from the radio to send. The symbol generally represents your means of transportation or location. .

**GPS Speed:** Selects the speed at which the data will be transmitted during packet operations. Options are 4800 bps (default) and 9600 bps.

**Units:** Selects display units for distance and elevation from Meters and Feet.

**Compass:** Selects compass indication type from “Arrow Head (default), North Ref and South Ref.

**UTC Offset:** Set the UTC offset for your location in hours and minutes.

**GPS Datum:** Selects the GPS datum (country/area code) from 0 (default) to 224. If wrong GPS datum (country/area code) is set, the position measuring accuracy may be poor.

**GPS Alarm:** Set the GPS alarm to sound when your own position is close the specified area. This function can be set for the received channel, a specified GPS memory channel, all GPS memory channels, or a specified memory bank.

**Note:** • When “RX” or Channel is selected for the alarm functions the action of the alarm depends on the setting for Alarm Area 2. • When “ALL” or a memory bank is selected for the alarm function the action of the alarm depends on the Alarm Area 1 setting.

**Alarm Channel:** The GPS channel, 1-99, to be used with the alarm function.

**Unproto Address:** A 56-character data string used during GPS-A operations.

**Data Extension:** Select from COURSE/SPEED and OFF (default) for the data extension. The transceiver's course and speed information is transmitted with position data when COURSE/SPEED is selected.

**Time Stamp:** Set transmitting time stamp type format. This function can be transmitted in UTC (Universal Time Coordinated) time only. Select from

OFF: No time stamp is transmitted. (default)

DHM: Time stamp in the format of Day, Hour and Minute is transmitted.

HMS: Time stamp in the format of Hour, Minute and Second is transmitted

**GPS-A Symbol:** Selects the GPS-A symbol to identify you to a receiving station. Several symbols are available. If Other is selected, check the symbol codes of APRS, and enter it correctly in the Other Symbol field of the Programmer.

**Comment:** Program up to a 43-character comment that is transmitted with the GPS position data. Note: Use the Comment Extension field to enter the comment when Data extension is set to Course/Speed.

**Comment Extension:** Use to program a 36 character comment when Data Extension is set to Course/Speed.

## 6.7 Settings - DTMF/ Network

### DTMF Settings

Store into memory up to 16 often used DTMF codes to use with autodial or to access digital functionality on repeaters.

**DTMF** - Enter up to 24 digits. Valid digits are 0 to 9 and A to F. Use E for \* and F for #

**Speed** - Select the speed at which the characters are sent. When sent too quickly, a character may be missed by the repeater causing the connection to fail.

**Selected DTMF Channel** - Select the channel to use immediately after programming the radio with this file. This value changes on the radio when another DTMF channel is selected.

### Network

Set options for the radio to work as a device on your local Internet network. Details for all these options are found in the Basic Users Manual for the radio.

Work carefully especially if you plan to control your radio remotely.

## 6.8 Settings \_ Connectors

**External Speaker** - (External Speaker Separate) Sets the audio output when an external speaker is connected. Set to:

Separate - The Main band audio is output from the EXT-SP Main jack and the Sub band audio is output from the EXT-SP Sub jack.

Mix - Mix and output the audio of the Main and Sub bands.

**Headphone L/R Mix** - Set the audio output when headphones are connected. Set to:

Separate - The Main band audio is output to the left side and the Sub band audio is output to the right side of the headphones.

Mix - Mix and output the audio of the Main and Sub bands.

Auto - Output is tied to display. With Sub displayed, the main band audio is output from the left side and the Sub band audio is output from the right side. The the Sub band is not displayed, the main band audio is output from both sides of the headphones.

**Headphone Level** - Set the ratio of the audio output level between the headphone and the internal speaker.

**ACC Send Output** - Select whether or not to switch the SEND terminal output level of the [ACC] socket to the Low level during transmissions. This is an Off (unchecked) or On (checked) option for each band.

**External Keyer** - Check to enable external keypad functionality.

Voice - Use the keypad to enable voice memory transmissions.

Keyer - Use the keypad to enable keyer memory transmissions.

RTTY - Use the keypad to enable RTTY memory transmissions.

## CI-V

Set options that pertain to the CI-V jack on the radio.

**Transceive** - Check to enable transceive functionality. With this feature engaged, changing a setting on this radio will trigger the same change on other connected transceivers or receivers.

**Baud Rate** - Set the C-I-V data transfer rate. When set to Auto, the baud rate is set automatically according to the data rate of the connected controller.

***Note: Most of today's computers and electronic devices work better at faster baud rates. Try 19200 bps before moving down to through 9600 or 4800 bps. Remember, at 4800 bps, large files could take hours to transfer.***

**Address** - Set the C-I-V address for this device. Using different addresses allows you to connect more than one device to a computer and gives your programs and other devices a way to tell them apart.

**USB Port** - Select the internal connection type. The options include:

Link to - This internally links the USB and Remote C-I-V ports internally. Note: This option could interfere with the Cloning process if something is connected to the other port.

Unlink - The USB and Remote C-I-V ports each function independently.

**USB/LAN Address** - Set the address used to remotely control the radio through the USB or LAN port. The signal for external equipment control is put out from the Remote jack. This address is used with commands that are sent to the radio over the internet rather than those from a connected computer.

**USB Echo Back** - Check to engage the Echo Back function. This option is needed by some other applications. It should be clear in their instructions if this option should be engaged. There is another option for Data Echo back that may also or alternately need to be set.

**USB Baud Rate** - Select the speed for data transfer through the USB port.

***Note: Most of today's computers and electronic devices work better at faster baud rates. Try the higher rates before moving down to through 9600 or 4800 bps. Remember, at 4800 bps, large files could take hours to transfer***

**Data Echo Back** - Check to engage the Echo Back function for data being sent between the radio and an external source. This option is needed by some other applications. It should be clear in their instructions if this option should be engaged. There is also a USB Echo Back function that may also or alternately need to be set.

**Data Baud Rate** - Set the speed for data transfer through the Data jack.

***Note: Most of today's computers and electronic devices work better at faster baud rates. Try the higher rates before moving down to through 9600 or 4800 bps. Remember, at 4800 bps, large files could take hours to transfer***

## **ACC AF/IF Output**

**Output Select** - Select the AF or IF output for the ACC socket.

**AF/SQL Output Select** - Select whether the signal is from Main or Sub

**AF SQL** - Check to output AF Squelch when Output Select is set to AF.

**AF Output Level** - Set the output level of the AF signal.

**IF Output Level** - Set the output level of the IF signal.

**AF Beep/Speech Output** - Check to engage beep and speech audio output through the ACC jack when the output select is set to AF.

## **USB AF/IF Output**

**Output Select** - Select the AF or IF output for the USB port.

**AF SQL** - Check to output AF Squelch when Output Select is set to AF.

**AF Beep/Speech Output** - Check to engage beep and speech audio output through the USB port when the USB Output Select is set to AF.

**AF Output Level** - Set the output level of the AF signal.

**IF Output Level** - Set the output level of the IF signal.

## **LAN AF/IF Output**

**Output Select** - Select the AF or IF output for the LAN connection.

**AF SQL** - Check to output AF Squelch when Output Select is set to AF.



## Modulation Input

**Data Off Modulation** - Select the connector(s) to input the modulation signal when the data mode is Off. This option controls performance in SSB, AM and FM modes.

**Data Modulation** - Select the connector(s) to input the modulation signal when the data mode is On. This option controls performance in SSB, AM and FM modes.

