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

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

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

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Foreword

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

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

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



1 What Is the Radio Programmer

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

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

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

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

Hardware Requirements

Hardware requirements for the *RT Systems* Programmers include

- A PC running Microsoft Windows: XP (SP3), Windows 7 (32 or 64 bit), Windows 8/8.1 (full version) and Windows 10. The programmer will NOT work on Windows 98, ME, NT or 2000. Use of the programmers on Windows Vista is no longer supported although they will work on that platform.
- The correct RT Systems computer interface cable as shown in the *Radio to Computer Cabling* chapter under *Radio / Computer Data Transfer* section of this help.

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

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2 Getting Started

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

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

Creating the file

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

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



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



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

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

Untitled?*		10.0.0011.0																	
Receive Turori	Offeet	Officed Operating	Nave 1	ione Mode	CTCSS	DCS	Tx.	Skip	Step	Мая	loon :	Half	Clock:	Bank 1	Bank.2	Bank 3	Bank.4	Bank 5	-
147.24000 147.840	00 600 kHz +	Plus Plu Pl	8	one 🔽	:00 0 Hz	023	High w	06 5	SkHa 🗣	19	loon 12	Uer	0184	19	B	E	B	E	-
	1 20	0 00 x 00		100	2	S	182 01		0	1		(1)	10	8	2	<u></u>	10	<u>8</u>	
~				_				-	-	<u>P1</u>			- 8-	8		1	13	100	
	N	Pagaina	Tran	amit	08	inal	0	Heat	1 One		-	- El -	뮲	8	8	-		101	
	1	neceive	Indri	SHIIC	_ 00	set		nset	Ope	raung		一问	Pi -	- E	10	问	F	19	
		Frequency	Frequ	ency	Frequ	Jency	Din	ection	M	ode		一回	10	8	2	創	13	2	
	01	147,04000	1471	04000	COO M	1-	DUC	100	The state	1000	-	- E1	- 23	8	2	E	13	<u>8</u>	
	PI	147.24000	147.0	54000	DUU KI	TZ 🔻	Fius	1.0	E F M	-	_	101	뮲			10	13	200	
	1 2								1				- 11	8	8		- 10		
										13		一門	10	8	2	1	10	19 ·	
										13		一四二	23	8	2	創	12	<u>81</u>	
	_		_					-				- 10	2	8	- 2	10	13	12	
	-				-					- E -									
	-			_				-		- Pi		一回	8	8	1	- H	1	- El -	
										12		- E	10	8	2	創	10	81	
										12		- E	- 23	8	2	<u></u>	13	門	
													-8-	8		E		100	
									-			- E-1		8				10	
					-			-		17		- E	10	10	12	问	10	19	
										13		四	10	8	2	創	13	<u>e</u>	
										<u> </u>		- E	- 22	8	2	E1	<u>F3</u>	<u>8</u>	
					-			-		E.	-	100		10		10	10	601	
	13							-		(P)		一個	1	8	10	前	P	-	
12										12		一的	10	8	2	前	FI	19	
										12		- m	- E	8	8	<u> </u>	23	2	
										<u>E</u>		- E	12	13	2	E	13	<u> </u>	
			_					-					월			11	- E3	111	
								-	-	- E-		- E1 - 円	8	8	1	10			
										100		1073	12		100	- 673	820	0.1	

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

choose upper or lower case on many radios. On others, only upper case letters are allowed. The programmer will help you. If a letter or symbol will not work on the radio, you will not be able to enter it here.



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

N 2000 14734800 0305H: - Phu - MH - LCOAL Tore - 1000 Hz - 22 - Migh - Ut - Suite -			
Tone Mode CTCSS Toto Program will not let you set the CTCSS tone to work without it being turned on.			
Tone Mode CTCSS			
Tone 100.0 Hz The program will not let you se	Other Other <td< td=""></td<>		
New New New New Total New Tota			
	This keeps you from expecting	g the CICSS tor	ne i i
	to work without it being turned	ion.	
		8 8 8	

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

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



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

Save the file

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

• 1	dit Comm	sunications Setting	1 Window	Help																	
3 2	8 III 8	和后 母 分	日朝封	8																	
-	DOTER*	×																			
1	Receive Frequence	Travenit Officer Evenues Evenues	Other Direction	Operating Mode	Nane	Tone Made	e CTCSS	DCS	DCS Points	Uter CTDSS	Tx Power	Ship	Step	Mark.	Atenusio	Shieler	8 et	Hat	Ook Sat	BANK 1	BANK 2
1	147,24000	147.84000 6001Hz	Pla	214		ione	100.0 Hz		HS-FN.	T600Hz	High 5 W1	DH	15 899	15	11	01	01	Pl	PL	11	10
	147.24500	147.04500 6001412	Pha	/Ref	1	ione	100 0 Hz	820	DS-TN	1000142	High (5 W)	Diff	154945	8	1	Dft	05	10	1	1	8
	147 25000	147 \$5000 600 kHz	Pho	64		ione .	108.0 Hz		RAFTA	1600 Hz	Hok (5W)	Dr1	1545-0	- 23	10	01	01	10	1	1	1.21
	147,29500	147,85500 600 kHz	Plus	84		inte .	-106 B Hz	928	RA-TM	1800 Hz	High (5W)	0/1	15 6Hz	- 65	6	01	ON:	- 63	10	19	10
	147,28000	147.86000 600 kHz	Plus	84		lone	100 D Hz	123	RNTN.	1600 Hz	High (5 W)	DH ·	15 kHz	63	0	09	01	10	10	10	100
	147.28500	147.86500.600 kHz	Plus	.FH		ionie	TOD D Har	0.2.9	FISI-TAL	1600Hz	High (5 W)	DH	15 8242	10	10	DH .	0.5	10	10	10	11
	147 27000	147.07300 630144:	Phai	FM.		lane	100 0.912	\$23	RN-EN	1600143	Ngh (5 W)	Diff.	1549-0	8	100	01	CF.	10	1	1	19
	147 27500	147,87500 600 kHz	Phys	84		ione .	100.0 Hz	023	RMTM	1600Hz	High (5 W)	011	1549-0	10	10	01	01	23	10	12	25
	147,29000	147.88000 600 kHz	Plus	FM		line .	1100.0 Hz		BALEN	1600 Hz	High (5W)	011	15 kHz	- 63	100	01	OK.	63	10	10	25
5	147,29500	147.88500.6001Hz	Plue	64		ime .	100 0 Hz	123	BN-TN	1600 Hz	High (5 W)	09	15 kHz	- 10 -	1 10	0.4	0#	19	100		1.161
	147,29000	147.89000 600 kHz	Pha	794		ione	TOD D Hz	\$25	RN-FN.	1630115	Fligh (5 W)	DIT	15.870	- 15	10	011	Q8	10	10	- 6-	1.18
	147,29500	147.05500 6001412	Pha	1714		ione	100.0 Hz	\$20	RS-TN	1600142	High (5 W)	D/1	1540-0	10	1.67	0.1	0.6	23	1	10	2
	147 30000	147 90000 600 kHz	Pho	FH		lane	100 D Hz	223	RAFTA	1600.Hz	Hot 5WI	Drit	15.6%	10	123	01	01	23	10	12	- 21
	147.30500	147.90500 680 kHz	Plur	64	,	inte .	-100 B HE	823	RN-TN C	1800 Hz	High (5W)	0/1	15 MHz	63	171	0.4	0.0	- 63	10	11	- 25
	147 31000	147.91000 600 kHz	Plus	64		lone	100 D Hz		BNTN.	1600Hz	High (5 W)	DH .	15 4045	63	6	0.9	0.	6	10	1	19
	445 25000	445,25000	Singlex	with wi	1	ione De	100 D Hele	1723	WRS4N G	TEGONS I	High B W.	DH D	50 870	10	10	01 .	08	100	. 27	21	100
	445 25500	445,25500	Sinplex	IFM.		lone	100 D.Hz	023	RM-EN.	1600He	High (5 W)	DIT	50 89-0	8	10	Dt	Gr	10	1	19	12
	445 28000	445,26000	Singles	EM .		Isne	110E B.Hz		RMTM	1600Hz	High (5W)	011	50 41-12	13	100	01	08	23	10	10	25
	445 29500	445,26500	Singles	64		ine.	LEOD D HE		BALLA	1600 Hz	High (5W)	011	50 MHz	- 11	123	0.9	01	123	10	19	- 25
	445 27000	445.27000	Simplex	64		ime	100 8 Hz	0.23	BM TN	1600 Hz	High (5 W)	09	50 kHz	- 13	10	019	0#	10	10	1	10
	445 27500	445.27500	Simplex	754	00	ione	100 D Hz		RM-TN.	16301/2	High (5 W)	Dit	50 876	- 15	10	01	08	10	10	19	110
	445 29000	445,20000	Singles	194		Inne	100 D Hz	\$23	RNTN	1600Ng	High (5 W)	Dit 1	50 8942	- 15	10	01	01	(2)	10	10	21
	445 29500	445,28500	Singles	FH		lane	1100 D Hz	223	RALTN	1600Hg	High (5W)	Drt	50 4Hz	13	10	01	O#	21	10	10	1 21
	445 29000	445,29000	Singles	84		lane	HOD D HE	323	RN-TN-	1600 Hz	High (5 W)	09	50 kHz	10	- 21	0.9	0#	63	121	1	100
	445,29500	445.29900	Simplex	64	1	ione-	100 D Hz	823	BNTM	1680Hz	High 5 WI	DH	50 kHz	- 19 - 1	10	01	0.0	10	1	1	110
	445 30000	445.30000	Simplex	714	1	ione	100 D Hz	523	HIS-TM	10001/2	High 5 W1	DI1	50 8910	- 19	10	01	0.5	175	171	11	100
	445 20500	445 30500	Singita	EM.		lane	100 E Hz	\$23	EN CM	1600140	Hat 5W	D/1	50 846	- 8 -	2	01	G#	10	1	1	1
E	445 21000	445.31000	Singles	84	. 5	lime	1100 D Hz		RNTM	1600Hz	High (5W)	0/1	504Hz	10	8	01	OF.	10	1	1	1 1 1 1
	445 31 500	445.31500	Singles	64		ine	100 D Hz		BMTM	1600 Hz	High (5 W)	011	50 kHz	- 21	1 10 -	01	0.	- 19	1.1	- 10-	1.10
	445 32000	445 32900	Simplex	294		ione	100 PHz	123	RM-TM	1600 Hz	High (5 W)	09	50 814	10	1 10	09	0.9	10	10	1	- Pl
	445 32500	445.32500	Singlex	714		ione	100.0 Hz	\$20	DUTN	1630142	High (5 W)	DH	50 8945	10	B	01	Ct	10	118	19	1.18
	445 2000	445 22000	Sincire	194	1	Innt	100 D Hz	\$23	FINTAL	1600Hz	High IS W1	011	50 85-0	- 61	100	01	01	100	1	100	100
	445 23500	445 33500	Singles	EH.		ine	100.0 Hz	\$23	RATA	1600142	High (5 W)	Dit	50440	- 25	1 10	01	G#	- 21-	100	10	- 21
	445 34000	445.34000	Simpley	PH .		inne-	TOD D Ha		RN FN	1800 Hz	High 15 Wh	09	50.64	- 19	- 10-	01	0.	10	10	- 11-	- M
	445 34500	445.34500	Simplex	84		ione	100.0 Hz		RATA	1608 Hz	High 5 Wi	08	50 899	- M -	10	04	C#	1	1	1	100
	a to Many	viet Skin Link	FAL VED A	VED 8 / Ha	Marine R	who S	Witness - M	wither .	Inc. Off.	1.141.141.14	- sec. 19. 197	1900		100	141	1997.	100		1	1	-
-	Lack of the lack o	And the second strength of	Ser a strong		av a radine e	A	the second of the	correct (181			and the local data	and the second second	Concession in the local division in the loca	-

In the menu, click File | Save As

Date modif Type Size Tags DCSTest Reader Test1
DCSTest Reader Test1

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

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

Even More Radio Functions

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

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

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

Connon ARTS / Cw/ / EA	Messages Sour	ide DTMF	/Interne	VF0 and	d Menu Si	ip APRS / GPS			
Attenuatio Broadcast Attenuatio Marine Attenuatio Warline Attenuatio Warline Bury Dhannel Lockout Bury LED Fast Tone Search Memory Protect Priority Revent Splk Tone	Anterna - AH BAR & Dott - + Anterna - TN Dott Anterna - + Audio Mute Level Off - + Audio Mute Level Off - + Audio Poiner DB Off - + Other + StiMitz - +	Home VFC Enable HH.47/ Revenue Lock Dial+Ke Hern Fact 10 CH Hernoy/W Next	Ensble V Step V Vite	Moni/TCr Moni Prianty Tar S second PTT Date DI ROCAF De TRX 1 ar RoCAF De TRX 1 ar 200 ms	al * to to * * * * * * * * * * * * *	Spec-Analyzer 1 Time • 20 min • VFO Mode Bend • VOL Key Hode Held • Vos 01 •	BlueTor VOX Mode Save Power PCode	PTT • Mono • 08 • 6111	Pasavod Cruzie Programoble Key Assignments Internet Key Mis Key DC Volage * Souring
Tone Search Mute Ta Save Display Dual/Hono Daal Receive	DS sec *	His Gain Level 5	• Lanp Key 5 r	Smat Sec Single	Set No	Von Deley 0.5 records • de Curror	01	00.00	Memoy Scan Mode All Channel • VFD Scan Mode Band •
Althude Units / Offset feet • 0 ÷ Sarometric Units / Offset mb • 0 ÷	Temperature Fahrenheit Wave Monito All	•	LCD Co Level 1 LED Dr Level 4	rbad 3 • mer	Set No List S-Mete	de Fernet - Synbol	Weath Active 1-16	er Weather Aleit I: Charnel I: 2550 MHz •	Resurve Mode 5.0 sec • Bestart Time 2.0 sec •

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

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

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

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

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

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

First: Communications | Get data from

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

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

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

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

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

1.8	* let (*	10000	5 #4 21	X																	
(W	DCSText*	🗙 📲 Untitle	alle Unt	itiedl																	
Я	Receive	Evening Other	Officer	Operation	Nane	Tone Mo	e ctoss	00	5 DCS Extended	Uper	Tx Front	Skip	Step	Mask.	Atenuator	S-Meter Sourich	Bell	Half	Clock Shit	BANK 1	BANK 2
	147.24000	147 84000 600 kHz		- 64	< N	None	103.0 Hz	023	BN-TN	1600 Hz	High (S.W)	06	15kHz	11	125	0H	0¥		- Pi	PL	FI
-	147,24500	147,84900 600 kHz	Plus	-	\ r	1	- 4 - 1-		1:00-					-	1	0H	OF	- 10	10	1	1
	147,25000	147.85000 600 kHz	Plue	EM	->	ac	1 tap	is a	amer	ent III	e.					0H	OF	- EL	10	10	13
	147.25500	147.89900 600 kHz	Plur	FM	0.785										1	0H	OF	· (7)	5	1	1
	147,26000	147.96000 600 kHz	Plur	FM											1	0H	OF	- 10	5	1	1
	147.26500	147.86900 600 kHz	Plue	FM												0H	OF	10	10	17	13
	147,27000	147.87000 600 kHz	Plue	EM		ho	filoc i	can	ovon	ho for	diffe	aront	radio	C		0H	OF	- EL	10	10	13
	147.27500	147.87500 600 kHz	Plus	FM		ne	1103	cull	CVCII	00101	unit	JUCIN	rauto	J.	1	0H	0¥	· 101	- 10	P	13
	147.28000	147.89000 600 kHz	Plue	FM												0H	0¥	· (7)	- 23	171	13
1	147.28500	147.89900 600 kHz	Plue	FM		None	TOUDHE	1023	THN-IN	11600 Hz	High Ib WI	UR	15 884	111	1 11	0H	Of	10	- 61	17	13
	147,29000	147.89000 600 kHz	Plue	EM		None	100.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	15kHz	10	R	0H	OF	10	10	10	13
2	147.29500	147.89500 600 kHz	Plus	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	CH	15kHz	10	8	0H	0¥	· (7) :	- 6	10	13
	147.30000	147.90000 600 kHz	Plue	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	CH	15kHz	10	8	0H	0¥	· (7) :	- 23	171	13
	147.30500	147.90900 600 kHz	Plue	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	0H	15kHz	10	8	08	OF	10	- 21	171	13
	147.31000	147.91000 600 kHz	Plue	EM		None	100.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	15kHz	10	R	0H	OF	10	10	17	13
1	445,25000	445.29000	Singles	BH W		Norse	+ 100 0 Hz	023	SAISN-TN [1600 Hz 5.	High 15 W	OH .	50kHz	10	6	08	01 -	· (1)	- 6	P	13
	445,25500	445.29900	Simples	FM		None	103.0 Hz	1023	EN-TN	1600 Hz	High (5 W)	CH	50 kHz	10	1	0H	OF	· (1)	- 19	171	13
	445,26000	445,26000	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	10	8	0H	OF	- 10	- 23	171	13
	445,26500	445.26900	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	10	1	0H	0 F	- 10	- 6	P	13
	445.27000	445.27000	Simples	FM		Nore	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	10	1	OH	0F	- ET	- 10	171	13
	445.27500	445.27900	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	CH	50 kHz	10	1	0H	0¥	· (11)	- 19	171	13
	445,28000	445.29000	Simples	FM		None	103.0 Hz	023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	10	1	0H	0 F	· 10	10	1	E
	445,28500	445.28900	Simplex	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	ÚH .	50 kHz	12	10	OH	0 F	- ET	10	P	13
	445,29000	445.29000	Simples	FM		Norw	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	10	1	OH	0 F	- 10	- 10	171	13
	445,29500	445.29900	Simples	FM		Nore	103.0 Hz	0.23	BN-TN	1600 Hz	High (5 W)	CH	50 kHz	10	1	0H	0F	· (1)	- 10	171	13
	445.30000	445.30000	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	CH	50 kHz	10	1	0H	0¥	- ET	- 19	171	13
1	445.30500	445.30900	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	0H	50 kHz	10	6	08	0F	· (1)	10	P	13
1	445.31000	445.31000	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	10	6	0H	0 F	- 10	1.15	P	1
	445.31500	445.31900	Simples	FM		None	103.0 Hz	023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	10	6	0H	0¥	- El :	10	E	13
	445 32000	445.32000	Simples	FM		None	103.8 Hz	1023	BN-TN	1600 Hz	High (5 W)	0H	50 kHz	13	1.1	0H	DF	- 10	13	10	1
	445.32500	445.32900	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	0H	50 kHz	10	1	08	0 F	- E	10	P	1
	445.33000	445.33000	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	0H	50 kHz	10	6	0H	0 F	· (1)	10	P	1
	445.33500	445.33900	Simples	FM		None	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	OH	50 kHz	12	6	0H	0 F	· (7)	· 15	P	13
	445 34000	445.34000	Simples	FM		Nore	103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	CH	50 kHz	173	6	0H	0 F	· (7)	10	P	13
	445 34500	445.34500	Simples	FM		None	1103.0 Hz	1023	BN-TN	1600 Hz	High (5 W)	0H	50kHz	10	R	08	OF	· (7)	FI	171	1

Second: Communications | Send data to

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

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

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

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

Hardware Requirements

Hardware requirements for the RT Systems Programmers include:

• A PC running Microsoft Windows: XP (SP3), Windows 7 (32 or 64 bit), Windows 8/8.1 (full version) and Windows 10. The programmer will NOT

work on Windows 98, ME, NT or 2000. Use of the programmers on Windows Vista is no longer supported although they will work on that platform.

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

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



3 Using the Programmer - Overview

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

Working with Programming Files

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

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

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

Creating a New Programming File

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

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

Note: Not all the menu settings of the radio are associated with

memory channels. Many are "global" settings that affect the radio during memory or VFO operations. These settings are handled in the fields found on the screen accessed under Settings | Radio Menu Settings.

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

To save these Global settings

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

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

Creating and using multiple Global settings files

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

To select a settings file for use:

- Select Settings | Radio Menu Settings from the main page of the programmer.
- From the Radio Menu Settings screen, select File | Open. A list of settings files will be presented.
- Select the file you want to use and click Open.
- Verify that this is the settings file that you want to use. Check also that the proper filename appears in the bar at the top of the Menu Settings window.
- Select File | Exit to close this screen. These settings will be sent to the radio with each memory channel file until you change this file selection

again.

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

Tying Global Settings to a Memory Channel File

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

To contrast and compare the two Radio Menu Setting options:

• Use Separate file for menu settings (default)

This is the default for the programmer.

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

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

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

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

This option is set on the Settings | Preferences screen.

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

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

You have the ability to customize the global settings just as you

customize the memory channel file. This would be useful if you are programming each radio uniquely.

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



4 Viewing and Changing Programming Files

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

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

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

Radio Menu Settings

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

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

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

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

You can find more details on these two options under <u>Using the Programmer</u> - <u>Overview</u> and *Radio Menu Settings - General Overview* in this help. Using

individual and separate settings files is the default.



5 Easy Editing in the Grid

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

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

Right Click Menu

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

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

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

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

Edit Menu

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

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

continuous group.

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

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

Editing Commands

The examples here will use the programmers for the Yaesu FT-60 (ADMS-1J) and the lcom 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 <u>all the details</u> of a Memory Channel (one or several at once) or Copy <u>details within one column</u> (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.

-	Paralua	Traces in	Cillus .	Albert	Auction		One	-		-			0.4	¥.,		(heres)	-	-		_		_	_
ł	POLICY .	Prequency	Prequency	Direction	Hode	Name	Name	Tone Mode	CTCSS	DCS	Ske	Step	shift	Pover	Harrow	Drable	Bark 1	Bark 2	Bank 3	Bark 4	Berk 5	Bank 6	Sark 7
	43.25000	143.25000		Sinplex	Auto	SIMPLE	1	None	300.0 Htt		Off	Auto .	13	High	1	1	13	1		13	1	1	13
	10.26250	143.26250		Sinplex	Auto	SEMPLE		None	300.0 Hz	023	Off	Auto		High	10					- 0-			
+	16.27500	143.27500		Service	Auto	SIMPLE	- 8-	None	200.019		OH OH	Auto .	-8-	High		- 8-	- 8-	-8-	- 8-	- 8-			-8-
+	142.28750	142.28793		Singlex	Auto	SIMPLE		None	200.0 H2		C.M	ALAD		Hgh									
+	43.38000	143.38080		Sinplex	Auto	SENARCE		None	200.0 HZ		08	ALAD		High			-8-						
+	45.51/50	143.31250		STIDEX	AU80	204902		Peone	200.0172	025	01	AU10	-8-	mgn	- 8-	- 6-	- 8-	- 8-	- 6-	- 8-	- 8-	- 8	- 8-
+	43.52500	145 55255		Service	4.00	STARLE .		None	100.000	4.55	08	8.40	-14-	inde .	10	- 11-	10	10	10	10	10	10	10
+	45.30790	143.35730		Condex	4.00	The P		Hone	100.010		01	1.40	- 22	1000				- 11-		- 8-			- 11-
	45.36250	143.56253	1.1	Service 1	- Arte	COMPLET.	- 14	None -	100.010-5-	10.75	- lot	with the	-H-	Help La	1 14	- H-	- 14 -	- 14 -	- H-	- 14 -		14	- H-
	41.12500	143.37500		Service 1	Auto	SIMPLE	- 14	Name	200.000	0.23	OH I	440	-14-	Helt	171	11	- H-	10	11	- 21-	11	100	10
	42.28750	142, 38750		Singlex	Auto	SIMPLE	- M	None	100.0 Hz	822	0#	ALAD	- 24	High	P	PI-	- M -	- Pi -	M	10	E E	10	10
	43,48000	143,40000		Service	Auto	SIMPLE	11	None	300.0 Hz		OM	AL:00	11	High	171	P1	11	171	171	10	Pl	Pl	11
	43.41250	143.41250		Smiller	Auto	SIMPLE	FI	None	100.0 Hg	023	0#	34.40	11	Hith	FI	PI	E E	11	PI	E E	FI	PI	FI
	43.42300	143.42500		Seplex	Au/00	GRAND	26	None	300.0 Hg	023	off	34,40	11	High	E1	E E	1 1	- El -	1	10	E	10	- 61
5	43.43750	143.43750		Singlex	Auto	DOWN	80	None	300.0 mg	023	Off	ALAD	11	High	10	11	13	1	11	13	1	10	13
7	40.45000	143.45000		Sinplex	Auto	CANYON	14	None	100.0 Hz		Off	Auto	13	High	123	13	1 10	121	10	10	11	13	13
3	143.46250	143.46230		Seplex	Auto	RUND	1X	None	300.0 Hz		04	Auto	13	High	12	11	1	13	17	10	10	13	13
9	43.47500	143.47500		Simplex	Auto	100140	56	None	300.0 Hg	823	Off	ALA0	- 23	High	123	13	1.13	13	10	13	10	13	13
0	41.48750	143.48750		Sinplex	Auto			None	100.0 Hz	823	0.44	Auto	- 23	High	1		D	1.1	10	- B	E	- E3	- E3
22	43.58000	143.50000		Smplex	Auto		11	None	300.0 Mz	0.23	Off	Auto	13	High	10	1	13	1	13	13		23	
12	43.51250	143.51250		Seplex	Au/00		- 13	None	300.0 HP	023	011	34,40	- 13	нр	12	13	13	13	13	13	13		13
23	43.52500	143.52500		Simplex	Auto		- 11	None	300.0 Pg	023	0ff	44,40	10	High	1	1		1	1	10		1	- E
24	43.53750	143.53750		Seplex	Auto			None	500.0 Hz	023	011	Auto	- 13	High	1	0	10	10	0	0	E	23	13
25	143.55000	143.55000		Sinplex	Auto		- 13	None	300.0 Hg	023	Off	Auto	- 13	High	10		<u> </u>			10		1	
25	143-59/250	143.56250		Segler	Auto	-	- 11-	None	200.0 PR		OH	A,40	_0_	High			- 0-			- 8-			
22	141.57900	141.57500		Subex	Auto	_		Hone	200.0942		CH CH	ALAD		High						- 8-			
29	43.58750	243.58750		Sinplex	Auto			None	200.0 HZ		0e	ALAD		High						- 8-			
0	45.60000	145,66000		Serbex	AU/00		- 8-	TROME	200.0192		COM.	4,10	-8-	mgn	8	- 61		8	- 8-	-8-	-8-		-8-
10	45.61290	141.61290		Segrex	Au/00	-		Tapree	200.0 Hg		Off Contract	14,40	-8-	High	10			- 10					
19	43.62300	143.01300		Subsc	AU00			TROTOP	300.019		Off	14,40		right	101					- 12			
1	00100.001	141 4555		Sector	Auto	-	- 8-	Thinks.	100.010		08	Date:	-8-	14-da	- 8-	8	-8-	- 14 -	1	- 10 -		1	- 14-
2	100000	14144150		Simplex .	4.00		10	Mana	with change		OIL	8.40	- 21	1 August	100	1	1	10	11	10	100	10	10
16	40.47500	143,47500		Service	Auto.	-	- 14 -	None	100.0.07		04	8.40	-11-	High:	- M-	1	- 14 -	10	1	- 14 -	10	1	10
16	43.68750	143.68250		Service	Auto		1	None	300.010	623	0#	AL AD	-#-	High	1 11	1 11	- 11 -	10	m	- 11 -	10	1	10
17	43.79000	143,70000		Section	Auto		10	None	300.010	023	OM.	Ja.Ab	1	Hills	1 11	1	- E	ET.	11	10	FI	1	E
28	41.71250	143,71230		Simplex	Auto		14	None	200.0 Hg	023	off	34.40	- 14-	Hab	1 14	1 14	111	10	P	10	PI-	P	10
59	43.72500	143,73500		Singles	Auto		P	None	300.0 mg		Off	ALAD	171	High	1	11	E	11	171	13	17	17	E.
40	43.73750	143,73750		Smolex	Auto		11	None	300.0 Hz		Off	AL10	11	High	1	1	1	1	P1	E.	F	11	E
10	143.79000	143,79000		Service	Auto		13	None	300-0 Hit		OH	A,40	11	High	17	1	1	17	13	10	10	1	13
0	40.76250	143.76250		Singlex	Auto		13	None	300.0 Hg	823	Off	ALAD	13	High	11	10	1 13	10	17	10	10	13	13
0	41.77500	143.77500		Smplex	Auto		13	None	300.0 Hz		Off	Auto	13	High	10	13	E) .	E.	10	13	E.	10	10
64	43.79750	143.78750		Smplex	Auto		13	None	300.0 Hz	023	OH	Auto	13	High	17	10	10	10	11	13	10	1	13
15	43.80000	143.80000		Seplex	Au/00		13	None	300.0 Hg	023	off	34,40	13	High	13	13	13	13	13	10	13	13	E
46	43.81250	143.81250		Simplex	Auto	SEMPLE	E3 -	None	300.0197	0.23	OM.	44,40	13	Hgh	12	12	10	1	10	10	E	12	E
47	43.82500	143.82500		Smplex	Auto	SEMPLE	11	None	500.0 Mg	023	Off	Auto	23	High	1	1	10	1	13	13	1	21	13
	A111 1 1 1 1 1 1	143 81755		Sandery	Sec.	175.00.0	11	Tables .	100.019		04	Ja An	271	Marin	1.1.1	11		100	100	100	- PL	100	100

Select the data to be copied.

To select an **entire row**, point your mouse at the <u>number in the blue box at</u> <u>the left of the row</u>. 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.*

Ve.	tdit Cen	munications	Settings	Window	Help																		a and	0
9	X IM S	6 8 Ø	08	d9 24	8																			
14	PT-60 Und	Red1* X	Offeet	Offset	Operating	1	Show						Carls	Tr	Tx	Pager								-
4	Frequency	Frequency F	requency	Direction	Mode	Name	Nane	Tone Mode	CTCSS	DCS	Skp	Step	Shift	Power	Narrow	Enable	Bank 1	Bank 2	Barik 3	Bank 4	Bank 5	Bank 6	Barit 7	
	243.25000	143.25000		Septer	Auto	SINFLE COMPLE	8	None	100.0 Hz		01	Auto	10	High		10				1	1			+
	343 27500	143 22500		Service	Auto.	SNRF	- 11	None	100.0 Hz	023	04	ALCO.	10	Hale	171	11	10	10	11	11	10	100	100	+
	143 28750	143,28250		Generative	4.00	SNRF	网	None	100.0 HP		Off	4.00	10	Heb	10	Pl	P	10	10	PI	Pl	10	10	+
	141, 30000	143,30000		Sincley	4.40	STARE	- M	None	100.019	023	OF	44.00	100	Hell	10	11	10	10	- 14	11	1 M	10	10	+
6	343.31250	143, 31250		Sincles	A.40	SNPLE	11	None	100.0 Hz	023	Off	Auto	100	High	11	11	PI	- Pi	- Pi	11	PI	PI	10	
7	143 33500	143,32500		Sector	A.00	SNRE	Pi	None	100.0107	073	Off.	4.00	10	Hote	FI	PI	100	10	Pl	PI	10	P	1 19	
8	243.33750	243.33750		Sector	Auto	SNRE	11	None	100.0 Hz	023	OFF	44.00	11	High	171	11	17	11	17	11	10	171	P	
9	\$43,39000	\$43.39000		Sopies	Auto	SINFLE	F	None	100.0 Hz		Off	Auto	1	Hoh	11	1	1	1	1	11	1	1	F	
10 F	343.36250	143.36250		Singles a	Auto .	STAR	P1	None w	100.0 Hz	023	- off	* Auto		High is	. 17	1		1	P	12	1	1	1	
11	143.37500	143.37500		Serpiex	Auto	SIMPLE	173	None	100.0 Hz		OFF	Auto	1	High	13	11	12	11	11	[7]		1	17	
12	\$43.38750	147.78750		Sopiex	Auto	SINPLE	1	None	100.0 Hz		off	Auto	1	High	1	13			P	13				
13	343,40000	343.40000		Sectors	Auto	SINPLE	11	None	100.0 Hz		Off	Auto	17	High	-	11	10	10	1	17		1	1	
14	143.41250	143.41250		Serpiex	Auto	SIMPLE	13	None	100.0 Hz		Off	Auto	10	High	13	13		1	10	13	1	13	13	
5	243.42500	143.42500		Sinplex	Auto	GRAND	N.	None	100.0 Hz		off	44,00		High	1	1	100	10	10	13	1	1	1	
6	143.43750	343.43750		Soplex	Auto	DOWN	120	None	300.0 Hz		Off	Auto	10	High	13	13	13	13	13	13	13	13	13	
17	143.45000	143.45000		Sinplex	Auto	CANTON	1	None	100.0 Hz		Off	Auto		High	1	13		6	8	6		8		
13	343.46250	143.46250		Singlex	Auto	KJAP	10	None	\$100.0Hz		OFF	Auto	10	High	13	123	123	23	13	13	100	100	1	
9	\$43.47500	143.47500		Sinplex	Auto	100040	12	None	\$00.0 Hz		110	AL.to	12	High	13	13	13	13	13	113	13	13	11	
0	343.48750	141.40790		Sinplex	Auto		13	None	100.0 Hz		off	Auto	12	High	12	13	13	1	1	1	1		E	
1	143.50000	143.50000		Singlex	Auto		11	None	100.0 Hz		OFF	Auto	1	High	11	11	13	1	11	123	100	100	1	
2	\$43.51250	143.51250		Sepiex	Auto		13	None	100.0 Hz		Off	Auto	13	High	13	13	13	13	13	13	13	13	1	
23	343.53500	343.52500		Sepiex	Auto		13	None	100.0 Hz		Off	Auto	10	High	13	13	12	13	1	13	13	13	1	
24	\$43.53750	143.53750		Serpiex	Auto		13	None	100.0 Hz		Off	Auto	10	High	13	13		13	1	1		1		
15	\$43.55000	143.55000		Sinplex	Auto		13	None	100.0 Hz		Off	AL/CO	13	High	1	13	13	13	E	13	13		1	
16	343.56250	143.56250		Smplex	Auto		11	None	100.0 Hz		Off	Auto	10	High	13	13	13	10	13	123	1	100	11	
2	143.57500	143.57500		Sepiex	Auto			None	100.0 Hz		Off	Auto		High		2			13					
38	143.58750	143.58750		Singlex	Auto		E3	None	100.0 Hz		off	Auto	13	High				1	13	13	100		13	
9	343.68000	143.60000		Sinplex	Auto		13	None	\$00.0 Hz		Off	Auto	13	High	13	11		10	12	123	10		100	
0	343.61250	143.61250		Sinplex	Auto		8	None	100.0 Hz		off	Auto		High	13	8					13			
1	143.62500	143.62500		Singlex	Auto		1	None	100.0 Hz		OFF	Auto		High	13	13	13	13	13	13	13	13		
2	\$43.63750	143.63750		Seplex	Auto		13	None	100.0 Hz		Off	Auto	13	High	13	13	13	13	13	13	13	13	13	
13	343.65000	143.65000		Sinplex	Auto		13	None	100.0 Hz		off	Auto	12	High		13	12	13	1	13		1	1	
4	243.66250	143.66250		Sepiex	Auto			None	100.0 Hz		OFF	Auto		High	1	1	13		1	1	13			
15	\$43.67500	143.67500		Sepiex	Auto		13	None	100.0 Hz		Off	Auto	13	High	13	13	13	23	13	13				
6	243.68750	343.68750		Sepier	Auto			None	100.0 Hz		Off	Auto		High	1					1	1			
2	143.70000	143.70000		Serpiex	Auto		13	None	100.0 Hz		Off	Auto	13	High	13	13	13	13	13	13	100			
18	143.71250	143.71250		Sinplex	Auto		1	None	100.0 Hz		off	Auto		High	E3			13	13	13	1			
9	343.72500	343.72500		Supjex	Auto			None	100.0 Hz		Off	Auto		High		13	10		E	123				
0	143.73750	143.73750		Sinplex	Auto		13	None	100.0 Hz		Off	Auto	. 3	High	1				13	13	13			
1	243.79000	243.75000		Singlex	Auto			None	100.0 Hz		Off	AURO		High		1			1	1		<u> </u>		
2	\$43.76250	143.76250		Sinplex	Auto		1	None	100.010		0/1	Auto		High		0		0	1	11	1	0	0	
3	343.77500	143.77500		Sinplex	Auto		13	None	100.0 Hz		Off	Auto		High	1	13	1	1	1	12		1	1	
4	243.78750	143.78750		Singlex	Auto			None	100.0 Hz		OFF	Auto		High	-				1					
6	\$43.80000	147.80000		Sinplex	Auto		13	None	100.0 Hz		Off	Auto		High	13	13	13	13	13	13	13	13	1	
6	343.81250	143.81250		Sinplex	Auto	SINFLE	-	None	100.0 Hz		Off	Auto		High	-					13		1		
7	143.81500	143.82500		Serpiex	Auto	SIMPLE		None	100.0 Hz		OFF	Auto		High	1				1					
1	\$43.83750	143.83750		Snpex	A,40	SINPLE	1	None	300.0 Hz	023	Off	Au/00		High	1	13	13	1	1	13	13	10	1	
	343.85000	343.85000		Septex	Auto	SIMPLE		None	100.0 Hz	023	Off	Auto	1	High		C	- E	13	1	6	6			_
4	 H Hem 	ories Limit Me	enories 📈	VF0 / Home	•										4									

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.

