rtSYSTEMS
RADIO PROGRAMMING MADE EASY

303-586-6510 | www.rtsystemsinc.com

WCS-2820 Programming Software
for the Icom IC-2820

The WCS-2820 Programmer is designed to give you the ease and convenience of programming the memories and set menu options of your radio from your PC.

Memory Channels Include:
- 500 Memories with D-Star options*
- 20 Limit Memories (10 pair) with D-Star
- 7 VFO Channels (each A and B)
- 2 Call Channels with D-Star
- 100 GPS Memories

Other Menu Item Categories Include:
- Common
- DTMF

The Programmer Is for so Much More than Just Memory Management.

*Icom UT-123 required in radio for D-Star.

With the WCS-2820 Programmer you can begin a new "factory fresh" file into which frequencies and option settings are entered. Or, you can read from the radio, store these details on your computer and make changes. Then, with minimal button pushing, send the new configuration back to the radio.

The Programmer allows you to create and save as many files as you want for your radio. Files can even be shared between users via email or the Internet. Any RT Systems Version 4.50 program can open a file from any other RT Systems Version 4.50 programmer... even from a different radio.

Managing all the options of this great little radio becomes easy with the Programmer. The cut, copy, paste and insert features of the Programmer make channel management easier than ever.
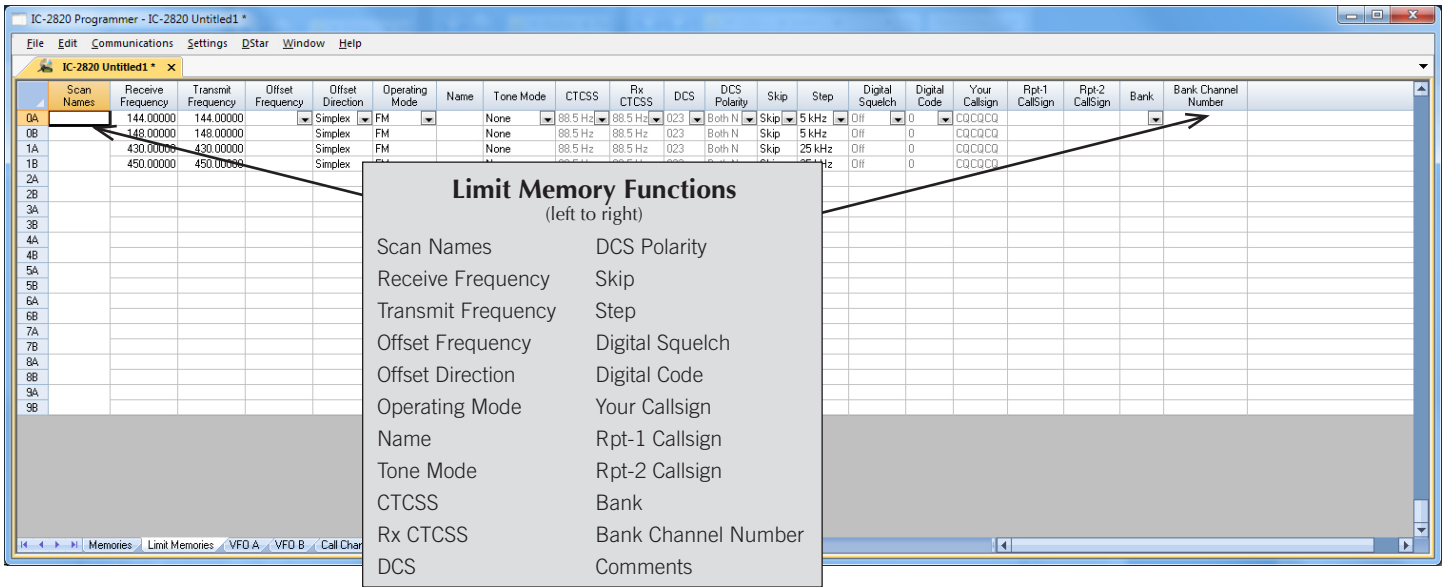
Open more than one file at a time. Memory channel information can be copied from one file to another within the Programmer making it really easy to set up a new file.

