## Getting Started with RT Systems Programmers

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## Getting Started with RT Systems Programmers

by RT Systems, Inc.

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

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

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

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## Foreword

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

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

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



### 1 Where to Begin

Welcome to the RT Systems' radio programmer.

### There are two ways to get started:

If you don't yet have your radio, begin creating your file.

or

If you already have your radio, get details from it.

This program may seem simple yet complicated at the same time. Just like your radio.

The programmer eases the confusion of your new radio by putting all the feature settings on "easy to use" screens on your computer. Take all the time you need to understand a feature then customize the settings to fit your activities.

"Experimenting" is easy.

Customize a setting.

Send the file to the radio.

Try it.

If you don't like the result, repeat the process after making a change for that option.

You don't need to know everything at once. The computer file can be saved for editing later. After using your radio for a while you may discover a feature you want to use. Open the original file. Make the changes to the settings for that option. Send the file to the radio.



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### 2 Getting Started

### Creating the file

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

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

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VX	S Unde	edi ×																			
Rec resp.	wive wincy	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Tone Mode	CTCSS	OCS	Tx Power	Skip	Step	Mask.	loon	Hall Dev	Clock Shift	Bank 1	Bank 2	Bank 3	Bark 4	Bank 5
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													20		23	23	10	10	23	23	12

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.

Resains	the second s																	
Frequency	Teasend Frequency	Offset Frequence	Officel Operating Direction Mode	Name Tone Mod	e CTCSS	005	Ta Power	Skip	Step	Mack	lpon .	Half Dev	Elock Shitt	Bank 1	Bark.Z	Bank 3	Bank.4	Bark 5
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			neceive	Transmit		nset	0	nset	Oper	aung			10	8	B	E	Ð	8
	-	A	Frequency	Frequency	Free	quency	Dire	ection	MC	ode		- 23	-8-	<u><u> </u></u>		<u> </u>	- 27	8
		P1	147.24000	147.8400	0 600 1	Hz -	Plus	-	FM	-		0	8	8	1	1	1	1
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										8	-	10	10	E	E	8	10	3
					-	-				<u> </u>		10	- 8-	<u> </u>		<u>81</u>	- 21	2
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										1		-	8	8	1	8	1	1
										1273		100	875	100	675	- 673	- 520	67.1

• 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.

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									the di use th	slay iis cl	of har	the ra	adio	whe	en yo					

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



- This channel is ready to use.
- The other columns are set only if you need them for better radio

performance. These columns are detailed in the Regular Memory Channels section of the help for a specific radio programmer.

There may be more to your radio than just memory channels. There will be 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.

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Receive	Tranonit Frequency	Offset Frequency	Offset	Operating Mode	Nome	Tone Mode	CTCSS	DCS	Tx Power	Skip	Step	Mesk.	loon	Hall	Clock Shit	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	-
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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.

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	147 25000	147 S5000 600 kH	2 Ph.s		FM		Nove	108.0 Hz		RAFTA	1600 Hz	High (5 W)	Diff	1540-0	10	10	01	01	10	10	100	1 21
	147.29508	147.85500 680 kH	2 Plus		FM .		Nane	106.8 Hz	928	BN-TN .	1600 Hz	High (5W)	0/1	154Hz	- 63	10	01	01	- 8	10	10	1 23
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	147 27000	147.07300 630144	: Pha		FM.		None	100 D Hz	023	EN-EN	1600143	High (5 W)	DIT	154942	- 12	10	01	CF .	25	10	21	1 21
	147 27500	147,87500 600 kH	2 Flux		84		None	10E.D.Hz	023	RMTN	1610Hz	Hot (5W)	011	1545-0	10	100	01	C#	123	10	11	1 21
	147,29000	147.88000 600 kH	2 Pho		FM		Nine	1100.0 Hz		BM EM	1600 Hz	High (5W)	011	15 kHz	- 63	10	01	Q.K.	123	10	1	2
D	147,29500	147,88500 6001/H	e Pho		64		None	100.0 Hz	823	BATA	1600 Hz	High (5 W)	DH	15 kHz	- 10	1 10	04	0.0	- 193	1.1	1	110
1	147,29000	147.65000 600 MH	r 19.0		794		None	100 D Hz		RM-TN.	1630145	High (5 W)	DH	15 8712	10	1.8	011	Q8	10	1	10	110
2	147,29500	147.05500 6001-14	z Pha		IN .		None	100 D Hz	\$20	RIS-TN	1600142	High (5 W)	Diff	1540-0	10	10	0.9	05	P1	1	E	1 2
	147 30000	147 90000 600 kH	2 Fh.s		FM		None	100.0 Hz	0.23	RNTN	1600 Hz	Hol 5WI	Drt	154-0	10	1 12	01	01	123	1	10	1 8
	147 30500	147 90500 680 kH	e Plue		PH .		Nané	TODEHE	823	RN-TM	1800 Hz	High (5W)	01	15 642	10	10	04	0.	10	10		111
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	445 22500	445 22500	Sec	in a	PM .		Name	100.0.81	1229	PIMEN	152020	Hot NUT	DH	40 phote	- M-	1 11	04	0.8	- 16-		- 14-	- 8
	445 20000	445 20000	Geo	in a	Del .		None	100.0.41	123	DIST TH	165014	Mak Kiah	04	50 104	-8-	1 2	0.1	0.0			- 14-	
-	445,295201	4/5 20500		in a	CM .		Maria	TIND D Has	022	DALTA	100010	Link Kinh	Dit	F0 114	-8-	11	04	OF.	- 16-	-11-	- 14	
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2	445 23000	445,25500	- Come	den.	84		Name	1000044	1272	Res TAL	1600116	High (SW)	00	60.004	-14-	- 24 -	03	0.	- 8-	- 14	- 14 -	
e l	445 30000	445 30000	- Den	in a	TM .		Name	100.0 Hz	825	HIGHT M	1000010	Hat 5 W	Dia	50.000	- 16-	1 8	04	05	100	- 11-	- 6-	- 2
2	448, 20500	4/5 20500	Con	Carlo I	214		Mana	100.010	423	TALFA	1000110	Mak Kiati	Dia	80.10.1	-16-	1 21-	04	0.0	- 20		- 64 -	
-	445,21000	445 21000	Gas	-	24		Mana	THOSE D Mar.	122	DALTA	1600 42	Link (Stat)	03	Philiph	- H-	- 21	04	OF.	- 200	- 10 -	- 11 -	
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5	445 2000	10000.009	3454	100	201		Pi srah	100 D H2	AC-F	Price TAL	1600HC	rage (XW)	00	00.040	-6-	8	0.1	01		-6-	-6-	
3	445 (350)	445.3,500	Serie	pes.	21		Nang	TOUGHT	1000	Pro IN	1600192	Page (5 W)	00	2644Q		- 8-	01	08		- 6-	-8-	
4	445 34000	445.34000	Sing	DROX	H		Name	TUEEHz		HN IN	TEUD He	High (5 W)	UH	50.642	- 12-	2	014	U.	1	8	- 8-	1.12
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4.	R H Mein	ories Skip Link	E41 )	FDA	VF0.8 / Ha	Ne Main	e Banko _ Sk	V Banka ( N	Veather							1		-	100	-	101	