**ACC Modulation Level** - Set the modulation input level of the ACC jack.

**USB Modulation Level** - Set the modulation input level of the USB port.

**LAN Modulation Level** - Set the modulation input level of the LAN connection.

## USB(B) Port

The radio has 2 virtual com ports, A and B. When connecting to a USB port on your PC, the ports are named USB(A) and USB(B). The options here control the functions of the USB(B) port. The USB(A) port is used for programming or for CI-V operations.

**USB(B) Function** - Select which function will be performed on the USB(B) port. Options include

Off - The USB(B) port is not functioning.

RTTY Decode - Outputs the decoded data of the RTTY signal.

DV Data - Input or output low speed data for the DV mode.

**Data Function** - Set the function to be assigned to the Data jack (2.5mm jack). Options include:

Off - No function is assigned to the Data jack.

RTTY Decode - Outputs the decoded data of the RTTY signal.

DV Data - Inputs or outputs low speed data for the DV mode.

GPS/Weather - Selects when connecting a GPS receiver.

CI-V - Inputs or Outputs CI-V commands. (Programming is not done through these commands).

**GPS Out** - Select whether or not to output the position data to the USB(B) when the GPS receiver is connected to the Data jack.

**Note:** *This selection is part of the functionality of the radio only when USB(B) is set to Off/DV Data and Data function is set to GPS/Weather.*

**Baud Rate** - Set baud rate for DV Data/GPS and RITTY output.

## USB Dial / Send

Settings for the terminal used for data communications when you operate the radio from software on the PC.

**Note:** *When you connect the radio to a PC with a USB cable, two com ports are created on the PC. To confirm UAB(A)/USB(B), open the com port properties in Device Manager and confirm the value of the details tab.*

**USB Send** -Set the USB terminal of the radio to receive the SEND signal from the software on the PC. Set the same terminal as the terminal set by the software. Options include:

Off - The SEND signal is not used by the radio.

USB(A) DTR - Data Terminal Ready on USB(A)

USB(A) RTS - Ready to Send on USB(A).

USB(B) DTR - Data Terminal Ready on USB(B)

USB(B) RTS - Ready to Send on USB(B).

**USB Keying (CW and RTTY)** - Set the USB terminal of the radio to receive the CW or RTTY Keying signal from the software on the PC. Select the same terminal as the terminal set by the software. Options are the same as those in USB Send.

**Note:** *The options of USB Send has priority over what is set here.*



## 6.9 Settings \_ Filter Settings

### Pass Band Filters

Pass Band Tuning electronically narrows the IF pass band width to reject interference by shifting the IF frequency slightly outside the IF filter pass band.

In the tables, set the cutoff edges with PBT1 and PBT2 for each mode on each band.

The programmable values differ depending on the value of the passband width and the operating mode. The edge of the programmable range is half of the pass band width. The value is adjusted in 50 Hz steps for SSB, SSB-D, CW and RTTY modes and in 200 Hz steps for AM.

### IF Filter Shape

Set the IF Filter Shape for SSB, SSB-D, and CW modes. The shape selection includes Sharp and Soft.

***Note: The Users Manual for the radio lists more modes than are available for this option. Working with the radio, we believe the manual to be wrong (things happen between writing files and final radio design). While Icom has the final say on the design of the radio, RT Systems works to reflect the radio as designed.***

## 6.10 Settings \_ CW/RTTY

### CW

Set options that pertain to the CW operations of the radio

**Mic Up/Down Keyer** - Check to enable CW keying using the up/down keys of the microphone.

**Side Tone Level Limit** - Check to engage functionality that will limit sidetone volume to a point that will not be exceeded even when the AF knob is turned further.

**Break In** - Set the Break-In function that automatically toggles the transceiver between transmit and receive when keying. Options include:

Off - the function is not engaged.

Semi - The radio transmits when keying then automatically returns to receive after the break-in delay period has expired after you cease keying.

Full - The radio transmits when keying then automatically returns to receive immediately after you stop keying.

**Break-In Delay** - The amount of time between when you cease keying and when the radio returns to receive mode. Used by the radio when Break-In option is set to Semi.

**Key Speed** - Select the keying speed for the internal electronic keyer. Higher numbers are faster speeds.  
another option for Data Echo back that may also or alternately need to be set.

**Pitch** - Set the pitch for the sound hear through the local speaker of the CW being sent and received.

**Number Style** - Select the numbering system used for contest serial numbers. Options include

Off - the function is not engaged and no abbreviations are used.

190 > ANO - Sets 1 as A, 9 as N and 0 as O.

190 > ANT - Sets 1 as A, 9 as N and 0 as T.

90 > NO - Sets 9 as N and 0 as O.

90 > ANT - Sets 9 as N and 0 as T.

**Count Up Trigger** - Select a number of the memory keyer. sending the contents of the selected memory keyer automatically increments the contest serial number by 1. Select M1 through M8.

**Preset Number** - Set the current contest serial number.

**Dot/Dash Ratio** -Set the ratio of the Dash to the Dot/Space.

**Keyer Repeat Time** - Set the CW transmission interval. Use of this option is triggered from the face of the radio. Touch the memory keyer number (M1 - M8) for 1 second to transmit the contents repeatedly at the programmed interval.

**Keyer Type** - Select the keyer type to be connected to the KEY jack on the back of the radio. Options include Straight, Bug and Paddle.

**Paddle Polarity** - Set for right or left dots and dashes. Options include:

Normal - Right = Dash / Left = Dot

Reverse - Right = Dot / Left = Dash

**Rise Time** - Set the rise time of the transmitted envelope. Adjustments to this option affects the sound of the CW signal at the receiving station.

**Side Tone Level** - The audio level of the tone heard during CW operations.

**Memory Keyer** - Eight preset messages that are sent automatically when triggered from the face of the radio.

## RTTY

**Decode Log** - Check to save the transmitted or received data as a log on the SD card.

**Decode USOS** - Check to engage the letter code decoding capability after receiving a space.

**Tx USOS** - Check to explicitly insert the FIGS character even though it is not required by the receiving station.

**Decode New Line** - Select the new line code for the internal RTTY decoder. Options include:

CR,LF,CR+LF - Makes a new line with any of these codes.

CR+LF Makes a new line only with CR+LF code.

**Note: CR = Carriage return / LF = Line feed**

**File Type** - Select the file type for the log to which transmitted or received data is saved to the SD card. Options include Text or HTML.

**Keying Polarity** - Set to control the order of mark and space.

**Mark Frequency** - Set the RTTY mark frequency. Options include 1275Hz, 1615Hz or 2125Hz.

**Note: Then the internal RTTY decoder is used, the mark frequency is automatically set to 2125Hz.**

**Twin Peak Filter** - Check to engage the RTTY twin peak filter. The twin peak filter changes the audio frequency response by boosting the mark and space frequencies for better RTTY reception.

**Note: When RTTY Mark frequency is set to a value other than 2125 Hz and RTTY Shift Width is set to a value other than 170 Hz the twin peak filter is automatically turned off and you cannot change the settings.**

**Display Chars TX(Sat)** - Control display of RTTY characters during satellite operations. Options include:

Rx - Displays decoded characters. Does not display transmitted characters.

Tx - Displays transmitted characters. The decoded character are not displayed while you are transmitting a RTTY signal.

**Time Stamp** - Check to enable writing the time stamp (date, transmission or reception time) in the decode log.

**Time Stamp (frequency)** - Check to include frequency information with other details in the decode log.

**Shift Width** - Set the RTTY shift frequency. When the internal RTY decoder is used, the shift frequency is automatically set to 170Hz.