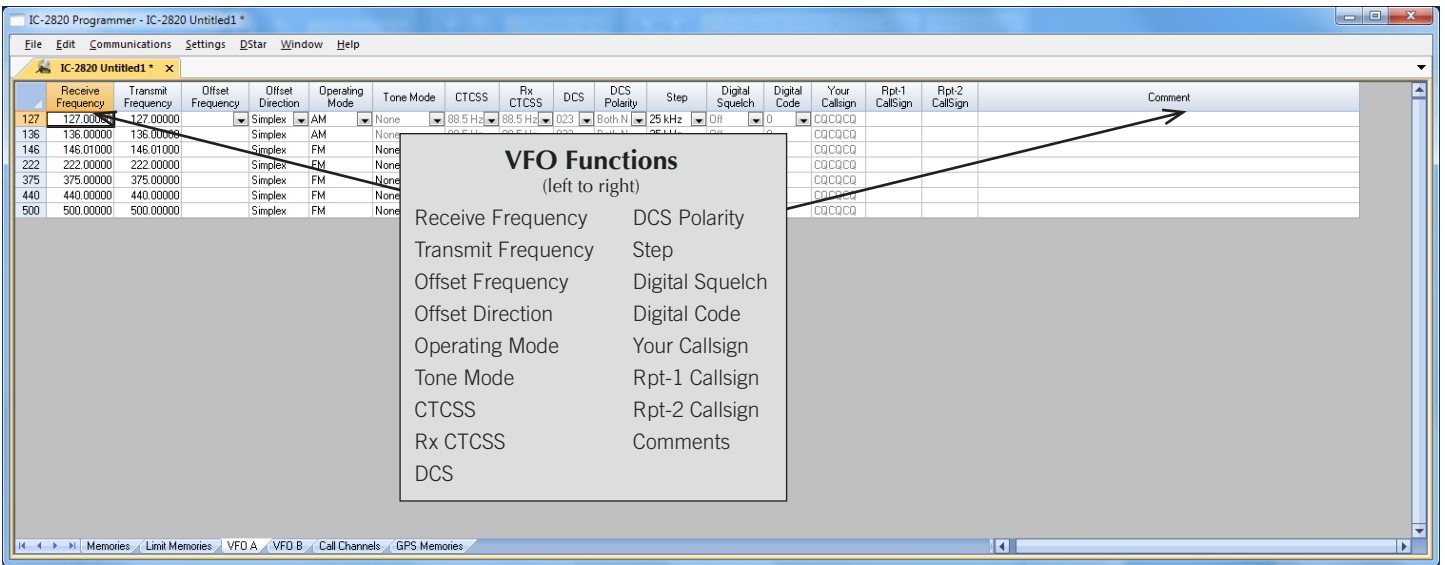---

Hardware Requirements:
A PC running Windows XP, Vista, Windows 7 (32 or 64 bit) or Windows 8 (desktop version). A CD drive (local or network) for installation. A free USB port. The RT Systems USB-29A or the USB-RTS05 interface cable. The USB-29A cable connects the radio to the computer from the USB port on the computer to the speaker jack on the radio. The USB-RTS05 cable connects to the data jack on the radio and can also be used for digital work with programs such as D-Rats.
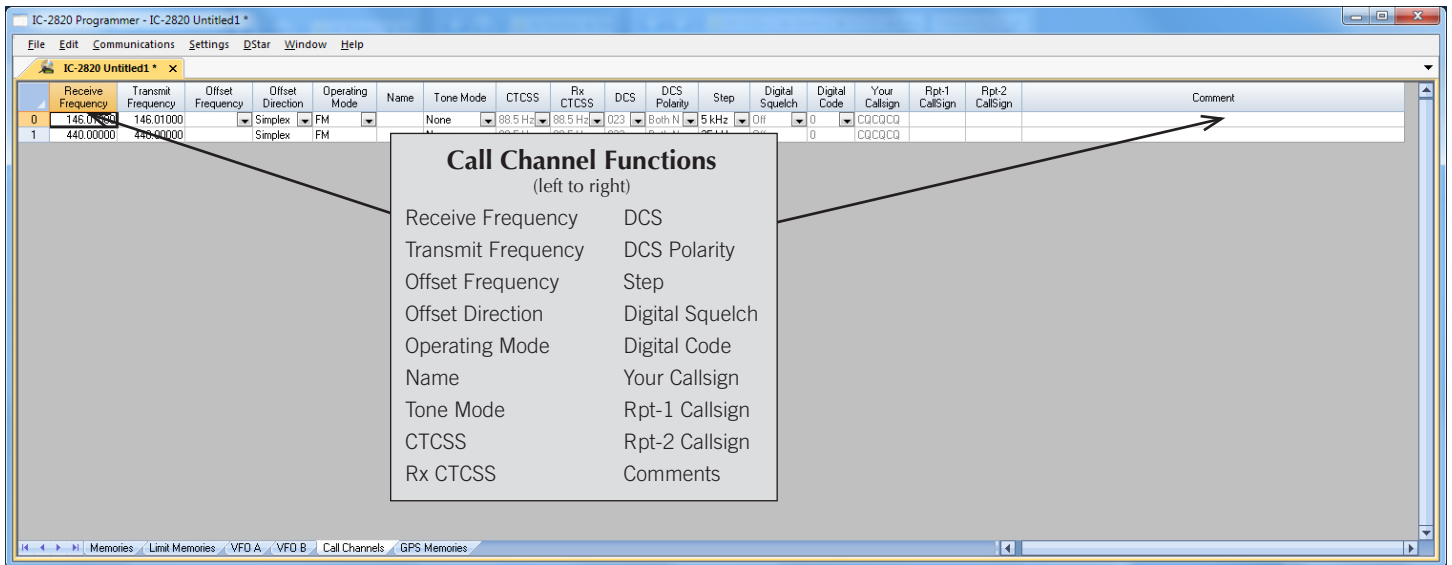
Limit Memory Functions
(left to right)

Scan Names	DCS Polarity
Receive Frequency	Skip
Transmit Frequency	Step
Offset Frequency	Digital Squelch
Offset Direction	Digital Code
Operating Mode	Your Callsign
Name	Rpt-1 Callsign
Tone Mode	Rpt-2 Callsign
CTCSS	Bank
Rx CTCSS	Bank Channel Number
DCS	Comments

Limit Memories

Limit Memories are used by the radio for Program Scan. Program the same details for Limit Memories as for regular memory channels. Many of the Limit Memories are preprogrammed in the radio and while the frequency can be changed to another within the band, they cannot be left blank.

VFO Functions
(left to right)

Receive Frequency	DCS Polarity
Transmit Frequency	Step
Offset Frequency	Digital Squelch
Offset Direction	Digital Code
Operating Mode	Your Callsign
Tone Mode	Rpt-1 Callsign
CTCSS	Rpt-2 Callsign
Rx CTCSS	Comments
DCS	

VFO A and VFO B

The program makes available the same VFO's as in the radio (usually one per band). Remember these are not real memory channels since the details are lost as soon as you tune the radio manually. There is no one button recall for these. You do not need to program into VFO before programming details into a memory channel. These channels are preprogrammed in the radio and while the frequency can be changed to another within the band, they cannot be left blank.

Call Channel Functions
(left to right)

Receive Frequency	DCS
Transmit Frequency	DCS Polarity
Offset Frequency	Step
Offset Direction	Digital Squelch
Operating Mode	Digital Code
Name	Your Callsign
Tone Mode	Rpt-1 Callsign
CTCSS	Rpt-2 Callsign
Rx CTCSS	Comments
DCS	

Call Channel

Home/Call channels are special memories accessed through one button recall on the radio. These channels are preprogrammed in the radio and while the frequency can be changed to another within the band, they cannot be left blank.