1	Lindo	Chi+2	24	8										
F	0.¢	CMHX CMHC	set chan	Operating Node	None	Show Name	Tane Made	CTCSS	DCS	Skip	Step	Clock. Shift	Tx Power	Te Narov
С.	Paste	Collect	х .	FN 🔹			None -	100.0Hz 🗢	023	01	25kHz -		High 🗢	
	officer.			FN		Г	None	100.0 Hz	023	01	5kHz	Г	High	F
	Simple Mode			FN		Г	None	100.0Hz		Off	5 kHz	Г	High	
	Find	ChdeE		FN		<u> </u>	None	100.0Hz		01	5kHz		High	
	Pinelline	17		FN		Г	None	100.0Hz		01	5kHz		High	
	Coto Channel	Childe		FN			None	100.0Hz		01	5KHz		High	
	2000 Ordinerin	Sund	-	FN		Г	None	100.0Hz		01	5kHz	Г	High	
	[rsert Channel	Shift+Ins		FM			None	100.0Hz	023	01	5kHz		High	
	Delete Channel	Shift+Cel		FM		1	None	100.DHE	023	01	5 KHz	1	High	
	Gear Channel			FM		1	None	100.DH2	023	01	5kHz	1	High	<u> </u>
11	Move Up	Chi+U		FN			None	100.0H2	023	01	5KHz	1	High	<u> </u>
11	Move Costn	ChileD	-	FM		- E	None	100.DH2	023	01	510Hz	1	High	- D
			-	FM		- F	None	100.DH2	023	01	5KHE	E	High	<u> </u>
1	Add Frequency Range.		-	FM		1	None	100.DH2	023	01	5KHz	- F	High	<u> </u>
1	Sort		-	FN		- F.	None	100.DHz	023	01	5kHz	<u> </u>	High	<u> </u>
	tinda Sort		-	FM		1	None	100.DH2	023	01	51.Hz	-	High	
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Contraction of the			1.11			1.4.1	-		1				1.	P

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.

Receive	Transmit	Offset	Offset	Operating		The start	07010	Rx	0.00	DCS			Real .	Bank	diment.	
requent	Frequency	Frequency	Direction	Mode	reame	None L	LISS SHE L	CTCSS	DUS (Polarity	JOW D	15 kHz	Dank	Channel	Conners	
140.000	00 ++0.0000	0	Sinplex	FM		None	88.5Hz	88.5Hz	023	Both N	017	251042				
	-	-					-			-	-	-				
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From the menu at the top of the screen, use your mouse to left click on Edit. From the menu that appears, use the mouse to left click on Paste.

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

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

n	-	Undo	chi+2	101											-
-	F	O.¢	Colex	bet chan	Operating Node	Nore	Show Name	Tane Made	CTCSS	DCS	Skip	Step	Clock. Shift	Tx Power	Te Narov
1		Ender 1	Children	R.	FN		F	None	100.0 Hz	023	01	25 kHz	E	High	E
2		From	Contra		FN		E	None	100.0Hz	023	OIT	5 kHz	Г	High	Г
3		Simple Mode			FN		F	None	100.0Hz	023	OIT	5 kHz	Г	High	Г
1		mad	air		FN		- F	None	100.0Hz	023	OIT	5 kHz	Г	High	E .
5		Fugur	CUIFF		FM		- F	None	100.0Hz	023	01	5 kHz	Г	High	E .
1		Findinger.	10		FN		- F	None	100.0 Hz	023	01	5 kHz	Г	High	E
1		goto Channel	CDHG		FN		Г	None	100.0Hz	023	01	5 kHz	Г	High	E
1		Insert Channel	shit+hs		FN		Γ.	None	100.0Hz	023	01	5kHz	Г	High	L.
1		Dalaba Channal	Shibular		FN		Г	None	100.DHz	023	01	5kHz	Г	High	17
Û		Class Channel			FN		- Г.	None	100.0Hz	023	01	5 kHz	Г	High	L.
1		Mean Lie	Children		FN		- F	None	100.0Hz	023	01	5kHz	Г	High	E
2		Marin Court	Control		FM		E	None	100.0Hz	023	01	5 kHz	Г	High	- E
3	-	PIONE COMI	CUMP	_	FN		- E	None	100.0Hz	023	01	5 kHz	E	High	- E
1		Add Frequency Range.			FN		- E	None	100.0Hz	023	01	5 kHz		High	E
5		Sort			FN		- F	None	100.0Hz	023	01	5 kHz		High	- E
6		Undo Sort			FN		- E	None	100.0Hz	023	01	5 kHz		High	- E
r.	-						- E						Г		- E
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3							E						E .		. E
L							- IT -					_	- E		C
5							- F						- E		C

The information is pasted into the selected channels.

11.12.13 11.12.23		Receive Frequency	Transmit Frequency	Offset Frequency	Offset	Operating Node	Name	Tone Mode	CTCSS	Rx CTCSS	DCS	DCS Polarity	Skp	Step	Bank	Bank Channel	Comment	
H3.3780 H3.3780 Hales PM Differ		243.38250	143.36250	L.	Sinplex 🖌	IPM G	SIMPLE	None 🗐	100.0 Hz	67.0 Hz	. 023	Bath N	- Off	w 5kHz w				
91.8000 1.81400 Senier PM SSPAL Nore 0.0101 0.011 <		243.37500	143.37900		Sinplex	FM	STYPLE	None	100.0 Hz	67.0 Hz	023	Both N	Off	5 kHz				
11.0000 Seque: PM Seque: North Seque: North Seque: 11.0000 Seque: PM Seque: Se		343.38750	143.38750		Sinplex	PM	504PL8	None	100.0 Hz	67.0 Hz	023	Sath N	Off	\$ kttr				
24-123 24-128		143.40000	143.40000		Sinplex	PM	STYPLE	None	100.0 Hz	67.0 Hz	023	Bath N	off	5 842				
HA 1000 Here Marc Doloring Coloring		243.41250	143,41250		Singlex	PM	STYPLE	None	100.0 Hz	67.0Hz	023	DOTH N	Off	5 892				
14.500 145.0000 145.000 145.000		243.42500	143.42500		Sanplex	194	GRAND	None	100.0 Hg	67.0112		DOD N	Off	294				
14.2020 15.2021		242,40750	142.40730		simplex	100	CANNER	repric	100.010	67.0112	023	0001114	off	51012				
19 19 19 0000 Neee 10014 01014		143 46260	142 46255		Constant	CN .	10 M TD	None	100.0 Mz	67.0 Mg		Dotte N	01	5 KPIE				
19 13 13 13 13 13 13 14 15 16 15<		141 47500	143 47500		Consign	EM.	100000	None	100.0 Hz	67.010+	022	Do the Di	04	C been				
91 91 90 91 90 91 91 90 91 90 91 90 91 90 91 90 91 90 91<		243.48750	143,48768		Singles	PM .		None	100.0 Hy	62.0 Hz	023	BathN	OFF	5 kHz				
19 19 <th10< th=""> 19 19 19<!--</td--><td></td><td>542,58000</td><td>143.50000</td><td></td><td>Singlex</td><td>FM</td><td>-</td><td>None</td><td>100.0 Hz</td><td>67.0 Hz</td><td>023</td><td>SathN</td><td>Off</td><td>5 kHz</td><td></td><td></td><td></td><td></td></th10<>		542,58000	143.50000		Singlex	FM	-	None	100.0 Hz	67.0 Hz	023	SathN	Off	5 kHz				
19 19<		143.51250	143.51250		Singlex	PM		None	100.0 Hz	67.0Hz		Soth N	Off	Skrte				
Hollow Service PM None Booler 67.00 Service 14.5300 Service Service Service Service Service 14.5300 Service Max Service Service Service 14.5300 Service Max Service Service Service 14.5301 Service Max Service Service Service 14.5501 Service Max Service Service Service Service 14.5501 Service Service Service Service Service Service Service 14.5501 Service Service Service	3	143.52500	143.52500		Simplex	FM		None	100.0 Hz	67.0 Hz	023	Bath N	Off	5 kHz				
Bit Stoppin Bingles PM None Bit Stoppin Bit Stoppin </td <td>٠</td> <td>143.53750</td> <td>143.53750</td> <td></td> <td>Singlex</td> <td>FM</td> <td></td> <td>None</td> <td>100.0 Hz</td> <td>67.0 Hz</td> <td>023</td> <td>Bath N</td> <td>Off</td> <td>5 kHz</td> <td></td> <td></td> <td></td> <td></td>	٠	143.53750	143.53750		Singlex	FM		None	100.0 Hz	67.0 Hz	023	Bath N	Off	5 kHz				
10 10<	5	\$43.55000	143.55000		Sinplex	PM		None	100.0 Hz	62.0 Hz	023	Soth N	Off	5 1012				
2015/000 131/200 Service PM Nove 100/14/2 201/14 Service 101/2000 101/2000 Service PM Nove 00/14/2	5	343.56250	143.56250		Sinplex	PM		None	100.0 Hz	67.0 Hz	023	Bath N	off	5 kHz				
94.5879 14.879 Englise PM None 100.016 (7.61) 130 Enh Off 190 10.6600 13.6420 Series PM None 100.016 (7.61) (3.3) Enh Off 190 10.6120 Series PM None 100.016 (7.61) (3.3) Enh Off 190 10.6120 Series PM None 100.016 (7.61) (3.3) Enh Off 190 10.6120 Series PM None 100.016 (7.61) (3.3) Enh Off 190 10.6120 Series PM None 100.016 (7.61) (3.3) Enh Off Series 10.6120 Series PM None 100.016 (7.61) (3.3) Enh Off Series 10.61200 Series PM None 100.016 (7.61) (3.3) Enh<	7	243.57500	143.57500		Singlex	194		None	100.0 Hz	67.0 Hz	023	0019114	OFF	5 kHz				
316.0000 Singles PM Name 100-147 C7-114 C7-114 <td>1</td> <td>\$43.58750</td> <td>143.58750</td> <td></td> <td>Sinplex</td> <td>FM</td> <td></td> <td>None</td> <td>100.0 Hz</td> <td>67.0112</td> <td>023</td> <td>Buth N</td> <td>Off</td> <td>\$ 10 02</td> <td></td> <td></td> <td></td> <td></td>	1	\$43.58750	143.58750		Sinplex	FM		None	100.0 Hz	67.0112	023	Buth N	Off	\$ 10 02				
19.6.253 19.6.258 19.6.		343.68000	143.60000		Sinplex	FM .		None	100.0 Hz	67.01/2	023	Doth N	off	5 10 12				
341.4200 341.4200 Sequer PM Nore 10.0116 (7.016 0.33 Barhi OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.016 0.33 Barhi OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.016 (2.33 Barhi OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.31 Barhi OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.31 Barhi OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.116 OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.116 OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.116 OF Sequer 341.4200 Sequer PM Nore 10.0116 (2.016 OF Sequer 341.7200 Sequer PM Nore 10.0116 (2.016 OF <td>2</td> <td>243.61250</td> <td>143.61250</td> <td></td> <td>Simplex</td> <td>FM</td> <td></td> <td>None</td> <td>100.0 Hz</td> <td>67.0 Hz</td> <td></td> <td>Seth N</td> <td>OFF</td> <td>5 kHz</td> <td></td> <td></td> <td></td> <td></td>	2	243.61250	143.61250		Simplex	FM		None	100.0 Hz	67.0 Hz		Seth N	OFF	5 kHz				
Pickasso		\$43.63500	142.62500		Sinplex	FM		None	100.0 Hz	67.0H2	023	Bath N	Off	\$ 10-02				
14.5500 15.500		343.63750	343.63750		Simplex	PM CH		None	100.0 Hz	67.0Hz		Dath N	Off	5 10 12				
143.700 143.700 174.700 <t< td=""><td>2</td><td>245,65000</td><td>143.65000</td><td></td><td>Sergeex</td><td>104</td><td></td><td>Norse</td><td>100.0 Hz</td><td>67.0H2</td><td></td><td>Coltri N</td><td>Off</td><td>Same</td><td></td><td></td><td></td><td></td></t<>	2	245,65000	143.65000		Sergeex	104		Norse	100.0 Hz	67.0H2		Coltri N	Off	Same				
Pickard Pickard <t< td=""><td>1</td><td>245,66230</td><td>242.00230</td><td></td><td>Serpex</td><td>100</td><td></td><td>None</td><td>100.0 Hg</td><td>67.0 H2</td><td></td><td>Sati N</td><td>Off</td><td>5 1012</td><td></td><td></td><td></td><td></td></t<>	1	245,66230	242.00230		Serpex	100		None	100.0 Hg	67.0 H2		Sati N	Off	5 1012				
19 19<	2	243.07300	143 49 260		Simplex	EN4		None	100.0 Hz	67.0112	023	0011114	Off	2 804				
19/17/200 19/17/200 <t< td=""><td>,</td><td>143,00730</td><td>143.00730</td><td></td><td>Sincley</td><td>EM.</td><td>-</td><td>None</td><td>100.0 Hz</td><td>67.0 Hz</td><td>023</td><td>Bath N</td><td>01</td><td>5 kruz</td><td></td><td></td><td></td><td></td></t<>	,	143,00730	143.00730		Sincley	EM.	-	None	100.0 Hz	67.0 Hz	023	Bath N	01	5 kruz				
19 19 10<		545 71250	143 71258		Genelary	PM.		Mone	100.0 Hz	67.0 Hz		Sath N	OF	S Detty				
1 242,7230 243,2736 Omplex PM None 000-14 62,014 62,33 SmM1 Off Strip 242,7250 143,7256 Gmplex PM None 100-14 62,0	5	243.72500	143,72500		Sindlex	PM .		None	100.0 Hz	67.0 Hz	023	DathN	Off	Sing				
19/1.7000 10/1.7000 Grayle PH None 10/0.1% Grayle PH None 10/0.1% Grayle Control Grayle <th< td=""><td>5</td><td>243,73750</td><td>143,73750</td><td></td><td>Sincley</td><td>FM</td><td></td><td>None</td><td>100.0 Hz</td><td>67.0Hz</td><td>023</td><td>Seth N</td><td>OFF</td><td>Silve</td><td></td><td></td><td></td><td></td></th<>	5	243,73750	143,73750		Sincley	FM		None	100.0 Hz	67.0Hz	023	Seth N	OFF	Silve				
191.7250 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.72500 191.725000 191.725000 19		\$43,79000	\$43,75000		Singles	EM		None	100.0 Hz	67.0 Hz	023	Buth N	Off	SkHar				
1947,7500 1947,7700 1947,7700 <t< td=""><td>2</td><td>343.76250</td><td>143.76250</td><td></td><td>Simplex</td><td>FM .</td><td></td><td>None</td><td>100.0 Hz</td><td>67.0 Hz</td><td>023</td><td>Doth N</td><td>off</td><td>5 1012</td><td></td><td></td><td></td><td></td></t<>	2	343.76250	143.76250		Simplex	FM .		None	100.0 Hz	67.0 Hz	023	Doth N	off	5 1012				
945.7000 IA3.70780 Brevier PM None 100-147 Gamma Sinth Off Sinth 943.8000 Single PM None 100-147 Gamma Gamma Sinth Off Sinth 943.8001 Single PM None 100-147 Gamma Gamma Sinth Off Sinth 943.8001 Single PM Sinth Non Gamma Gamma Sinth Off Sinth 943.8001 Sinthe PM Sinth Off	3	243.77500	143.77500		Simplex	FM		None	100.0 Hz	67.0 Hz	023	BathN	OFF	5 kHz				1
HALBOOD HALBOOD Emplex PM None 1000141 G70141 Strip HALBOOD HALBOOD Service PM None 1000141 G70142 031 Istrip Service PM Service PM <td>4</td> <td>\$42,79750</td> <td>142.78750</td> <td></td> <td>Sinplex</td> <td>FM</td> <td></td> <td>None</td> <td>100.0 Hz</td> <td>67.0 Hz</td> <td>023</td> <td>Bath N</td> <td>Off</td> <td>§ kHz</td> <td></td> <td></td> <td></td> <td></td>	4	\$42,79750	142.78750		Sinplex	FM		None	100.0 Hz	67.0 Hz	023	Bath N	Off	§ kHz				
308.3250 168.4258 Service None 100.110 67.010 53.001 Service 308.3250 168.4259 Service PM SSVAE None 100.0110 67.0110 Strep 308.3259 Service PM SSVAE None 100.0110 67.0110 033 Streni Off Strep 308.3259 Service PM SSVAE None 100.0110 67.0110 033 Streni Off Strep 308.3259 Service PM SSVAE None 100.0110 67.0110 Strep 308.3259 Service PM SSVAE None 100.0110 62.0110 037 Strep 308.3259 Service PM SSVAE None 100.0110 63.0110 Off Strep 308.3159 MA3.07580 Service PM SSVAE None 100.0110 63.0110 Off Strep 308.3159 MA3.07580 Service PM <t< td=""><td>5</td><td>243.80000</td><td>343.80000</td><td></td><td>Simplex</td><td>PM</td><td></td><td>None</td><td>100.0 Hz</td><td>67.0 Hz</td><td></td><td>Sath N</td><td>Off</td><td>5 kHz</td><td></td><td></td><td></td><td></td></t<>	5	243.80000	343.80000		Simplex	PM		None	100.0 Hz	67.0 Hz		Sath N	Off	5 kHz				
H1.8250 Singler PM SSPMLE None 100-117 67.012 50.01 51.912 53.8350 14.8250 Singler PM SSPMLE None 100-117 67.012 0.03 Sin N Off SHirp 54.83500 14.83500 Singler PM SSPMLE None 100-117 67.012 0.03 Sin N Off SHirp 50.83500 14.83500 Singler PM SSPMLE None 100-117 67.012 0.03 Sin N Off SHirp 50.84501 Singler PM SSPMLE None 100-117 67.012 0.03 Sin N Off SHirp 50.84501 Singler PM SSPMLE None 100-117 67.012 0.03 Sin N Off SHirp 50.84501 Singler PM SSPMLE None 100-117 67.012 0.03 Sin N Off 51.912 50.84501 Singler PM	5	143.81250	143.81250		Simplex	PM	SOMPLE	None	100.0 Hz	67.0 Hz	023	Bath N	Off	5 kHz				
HillS201 HillS201 Service More L00.0112 67.112 Service Service HillS201 HillS2001 Service Mill <s2001< td=""> Service Mill<s2014< td=""> Service Service</s2014<></s2001<>	7	243.82500	143.82500		Sinplex	FM	STYPLE	None	100.0 Hz	67.0 Hz	023	Buth N	Off	5 kHz				
341.5500 Sanjes PM S2942.5 None 100.011 67.011 Sinh Off Sink 343.5501 Sinkes PM S2942.5 None 100.011 67.011 0.03 Sinh Off Sink Sink Off Sink Sink Off Sink Sink Off Sink Sink<	5	143.83750	143.83750		Sinplex	PM	STANG	None	100.0 Hz	67.0 Hz	023	Soth N	Off	5 8707				
103.84230 143.84230 Binley PM S2MPUE Note 100.01% 67.01% 033 Binlin Off Silve 143.87330 Binley PM S2MPUE None 100.01% 67.01% 033 Binlin Off Silve)	143.85000	143.85000		Sinplex	PM	STYPLE	None	100.0 Hz	67.0 H2	023	Bath N	off	5 842				
243.87500 343.87500 Simplex PM SIMPLE Note 100.011/ 0.03 ISUNN OF Simplex	2	243.86250	143.86250		Singlex	PN	STYPLE	None	100.0 Hz	07.0H2		DO DO N	OT	2.66				
		543-87500	143.87500		Sandiex	FR	SPIPLE	None	100.0 Hg	67.0 Hz	023	Do th N	or	2.04				
	4																	
	5																	
	6																	
	-																	

You can make this process even easier by splitting the screen into two parts. Select Window New Vertical Tab Group for this result.
- Fr	Receive	Turney of												Copy and	Pante X										
1		Frequency Freq	set 0 arrcy De	rection	Operating Mode	Name	Shew Name	Tone Mode	CTCSS	DCS	Skp	Shep		Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Tone Mode	CTCSS	Rx CTCSS	DCS	OCS Polarity	54
1	43.25000	143.25000	w]Smpi	iex 🖉 4.	to 💽	SOMPLE	17	None w	100.0 Hz	023	w]Off	w Auto	0	143.36250	143.36250		Smplex .	FM .	SIMPLE	None 💌	100.0 Hz	67.0 Hr	023	Both N D	• Off
-	43.26250	143.26250	Sinp	iex A	40	SIMPLE	E	None	100.0 Hz	023	011	AU/10	1	143.37500	143.37900		Simplex	FM	SIMPLE	None	100.0 Hz	67.0 Hz	023	Both N	0#
	43-27500	143.27500	Sinp	iex A	<i>to</i>	STANK	1	None	210.001	023	Off	AU/10	2	143.38750	143.38750		Smplex	PM	STABLE	None	300.0 Hz	67.0 Hz	023	Soth N	0#
	43.28750	143.28750	Sinp	fex A	46	STYPLE	13	None	100.0 Hz	023	Off	Auto	3	143.40000	143.40000		Smplex	PM	SIMPLE	None	100.0 Hz	67.0 Hz	023	Both N	017
1	43.30000	143.30000	Sinp	Fex A	/10	STYPLE	10	None	100.0 Hz	023	Off	AUTO	1	1+3.+1250	143.41250		Smplex	PM	STYPLE	None	100.0 Hz	67/0112	023	Both N	off
<u>()</u>	43.31250	143.31250	Sinp	fex A	do.	STAPLE		None	VP10-001	023	Off	Auto	5	143.42500	(43.42500		Simplex	FM	GRAND	None	100.014	67.0 Hz	023	Soth N	orr
-	43.32500	143.32500	Sinp	SEX AL	40	STYPLE	10	None	100.0 Hz	023	Off	Auto	6	143.43750	143.43750		Simplex	PM	DOWN	None	100.0 Hz	67.0 Hz	023	Doth N	Off
	43.33750	143.33750	Deep	Sex A	10	SPACE		None	100.0 Hz	023	Off	Auto	7	143.45000	143.46000		Simplex	PM	CANYON	None	100.0 Hz	67/0912	023	Doth N	Off
	41.3600	14,1,150,00	Sub	NEX AL	A0	20468	- 61	reorie	200.0140	023	Off	AUTO		14,7.46,230	2411-49120		Subsc		CO-OP	none	20010140	6.730 PD	0.23	alloch re	Off
2 2	43.36250	143.36250	sinp	SEX AL	20	SJUPLE		None	100.0 HP		Off	dtub	2	143.47500	543.47500		smplex	FM	1000.40	none	100.010	67.0 H2	023	Doth N	011
1 1	43.37900	143.37500	Sinp	SEX AL	10	SPALE		None	100.0 Mz		011	Auto	10	143.48750	143.48750		Simplex	PM		None	100.0 Hz	67/0Hz		Both N	011
4	41.08/90	141.08790	Sub	HEN DA	A9	SJOLE		rearie	200.0 Hg	023	Off	AL/10	11	143.90000	243.90000		sinplex			none	200.0 HD	6770 H2	028	BOCH PE	UT
	42,41262	143.41060	Sing	ier A	A00	37452	1	None	100.040	023	044	4.00	10	142 63644	142 63644		Simplex	EM .		Note	100.0 Hz	47.044	043	Rock IV	OF
	43,41501	143.41250	Smp	ier A	40.	Spenc		Nore	100.0 Hz	023	Long Long	0110	13	143.52500	143 52500		Simplex	EM .		None	300.0 Hz	67.0.02	023	Bath N	0.0
	10.01263	143 41260	SAD	A A	da .	0000	12	Hannie	100.046	023	Off	4010	1.4	143 55790	143.55/90		Omplex			Second	100.010	67.0 Mg	0.12	Beth II	OF
	43 45000	143 45000	Serie	ies A	AD.	CANNER	100	Name	100.0 kg	023	00	4.00	15	143 56250	143 54750		Simplex Secolec	EM.		Note	100.0 Hz	67.050	012	BARD IN	05
-	43.45000	143.43000	Serp	ACK AL	40	CANTON	100	None	100.0 Hz	023	off	4.00	10	143.36230	143.56250		Simplex			none	200.0112	67.0112	042.5	Both III	off
2 1	43 47500	143,42200	Cont	Nex A	AD	1000	12	None	100-010	023	011	4,00	10	143.57300	143 58750		Complex	THE OWNER		None	100.014	67.014	022	Dooth IN	01
	41.47500	141.47300	Sanp	ies A	44	100.40	(W)	None	100.010	023	off	AU100	10	143.58750	147.00000		Smplex			Tione	100.014	07.014	043	mush m	Off
1	43 65655	143 50000	- Serie	feer A	40			Nume	100.010	0.00	or	1.00	- 23	142.61200	142,64350		Complex	Child State		None	100.014	67.0.14	04.0	Doub IN	or
2 1	43 51753	143 51258	Cont	iev A	AD		- 14	None	100.048	023	00	4.00	21	143/61230	142.63500		Consiev	EM .		None	100.014	67.0.0+		Doth N	0#
	43 53504	141 51600	Cont	ies A	da.		- 14	Neme	100.010	023	OF	Auto I	22	143.42300	14141700		Coming	and a		Nera	100.0 Mg	67,034	022	Reth N	05
	42 62768	143 53356	Cont	and the	A0.		121	Marce	100.044	0.02	0.00	4.45	22	142 65000	142.65100		Constant	CM .		Note	100.014	62.0.01	012	Durk N	0.0
-	41 550/58	141 5500	Serie	ier h	AD	-	1	None	100.0 Hz		04	400	24	147.66750	141.66150		Smplex	EM		None	100.0141	67.0.01		Both N	0#
	28 66763	143 56250	Gene	ier L	de.		10	Name	100.0 Hz	023	08	Auger a	1.2	143.67500	143.67600		Geneliev	EM.		Dana	100.0 Hz	67.0 Hz	028	Roth IV	OF
1	43 67614	147 57556	See	ier h	AD.		1	Marce	100.040	10.92	0.00	Augo	1	147 69750	142 49750		Service .	EM		None	100.0 Hz	67.0.47	1412	Borth N	0#
	43.58758	141.50250	See	ier h	10		11	None	100-010		01	4/02	27	143.20000	143,20000		Service	PM .		None	100.014	67/1112	023	Both N	0.0
	43.60000	143 60000	Car	fer b	65		121	North	100.0 Hz	023	011	4.00	28	143 71250	143 71250		Service	114		Binna	100.0 Hz	ATONE		Both N	OF
0 1	41.61250	143.61250	Santi	iry b	60		10	None	100.0 HP	023	Off	4.00	1 2	143,72500	143 72500		Samiley	PM		Tarre	100.014	ATONY	023	Porth N	OF
4 7	41.61500	143,62500	See	ies h	An.		1 M	Norm	100.010	023	Off	A-02	20	143,21250	143,71750		Service	FM		Dista	100.014	67.0 Hz	023	Both N	OF
2 2	43.63750	143.63750	Sing	iex A	AD .		1	None	100.0 Hz	023	Off	Auto	31	143,75000	543,75000		Smolex	FM		None	100.01Hz	67.0 Hz	023	Both N	Off
a 7	11.61000	143.65000	Gene	iry h	én.		17	Nome	100.0 Hz	023	OFF	Auto	37	143,25250	143 26250		Service	194		None	100.0144	67.0 Hz	023	Both N	OF
4	43,66250	143,66250	See	iev A	do.		171	None	100.0Hz	023	Off	A-02	33	143,72900	143,77900		Smolex	EM		None	100.0 Hz	67.0 Hz		Roth N	Off
5 7	43.67500	143.67500	Sinp	iev h	do.		11	None	100.0 Hz	023	Off	Auto	34	143,79750	143,79750		Smplex	FM		None	100.0Hz	67.0Hr	023	Both N	off
6 7	43.68750	143.68750	See	ier le	de .		171	None	100.0 Hz		OFF	Auto	35	143,80000	143,80000		Section	FM		None	100.0 Hz	67.0 Hr		Both N	OFF
7 7	43.70000	143.70000	Sing	iex A	40		E	None	100.0 Hz	023	Off	Au/10	36	143.81250	143.81250		Simplex	FM	SIMPLE	None	\$30.0 Hz	67.0 Hz	023	Both N	Off
8 7	43.71250	143.71250	Sinpl	iex A	.to		1	None	100.01tg	023	Off	Auto	37	143.82500	143.82500		Smplex	PM	STAPLE	None	100.0 Hz	67.0 Hz	023	Both N	0#
3 7	43.72500	143.72500	Sinpl	Sex A	40		173	None	100.0 Hz	023	Off	Auto	38	143.83750	143.83750		Smplex	FM	STYPLE	None	300.0 Hz	67.0 Hz	023	Both N	Off
3 7	H3.73750	143.73750	Sinp	iex A	40		13	None	100.0 Hz	023	Off	AUTO	39	143.85000	143.85000		Smplex	FM	STYPLE	None	100.0 Hz	67.0 Hz	023	Both N	Off
3 7	43.75000	143.75000	Sinpl	fex A	do.		11	None	yrt 0.000	023	Off	Auto	40	143.86250	143.86250		Smplex	FM.	STAPLE	None	\$20.0 Mg	67.0 Hz	023	Both N	off
2 7	43.76250	143.76250	Sinp	iex Au	do.		1	None	100.0 Hz	023	off	Auto	41	143.87500	143.87500		Simplex	PM .	STYPLE	None	300.0 Hz	67.0 Hz	023	Doth N	off
3 7	43.77508	143.77500	Sinpl	iex A	10		1	None	100.0 Hz	023	Off	Auto	42												
6 7	43.79750	143.78750	Sinpl	fex A	do.		13	None	100.0 Hz	023	Off	Auto	40												
5 7	43.00000	143.00000	Sinp	iex A	do.		17	None	100.0 Hz	023	Off	Auto	44												
5 7	43.81250	143.81250	Sinpl	iex A	/m	STIPLE	11	None	100.0 Hz	023	OFF	Auto	45												
7 7	43.82900	143.82900	Sinp	iex A	40	STARLE	13	None	100.0 Hz	023	Off	Au/10	-46												
8 7	43.83750	143.83750	Smp	iex A	do,	STIPLE	13	None	100.0 Hz		Off	Auto	47												
9 2	43.85000	143.85000	Sinp	iex A	40	SOMPLE		None	100.0 Hz	023	Off	Auto	48												
3 7	43.86250	143.86250	Sinp	iex A	40	STYPLE	- 23	None	100.0 Hz		Off	AUTO	-19												
1 7	43.87500	143.87500	Sinpl	fex A	do,	STIPLE	13	None	100.0 Hz	023	Off	Auto	50												
2 2	43.88750	143.88750	Sinp	icx A	40	534918	1	None	100.0 Hz	023	Off	Auto	51												
3 7	13.90000	143.90000	Singl	fex A	10		1	None	100.0 Hg	023	OFF	AUTO	52												

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.

<u>Text Cell Editing</u> - 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.

_	June , and	and A																						_
	Receive Frequency	Transmit Offset Frequency Frequenc	Offset Direction	Operating Mode	Name	Shew Name	Tone Mode	CTCSS	DCS	Skp	Step	Ciela Shift	Tx Power	Tx Narrow	Pager Ervable	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Sank 6	Bank 7	Bank 8	Ber
1	343.25000	143.25000	Subjex a	Auto .	STYPLE	1	ione 📼	100.0 Hz	023) Off	w Auto w	- 13	High 💌	-	1	1	13		E .	1	13			
2	243.26350	143.26250	sopex	AL00	STYPLE		Nore a	100.0 Hz		Off	AU/00	- 13	High			13					- 13	- 13		
2	243.27500	143.27500	Singley	AL10	57915	- 12	TSØ H	100.0 Hz		Off	AU (10)	- 12	righ		10	10			- 12-	- 12	- 10		- 12	
	141 20000	143 20000	Singley	0.00	574915	- 14	Rev CTC	100.010		00	A (0)	-14	Marks.	- 24	11	11	11	- 24	14	11	10	100	- 24	
5	143.31258	143.31250	Singley	A.40	SIMPLE	11	D Cade *	100.0 Hz		off	A.02	- 14	High	11	- H	11	11	10	11	-H-	11	11	11	
2	243.32500	143.32900	Singlex	A.10	STIFLE	P	None	100.0 Hz		Off	Auto	- 21	High	- 14 -	- M	1	10	1	P	Pi -	- 14	8	- 14 -	
3	243.33750	143.33750	Singles	Auto	574915	11	None	100.0 Hz	023	Off	Auto	- 11	High	11	11	11	11	PI	11	Pl	11	17	11	
9	\$43.35000	143.35000	Sinplex	Auto	SOMPLE	11	None	100.0 Hz		Off	Auto	173	High	11	11	11	13	1	11	171	173	11	12	
10	343.36258	143.36250	Sinplex	Auto	STYPLE	12	None	100.0 Hz		Off	Auto	12	High	1	1	1	1	1	1	13	12	12	10	
1	243.37500	143.37500	Simplex	Auto	STYPLE	12	None	100.0 Hz		Off	Auto	1	High	1	1	1	1	1	1	11	23	10	1	
12	\$43.38753	143.38750	Sinplex	ALTO	STYPLE	- 63	None	100.0 Hz	023	Off	AL/00	123	High	12	13	13	13	1.1	13	13	23	12	- 83	
13	343.40000	143.40000	Sinplex	Auto	STYPLE	13	None	100.0 Hz		Qff	AL/10	12	High	- 23	11	13	23	1	2	13	23	1	12	
14	143.41250	143.41250	Sinplex	Auto	SIMPLE	13	None	100.0 Hz		Off	Auto	- 83	High	- 13	13	13	- 13	1.	13	13	13	13	- 13	
15	143.42500	143.42500	Sinplex	Auto	GRAND	N)	None	100.0 Hz		Off	A(J10	- 13	Hgh			13	- 13			- 13		12	- 13	
35	143.43758	143.43750	Sinplex	Auto	DOWN	80	None	100.0 Hz		Off	AL/10		High							1				
17	243.45000	143.45000	Sinplex	Auto	CANTON	191	None	100.0 Hz	023	Off	Auto	- 13	Hgh		11	10	13		11	13	13	12	- 12	
22	243.40250	143.40230	Subsex	AUTO	KUH0P	N.	None	200.010		ON	AU10	- 61	regn											
29	543.47500	143.47500	Serbex	AL10	100.40	140	reprine	0000102	023	on	AU30	- 61	righ		- 10					- 10				
20	243.48750	143.40730	sinpex	AUTO			rearie	200.010	023	off	ALCO A	- 10	regn				10			111	121	10		
22	143 51753	143.51258	Service	A.00		- 12	None	100.0 Mz		0#	4.00	-8-	High	- 12	- 12	- 11	- 12 -	- 8-	- 14	- 11-	- 12-		- 21	
27	141 52500	143.52500	Generation	Auto Auto		11	None	100.0 Hz		OFF	Auton .	- 14	1945	10	11	11	11	- 14 -	11	11	11	10	- 14	
24	543,53750	143.51250	Sector	6.00		171	None	100.0 Hz		Off	4.00	- 11	Heb	10	11	11	11	100	171	121	171	10	11	
25	141,55000	141.55000	Sindley	A.10		- Pi	None	100.0 Hz		Off	4.00	- 14	High	1	M	M	11	10	11	PI	11	10	- 14	
28	143.56253	143.56250	Simplex	Auto		121	None	100.0 Hz		Off	Auto	121	High	11	E1	17	121	11	11	FI	123	12	171	
27	243.57500	143.57900	Sinplex	Auto		E	None	100.0 Hz		Off	AU/00	12	High	10	E	E	13	E	E	E	63	10	E	
28	243.58750	143.58750	Singlex	Auto		17	None	100.0 Hz		Off	Au/10	171	High	17	1	21	13	100	17	10	17	10	17	
29	343.60000	143.60000	Sinplex	Auto		- 12	None	100.0 Hz	023	Off	Auto	123	High	10	13	13	12	12	13	12	12	13	10	
30	143.61250	143.61250	Singlex	Auto		E	None	100.0 Hz	023	Off	Auto	23	High		E	E	23	E	1	13	E	23	- E	
31	143.62500	143.62500	Singlex	Auto		1	None	100.0 Hg	023	Off	Ai/10	11	High	1	1	1	1	1	1	1	1	13	1	
22	343.63750	142.62750	Sinplex	Auto		12	None	100.0 Hz	023	Off	Auto	13	High	10	13	13	13	100	12	13	13	100	1	
33	243.65000	143.65000	Singlex	Auto			None	300.0 Hz		Off	Auto	1	High			1	1	1	1	1	1	1	-	
24	\$43.66250	143.66250	Snpiex	A.10		- 13	None	100.0 Hz		Off	Ai/10	- 13	High		13	0	13	- 0-	- 13	0	10	- 13	- 13	
25	143.67500	143.67900	Sinplex	Auto		11	None	100.0 Hz		Off	Auto	- 13	High	_		1				- 13	1		_	
30	245.68758	143.68750	Simplex	Auto			None	100.0 Hz		Off	Auto		High				10							-
17	243.70000	143.70000	Snpex	ALIO			None	100.0 H2		on	AL/10		High			10								
10	143 22600	143 22600	Gentley	A.00		10	None	100.0 Hz		Off	4.00	-8-	Hab	1	1	1	10	1	1	10	10	10	- 10	
40	141,71750	141,71750	Singley	A.00		17	None	100.0 Hz		off	4.00	- 61	Help.	1	P	E FI	10	100	1	E FI	P1	10	10 10	
41	141,75000	141,75000	Sincley	A.40		11	None	100.0 Hz		off	A.(2)	- 14	High	11	11	11	PT -	E I	11	191	11	11	211	
42	143.76250	143,76250	Singley	A.40		P	None	100.010	023	Off	Auto	- 14	High	P	P	PI-	10	E F	P	P	10	10	- Pi	
10	243.77500	143.77900	Singlex	Auto		17	None	100.0 Hp	023	Off	Au/12	10	High	17	11	17	17	11	11	P	17	17	17	
64	\$43.78750	143.78750	Sinplex	Auto		17	None	100.0 Hz		Off	Auto	17	High	17	17	17	17	1	17	11	17	17	17	
45	343.00000	143.00000	Sinplex	Auto		13	None	100.0 Hz	023	Off	Auto	12	High		1	1	12	1	1	1	13	1	1	
46	143.81250	143.81250	Simplex	Auto	STIFLE	17	None	100.0 Hz	023	Off	Auto	171	High	11	11	13	10	1	11	11	11	1	17	
47	143.82500	143.82500	Sinplex	AL10	SIMPLE	E3	None	100.0 Hz	023	Off	Au/10	123	High	13	E	13	13	1.1	E	E3	13	10	13	
48	143.83750	143.83750	Smplex	Auto	STARLE	12	None	100.0 Hz		Off	Auto	173	High	1	13	11	17	1	13	11	12	100	11	
4)	143.85000	143.85000	Sinplex	Auto .	SIMPLE	13	None	100.0 Hz	023	Off	Auto	123	High	13	13	13	13	12	13	13	13	10	83	
50	143.86250	143.86250	Sinplex	Auto	STYPLE	E3	None	100.0 Hz	023	Off	Au/10	173	Hgh	12	E	13	13	13	13	E1	23	23	13	
51	143.87500	143.87500	Sinplex	Auto	STYPLE	13	None	100.0 Htr	023	Off	Au/to		High	- 61	- 13	11	- 13		- 11		1		- 61	
52	143.88750	143.88750	Sinplex	Auto	STIFLE	13	None	100.0 Hz	023	Off	Auto	11	Hgh	1	13	10	10	1	10	10	13	13	1	
53	143.90000	143.90000	Singlex	AURO		- 61-	None	100-0 Mg	023	Off	AURO	- 63	16gh	13	1	10	- 13	1		13	1	1	- 1	

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.