**Time Stamp (Time)** - Select local or UTC time format for the log.

**Threshold Level** - Set the RTTY decoder threshold level.

**FFT Scope Averaging** - Set the FFT scope waveform averaging function.

***Note: Use the default r smaller FFT scope waveform number for tuning.***

**FFT Scope Waveform Color** - Select a color for the scope waveform.

**Font Color (Receive)** - Select a color for display of received characters.

**Font Color (Transmit)** - Select a color for display of transmitted characters.

**RTTY TX Memory** - Enter messages to be sent automatically with minimal button presses from the face of the radio.



**Part**

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**VII**

## 7 Radio / Computer File 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.

## 7.1 Communications | Get Data From

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

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

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

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

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

Answer "yes" if you want to lose all the information that appears on the screen. Answer "no" if you don't want to lose several hours of work spent creating the file on the screen.

To prevent loss of information, first do File | New to open a new (default) file. Then while looking at that file, do Communications | Get data from radio and complete that process. Your file will drop to the background and be protected from during this part of the process.

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

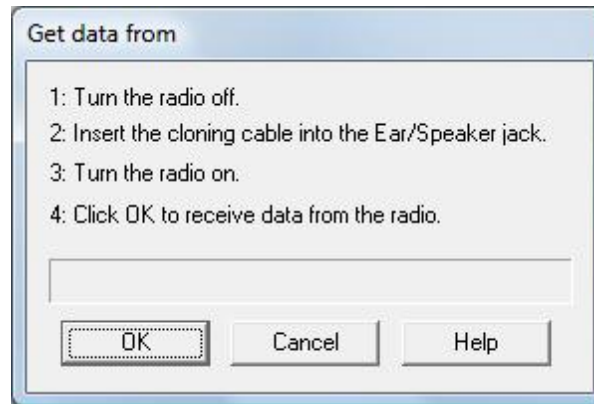
### **The Get Data From process (reading the radio)**

- Connect the cables properly to the radio. See the [Radio to Computer Cabling](#) section of this Help for details of that cabling.
- The USB-29A (Blue) cable connects to the speaker jack on the back of the radio.
- The USB-RTS05 (Orange) cable connects to the data jack on the front 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.***

***Note: When using the USB-RTS05 the cable attaches to the Data jack on the front of the radio. The plug size of the USB-RTS05 will help you identify the correct jack on the radio for the connection.***



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

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

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

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

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

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

## Troubleshooting

- Other than the Icom IC-R10, at the time of this writing, Icom radios are NOT put into CLONE mode for programming. CLONE mode is used only when you transfer data from one radio to another. The process for programming the radio from the computer is simple. When the instructions say to "Turn the radio on", do just that, press the power button to turn it on. If pressing a key is needed as a part of this step, it will be included with the instructions on the Get Data From screen.
- "Nothing" happens when I press the button indicated on the second screen of the Get Data From process.

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

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

- Other details for general troubleshooting can be found in the ***Troubleshooting*** section of this Help.
- Should the problem persist, contact ***RT Systems*** for personal assistance.



## 7.2 Communications | Send Data To

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

### Connect the radio to the computer

#### Current File

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

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

#### Settings File

Check your global menu settings under Settings | Radio Menu Settings to be sure the right information is being sent. The items on this screen are the radio settings that are not associated with a specific memory channel.

These settings are set once to be sent to the radio with any frequency file that you create. Details on these settings can be found in the [Radio Menu Settings](#) section of this Help.

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

- Check the Radio Menu Settings found under Settings | Radio Menu Settings. These are global settings that are not tied to any one memory channel. When you program your radio with a file from the computer, these settings go with the memory channel details.
- Make changes to the settings as needed.
- Save the settings file.

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

## Completing the "Send Data To" Process

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

***Read the screen carefully. The steps differ with each model. Pressing the wrong button will result in no response or the wrong response for the process.***

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

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

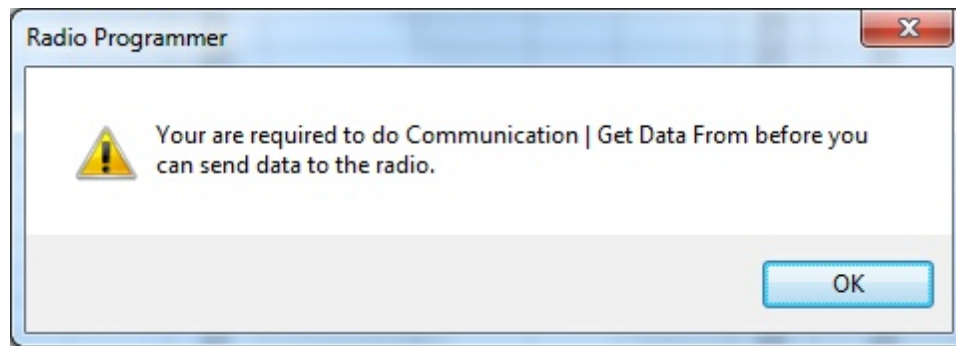
With the radio off, remove the cloning cable. The radio is ready to power-up and use with the newly programmed settings.

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

## Troubleshooting

**Communications | Get Data From Radio required first**





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

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

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

To complete this process:

- 1) Select File | New from the menu at the top of the screen.
- 2) Turn off the radio.
- 3) Select Communication | Get Data From Radio from the menu at the top of the screen.
- 4) Complete the process detailed on the screen.
- 5) Once the process is complete, click the tab at the top of the screen showing your filename. The file that you want to send to the radio will be displayed on the screen.
- 6) Select Communications | Send Data To Radio from the menu at the top of the screen.
- 7) Complete the process following each step carefully to program these channels into the radio.

## Modified Radio

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

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

### **The radio is not programmed after the process is complete**

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

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

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

### **If you have problems sending a certain file to the radio**

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

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

Other than the Icom IC-R10, at the time of this writing, Icom radios are NOT put into CLONE mode for programming. CLONE mode is used only when you transfer data from one radio to another.

The process for programming the radio from the computer is simple. When the instructions say to "Turn the radio on", do just that, press the power button to turn it on. If pressing a key is needed as a part of this step, it will be included with the instructions on the Get Data From screen.

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

## 7.3 Radio to Computer Cabling

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

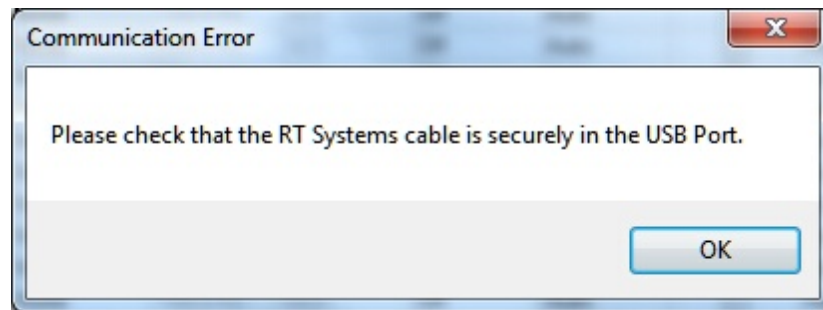
The IC-9700 uses a USB-A to USB-B cable. Be sure to give the Silicon Lab drivers time to load when you first connect the radio.

## 7.4 Comport Setup

In the 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:



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**



## 8 Copying From an Excel Spreadsheet

The Programmer can handle information copied from an Excel spreadsheet.