GPS Memories
(left to right)

Name
Date
Time
Latitude
Longitude
Bank
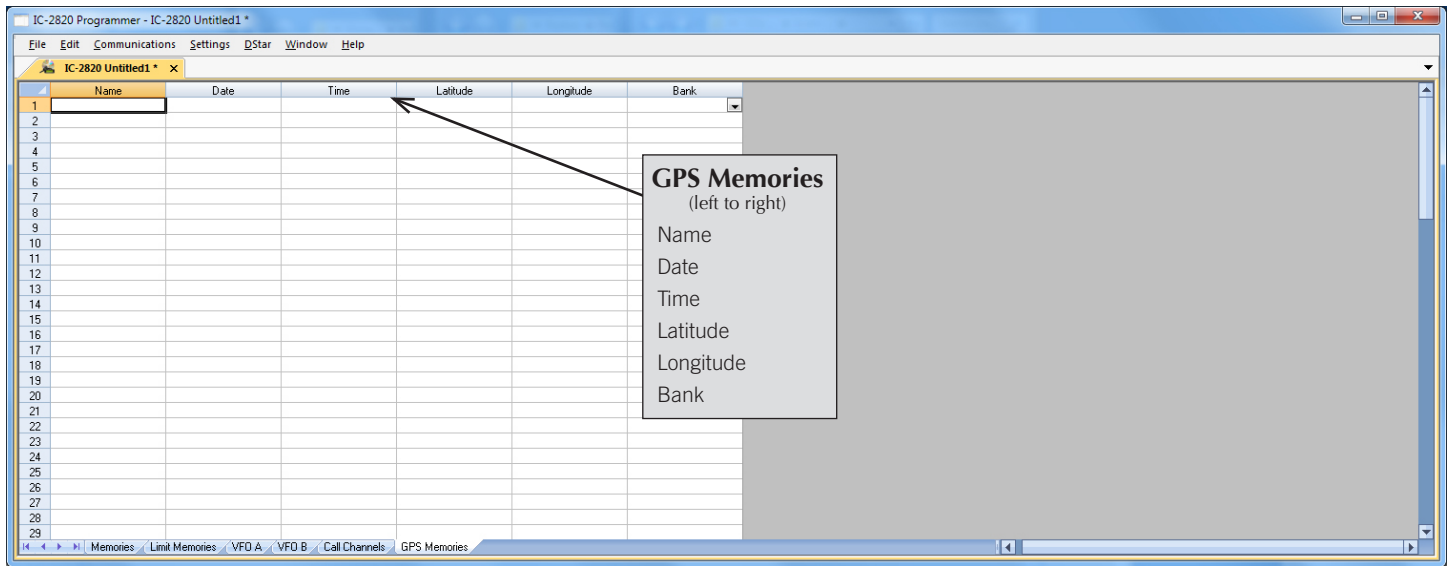
GPS Memory

Once stored in the radio during GPS operations, these channels are read from the radio with the other details.

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Want to Know Even More?

For additional details and tips, click here for the comprehensive WCS-2820 Programmer Help File.

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WCS-2820 Programming Software
D-Star Settings*

*Icom UT-123 required in radio for D-Star.

Memory Channel Functions
(left to right)

Receive Frequency	Tx Power
Transmit Frequency	Skip
Offset Frequency	Step
Offset Direction	**Digital Squelch**
Operating Mode	**Digital Code**
Name	**Your Callsign**
Tone Mode	**Rpt-1 Callsign**
CTCSS	**Rpt-2 Callsign**
Rx CTCSS	Bank
DCS	Bank Channel Number
DCS Polarity	Comments

Memories and D-Star Columns

The IC-2820 handles D-Star and FM memories in the general memories. It is here in the Programmer that the D-Star specifics for each channel are found. The D-Star columns become active once Operating Mode is set to DV.

D-Star Settings

Set "My Callsign" to your FCC issued callsign.

The lists of Your Callsigns and Rpt Callsigns are just storage. The callsigns used during a transmission are programmed in the memory channel. These lists are available to make a selection from; however, the callsign does not need to be entered here first.

Tx messages, name/location/equipment details, etc., scroll on the radio receiving your call.
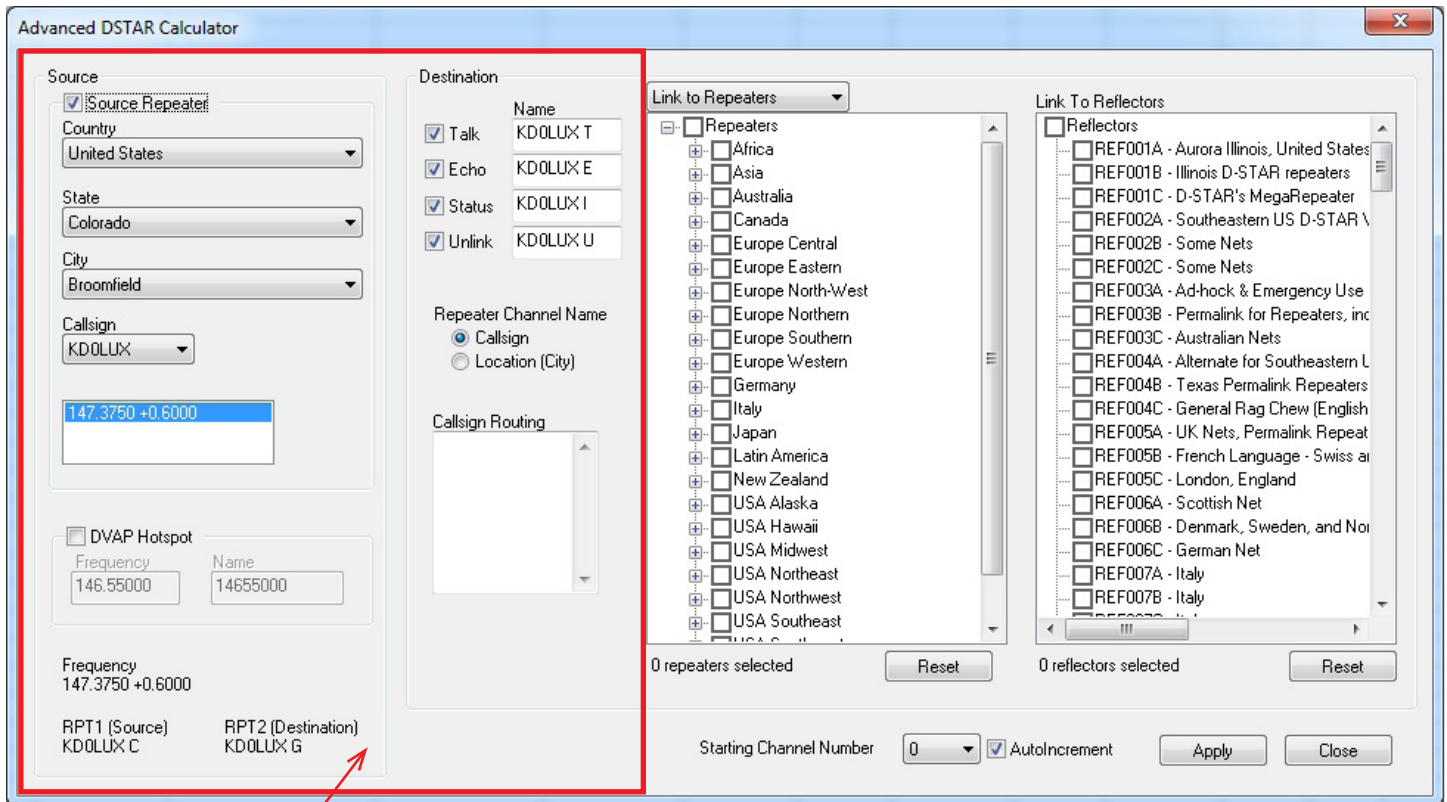
Source and Destination:

The D-STAR Calculator automatically sets up the Talk, Echo, Info and Unlink channels for your "Source" repeater. The "Source" is the repeater you access to begin your adventures. Just like with analog repeaters, you must be able to hit the "Source" repeater.

Talk - the CQ channel for talking with others.

Echo - a test function that repeats your transmission back to you. Good for letting you know that you are, or are not, hitting the repeater.

Info - The function that triggers a status response from the repeater (i.e. linked to "where"... not linked)

Unlink - Disconnects the current link of the repeater (where allowed). More widely used to disconnect a link you establish. Remember... if you link, it's always polite to unlink (hang up the phone) when you're done unless someone has joined you locally. Then you might leave it to them to unlink.

The calculator sets up the same channels for a DVAP hotspot. You enter your frequency only once.
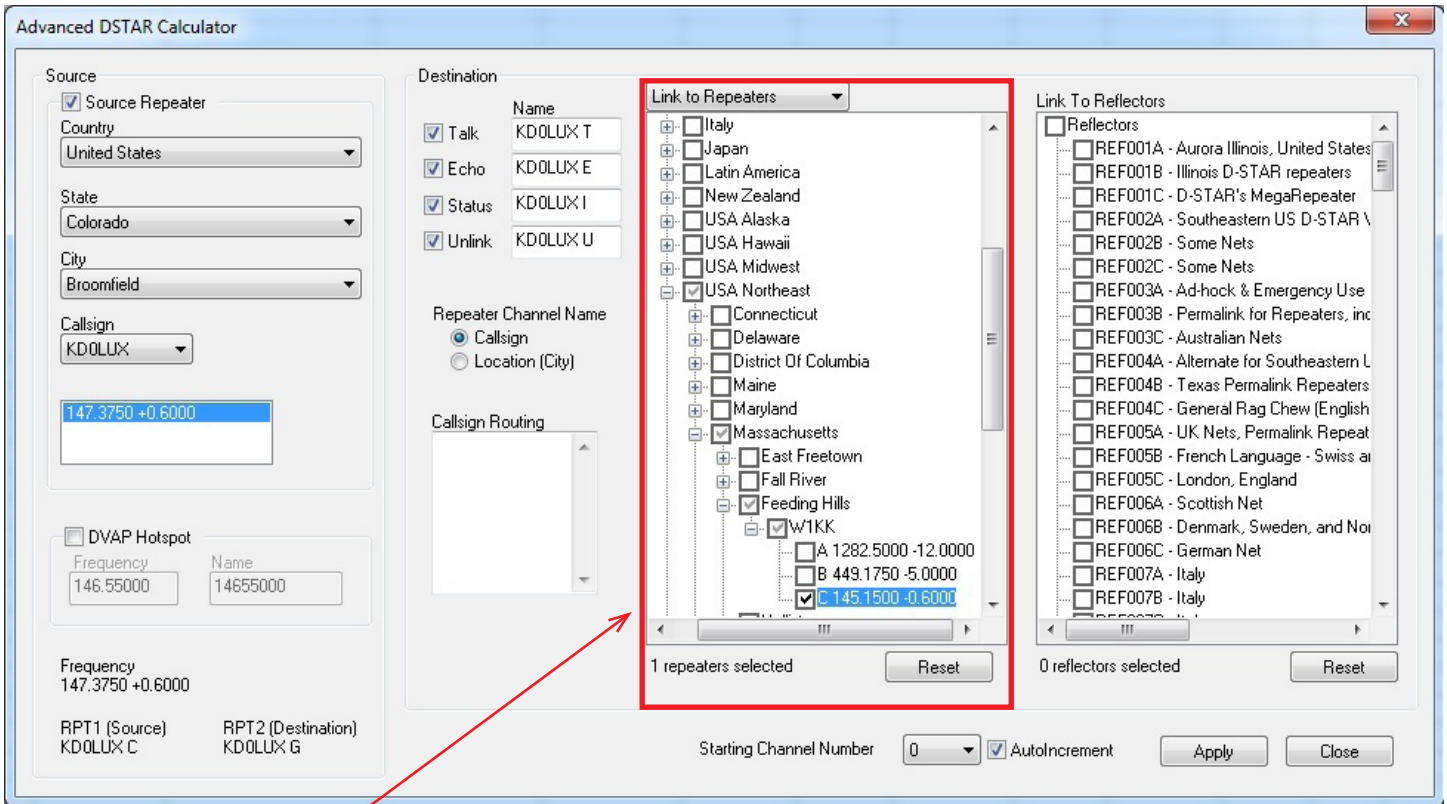
Route/Link to Repeaters:

Now that you identified your "Source", let's set up your Destination. In D-STAR you can Link to Repeaters or Route to Repeaters. To set up channels that link or route, use the drop down at the top of the first tree to select your function, then select your repeaters by checking a country, region, state, city or individual repeater. A counter below the list keeps track of how many you have selected.
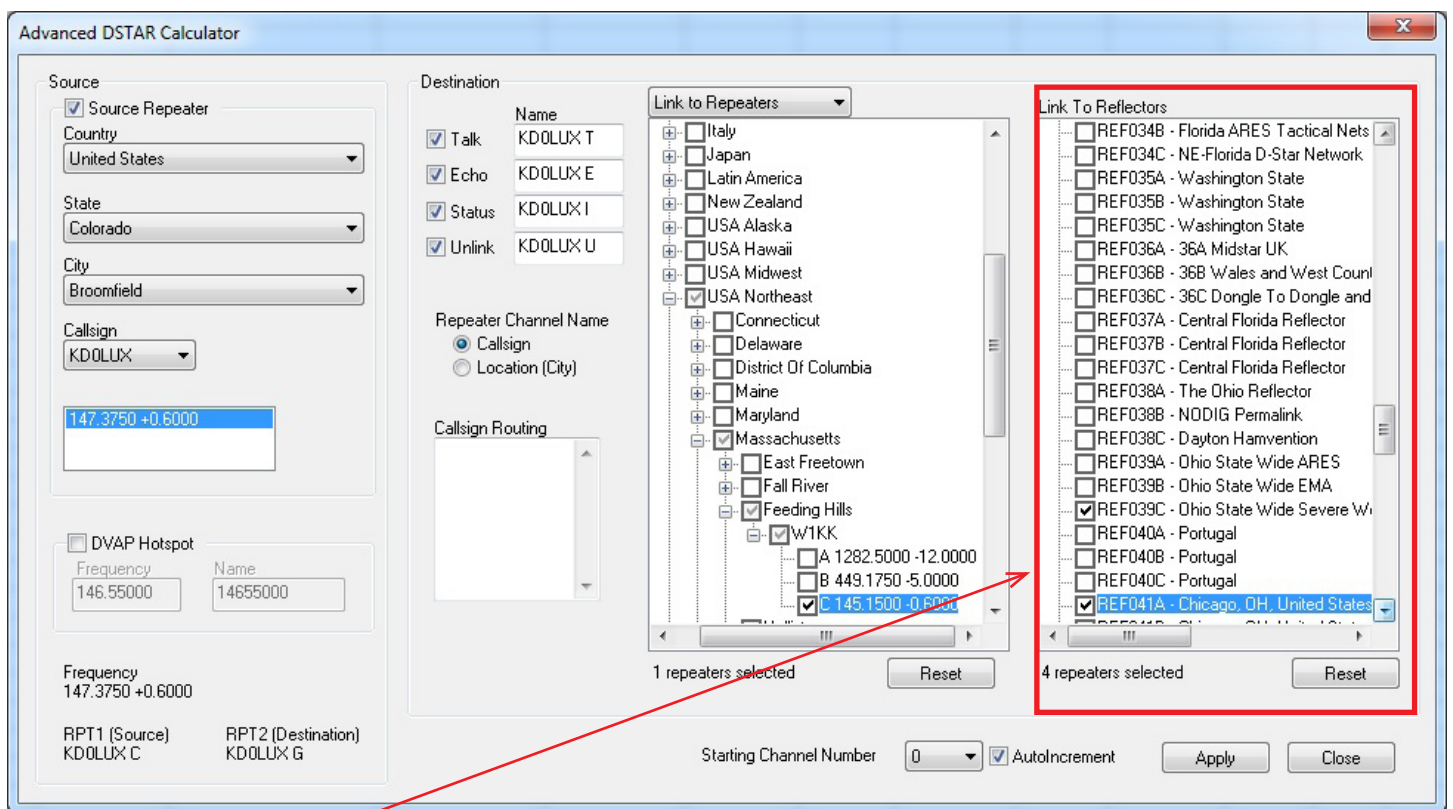
Link to Reflectors:

For even more fun, and a great way for a beginner to get started, Link to Reflectors. D-STAR reflectors are a special type of Internet connected gateway that rebroadcasts each signal to all the other linked nodes or repeaters. Remember... EVERYBODY is listening... but that's what makes it fun. You have a whole world to talk to through your local repeater, "Source", linked to a reflector. To set up a channel that links your repeater to a reflector, check the box for that reflector in the Link to Reflector tree.

Click **Apply** once to set up all these channels for the radio.

The resulting channels are set up and ready to go.

Your callsign, Rpt 1 Callsign and Rpt 2 Callsign are set automatically... No wondering which suffix goes where, or if it is positioned correctly. That is all done for you.

Name can be edited here to better identify the station. Name is what you see on the radio. It is not part of the D-STAR commands for use of the system. It may be all you have to identify the function of a channel. (Notice the frequency is the same for ALL these channels although they each do something different on the D-STAR network.) Make the Name something you understand.

Note: Be sure to turn ON the name display for the radio to use what you enter in the name field.

To Use these Settings for D-STAR Fun:

• Save and send the file to the radio.

• Listen on the talk channel.

• Be sure your call sign is registered on the system.

• Check repeater status on info channel.

• Check your connection to repeater on Echo channel.

