

Radio Programming Software for the Icom IC-9700

The screenshot displays the IC-9700 Programmer software interface. The main window shows a table of memory settings. Two callout boxes are overlaid on the table:

- Memory Types (left to right):**
 - VHF Memories
 - UHF Memories
 - 1200 Memories
 - Scan Limits
 - MemoPad Memories
 - DR Memories
 - Call Channels
 - Satellite Memories
 - GPS Memories
- VHF Memories (left to right):**
 - Receive Frequency
 - Transmit Frequency
 - Offset Frequency
 - Offset Direction
 - Operating Mode
 - Data Mode
 - Filter
 - Name
 - Tone Mode
 - CTCSS
 - Rx CTCSS
 - DCS
 - DCS Polarity
 - Scan Select
 - Digital Squelch
 - Digital Code
 - Your Callsign
 - Rpt-1 Callsign
 - Rpt-2 Callsign
 - Comment

The table below represents the data shown in the screenshot:

	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Data Mode	Filter	Name	Tone Mode	CTCSS	Rx CTCSS	DCS	DCS Polarity	Scan Select	Digital Squelch	Digital Code	Your Callsign	Rpt-1 Callsign	Rpt-2 Callsign	Comment	
1	145.98750	145.90000	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
2	145.51250	145.97500		Simplex	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
3	145.52500	145.52500		Simplex	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
4	145.51750	145.53750		Simplex	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
5	145.55000	145.55000		Simplex	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
6	145.56250	145.56250		Simplex	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
7	145.57500	145.57500		Simplex	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
8																					
9	145.60000	145.00000	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
10	145.61250	145.01250	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
11	145.62500	145.02500	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
12	145.63750	145.03750	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
13	145.65000	145.05000	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
14	145.66250	145.06250	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
15	145.67500	145.07500	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
16																					
17	145.70000	145.10000	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
18	145.71250	145.11250	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
19	145.72500	145.12500	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
20	145.73750	145.13750	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
21	145.75000	145.15000	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
22	145.76250	145.16250	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
23	145.77500	145.17500	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
24	145.78750	145.18750	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						
25	145.80000	145.20000	600 kHz	DUP	FM	1			None	67.0 Hz	67.0 Hz	003	Both	Off	0						

The WCS-9700 Radio Programming Software is designed to give you the ease and convenience of programming the memories and set menu options of your radio from your PC. Any memory channel with all its details can be sent to the radio with a simple keystroke.

Memory Channels Include:

- 99 VHF Memories
- 99 UHF Memories
- 99 1200 Memories
- 18 Scan Limits (nine pairs)
- 30 MemoPad Memories
- 250 DR Memories
- 6 Call Channels
- 98 Satellite Memories
- 15 GPS Memories

Other Menu Item Categories Include:

- Common 1
- Common 2
- Band Settings
- Tone Control/Scope
- DV/DR Mode
- Speech/AGC
- GPS

- DTMF/Network
- Connectors
- Filters
- CW/RTTY

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

With the WCS-9700 Programmer you can begin



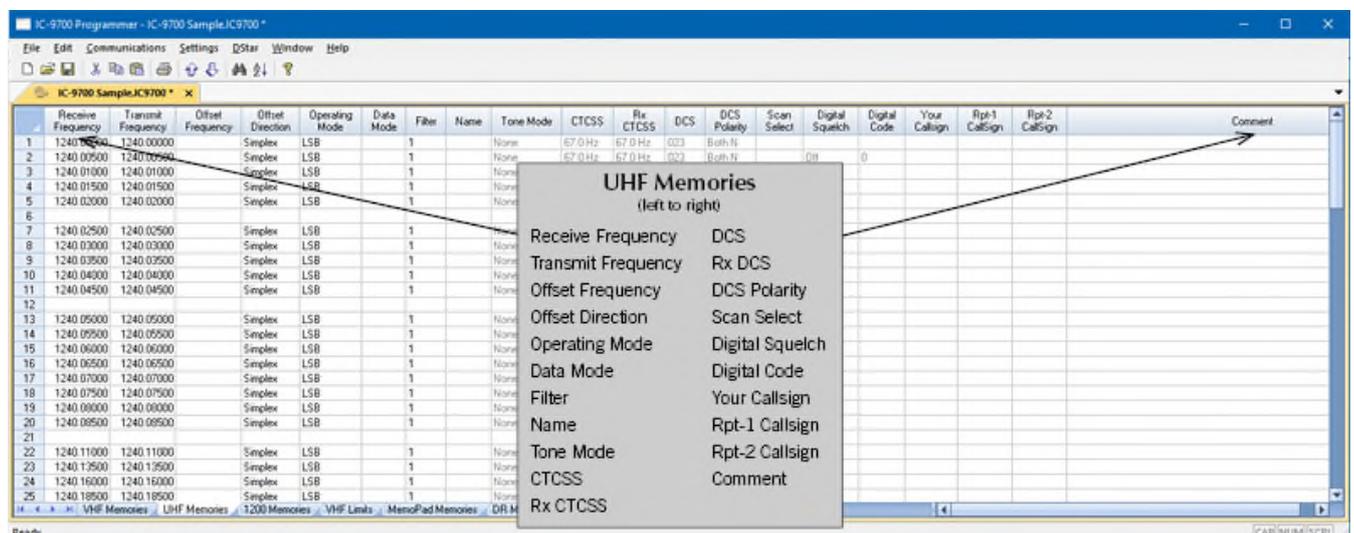
a new “factory fresh” file into which frequencies and option settings are entered. Or, you can read from the radio, store these details on your computer and make changes. Then, with minimal button pushing, send the new configuration back to the radio.