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

Limitations for use of another commercial spreadsheet program include:

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

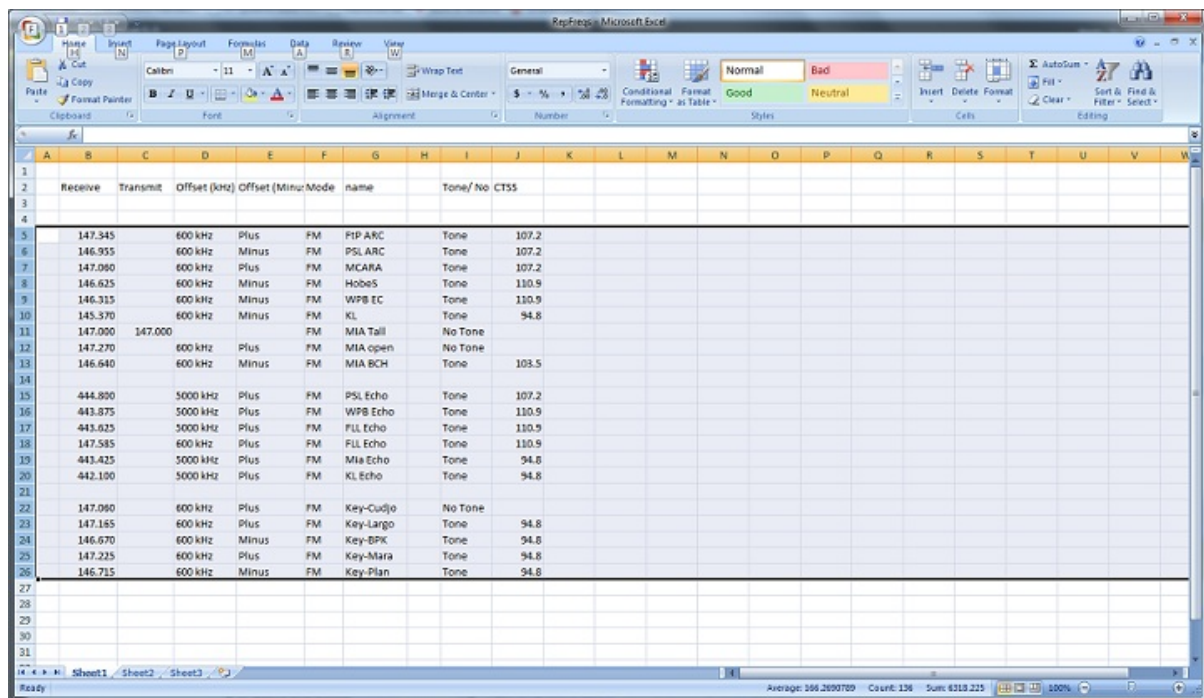
Let the Programmer help you as you create your original file with its defaults and automatic settings. Once the file is created you could export the data for other uses.

## 8.1 Step 1

The Programmer makes no assumptions about the information being handed to it from the Excel file. You need to be familiar with the data in the file to the point you can identify that data to the programmer during the copy process.

### Step 1

Open the Excel file. Select and copy the information you want to put into the programmer.



The screenshot shows a Microsoft Excel spreadsheet with the following data:

	Receive	Transmit	Offset (kHz)	Offset (Minus)	Mode	name	Tone/ No	CTSS
5	147.945	600 kHz	Plus	FM	PIP ARC	Tone	107.2	
6	146.955	600 kHz	Minus	FM	PSL ARC	Tone	107.2	
7	147.060	600 kHz	Plus	FM	MCARA	Tone	107.2	
8	146.625	600 kHz	Minus	FM	Hobbs	Tone	110.9	
9	146.315	600 kHz	Minus	FM	WPB EC	Tone	110.9	
10	145.570	600 kHz	Minus	FM	KL	Tone	94.8	
11	147.000	147.000		FM	MIA Tall	No Tone		
12	147.270	600 kHz	Plus	FM	MIA open	No Tone		
13	146.640	600 kHz	Minus	FM	MIA BCH	Tone	103.5	
15	444.800	5000 kHz	Plus	FM	PSL Echo	Tone	107.2	
16	443.875	5000 kHz	Plus	FM	WPB Echo	Tone	110.9	
17	443.825	5000 kHz	Plus	FM	FIL Echo	Tone	110.9	
18	147.585	600 kHz	Plus	FM	FIL Echo	Tone	110.9	
19	443.425	5000 kHz	Plus	FM	Mia Echo	Tone	94.8	
20	442.100	5000 kHz	Plus	FM	KL Echo	Tone	94.8	
22	147.060	600 kHz	Plus	FM	Key-Cudjo	No Tone		
23	147.145	600 kHz	Plus	FM	Key-Largo	Tone	94.8	
24	146.670	600 kHz	Minus	FM	Key-BPK	Tone	94.8	
25	147.225	600 kHz	Plus	FM	Key-Mara	Tone	94.8	
26	146.715	600 kHz	Minus	FM	Key-Plan	Tone	94.8	