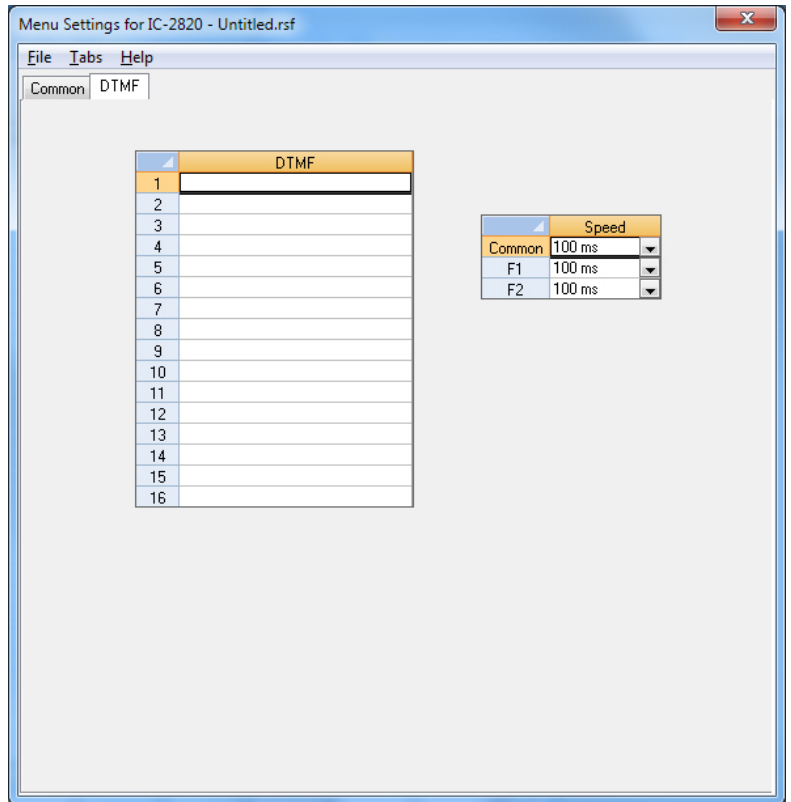• Link repeater to a connection of your choice.

• Talk on Talk channel.

Have Fun!
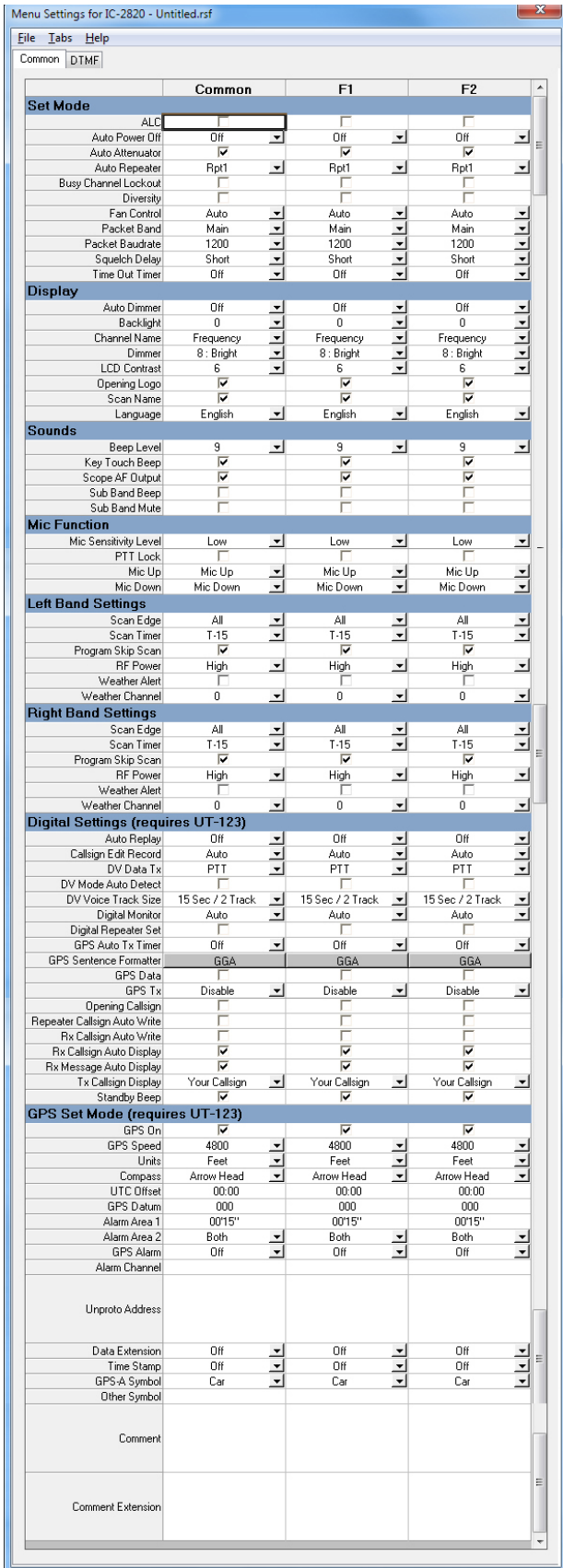
Common, F1 Common and F2 Common

Use these screens to customize other set menu features of the radio. Check boxes toggle features on or off, drop down menus list all selections and blank boxes for personalized entry add to the ease of setting up your radio exactly like you want it.

The entries on the Settings screens are made for you to "Set and Forget". Once settings are customized, you are prompted to save before exiting. The saved settings will be there every time you create a new frequency file.

DTMF

Enter DTMF memory details and customize options for this function of the radio.