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.

Managing all the options of this great radio becomes easy with the Programmer. The cut, copy, paste and insert features of the Programmer make channel management easier than ever.

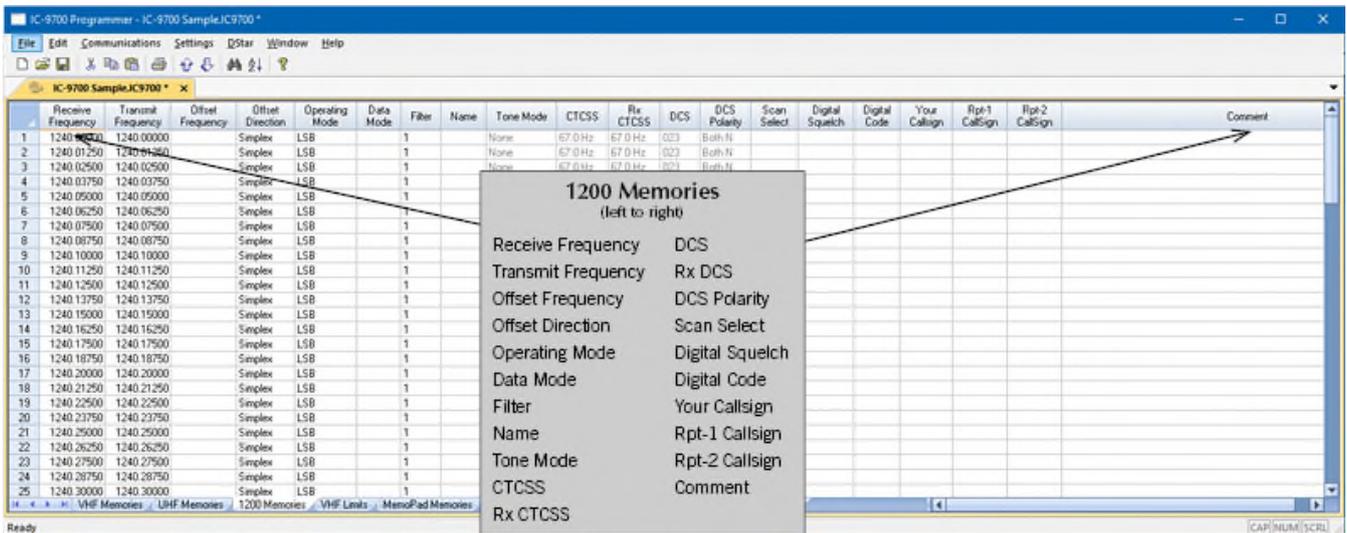
Open more than one file at a time. Memory channel information can be copied from one

file to another within the Programmer making it really easy to set up a new file.