	 Copy and 	rane" X				_		_	_	_		-		_	_		_		_	_	_		_	
	Receive Frequency	Transmit Frequency	Offset Offset Frequency Direction	Operating Mode	Name	Shew Name	Tone Mode	CTCSS	DCS	Skp	Step	Clerk Shift	Tx Power	Tx Narrow	Pager Enable	Sank 1	Bank 2	Bank 3	Bank 4	Bank 5	Sank 6	Bark 7	Bank 8	8
1	243.25000	143.25000	Simplex	Auto	STAPLE		Tone	100.0 Hz	023	Off I	Auto	- 23-	High	-	-				-		1			-
	243.26250	143.26250	wishpex w	(AL00)	5795		19000 W	100.0 H2	023	00	- A/30 -	-8-	High Le		11	10					10			
	142 26263	143 26260	finates	6.40	1000	10	Num	100.0 kg		0.00	4.00	- 10	Note:	- 10	10	10	- 21		- 14	12	10	- 24	- 24 -	
	143 30000	143 20000	Singley	0.00	574915	10	Marce	100.010		0.00	A100	- 24	Marks.	- 24	10	10	11	- 24	14	11	10	100	- 24 -	
	141 31258	141 11250	Singley	6.00	STADLE	11	Norma	100.0 Hz		OFF	4.00	- 14	Hids	- 14	11	11	- 14	10	11	11	11	10	10	
	243.32500	143.32500	Sopiex	Auto	STATE	P	None	100.0 Hz		off	Au/10	-11-	High	- 14	- M	1	10	10	P	Pl -	10	10	- 14 -	
	243.33750	143.33750	Singlex	Auto	5741.5	11	None	100.0 Hz		OFF	Auto	- 11	High	10	11	E1	11	PI	11	Pl	Pl	171	P	
0	\$43,35000	143.35000	Singles	Auto	SIMPLE	11	None	100.0 Hg		Off	Auto	121	High	11	11	17	11	1	11	171	17	17	17	
22	343.36250	143.36250	Simplex	Auto	STYPLE	11	None	100.010r		off	Auto	10	High	10	11	1	10		12	1	1	1		
1	243.37500	143.37500	Simplex	Auto	STYPLE	12	None	100.0 Hz	023	Off	Auto	12	High	10	1	12	1	1	1	11	23	100	1	
12	\$43.38750	143.38750	Sinplex	ALTO	STYPLE	13	None	100.0 Hz	023	Off	Au/00	123	High	12	12	13	13	1.11	13	13	23	100	- 23	
13	343.40000	143.40000	Sinplex	Auto	STYPLE	13	None	100.0 Hz		Off	Au,100	123	High	- 21	12	12	2	1	1	13	23	100	1	
14	143.41250	143.41250	Sinplex	Auto	SIMPLE	13	None	100.0 Hz		Off	Auto	- 12	High	- 13	13	13	13	10	13	13	13	12	13	
15	143.42500	143.42500	Sinplex	Auto	GRAND	N	None	100.0 Hz		off	A(/10	13	Hgh	1	- 13	13	13	1		13	13	12	13	
35	143.43750	143.43758	Sinplex	Auto	DOWN	8	None	310.00t		Off	Au/to	- 63	High		<u> </u>		- 6							
17	243.45000	143.45000	Sinplex	Auto	CANTON	×.	None	100.0 Hz	023	Off	Auto	-12-	Hgh		E	- 6	13			13	13	1		
33	243.46250	143.46250	Singlex	AURO	KUH0P	×.	None	2910-000		Off	AU/10	_0_	High	- 23	- 13	- 6-	- 6	- 6-		1		- 13	1	
:2	\$43.47500	143.47500	Sinplex	Auto	100040	1	None	100.0 Hz		Off	Auto	- 13	High		- 13	13			- 13	13	13	10	11	
20	343.48750	143.40750	Sinplex	Auto			None	100.0 Hz		Off	Auto	- 13	High			13	13			E1	1	10		
21	243.50000	143.50000	Singlex	Auto			None	100.0 Hz		Off	AL/10	- 13	High											
24	244.51250	141.51250	Sinplex	ALCO			reame	200.0 H2		off	AL100	-8-	High	- 63	- 13-	- 61-		- 8-	- 13	10	- 13	- 61	-8-	
2	243.52500	143.52500	Serplex	AUTO			None	00.012		Off	wuno kuno	-8-	ngn			- 6-				- E				÷
24	243.53750	145.55750	Serpex	AL00			Norse	100.0 H2		Off	A/00	-8-	High		- 0	- 8-				0				÷
-	142 66763	112 55 550	Conference	6.44		121	New	100.0 Mg		000	4.00	- 10	Halo .		11	11	121	100	10	12	121	- 21 -	- 21	
27	142 57500	147 57510	Singley	0.00		10	None	100.012		0.00	4.00	- 22	Hall I	- 21	1	1			10	1	1	8	- 8-	÷
14	141 58153	141 58268	Singley	6.00		11	None	100.019		0.00	4.00	- 24	16db	- 14	11	10	10	100	11	11	10	- 24	10	
22	143 60000	141 50000	Contiev	A. 60		11	None	100.0 Hz		Off	4.00	- 14	Helt	10	PI	11	10	10	11	121	11	- 24	10	
70	143.61252	143.61250	fabries	A. 60		10	Norme	100.010		Off	4.00	- 11	1645	- 24	- Pl	11	171	100	11	11	10	100	10	
31	143,61500	143,62500	Sintier	A.00		11	None	100.0102		Off	A.00	11	High	- 24	PI -	PI-	11	PI -	11	11	P	10	H	
22	143.63750	143.63750	Singlex	Auto		1	None	100.0 Hz	023	off	Auto	-11	High	- 19	P	1	1		1	1	1	1	- 11 -	
33	243.65000	143,65000	Singley	Auto		11	None	100.0 Hz		Off	Auto	171	High	11	11	171	171	17	11	171	PI	171	11	
24	143.66250	143.66250	Singlex	A.10		11	None	100.0 Hz		Off	A./10	11	High	11	11	11	17	1	17	17	11	11	17	
25	143.67500	143.67900	Sinplex	Auto		12	None	100.0 Hz		Off	Auto	123	High	17	E1	12	1	1	17	23	12	100	1	
36	243.68750	143.68750	Simplex	Auto		12	None	100.0 Hz		Off	Auto	123	High	23	11	121	13	10	11	171	13	100	11	
37	243.70000	143.70000	Sinplex	ALIO		E3	None	100.0 Hz		Off	AL/00	63	High	- 63	E	13	13	10	6	8	12	100	13	
38	143.71250	143.71250	Sinplex	Auto		11	None	100.0 Hz		Off	AU/00	13	High	10	E1	13	13	10	11	13	13	10	11	
29	143.72500	143.72500	Sinplex	Auto		13	None	100.0 Hz	023	Off	Auto	12	High	10	13	13	13	1.1	13	13	13	13	13	
40	143.73750	143.73750	Sinplex	AUto		13	None	100.0 Hz	023	Off	AURO	- 63	Hgh	E3	13	E	- 63		E3	E3	- 13	1	13	
41	143.75000	143.75000	Sinplex	Auto .		1	None	371 0.001		Off	Ac/10	- 11	High		11	1	- 61		1				- 11	
42	143.76250	143.76250	Sinplex	Auto			None	100.0 Hz	023	Off	Auto	-13	High	10	11	10	13	10	11	11	13	11	1	
63	243.77500	143.77500	Sinplex	Auto			None	100.0 Hz		Off	Auto	- 13	High	-					-			-	-	
99	244.78750	14,1.78750	Sinplex	AL00		0	mone	500.0 H2		on	AL/10	-8-	High	- 13	10	- 8-	- 8-	- 8-	- 10	10		- 61	- 6-	
0	243.00000	143.00000	Sinplex	ALIO	0000		rearie	200.010		off	dirine dirine	-8-	regn	- 51	11	- 6-	10			10				
0	243.81250	143.81250	Singlex	AUTO	Sires(E	- 8-	Norm	100.0 Hz		ott	00,000	-8-	mgn			- 8-				1			- 6-	
1	141.82500	143.82300	Sinpex	ALCO	CONTRACTOR		No.	100.0 Hz		08	1.00	-8-	ings			- 6-	10	- 8-	10	10	10		- 61	
-	142 95000	143 95000	Singles	AL00	5040.5		Nume	100.0 kg		000	A 44	-6-	High .		- 10	- 6-	100			10	10	- 10	- 51-	
50	143 04163	143 04368	Singley	A.40	CHARLE	- 8	Mana	100.01/2		04	A (0)	-8-	High .		1	- 8-	- 10	1	10	10	10		- 61-	
	143 87500	143 87528	Souther	A do	STAD P	1	None	100.0 Hz		off	4.00	-16-	Hab	100	10	10	10	10	10	10	10	10	10	
12	143.88753	143.88748	Singler	8.00	5745.8	H	None	100.0 Hz		Off	Au/10	-18-	Hidt	F	H	10	8	1	F	F	1	1	1	
53	143,90000	141,90000	Singley	4.00		1	None	103.010		Off	4.00	-11	16eb	- 27	1 H	10	175	10	10	17	10	171	10	
æ		*********	propert				1.000	anne ar Fill	101			100		-						-		- Cil		

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.

ie .	Edit Com	munications	Settings	Window	Help																				
1	Copy and	Paste* ×	00	98 2+																					
	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Shew Name	Tone Mode	CTCSS	DCS	Skip	5kp	Clerk Shift	Tx Power	Tx Narrow	Pager Enable	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Sank 6	Bank 7	Bank 8	
	343.25000	143.25000		Simplex	Auto	STYPLE	11	Tone	100.0 Hz	023	Off	Auto	13	High	1	13	13	13	1	11	13	173	13	1	
	243.26350	143.26250		sopex w	A.00	* STAPLE	10	Tone +	100.0 H2	023	- 00	¥ 4,00 ¥	- 13	Hgh		10	10					- 13			+
	243.27500	143.27300	-	Index	AL10	1000	10	Tone	100.010		Off	A/10	- 10	regn		- 12	10			- 12	1	- 10		- 10	+
	143.20750	143.20750		Serpex lineley	ALID	57912	10	Tone	100.0 Hz		Off	Auto	- 12	High	- 14	- 11	1	10		- 14	- 11			- 10	
	141 31258	141 11250		Genelar	8.00	STUDIE	11	Tone	100.0 Mr		Off	4.00	- 14	High	111	11	11	10	11	11	11	11	14	- 14	
	243.32500	143.32500		Singlex	Auto.	STATE	P	Tone	100.0 Hz		Off	Au/10	- 14-	High	1	- M	11	10	1	PI-	PI-	- 14	- 19	- 14 -	
	243.33750	143.33750	-	Singles	A.to	5745.5	m	Tone	100.0 Hz		OFF	Auto	- 11	High	1	11	ET .	11	1	11	PI-	11	11	- 11	
	543.35000	143.35000		Sinplex	Auto	SIMPLE	11	Tone	100.0 Hz		Off	A./50	171	High	1	171	17	11	1	11	11	17	11	12	
	343.36250	143.36250		Sinplex	Auto	STIPLE	11	Tone	100.0 Hz		Off	Auto	12	High	1	11	1	1	1	1	1	1	12	- 11	
	243.37500	143.37500		Simplex	Auto	STYPLE	171	Tone	100.0 Hz	023	OFF	Au/to	171	High	17	11	173	17	17	11	11	173	27	11	
	\$43.38750	143.38750		Sinplex	Auto	STYPLE	123	Tone	100.0 Hz	023	Off	AL/30	123	High	12	13	E3	123	10	11	10	23	10	12	
	343.40000	143.40000		Sinplex	Auto	STYPLE	13	Tone	100.0 Hz		Off	Au/10	12	High	- 23	12	12	1	10	1	13	23	100	1	
	143.41251	143.41250		Sinplex	Auto	SIMPLE	13	Tone	100.0 Hz		Off	Auto	123	High	13	- 13	12	13	- E1	13	13	- 13	13	- 13	
	143.42500	143.42500		Sinplex	Auto	GRAND	×1	Tone	100.0 Hz		Off	Ai/10	23	Hgh	1.1	- 13	123	13			13		23	- 13	
	143.43758	143.43750		Sinplex	Auto	DOWN	3	Tone	100.0 Hz		Off	Auto	13	High		13	1			1	1	13			
	243.45000	143.45000		Sinplex	Auto	CANTON	N.	Tone	100.0 Hz		Off	Auto	11	High	E	11	10		- E		13	13	1		
	243.46250	143.46250		Sinplex	AURO	KJH/P	N.	Tone	200.0102		Off	AU10	- 13	regh	1	- 13					- 13				
	\$43.47500	143.47500		Sinplex	ALIO	100040	100	Tone	100.0 Hz		Off	Auto	_	High		- 13				_	- 13				
	343,48750	143.40750		Sinplex	Auto			Tone	100.0 Hz		Off	Auto	11	High				10				11	10		
	143.50000	143.50000		Omplex	A.00			Tere	100.012		000	4,00	-8-	regn		- 11									
	141 51600	141 51600		Caralian	ALCO .		10	Terre	102.010		OF	August 1	- 11	ings	- 14	11	11	10	- 14 -	10	11	- 10	- 14	- 14	
	142 61768	143 53250	-	Coster	6.00		10	Torre	100.0 Mg		0.00	A-00	10	High .	10	11	12	10		10	1	171	100	- 10	
	141,55000	141,55000		Singley	Auto		H	Tone	100.0 Hz		Off	4.00	- 14	Heb	1	M	- M	1	1	1	H H	- 14	14	- 24 -	
	143 56253	143,56250		Section	Auto		121	Tone	100.0 Hz		Off	Auto	121	High	171	171	171	191	171	171	P1	191	121	171	
	143,57500	143.57500		Singlex	A.00		FI	Tone	100.0 Hz		Off	AL/00	11	Hah	E	FI	E	6	1	F	E	P1	6	FI	
	143.58758	143.58750		Singlex	Auto		FI	Tone	100.0 Hg		Off	A./10	171	High	1	11	El	10	11	11	EI	17	171	11	
	343.60000	143.60000	3	Sinplex	Auto		13	Tone	100.0 Hz		Off	Auto	173	High	10	11	11	13	11	11	11	11	11	10	
	143.61250	143.61250	3	tinplex	Auto		E	Tone	100.0 Hz		Off	Auto	23	High	10	E1	E3	12	E	1	17	1	<u> </u>	1	
	143.62500	143.62500		Sinplex	Auto		11	Tone	100-0 Hz		Off	Au/10	11	High	12	11	12	1	1	1	11	11	10	11	
	\$43.63750	143.63750	3	Sinplex	Auto		12	Tone	100.0 Hz	023	Off	Auto	173	High	12	17	12	12	10	1	13	1	12	1	
	243.65000	143.65000		Sinplex	Auto		1	Tone	100.0 Hz		Off	Auto	1	High	1	17	17	23	1	1	1	1	1	1	
	\$43,66250	143.66250		Sinplex	Auto		10	Tone	100.0 Hz		Off	A./10	13	High		13	10	13	10	10	13	10	13	- 13	
	143.67500	143.67900		Sinplex	Auto		1	Tone	100.0 Hz		Off	AU10	- 13	High		E3	1	10			1	1			
	245.68750	143.68750		Smplex	Auto			Tone	100.0 Hz		Off	Auto		High											
	243.70000	143.70000		sopex	ALIO			Tone	100.0 H2		off	A./10		High			- E3-								
	143.71250	143.75250	-	inger	ALCO		1	Tone	MOLONE I		Off	4/10	- 10	- ingn		10	100	10			10	10	- 10		
	143.72500	143.72300	-	innier	A.00	-	10	Tone	100.010		off	4,00		High Lands	10	E .	100	10	10	1	8	10	10	171	
	141,75014	141.750%		Section	A.to		11	Tane	100.0 Hz		off	4.00	111	Hab	10	PI	E FI	1	17	11	- H	191	10	10	
	143.76250	143.76250		Singles	A.40		H	Tone	100.0 Hz		Off	Auto	- 14	Hidh	Pi -	H	PI-	P	- H	P.	H H	10	10	- 14	
	243.77500	143,77500		Sincles	ALCO.		1 PT	Tone	100.0 Hg		Off	Au/20	171	High	1	171	ET .	171	P	11	11	Pl	171	17	
	\$43,79750	143,79750		Singles	Auto		11	Tene	100.0 Hz		Off	A./10	121	High	17	E I	E E	1	1	ET.	E I	17	17	10	
	143,00000	143,00000		Singlex	Auto		1 Pl	Tone	100.0 Hz		Off	Auto	10	High		11	10	10	1	1	10	1	1		
	243.81250	143.81250		Simplex	Auto	50191.6	11	Tene	100.0 Hz		Off	Au/to	173	High	10	11	13	13	1	11	13	13	1	17	
	\$43,82500	142.82500	8	Sinplex	Auto	SIMPLE	E3	Tone	100.0 Hz	023	Off	Au/10	12	High	10	· E3	11	13	13	12	13	13	13	13	
	143.83750	143.83750		Simplex	Auto	STYPLE	13	Tone	100.0 Hz		Off	Auto	173	High	10	13	11	27	11	17	11	17	1	17	
	143.85000	143.85000	3	Sinplex	Auto .	SIMPLE	. 83	Tone	100.0 Hz		Off	Auto	123	High	13	- 13	123	13	13	13	13	13	13	- 83	
	143.86250	143.86250		Sinplex	Auto .	STYPLE	- 63	Tone	100.0 Hz	023	Off	4//10	123	Hgh	10	E	13	13	10	1	E	13	12	13	
	143.87500	143.87500		Sinplex	Auto	STYPLE	10	Tone	100-0 Hg	023	Off	Au/to	- 13	High	- 6	- 13	10			11	- 61	1		- 61	
	143.88750	143.88750		Sinplex	Auto	STIFLE	1	Tone	100.0 Hz	023	Off	Auto	10	Hgh	13	13	10	1	1	10	12	13	13	1	
	143.90000	143.90000	-	Sinplex	AURO		1	None	100.0112		Off	AUto	- 13	High	1	11	10		1	1	1	1	1	-	
	b bil bil	states of \$ look \$	I company the	ALC: NO OTHER	_																				

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.

<u>Check Box Cell Editing</u> - 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.

i		000	M 21	9									
i	Receive Name	Bank 1	Bank 2	Bank 3	Barik 4	Bank S	Bank 6	Bank 7	Bank 8	Bank 9	Bank 20	Camment	
	243.25000 50491.6	173	13	- 123	23	83	123	83	23	23	13		
2	243.26250 SIMPLE	13	12	12	123	10	10	23	(E)	10	10		
3	343.27500 SIMPLE	11	123	175	125	23	13	173	23	100	10		
4	143.28750 STYPLE	63	1 13	10	100	8	8	6	6	6	8		
5	243.30000 SIMPLE	23	E3	12	123	13	13	13	1	10	10		
6	243.31250 S04PLE	11	11	13	10	10	10	10		10			
7	143.32500 STYPLE	13	1	10	1	13	1	13	E .	6	12		
8	243.33750 S0YPLE	1	1	E	1	10	23			<u> </u>	20		
9	\$43.35000 STAPLE	13	13	123	13	13	10	13	15	10	13		
20	343.36250 STYPLE	12	12	12	100	1	12	12	12	- E3	- E3		
11	243.37500 S0MPLE		10	1	1	10	1	1	10	10	13		
12	143.38750 STYPLE	- 13	12	12	13	- 63 -	- 13	13	13	13	10		
23	143.40000 S3MPLE	12	12	100	1	- 23	10	1	E3 -	10			
24	143.41250 S0MPLE	13	13	- 83	13	10	13	13		10			
25	243, 42500 (SRAND	10	13	10	- 63	10		13					
35	143.43750 DOWN	23	10	1 23	23	10	13	13	25	83			
17	243.45003 CANION	13	13	1	1		10	13	E				
38	243.46250 KUH3P	- C)	10	E	13		E	13			0		
29	\$43.47503 X00(4D	13	13	10		10	13	10			10		
20	243.48753	1	173	12	10		12	17	13	10	E3		
21	243.50000			1	1			1					
22	\$43.\$1250	- 13	13	13	- 63	13	10	13	13	10			
23	343.52500		12	10	12		12	13	10				-
24	243.53750		13		E	- E3		13					
25	243.55000	13	63	123	123		13	13	13		- 13		
26	343.56250	- 63	<u> </u>		<u> </u>	- 13	- 11		<u> </u>				
27	143.57500	10	13	123	10	13	10	13	123	10	23		
28	243.58750	13	13	13	- 13		10	13	<u> </u>				
29	243.68000	- 13	10	10		0	13	13			0		
30	243.61250	11	12	12	12	12	12	13	12	12	1		
31	243.62500		10	10			- 6	10	<u> </u>		-		
22	\$43.63750	10	- 10 -	- 6			- 0	- 6	0		-		
23	343.65003	- 12	- 6	10		- 61	1	- 63					
34	243.66250	-	10								8		
25	242.67900	- 13				- 63		- 6	<u> </u>				
36	243.68750	- 6	- 6-			- 8-	- 6-	- 6-	<u> </u>	- 6-			
37	343.70000	- 63 -	- 6	- 63	- 6		- 0-	- 63	<u> </u>				
38	243.71250	13	10		- 6-	- 8-	10	10					
29	243.72500			100				10			8		
40	243.73753	- 13	<u> </u>	10	10			10	<u> </u>	<u> </u>			
•1	243.79000	_ <u>_</u>	- 61	- 8-	<u> </u>	<u> </u>		<u> </u>	<u> </u>				
42	243.76250		- 6-	- 0-		<u> </u>	- 6-	- 0-					
0	243.77503	- 13	10	100		-8-	-8-			-8-			
41	243.78750		- 13										
45	547.80000	10	- 61	- 6			- 6	10		<u> </u>			
45	243.01253 S34PLE			100				13					
47	243.82500 SIMPLE	- 0	- 6	10	<u> </u>		10	0	<u> </u>	<u> </u>			
	543 01763 CB40 E	- 19 -	1.12	1.12	1.12	1 10	1.12	1.12	1.12	1.10			

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.

	tat connuncement	s settings	window	пер									
ĺ		9 0 8	#h 2+	7									
	Copy and Faste ' X												
	Receive Name	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bark 9	Bank 20	Comment	
	143.25000 S0MPLE	N	13	- 83	13	- 83	83	83	8	83	23		
	243.26250 STMPLE	13	12	1	1	1	1	23	E3	E			
	343.27500 S04PLE	1	13	- Pl		- 23	13	13					
	143.28750 S2MPLE	13	13	13	10	- 13	13	10	13	10			
	243.30000 S04PLE	10	13	12	10	10	10	13	10				
	143.31250 S04PLE	10	10				0						
	143.32500 S24FLE	13	1	13			13	<u> </u>	<u> </u>				
	243.33750 S2MPLE						- 13	0					
	\$43.35000 SDAPLE	13	10	113	10					- 0-			
	343.36250 S3VPLE	- 6-	- 6-			- 8-				- 8-			
	243.37500 SIMPLE			10			- 0				8		
	242.28750 S24PLE	<u> </u>	- 63		<u> </u>		- 13		<u> </u>				
	243.40000 S3MPLE	- 8-	- 6-				- 8-	1	<u> </u>				
	143.41250 SIMPLE	- 6-	- 63 -	10	10		10	10	<u></u>		8		
	243, 42500 GRAND		10	10				10	10				
	543.43750 DOWN	- 8-	-8-	- 8-	- 8-	-8-	8		8-				
	243.45000 CANFON		10	10	13		10	13	<u> </u>				
	243.46250 KU40P		13										
	543.47503 K0K4D						- 8-						
	242.48752												
	243.50000										8		
	543.51250		10	10	10	10	10	10	13				
	343.52500		11										
	245.53750	- 8-									8		
	243.59000												
	243.59250				1						8		
	243.5/500			100				100					
	243.58750		- 63	- 63 -									
	243.60000				- 8-	-8-	8			8	8		
	243.01230									- 8-			
	143,43763	1	10	100		- 14-	10	10	100	1	H		
	141.44000	1	- 8-	100	- 8-	- 14 -	10	- 10-	100	- 24 -	- 24		
	143 44163	- 11-	10	101	100	- 11		121	100	- 10-			
	643.67800	- 8-	- 61-			- 12-	- 6-	1		8	8		
		10	- 63	10			- 10	10			1		
	542 20000	1	10	10	1 10	1	1	10	100	1	- 24		
	43 21363	1	10	101	1	1	10	100	100	8	8		
	143 71600	1	171	123	100	1	100	12	100	100			
	543 7176A	18	- 8-	1	1	1	10	10	1	8	8		
	141 25000	- 10-	- 10-	100	100	- 14-	- 10	10		- 12-	- 14		
	212/2009	- 6-	10	10	1	- 14-	10	101	101				
	141 77500	10	- 10-	10		-8-	8	10	- 20-	-14-	- 24		
	543 28263	- 8-	10	100	- 24	-8-	- 8-	1	1	- 14	- 14		
	542 00000	- 11-	- 10-	10	- 8-	- 14-	- 8-	10		- 8-	- 14		
	101 A1250 CTMPLE	1	10	100	1	1	1	10	100	1	8		
	142 01610 01905	- 10-	- 10-	100	100	- 14	1	121	011		1		
	142 01250 CHARE	1	- 61-		1 21		- 8-	100	1	- 2	8		
	AND READ AND ADDREED	- 6-	10	100	100		10	10	100	10			
	AVENUS SPACE	10	- Cl	- Cl	: 23	512		63	6.2	. 63			

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.

	tdt Communication	s Settings ⊞ ⊕ £	Window da él	Help									
ŝ	Copy and Paste ' X		PR 24										
Ī	Receive Name	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 30	Comment	
1	543,25000 SDVPLF	121	123	123	191	191	123	123	193	21	Pl		
	543,26250 S2MPLE	12	- M	- Fil	1	H	M	m	- M	- 24	8		
	143,27500 SIMPLE	2	171	11	175	10	FI	173	175	10	1		
	143,28750 S2VPLE	2	12	1	P	1	E	10	1	10	8		
5	143.30000 STYPLE	12	173	173	173	10	F1	P3	175	10	6		
	143.31250 SIMPLE	121	171	123	121	11	171	175	P*1	11	11		
	243,32500 S2VPLE	1	171	10	1	10	1	11	173	1	P		
5	143.33750 S2MPLE	121	171	171	191	11	P1	175	175	11	11		
	\$43,25000 S2MPLE	121	171	10	1	10	11	173	10	1	10		
0	143.36250 S2MPLE	1	11	1	1	1	10	10	10	10	1		
1	243.37500 S0MPLE	12	171	171	171	11	111	171	01	01	P		
2	\$42,28750 SDVPLE	V.	121	1	1 10	1	10	10	10	10	10		
3	143,40000 SIMPLE	12	171	10	100	11	11	17	17	17	E .		
4	143.41250 SIMPLE	1	13	1 13	110	10	E3	13	123	10	8		
5	143,42500 (SRAMD	1	P3	1 12	11	E E	E	10	6	10	E		
6	243.43758 DOWN	120	175	123	100	100	13	173	125	23	10		
7	343,45000 CANTON	1	6	1	10	6	6	6	1	6	6		
8	243.46250 KU42P	12	175	173	100	10	P1	173	173	11	10		
9	\$43,47500 x0004D	121	171	171	100	11	171	175	15	m	11		
0	242,48750	12	171	10	100	Pl	11	173	173	- 11	11		
1	243,50000	12	171	171	100	M	171	171	075	m	M		
2	542,51250	12	171	10	100	1	11	121	10	- M	- H		
	343,53500	2	11	171	101	M	M	171	175	- M-	- M		
4	543,53250	12	123	171	197	175	121	177	125	11	171		
s i	542,55000	12	171	191	100	H	m	171	100	10	1		
6	343.56250	121	171	175	100	1 PT	P	175	175	- 14 -	PI I		
2	143,57500	12	121	123	100	10	Pl	191	173	10	100		
8	143.58750	100	P1	171	197	Pl	m	1973	175	11	10		
a	543,68000	121	175	191	1 191	H	PI	125	175	21	M		
0	143.61250	12	11	100	1	E F	P	100	1	10	E I		
1	143,62500	12	171	175	191	11	PI	P3	175	11	1		
2	543,63750	12	171	E III	1	1	P	IT.	m	1	P		
	343,65000	12	Pl	10	1 10	11	- M	- M	- Pi	10	P		
4	543,66250	12	171	171	11	11	P1	171	(11)	11	M		
s	\$42,67500	N/	171	1	10	1	10	1 M	1	1	M		
6	343.68750	12	171	111	100	1 Pi	1 PT	PT I	171	m	P		
2	543,70000	11	123	1 123	10	10	P1	123	193	10	10		
8	141.71250	1 M	m	1 10	1 1	H	m	m	100	H	M		
9	343 71500	10	111	100	100	1	10	10	100	10	1		
6	543,73750	E E	Pi	1	1	H H	E .	100	1	10	H I		
-	143,75000	10	171	100	100	14	10	125	175	100	1		
	543 26253	Pl	121	E E	P	- H	P	IFI I	195	21	M		
	142 77000	10	121	100	100	1	10	10		-14-	- 24 -		
1	543 28253	1	175	100	100	1	H	m	100	10	1		
-	142 00000	1	100			- 14-	1	10			- 14		
	10-00000 CTMD F	10	- 10	10		1	- 10	10	100	- 22	물		
2	542 93600 SPOCE	121	121	1	101		1	125	010		8		
r a	142 01250 SPPLE	1					8	100	8	- 2	8		
	111.63790 327958		100	100	100		100	121	100	-			
۰.	249.49000 529902	1.11	E.			- E3		- E3	6.7	6.3	E		

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.

Find		×
Look in: Receive Frequency	•	OK Cancel
Find text:		

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).

ОК
Cancel

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

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

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

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

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

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

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

Add Frequency List 🛛 🛛 🔀
Starting Frequency MHz
Number of channels 1
Frequency Step 5 kHz 💌
Cancel

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

<u>Number of channels</u> - 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.

<u>Frequency Step</u> - 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.

ort	
Sort by	
Receive Frequency	
Then sort by	Cancel
None	•
Sort Mode	Channel Sort Selectioin
Ascending	Selected channels
C Decsending	C All Channels

Sort by - Select a column for the initial sort.

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

<u>Sort Mode</u> - Ascending for lowest to highest. Descending for highest to lowest.

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

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

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

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

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

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

Quick File Access Commands

- **Ctrl 0 (Control zero)** Open existing file for same radio. Calls the Open dialog for the programmer being used allowing you to select a file to be opened without having to select the file type first. This is especially helpful when several programmers are loaded on one system. (i.e., Lets you select another FT-7800 file without having to select that file type first from the open box.)
- Ctrl O (Control letter "O") File | Open. Presents the box from which the file type is selected just as File | Open. Select the type of file to be opened. The programmer will look in the location of that last file for that particular file type. (i.e., you can open an FT-60 file while working with the FT-7800 programmer as long as you have the RT Systems program for both of these radios. With both open, you can copy and paste between the files or send each to the proper radio without having to close and reopen the programmers separately.)
- **Ctrl M** Automatically create a new file for the programmer being used. Eliminates having to select the file type first.
- Ctrl N File | New. Presents the box from which the file type is selected just as in File | New in the menu. Select the file type for the programmer to create a new file for that radio (the same as the one you're working with now or for a different radio for which you have the programmer.)



6 Screen Appearance and Default Options

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

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

Grid Display

1	Mark the column	ns to hide.	
-	Column	Hide	
	Transmit Frequency		
Alternate row	Offset Frequency		
	Offset Direction		
1 Row 1	Operating Mode		
2 R0w2	Name		
3 Row 3	Tone Mode		
4 R0w4	CTCSS		
Fore Back	Px CTCSS		
	DCS		
	DCS Polarity		
Use Combo for Check box	Skip		
	Step		
language:	Digital Squelch		
English	Digital Code		
English	Your Callsign		
	Bot-1 CallSion		-
Language: English	Step Digital Squelch Digital Code Your Callsign Bot-1 CallSign OK	Cancel	▼

Freeze Columns

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

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

Hidden Columns (Mark the columns to hide)

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

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

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

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

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

Alternate row colors

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

Use Combo for Check box

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

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

Language

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

Memory Defaults

Preferences		KORLPCK	
Grid Display Memory Defaults Font Other			(
Open lost fle when starting programmer	Offset Freque	ency Defaults	
Open last lie wien statung programmer.	HF	100 kHz	•
Convert Split offsets to standand Plus or	6m	3.00 MHz	•
Minus when avaliable.	2m	600 kHz	•
Disable CTCSS, DCS and other Tone columns according to the Tone Mode	1.25m	7.60 MHz	•
selection.	70cm		•
Add and Remove Offsets			
Offset Offset Offset Intervence Construction Constructin Construction Construction Const	y then click i the list.		
3 600 kHz 4 1.00 MHz To add an offset double click "END OF I	LIST."		
	ОК	Cancel	Apply

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

Grid Display Memory Defaults Font Other	
<u>F</u> ont	<u>S</u> ize:
MS Sans Serif	10
MS Sans Serif	A 8 A
0 MS LII Gothic	12
0 MS ゴシック	14
0 MS 明朝	18
O MV Boli	
0 Niagara Engraved	
O Niagara Solid	- ·
Sample	
AaBbYyZz 0123458	6789

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

Grid Display Memory Defaults Font Other Radio Menu Settings Ise Separate file for menu settings	
Radio Menu Settings	
 Keep menu settings and frequencies in a single file. 	
 Open new file when needed for "Get Data From Radio". Use different windows for each radio programmer. 	
OK Cancel Apply	1

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.