Menu Settings for IC-2820 - Untitled.rsf

File   Tabs   Help

Common | DTMF

	Common	F1	F2
Set Mode			
ALC			
Auto Power Off	Off	Off	Off
Auto Attenuator	✓	✓	✓
Auto Repeater	Rpt1	Rpt1	Rpt1
Busy Channel Lockout			
Diversity			
Fan Control	Auto	Auto	Auto
Packet Band	Main	Main	Main
Packet Baudrate	1200	1200	1200
Squelch Delay	Short	Short	Short
Time Out Timer	Off	Off	Off
Display			
Auto Dimmer	Off	Off	Off
Backlight	0	0	0
Channel Name	Frequency	Frequency	Frequency
Dimmer	8 : Bright	8 : Bright	8 : Bright
LCD Contrast	6	6	6
Opening Logo	✓	✓	✓
Scan Name	✓	✓	✓
Language	English	English	English
Sounds			
Beep Level	9	9	9
Key Touch Beep	✓	✓	✓
Scope AF Output	✓	✓	✓
Sub Band Beep			
Sub Band Mute			
Mic Function			
Mic Sensitivity Level	Low	Low	Low
PTT Lock			
Mic Up	Mic Up	Mic Up	Mic Up
Mic Down	Mic Down	Mic Down	Mic Down
Left Band Settings			
Scan Edge	All	All	All
Scan Timer	T-15	T-15	T-15
Program Skip Scan	✓	✓	✓
RF Power	High	High	High
Weather Alert			
Weather Channel	0	0	0
Right Band Settings			
Scan Edge	All	All	All
Scan Timer	T-15	T-15	T-15
Program Skip Scan	✓	✓	✓
RF Power	High	High	High
Weather Alert			
Weather Channel	0	0	0
Digital Settings (requires UT-123)			
Auto Replay	Off	Off	Off
Callsign Edit Record	Auto	Auto	Auto
DV Data Tx	PTT	PTT	PTT
DV Mode Auto Detect			
DV Voice Track Size	15 Sec / 2 Track	15 Sec / 2 Track	15 Sec / 2 Track
Digital Monitor	Auto	Auto	Auto
Digital Repeater Set			
GPS Auto Tx Timer	Off	Off	Off
GPS Sentence Formatter	GGA	GGA	GGA
GPS Data			
GPS Tx	Disable	Disable	Disable
Opening Callsign			
Repeater Callsign Auto Write			
Rx Callsign Auto Write			
Rx Callsign Auto Display	✓	✓	✓
Rx Message Auto Display	✓	✓	✓
Tx Callsign Display	Your Callsign	Your Callsign	Your Callsign
Standby Beep	✓	✓	✓
GPS Set Mode (requires UT-123)			
GPS On	✓	✓	✓
GPS Speed	4800	4800	4800
Units	Feet	Feet	Feet
Compass	Arrow Head	Arrow Head	Arrow Head
UTC Offset	00:00	00:00	00:00
GPS Datum	000	000	000
Alarm Area 1	00'15''	00'15''	00'15''
Alarm Area 2	Both	Both	Both
GPS Alarm	Off	Off	Off
Alarm Channel			
Unproto Address			
Data Extension	Off	Off	Off
Time Stamp	Off	Off	Off
GPS-A Symbol	Car	Car	Car
Other Symbol			
Comment			
Comment Extension			

Menu Settings for IC-2820 - Untitled.rsf

File   Tabs   Help

Common | DTMF

	DTMF
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

	Speed
Common	100 ms
F1	100 ms
F2	100 ms

Bank Names and Linking

Bank	Left	Right	Left	Right	Left	Right
Name	Common		F1		F2	
A	☑	☑	☑	☑	☑	☑
B NY DStar	☑	☑	☑	☑	☑	☑
C NJ DStar	☑	☑	☑	☑	☑	☑
D CT DStar	☑	☑	☑	☑	☑	☑
E PA DStar	☑	☑	☑	☑	☑	☑
F DSIMPLEX	☑	☑	☑	☑	☑	☑
G Analog	☑	☑	☑	☑	☑	☑
H	☑	☑	☑	☑	☑	☑
I	☑	☑	☑	☑	☑	☑
J	☑	☑	☑	☑	☑	☑
K	☑	☑	☑	☑	☑	☑
L	☑	☑	☑	☑	☑	☑
M	☑	☑	☑	☑	☑	☑
N	☑	☑	☑	☑	☑	☑
O	☑	☑	☑	☑	☑	☑
P	☑	☑	☑	☑	☑	☑
Q	☑	☑	☑	☑	☑	☑
R	☑	☑	☑	☑	☑	☑
S	☑	☑	☑	☑	☑	☑
T	☑	☑	☑	☑	☑	☑
U	☑	☑	☑	☑	☑	☑
V	☑	☑	☑	☑	☑	☑
W	☑	☑	☑	☑	☑	☑
X FM RPTR	☑	☑	☑	☑	☑	☑
Y	☑	☑	☑	☑	☑	☑
Z EMS	☑	☑	☑	☑	☑	☑
Band Link Scan	☐	☐	☐	☐	☐	☐

Active Bank Selection

Common
Left [All memories ▼]
Right [All memories ▼]

F1
Left [All memories ▼]
Right [All memories ▼]

F2
Left [All memories ▼]
Right [All memories ▼]

[OK] [Cancel]
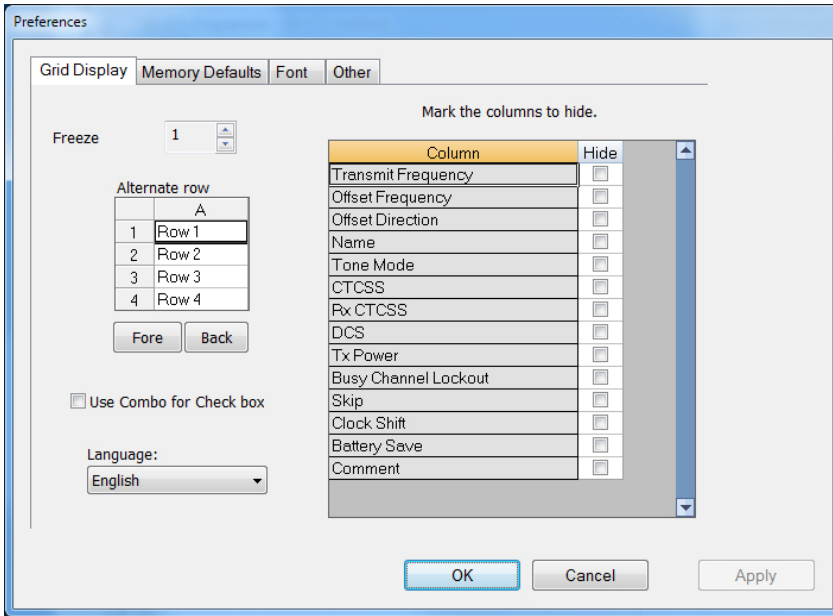
Bank Names and Linking
Set up Name for bank selection on radio, scanning links, and Active Bank. Use F1 and F2 for different configurations for separate activities.