#### In the menu, click File | Save As

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(A.	Name	Date modif	Туре	Size	Tags	
Desktop Karin Computer	DCSTest	eral Travel and Er	ntertainmen	t		
-						

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.

ose External Setting File	es <u>H</u> elp					
mmon ARTS / CW / EAI	Messages Sour	ds DTMF / Internet	VFO and Menu SI	ip APRS / GPS		
Attenuator Broadcast	Antenna - AM	Home VFO Dial	Moni/TCal	Spec-Analyzer	BlueTooth Set	Password
Attenuator Marine	BAR & EXT 👻	Enable 👻	Moni 💌	1 Time 🔻		Enable
Attenuator Weather	Antenna - FM	HM/BV	Priority Time	Time Out Timer	VOX PTT -	
Auto Beneater Shift	EXT Antenna 💌	Reverse 💌	5 seconds 💌	3.0 min 💌	Mode Mono 👻	Programmable Key Assignments
Buru Channel Lockové	Audio Mute Level	Lock E Enable	PTT Delau	VEO Mode	Caux [0//	Internet Kev
Dusy Charner Election		Dial + Kev -		Band •	Save Oll	Internet 👻
					Power On 💌	
Fast Tone Search	Auto Power Off	Mem Fast Step	RX AF Dual	VOL Key Mode		My Key
Mernory Protect	(un •)		THAT Sec •	(H00 •	P-Code 6111	DL Voltage 👻
Priority Revert	Channel Counter	Memory Write	Rx Save	Vox		
Split Tone	±5 MHz ▼	Next 🔻	200 ms 🔻	Off 🔹	Timers	Scanning
Tone Search Mute	FW/Key Timer	Mic Gain	Smart Search	Vox Delay	Enable	V Lamp
Tx Save	0.5 sec 💌	Level 5 💌	Single 💌	0.5 seconds 💌	00:00	Memory Scan Mode
Display					Enable .	All Channel 🔫
Dual/Mono	Sensor	Lamp	Set Mo	de Cursor	On	VEO Scan Mode
Dual Receive 🔻	DC	▼ Key5 s	ec 💌 🕨	•	00.00	Band
Altitude Units / Offset	Temperature	LCD Cor	ntrast Set Mo	de Format	Weather	Besume Mode
feet 🕶 0 🚔	Fahrenheit	Level 13	3 👻 List	-	Meather Alert	5.0 sec -
Barometric Units / Offset	Wave Monito	LED Dm	imer S-Mete	Symbol	Active Channel	Hestart Time
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- Set the options as you need them to get the performance you want from your radio. The settings shown for your radio will correspond to your radio's features.
- Once you have the options like you want it, save this file. Yes, this is saved separately from the frequencies in the memory channels.
- To save the file, select File | Save from the menu on the Settings page. Enter a name when the window opens. You will not have to set these options again when you start a new file of memory channels.
- Once the file is saved, select File | Exit to return to the main screen of the programmer.

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

The new RT Systems' programmers have no com port setup. Using the RT Systems' USB cable, you attach the cable, attach the radio, and get the programming done.

#### First: Communications | Get data from

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

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

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

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

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

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#### 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 Programmers include:

- A PC running Microsoft Windows XP (SP3), Windows 7, Windows 8 or 8.1, or Windows 10 (32 or 64 bit platform).
- An open USB port for the RT Systems cable.

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