7 Split Screen for Multiple Files

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.

G	×	10 m	5 9 8	44 41	?																			
-	Settings r	not coming	from radio	× H N	ew Radio Fi	le 🔻		🛓 test 🗙							•	1	1C-91 Unti	tiedi x						
1	Receive	Transmit	Offset	Offset	Operatio	19 Name		Receive	Transmit	Offset	Offset	Operati	ng	Varre	-		Receive	Transmit	Offset	Offset	Operating	Name	Tone Mode	
T	145,00000	145.00000	600 kHr.	LARS	FM	TEST	1	145.0000	145,60000	600 kHz L	Plus Ta	IFM	TES	T	-	0	146.01000	146.01000		Simplex 1	EM W		None D	183
	139.00000	139.00000	0 000 0 a. 18	Simplex	FM	TORI		450.0000	447.00000	3.00 MHz	Minus	EM	TES	T2		1	440.00000	440.00000	1.00	Smolex	EM		None	12
t	144.00000	144.00000	5	Smolex	FM	OTHER	3	450,00500	450.00500		Smolex	FM	TES	T3	- 1	2				10				1
t	165.00000	165.00000		Simplex	FM	TEST	4	450.0100	449,51000	500 kHz	Minus	FM	100	100		3								+
t	170.00000	170.00000		Simplex	FM	OTHER	5	450.0150	450.01500	1	Simplex	EM	_			4								+
	174.00000	174.00000)	Simplex	FM	TORI	6	450.02000	450.02000		Simplex	FM				5								Т
	134.00000	134.00000)	Simplex	FM	OTHER	7	450.0250	450.02500	1	Simplex	FM				6								T
							8	450.03000	450.03000	1	Simplex	FM				7								
							9	450.0350	450.03500	1	Simplex	FM				8								
							10	450.04000	450.04000	F.	Simplex	FM				9								
							11	450.0450	450.04500		Simplex	FM				10								
							12									11								
							13	142.00000	142.00000	N.	Simplex	Auto				12								
							14	142.00500	142.00500		Simplex	Auto			- 1	13								
							15	142.01000	142.01000	F	Simplex	Auto				14								
							16	142.0150	142.01500	N	Simplex	Auto				15								
							17	142.02000	142.02000	ł.	Simplex	Auto				16								
							18	142.0250	142.02500	N	Simplex	Auto	_		_	17								
					_		19	142.03000	142.03000	N	Simplex	Auto	_			18								
							20	142.03900	142.03900	-	Simplex	Auto			_	19					-			
				_			21	142,04000	142.04000	N	Simplex	Auto			_	20							_	_
		-	-	-	-		22	142.0490	142.04900		Simplex	Auto	_			21							_	_
				-		-	23	142.0500	142.05000		Simplex	Auto	-		-	22							-	
				-		-	24	142.0550	142.05500		Samplex	Auto			_	23								-
			-	-			25	142,0500	142.06000		simplex	AUTO				24								-
			-				26	142/0650	142.06500		Simplex	Auto	_		_	25								+
ŀ			-	-	-		27	142.0700	142.07000	-	Surfacex	MUTD	-	-		26					-		-	+
			-	-			28									- 27							-	+
			-	-			23	-	-		-	-				20							-	+
			-	-			30				-	-	_		-	100					-		-	+
				-			31				-	-				30								+
			-	-			32				-				-	22					-			+
	a all blass		Manarian	While I			11.33	and the second second			tro II.I	-	_	_		36			(B. 1417			1.2.2		÷

Open the files

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

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

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

A horizontal split is also possible.



Open the files

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

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

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

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



8 Menu Item Cross Reference

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

In the Programmer these settings are organized to make it easy for you to tell the difference as you customize the settings.

Presented here is a cross reference list that details the item as presented in the operating manual where you will find the setting for that item in the Programmer.

The location in the Programmer is described as a "path". For example.

Settings | Radio Menu Settings | Radio Menu Settings tab | Common 1 tab | Password

- Click on Settings in the menu at the top of the screen
- Select Radio Menu Settings from the menu that opens
- Select the Common 1 tab
- The option, Password, is on that screen

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

8.1 Items 100-799

The location in the Programmer is described as a "path". For example if you were looking for Item number 150 Scan Resume, you would find

Settings | Radio Menu Settings | Common 1 tab | Scan Resume

- Click on Settings in the menu at the top of the screen
- Select Radio Menu Settings from the menu that opens
- Select the Common 1 tab
- The option, Scan Resume, is on that screen

		Set Mode
Item	Radio	In the Programmer
No.	Display	
TX/RX	- RX	
100	Programmable VFO	
101	Beat Shift	Settings Radio Menu Settings Common tab RX Beat Shift
102	Detect Output Select	Settings Radio Menu Settings Common tab RX Detect Out Select
103	FM Narrow	Main Screen Operating Mode (this item can be set for each memory channel)
104	MW/SW Antenna	Settings Radio Menu Settings Common tab RX MW/SW Antenna
105	Wx Alert	Settings Radio Menu Settings Common tab RX Wx Alert
TX/RX	- TX	
110	TX Inhibit	Settings Radio Menu Settings Common tab TX Tx Inhibit
111	Time-Out	Settings Radio Menu Settings Common tab TX Time-Out Timer
112	Mic Sensitivity	Settings Radio Menu Settings Common tab TX Mic Sensitivity
TX/RX	- RX Filter	
120	SSB High Cut	Settings Radio Menu Settings Common tab Rx Filter SSB High Cut
121	CW Width	Settings Radio Menu Settings Common tab RX Filter

		CW Width
122	AM High Cut	Settings Radio Menu Settings Common tab Rx Filter Am High Cut
TX/RX	- Scan	
130	Resume	Settings Radio Menu Settings Common tab Scan Resume
131	Resume (digital)	Settings Radio Menu Settings Common tab Scan Resume (digital)
132	Time Restart	Settings Radio Menu Settings Common tab Scan Time Restart
133	Carrier Restart	Settings Radio Menu Settings Common tab Scan Carrier Restart
134	Priority Scan	Settings Radio Menu Settings Common tab Scan Priority Scan
135	Scan Auto Backlight	Settings Radio Menu Settings Common tab Scan Auto Backlight
136	Auto Weather Scan	Settings Radio Menu Settings Common tab Scan Auto Wx Scan
TX/RX	- Repeater	
140	Offset Frequency	Main Screen Offset Frequency (this item can be set for each memory channel)
141	Auto Offset	Settings Radio Menu Settings Common tab Repeater Auto Repeater Offset
142	CALL Key	Settings Radio Menu Settings Common tab Repeater Call Key
143	1750Hz TX Hold	Settings Radio Menu Settings Common tab Repeater 1750Hz Tx Hold
TX/RX	- VOX	
150	VOX (on/off)	Settings Radio Menu Settings Common tab VOX VOX Enable
151	Vox Gain	Settings Radio Menu Settings Common tab VOX Gain
152	Vox Delay	Settings Radio Menu Settings Common tab VOX Delay
153	Vox TX on Busy	Settings Radio Menu Settings Common tab VOX Tx On Busy
TX/RX	- DTMF	
160	Encode Speed	Settings Radio Menu Settings Common tab DTMF DTMF Speed
161	Pause Time	Settings Radio Menu Settings Common tab DTMF Pause Time
162	Tx Hold	Settings Radio Menu Settings Common tab DTMF Tx Hold
163	DTMF Memory name (16 characters)	Settings Radio Menu Settings Common tab DTMF Name and DTMS Code

	code (16 digits)	
	Echo Link Memory	Settings Radio Menu Settings Common tab Echolink
164	name (8	Memories Name or Callsign and Memory Code
	characters)	
	code (8 digits)	
TX/RX	- CW	
170	Pitch Frequency	Settings Radio Menu Settings Common tab CW Pitch Frequency
171	Reverse	Settings Radio Menu Settings Common tab CW Reverse
TX/RX	- Others	
180	QSO Log	Settings Radio Menu Settings Common tab Others QSO Log
181	LED Control	Settings Radio Menu Settings Common tab Others LED Control
Memor	v - Memorv Ch	annel
	View List	Main screen Memories tab. Each row in the spread
200	(Memory Channel List)	sheet is a memory channel.
201	Group Name	Bank Naming and Linking
202	Recall Method	Settings Radio Menu Settings Common tab Memory Recall Method
203	Group Link	Bank Naming and Linking
204	CALL Channel list	Main screen Call/Home tab (see tabs at the bottom of the screen)
Memor	y - Repeater Li	st
210	Repeater List	Dstar Digital DStar Settings Your Callsign
Memor	y - Callsign Lis	t
220	Callsign List	
Audio I	File - Recording	a File
300	Recording File	·
301	Recording	
302	Recording Band	Settings Radio Menu Settings Common tab Audio Recording Band
Audio I	File - Voice Mes	sage
310	Voice Message List	
311	Tx Monitor	Settings Radio Menu Settings Common tab Audio Tx Monitor
312	Digital auto reply	Settings Radio Menu Settings Common tab Audio Digital Auto Reply
GPS - E	Basic Settings	· ·
400	Built-In GPS (on/	Settings Radio Menu Settings GPS tab GPS Basic Settings Builtin GPS
D.	· · ·	

401	My Position	Settings Radio Menu Settings GPS tab GPS Basic Settings Positions table
402	Position Ambiguity	Settings Radio Menu Settings GPS tab GPS Basic Settings Position Ambiguity
403	Operating Mode	Settings Radio Menu Settings GPS tab GPS Basic Settings Operating Mode
404	Battery Saver	Settings Radio Menu Settings GPS tab GPS Basic Settings Battery Saver
405	PC Output	Settings Radio Menu Settings GPS tab GPS Basic Settings PC Output
406	Sentence	Settings Radio Menu Settings GPS tab GPS Basic Settings GPS Sentence
GPS-1	Frack Log	
410	Track Log Recording	Settings Radio Menu Settings GPS tab GPS Track Track Log
411	Clear Track Log	Not addressed in the programmer.
412	Record Method	Settings Radio Menu Settings GPS tab GPS Track Record Method
413	Interval	Settings Radio Menu Settings GPS tab GPS Track Interval
414	Distance	Settings Radio Menu Settings GPS tab GPS Track Distance
APRS -	Basic Settings	
500	My Callsign	Settings Radio Menu Settings APRS1 tab My Callsign (this callsign is for APRS only)
501	lcon	Settings Radio Menu Settings APRS1 tab Station lcon
502	Position Comment	Settings Radio Menu Settings APRS1 tab Position Comment
503	Status Text	Settings Radio Menu Settings APRS1 tab Status Text (Selection, Name, and Tx Rate)
504	Packet Path	Settings Radio Menu Settings APRS1 tab Packet Path
505	Data Speed	Settings Radio Menu Settings APRS1 tab Internal TNC Data Speed
506	Data Band	Settings Radio Menu Settings APRS1 tab Internal TNC Data Band
507	DCD Sense	Settings Radio Menu Settings APRS1 tab Internal TNC DCD Sense
508	TX Delay	Settings Radio Menu Settings APRS1 tab Internal TNC TX Delay
509	APRS Lock	Settings Radio Menu Settings APRS1 tab APRS Lock (Frequency, PTT, APRS Key)
APRS -	Beacon TX Co	ntrol
510	Method	Settings Radio Menu Settings APRS1 tab Beacon Tx Algorithm Method

511	Initial Interval	Settings Radio Menu Settings APRS1 tab Beacon Tx Algorithm Internal Interval
512	Decay Algorithm	Settings Radio Menu Settings APRS1 tab Decay Algorithm
513	Prop Pathing	Settings Radio Menu Settings APRS1 tab Proportional Pathing
514	Speed	Settings Radio Menu Settings APRS1 tab Beacon Information Speed
515	Altitude	Settings Radio Menu Settings APRS1 tab Beacon Information Altitude
516	Object	
APRS -	QSY Informati	on
520	QSY Info in Status (on/off)	Settings Radio Menu Settings APRS2 tab QSY in Status
521	Tone/Narrow	Settings Radio Menu Settings APRS2 tab Tone/ Narrow
522	Shift/Offset	Settings Radio Menu Settings APRS2 tab Shift/ Offset
523	QSY Limit Distance	Settings Radio Menu Settings APRS2 tab QSY Limit (miles)
APRS -	Smart Beacon	ina
530	Low/High Speed	Settings Radio Menu Settings APRS2 tab Smart Beaconing Low / High Speed
531	Slow Rate	Settings Radio Menu Settings APRS2 tab Smart Beaconing Slow Rate
532	Fast Rate	Settings Radio Menu Settings APRS2 tab Smart Beaconing Fast Rate
533	Turn Angle (minimum for turn detection)	Settings Radio Menu Settings APRS2 tab Smart Beaconing Turn Angle
534	Turn Slope	Settings Radio Menu Settings APRS2 tab Smart Beaconing Turn Slope
535	Turn Time	Settings Radio Menu Settings APRS2 tab Smart Beaconing Turn Time
APRS -	Waypoint	
540	Format	Settings Radio Menu Settings APRS1 tab Waypoint Format
541	Length	Settings Radio Menu Settings APRS1 tab Waypoint Length
542	Output	Settings Radio Menu Settings APRS1 tab Waypoint Output
APRS -	Packet Filter	
550	Position Limit	Settings Radio Menu Settings APRS1 tab Packet Filter Type Position Limit
551	Filter Type	Settings Radio Menu Settings APRS1 tab Packet Filter Type

APRS -	Message	
560	User Phrase	Settings Radio Menu Settings APRS2 tab User Phrases
561	Auto Message	Settings Radio Menu Settings APRS2 tab Auto Message Reply Reply
562	Reply To	Settings Radio Menu Settings APRS2 tab Auto Message Reply Reply to
563	Reply Delay Time	Settings Radio Menu Settings APRS2 tab Auto Message Reply Delay Time
564	Reply Message Text	Settings Radio Menu Settings APRS2 tab Auto Message Reply Text
APRS -	Notification	
570	RX Beep	Settings Radio Menu Settings APRS2 tab Sound Rx Beep
571	ТХ Веер	Settings Radio Menu Settings APRS2 tab Sound Tx Beep
572	Special Call	Settings Radio Menu Settings APRS2 tab Sound Special Call
573	Display Area	Settings Radio Menu Settings APRS2 tab Interrupt Display Display Area
574	Interrupt Time	Settings Radio Menu Settings APRS2 tab Interrupt Display Time
575	APRS Voice	Settings Radio Menu Settings APRS2 tab Interrupt Display APRS Voice
APRS -	Others	
580	PC Output	Settings Radio Menu Settings APRS2 tab PC Port PC Output
581	Network type	Settings Radio Menu Settings APRS1 tab Network
582	Voice Alert	Settings Radio Menu Settings APRS2 tab Voice Alert
583	VA frequency	Settings Radio Menu Settings APRS2 tab CTCSS Frequency
584	Message Group Code (up to 9 characters x 6 codes)	Settings Radio Menu Settings APRS2 tab Group Filtering MEssage Group Code
585	Bulletin Group Code (up to 5 characters x 6 codes)	Settings Radio Menu Settings APRS2 tab Group Filtering Bulletin Group Code
Digital	- RX History	
600	View History	
Digital	- TX/RX	
610	My Callsign	DStar Digital Dstar Settings My Callsign
611	Tx Message	DStar Digital Dstar Settings Tx Message
612	Direct Reply	Settings Radio Menu Settings GPS tab Digital TX/

		RX Direct Reply
612	Auto Poply Timing	Settings Radio Menu Settings GPS tab Digital TX/
013		RX Auto Reply Timing
614	Data TX End	Settings Radio Menu Settings GPS tab Digital TX/
	Timing	RX Data Tx End Timing
615	EMR Volume	Settings Radio Menu Settings GPS tab Digital TX/
	Level	RX Enhanced Monitor Volume Level
616	RX AFC	Settings Radio Menu Settings GPS tab Digital TX/ RX Rx AFC
617	FM Auto Detector	Settings Radio Menu Settings GPS tab Digital TX/
017	on DV	RX FM Auto Detection on DV
618	Data Frame	Settings Radio Menu Settings GPS tab Digital TX/
010	Output	RX Data Frame Output
619	Break Call	
Digital	 Digital Squelc 	h
630	GPS Information	Settings Radio Menu Settings GPS tab GPS Data Tx
000	in frame	GPS Information in Frame
631	Sentence	Settings Radio Menu Settings GPS tab GPS Data Tx
		GPS Sentence
632	Auto TX	Settings Radio Menu Settings GPS tab GPS Data Tx
		Auto Ix
Digital	- RX Notificatio	n
640	Display Method	Settings Radio Menu Settings GPS tab Rx Notification Display Method
641	Single Display	Settings Radio Menu Settings GPS tab Rx
041	Size	Notification Single Display Size
642	Dual Display Size	Settings Radio Menu Settings GPS tab Rx
072	Dual Display Oize	Notification Dual Display Size
643	Display Hold Time	Settings Radio Menu Settings GPS tab Rx
		Notification Display Hold Time
644	Callsion Announce	Settings Radio Menu Settings GPS tab Rx
		Notification Callsign Announce
645	Standby Beep	Settings Radio Menu Settings GPS tab Rx
		Notification Standby Beep
FM Bro	badcasting - Ba	sic Settings
700	FM Radio Mode	Settings Radio Menu Settings Configuration tab FM Radio Fm Radio Mode
701	Auto mute return	Settings Radio Menu Settings Configuration tab FM
	adcasting Mc	
	aucasing - Me	Sottingo Dodio Monu Sottingo Configuration tab EM
710	FM Radio List	Radio List box (Name and RX Frequency)
ļ		

¹ Available only for the TH-D72A

8.2 Items 800 - 999

The location in the Programmer is described as a "path". For example if you were looking for Item number 340 APO Waypoint Format, you would find

Settings | Radio Menu Settings | APRS 1 tab | Waypoint section | Format

- Click on Settings in the menu at the top of the screen
- Select Radio Menu Settings from the menu that opens
- Select the APRS 1 tab
- The option, Format, is in the Waypoint section on that screen

	Set Mode				
Item	Radio	In the Programmer			
No.	Display				
SD Ca	rd - Export				
800	Config Data	Not addressed in the program. This is a function of the radio that allows it to transfer information to an SD card.			
801	Config data + V.Msg	Not addressed in the program. This is a function of the radio that allows it to transfer information to an SD card.			
802	Repeater List Only	Not addressed in the program. This is a function of the radio that allows it to transfer information to an SD card.			
803	Callsign List Only	Not addressed in the program. This is a function of the radio that allows it to transfer information to an SD card.			
SD Ca	rd - Import				
810	Config Data	Not addressed in the program. This is a function of the radio that allows it to transfer information from an SD card.			
811	Config data + V. Msg	Not addressed in the program. This is a function of the radio that allows it to transfer information from an SD card.			
812	Repeater List Only	Not addressed in the program. This is a function of the radio that allows it to transfer information from an SD card.			
813	Callsign List Only	Not addressed in the program. This is a function of the radio that allows it to transfer information from an SD card.			
SD Card - Unmount					
820	Unmount Execute	Not addressed in the program. This is a function of the radio that allows the SD card to be removed safely.			
SD Ca	rd - Format				
830	Format execute	Not addressed in the program. This is a function of the radio			

		that formats an SD card.										
SD Card - Memory Size												
840	View Free Capacity	Not addressed in the program. This is a function of the radio that displays the available free space of an SD card.										
Configuration - Display												
900	Backlight Control	Settings Radio Menu Settings Configuration Display Backlight Control										
901	Backlight Timer	Settings Radio Menu Settings Configuration Display Backlight Color										
902	LCD Brightness	Settings Radio Menu Settings Configuration Display Backlight Timer										
903	Power on Message	Settings Radio Menu Settings Configuration Display Power On Message										
904	Single Band Display	Settings Radio Menu Settings Configuration Display Single Band Display										
905	Meter Type	Settings Radio Menu Settings Configuration Display Meter Type										
906	Background Color	Settings Radio Menu Settings Configuration Display LCD Brightness										
Configuration - Audio												
910	Audio Balance	Settings Radio Menu Settings Configuration Audio Balance										
911	TX/RX EQ	Settings Radio Menu Settings Configuration Audio TX Equalizer (FM/NFM), TX Equalizer (DV), Receive Equalizer										
912	TX EQ Level	Settings Radio Menu Settings Configuration Audio TX Equalizer Level										
913	RX EQ Level	Settings Radio Menu Settings Configuration Audio RX Equalizer Level										
914	Веер	Settings Radio Menu Settings Configuration Audio Beep (A)										
915	Beep Volume	Settings Radio Menu Settings Configuration Audio Beep Volume										
916	Voice Guidance	Settings Radio Menu Settings Configuration Audio Voice Guidance										
917	Voice Guidance Volume	Settings Radio Menu Settings Configuration Audio Voice Guidance Volume										
918	USB Audio Output Level	Settings Radio Menu Settings Configuration Audio USB Audio Level										
Configuration - Battery												
920	Battery Saver	Settings Radio Menu Settings Configuration Battery Battery Saver										
921	Auto Power Off	Settings Radio Menu Settings Configuration Battery Auto Power Off										
922	Battery Level	Not addressed in the programmer.										
Config	Configuration - Bluetooth											
--------	---------------------------	--	--	--	--	--	--	--	--	--	--	--
930	Bluetooth (on/ off)	Settings Radio Menu Settings Configuration Bluetooth Bluetooth Enable										
931	Connect	Not addressed in the programmer										
932	Device Search	Not addressed in the programmer										
933	Disconnect	Not addressed in the programmer										
934	Paring Mode	Not addressed in the programmer										
935	Device Information	Settings Radio Menu Settings Configuration Bluetooth Device Name										
936	Auto Connect (on/off)	Settings Radio Menu Settings Configuration Bluetooth Auto Connect										
Config	guration - Aux	kiliary										
940	PFIKey	Settings Radio Menu Settings Configuration Auxiliary PF1 Key										
941	PF2 Key	Settings Radio Menu Settings Configuration Auxiliary PF2 Key										
942	PF1 (Mic)	Settings Radio Menu Settings Configuration Auxiliary PF1 Key (Mic)										
943	PF2 (Mic)	Settings Radio Menu Settings Configuration Auxiliary PF2 Key (Mic)										
944	PF3 (Mic)	Settings Radio Menu Settings Configuration Auxiliary PF3 Key (Mic)										
945	Cursor Shift											
946*	Secret Access Code											
Config	juration - Dat	e & Time										
950	Date and Time Setting	Not addressed in the programmer										
Config	guration - Loo	ck										
960	Key Lock Type	Settings Radio Menu Settings Configuration Lock Keys Lock Type										
961	DTMF Key Lock (On/Off)	Settings Radio Menu Settings Configuration Lock DTMF Keys Locki										
962	Mic Key Lock (On/Off)	Settings Radio Menu Settings Configuration Lock Mic Keys Lock										
963	Volume Lock (On/off)	Settings Radio Menu Settings Configuration Lock Volume Lock										
Config	guration - Uni	ts										
970	Speed, Distance	Settings Radio Menu Settings Configuration Units Speed, Distance										
971	Altitude, Rain	Settings Radio Menu Settings Configuration Units Altitude, Rain										
972	Temperature	Settings Radio Menu Settings Configuration Units										

		Temperature
973	Latitude, Longitude	Settings Radio Menu Settings Configuration Units Latitude, Longitude
974	Grid Square	Settings Radio Menu Settings Configuration Units Grid
	Format	Square
Config	guration - Inte	erface
980	USB Function	Settings Radio Menu Settings Configuration Interface USB Function
981	PC Output (GPS)	Settings Radio Menu Settings Configuration Interface PC Output (GPS)
982	PC Output (APRS)	Settings Radio Menu Settings Configuration Interface PC Output APRS
983	KISS (PC Input/ Output-KISS)	Settings Radio Menu Settings Configuration Interface KISS
984	DV/DR (PC Input/ Output - DV/ DR)	Settings Radio Menu Settings Configuration Interface DV/DR
Config	guration - Sys	stem
990	Language	Settings Radio Menu Settings Configuration System Language
991	Version	Not addressed in the programmer
999	Reset	Not addressed in the programmer

* Only in TH-D74A model



9 D-Star Settings

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

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

Channel-specific information is entered with each memory channel.

File-specific information is entered on the screen that opens when you select D-Star | Digital (D-Star Settings) from the menu at the top of the main screen. This information is then available when you are entering memory channel details. (i.e., Enter Your Callsigns and Rpt Callsigns here then choose the one that you want from the list when you are entering the frequency information. Saves repeated entry.)

The global settings for D-Star are entered into the Settings file of the Programmer. These settings can be used in any file that you create or kept specific to this file depending on how you use your settings file

Channel-Specific D-Star Settings

The fields in the Programmer for the D-Star settings are included with those for each memory channel. The D-Star fields become active and ready for data once a receive frequency is entered and the Operating Mode is set to DV (simplex) or DR (repeater). Further, with DV or DR selected as the operating mode, the columns for Tone are disabled. Any value that appears in a disabled column is not used by the radio.

If you must program a D-Star channel manually, you will need the following information. Remember, all of this can be done using the D-Star calculator bult right into the program.

Enter the Receive and Transmit frequency for the repeater.

Select DV (simplex) or DR (repeater) as the Operating Mode.

The columns specific to D-Star become active. These include Digital DSQL, Digital Code, Your Callsign, Rpt-1 (repeater) Callsign, and Rpt-2 (repeater) Callsign. Enter the D-Star settings for this particular repeater.

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 Your Callsign. This is the callsign or command to the repeater or dongle. Your Call entries include things such as CQCQCQ, REF030CL (link to Refelector 30 2M module where the L is in the 8th space), U (Unlink with the U in the 8th space), I (for Status - or Info where I is in the 8th space). For ease of entry, try the D-Star Calculator built right into the programmer.

Rpt-1 / Rpt-2 Callsign - Enter the callsign to be used for Repeater 1 and Repeater 2 along with spaces and needed designation for that repeater. This is the callsign of the repeater with the letter designation of the frequency (A = 1.2 G, B = 440 Mhz, and C = 144 Mhz) for Rpt 1 and generally the callsign of the repeater with G in the 8th position for Rpt2 (this puts your signal onto the internet - the gateway). Again, for ease of entry, try the D-Star calculator built right into the programmer.

Using the D-Star Calculator

A channel for D-Star can be programmed manually and may need to be especially if it is a new repeater in your area. The RT Systems programmer has the D-Star calculator built right in to make D-Star programming even easier. Maintained by RT Systems and updated often, the calculator should have most of the information you need for any place in the world. Hot spots and X-Reflectors are not a part of the database maintained for the programmers. New repeaters are added as soon as we know about them and can verify the information through the Trust server.

To use the D-Star calculator:

Select DStar | DStar Calc from the menu at the top of the screen. The calculator opens.

ource	Destination		
Source Repeater Country United States State Georgia City Lawrenceville Callsign WD4STR Callsign Callsign Search By Callsign Search DVAP Hotspot Frequency Name 144.00000	Image: Name WD4STR T Image: Constraint of the state of	Route to Repeaters Repeaters Africa Asia Australia Canada Europe Central Europe North-West Europe Northern Europe Vorthern Europe Southern Europe Vorthern Europe Southern Europe Southern Europe Southern Europe Southern Europe Southern Europe Vestern Germany Italy Japan USA Alaska USA Nothwest USA Northeast USA Northwest	Link To Reflectors
Frequency 145.0600 +1.4000		0 repeaters selected Reset	0 reflectors selected Reset
RPT1 (Source) RPT2 (Destination)			a a

Source

Starting at the left of the screen, notice the section marked "Source". This is the repeater you will go into. Just as in analog transmissions, you must be able to "hit" the repeater. Select the Country, Start, and City nearest to you.

We select Country : United States State: Georgia City: Lawrenceville

The callsign WD4STR appears indicating that this is the only callsign in this location. If Callsign remains blank, the selection includes more than one. Select from those in the list.

Notice that this callsign has two frequencies associated with it. These are two modules of this repeater. They are located in the same place.

You can do the same things through each of them. There are times you can hit a 440Mhz machine easier than a 2M machine so you probably want to set up them both.

Search by Callsign is used if that is the information you have available. Sometimes a location for a callsign is not in the exact city you expect it to be. You may be surprised where a repeater is located.

DVAP Hotspot lets you enter the frequency and a name for your DVAP hotspot. The programmer will use that information to set up the channels you want to your selected destinations.

Destination

Moving to the right, we encounter Destination. This is the "Out" side of the transmission.

Notice that the first column in Destination includes Talk, Echo, Status and Unlink with a check mark next to each. These channels will be set up automatically for you. You will use them for:

Talk - This is your CQCQCQ channel. This is the one you will use most often to do just what it says... talk

Echo - This channel is VERY IMPORTANT when you are getting set up or you travel to a new area. This channel lets you send a transmission to the repeater and hear it back... in your voice. This is your test channel. To use it... Turn to this channel and listen to be sure the repeater is not in use. If it is quiet, key up, give your callsign and say "Testing". If you hear back clearly "*Your callsign... Testing*". you are making a good connection into that machine. If you hear nothing... you did not make the trip. If you hear talking that sounds like Donald Duck, your transmission made the trip but not very well. You cannot count on this repeater in your current location with this radio on this antenna to communicate via DStar.

Status - Why Status is I and not S, I don't know.... I think it stands for Information. That is what the repeater will give you when you send it this command. Turn to this channel and key up. The repeater will respond with information about its being connected to other machines on the system.

Unlink - Probably the most important of these commands. Once you use a repeater to link to a reflector or another machine, it is nice if you "unlink" before you leave. It's always nice to hang up the phone after the call. You will use this command a lot. Simply turn to this channel and press the PTT. You might want to give your callsign and say that you are unlinking.

Name - This is the name that will be displayed for your use. This is not a working part of the DStar setup. You can change the Name here or after the channels are created in memory. You need the name to know which channel is doing what. Without it all you have is frequency and the frequency will be the same for several memory channels in a DStar setup.

Repeater Channel Name - Select Callsign or Location (City) for the programmer to use as the Name for the memory channel. Again, this is information for you to use to identify the channel. Choose what works best for you.

Callsign Routing - Enter specific callsign you want to route to. This is a more advanced function of DStar. The programmer will set up the channel for this function; however, this is not your best option for your first attempts.

Repeaters - Notice at the top of that window there is a drop down that includes two options -

Route to Repeaters - This is a function of the Trust Server to "route" your call to a designated repeater. This function "ties up" only your local machine. The machine on the other end is not "hard coded" to the originating machine. People at the other end will capture your information and "route" back to you. This process is required in places where linking is not allowed.

Link to Repeaters - This function "hard codes" the two repeaters. This option has the advantage that anyone at the other end can join in the conversation once the repeaters are linked without having to capture routing information. Many repeaters will not allow themselves to be linked. This is by choice of the repeater owner.

Use the tree to find the repeater you want your signal to come out on. The programmer will automatically set up the channels for each that you select.

Note: The beginner should skip this part of the process. Come back to it once you have some experience, know that everything is working with the system, and have someone to experiment with on the other end. While this is a very useful part of the DStar system, it is not the place to start.

Link to Reflectors - This is the place for the beginner. These are like party lines. Once the repeater is linked, people from any place else in the world may also be linked. It's like jumping into a pool with LOTS of people to talk to. Some reflectors are busier than others. I would suggest REF001C and REF030C as they usually have traffic. Others though may be just as popular. Check others, especially if you speak the language. You may meet many new friends from around the world.

Once you make your selections... and believe me you do NOT want to select all the repeaters or reflectors: that's just too many to work with... check the options at the bottom of the screen

Starting Channel Number - Use the dropdown to start the list any where you want in the file. *Remember, this is an OVERWRITE function not one that inserts. If you tell it to start at channel 101 and you have information in channels 102 -105, it will replace what you have in those channels with what comes from the Calculator.*

AutoIncement - Check to have the Starting Channel Number reflect the next channel number after those you insert.

Apply - Click and watch the channels appear in the grid. These are complete DStar channels ready for you to use to make your first contact... that is if you have registered your callsign. If not, go to <u>www.KD0LUX.org</u> and complete the registration. This is RT Systems' repeater. Registration is a two part process that requires we respond to you. If we don't get back to you in a few days, call us. We'll take care of you immediately.

File-Specific D-Star Settings

DStar | Digital (D-Star) Settings

From the menu at the top of the screen, select **DStar | Digital (D-Star) Settings**. The options entered into the fields of this screen are saved as part of the file into which you are entering memory channel details. The options of this screen are **NOT SAVED** until you save the file with the memory channel information. It is recommended that as soon as you finish working with the options on this screen, click OK on this screen to close it, then File | Save to save EVERYTHING in the file.

You are NOT just saving the Digital Settings with this move. You are saving the complete programming file AND the D-Star settings. It is recommended that you do this now to prevent loss of the information that you entered for these settings.

Automatically insert callsigns entered in memory channels	Your Callsign	Name	Comment
	001 CQCQCQ	Use Repeater	
My Callsigns Note Selected My Callsign	002 U	Unlink Repeater	
	003	Repeater Status	
	004 E	Echo Test	
	005 REF001AL	link to REF001A	
	006 REF001BL	link to REF001B	
	007 REF001CL	link to REF001C	
	008 REF002AL	link to REF002A	
	009 REF002BL	link to REF002B	
	010 REF002CL	link to REF002C	
	011 REF003AL	link to REF003A	
ted Tx Message 📃 👻	012 REF003BL	link to REF003B	
Tx Messages	013 REF003CL	link to REF003C	
	014 REF004AL	link to REF004A	
	015 REF004BL	link to REF004B	
	016 REF004CL	link to REF004C	
	017 REF005AL	link to REF005A	
	018 REF005BL	link to REF005B	
	019 REF005CL	link to REF005C	
	020 REF006AL	link to REF006A	
	1	at	

My Callsign - Enter you, personal callsign just as you registered it in the Trust Server. *This is the minimum information required on this screen and it is* **REQUIRED**. This process will not work if this field is not completed.

Note - Four characters of your choice. Many people put their name (if short enough) or a radio ID. (D74 would be a good entry here).

Selected Tx Message - Select the number of the message to be transmitted. You can save up to 5 messages using them one at a time.

Tx Messages - Enter text for up to five messages to be used one at a time during DStar transmissions.

Your Callsign - This is a list of commands used in the Your Callsign field when working in DR Memories.

Name - An identifying name for the Your Callsign entries.

Other Digital Settings for D-Star operations

These are found in the programmer under Settings | Radio Menu Settings | GPS tab | Digital section

TX/RX

The radios has the ability to reply to a received call by simply pressing [PTT] while the radio displays the interrupt screen in DV or DR mode. The default setting is On.

A special icon appears at the bottom right of the screen indicating that a direct reply is possible. When the [PTT] is pressed when this icon appears, the settings of the radio are automatically changed to reply settings and transmission becomes possible to the calling station.

Direct Reply - Check to engage functionality that sets automatically the Callsign of the other station and replies when a signal to your callsign is received.

The change to transmission settings is temporary. Once the display hold time elapses, the radio returns to the previous transmission settings.

When a repeater frequency is received in DV mode, you cannot reply be pressing [PTT].

Auto Reply Timing - Set the time delay before the Auto Reply is sent.

Data Tx End Timing - Set the delay time that the radio waits to return to RX after high speed digital Tx in accordance with the requirements of the software in use for this activity.

Rx AFC - Engage this function to correct a slight frequency offset of the received signal to achieve frequency stability.

FM Auto Detection on DV - Check to engage reception of an FM signal when operating in DV mode.

Note: An FM signal cannot be received when in DR mode.

Data Frame Output - Set the parameter to control output of digital data received by D-Star via the Micro-USB connector.

All - Transfers all received data to the micro-USB connector.

Related to DSQ - Transfers data based on the Callsign squelch/Code squelch settings. The digital data is not output when the sound is muted by the squelch.

DATA Mode - Data is transferred only when the radio is in Data mode.

Enhance Monitor Volume Level - The Enhanced Monitor Requeest mode is a function used for emergency communications while in DV/DR mode. This function forces the squelch of all radios that hear this signal to open. This option allows you to set the volume for reception of an EMR signal on your radio (i.e., this signal could be heard at a greater volume than you normally use so you are less likely to miss an emergency call).

Note: If the volkume level set via the [VOL] knob is higher than that set here, the higher volume will be used when an EMR signal is received.