Grid Display
- RT Systems now available in English, French, German, Italian, Spanish, Portuguese and Japanese.
- Set colors for text (Fore) or background (Back) of alternate rows for easier viewing across the columns.
- Freeze columns to keep information on the screen as you scroll to the right of the page.
- Hide columns you don't use. Customize your print-out: hidden columns do not print.
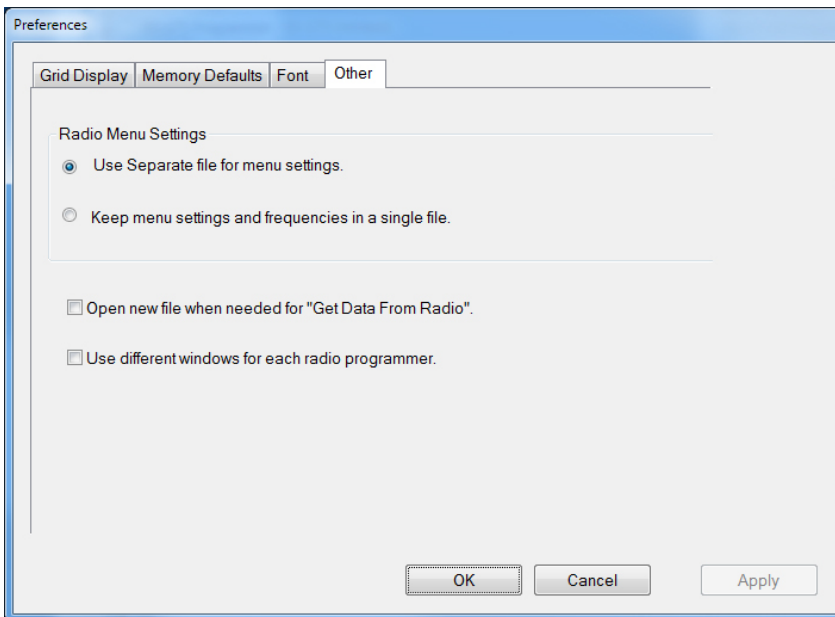- Use Combo for Check boxes – changes the grid to eliminate check box selections that are disabled on some systems.
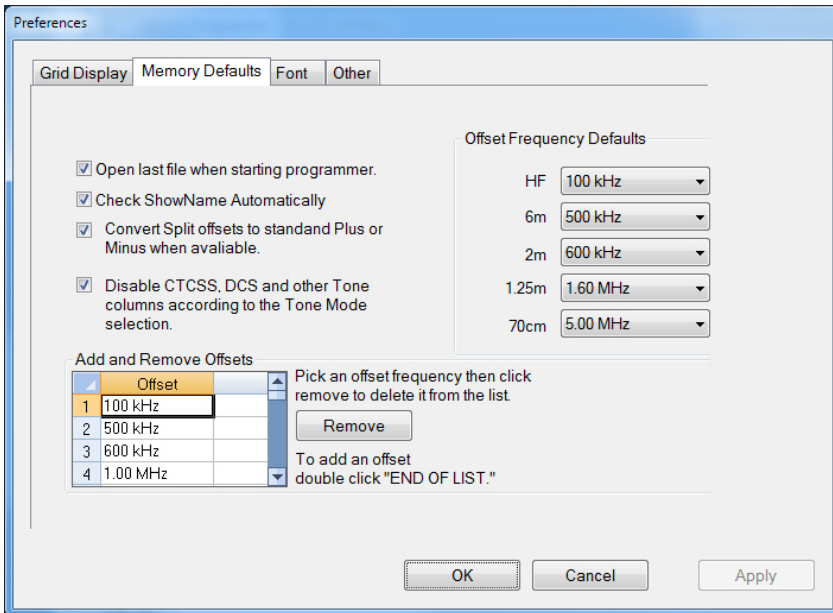
Memory Defaults
- Set options to control auto fill information for memory channel entries.
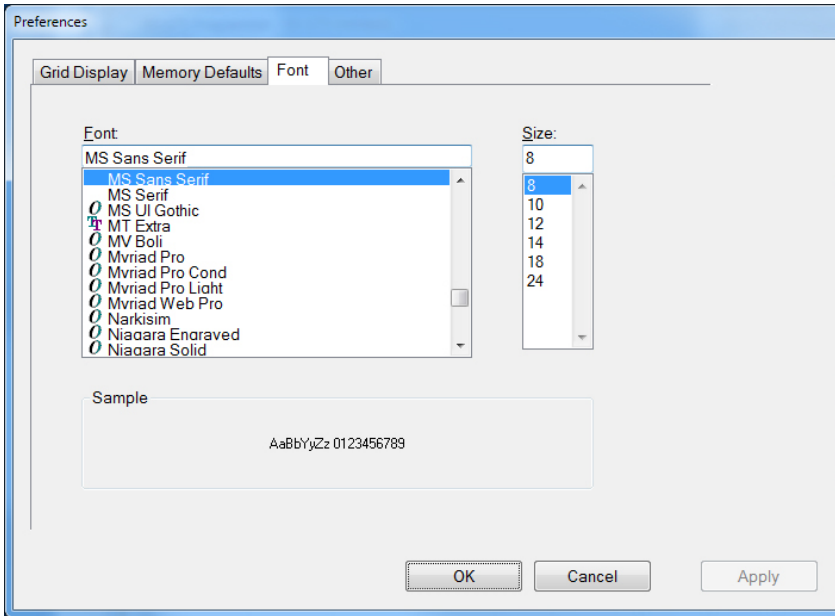
Font
- Set options to control the font in the column headers of the channel entry screens. Select any font and font size available on your computer.

Other
- Set options to control how the programmer handles the global Radio Menu Settings file.
  - Separate (default) handles the global settings of the radio in a "set and forget" fashion. Once you set these up and save the file you won't have to reset them for a new frequency file.
  - Together as one gives you the ability to create files that are complete with frequencies and custom-ized global settings. In this mode, each file begins with factory defaults for every option of the radio.
- Check "Get data from Radio" new file option to prevent data loss when you read from your radio into the programmer.
- Check "different window" option to make the programmer for a different radio run in completely separate window rather than in a separate tab of the same window.

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Click here to learn more about using Preferences to customize your radio programming experience.