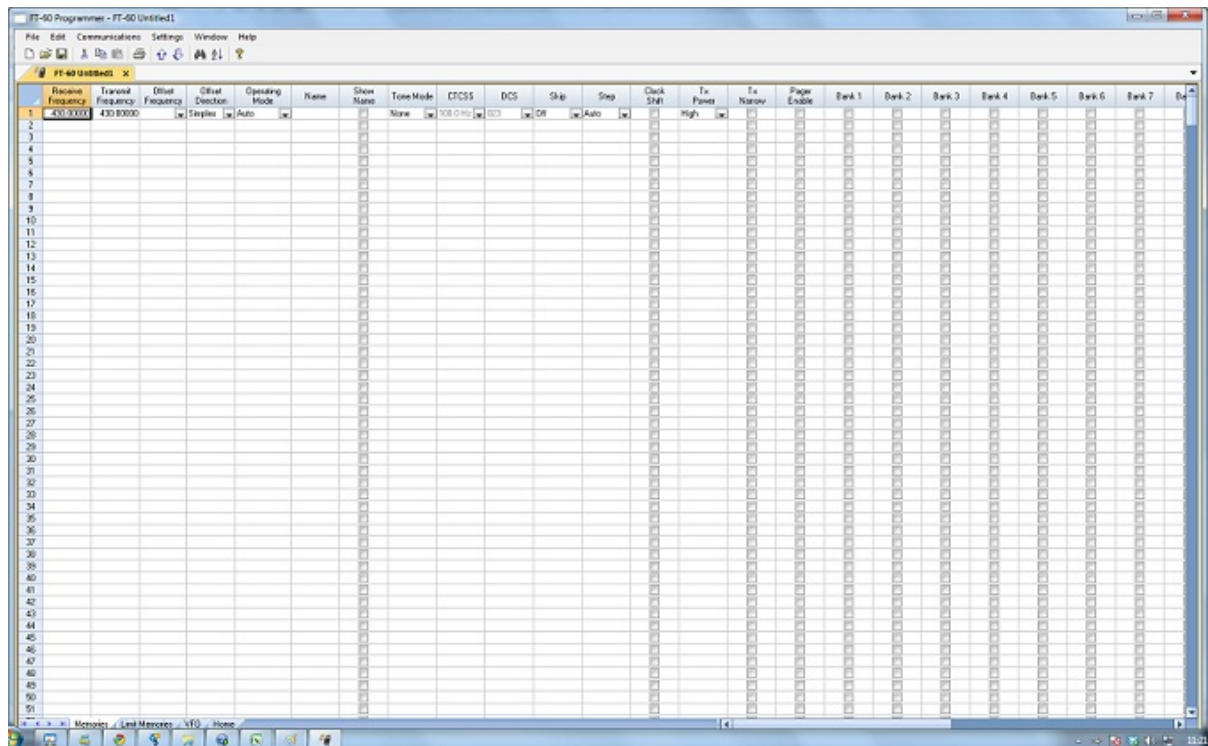


## 8.2 Step 2

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

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

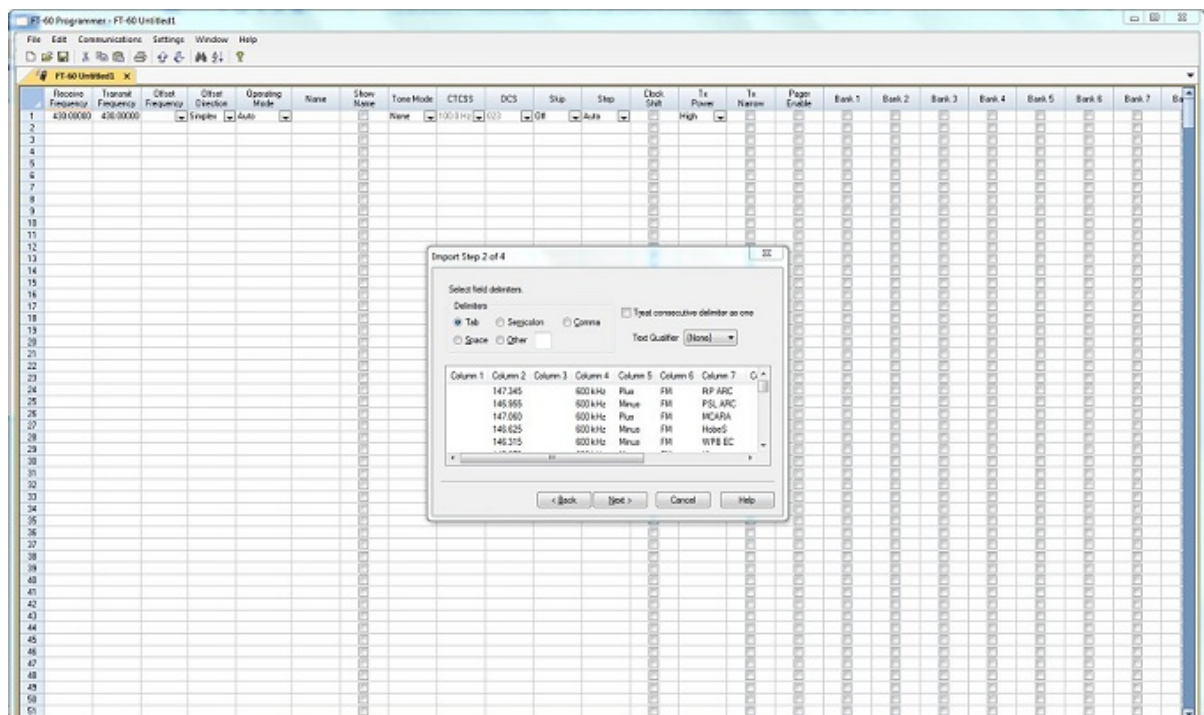
***Note: The FT-60 is used here as an example. The process works the same for any RT Systems programmer (Version 4 or higher). Column names shown in the screen shots of this example may differ or not be available for your particular radio.***



## 8.3 Step 3

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

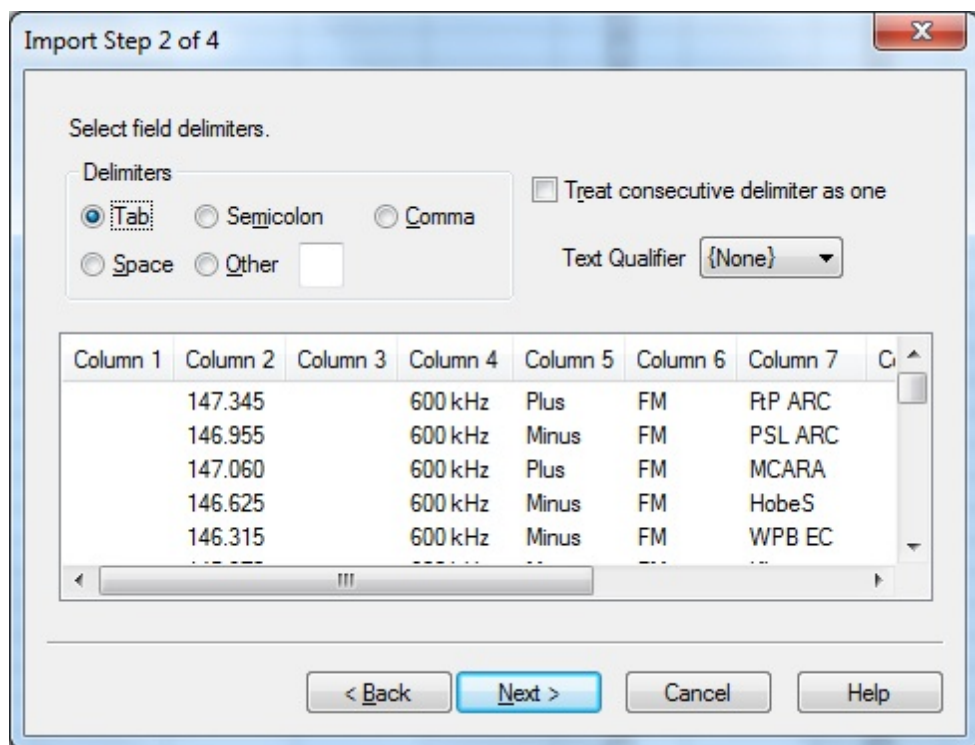
A window opens to complete the process.