GPS Data Tx

While working in DR or DV mode, location information can be sent with your signal. These option configure what is sent and the format of that transmission.

GPS Information In Frame - Check to engage transmission of location information using GPS when operating in DV/DR mode.

Auto Tx - Set the interval at which location information is transmitted automatically.

- This function is for use in DV mode. It should be off in DR mode.

- When My Position is not set using GPS, this function will not operate.

GPS Sentence - Select up to four of the GPS sentences to transmit location information when operating in DV mode. These include:

- [GGA] Global Positioning System Fix Data
- [GLL] Geographic position, latitude/longitude
- [GSA] GPS DOP and active satellites.
- [GSV] GPS Satellite in view
- [RMC] Recommended minimum specific GPS/Transit data

[VTG] - Track made good and ground speed

Note: These each appears in the radio with \$GP appended to the beginning.

When My Position is not set using GPS, GSA, GSV and VTG sentences are not sent.

Rx Notification

The RX break-in function displays information received for the other station in a break-in screen. These options configure what information is received.

Display Method - Control when the data from the break-in station is

displayed. Select from:

Off - Displays a one-line information (D-Star icon and Callsign) for all received calls.

All - Displays a break-in for all received signals.

Related to DSQ - Dispalys a break-in screen when the callsign or coded squelch matches that set in your radio.

My Station Only - Displays a break-in screen only when a call to your station (callsign) is received.

Single Display Size - Select Half or Entire display when operating in a single band configuration.

Dual Display Size - Select Half or Entire display when operating in a dual band configuration.

Display Hold Time - Set how long the break-in screen is displayed.

- When 0 is selected, the break-in screen remains until the signal is lost.

- When there are multiple RX break-in station, only the most recent is displayed.

Callsign Announce - Set this option to engage verbal announcement of the callsign of a received station.

- Only the callsign is announced. The TX message is not included in the announcement.

Sandby Beep - Check to engage an audible sound that is heard when a D-Star transmission has ended.

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9.1 Setting up the Radio for DStar

So now your head is spinning and you're thinking, "What did I get myself into?!?!?" I'll never get DStar to work!

This is easier than you think... even though there are pages of text at <u>DStar Settings</u> explaining what all these options do.

Let me give you a brief overview of what you do next.

Note: This is all done with two presumptions

- That you have done Communications | Get data from Radio or Read from SD Card already. If not, do that now then return to this page. See details at <u>Communications | Get Data from Radio</u>

- That you have registered your callsign into the Trust Server. If not, use the registration at <u>www.KD0LUX.org</u> and complete the registration. This is RT Systems' repeater. Registration is a two part process that requires we respond to you. If we don't get back to you in a few days, call us. We'll take care of you immediately.

1) Open the file into which you want to put DStar memory channels. This could be a new file if all you want in your radio is DStar channels or it could be a file that you have already put some analog channels into.

2) From the menu at the top of the screen, select DStar | Digital (D-Star) Settings

Enter callsign information

Enter Text Message information if desired (it is recommended). Be sure to set a text message to use.

3) Click OK to close this screen once the entries are complete. Save the file using File | Save as from the menu at the top of the screen.

4) Access DStar | DStar Calc from the menu at the top of the screen.

Set up the DStar repeater in your area with a connection to Reflector 01C or 30C.

5) Click Apply to create these channels. Then Close to close the calculator.

6) Do Communications | Send data to Radio or Write to SD Card to program the radio with the new channel information.

7) Use the Echo command to check that you can hit this repeater.

8) Presuming that you can, use the Link command (REF030CL) to connect to 30C reflector. The repeater will tell you if it is successful with this command.

9) Turn back to the TALK channel. Key up. Give your callsign and say you are new to DStar. Can anyone let you know how you're doing. i would be surprised if someone does not answer.

10) Enjoy your visit. When you are finished, turn to the UNLINK channel. Key up to break the connection to the reflector.



10 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.

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

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

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

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

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

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10.1 Regular Memory Channels

Enter the details for the memory channels on the screen of the program that first opens.

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	Receive	Transmit	Offset	Offset	Operating	Name	Tone Mode	CTCSS	Bx	DCS	DCS	Skip	Step	Fine Step	Fine	Digital	Digital	Your	Rpt-1	Rpt-2	Group	*
000	riequency	riequency	riequericy	Direction	MUUS				C1035		Fulation			Enables	Step	SQUEICH	Coue	Callagri	Caloign	Calogn		
801	-						linestal	-		- Long		Lowerd		E								
002														6								
004														100 E								
005														F								
006														10								
007														21 27								
009														F								
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034														5								
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Ready																						CAP NUM SCRL

- All details associated with the memory channels are programmed from this screen.
- These are not all the functions of the radio. Other features are set once for the radio to use no matter which memory channel you're on. These other items are set on the Settings screen accessed through Settings | Radio Menu Settings from the menu at the top of the screen.
- Columns continue off the right side of the window. Use the bar at the bottom of the screen to move to these columns or press ENTER to step through each column.

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

TH-D74 Program	mer - TH-D7	4 Untitled1									
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📸 TH-D74 Un	titled1 ×										
Receive	Transmit Frequency	Offset Direction	Name	Tone Mode	CTCSS	Rx CTCSS	DCS	Skip	Comment		^
000											
001											
002										-	
004											
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Ready										1.1.1	CAP NUM SCR.

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

Details to be entered for Memory Channels

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

- Unacceptable frequencies for the radio cannot be entered into the Programmer.
- The first memory channel must be programmed.

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

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

Note: In the Programmer you can enter details for frequencies

outside the transmission abilities of the radio. The software will not enable transmission on these frequencies. Transmission will be possible only if the radio has been properly modified.

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

If the difference between the two frequencies (in hertz) is <u>not divisible by 50,000</u> (<u>hertz</u>), this pair is referred to as a split.

If the difference in hertz is <u>divisible by 50,000 (hertz</u>), the Programmer will automatically calculate the Offset frequency and set the Offset direction properly for working this repeater.

To enter the details for a "split pair":

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you monitor when awaiting a call. This will be the frequency of the repeater.
- Press Enter. The Programmer will fill the remaining columns with default information which may or may not be right for your particular situation.
- The Transmit field will be active as indicated by the dark border. Enter the Transmit Frequency from the information you have. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)
- Press Enter. Notice that the Offset Direction is set to Plus or Minus. Note: The Programmer may set the Offset Direction to Plus or Minus. If it does and the Receive and Transmit frequencies are what you entered, leave it as it is shown. This combination will give you the same performance on the repeater with more efficient workings of the radio.

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

Offset Frequency: Standard offsets are included in the programmer. You do not have to do the calculations. Remember, the /. most common standards are 600 kHz for the 2M band and 5.0 MHz for the 440 MHz band.

Kenwood radios can use an Offset Frequency of 3-digits (x 10 kHz) in 50 kHz steps (i.e., any value ending in .x00 or .x50 where x is any digit from 0 to 9) with a Plus or Minus Offset Direction.

This gives you the ability to use the Reverse function of the radio although your frequency pair is not separated by a standard offset value. A **non-standard Offset Frequency** value is entered by typing it into the Offset Frequency field after the Receive Frequency has been entered. Values are entered as an exact value including the decimal to denote kHz. Then select Plus or Minus in the Offset Direction column and watch the Programmer calculate the Transmit Frequency.

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

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

Some European DStar repeaters require a 0.00 MHz offset with a Plus or Minus direction. This can be done in the program by setting Offset Frequency to 0.00 (or blank) and Offset Direction to Plus or Minus.

Offset Direction

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

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

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

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

Operating Mode: Assign the operating mode as appropriate for the frequency. This value can be set and stored independently for each memory channel.

Note: AM, LSB, USB, and CW are for receive only and are used by channels on Band B only.

Name: Enter an Alpha/Numeric tag (up to 16 characters) for a memory channel to provide an easy reminder of the function of a particular channel. The name is shown along with the frequency on the display of the radio.

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

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

It uses a sub-audible tone to block signals into your radio and sends a signal to the repeater to open it for use. Your radio remains silent until a signal with the assigned tone is heard. This makes you like the "toned" repeater. (T Sql (Tone Squelch) = CT (Kenwood term)

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

The <u>Tone Modes</u> include:

<u>None</u> - No tone system activated. Even if the CTCSS Tone or DCS Code columns are set to a value, transmissions will not get through unless this column is set to the proper function.

Tone (T) - Tone generator is activated for *transmission only* using analog CTCSS tones. This mode is used for many if not most repeater operations. When this option is selected, the CTCSS column becomes available.

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

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

<u>T Sql (CT and T/C cross tone)</u> - Tone squelch is activated for *both transmission and reception* <u>using the same or different CTCSS tones</u> <u>for both</u>. In this mode only signals set up with the same tone will open the squelch. Your radio will remain silent otherwise.

Select the tone frequency from those in the CTCSS and Rx CTCSS columns. The values must be in the lists.

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

Note: If you set a different value for CTCSS and Rx CTCSS this function will NOT work radio to radio. Split tones (T/C in cross tone) is for use only with a repeater. When you are working a simplex frequency between two radios, you must be transmitting the same tone that the other radio is listening for.

DCS (DCS) - Digital Coded Squelch mode is activated for *transmission*

and reception using one DCS code for both. This mode is used in many commercial systems.

When this option is selected, the DCS column becomes available. Select the code from those in the list. The value must be in the list.

The radio uses the DCS Code for both transmissions and reception.

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

<u>TDCS (T/D cross tone)</u> - <u>CTCSS</u> mode is activated for <u>transmission</u> and <u>DCS</u> is activated for <u>reception</u>. This mode is good to use for private communications in a busy setting.

When this option is selected, the CTCSS and RX DCS columns become available. Select the values to use from those two lists. That in CTCSS is used to transmit and that in RX DCS is used to block incoming signals. The values must be in the list.

DCode (D/O cross tone) - DCS mode is activated for transmission only.

When this option is selected, the DCS column becomes available. Select the value to use. The values must be in the list. With this mode, your radio does not block incoming signals.

DTone (D/C cross tone) - **DCS** mode is activated for **transmission** and **tone squelch** using a CTCSS analog tone is activated for **reception**.

When this option is selected, the DCS and RX CTCSS columns become available. Select the values to use. This mode would be for use on a special repeater system. It will not work radio to radio since if the radio is generating DCS, the other radio is blocking that signal. If you want to work radio to radio, use TSql or DCS.

<u>DCode (T/C cross tone)</u> - CTCSS mode is activated for *transmission and* reception with the ability to use DIFFERENT tones for each.

When this option is selected, the CTSS and RX CTCSS columns become available. Select the values to use. The values must be in the list. This system is for use on a repeater system. It will not work for radio to radio, simplex, communications.

CTCSS: Select one of 50 tone frequencies to be used with Tone mode of "Tone". This field is active only if Tone Mode is set to Tone. A value that appears in this field is ignored if Tone Mode is set to TSql or DCS.

Rx CTCSS: Select one of 50 tone frequencies to be used with Tone mode of "TSql". This field is active only if Tone Mode is set to TSql. The tone squelch function uses a

tone to access the repeater AND block signals from being received by your radio. The Kenwood radio uses the value in this field to block the incoming signal. This value can be the same or different from that in the CTCSS column when doing tone squelch (TSql). A value that appears in this field is ignored if Tone Mode is set to Tone or DCS.

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

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

Fine Step - Set tuning to 20, 100, 500 or 1000Hz steps. Setting this option will allow you to set the frequency of the channel to a greater fineness.

Fine Mode - Check to engage fine mode tuning for this channel. This fineness is often useful when scanning the HF bands and is available only if the Operating Mode is set to AM, LSB, USB or CW.

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

Digital

These option can be set only if the channel is set to DV or DR mode (the digital operating modes)

Digital Squelch - Select DSQL or CSQL as instructed for the repeater. This information will be specified in that available for the repeater. If nothing is specified, there is no Digital squelch for this system.

Digital Code - Select the Digital Code used with Digital Squelch

Your Call - Enter the appropriate Your Callsign for this channel. This is the command for the repeater (i.e., CQCQCQ is the talk command while E in the 8th position is the echo command and REF030CL is the link to Reflector 30 2M side command). Use the built in DStar calculator to help you with these commands and proper letter position. Access the DStar calculator through DStar | Dstar Calc at the top of the page. See the section in this help on use of that tool.

RPT1 - Enter Repeater 1 designation for use into this repeater (i.e., callsign of the repeater then A-1.2G, B-2M, or C-440MHz in the 8th space)

RPS2 - Enter Repeater 2 designation for use out of this repeater (i.e., callsign of the repeater, then G in the 8th space for gateway)

Use the Dstar calculator built into the program to help eliminate the guesswork with these entries. Access the calculator via Dstar | DStar Calc in the menu. On-line videos at <u>www.rtsystems.com</u> help with even more information on how to use the DStar calculator.

Lockout - Check to engage. A channel that is locked out is not scanned.

Memory Group - Select a Group into which this channel will be sorted for Group Link Scanning. You can link the maximum 30 memory groups randomly. Every channel will be in a group. Group 0 is the default. If you are not using this function, leave this set to Group 0.

Note: The Memory Groups in this radio are for SCANNING only. This is not a separation for selected use.

At least 2 memory channels must be programmed into a selected group and Lockout must not be engaged for the group to be included in scanning.

Memory groups not included in the group link are not included during scanning. (This is a good way to omit busy channels or channels from another area you don't want to include all the time when scanning.... put them in a separate group then do not link that group.)

If Memory Recall Method is set to Current Band, the memory channels in the group of the same frequency band as the current memory channel will be scanned while other memory channels within the group will be skipped.

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

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10.2 Limit Memories for Program Scan

This feature allows you to set sub-band limits for VFO scanning.

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

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

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

Note: If the start frequency lies within two different frequency ranges, the range in the lesser memory scan number will be used (i.e., if you have from 144 to 146 in U1/L1 and 145 to 147 in U3/L3 and you start scanning on 145.35, the radio will scan the L1/L3 limits, 144 to 146 since this is the first group in which 145.35 lies.)

The option for Scan Resume can be set from the Programmer. This item is found in the Setting file which is accessed by selecting Settings | Radio Menu Settings from the menu at the top of the screen. Scan Resume is found on the Common 1 tab.

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

Select the desired band

Press the [VFO] button

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

Note: If the frequency is within more than one Program Scan range, the range stored in the lower channel number will be used. Consider this carefully when setting up the ranges. If range 1 and range 2 overlap, be sure to begin scanning range 2 on a frequency that is within range 2 but outside of range 1. Press the [VFO] button to start scanning at the current frequency. To halt the scan, press [VFO] again

10.3 VFO Memories

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

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

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

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

To program the VFO memory, select the VFO tab at the bottom of the screen. Enter a frequency that is appropriate for the band. The details that you enter will replace the default of the radio. Simply type over the information shown to make the changes. These channels must contain a frequency appropriate for the band. They cannot be blank.

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

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

10.4 Call Channel

The Call channel memory provides convenient, one-touch access to your most often used frequency in the 2M, 220MHz and 440MHz analog and digital bands.

Call channel memories are programmed on the Call Channels tab of the Programmer. The information to be programmed for the Call Channels is the same as that for the regular Memories. See <u>Regular Memory Channels</u> for the details of each item to be programmed.

Call Channels... Analog and DV. DV gives you Your callsign only. DR gives you access to RPT1 and RPT2 are not available. DV mode is is designed for Simplex communications from radio to radio or radio to dongle.

10.5 DR Memories

While using DR Memories gives you wonderful functionality for accessing DStar repeaters in new areas in which you might be traveling, there are a few things about DR Memories that you need to know to make your adventures into DStar easier.

1) DR Memories are not a complete DStar channel.

They hold 2/3s of the information needed to make a contact.

Until you understand the workings of DStar, we recommend that you program your DStar channels into memory where they can be complete and ready to use when selected.

As you learn more about DStar operations, you will be able to use DR Memories in the future.

2) You do NOT have to put your DStar channels into DR Memories to operate on DStar.

DStar channels can be set up in regular memory.

In regular memory, the channel will have all the information to make a contact.

You can program more than one repeater into regular memory.

Regular memories are great to use for your "home" DStar repeater(s). Those you use most often.

3) You have to do as much "knob turning" using DR Memories as you do using regular memory channels.

The DR Memories are great for scanning, near repeater identification, and general QSOs. However, in DR Memories, you have to turn the know between the Your Callsign selection is you are going to do talk (CQCQCQ), Echo (E), Link (REF030CL) or Unlink (U) functions.

In regular memories, you change between memory channels to access the commands.

DR Memories

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TH-D74 Untitled1 * Test1.THD74 *	Repeat	erBook S	earch TEst2.THD74	TH-D74 Un	titled3	-D74 Untitled4	* ×							
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0000 434.40000 439.40000 5.00 MHz 🗸	Plus 🗸		Hamacyo	Tokya	JP1YIU A	JP1YIU G	Exact	35"41"12"N	139"47'28"E	+09:00	Asia	Japan	V JA1 : Kanto	
0001 1291.69000 1271.69000 20.00 MHz	Minus		Hamacyo	Tokyo	JP1YIU B	JP1YIU G	Exact	35'41'12'N	139"47'28"E	+09:00	Asia	Japan	JA1 : Kento	
0002 439.07000 434.07000 5.00 MHz	Minus		Edogawa	Tokyo	JP1YJKA	JP1YJK G	Approximate	35"42"48"N	139'51'40'E	+09:00	Asia	Japan	JA1 : Kento	
0003 1291.65000 1271.65000 20.00 MHz	Minus		Edogawa	Takya	JP1YJKB	JP1YJK G	Approximate	35"42"48"N	139'51'40'E	+09:00	Asia	Japan	JA1 : Kento	
0004 1291.47000 1271.47000 20.00 MHz	Minus		Ebisu	Tokyo	JR1VF A	JRIVE G	Approximate	35"38"50"N	139"43'05"E	+09:00	Asia	Japan	JA1 : Kento	
0005 439.13000 434.13000 5.00 MHz	Minus		Sugamo	Tokyo	JR1WN A	JRIWN G	Approximate	35'43'52"N	139"44'23"E	+09:00	Asia	Japan	JA1 : Kanto	
0006 434.26000 439.26000 5.00 MHz	Plus		TakyoDenkiUniv	Takya	JP1YDG A	JP1YDG G	Exact	35"44'55"N	139"48'23"E	+09:00	Asia	Japan	JA1 : Kento	
0007 1291.59000 1271.59000 20.00 MHz	Minus		Chofu	Tokyo	JP1YIXA	JP1YIW G	Exact	35*39'20"N	139"32'39"E	+09:00	Asia	Japan	JA1 : Kento	
0008 439.31000 434.31000 5.00 MHz	Minus		Nishitokyo	Tokyo	JP1YWA	JP1YIWG	Exact	35*44'06"N	139"31'31"E	+09:00	Asia	Japan	JA1 : Kento	
0009 1291.57000 1271.57000 20.00 MHz	Minus		Nishitokyo	Tokyo	JP1YWB	JP1YIWG	Exact	35"44'06"N	139"31"31"E	+09:00	Asia	Japan	JA1 : Kanto	
0010 439.29000 434.29000 5.00 MHz	Minus		Komae	Tokyo	JP1YJ0 A	JP1YJ0 G	Approximate	35*38'27"N	139"34'33"E	+09:00	Asia	Japan	JA1 : Kanto	
0011 439.25000 434.25000 5.00 MHz	Minus		HamFair 430-A	Tokyo	JP1YJJA	JP1YJJ G	Exact	35"37"44"N	139"47'44"E	+09:00	Asia	Japan	JA1 : Kento	
0012 1291.31000 1271.31000 20.00 MHz	Minus		HamFair 1200	Tokyo	JP1YJJ B	JP1YJJ G	Exact	35"37"44"N	139"47'44"E	+09:00	Asia	Japan	JA1 : Kento	
0013 439.07000 434.07000 5.00 MHz	Minus		HamFair 430-C	Tokyo	JP1YJJ C	JP1YJJ G	Exact	35"37"44"N	139"47'44"E	+09:00	Asia	Japan	JA1 : Kanto	
0014 434.38000 439.38000 5.00 MHz	Plus		Yakohama-Kohaku	Kanagawa	JP1YJYA	JP1YJYG	Approximate	35'31'42"N	139"37'20"E	+09:00	Asia	Japan	JA1 : Kento	
0015 439.21000 434.21000 5.00 MHz	Minus		Yakohama-Konan	Kanagawa	JP1YIQ A	JP1YIQ G	Approximate	35"24"53"N	139"34'20"E	+09:00	Asia	Japan	JA1 : Kento	
0016 439.19000 434.19000 5.00 MHz	Minus		ShonanKoukaDai	Kanagawa	JP1YJVA	JP1YJVG	Exact	35'19'28"N	139°27'06"E	+09:00	Asia	Japan	JA1 : Kento	
0017 1291.43000 1271.43000 20.00 MHz	Minus		ShonanKoukaDai	Kanagawa	JP1YJV B	JP1YJVG	Exact	35'19'28"N	139'27'06"E	+09:00	Asia	Japan	JA1 : Kento	
0018 439.05000 434.05000 5.00 MHz	Minus		Ebina	Kanagawa	JP1YJXA	JP1YJX G	Approximate	35*24*28*N	139"23'43"E	+09:00	Asia	Japan	JA1 : Kento	
0019 1291.41000 1271.41000 20.00 MHz	Minus		Ebina	Kanagawa	JP1YJXB	JP1YJX G	Approximate	35"24"28"N	139"23'43"E	+09:00	Asia	Japan	JA1 : Kento	
0020 439.27000 434.27000 5.00 MHz	Minus		Inage	Chiba	JP1YJ0 A	JP1YJ0 G	Approximate	35*39*47*N	140'06'53'E	+09:00	Asia	Japan	JA1 : Kento	
0021 434.46000 439.46000 5.00 MHz	Plus		Funabashi	Chiba	JP1YFY A	JP1YFY G	Approximate	35'43'49"N	140'01'46"E	+09:00	Asia	Japan	JA1 : Kanto	
0022 439.11000 434.11000 5.00 MHz	Minus	Ц	Kisarazu	Chiba	JP1YEMA	JP1YEM G	Approximate	35*22*27*N	139'56'46'E	+09:00	Asia	Japan	JA1 : Kento	
0023 439.09000 434.09000 5.00 MHz	Minus		Nagareyama	Chiba	JP1YJR A	JP1YJR G	Approximate	35'54'01"N	139'54'44'E	+09:00	Asia	Japan	JA1 : Kento	
0024 434.42000 439.42000 5.00 MHz	Plus		Yachimata	Chiba	JP1YJTA	JP1YJT G	Approximate	35*36'49*N	140°18'18'E	+09:00	Asia	Japan	JA1 : Kento	
0025 439.21000 434.21000 5.00 MHz	Minus		Katori	Chiba	JP1YDSA	JP1YDS G	Exact	35*53'52*N	140°29'58"E	+09:00	Asia	Japan	JA1 : Kento	
0026 434.22000 439.22000 5.00 MHz	Plus		Chiba-Nagara	Chiba	JP1YKM A	JP1YKM G	Approximate	35*27*37*N	140°11'49*E	+09:00	Asia	Japan	JA1 : Kento	
0027 434.14000 439.14000 5.00 MHz	Plus	Ц	Iruma	Saitama	JP1YKG A	JP1YKG G	Approximate	35*48*48*N	139°21'43°E	+09:00	Asia	Japan	JA1 : Kento	
0028 439.39000 434.39000 5.00 MHz	Minus		Furukawa	Ibaraki	JP1YIKA	JP1YIK G	Approximate	36*11*25*N	139*44*41*E	+09:00	Asia	Japan	JA1 : Kento	
0029 439.41000 434.41000 5.00 MHz	Minus		Tsukuba	Ibaraki	JP1YJZ A	JP1YJZ G	Approximate	36*12*41*N	140°05'56*E	+09:00	Asia	Japan	JA1 : Kanto	
0030 439.29000 434.29000 5.00 MHz	Minus		Kashima	Ibaraki	JP1YKH A	JP1YKH G	Approximate	35'57'49*N	140'37'47*E	+09:00	Asia	Japan	JA1 : Kento	
0031 439.41000 434.41000 5.00 MHz	Minus	<u> </u>	Shizuoka	Shizuoka	JP2YGY A	JP2YGY G	Exact	34 58'60'N	138'23'10'E	+09:00	Asia	Japan	JAZ: Tokai	
0032 439.43000 434.43000 5.00 MHz	Minus	<u> </u>	Gifu-Imazawa	Gitu	JP2YGR A		Approximate	35'25'24"N	136'45'40"E	+09:00	Asia	Japan	JA2 : Tokai	
0033 439.49000 434.49000 5.00 MHz	Minus		Gifu-Kinkazan	Gitu	JP2YDS A	JP2YDS G	Approximate	35'25'52"N	136'46'44'E	+09:00	Asia	Japan	JA2 : Tokai	
0034 439.01000 434.01000 5.00 MHz	Minus	<u> </u>	Ena	Gitu	JR2W0 A	JR2WO G	Approximate	35"26'58"N	137'24'46*E	+09:00	Asia	Japan	JA2: Tokai	
0035 434.02000 439.02000 5.00 MHz	Plus	<u> </u>	lbi-Ono	Gitu	JP2YHRA	JP2YHR G	Approximate	35'28'14'N	136'37'39'E	+09:00	Asia	Japan	JA2 : Tokai	
0036 439 35000 434 35000 5.00 MHz	Minus	- 11-	KamoGun-Yaotsu	Gitu	JEZYGAA	1001105.0	Approximate	35-28-34*N	137'08'29"E	+09:00	ASIB	Japan	JAZ TOKAI	
0037 439.37000 434.37000 5.00 MHz	Minus		Nagoya-Univ	Alchi	JPZYGLA	JP2YGE G	Exact	35-09-19*N	136'58'01"E	+09:00	Asia	Japan	JA2: TOKBI	
0038 1291.67000 1271.67000 20.00 MHz	Minus	-	JHU-NagoyaDai2HH	Alchi	JP2YGG A	JP2YGE G	Exact	35'08'42"N	136'57'57"E	+09:00	Asia	Japan	JAZ: TOKBI	
0039 1291 69000 1271 69000 20.00 MHz	withUS:	8	Denpa-Gakuen	AICRI	JP2YGEA	JP2YGE G	EXACT	35 U/131N	136'54'44'E	+09:00	ASIA	Japan	3442 : 10K8I	
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0041 435.23000 434.23000 5.00 MHz	Minus		NISHIO	Alchi	JP2YDNA	JP2YUNG	Approximate	34 52 31 TN	107 04 14"E	+09:00	Asia	Japan	JA2 : TOKBI	
H + + H Memories (Limit Memories)	DR Memorie	Cal	Channels VFO V	Veather	THE VITE A	neverile is	anninovimate	1 M #0.0 (019	1157.09.0178	Carowinin.	4	042 0420	- IN 2 LINCOL	•

The radio comes programmed with 1465 DStar repeaters. This list may or may not contain the repeaters you want to use. The programmer makes it easy to edit this data to create a list you need for your travels.

Information can be added one at a time or use the DStar calculator to fill in many entries at once. Be sure to update the programmer (Help | Check for updates) to keep the DStar Calculator updated on your system.

The information for each DR memory includes:

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

- Unacceptable frequencies for the radio cannot be entered into the Programmer.
- The first memory channel must be programmed.

Note: When working in a default file you will find several channels (Call, VFO, etc) preprogrammed. While you can change the information in these channels, they cannot be blank. The radio must have acceptable data in these memory locations. **Transmit Frequency**: Enter a specific transmit frequency or let the Programmer calculate this frequency based on the offset. This field is always available; however the transmit frequency for an "odd split" is the only value that must be entered manually.

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

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

If the difference between the two frequencies (in hertz) is not divisible by 50,000 (hertz), this pair is referred to as a split.

If the difference in hertz is divisible by 50,000 (hertz), the Programmer will automatically calculate the Offset frequency and set the Offset direction properly for working this repeater.

To enter the details for a "split pair":

- First, enter the Receive Frequency into that column of the Programmer. This will be the frequency that you monitor when awaiting a call. This will be the frequency of the repeater.
- Press Enter. The Programmer will fill the remaining columns with default information which may or may not be right for your particular situation.
- The Transmit field will be active as indicated by the dark border. Enter the Transmit Frequency from the information you have. (Note: Simply type the first number of that frequency. The field will change without having to erase what is there.)
- Press Enter. Notice that the Offset Direction is set to Plus or Minus. Note: The Programmer may set the Offset Direction to Plus or Minus. If it does and the Receive and Transmit frequencies are what you entered, leave it as it is shown. This combination will give you the same performance on the repeater with more efficient workings of the radio.

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

Offset Frequency: Standard offsets are included in the programmer. You do not have to do the calculations. Remember, the most common standards are 600 kHz for the 2M band and 5.0 MHz for the 440 MHz band.

Kenwood radios can use an Offset Frequency of 3-digits (x 10 kHz) in 50 kHz steps (i.e., any value ending in .x00 or .x50 where x is any digit from 0 to 9) with a Plus or Minus Offset Direction.

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

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

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

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

Some European repeaters require a 0.00 MHz offset with a Plus or Minus direction. This can be done in the program by setting Offset Frequency to 0.00 (or blank) and Offset Direction to Plus or Minus.

Offset Direction

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

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

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

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

Lockout: Check to omit the channel when scanning.

Name: Enter an Alpha/Numeric tag (up to 16 characters) for a channel to provide an easy reminder of the function of that particular channel. The name is shown

along with the frequency on the display of the radio.

Sub Name - Enter and Alpha/Numeric tag (up to 16 characters) for a channel to provide an additional level of organization when searching for a particular channel.

Rpt-1 / Rpt-2 Callsign - Enter the callsign to be used for Repeater 1 and Repeater 2 along with spaces and needed designation for that repeater. This is the callsign of the repeater with the letter designation of the frequency (A = 1.2 G, B = 440 Mhz, and C = 144 Mhz) for Rpt 1 and generally the callsign of the repeater with G in the 8th position for Rpt2 (this puts your signal onto the internet - the gateway). Again, for ease of entry, try the D-Star calculator built right into the programmer.

LatLng - Specify if the Latitude and Longitude entries are Exact or Approximate.

Note: There must be a value in this field for the near repeater search function to work.

Latitude and Longitude - Enter the specification for the location of the repeater.

UTC Offset - Enter this specification for the location of this repeater in UTC time.

World Group - There are 6 World Groups into which the repeaters are separated. The names of the World Groups can be edited in the Bank Names and Linking section of the programmer accessed under the Settings menu item.

Country Group - There are 36 Country Groups into which the default repeater list is separated. The names of the Country Groups can be edited in the Bank Names and Linking section of the programmer accessed under the Settings menu item.

Group - The Country Groups break down into local groups for the final step in the organizational structure of the DR memories list.



11 Programming Other Set Menu Items

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

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

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

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

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

The Programmer offers three options for managing the global settings:

- Set and forget The Radio Menu Settings screens are there for you to use to easily customize your radio to suit your use. Once you make your selections and save them, you don't have to do it again, even it you start a new frequency file.
- Create and use multiple global settings files This might be the best option if you program the frequencies for several different people. You can customize the global functions for the individual without having to recreate the frequency file.
- Save the settings as part of the file with the memory information This might be best if you are programming different frequencies AND different global settings for different groups. You might even want to use this option if you travel. How you use your radio at home may differ from how it should function on the same frequency in another city. Then each time you travel, simply load the corresponding file into the radio to have frequency and global settings as you need them for where you're going.

The three options are discussed in detail below. Once you decide, set the Programmer
for the option that you want on the Preferences screen (Settings | Preferences) in the Programmer.

Set and Forget

This is the default of the Programmer.

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

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

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

Once you complete your selections:

- Click File | Save
- If you are working in a default file (Untitled.rsf), you will be prompted for a filename.
- Enter a name for this file. This can be the same as the name you're using for the memory channel information or it can be a name unique to these settings. If you're at a loss, use "Settings".
- Click Save to close the Save dialog
- Click File | Exit to close the Settings screen.

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

Creating and using multiple global settings files

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

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

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

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

To select a settings file for use:

- Select Settings | Radio Menu Settings from the main page of the Programmer.
- From the Radio Menu Settings screen, select File | Open. A list of settings files will be presented. Do not change the Files of Type selection at the bottom. The Programmer presents appropriate files to choose from.
- Select the file you want to use and click Open.
- Verify that this is the settings file that you want to use. Check also that the proper filename appears in the titlebar at the top of the Menu Settings window.
- Click File | Save to reset the Programmer to use this file.
- Select File | Exit to close this screen. These settings will be sent to the radio with the memory channel file until you change this file selection again.

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

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

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

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

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

- Click OK to close this screen.
- From the main screen of the Programmer, select Settings | Radio Menu Settings.
- Make changes as needed.
- Click Close | Apply changes and close (if you want to save) or Discard all changes and close (if you think you're made mistakes and need to return to the last time you saved this file).

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

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

- From the Menu Settings screen, select External Setting Files
- From that menu select Open
- Select a settings file from the list presented. The settings file must be for the same radio.
- To set these to be used in this file, select Close | Apply changes and close.

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

11.1 Radio Menu Settings - Common

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

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

RX

Beat Shift - Prevents interference when the radio's microprocessor and the CPU's clock's signals appear on the same spots of the reception frequencies. Select a setting from Type 1 to Type 8 which does not cause interference.

From face of radio, enter menu mode and access menu item 138 to select the setting.

Detect Output Select - For use with functions involving the PC.

AF - The received sound is output

IF (Single Band) The received IF signal of Band B is output to the PC.

Detect - The decoded signal of Band B is output to the PC

When set to IF or Detect, Band A is hidden and receiving sound output of Band A stops

This option does not work in conjunction with KISS

IF and Detect work only with Band B.

Detect cannot be used with DV mode

The detected signal is output from the internal speaker when IF or Detect is engaged.

Use of IF or Detect will turn off beeps and voice guidance.

Special PC software is needed to process IF or detection signal. Neither Kenwood no RT Systems handles this software.

MW / SW Antenna - ANT Connector / Bar Antenna - The radio uses a built-in bar antenna when receiving frequencies from 0.1 to 10.1 MHz. Change this option to ANT Connector to use an external antenna when listening in this range.

Weather Alert - (TH-D74A only) Available only in the USA and Canada. When activated, this function will seek a received NOAA 1050 Hz tone. When tone is received, the weather alert tone will sound. Select the band for activating the weather alert.

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

ТΧ

TX Inhibit - Check to stop radio transmissions.

Note: While Inhibit is ON, [TX Inhibit] appears on the screen and an error beep sounds if the transceiver tries to transmit.

Access Menu item 139 to engage or disengage this feature from the face of the radio.

Time-out Timer - Set the time limit for continual transmission. After this time, the radio will automatically cease to transmit.

Mic Sensitivity - Change the microphone input sensitivity. The microphone input sensitivity setting applies to both the internal and external microphones.

Rx Filter

SSB High Cut - Reduce interference and noise in SSB mode to make the receiver sound easier to hear. Low cut is set to 200 Hz. Select 2.2, 2.4, 2.6, 2.8 or 3.0 kHz for the high cut range. This option affects SSB signals received in Band B only.

CW Bandwidth - Reduce interference and noise in CW mode to make the receiver

sound easier to hear. Select 0.3, 0.3, 1.0, 1.5, or 2.0 kHz range. The center of the filter is the pitch frequency. This option affects CW signals received in Band B only.

AM High Cut - Reduce interference and noise in AM mode to make the receiver sound easier to hear. Low cut is set to 200 Hz. Select 3.0,4.5,6.0,or 7.5 kHz for the high cut range. This option affects AM signals received in Band B only.

Scan

Resume - Select the resume mode for the scanner after detecting a signal. Default is Time with 5 seconds for hold time.

<u>Time</u> - resumes after approximately 5 seconds, even if the signal is still present

<u>Carrier</u> - remains on a busy frequency or Memory channel until signal drops, then resumes scanning 2 seconds after signal drop.

<u>Seek</u> - remains on a busy frequency or Memory channel after signal drops and does not automatically resume scanning.

Resume (Digital) - select the resume mode for the scanner after detecting a digital signal. Default is Seek with 2 seconds for hold time.

<u>Time</u> - resumes after approximately 5 seconds, even if the signal is still present

<u>Carrier</u> - remains on a busy frequency or Memory channel until signal drops, then resumes scanning 2 seconds after signal drop.

<u>Seek</u> - remains on a busy frequency or Memory channel after signal drops and does not automatically resume scanning.

Time Restart - Set the time after which scanning will resume when Scan Resume (Analog or Digital) is set to the Time option. This one setting will affect the Time option for either Scan Resume (Analog) or Scan Resume Digital.

Carrier Restart - Set the time after which scanning will resume when Scan Resume (Analog or Digital) is set to the Carrier option. This one setting will affect the Carrier option for either Scan Resume (Analog) or Scan Resume Digital.

Priority Scan - Check to engage Priority Scanning. This function check the priority channel once every three seconds for activity. If activity is found, the radio changes to that frequency for communications. When activity ceases, scanning resumes no key was used continuously for 3 seconds during the period of activity on that channel.

Note: Be sure to enter the details for the Priority Channel (frequency, tone, name, etc.) in the space provided on the Call/Priority tab accessed from the main page of the programmer. Priority Scanning will not function if this channel is left blank. This channel can be left blank if this function is not in use.

Auto Backlight - Check to turn on the backlight for approximately 2 seconds when scanning is paused. This function works with all scans.

Auto Wx Scan - Set the amount of time that will pass before weather alert scan begins.

Repeater

Auto Repeater Offset - Check to have the radio function in VFO with a repeater offset for a given frequency based on a band plan shown on page 7-1 in the User Manual for the radio.

Call Key - Set the function of the CALL key to access the call channel or to transmission of the 1750 Hz tone needed by many European repeaters.

1750 Hz Tx Hold - Check to engage. When engaged, the radio remains in transmit mode for 2 seconds after transmitting the 1750 Hz tone. The radio does not continuously transmit the 1750 Hz tone during that 2 seconds.

Memory

Recall Method - Set to All Bands or Current Band as needed.

Note: When set to Current Band you will seem to lose memory channels. You will see only those that match the current operating band. If you suddenly have fewer memory channels that you expect, check the setting in Menu Item 202 and be sure to reset this option to All Bands in your programming file.

CW

Pitch Frequency - Set the pitch for CW reception.

Reverse - You can select Normal (USB) or Reverse (LSB) for receiving the CW signal.

Others

QSO Log - Check to engage communication history recording. This recording is to a microSD card only.

LED Control - Check to control illumination of the BUSY LED to save battery consumption.

RX - Check to light the LED when receiving on Bands A and B including FM broadcast. Uncheck to turn off the LED at all times.

FM Radio - Check to light the LED when receiving an Fm radio broadcast. Uncheck to turn off the LED at all times.

Audio

Recording Band - Engage audio recording on Band A or Band B. This option in the software makes the selection: engage the option from the face of the radio through Menu Item #301 when you are ready to use it and an SD card is in place.

TX Monitor - Check to engage this function for monitoring the voice message that is being played or sent.

Digital Auto Reply - Select the message to be sent when Auto Reply is engaged in the Digital Function Menu of the radio.

VOX

Enable - Check to engage VOX functionality. VOX functionality eliminates the necessity of manually pressing the PTT to switch to transmit mode.

Note: VOX operations cannot be done with the internal microphone on the radio or with a speaker mic (see page 12-5 of the manual for the radio). The internal mic and speaker are located too close to one another for proper operations. An optional Headset is required for this functionally (I suspect this is the Bluetooth Headset since the instructions specifically that a speaker/mic cannot be used).

The 1750 Hz tone must be accessed manually even when VOX is engaged.

When VOX is on, the ASC function turn off.

Gain - Set the gain level for best performance. The level controls the ability of the VOX circuit to detect the presence or absence of your voice.

Delay - Set the delay option to control the length of time between the end of your spoken word and the radio's return to transmit mode. If set too short, the end our your transmission may not be sent; however, you do not want to set it overly long and tie up the airwaves with an empty carrier.

TX on Busy - Check to force VOX transmissions even if the radio is receiving a signal.

Note: You can use [PTT] or [CALL] (if 1750 Hz is programmed) to transmit regardless of this setting.

DTMF Memories

Name and DTMF Code - Enter a name and up to 16 characters for each DTMF memory. DTMF memories are useful for Echolink access, autodial, and other activities that you do regularly that require a DTMF string to access.

DTMF Speed - Adjust the sending speed of the DTMF tones as needed by the repeater you use. The best is found through trial and error and may vary based on transmit conditions. A little slower without being too slow usually yields better results.

Pause Time - Set the lag time that transpires between when you key the DTMF memory and when it is transmitted.

TX Hold - Check to have the radio remain in transmit mode after the DTMF memory is sent.

Selected DTMF Channel - Select the active DTMF memory channel.

EchoLink Memories

Echolink allows you to communicate with other amateur radio stations over the Internet using voice over IP technology. The Echolink software progra allows worldwide communications to be made between stations or computer computer to station, greatly enhancing your comunications capabilities. The official Echolink website is www.echolink.org The radio has 10 special memories for Echolink DTMF information. Those memories store the following information:

Name or Callsign - Up to 8 characters for Echolink memory name

Memory Code - Up to 8 digits for one channel code

11.2 Radio Menu Settings - Configuration

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

Audio

Balance - Set the sound output for band A and band B. This is a good feature to use when using APRS along with a voice channel. You can set the APRS sounds to a minimum to reduce interference with your conversation.

TX Equalizer (FM, NFM) - This function changes the transmission voice frequency characteristic for FM (analog) transmissions.

TX Equalizer (DV) - This function changes the transmission voice frequency characteristics for DV (digital) transmissions.

Receive Equalizer - This function changes the received voice frequency characteristics.

TX/RX Equalizer Levels - Set the level to adjust the received and transmitted sounds.

Beep - Check to enable an audible sound heard when a button is pressed on the radio.

Even with the beep function off, the radio will beep 1 minute before power turns off when Auto Power is activated.

Even with the beep function off, the radio will beep when the Time-Out-Timer causes it to cease to transmit.

Beep Volume - Set the loudness of the tone heard.

USB Audio Level - The radio "talks" to the PC via USB Audio. use this option to adjust the volume of that communication.

Voice Guidance - Turn on functionality that announces frequency, memory channel information and other operating status shown on the display of the radio. Set to:

Off - No voice is heard.

Manual - The current status is announced when the power button is pressed.

Auto 1 - The announcement includes only the changed information when a change is made.

Auto 2 - The announcement includes status or displayed information and the memory channel name is announced rather than the frequency for the memory channel.

- Voice Guidance is available in English only

- Pressing the [PF2] while powering on the radio will engage voice guidance in the Auto 1 option.

Voice Guidance Volume - Set the volume of the announcement.

Battery

Battery Saver - This function saves your battery by causing the radio to sleep over a given interval of time when no signal is received and not buttons re pressed for more than 5 seconds. Select from 0.2 to 5.0 seconds of sleep time after which the radio wakes for 1 second to listen for a signal. Off disengages this option.

Auto Power Off - Set a time of non-use after which the radio will power off.

Bluetooth

Bluetooth Enabled - Check to engage use of a Bluetooth device with the radio.

Auto Connect - Check to have the radio automatically connect with this device when it is in range.

Device Name - Enter the name of the device in use for Bluetooth pairing.

Auxilary

PF1 and PF2 Keys (radio) - Set functions for these keys on the radio to suite your activities.

PF1, PF2 and PF3 (mic) - Set functions for keys on the Kenwood SMC-33 microphone.

Units

Set options for display of Speed/Distance, Altitude / Rain, Temperature, Latitude / Longitude, and Grid Square format to suit your usage.

Lock

Key Lock Type - The Key Lock function ensures that your transceiver settings remain unchanged if you accidentally press a key. Select from:

Key Lock - Locks all the front panel keys. (press [F] for 1 second to unlock the keys.)

Frequency Lock - Locks the radio on the VFO frequency or onto the current memory channel. It also locks the [MHz], [ENT], [MR], [BAND], scan function, [PF] (Group Up and WX) keys/functions.

Key Lock and Frequency Lock - Locks all the front panel keys along with the ENC control. (Press [F] for 1 second to unlock the keys.

Note: The [MONI], [PTT], [power] and [VOL] keys and control knobs cannot be locked.

DTMF Key Lock - Prevent transmission of DTMF tones by using this lock feature. Check to engage.

Mic Key Lock - Lock the microphone PF (programmable function) keys.

Volume Lock - Lock the volume so that it cannot be changed inadvertently.

With this function engaged, you can still change the volume on the radio... it's just harder. Press and hold the [MONI] key while turing the VOL control knob. The volume will lock at the new setting after releasing the [MONI] key.

Interface

USB Function - Connecting the radio to a PC enables you to interface to programming, GPS, APRS, KISS (Packet) and digital operations using appropriate software and in some cases other hardware. Kenwood advises that you never connect through a USB hub. Use a good USB-A to Mini USB-B cable. Watch the connection carefully. Do not force the wrong connector into the slot on the side of the radio (there are many that seem to be the same, but are not!)

You can select whether the radio operates as a USB port and audio device or operates as a mass storage class device when it is connected to the PC. Set that option here selecting from:

COM + AF - The radio operates as a virtual COM port for serial data communication (yes, this is how USB works), ans outputs one of the AF, IF or detection signals by USB.

Mass Storage - The radio enters mass storage mode. You can access the microSD card of the radio directly from the PC (just in case you don't have an SD card reader in your computer... or you forgot your SD card adapter and need to get to the SD card to download logs or other information from it.). The radio will appear as a removable disk on the PC.

Note: Once the radio is configured as a mass storage device, the radio can no longer talk to the SD card. Log recording will be halted until this option is returned to Com+AF which can be done via Menu Item 102 in the radio.

All functions of the radio cease other than power on/off.

The radio will not transmit and receive while configured as mass storage.

Mass storage works directly with the SD card of the radio. Be sure the SD card is present and properly configured for this function to yield results on the PC.

In other words... your radio becomes a big MicroSD card adapter. All other functions cease to work.

Output - Output for GPS, APRS, KISS (Packet) and digital operations (DV/DR) can be configured for USB or Bluetooth.

System

Language - Set to English or Japanese for display prompts.

Remember, voice assist is available only in English.

Display

Backlight Control - Backlighting brightness of the LCD can be set to any of four levels. These include:

Auto - The backlight turns on when operating any key or when rotating the knob on the top.

Auto (DC-ln) - On battery, the operation is the same as Auto. When on DC, the light is On.

MANUAL - The backlight turns on and off then the power key is pressed.

On - The backlight is always on while the power is on.

Backlight Color - Set the background color to Black or While

Backlight Timer - Set the timer from 3 to 60 seconds after which the backlight ceases.

LCD Brightness - Set the backlight brightness to High, Medium or Low.

Power On Message - Change the message that is displayed each time the radio is powered on. This message will replace the default HELLO!! that appears in a new radio.

Single Band Display - Change the radio to work in a single band operating on one frequency with GPS information or the current date occupying the remainder of the screen.

Meter Type - Set the design of the S/RF meter that is displayed on the face of the radio when a signal is received.

FM Radio

The radio can receive FM radio broadcasts while simultaneously monitorying two signals as well as waiting for a CW or a call from an acquaintance or from an APRS call. When a signal is received on Band A or Band B, the FM radio is muted until communications are completed.

FM mode cannot be engaged when selecting LF/MF/(AMBC), HF, 50, FMBC on Band B.

FM mode cannot be engaged when Priority Scan or Weather Alert is On or when Detect Out Select is set to IF or Detect.

FM Radio Mode - Check to engage FM radio operations. You cannot override the limitations by engaging this feature here. Although you can check the box, the radio will ignore the setting when the other parameters are engaged.

Auto Mute Return Time - Set the time after which the radio will return to FM mode after ham band activities cease.

FM Memories - Enter the Name and Receive Frequency for your favorite FM listening channels.

11.3 Radio Menu Settings - GPS

Use the settings on this page to control the functionality of the built-in GPS of the TH-D74 radio.

My Position

The radio has 5 memory channels for storing position data. Program Name, Latitude, Longitude, and Altitude for each of these channels as suits your activities. Mark the one to be used immediately after programming with this file to In-Use.

GPS Sentence

Select the format for the NMEA sentence to be added to the Internal GPS receiver data output from the PC.

GPS Basic Settings

Position Ambiguity - For times that you do not know or want to disclose your exact location, select the number of digits that will NOT be included in your packets. When set to Off, the complete location data (degrees, minutes and seconds) is sent and displayed. The digits are removed from the right of the string until at 4 digits, only the degree of your location is sent.

Operating Mode - Set to Normal for the display of the radio to continue to show your frequency. Performance is that of a normal transceiver. Set to GPS Receiver for GPS information display. The transmit and receive functions of the radio are turned off while the radio is in GPS operation only.

Note: With this function set to GPS Receiver, key operations are limited as explained on page 13-2 of the User Manual for the radio. Be sure you are familiar with what will and will not function on the radio before engaging this mode.

Battery Saver - This function turns off the GPS when the timer expires if position data has not been determined during the maximum "catching" time (about 5 minutes). Options include:

Built-in GPS - Check to engage the built in GPS functionality.

PC Output - Check to engage GPS data output to a PC. This output can be via Bluetooth or USB cable.

GPS Tracking

Track Log - With this option engaged (checked), all movement is saved in the GPS LOGGER on the SD card.

- Turning on Track Log will automatically turn on GPS.

- A Track Log entry is not saved when GPS function is not pinpointing.

- If Track Log overwritting is off, "Log Full" appears when the SD card is full and the Track Log function is paused.

- When APRS is on, Track Log will function only is APRS COM terminal input is OFF.

Record Method - Set the recording method for tracking. Select from Time, Distance or Beacon.

Interval - Set the interval time from 2 to 1800 seconds in steps of 1 second.

Distance - Set the distance from 0.01 to 0.99 in steps of 0.01.

Digital

TX/RX

The radios has the ability to reply to a received call by simply pressing [PTT] while the radio displays the interrupt screen in DV or DR mode. The default setting is On.

A special icon appears at the bottom right of the screen indicating that a direct reply is possible. When the [PTT] is pressed when this icon appears, the settings of the radio are automatically changed to reply settings and transmission becomes possible to the calling station.

Direct Reply - Check to engage functionality that sets automatically the Callsign of the other station and replies when a signal to your callsign is

received.

The change to transmission settings is temporary. Once the display hold time elapses, the radio returns to the previous transmission settings.

When a repeater frequency is received in DV mode, you cannot reply be pressing [PTT].

Auto Reply Timing - Set the time delay before the Auto Reply is sent.

Data Tx End Timing - Set the delay time that the radio waits to return to RX after high speed digital Tx in accordance with the requirements of the software in use for this activity.

Rx AFC - Engage this function to correct a slight frequency offset of the received signal to achieve frequency stability.

FM Auto Detection on DV - Check to engage reception of an FM signal when operating in DV mode.

Note: An FM signal cannot be received when in DR mode.

Data Frame Output - Set the parameter to control output of digital data received by D-Star via the Micro-USB connector.

All - Transfers all received data to the micro-USB connector.

Related to DSQ - Transfers data based on the Callsign squelch/Code squelch settings. The digital data is not output when the sound is muted by the squelch.

DATA Mode - Data is transferred only when the radio is in Data mode.

Enhance Monitor Volume Level - The Enhanced Monitor Requeest mode is a function used for emergency communications while in DV/DR mode. This function forces the squelch of all radios that hear this signal to open. This option allows you to set the volume for reception of an EMR signal on your radio (i.e., this signal could be heard at a greater volume than you normally use so you are less likely to miss an emergency call).

Note: If the volkume level set via the [VOL] knob is higher than that set here, the higher volume will be used when an EMR signal is received.

GPS Data Tx

While working in DR or DV mode, location information can be sent with your signal. These option configure what is sent and the format of that transmission. **GPS Information In Frame** - Check to engage transmission of location information using GPS when operating in DV/DR mode.

Auto Tx - Set the interval at which location information is transmitted automatically.

- This function is for use in DV mode. It should be off in DR mode.

- When My Position is not set using GPS, this function will not operate.

GPS Sentence - Select up to four of the GPS sentences to transmit location information when operating in DV mode. These include:

[GGA] - Global Positioning System Fix Data

[GLL] - Geographic position, latitude/longitude

[GSA] - GPS DOP and active satellites.

[GSV] - GPS Satellite in view

[RMC] - Recommended minimum specific GPS/Transit data

[VTG] - Track made good and ground speed

Note: These each appears in the radio with \$GP appended to the beginning.

When My Position is not set using GPS, GSA, GSV and VTG sentences are not sent.

Rx Notification

The RX break-in function displays information received for the other station in a break-in screen. These options configure what information is received.

Display Method - Control when the data from the break-in station is displayed. Select from:

Off - Displays a one-line information (D-Star icon and Callsign) for all received calls.

All - Displays a break-in for all received signals.

Related to DSQ - Dispalys a break-in screen when the callsign or coded squelch matches that set in your radio.

My Station Only - Displays a break-in screen only when a call to your station (callsign) is received.

Single Display Size - Select Half or Entire display when operating in a single band configuration.

Dual Display Size - Select Half or Entire display when operating in a dual band configuration.

Display Hold Time - Set how long the break-in screen is displayed.

- When 0 is selected, the break-in screen remains until the signal is lost.

- When there are multiple RX break-in station, only the most recent is displayed.

Callsign Announce - Set this option to engage verbal announcement of the callsign of a received station.

- Only the callsign is announced. The TX message is not included in the announcement.

Sandby Beep - Check to engage an audible sound that is heard when a D-Star transmission has ended.

11.4 Radio Menu Settings - APRS 1

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

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

My Callsign - Program your callsign using a maximum of 9 alphanumeric characters. You cannot send any data using NOCALL.

This callsign entry is for APRS not for Dstar. The callsign for Dstar is set in the programmer under DStar | Digital Dstar Settings accessed from the menu at the top of the screen.

Station Icon - Set an icon to accompany the other information sent in your APRS identifier.

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

Note: Never select EMERGENCY unless it is necessary. This causes the Emergency Alarm on all stations to sound. If you select EMERGENCY, a confirmation message appears.

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

Type - select the packet path type. Options are:

<u>New-N</u> - digipeat type commonly used in North America, but is also now used worldwide.

<u>RELAY</u> - digipeat type commonly used in Europe.

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

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

WIDE 1-1 - Check to enable this option for packet operations.

Total Hops - Select the relay step number.

Path is VIA - Confirm the settings contents.

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

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

APRS Lock - Prevents accidental frequency changes and/or transmissions when enabled. Check to enable lock for Frequency, PTT and APRS Key.

Waypoint Settings

Format - select the type of sending format. On the radio, manual section is done by entering Menu mode and accessing menu item 340.Format options are: NMEA, MAGELLAN, and KENWOOD.

Length - select the length of the waypoint name (6, 7, 8, or 9 characters). Using radio controls, selection is made under menu item 341 in Menu mode.

Output - select the extent of waypoint data you want to send. Set selection from face of radio by enter Menu mode and accessing menu item 342.

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

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

Filtered - permitted information using the packet filter is sent.

Packet Filter Type - check the type(s) you want to receive. Options include Weather, Mobile, NAVITRA, 1-Way, DIGI, Object, and Others. If all types are checked, you will receive all types of data.

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

Note: The mile unit can be changed to kilometer. To change using the Programmer: go to Settings | Radio Menu Settings | Configuration tab | Units section | Speed, Distance.

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

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

Proportional Pathing - after a period of elapsed time, the transmit packet path changes with each transmission.

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

Beacon Tx Algorithm Settings

Method - select the operation method for transmitting packets.

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

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

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

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

<u>SmartBeaconing</u> - after manually transmitting position one time, your position data is automatically transmitted using the time interval set under "SmartBeaconing" (Settings | Radio Menu Settings | APRS 3 tab | Smart Beaconing, or menu items 3F0~3G2). Press [BCON] to turn ON function; press [BCON] key again to turn OFF.

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

Initial Interval - set the interval time for automatically transmitting APRS packets. From the face of the radio, select interval time by entering Mode menu and accessing menu item 3D1.

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

Decay Algorithm and Proprotional Pathing - Check to engage these options that control beacon transmissions.

Beacon Information

Speed - select whether or not to transmit speed information. To manually turn on or off using the radio controls, access menu item 370 in Menu mode.

Altitude - select whether or not to transmit altitude information. To manually turn on or off using the radio controls, access menu item 371 in Menu mode.

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

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

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

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

<u>A-Band</u> - A band receives and transmits

B-Band - B band receives and transmits

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

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

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

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

<u>Ignore DCD</u> - Transmission is not inhibited and the packet is transmitted immediately.

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

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

<u>APRS</u> - commonly set for normal use (default setting). When messages or meteorological data is transmitted, "APK102" is added to the packet, following your callsign. There are no restrictions on received packets. To select manually, enter Menu mode and access menu item 3I0 (number 3 - letter I - number 0).

<u>ALTNET</u> - select for restrictions on received packets. When messages or meteorological data is transmitted, your character string is added to the packet, following your callsign. To select manually, enter Menu mode and access menu item 3I1. Select Altnet and press [MHz], then enter desired character string.

11.5 Radio Menu Settings - APRS 2

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

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

QSY (Frequency) Settings

The QSY function uses AFRS (Automatic Frequency Reporting System) to report a frequency on which voice communication is set. A receiving station will receive the embedded frequency information from a station using the QSY function. The receiver can change the frequency (or QSY) over to the embedded frequency of the sender to begin voice communication by the select of [TUNE].

A properly configured TH-D74 QSY station can automatically embed the voice frequency from a non-data band to the beginning of a status text. There is other information besides just a frequency that can be sent. Refer to your operating manual for further details.

QSY In Status - Check to embed the frequency information at the beginning of the status text.

Tone/ Narrow - Check to embed the frequency then followed by the tone/FM narrow information in the status text.

Shift/Offset - Check to embed the shift direction and offset width with the status text.

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

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

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

Slow Rate - 1 ~ 100 minutes.

Fast Rate - 10 ~ 180 seconds.

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

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

Turn Time - minimum time delay between each beacon transmission by change of direction ($5 \sim 80$ seconds).

PC Port

PC Output - Select APRS data to be outputted to the PC. Options include Off, raw packets or Waypoints.

Voice Alert - This function will notify another station as to whether or not they are within communications range by emitting beacon tones.

CTCSS Frequency - The CTCSS tone that must be matched by other stations for voice alert to be heard. Only stations with a matching CTCSS tone will hear the beacon.

Sound

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

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

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

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

<u>Message Only</u> - beep sounds only when message is received at your station address.

<u>Off</u> - no beep sound.

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

Off - No sound

<u>On</u> - sounds when beacon is automatically transmitted or when using the PTT switch.

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

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

Interrupt Display Settings

Display Area - select the display area. To manually select using the radio controls, access menu item 3U0 in the Menu mode.

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

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

<u>One Line</u> - the received new data appears only at the top of the display.

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

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

Time - set the display duration of newly received data. Options are 2, 5, or 10 seconds, and FOREVER (which cannot be canceled). From the face of the radio, enter Menu mode and access menu item 3U1 to set this feature.

Auto Message Reply

Enable or disable programmed message that automatically responds to a received message when you are unable to answer. To manually enable this feature from face of the radio, access Menu 3Q0 in Menu mode.

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

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

Note: A reply will be sent to all matching stations when using a wildcard mark (*). For example, if you enter JA1*, a response is sent to all callsigns beginning with JA1.

Group Filtering

Message Group Codes - Use a message group coe to exchange mesages only among your group members. With one or more message group code programmed, you will receive messages that include the same group code(s) in additional to messages addressed to you.

Bulletin Group Codes - If you program one or more bulletin group codes, you will not receive bulletins addressed to other specific groups. you can program any desired code using alphanumeric characters (up to 5 characters for bulletin or 6 for groups).



12 Radio / Computer Data Transfer

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

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

Details for this process are contained in these sections:

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

<u>Communications | Send Data To</u> - 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.

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

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

12.1 Communications | Get Data From Radio

Transfers 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.

Note: This step is required before the first file can be sent to the radio.

Files with frequency information can be created in the Programmer without executing this step. Be sure to do File | New before you do Communication | Get Data From Radio to protect any information you have entered into the program.

The Get Data From process (reading the radio)

The TH-D74 radio can transfer programming data to and from the computer via cable or Micro SD card. Each of the processes will be covered here.

Using a cable

The radio connects to the computer using a USB A to Micro B cable. This cable is used by many phones today and the cables are interchangeable. The electronics for the process are in the radio. A cable from another deceive may not work if the wiring is different that what is needed by the radio. If one does not work, try another or use the RT Systems RT-49 cable that you know will work.

When you first connect the radio to the computer and turn it on, drivers must load so your computer knows what it is talking to. Windows will raise the message that new hardware is found and that it's loading drivers. On most systems driver installation will be automatic since the device uses standard Windows system drivers.

If the process fails on CDC-ACM, there is a correction for it that can be loaded from the RT Systems site. Access it here <u>D74 Driver Repair</u>

In the KRS-D74 Programmer, access Communications | Get data from Radio



A window opens with instructions for the process. Follow the steps to complete the process.

Note: When you click OK, a window will open indicating that the process is "Attempting Communications". After a very short time, that screen will change to "Reading" and a progress bar will begin to fill. This happens almost immediately... but it may be slightly delayed depending on your system.

Once the progress bar begins, do not disturb the radio. Interrupting this process could result in loss of data in the radio.

Using the SD Card

There are lots of advantages to using the Micro SD Card for radio programming. Foremost, you can save different files and configurations for the radio to the one card. Then use the one that you want for a given activity. How great for a vacation! Save your home configuration as file "Home" then save Location 1, Location 2, Parade, Race, etc separately. As you engage in a separate activity in a different place, just import the frequencies and settings needed without the need of a computer. The radio does all the work on its own!!

This all starts at the radio.

- 1. Carefully insert SD card into slot on side of radio. The gold "teeth" of the card will be positioned towards the front of the radio.
- 2. Turn the radio on.
- 3. Press Menu
- 4. User the multi-scroll key to move to the SD Card options. Press ENT at the center of that key to enter that menu option.
- 5. Press ENT to select EXPORT.
- 6. Press ENT to select Config Data
- 7. Press ENT to have the information sent to the card. The radio will indicate "Saving" and then display a complete message when the process is finished.

Note: You have no control over the file name at this point. That will come later. The default filename is a combination of the date and time ensuring a unique name each time the process is done.

8. Press the [DUAL A/B] key for OK to exit the menu. Remove the SD card and prepare it for use by your computer (i.e., put it in an adapter or directly in a slot on your machine.)

9. Open the KRS-D74 Programmer.

10. Do File | New if you have data in the displayed file that you don't want to lose.

11. Do Communications | Read data from SDCard

12. The program will find the SD card automatically. If not, which happens on some systems, use the options in the Look-In box at the top to drill out to the SD Card.

13. Select the file you want to load. There can be several files on the card at one time. You have the choice of which one to use. The filename is date and time so it is easy to identify the one you created last.

14. The information from the radio appears on the main screens of the programmer as well as in the Settings file (Settings | Radio Menu Settings.

You are ready to edit this file or create a new file with the details you want.

When the Get Data From process is complete (either via the cable or via the SD card), 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.

If you are doing major editing, turn the radio off and remove the cable. Then return to

the Programmer for editing the file. Once your editing is complete, connect the radio to the computer and complete the Communications | Send Data To Radio process to transfer the changes to the radio.

Troubleshooting

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

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

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

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

12.2 Communications | Send Data To Radio

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

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

Current File

The Programmer can work with several radio files at one time. There is no need to close extra files before executing the Communications | Send Data To Radio process. The current file will be sent to the radio during the Send DataTo 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 <u>Programming Other Set Menu</u><u>Items</u> 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 Radio with the same memory channel file. The menu settings will be sent with the memory channel information.

Now that you have the two files lined up and all the details in them that you want, you are ready to connect the radio and get it programmed.

Connect the radio to the computer

The TH-D74 radio can transfer programming data to and from the computer via cable or Micro SD card. Each of the processes will be covered here.

The radio connects to the computer using a USB A to Micro B cable. This cable is used by many phones today and the cables are interchangeable. The electronics for the process are in the radio. A cable from another deceive may not work if the wiring is different that what is needed by the radio. If one does not work, try another or use the RT Systems RT-49 cable that you know will work.

If the drivers don't load for the radio and you are attempting the Communications | Send data to Radio process, you have not completed Communications | Get data from Radio. There are details about driver installation in that section of this help.

Completing the "Send Data To" Process

Using the cable

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 working. The transfer status window disappears and the Programmer returns to the Main Window when the process is complete.

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 [2/M.IN/ABC/MR]] key to put the radio into memory mode.

Using the SD Card

This process may seem more complicated but think of the abilities you have with it. You have control to create different files that you can use in the radio without having your computer available to make changes.

Be sure the same SD card that you used originally with the radio is in the computer. That will be the one that you used to do the "Export" function from the radio.

In the program, select Communications | Write Data to SD Card.

The program will find the card automatically. You will be prompted for a filename. Since the name can be anything you want it to be, you can create files for several different events or locations by naming them differently.

Once the process is complete on the computer, remove the SD card.

Load the SD card into the radio and when you are ready, access the SD Card options in the Menu.

Select Import.

When presented with a list of files, select the one you want to load.

Press ENT to load that configuration data to the radio. When the Import process is complete, the radio will reflect the details of the file you just loaded (memory channels and other option settings).

You can leave the SD card in the radio to have other files available later.

Troubleshooting

Program does not automatically find the SD Card

There are lots of things that can cause this problem. Two most common are:

1) The SD card is not in the computer when you access Communications | Write to SD Card

2) The SD card is not the one you used originally when you first exported the configuration of the radio.

Simply use the options of Look-In to drill to the SD Card. Remember, the radio will be looking for the specific directory KENWOOD / TH-D74 / SETTINGS / DATA / {filename}

Yes, you can create that directory yourself; but if you get it wrong, the radio may not be able to find the file to Import. It's best to do an Export from the radio onto the card you're using before writing the file back to the card from the programmer. Then you know the structure is as the radio expects it.

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 <u>Radio to Computer Cabling</u> in this Help for details and pictures.

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

12.3 Radio to Computer Cabling

The TH-D74 connects to the computer via a USB A to Micro USB B cable. These are very common as many phones use them today.

The one available from RT Systems is the RT-49.

12.4 Comport Setup

In the *RT Systems'* Programmers there is *NO* com port setup. The software finds the USB cable automatically.

That's not to say that some of these radios do not use com ports. The TH-D74 uses a com port set up by the drivers of the radio.

The following error may happen when you click OK on the Get Data from Radio or Send Data to Radio screens.

No connection found.		
Be sure cable is connected	to the computer and radio.	
Error -3		

There are two common causes for this.

1) The drivers for the USB electronics of the radio did not install properly. See details about that in the Knowledge Base at <u>www.rtsystems.com</u>. Use this <u>link</u> to access that article.

2) 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.



13 File Maintenance

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

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

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

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

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

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

Close - Closes the current file.

Save - Saves the current file.

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

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

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

<u>Print Preview</u> - Lets you see the formatted information on the screen before it prints.

Print - Prints the current file

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

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

Exit - Closes the programmer.

13.1 File | Exit

Exits the Programmer.

If files have been changed, you will be prompted to save or cancel the Exit command to avoid data loss in that file.



Yes - Exits the program saving the file.

No - Exits the program without saving any work done in the file since the last time you saved.

Cancel - Halts the Exit option. The program returns to the open file.

13.2 File | New

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

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

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

Other Radio Menu Settings and a New File

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

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

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

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

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

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

13.3 File | Open

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

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

13.4 File | Print

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

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

13.5 File | Print Preview

This feature of the programmers lets you preview the data to be printed before you waste paper sending it to the printer.

With the file open that you want to print, select File | Print Preview.

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

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

Next	+	← P	revious	1000		7 Programmer - IC-T7 Untitled1						
·			remou	Q	Zoom		🗿 Prin	t	🔓 Set	up	Page 1 of 1	🖍 Close
							IC-T7 Pi	ogramme	r-Ю-т7 (ini led 1		
		Receive Frequenca	Transmit Frequency	Office: Frequenca	Office Direction	Operating Minde	Tone Mode	CTCSS	Ra CTCSS	Ship	Common.	
		146.0100	146.0100	a second	Simples.	FM	hione	BBSHz	68.5Hz	Of C	()	
	10	1452000	1452000		Simples.	FM	hione	RESH2	69.5Hz	or	C.	
	20	1452050	145,6050		Simples.	FM	hione	88.5 Hz	69.5Hz	Of C	(7	
	21	145.6100	145.6100	- 3	Simples.	FM	hone	88.5 Hz	68.5Hz	of		
	22	145.6200	145.6200		Semples.	EM	hone	IRSH2	18151s2 09.51s2	OF		
	24	145,6250	145.6250	- 23	Simples.	EM	hione	IR5Hz	69.5142	Of		
	25	145.6300	145,6300	- 3	Simples.	EM	hone	BR5Hz	00.51kg	Of .		
	25	145.6350	145.6350		Simples.	EM	hione	BR5Hz BR5Hz	00.51kg	OF OF		
	28	145.6450	145.6450		Simples.	EM	None	BR5Hz	00.5142	Of		
	29	145.6500	145.6500	3	Simples.	EM	hione	IR5Hz	00.5142	Of		
	20	145,6600	145,6600		Simples	EM	hone	68.5 Hz	00.5142	06		
									14			

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

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

- 10	C-T7	Progra	ammer	IC-T7	Unt	itle	d1				
Nex	d ←	← P	revious	Q Zo	om	e	🌢 Prir	nt	😭 Setu	2	Page 1 of 1
	Fau	ater Tanoni anu Pesareo	Dillori Dillo Petgenu Den	d Durrating Ins Mair	IG-17 P	ragnamma casaa.	Re CT23	The Dist.	Carrowed		
	1 94.11 3 94.11 3 94.11	1 1462102 2 446202 2 1466202	Zangina Zangina Zangina	HJ HJ HJ	Kom Kom	BLIFE BLIFE BLIFE	BLIFU BLIFU BLIFU	38 38 38			
	21 Mars	4 146,000 2 146,000 4 146,000	Sangina Sangina Sangina	2 2 2	Koner Koner Koner	BARA BARA BARA	RAFe RAFe RAFe	08 08 08			
	20 94.03 26 94.03 26 94.03	E MARKE	Danyimi Danyimi Danyimi Danyimi	40 40	Kom Kom Kom	BARS BARS BARS	BARA BARA	08 08 08			
	27 141.141 38 141.141 38 141.141	0 Maamaa 0 Maamaa 1 Maamaa	Danyima Danyima Danyima	HU HU HU	Konn Konn Konn	BARG BARG BARG	B3H2 B3H2 B3H2	08 08 08			
	H APRO	G 594,0962 D 544,6820	Danya Ma Danya Ma	10	Koren Koren	BLIFS BLIFS	ILLI FU	38 38			
							Ť				

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

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

13.6 Saving Programming Files

Many different files can be saved to your hard drive for permanent storage giving you the ability to reprogram your radio quickly and easily to suit your current use.

- Files are saved using the File | Save or File | Save As command.
- When the window opens for the filename, enter any name up to 256 characters (including spaces) but without a period at the end or an extension. The Programmer will enter that information for you automatically.

Sarens							
Save in:	🕕 FT-2600 P	^o rogrammer			0 🖠	10	
(Pa	Name	Date modif	Туре	Size		Tags	
Recent Places	settings (test	not coming from	n radio				
Desktop							
Karin							
						10	
Computer							
<u>.</u>	Ente	er filename	e here				
Network	File game:	1				- (Save

13.6.1 File | Save

Saves the current file to your computer hard drive.

If several files are open, the current file (the one on top: the one you are working in) is the one that will be saved. Be sure to save the changes to each of the open files before closing the Programmer.

It is recommended that you save the current file during data input and before sending it to the radio. Just as with a word processor, it's an awful shame to lose everything if something happens to the computer during either of these processes.

If the name of the current file is Untitled (in the main window title bar), you will be presented with a save file dialog and should enter a new filename.

Save As							×
Save in:	🕕 FT-2600 F	rogrammer			00	10	
(Pa)	Name	Date modif	Туре	Size		Tags	
Recent Places	Settings test	not coming fron	n radio				
Desktop							
Karin							
						: :	
Computer							
2	Ente	er filename	e here				
Network	File name:					-	Save
		(m		18.0			

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

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

File Maintenance	167

13.6.2 File | Save As

Saves the current file under a new name. Used if you want to make a copy of the file that you're working in to maintain the original without the changes you're making now.

- If several files are open, the one that is active is the current file. This file will be saved with the Save As command.
- This is a good way to start another file for editing. Changes made to this file do not affect the data in the original file.
- When this command is selected, a save file dialog containing a list of existing files is presented. You can either select one of these to be overwritten or enter a new filename. The Programmer will add the extension so you should not enter an extension or a period at the end of the filename.

Save As							2
Save in:	🐌 FT-2600 P	rogrammer			0 1	📂 💷 •	
(Pa)	Name	Date modif	Туре	Size		Tags	
Recent Places	Settings r Settings r	not coming from	n radio				
Karin							
Computer						2 5	
Network	Ente	er filename	e here				
THE THE T	File name:					• (Save
		-					

- The title bar of the window changes to reflect the new filename.
- When saving a file, let the Programmer do the work. All you need to enter is the name you want for the file.