## 8.4 Step 4

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

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

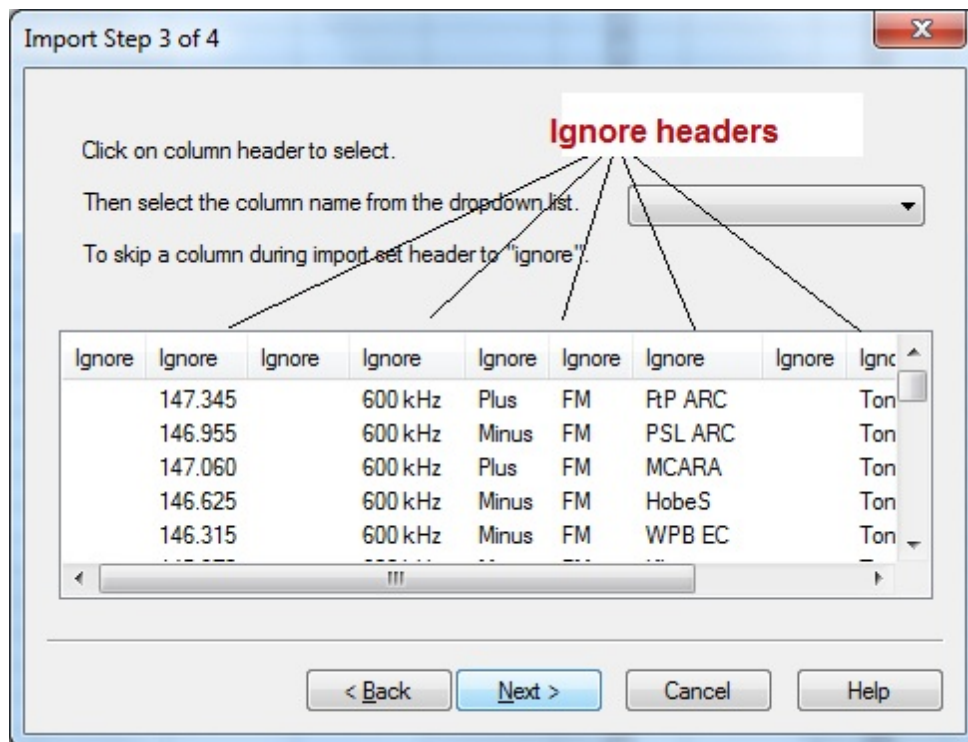


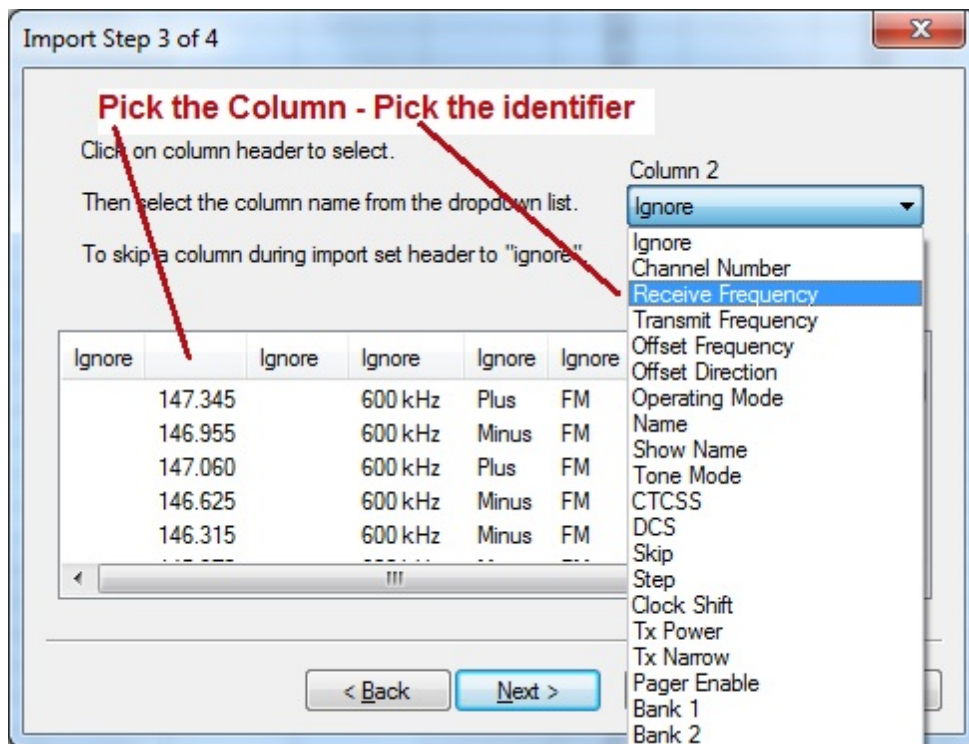
Click Next to continue.

## 8.5 Step 5

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

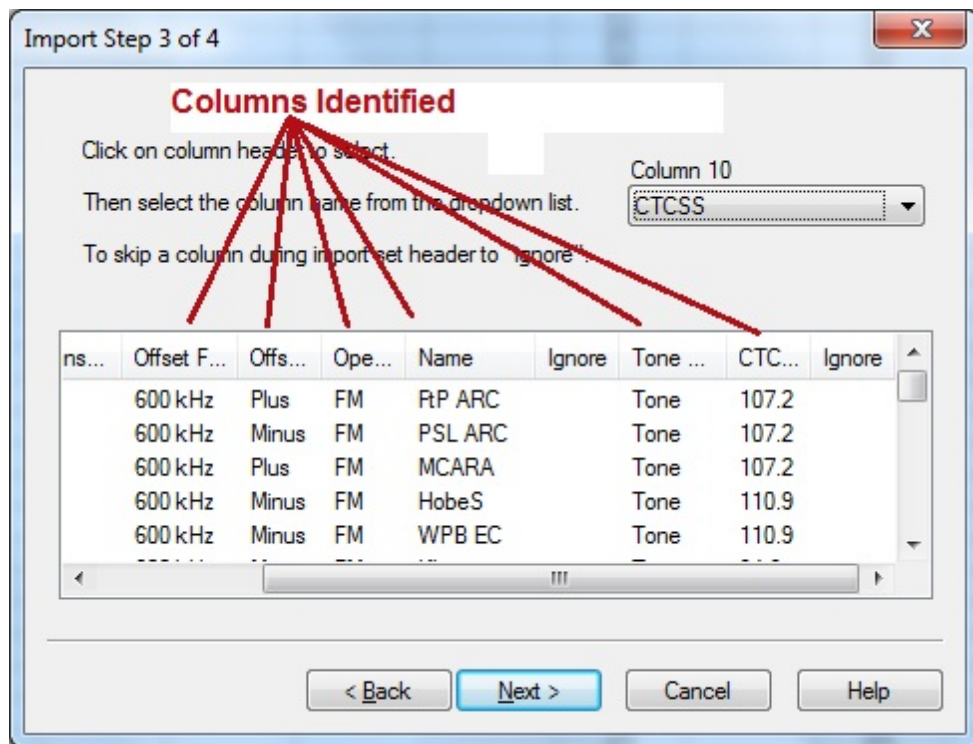
The programmer makes no assumptions and will set any non-matched column to "Ignore". The data in an ignored column will not be used in this process.





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

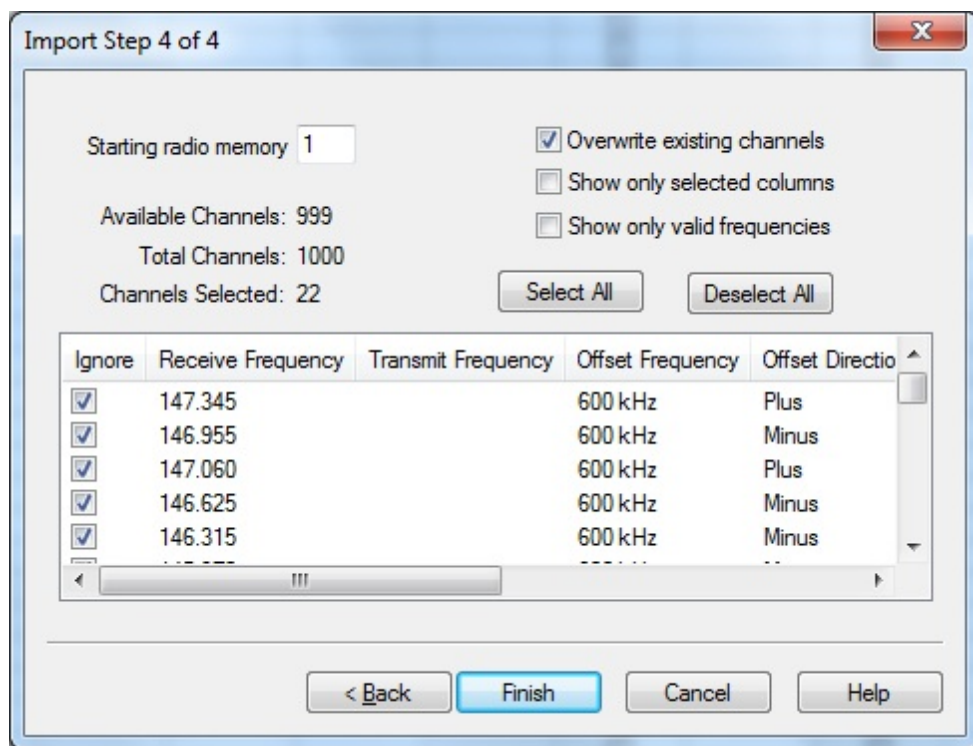
You **ONLY** need Receive frequency to import. The programmer will set everything else for the channel to defaults which means you will lose other important information (names, tones, etc.) if you don't take the time to tell the programmer that this information is available in the file.



Click Next to continue.