14 RFinder Web Service

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

Access to the RFinder Worldwide Repeater Directory is available by subscription and can be accessed by licensed users via any version of the RFinder android app, our new browser interface (web.rfinder.net), or through third-party applications. A license subscription is required to access the RFinder database through the programmer. You can purchase that license from the link on the RFinder page in the programmer.

Using the RFinder Interface

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

<u>F</u> ile	Edit Communications Sett	ngs <u>D</u> Star <u>W</u> i	ndow <u>H</u> elp							20 77. 2	20
	<u>N</u> ew Ctrl+N <u>O</u> pen Ctrl+O	₽ #4 2↓ 1	?								
	External Data	Open Travel RadioRefere	Plus List nce Search	Name	Tone Mo	de	CTCSS	Rx CTCSS	DCS	DCS Polarity	
	<u>S</u> ave Ctrl+S Save <u>A</u> s	RepeaterBoo RFinder Wet	ok Search Search		None None	✓ 8	38.5 Hz 🗸	88.5 Hz 🗸	023 🗸	Both N Both N	
	<u>i</u> mport <u>E</u> xport										
6	<u>P</u> rint Preview <u>P</u> rint Ctrl+P										
	Send File as E-Mail										
	1 C:\Users\\hgh.ID51 2 C:\Users\\Kutch.FT60 3 C:\Users\\fisets FT991										
	4 C:\Users\\Test.ID51Plus	mories 🖌 DR Mi	emories 📣	FO 🖌 Call	Channels		4		CAP		al

A window opens with options for this service

X	Not registered for the RFinder Service	e?
~	Click here	
Jser E-Mail	Passw	ord
Location		
Location		Radius (mile)
Route		D. A. M.
Start		
End		
Waypoints		Add
Waypoints		Add Remove
Waypoints		Add Remove Remove All
Waypoints		Add Remove Remove All Move Up
Waypoints	Map Route	Add Remove Remove All Move Up Move Down

If you are not yet a subscriber to the RFinder service, you can set those details from here.

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RFinder Web Search		×	
User E-Mail	Not registered for the RFinder Service? Click here Password		Click here to access the RFinder website. It is on that site that you will regester and get your user name and password.
Location Location		Radius (mile)	
Start End		Route Width	
Waypoints		Add Remove Remove All	
	Map Route N	Move Up Nove Down	
	OK Cancel		

Once that process is complete, return to the programmer and complete the User and Password information. This information will be saved when you click OK. You complete these fields only once.

RFinder Web Search		×	
Not registered for the Click	RFinder Service? here		
User E-Mail	Password		
Location	Radius (m	e) Once site,	e you have the information from the Rfinder enter User E-Mail and Password.
		This whe	information will be saved by the programmer n you click OK.
Start	10 -	h	
End			
Waypoints	Add		
	Remove A		
	Move Up		
Map Route	Move Down		
ок	Cancel		

Now the fun begins... Complete your location

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×
e)
Enter a Location and a radius around it for all the repeaters in that one area.
This is great way to find all the repeaters for you destination city when you are traveling.

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

RFinder Web Search		×
Not registered for the RF Click her	Finder Service? re	
User E-Mail	Password	
Location Location	Radius (mile)	1
Route		Enter a distance to either side of your route.
Start Denver, CO	Route Width	
End Rapid City, SD		Enter a Start and
Waypoints	Add	
	Remove	
	Move Up	Click Map Route to see how RFinder tracks between these two cities.
Map Route -	Move Down	
ОК	Cancel	



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

RFinder Web	Search	×	
	Not registered for the RFinder Service?		
User E-Mai	Password		
Location		Radius (mile)	
⊠ Route Start End	Denver, CO Rapid City, SD	Route Width	Enter places you want to pass through along the way.
Waypoints	Sidney, NE Alliance, NE Map Route	Add Remove Remove All Move Up Move Down	
	OK Cancel		

And your route becomes this.



Click OK

A screen is returned on which you will

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

	Output	Input Offset Frequency Direction	Callsign (Nerme)	CTCSS DC	s City	State	Regio	
t	147.49500	147.49500 Simplex	WYEX	100.0	0 Centennial	00	US	IBLP node #3763:
	162,45000	162,45000 Simplex	WNG558	0.0	0 N0AA Franktown		US	162.45 MHz - 300 W♪.8#9689.NWS Boulder
	447.00000	442.00000 Minus	WD0FVV	0.0	0 Parker	00	US	A 283.5 PL is encoded on output but not required for input. Open repeater w/ Front Range coverage Castle Rock to Longmont. 50 wa
	449.60000	444.60000 Minus	WBITUB	100.0	Contennial Warren Mountain		US	
	146.88000	146.28000 Minus	WBIITUB	100.0	Centennial, Warren Mountain		US	
	447.70030	442.70000 Minus	WARNW	100.0	0 Elizabeth	00	US	Temporary Antenna at 30% elevation
	146.67000	146.07000 Minus	W9KRE	100.0	0 Aurore	Co	US	www.cng.org
	449.95000	444.95000 Minus	W9SL	77.0	8 Castle Pines, Daniels Park	00	US	
	146.88000	145.28000 Minus	WAIKET	100.0	0 Denver	00	US	
	449.60000	444.60000 Minus	WOUNK	0.0	0 Littleton	00	US	
	446.78750	441.78750 Minus	WUTX	0.0	Denver	Co	US	TRB0 - IPSC Network DMR-MARC - Color Code: 1 - Assigned Peer - TS Linked: TS1 - Operator:K80Akbr/Time Slot#1 - Group Call 1 = World Widekbr/Time Slot
	147.07500	147.67500 Plus	NIGDM	67.0	0 CONIFER	00	US	N9GDM 2 METER WIDE AREA
	224.50000	222.90000 Minus	N9GDM	88.5	0 CONIFER	00	US	150 WATT REPEATER HUSTLER G-7 AT 10 000 FT ABOVE SEA LEVEL
	147.22500	146.62500 Minus	WICRA-R	0.0	0 Broken Arrow Acres	00	US	
	1287.90000	1287.90000 Minus	WICRA	0.0	0 Conifer, Conifer Mountain	00	US	
	447.15000	442.15000 Minus	WICRA	107.2	0 Conifer, Conifer Mountain	00	US	
	53.05000	52.05000 Minus	WICRA	107.2	0 Conifer, Conifer Mountain	00	US	
	448.87500	448.87500 Simplex	WICCY	141.3	0 CCSD ISF		US	AliSter: 41955
	449.60000	444.60000 Minus	WICEI	100.0	0 Centennial	00	US	
	448.05000	443.05000 Minus	K0PW0/R	179.9	0 Centennial			AliSter: 40968
	449.27500	444.27500 Minus	NIGDM	77.0	0 CONIFER	00	US	N9GDM 440 MHZ WIDE AREA 200 WATT UHF REPEATER
	446.35000	446.35000 Simplex	AJ2E	100.0	0 Aurora	00		AllSter: 42030
1	447.65000	442.65000 Minus	NDSZ	100.0	0 Evergreen	00	US	IRLP node #3015; N0SZ
1	145.17500	144.57500 Minus	NBSZ	0.0	Evergreen	Co	US	TRE0 - IPSC Network RMHR - Color Code: 1 - Assigned Peer - TS Linked: TS1 TS2 - Operator:K2AD &r>
	145.19000	144.59000 Minus	N00BA-R	0.0	0 Perry Park	00	US	
1	447.50000	442.50000 Minus	NBOWY	88.5	0 Conifer, Critchell Mountain	00	US	
	449.12500	444.12500 Minus	NIFYG	103.5	0 Sedelia	00	US	
1	447.90000	447.90000 Simplex	NOHIL	0.0	Prairie Trail Ranches		US	Elbert County Colorado
	447.52500	442.52500 Minus	N0ESO-R	203.5	0 Lone Tree	00	US	ARESPACES
	447.52500	442.52500 Minus	NIESO	203.5	0 Parker, Hess Reservoir		US	
1	446.92500	441.92500 Minus	NDESO	0.0	Devils Head	Ca	US	TR80 - IPSC Network PMHR - Color Code:1 - Assigned Peer - TS Linked:TS1 TS2 - Operator:NIESOKbr>
	147.12000	147.72000 Flus	NBARA	88.5	Critchell, Critchell Mountain		US	
	441.15000	441.15000 Simplex	KEEDEL	127.3	0 Littleton	00	US	IFLP node #3447; Low Power - Limited Coverage
	445.80000	445.80000 Simplex	K00YORH	0.0	Elizabeth		US	Bennet
	146.41500	146.41500 Simplex	KDUJLE-L	0.0	Bellevue Acres		08	MORPHISON, CO
3	147.12000	147.72000 Flus	KCIIAD	88.5	0 Conifer	00	US	Owned and operated by the Aurora Repeater Association.
	145.40000	144.80000 Minus	KBIUDD	100.0	0 Aurore, Smoky Hill	00	US	
	147.21030	147.81000 Plus	KEAER	100.0	0 Elizabeth	00	US	
	448.42500	443.42500 Minus	K0VKM	0.0	U Harker	00	US	
	449.42500	444.42500 Minus	KOPWO	0.0	Centenniol		US	
1	146.89500	146.29500 Minus	ABOPC	100.0	0 Bailey, Dick Mountain	00	US	
2	447.22500	442.22500 Minus	ABUBXIR	0.0	Kister Park	_	08	

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

Call of	e Tiarunit ca Destantos	Ditat	Citized Transition	Nane	Show	Tone Ma	de CTCSS	DCS	1x Prose	5kip	Step	-
Tre	wel Plan List											- 🛛
	Output Decemon	Input Electronic	Dist	Callign	CTCSS-	DCS	City Economic	State	Reg	ion .	Repeater	Non-*
	25 54300		Mesa	WEIGH			Dauton	DHED	MONTGON	AL RYC	D	
	53 03000	52,0300	Sale	WFBM			Davion	0HID	MONTGON	(ERV	0	
	145 11000		Menat	WCBOH	67.0		Dayton	DHED	MONTGON	AL FIC:	ofCAjels 67.0	
	146,64000		Menus	WERCOK			Davion	0H#D	MONTGON	KERIY .	ofCAMMM:	
	146 82300		Mexat	WABPLZ	77.0		Dayton	0140	MONTGON	AL NY	ce 77.0	
	146.91000		Mexa	WEBCOK			Dayton	0H0D	MONTGON	IERV	ofCAle	
	146,54300		Menat	WIEI	100.0		Dayton	DHED.	MONTOON	ERY :	ce 101.0	
	147.17900		Plut	WRRENC			Daston	0H0	MONTGON	KERY:	olCAlz	
	147.36000		Phas	WABFLZ	77.0		Dayton	DHED	MONTBOH	IERY:	o[CA]= 77.0	
0E	223 94000		Mexas	W98i			Dayton	OHID	MONTEON	KERY .	08	
1	224 02900		Mous	WRISHC			Dayton	0HED	MONTEON	6ERY	o(CA)etr	
2	224 16000		Minus	WC80H			Dayton	0HID	MONTGON	RERY:	olCAtel	
10												
	N			0.01			S 12		-			
3	cied bands 120	40 MPtr and Al	opine, 144-145	MHz(2 swises)			have Calogr		3 2	Select All		
	Hodules 🔛	1240 MHz ary	£Above .			0	movered Cate		1 1	UnSelect #	4	
cied band Hoduk	12	0 MHz and Al 1240 MHz an	zeve, 144-148 #Abeve	MHz (2 swises)		0	Name Callege			Select All Unifielect /	u l	

- Assign information for the Name field: this can be Callsign, City, State, Region, Repeater Notes or Sponsor. Remember, the radio will truncate your selection to the number of characters it can hold. So in some of the older radios, DENVER would become DENVE.

32	147.12000	147.72000	Plus	NOARA	88.5	Critchell, Critchell Mountain		US	
33	441.15000	441.15000	Simplex	KE6DEL	127.3	0 Littleton	CO	US	IRLP node #3447; Low Power - Limited (
34	445.80000	445.80000	Simplex	KD0YCR-L	0.0	Elizabeth		US	Bennett
35	146.41500	146.41500	Simplex	KD0JLE-L	0.0	Bellevue Acres		US	MORRISON, CO
36	147.12000	147.72000	Plus	KC0IAD	88.5	0 Conifer	CO	US	Owned and operated by the Aurora Rej
37	145.40000	144.80000	Minus	KBOUDD	100.0	0 Aurora, Smoky Hill	CO	US	
38	147.21000	147.81000	Plus	K6AER	100.0	0 Elizabeth	CO	US	
39	448.42500	443.42500	Minus	KOVKM	0.0	0 Parker	CO	US	
40	449.42500	444.42500	Minus	KOPWO	0.0	Centennial		US	
41	146.89500	146.29500	Minus	AB0PC	100.0	0 Bailey, Dick Mountain	CO	US	
42	447.22500	442.22500	Minus	AB0BX-R	0.0	Kistler Park		US	
4									
	Modules		~	Name	Callsign	Comment Repeater Notes V	Selec	t All	
	Selec	a Module		Selected Bands	Callsign City	Hz, 144MHz, 222MHz, 420M 🗸	Unsele	ct All	
Ready					State Region				
						This opti	on lota		leat what information
							oniets	you se	nect what mormation
						will be u	sed in t	he Na	me field.

This is your label for the channel.

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

								\langle		
eady							State Region			
	Selec	a Module		Selected Bands	28MHz or Lo	ower,	50MHz, 144MHz Cillsign	Unsele	ct All	
	Modules		~	Name	Callsign		Comment Repeater Notes	Selec	t All	
4										
28	447.90000	447.90000	Simplex	NOHI-L	0.0		Prairie Trail Ranches		US	Elbert County Colorado
27	449 12500	44412500	Minus	NOEVG	103.5	0	Sedalia	CO	US	
26	447.50000	442.50000	Minus	NIOWY	88.5	0	Conifer. Critchell Mountain	CO	US	
25	145.19000	144.59000	Minus	N00BA-R	0.0	0	Perry Park	CO	US	
24	145.17500	144.57500	Minus	N0SZ	0.0		Evergreen	Co	US	TRBO - IPSC Network:RMHR - Color Code:1 - Assigne
23	447.65000	442.65000	Minus	N0SZ	100.0	0	Evergreen	CO	US	IRLP node #3015; N0SZ
22	446.35000	446.35000	Simplex	AJ2E	100.0	0	Aurora	CO		AllStar: 42030
21	449.27500	444.27500	Minus	N9GDM	77.0	0	CONIFER	CO	US	N9GDM 440 MHZ WIDE AREA 200 WATT UHF REPI
20	448.05000	443.05000	Minus	K0PW0/R	179.9	0	Centennial			AllStar: 40968
19	449.60000	444.60000	Minus	WICBI	100.0	0	Centennial	CO	US	
18	448.87500	448.87500	Simplex	WICCY	141.3	0	CCSD ISF		US	AllStar: 41955

This option lets you select what information will be used in the Comment field of the program.

This information is not transferred to the radio. It is in the file to give you more details about the channel.

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

20	448.05000	443.05000 Minus	KOPWO/R	179.9	0 Centennial			AllStar: 40968
21	449.27500	444.27500 Minus	N9GDM	77.0	0 CONIFER	CO	US	N9GDM 440 MHZ WIDE
22	446.35000	446.35000 Simplex	AJ2E	100.0	0 Aurora	CO		AllStar: 42030
23	447.65000	442.65000 Minus	N0SZ	100.0	0 Evergreen	CO	US	IRLP node #3015; N0SZ
24	145.17500	144.57500 Minus	N0SZ	0.0	Evergreen	Co	US	TRB0 - IPSC Network:RI
25	145.19000	144.59000 Minus	N00BA-R	0.0	0 Perry Park	CO	US	
26	447.50000	442.50000 Minus	NOOWY	88.5	0 Conifer, Critchell Mountain	CO	US	
27	449.12500	444.12500 Minus	N0FVG	103.5	0 Sedalia	CO	US	
28	447.90000	447.90000 Simplex	N0HI-L	0.0	Prairie Trail Ranches		US	Elbert County Colorado
	Modules ID-880 Rad	dio Data File	Name	Callsign	✓ Comment Repeater Notes ✓	Selec	t All	
	Create Fi	le For: ID-880	Selected Bands	28MHz or L	ower, 50MHz, 144MHz, 222MHz, 420M 🗸	Unsele	et All	

Use Modules to select your radio.

Click Create File For XXX to created the file that you will send to your radio.

The programming file for your radio is created.

Food Pro	ogrammer - ID-	oov untitled:																		
Edit 1	Communications	Settings D	Star Wind	ow Help																
- 8	X % @ @	000	a 21 8																	
RFinde	r Web Search	🛃 ID-880 Un	titled2 💑	ID-880 Unt	itled3 ×															
Receit	ve Transmit ncy Frequency	Offset Frequency	Offset Direction	Operating Mode	Name Tone Mode	CTCSS	Px CTCSS	DCS	DCS Polerity	Skip	Step	Digital Squelch	Digital Code	Your Callsign	Bpt-1 CallSign	Rpt-2 CellSign	Benk	Bank Channel Number		Comment
449.45	000 444.4500	5.00 MHz	-DUP	FM	WB5YC Tone	103.5 Hz	103.5 Hz		Both N	Off	5 kHz									
449.05	000 444.05000	5.00 MHz	-DUP	FM	WG0N Tone	107.2 Hz	107.2 Hz	023	Both N	Off	5 kHz									
145.22	000 144.62000	0 600 kHz	-DUP	FM	WN0EF Tone	103.5 Hz	103.5 Hz	023	Both N	Off	5 kHz									
449.75	000 444.7500	5.00 MHz	-DUP	FM	WN0EF Tone	107.2 Hz	107.2 Hz	023	Both N	Off	5 kHz									
449.00	000 444.00000	5.00 MHz	-DUP	FM	WR0AE None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz									
449.15	000 444.1500	5.00 MHz	-DUP	FM	WR0AE None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz									
449.67	500 444.6750	5.00 MHz	-DUP	FM	WR0AE None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz									
449.65	000 444.6500	5.00 MHz	-DUP	DV	WR0AENone	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz	Off	0	cacaco	WROAEN	WROAEN			(DSTAR)	
447.37	500 442.3750	5.00 MHz	-DUP	DV	WR0AENone	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz	Off	0	COCOCC	WROAEN	WROAEN			(DSTAR)	
146.94	000 146.34000	0 600 kHz	-DUP	FM	W8WW Tone	103.5 Hz	103.5 Hz	023	Both N	Off	5 kHz								distance of the	
449.82	500 444.82500	5.00 MHz	-DUP	FM	W8WM Tone	103.5 Hz	103.5 Hz	023	Both N	Off	5 kHz									
449.35	000 444.3500	5.00 MHz	-DUP	FM	W0TX-FNone	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz									
146.98	500 146.98500	1	Simplex	FM	WOUAV Tone	100.0 Hz	100.0 Hz	023	Both N	Off	5 kHz								IL#3346 Aurora	
449.77	500 444,7750	5.00 MHz	-DUP	FM	W0TX Tone	100.0 Hz	100.0 Hz	023	Both N	Off	5 kHz									
447.82	500 442.8250	5.00 MHz	-DUP	FM	W0TX None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz									
448,62	500 443,6250	5.00 MHz	-DUP	FM	W0TX Tone	100.0 Hz	100.0 Hz	023	Both N	Off	5 kHz									
145.49	000 144.89000	0 600 kHz	-DUP	FM	W0TX Tone	100.0 Hz	100.0 Hz	023	Both N	Off	5 kHz	1								
145.43	000 144 83000	1 600 kHz	-DUP	EM	WIMT2 Tone	1035Hz	103.5 Hz	023	Both N	Off	5 kHz									
146.91	000 146.3100	0 600 kHz	-DUP	FM	W0JZ Tone	123.0 Hz	123.0 Hz	023	Both N	Off	5 kHz									
449.62	500 444 6250	5.00 MHz	-DUP	FM	WIKU Tone	141 3 Hz	141.3 Hz	023	Both N	Off	5 kHz									
448 92	500 443 9250	5 00 MHz	-DUP	EM	WIII MA Tone	131 8 Hz	131 8 Hz	023	Both N	0#	5 kHz									
447.17	500 442 1750	5 00 MHz	-DUP	FM	Will IBI - None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz									
449 55	000 444 5500	1 5 00 MH+	-DUP	FM	WIIA-B None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz	-								
449.07	E00 442.07E0		DUD	EV	Maio Tono	122.0 -	192.8 Ш-	0023	Roth M	0#	ELLA									
147.37	500 147 9750	1 600 kH+	ADUR	FM	WIIKN Tone	100.0 H+	100.0112	023	Both N	0#	ELHA	1								
147.37	000 147.57500	000 000	DUD	EN.	MOIA Tone	100.0 Hz	100.0 112	000	Dotto M	0#	E DLLA	1								
146.70	260 146 1926	1 600 kHz	JUD	DV	WIDK None	88.5 Hz	100.0 MZ	023	Roth M	Off	E Libia	0#	0	000000	WIDE C	WIDK G				
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146.61	000 146.01000	D DOU KHZ	Contraction	E.M.	WUDK 10fle	100.0 HZ	100.0 HZ	023	DUU N	UII OW	D K/12									
144.35	500 144.35500		Simplex	FM.	WUDK IONE	100.0 Hz	100.0 Hz	023	DOM N	Uff Off	5 KF12	-								
447.97	500 442.9/500	5.00 MHz	-DUP	FM	WUCK4 (one	107.2 Hz	107.2 Hz	023	Both N	UIT	5 KHZ									
447.57	500 442.5750	J 5.00 MHz	-DOb	FM D	WICHANone	88.5 Hz	88.5 Hz		Both N	Uff	5 kHz									
145.14	500 144.5450	л 600 кHz	-006	FM	WUCKA fone	107.2 Hz	187.2 Hz	023	Both N	Uff	5 KHZ	-								
446.96	250 441.96250	1 5.00 MHz	-DOb	UV	WUCDSNone	88.5 Hz	88.5 Hz	023	Both N	Uff	5 kHz	Utt	U	000000	WUCDS	IWUCDS I			(USTAR)	
145.25	000 145.85000	1 600 kHz	+DUP	DV	WICDSNone	88.5 Hz	88.5 Hz		Both N	Off	5 kHz	Off	0	cacaco	WICDS	WICDS			(DSTAR)	
448.67	500 443.6750	J 5.00 MHz	-DUP	FM	WUCFI Tone	100.0 Hz	100.0 Hz	023	Both N	Off	5 kHz									
445.05	000 440.05000	3 5.00 MHz	-DUP	FM	N0SZ None	88.5 Hz	88.5 Hz		Both N	Off	5 kHz	-								
14C 00	Anno AA1 90000	hit Mamorias	DR Mor	ories /VE	NIRS7 Mono	GPS Mem	ISS E H-	0.23	IBoth M	0#	E MH2	-	-					2	TDRO-JDRC Motwork/P	WHD - Color Codo:1 - Accimod Mactor - TS

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


15 ARRL TravelPlus*

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

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

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

<u>Opening the list in the radio Programmer</u> - Details on opening the list in the radio programmer and the controls on that list.

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

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

15.1 Creating a list in TravelPlus*

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

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

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



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

	revel	Plus - Repeater	ist									8
	East 1	Darie Dick-										_
Int	by Sec	pance										
	Sequ	Band	Country	State	Region	location	Output	Input	Call	Repeater Notes	CTCSS	3
۲.	1	144-140 MHz	USA	0810	NONTGOMERT	Isyton	145.1100	÷.	WCSOE.	a(CA)els 67.0	67.0	P
	2	144-148 MHz	USA	OBIO	NONTGOMERT	Jayton.	146.6400	-	WB900R	o(CA) eWX		野
	3	144-148 MHz	USA	0810	NONTGOMERT	Dayton	146.8200	-	WARPLZ	c (CA) e		20
	÷.	144-148 MHz	UBA.	0810	NONTGOMERT	bayton -	146.9100	÷.	#BBCOR	0(CA) e		10
-	5	144-148 MHz	ABD	0810	BONTGOMERT.	Tayton	146.9400	-	WBB1	0.001 00	100.0	1.
	6	144-148 MHz	UBA.	ORIO	NONTGOMERT	layton.	147.1350	+	WD0:SHC	0 (CA) =		Fi
	7	144-145 MHz	USA	0810	NONTGOMERT	bayton.	147.3400		WASPL2	0(CA) e 77.0	77.0	\$
	8	420-450 MHz	USA	OHIO	NONTGOMERT	Dayton	442.0000	+	VEDDIEIV	0	101500	10
	9.	420-450 MHz	ABD	OHIO	NONTGOMENT	Dayton.	442.1000	+	WBBI	0		\$.
	10	420-450 MHz	USA	OHIO	BONTGOMERT	layton.	443,0000	+	VBDSHC	Q (CA) BE		TI
	11	420-450 MHz	UBA .	0810	BONTGORERT	bayton	443.0500	+	NEED	0		21
	12	420-450 MHz	USA	OHIO	BONTGORERT	Jayton.	443.5000	+	220228	0		3:
	13	480-450 MHz	USA.	0830	NONTGOMERT	Bayton	448.6000	+	NY1A	05		15
	14	420-450 MHz	USA	OHIO	NONTGOMERT	Jayton	443.7500	+	SBBSC	o 123.D	123.0	-
	15	420-450 MHz	ABU	0810	BONTGORERT	layton .	448.7750	+	WF08	0 111.9	131.0	10
	16.	420-450 BHz	UBA	0810	BONTROMERT	Jayton	444.0500	+	TABFGJ	ol 100.0	100.0	21
	17	420-450 BHz	USA	0010	BONTGORERT	Jaytos	444.2500	+	WEBCOR.	0		-
	18	420-450 RHz	UBA	OBIO	NONTOORERT	Jayton.	444.7625	+	WENCI	(CA) e 77,0	77.0	£
	19	420-450 MHz	USA	0810	NONTGOMERT	Trotwood	441.9250	+	88206	0 (CA)		TR.
	20.	420-450 #Hz	088	0810	NONTGOMERT	Trotwood	448.9780	+	W8PB	0		n
	21	144-145 MHz	USA	OBIO	BONTGORERY	Rettering	146.9850		RABPGJ	ol 100.0	100.0	Z.
	22	144-148 MHz	08A	OBIO	NONTGOMERT	Rettering	147.0790	+	WORNC.	oe		33
	23	420-450 MHz	USA	0810	BONTGOMERT	Rettering	444,8425	4	WHOTC.	c(CA) t		-
	24	420-450 MHz	ABD	ORIO	NONTGOMERT	W Carrolleo	443.8500	+	N028	0		10
	2.5	420-450 MHz	USA	otto	BONTOORERT	W Carrolito	444.5000		8822	onsis		W.

Check the list. If you don't like the results, try again. Once you are satisfied with the list, you are finished with TravelPlus*. You can exit that program or leave it running while you access the *RT Systems*' radio programmer.

Run the *RT Systems* programmer. If the programmer is already running, switch to it now to create a file from this list for programming the radio.

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

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

15.2 Opening the list in the Programmer

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

To access the list:

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



• The list appears in the window of the programmer

Input Input 000 Pin 000 Pin 0000 Pin 0000 M 0000 Pin 0000 Pin 0000 Pin 00000 Pin 00000 Pin 00000 Pin 00000 Pin 000000 Pin 000000000000000000000000000000000000	Difference Callege Name Callege Name Caller Name VARBN Inso WARBN Inso WARBN WARBN WARBN Inso WARBN Inso WARBN WARDN Us WARDN Us WARDN Us WARDN Us WARDN Us WARTH DR WARTH Us WARDN Us WARTH DR WARTH DR WARTH	CTCSS 1 167.9 88.5 16.2 100.0 100.0 100.0 100.0 1151.4 146.2 151.4 107.2	DCS Cby Hapovile Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta Atlanta	State F GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA GEORGIA	Bepoter Note: (Comment) 0 167.9 88.5 (CA) 0 145.2e 0 100.0e 0 151.4ae/RB 0 145.2 (CA) 0 151.4ae/RB 0 0 145.2 (CA) 0 0 0 0 0 0 0 0 0 0 0 0 0	442.62500 145.33000 145.35000 145.4000 146.62500 146.62500 146.63500 146.63500 146.73000 146.73000 147.03000 147.03000 147.03000	
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28500 Pi 34500 Pi 10500 434.0000 Si 30000 Pi 32500 Pi 32500 Pi 22500 Pi	lus KC42/2 lus N4NEQ lus W84RTH piR W42TL lus W4DOC lus W42ML lus W42T	151.4	Atlanta Atlanta Atlanta CARES Atlanta	GEORGIA	oaRB	147 34500	
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22500 PI		100.0	Atlanta	GEORGIA	o 100.0es	442,22500	
	lus W85EGI	100.0	Atlanta	GEORGIA		442.47500	
(7500 PI	NA4DB	72.3	Atlanta	GEORGIA	0.72.3	442.52500	
52500 PI	N4XOM	110.9	Atlanta	GEORGIA	o 110.9	442.67500	
57500 PI	kE4PVE	100.0	Atlanta	GEORGIA	o 100.0el	442,80000	
30000 PI	ha NANEP	100.0	Atlanta	GEORGIA	ot	442,87500	
37500 PI	ka KAREL	100.0	Atlanta	GEORGIA	o 100 DeBR	442.97500	
97500 PI	WAAYN7		Atlanta	GEORGIA	offCAI	443.02500	
12500 PI	lus W4CMI	127.3	Atlanta	GEORGIA	e 127.3	443.31200	
31200 PI	lus W440L	10110	Atlanta	GEORGIA	1	443,60000	
50000 PI	lus KA5WZY	146.7	Atlanta	GEORGIA	o 146 ZaRR	443.65000	
5000 PI	lue W/4CML	123.7	Atlanta	GEORGIA	o 123 7I	443,80000	
30000 PI	NAMEP	151.4	Atlanta	GEORGIA	o 151.4 (CAWRR	444.05000	
(5000 PI	N4NEO	151.4	Atlanta	GEORGIA	o 151.4e	444,15000	
5000 P	lus WAPME	100.0	Atlanta	GEORGIA	o 100.0e	444.45000	
15000 P	lus W4000	146.2	Atlanta	GEORGIA	o 146.2e	444 50000	
50000 PI	kD4GPI	110.9	átlanta	GEORGIA	0 110 9	444 77500	
27500 PI	ha NANEO	151.4	Átlanta	GEORGIA	o 151 4a(Co)aBB	444 82500	
2500 PI	he WADOC	146.2	Allanta	GEORGIA	o 146 2 (CA)e	444 92500	
2500 PI	lus W4000	140.2	Allanta	GEORGIA	0 140.2 (O4)e	444 97500	
27500 PI	lus WAANNZ		Atlanta	GEORGIA	diff Alipp	442 25000	
25000 P	ko KGARTO	100.0	College Park	GEORGIA	100.0 88 W/	1292.00000	
1272 0000 5	oB KRAKIN	100.0	Allanta	GEORGIA	100.0 HD 1971	145 15000	
12/2.0000 Sp	pis ND4NIN linus 34/46/01	167.0	Georgia Tech	GEORGIA	o 167 9 (CA)ea	145.15000	
15000 M	inus W44QL	107.3	Decebra	GEORGIA	o to7.5 (CAjez	442,20000	
10000 M	wasoc		Decolu-	oconota	i v	+42.20000	
	•	Name	Callsian	Comment R	epeater Notes	Select All	
es [Selected Rande			-	UnSelect All	
	7500 P 2500 P 2500 P 5000 P 5000 P 5000 N 5000 M 5000 M	7000 Plus IN48EU 7000 Plus IN48D0C 2500 Minus IN48D0C 2500 Minus IN48D0C 2500 Stelect a Module	7400 Pius INNREQ 101.4 2500 Pius IV400C 1462 2500 Pius IV400C 1462 2500 Pius IV400C 1462 2500 Pius IV400C 1462 2500 Pius IV40C 1467 2500 Pius IV40C 157.9 2500 Minus I	CAUD PLus NAVECOC 151.4 Alfanta CAUD PLus VMAPOC 156.2 Alfanta CAUD PLus VMAPNZ Alfanta Alfanta CR00 PLus VMAPNZ Alfanta Alfanta CR00 PLus VMAPNZ Alfanta Alfanta CR00 PLus KAPTO 100.0 Celeop Paul Alfanta C000 PLus KAPTO 100.0 Celeop Paul Alfanta S000 Minus VMAQL 157.9 Georga Fech Decohr S000 Minus VMAQL 157.9 Georga Fech Decohr Selected Bonds Selected Bonds Selected Bonds Selected Bonds Selected Bonds	7400 Pius N44EU 1014 Alistia ist.04040 7500 Pius V42000 1462 Alistia ist.04040 7500 Pius V447472 Alistia ist.04040 7500 Pius V447472 Alistia ist.04040 7500 Pius K647470 100.0 CelosoPius CEDROIA 8000 Pius K647470 100.0 CelosoPius EDROIA 9000 Pius K647470 100.0 CelosoPius EDROIA 9000 Pius K647470 100.0 CelosoPius EDROIA 9000 Pius K64740 107.9 CelosoPius EDROIA 9000 Minus V4480C Pius ECROIA 9000 Minus V4480C Second Pius ECROIA 9000 Minus V4480C Second Pius ECROIA 9000 Selected Bandei	Choice Phase MelleU 1014 Alleria Dick Hou o 101 All_CAURE CS00 Phase MelleU 1014 Alleria Dick Hou o 101 All_CAURE CS00 Phase MelleU 1014 Alleria Dick Hou o 101 All_CAURE CS00 Phase MelleU 1014 Alleria Dick Hou o 2014 o 2014 <td< td=""><td>Church HeiseL HeiseL Allanta Cold Diright o 151-142_CMarts 644.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o 151-142_CMarts 644.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o 161-142_CMarts 644.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o 162-2CA/er 444.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o (CA/PB 442.9300 Cold Pisa VAADNO Catego Pisa CEDIRGIA o (CA/PB 442.9300 Cold Pisa VAADNO Catego Pisa CEDIRGIA o (CA/PB 442.9300 Cold TZ2:CODIR Pisa ICA/PE 167.9 CEDIRGIA o (CA/PB 442.9300 Cold TZ2:CODIR VAL TZ2:CODIR VECTRIA 167.9 ICA/PB 442.9300 Cold TZ2:CODIR VECTRIA TS Genergia Fech CEDIRGIA o 167.9 ICA/PB 42.2000</td></td<>	Church HeiseL HeiseL Allanta Cold Diright o 151-142_CMarts 644.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o 151-142_CMarts 644.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o 161-142_CMarts 644.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o 162-2CA/er 444.82500 Cold Pisa VAADNO Alfanta CEDIRGIA o (CA/PB 442.9300 Cold Pisa VAADNO Catego Pisa CEDIRGIA o (CA/PB 442.9300 Cold Pisa VAADNO Catego Pisa CEDIRGIA o (CA/PB 442.9300 Cold TZ2:CODIR Pisa ICA/PE 167.9 CEDIRGIA o (CA/PB 442.9300 Cold TZ2:CODIR VAL TZ2:CODIR VECTRIA 167.9 ICA/PB 442.9300 Cold TZ2:CODIR VECTRIA TS Genergia Fech CEDIRGIA o 167.9 ICA/PB 42.2000

Customizing the list for the radio file:

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

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

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

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

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



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

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

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

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

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

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

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

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



• <u>Module</u>: Select the radio for which you want to create a file.

The resulting file appears in its own tab.

16	1 14	B (2) (3)	88	44.21	8															
ž	£ 10-3830 UA	and I	Davel Rus	an a	IC-2828 Un	Wedl' X														
	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Deection	Operating Mode	Name	Tone Made	CTCSS	Rx CTCBS	DCS	DCS Polarity	Stp	Step	Digital Siguelich	Digital Cade	four Calkign	Rpt-1 Caltign	Rot-2 Caltign	Bank	Bank Channel
	442.02580	447,02580 5	001000	+DUP 🗶	PM .	KC4D4L	Tane	× 157.9112 ×	00.510	000	loth N 🕞	04	w Ster [e) 08	e)) (e	000000				
1	245.29000	244,65000-6	80 MHz	OUP	PH	WHERE	Tone	88.5 Hz	88.5 Hz	023	BallyN	0¥	5449	06	0	cqcqcq				
	345.39000	344,75000-6	80 km	-0.0	PM .	WEDOC	Tone	146.2Hz	00.5Hz		Both N	04	Skrie	0#	0					
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	246.62500	346.02500-6	80 km	OUP		WET	Tone	100.0Hz	00.51%		Dotte N	0*	Strip	0#	0					
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	346.83000	246.23000 6	00.040	CLP CLP	P94	W4DOC	Tane	146.3143	RE SHO		Robin N	OF	5.040	08	0					
	147.0000	145, 40000 5	au ere	0.0		10000	NOTE:	00.5 Ftp	00.5712		Committee inter	0.00	5 tree	Com.	6					
	347,08000	346,40000 6	0000	009	100	WAALOO .	none	00.5 Hz	00.510	023	1000111	or	200	UR I	0					
	147 38430	147 48470 4	NO INC	100	214	NO STREET	apre l	00. 5 PM	00.57%		See 14	0.00	5 the	Com.	6					
	and heater	period period	0000	100		10.464	form .	100.3110	00.310		CONTINUE OF	100	200	100	C.					
	147 18400	147 70400 4	10.140	10.0	and a	14MARTA	Terre	101.704	SS ENG	0.023	Rollin M	04	E LANK	0.0	6					
	421 20000	414 00000 1	0.75 Main	4340	CM .	WWTD	TO'R	00 5121	00.2110		Com II	100	5 km	Com.	là.					
	440,48000	448 480000 8	ALC DRIVE	+71.0	EM .	A MOUTH	The second se	20.014	22.215	0.22	Rodin M	04	2 444	-	Č.					
	442.02520	447.03520.5	Of state	100	754	WHERE SALES	Trees	172 3.00	ALC: N		Rom N	OW	5 trie	Com.	6					
	443.17500	447 17500 5	01050	40.0	i M	WAT	Time	100.044	28.510	0.22	NOT N	08	5 494	100	in the second se					
	443 33830	447 37400 8	Of Serve	100	154	ABORT 1	Terre	100.000	55.514		Salts N	0.00	S belo	CAR	6					
	442,47520	447 47520 5	Of Barr	4710	CM .	14400	Toole	00.5141	00 5121		Com N	0.00	Sister	Cont .	6					
	440, 57500	442,52500,5	LOD PRO-	+0.5	PM	34078	Toole	110.000	55.5Hz	023	Falls N	OF.	Sitte	08	0					- 0
	442 67520	447 67500 5	Of party	47112	74	17.815	Doos	100.0107	A8 5111		Cotto N	0.0	Steer	0.00	6					
	442,880000	447,80000 5	007942	+0.8	FM .	1444	Toole	201.5 H2	88.510		Bodh N	off	3 440	off	0					
	442,87500	447,87500,5	Of Party	ADIR	PM	COD!	Dene	100.014+	A8.5Hz		Salta N	0.0	Stele	04	0					- 0
	442,97520	447,97520 5	Of Person	40.0	EM .	ARRING.	None	100.5147	09.5141	023	Soft N	OF	Skett	0.00	0					
	443,02500	446.02500.5	00999	+0.P	PM	W4CM.	Torue	127.314	58.5Hz		Faile N	OF.	Same	08	0					
	443,68000	440,58000 5	00 PPg	+0.9	/M	KASVIDY	Tone	00.514	00.510		Doth N	04	Strip	Off.	0					
	443,45000	448,41000 N	007942	+0.P	PM	W405	Tate	85.5 Hz	88.510	023	Bally N	off	3440	08	0					
	443,88000	448,880000 5	OT PHY:	40.P	PM	1987	Tone	151.4Hz	68.5 Hz		Softh N	0#	Skrig	0#	0					
	444,05000	449.05000 5	00 PB/2	+DUP	FM	04460	Tone	151.4042	29.510	02.9	BOTH N	Off.	564	041	0					
	444,15000	449, 15000 5	LOD PIPE	+0.P	PM	WHE	Tone	100.0Hz	88.5Hz		Ballh N	OF.	Skrie	o₩	0					
	444,45000	449,45000 5	00 PPtr	+3.9	/M	WEDOC	Tone	146.2112	00.5Hz		Doth N	04	State	041	0					
	444, 50000	449.50000 S	007949	+0.P	PM	KD40P0	Tone	130.9142	38.5 Hz	023	BMD N	off	3440	08	0					
F.	444,77500	449.77500 5	00 PPtr	+0.P	PM	9394	Tone	151,4Hz	55.5 Hz		Soth N	0#	Skhie	04	0					
£.	444,92500	449.92500 5	244100	+DUP	FM	WEDD	Tone	146.2142	89.5HJ	02.9	BOTH N	04	5640	08	0					
	444,92500	449.92500 5	00799	+0.P	PM .	WERRO	None	88.5 Hz	58.5 Hz		Seth N	0¥	SHE	0#	0					
	444,97500	449.97500 5	200 Million	+DUP	/H	W8496	None	00.5Hz	00.5112	003	Doth N	04	State	041	0					
	442, 33000	447.33000 5	007999	+0.P	PM	KO#TO	Tone	\$00.0HP	88.5 Hz	023	8605N	08	3440	08	0					
	345, 15000	344,55000 6	ao kriz	-DUP	PH .	W44QL	Tone	157.5Hz	58.5 Hz		Both N	0#	5 kHz	0#	0					
	345.49000	344,99000 6	20 kH C	-019	PM .	W480C	None	SR.SHD	89L5 H2	023	N rthole	04	5640	08	0					
	442,28080	447.20000 5	OT PIPE	+0.P	PH	15476	None	88.5 Hz	88.5 Hz		Selfe N	0#	Skrie	0#	0					
	444,25000	449.25000 5	200100	+DJP	ΓH .	W480C	None	00.5Hz	00.510	023	Dorth N	04	State	041	0					
	442, 17500	447.17500 5	057949	+0.P	PM	104,000	none	38L5 H2	88.5 Hz	023	Soft-N	0¥	5449	08	0					
	443.97530	448,97500 5	OT HTT	+DUP	PM	12490	None	88.5 Hz	68.5 Hz	023	Soth N	04	Skhie	0#	0					
	345.17000	344,57000 6	20 69-02	-CLP	FM	WHEDR	fane	146.3142	39, 5 Hz	023	BOTH N	04	5640	08	0					
	145, 33000	144,73000 A	20 kHz	OLP	PM	W24002	See	ALC: N DOA	100 C 14+	0.078	Rodin 14	1046	S & delay	17.85	0					

The file is ready to be sent to the radio.

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

15.3 Using the TravelPlus* List with existing programmer file

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

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

- Begin by creating your list in TravelPlus* as detailed in <u>Creating a List in</u> <u>TravelPlus*</u> in this help.
- Open the programmer.
- Open the file into which the frequencies are to be inserted.
- Access the TravelPlus* list through the link in the file menu. Both the list and the file are now open in the programmer. Working in reduced screen mode is helpful with this process to let you see both files at one time.

	F 🔜 🔏 🖻		#4 ≙↓ ?								
Ī	Output Frequency	Input Offset Frequency Diffetio	Calsign (Name)	CTCSS	DCS City	State	Region R	Repeater Notes (Comment)	442.82500		
1	442.82500	Plus	WC4ENL	167.9	Hapevile	GEORGIA	o 1	67.9	145,29000		
2	145.29000	Minus	W4IBM	88.5	Atlanta	GEORGIA	88.9	51CA)	145.35000		
3	145.35000	Minus	W4DOC	146.2	Atlanta	GEORGIA	o 1-	46.2e	145.41000		
4	145.41000	Minus	W4PME	100.0	Atlanta	GEORGIA	o 1	00.0e	146.62500		
5	146.62500	Minus	W4ZT	100.0	Abanta	GEORGIA	o 1	00.0e	146.64000		
6	146.64000	Minus	W84QGR		Atlanta	GEORGIA	ot#	1	146.65500		
7	146.65500	Minus	N4NFP	151.4	Atlanta	GEORGIA	o 1	51.4aelRB	146.73000		
8	146.73000	Minus	KD4NC		Allanta	GEORGIA	ol		146.82000		
9	146.82000	Minus	W4DOC	146.2	Atlanta	GEORGIA		46.2 (CA)e	146.97000		
10	146.97000	Minus	K4CLJ		Atlanta	GEORGIA	ot	-	147.00000		
11	147.00000	Minus	WA4NN0		Atlanta	GEORGIA	0(C	CA]	147.03000		
12	147.03000	Plus	W4NJQ		Allanta	GEORGIA	0		147.29500	Making the loss take. The sector file and the	
13	147.28500	Plus	KC4ZIZ		Allanta	GEORGIA	oaF	RB	147.34500	Notice the two tabs. The radio file and the	
14	147.34500	Plus	N4NEQ	151.4	Atlanta	GEORGIA	o 1	51.4 (CA)IRBz	147.10500	Travel Plus List are clearly identified	
15	147.10500	Plus	W84RTH	107.2	Atlanta CARES	GEORGIA	o 1	07.2	421.25000	Haver Flus List are clearly identified.	
16	421.25000	434.0000 Split	W4ZTL		Atlanta	GEORGIA	0		440.60000		
17	440.60000	Plus	W4DOC		Allanta	GEORGIA	I		442.02500		
18	442.02500	Plus	W4CML	127.3	Atlanta	GEORGIA	o 1.	27.3	442.12500		
19	442.12500	Plus	W4ZT	100.0	Atlanta	GEORGIA	o 1	00.0es	442.22500		
20	442.22500	Plus	W85EGI	100.0	Atlanta	GEORGIA			442.47500		
21	442.47500	Plus	NA4DR	72.3	Atlanta	GEORGIA	07	23	442.52500		
22	442.52500	Plus	N4XQM	110.9	Allanta	GEORGIA	01	10.9	442.67500		
23	442.67500	Plus	KE4PVE	100.0	Allanta	GEORGIA	o 1	00.0el	442.80000		
24	442.80000	Plus	N4NFP		Atlanta	GEORGIA	oti		442.87500		
25	442.87500	Plus	K4RFL	100.0	Atlanta	GEORGIA	o 1	00.0eRB	442.97500		
26	442.97500	Plus	WA4YNZ		Atlanta	GEORGIA	ot(C	CAJI	443.02500		
27	443.02500	Plus	W4CML	127.3	Allanta	GEORGIA	01	27.3	443.31200		
28	443.31200	Plus	W4AQL		Atlanta	GEORGIA	1		443.60000		
29	443.60000	Plus	KA5WZY	146.7	Atlanta	GEORGIA	o 1-	46.7aRB	443.65000		
30	443.65000	Plus	W4CML	123.7	Atlanta	GEORGIA	01	23.71	443.80000		
31	443.80000	Plus	N4NFP	151.4	Atlanta	GEORGIA	01	51.4 (CA)eIRB	444.05000		
32	444.05000	Plus	N4NEQ	151.4	Allanta	GEORGIA	01	51.4e	444.15000		
33	444.15000	Plus	W4PME	100.0	Allanta	GEORGIA	01	00.0e	444.45000		
34	444.45000	Plus	W4DOC	146.2	Atlanta	GEORGIA	01	46.2e	444.50000		
35	444.50000	Plus	KD4GPI	110.9	Allanta	GEURGIA	01	10.9	444.77500		
36	444.77500	Plus	N4NEU	151.4	Allanta	GEORGIA	01	o1.4a(CA)eIRB	444.82500		
37	444.82500	Plus	W4DOC	145.2	Allanta	GEORGIA	01	46.2 (CA)e	444.92500		
38	444.52500	Mus	WA4NNO		Allanta	GEUNGIA	0		444.97500		
39	444.97500	Plus	WA4YNZ		Allanta	GEURGIA	ot(C	CAIRB	442.35000		
40	442.35000	Plus	KG4PTU	100.0	Lonege Park	GEURGIA	100	OLO HB WX	1292.00000		
41	1292.00000	1272.0000 Spit	KB4KIN	107.0	Attanta	GEORGIA	0	C7.0 (C1)-	145.15000		
42	145.15000	Minus	W4AUL	167.9	Georgia Tech	GEORGIA	0 1	67.9 [LA]ez	145.45000		
43	145.45000	Minus	W48UC		Decatur	GEURGIA	0		442.20000		
	Modules		•	Name	Callsion	Comment	Repeater No	ales V	Select Al		
			-	ritania	Constant		maped and		Station All		

• Select a group of channels.

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

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

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



• Copy the channels

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

OR... with your mouse, left click to select Edit from the menu at the top

of the screen. From the menu that opens, select Copy.

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

• Use the mouse to click into the programmer file.

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

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

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

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

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

• View the results

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

ł,	SC-2828 Un	votiled1* 3	6 🔝 Tan	el Plus Ust	An 10-202	0 Unit Bell2															
	Raceive	Transmit. Frequency	Offset Frequency	Offset	Operating	Name	Tone Made	CTCSS	Rx	DCS	DCS Folarth	940	Step	Digital	Digital	Tour Calego	Rot-1 Califien	Rot-2 Califien	Bank	Bark Channel	T
	\$46.0 \$000	\$46.0 \$000		Sinplex	PM .		None	00. S Hz	00.514	023	Doth N	off	Skitz	Off.	0	000000					Т
	H0.08080	+40.08080		Simplex	PH		none	88.5 Hz	88.5 Hz	023	Softh N	OF	251492	OF	0	000000					
								_			-	-	-	-	-	-					+
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1	442,87500	447,87500	5.00 MHz	40.JP	294	KARPL	Tone	100.0Hz	68.5 Hz		Both N	04	5 kHz	0#	0						1
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• Save the programmer file to make this change permanent.

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

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

• Send the file to your radio.

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16 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.

16.1 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.

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4	147.345		600 kHz	Plus	FM	FID ARC	-	Tone	107.2		_		_						_	_		_
6	146.955		600 kHz	Minus	FM	PSLARC		Tone	107.2													
7	147.060		600 kHz	Plus	FM	MCARA		Tone	107.2													
8	146.625		600 kHz	Minus	FM	HobeS		Tone	110.9													
3	146.315		600 kHz	Minus	FM	WPB EC		Tone	110.9													
10	145.370		600 kHz	Minus	FM	KL		Tone	94.8													
11	147.000	147.00	0		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													
14																						
15	444.800		5000 kHz	Plus	FM	PSL Echo		Tone	107.2													- 1
16	443.875		5000 kHz	Plus	FM	WP8 Echo		Tone	110.9													
17	443.625		5000 kHz	Plus	PM	FUL Echo		Tone	110.9													
18	147.585		600 KHZ	Plus	FM	FUL ECNO		Tone	110.9													
29	443.423		5000 kHz	Plus	EN4	Mia Echo		Tone	94.8													
21	442.100		3000 8/12	PIUS	r M	AL CONO		TONE	34.0													
22	147.060		600 kHz	Plus	FM	Key-Cudio		No Tone														
23	147.165		600 kHz	Plus	FM	Key-Largo		Tone	94.8													
24	146.670		600 kHz	Minus	FM	Key-BPK		Tone	94.8													
25	147.225		600 kHz	Plus	FM	Key-Mara		Tone	94.8													
26	146.715		600 kHz	Minus	FM	Key-Plan		Tone	94.8													
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16.2 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.



16.3 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.



16.4 Step 4

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

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

Delimiters Tab Space 	© Se <u>m</u> ico ⊚ <u>O</u> ther	olon ©	<u>C</u> omma	Treat of Text Q	consecutive ualifier {No	delimiter as o one} 🔹	one
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	C
	147.345		600 kHz	Plus	FM	FtP ARC	
	146.955		600 kHz	Minus	FM	PSL ARC	
	147.060		600 kHz	Plus	FM	MCARA	
	146.625		600 kHz	Minus	FM	HobeS	
	146.315		600 kHz	Minus	FM	WPB EC	
•							÷.

Click Next to continue.

16.5 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.

	1×1
en select the column name from the dropdown list. $/$	
skip a column during import set header to "ignore".	1/
re Ignore Ignore Ignore Ignore Ignore	re Ignore Ignore Igno
147.345 600 kHz Plus FM	PtP ARC Ton
146.955 600 kHz Minus FM	PSL ARC Ton
147.060 600 kHz Plus FM	MCARA Ton
146.625 600 kHz Minus FM	HobeS Ton
140.04F 000111 Nr. FM	WPB EC Ton
146.315 600 kHz Minus FM	
147.345 600 kHz Plus FM 146.955 600 kHz Minus FM 147.060 600 kHz Plus FM 146.625 600 kHz Minus FM	PSLARC PSLARC MCARA HobeS

		ropdown	list.	Ignore
To skipla column durin	ng import set head	er to "igno	Ignore	Ignore Channel Number Receive Frequency Transmit Frequency Offset Frequency
147 345		Plue	EM	Offset Direction
146.955	600 kHz	Minus	FM	Name
147.060	600 kHz	Plus	FM	Show Name
146.625	600 kHz	Minus	FM	CTCSS
146.315	600 kHz	Minus	FM	DCS
•				Skip Step
				Clock Shift

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.

Clic The To :	k on column en select the skip a colum	heade column n duing i	o select. Janue from	the dropdov header to	vn list. goore 'i	Column 1	0		•
ns	Offset F	Offs	Ope	Name	Ignore	Tone	CTC	Ignore	-
	600 kHz	Plus	FM	FtP ARC		Tone	107.2		4
	600 kHz	Minus	FM	PSL ARC		Tone	107.2		
	600 kHz	Plus	FM	MCARA		Tone	107.2		
	600 kHz	Minus	FM	HobeS		Tone	110.9		
	600 kHz	Minus	FM	WPB EC		Tone	110.9		-
•					111	-		F	

Click Next to continue.

16.6 Step 6

Complete the options on the final screen and click Finish.

Startin	g radio memory 1	V	Overwrite existing c	hannels
			Show only selected	columns
Avai	lable Channels: 999		Show only valid free	quencies
~	I otal Channels: 1000			
Char	nnels Selected: 22	Sele	Dese	elect All
Ignore	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Directio
1	147.345		600 kHz	Plus
1	146.955		600 kHz	Minus
1	147.060		600 kHz	Plus
1	146.625		600 kHz	Minus
1	146.315		600 kHz	Minus
•				

The resulting file contains the data just as it was in the Excel spreadsheet.

	Receive Features	Transnik Fransance	Officer	0 Viset Direction	Operating Mode	Name	Show	Tane Mode	CTCSS	DCS	Skip	Step 🔺
			-	-	-		E		-		-	
81	145.01000	146.01000	2	Simplex	FN		E .	None	88.5Hz	023	01	5kHz
3	440.00000	440,00000		Sinplex	FN		 E 	None	88.5Hz	023	0/1	5kHz
3					1000		- E	100000		X1010	1.0	200.02
8							- E					
2							_ E			4215	222	10000
ě.	145.66000	145.66000		Sinplex	FN		_ E	None	88.5Hz	023	00	15kHz
8							_ E			22.2	192	10000
3	147.55500	147.55500		Sinplex	FN			Noné	88.5Hz	023	00	15kHz
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	P B Mer	iones / Line	Meniories	W-U / Hon	0			1				



17 Importing a file

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

Limitations for use of another commercial spreadsheet program include:

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

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

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

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

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

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

17.1 Creating a file for Import

Checking a file to use with the Programmer

If you are given a file that you want to import into a programmer for use by your radio and are not sure if it is a "flat file", test the file by opening it with Windows notepad.

If the Notepad display is full of strange characters with very little legible text, this file is not ready to be imported by the programmer. The file may or may not be able to be used for import depending how it was created and saved.

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

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

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

Saving an Excel file for import

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

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

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

Limitations for use of another commercial spreadsheet program include:

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

The Import File

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

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

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

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

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

Non-Standard Offsets

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

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

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

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

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

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

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

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

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

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

• Step 1: Turning on Tone Mode

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

- None Tone mode off
- Tone Encode
- T Sql Encode/Decode
- DCS DCS Tone
- Others specific to your radio as detailed in the Tone Mode column of the programmer.
- Step 2: Setting the tone frequency (CTCSS) or selecting the code for the tone (DCS).

Note: The CTCSS tone frequencies and the DCS tone codes should be stored in TWO separate columns in your file to be imported. The import process does not separate. It will ignore incorrect values leaving the tone set incorrectly for the channel.

• CTCSS Tone: Enter one of the 50 tone frequencies in the format MHz

decimal kHz with only one digit to the right of the decimal.

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

This value is set independently for each memory channel.

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

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

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

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

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

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

Skip or 1 to mark the channel to be skipped.

PScan or 2 to mark the channel as Preferential Scan

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

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

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

Enter On or 1 / Off or 0

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

Enter High / Med / Low

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

Comments: Enter an identifying comment up to 80 characters.

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

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

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

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

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

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

Exit the spreadsheet program. Your file is ready to be imported into the Programmer. Changes can be made within the Programmer after you import the data.

17.2 Import - Step 1

In the Programmer, select File | New.

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

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

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

Importing

In the Programmer select File | Import.

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

Import Radi	o File					_ ? 🛛
Look in: 道	Kerr		•	(-)	a 💣	-
2300.rdf C208.dat C208.ic21 Kerr Adjus C208.ic21 Kerr Adjus Software Adj	08 ted for Tone.CSV SV 18	Step.csv step.ic208 Step.tab				
File game:			_	_		Open
Files of type:	All files (*.*) Tab Delimited (*. Comma Delimited	tab) i (".csv)		_	_	Cancel

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

Import Step 1 of 4	×
18 🛨 Select rows from begining of list to skip on it	nport
Elimin beginn increa	ate channels from the ing of the list by sing the counter.
Column 1	<u></u>
"147.0200", "0.6000", "+", ", ", "H", "127.3", "127.3", "Salem ", "	-
147.0400", 0.6000", +", ", ", ", ", ", ", ", ", ", ", ", ", "	
"147.1200", 0.6000", * , , , H . 127.3", 127.3", Horwr	
"147.1400", "0.6000", "+", "", "H", "127.3", "127.3", "Brahpe", ""	
"147.2400", "0.6000", "+", "", "H", "127.3", "127.3", "Vnew", ""	-
"147.2800", "0.6000", "+", "", "H", "179.9", "179.9", "PDX	M
<	3
< Back Meat > C	ancel Help

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 <u>Next</u> to continue.

17.3 Import - Step 2

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

Select field delimitent. Select the ch the data in th	aracter that separates e file being imported.
Peliniters (* Tab) C Semicolon C Comma	Treat consecutive delimiter as one
C Space C Other	Text Qualifier (None)
Column 1	<u>^</u>
147,0200 0.6000 + H 127,3	273","Salem"," The selected
"147.1000" "0.6000" +"	27.3", "HdRvr "," character is the
"147.1200" "0.6000", +	273", "MtHood", same as the one
147.1400 0.6000 + H 127.3	27.3" When that appears her
"147.2800","0.6000","+","","","H","179.9"," "147.3200","0.6000","+",",",",","H","179.9","	179.9", "PDX_""" 179.9", "SoSdd", ""
·	

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.

C Tab	C Segico	lon @	Comma	T Tges	it consecutive	delmiter as	one
C Space	C Other			Ted	Qualifier (N	one) 🔻	
Column 1	Column 2	Column :	3 Column 4	4 Column	5 Column 6	Column 7	Cov
147.0200	"0.6000"	** * **			"H"	"127.3"	1
147.0400"	10.60001	7 4 7			"H"	"127.3"	T.
147.1000"	"0.6000"	1. A. C. A.			"H"	"127.3"	°1.
147.1200"	"0.6000"		8.00		"H"	"127.3"	**t:
147,1400*	10.6000	** * **	A		"H"	127.31	10
147,2400"	"0.6000"	7. .			"H"	"127.3"	11
147,2800"	"0.6000"				"H"	"179.9"	71.0
17.2400" 47.2800"	"0.6000" "0.6000"	×.			-H. -H.	"127.3" "179.9"	-

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.

nport Step	2 of 4		Sele	ct the qu	ote (") as	the Text	t Qualifie	ar 🕹
Seectieu	geinnes.	1	o eli	minate t	ne quotec	d from th	e data.	
C Space	C Semi	colon	æ	<u>C</u> omma	Text O	consecutive Walfier 📔	delimiter at	sone
Column 1	Column 2	Colur	nn 3	Column 4	Column 5	Column 6	Column 7	Colu
147.0200	0.6000	+				Н	127.3	127
147.0400	0.6000	+				н	127.3	127
147.1000	0.6000	+				н	127.3	127
147.1200	0.6000	+				н	127.3	127
147.1400	0.6000	+				н	127.3	127
147.2400	0.6000	+				н	127.3	127
147.2800	0.6000	+				н	179.9	179 🗠
<								2
			< <u>B</u> ad	k 🚺	lext >	Cancel	1	Help

Click <u>Next</u> to continue.

17.4 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.

Clock on a	column h	sader to s	elect.						
Then sel	ect the co	lumn nar	ne from th	ne dropđ	own list.				
To ekin a	and more	t size less	ant out by	and arts	"				
TO SKIP 8	column	auring imp	ort set n	eaderto	ingore .				
Ingore	Incore	Incore	Ingore	Ingore	Incore	Ingore	Incore	Incore	I K
147.0200	0.6000	+			н	127.3	127.3	Salem	-
147,0400	0,6000	+			н	127.3	127.3	Aptch	
147,1000	0,6000	+			н	127.3	127.3	HdRvr	
147.1200	0.6000	+			н	127.3	127.3	MtHood	
147.1400	0.6000	+			н	127.3	127.3	Brahor	
147.2400	0.6000	+			н	127.3	127.3	Vnevr	
147.2800	0.6000	+			н	179.9	179.9	PDX	
							-		

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

Click on a	colur in he	ader to s	elect.			Cale			
Then sek	ed, the co	iumo nav	ne from th	e drood	own list.	Inc			
	7					Law 1			-
To skip 'a	column o	during imp	oort set he	eader to	"ingore".	83	ane Incel Nue	her	-
						Rec	ceive Fred	uency	
						Tra	namit Freq	uency	Ξ.
	Ingore	Ingore	Ingore	Ingore	Ingore	Indoffs	et Freque	incy	~
147.0200	0.6000	+		_	н	127.3	127.3	Salem	-
147.0400	0.6000	+			н	127.3	127.3	Aptch	
147.1000	0.6000	+			н	127.3	127.3	HdRvr	
147.1200	0.6000	+			н	127.3	127.3	MtHood	
147.1400	0.6000	+			н	127.3	127,3	Brahon	
147.2400	0.6000	+			H	127.3	127.3	Vnovr	
147,2800	0.6000	+			н	179.9	179.9	PDX	2
R (2.					>

You need to identify only those columns to be imported.

	o be im	portec	d are id	lentifie	d				
Click /	nd the ba	ader to a	select.						
Theure	and the se	day a part		he doord	own list	Colu	mn 10		
incrise.	SUL THE TO	NUT IN THE	CHANNEL CONTRACTOR	ne uropor	200111056	1900	re .	22502503	
To skip a	e solume d	during im	port set h	eackinth	"nguid"				
		<u> </u>				_			
Recei	Offs	Offs	Ton	Ignore	Tx	CTC	Ingore	Name	
147.0200	0.6000	+			H	127.3	127.3	Salem	3
147.0400	0.6000	+			H	127.3	127.3	Atptch	
147,1000	0.6000	+			H	127.3	127.3	HdRyr	
147.1200	0.6000				н	127.3	127.3	MtHood	
147,1400	0.6000	+			н	127.3	127.3	Brahor	
147,2400	0.6000	+			н	127.3	127.3	Vnevr	
147,2800	0.6000	+			Ĥ	179.9	179.9	PDX	
									2

Click <u>Next</u> to continue.

17.5 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.

Starting radio me	mory 0		✓ Over	write existing	channels	
Available Chan Total Chan Channels Seler	nels: 901 nels: 900 ded.: 51	An unche selection imported	ked is not	S De	elect All select All	
Receit: Frequen	cy Offset Fre	quency Off	set Direction	Tone Mod	le Ignore	Tx F
147.0200	0.6000	+				H
147.0400	0.6000		These	checker		н
147.1000	0.6000	-	are in	anorted		н
147.1200		+	0.0.01	pontea		н
147,1400	0.6000	+				н
147 2400	0.6000	-				H
۶.						2

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

- Starting radio memory Insert the channels into the file somewhere other than at the beginning (i.e., At the end of a list that has the last channel of 21. Enter 22 in this box to begin with the next memory channel of that file).
- Overwrite existing channels Tells the process to replace data it finds in the existing file or to skip that data and write in the next available channel. For example:
- Unchecked If you import into a file with memories in channel numbers 1-10, 12, 15 and 16 the process would write the imported channels in order to 11, 13, 14, then 17 on to the end of the imported list.
- Checked If you import to a file with memories in channel numbers 1-10, 12, 15 and 16 the process would write the imported channels in order beginning at channel 1 and continue in order to the end of the imported list. The existing channel data of the file would be lost in the process as it is replaced with that of the imported file.
- Finish Click to compete the process. The resulting file in this example would look like this:

	Uncertied											15,15	6
- F	Necetire Miguendoy	Transak Freeservey	Environment	Direction	Upersting Hode	Nane	Name	Tone Mode	CTCSS	DCS	Power	Skip	
d													
1	_												
	147.02000	147.62008	0.6000	PNat	FM	SALEM		None	127.3	023	High	01	
1	147.04000	147.64000	D 6000	Pha	(FM	ATPTOH		None	127.3	023	High	01	
1 1	147.10000	147.70000	0.0003	PNH	FM	HDRVR		None	127.9	023	High	01	
1	147.12000	147.72000	0 6000	PNI	FM	MIHOUD	1°	None	127.3	023	High	01	
1	147.14000	147.74000	D 6000	PNai	-FM	BRSHPR		None	127.3	023	High	01	
1	147.24000	147.94000	0 6000	Phai	SM	VNCVR		None	127.3	023	High	01	
1	147.28000	147 99008	D 6000	Phas	FM	PCX		None	179.9	053	High	0.8	
1	147 32000	147 32000	0.6000	Plus	FM	SOSCOL		None	179.9	053	High	0.8	
1	147,58000	147,58000	0.6000	Seeples	FM	FMSPs2		None	179.9	023	High	0.4	
1	147.22000	147,82000	0.6000	Plot	FM	TUDER		None	178.9	023	High	0.4	
1	162,55000	162,55000	0 6000	Saples	714	NUAA		None	178.8	023	High	0.9	
1 7	155,43000	155,43000	0 6000	Searchen	254	POLCES.		None	179.9	023	High	0.9	



18 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.



19 Troubleshooting

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

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

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

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

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

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

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

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

Program cannot find cable



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

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

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

The problem may lie in the electronics of the cable. If this is the first time you have attempted this process, contact RT Systems for assistance. This can be corrected easily in just a few minutes with the computer and an Internet connection.

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

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

Interference from other cables attached

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

The process looks at each USB device attached. Other items attached, especially

other programming cables, may cause the programmer to wrongly identify the RT Systems cable it must use for a specific radio.

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

Interference from other applications

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

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

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

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

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

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

Defective Cable

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

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

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

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

USB Driver Installation

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

We are *RT Systems* will be happy to help you through this process.

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

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

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

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

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

Modified Radio

Communication Error	×
The information in the radi Click OK for more informat Click Cancel to cancel and	o does not match that of the file. tion about this error. try again.
	OK Cancel

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

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

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

Cabling to properly address the radio

The RT Systems Programmers work only with the RT Systems' USB cables

No other USB cable will be recognized by the programmer.

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

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

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

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

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

Icom specific issue for Clone mode

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Windows Version Compatibility

The RT Systems Programmers (version 4 or higher) is designed to work with Windows XP (SP3), VISTA (32 or 64 bit) or Windows 7 (32 or 64 bit) and Windows 8 and 8.1 (full version).

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

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

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

Once the updates are installed, you will have no other problems

related to the operating system relative to the programmer.

NACK/ACK Error

RTIOv4	×
Communication error. Invalid character 'FFFFFFF' should ha	ave been NACK/ACK.
Try again.	
	ОК

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

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

Cancel all Communications screens that are open in the programmer.

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

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

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

Click OK

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

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

Troubleshooting	235

19.1 Get Data from Radio Required

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



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

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



20 Invalid Frequencies

This information is meant to address radio operators in the US. While many of these details are true in other countries, some are not. Band plans, allowable frequencies, and other details differ around the world; but many of the functions of the radio remain the same making this information useful to everyone.

This section is offered to help users understand why a frequency is rejected by an amateur radio. The Programmer will not allow you to enter a frequency that your particular radio cannot use.

Your radio is designed to work on all frequencies in the amateur bands. Problems arise when frequencies from commercial operations are used on this amateur equipment. This explanation is offered to help you understand where the radios differ.

How Radios Work

A little here about how radios work. As for an allowable frequency, three factors are important: Reference Frequency, Reference Step and Step.

Reference Frequency - Based on its internal electronics, the radio uses a value based off the frequency you enter along with the Reference Frequency Oscillator to generate the desired frequency.

Reference Step - The difference between any two Reference Frequencies. This value is set as a part of the internal workings of the radio. It cannot be changed.

Step - The difference between two frequencies displayed on the face of the radio when the tuning knob is turned while operating in VFO mode.

Reference step and Step work in conjunction with each other allowing or prohibiting you from tuning to a given frequency.

Commercial radios have a Reference Step of 2.5 kHz.

Amateur radios are generally designed with Reference Steps of 5, 6.25, 12.5, 9 (only AM) and 8.333333 (air band only) kHz. While a few models have all these Reference Steps, many more remain with only Reference Steps of 5 and 12.5 kHz. These two are sufficient for accessing any repeater in the Amateur Bands.

While in the mathematics of things there will be frequencies in the commercial bands that match the available Reference Steps of Amateur radios, the Step of the Amateur radio will not allow you to tune to the desired frequency.

It takes both working together to achieve a valid frequency.

Testing the validity of a frequency

The question of validity is seen with frequencies with four digits following the decimal (i.e., 154.03125 may be your local volunteer fire department frequency and while their commercial radios can do this frequency, your amateur radio cannot... and it cannot be made to do it with any software.)

Let's take 154.03125 and put it to the test.

Step 1:

The first and easiest test for the validity of a frequency is to attempt to dial to that frequency in VFO mode on the face of the radio. Remember in your attempts that it may be necessary to adjust the Step (see your Operator's Manual for details) to get to a certain frequency.

Turn on your radio.

Access VFO mode

Turn the tuning knob.

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

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

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

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

Step 2:

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

- 1. xxx.xx500 Generally only 5 or 0 allowed in the third position with all 0s after that. A few exceptions are shown below.
- 2. xxx.x12500 Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.
- 3. xxx.x375 Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.
- 4. xxx.x625 Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.
- 5. xxx.x875 Allowable for four digits after the decimal. The first digit after the decimal can be any from 0 to 9.

Comparing 154.03125:

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

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

Step 3: Do the math.

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

Convert your frequency to Hz:

154.03125 x 1,000,000 = 154031250

Divide that number by 5000

154031250 / 5000 = 30806.25

154031250 / 12500 = 12322.5

154031250 / 6250 = 24645

The 6250 Hz division was successful. There is a possibility that this frequency can be used by an amateur radio.

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

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

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



21 Hardware Error Troubleshooting



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

Communication Error	X
The information in the ra Click OK for more inform Click Cancel to cancel ar	adio does not match that of the file. nation about this error. nd try again.
	OK Cancel

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

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

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

Try this First

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

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

Radio Issues

"Error" is displayed on the radio.

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

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

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

There is no communication between the radio and the computer. Check through

the Cable issues to be sure you are using the right cable and that it is connected properly to the radio and to the computer.

The radio never goes to CLONE.

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

- 1. The keys on the radio may be locked. Turn the radio off then back on in normal mode to check for a lock symbol on the screen. If the keys are locked, unlock them. Once unlocked, power off the radio and begin the Communications process again.
- 2. The key specified is "touchy" and responds if it is touched just the right way. This has been the case on several of the mobile radios. Try again with a shorter or longer touch on the button. When you get that touch just right, the radio will respond.
- 3. The wrong cable is being used. This is true for several of the hand held radios that use the 4-pin plug. If you attempt this process with a stereo plug, the radio will not respond when you attempt the cloning process.

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

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

- 1. The wrong cable is being used. This is true for several of the hand held radios that use the 4-pin plug. If you attempt this process with a stereo plug, the radio will not respond when you attempt to access the Clone option of the startup menu.
- 2. The keys on the radio are locked. Turn the radio off then back on in normal mode to check for a lock symbol on the screen. Once the keys have been unlocked, power off the radio and begin the Communications process again

Radio is not on at the time of data transfer.

This can get the process "out of sync". Cancel the Communications screen on the computer. Then access that screen again and start over with turning the radio on in Clone mode. Be sure the battery is charged on your handheld radio or that you are

connected to external power to prevent an unexpected shutdown during this process.

General Issue

Followed the Steps Incorrectly or executed the wrong process.

Get data from the radio:

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

Send data to the radio:

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

Cable Issues

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

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

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

Check that the cable is securely in the USB Port.

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

Check that the cable is plugged into the radio securely.

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

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



22 Contact Us

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E-mail	 techsupport@rtsystemsinc.com Should you choose to send a message via e-mail, be sure to include at the very least the following details: The radio with which you use the Programmer The version number of the Programming software

(found in the Programmer under Help | About)

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

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

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