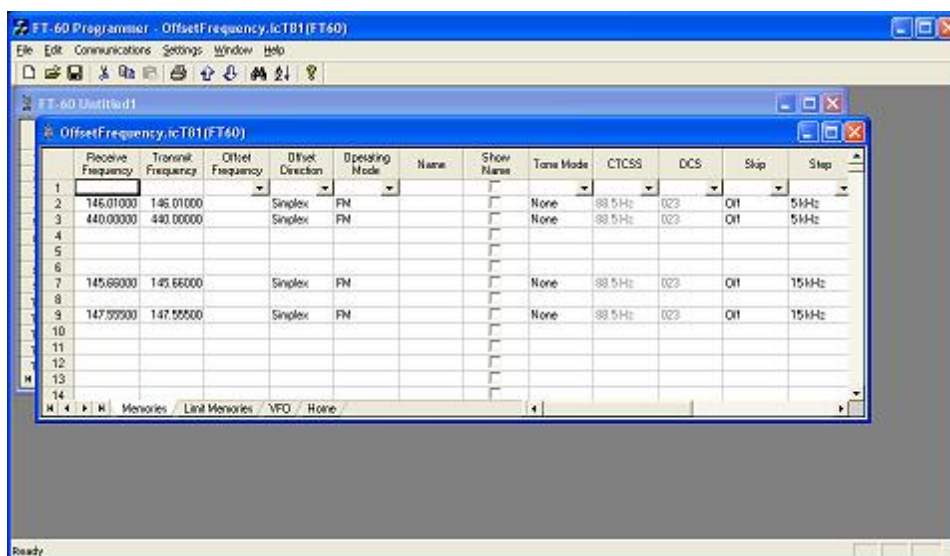
## 8.6 Step 6

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**

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**IX**

## 9 Importing a file

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

Limitations for use of another commercial spreadsheet program include:

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

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

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

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

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

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

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

## 9.1 Creating a file for Import

### Checking a file to use with the Programmer

If you are given a file that you want to import into a programmer for use by your radio and are not sure if it is a "flat file", test the file by opening it with Windows notepad.

If the Notepad display is full of strange characters with very little legible text, this file is not ready to be imported by the programmer. The file may or may not be able to be used for import depending on how it was created and saved.

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

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

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

### Saving an Excel file for import

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

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

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

**Limitations for use of another commercial spreadsheet program include:**

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

## **The Import File**

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

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

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

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

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

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

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

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

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

***This information can be omitted from the file.***

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

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

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

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

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

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

### **Non-Standard Offsets**

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

To use a non-standard offset in your text file enter the Receive Frequency. Then 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 &ndash; in this column. Using Offset Frequency for this column will result in all channels being imported as simplex.

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

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

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

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

- Step 1: Turning on Tone Mode

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

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

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

**Note:** *The CTCSS tone frequencies and the DCS tone codes should be stored in TWO separate columns in your file to be imported. The import process does not separate. It will ignore incorrect values leaving the tone set incorrectly for the channel.*

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

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

This value is set independently for each memory channel.

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

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

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

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

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

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

Skip or 1 to mark the channel to be skipped.

PScan or 2 to mark the channel as Preferential Scan

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

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

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

Enter On or 1 / Off or 0

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

Enter High / Med / Low

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

**Comments:** Enter an identifying comment up to 80 characters.

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

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

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

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

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

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

Exit the spreadsheet program. Your file is ready to be imported into the Programmer. Changes can be made within the Programmer after you import the data.

## 9.2 Import - Step 1

In the Programmer, select File | New.

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

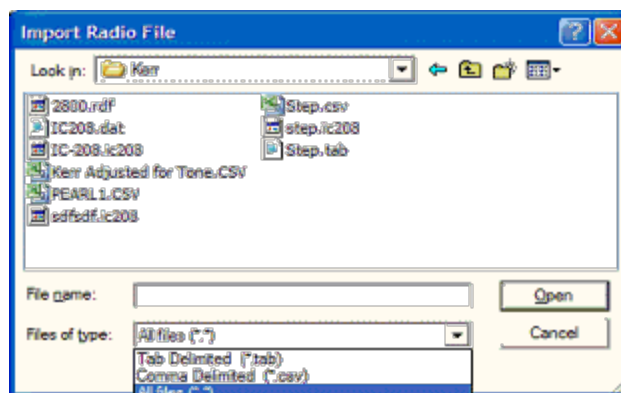
Working in a new file eliminates the possibility that existing data will be overwritten and lost during the import process. From there use the tools available in the programmer (copy and paste, column editing, sort and unsort, etc) to get the data just as you want it.

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

## Importing

In the Programmer select File | Import.

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

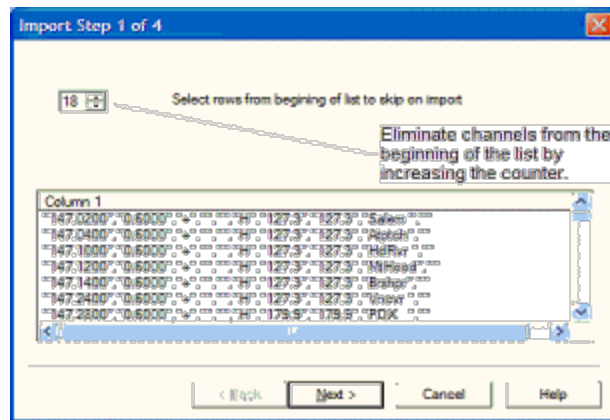


This screen gives you the ability to find and open the file to be imported.

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

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

### Import Step 1 of 4: Identify one or more of the first rows of data to be omitted



This screen was used originally to omit headers, columns without data, from the import. This is no longer necessary.

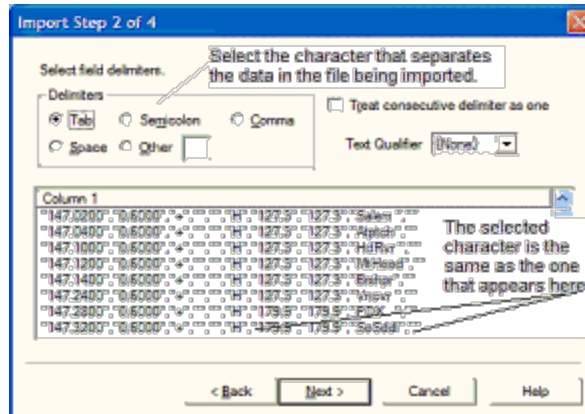
***Actually, it is recommended that you leave the headers to help you more easily identify the information in a later step.***

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

Click [Next](#) to continue.

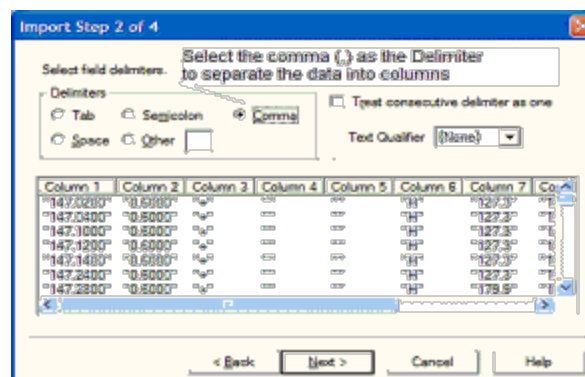
## 9.3 Import - Step 2

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



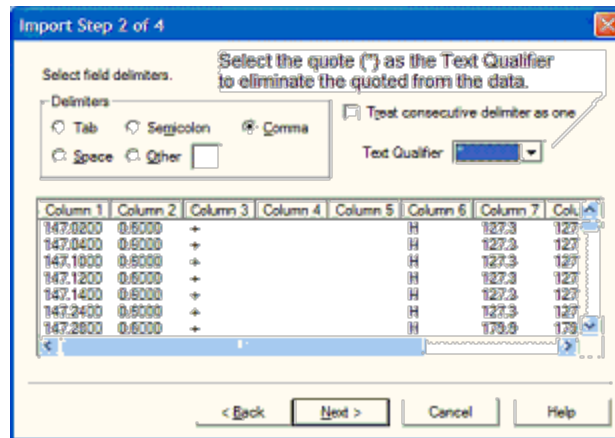
The data in the file to be imported is separated by tabs, semicolons, commas, space or other non-text characters. Select from the list at the top of the screen or enter the one you used.

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.



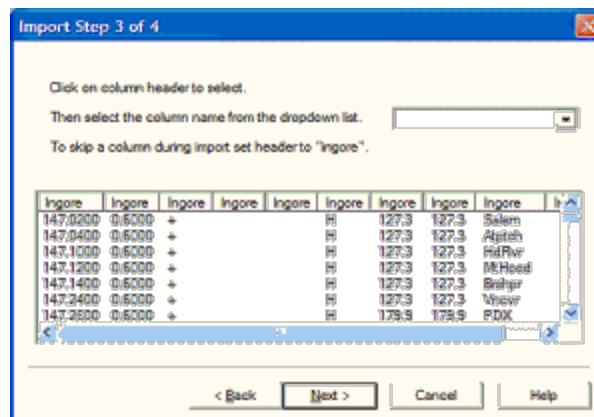
Click [Next](#) to continue.



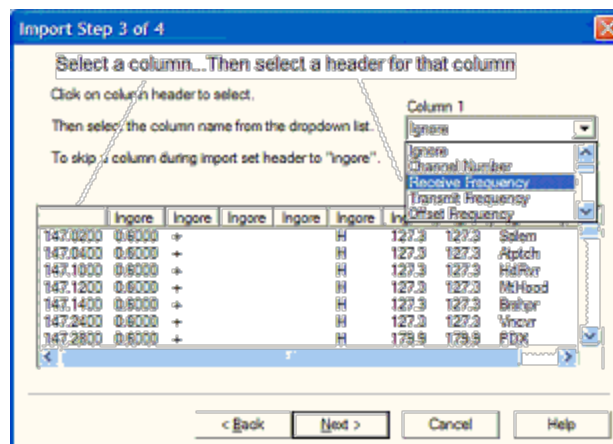
## 9.4 Import - Step 3

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

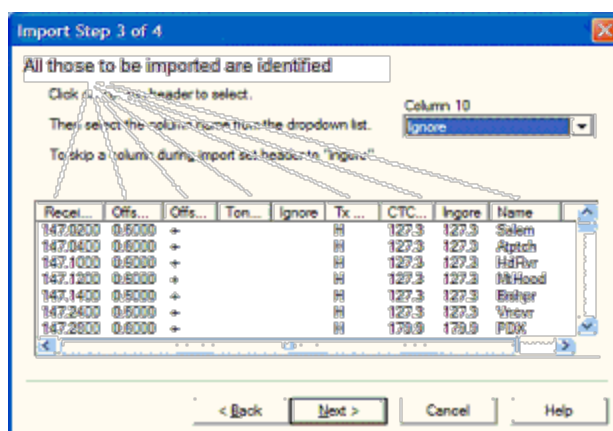
The Programmer will make an attempt to identify the information in your file. In this step of the process, you can make corrections to the assignments the Programmer has made and identify other columns that you want imported.



For the columns to be imported, select the header of the column (the little grey box just above the column) then select the proper identifier from the drop down list at the top of the screen



You need to identify only those columns to be imported.

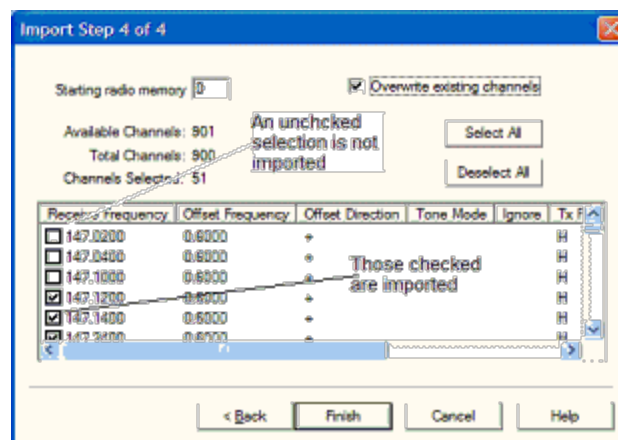


Click [Next](#) to continue.

## 9.5 Import - Step 4

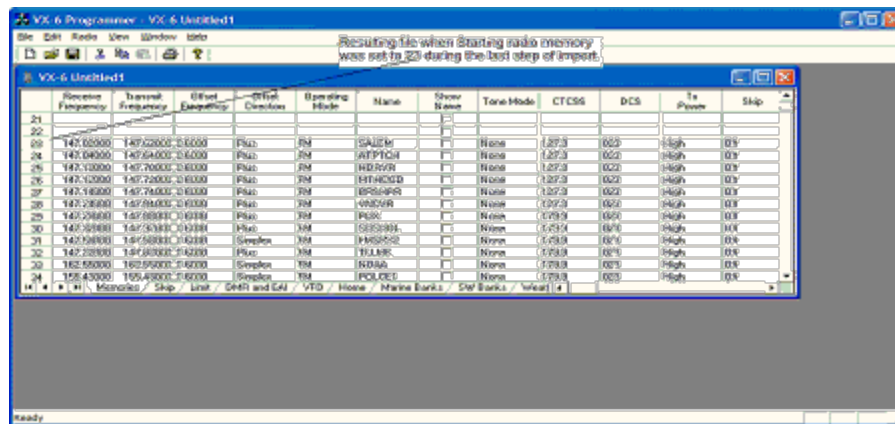
### Import Step 4 of 4: Limit the channels that are imported by the Programmer

Again, you can make adjustments to the data to be imported without having to edit the original file. Select all or any part of the list by checking the box at the left of the screen.



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

- Starting radio memory - Insert the channels into the file somewhere other than at the beginning (i.e., At the end of a list that has the last channel of 21. Enter 22 in this box to begin with the next memory channel of that file).
- Overwrite existing channels - Tells the process to replace data it finds in the existing file or to skip that data and write in the next available channel. For example:
- Unchecked - If you import into a file with memories in channel numbers 1-10, 12, 15 and 16 the process would write the imported channels in order to 11, 13, 14, then 17 on to the end of the imported list.
- Checked - If you import to a file with memories in channel numbers 1-10, 12, 15 and 16 the process would write the imported channels in order beginning at channel 1 and continue in order to the end of the imported list. The existing channel data of the file would be lost in the process as it is replaced with that of the imported file.
- Finish - Click to complete the process. The resulting file in this example would look like this:



**Part**

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## 10 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**

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**XI**

## 11 Contact Us

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

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Technical support	303-586-6510
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Fax	770-216-1836
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Technical Support Hours	Monday through Friday 10:30AM until 7:30 PM (Eastern Time) 9:30AM until 6:30 PM (Central Time) 8:30AM until 5:30 PM (Mountain Time) 7:30AM until 4:30 PM (Pacific Time)
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Other times by appointment. Call or e-mail to make arrangements.

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Web Page	<a href="http://www.rtsystemsinc.com">www.rtsystemsinc.com</a>
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Program updates

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

[See it Done: How To Videos](#)

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E-mail	<a href="mailto:techsupport@rtsystemsinc.com">techsupport@rtsystemsinc.com</a>
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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.