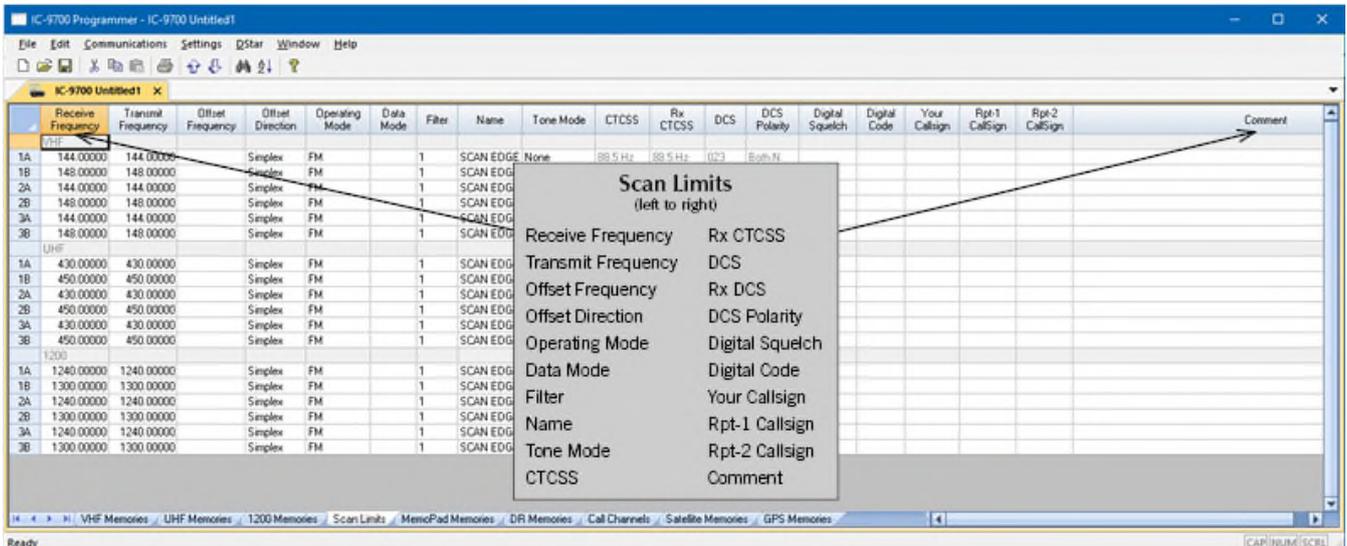
UHF Memories

Memory channels in the UHF band. The radio allows frequencies only within the UHF ham band for your model. Use these channels for FM and DStar memories.



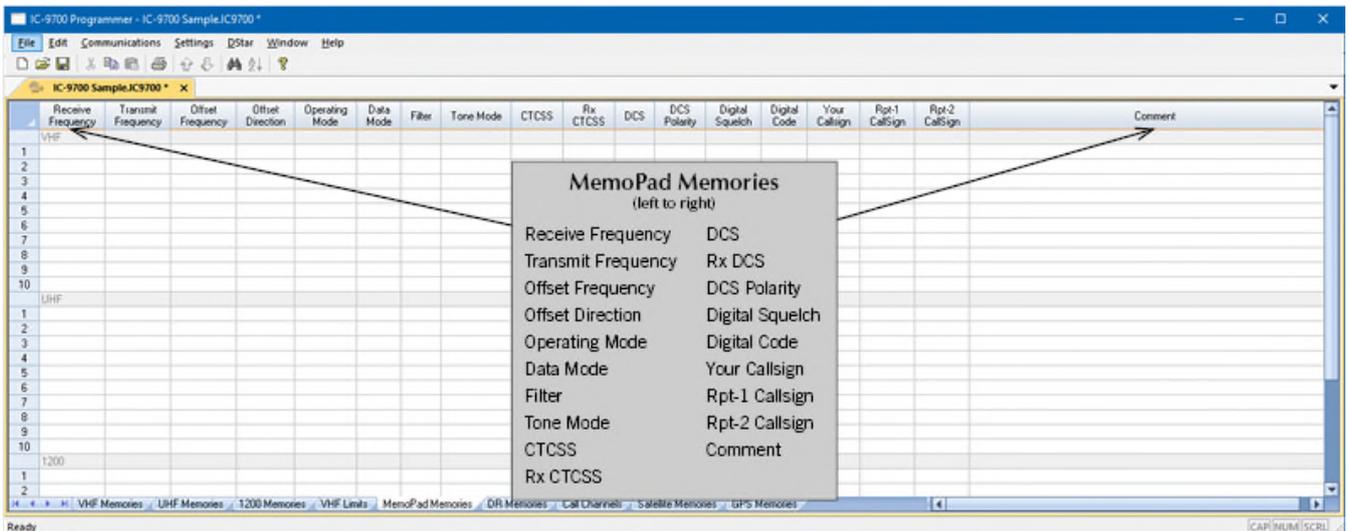
1200 Memories

Memory channels in the 1.2GHz band. The radio allows frequencies only within the 1.2GHz ham band for your model. Use these channels for FM, DStar and Digital Data memories.



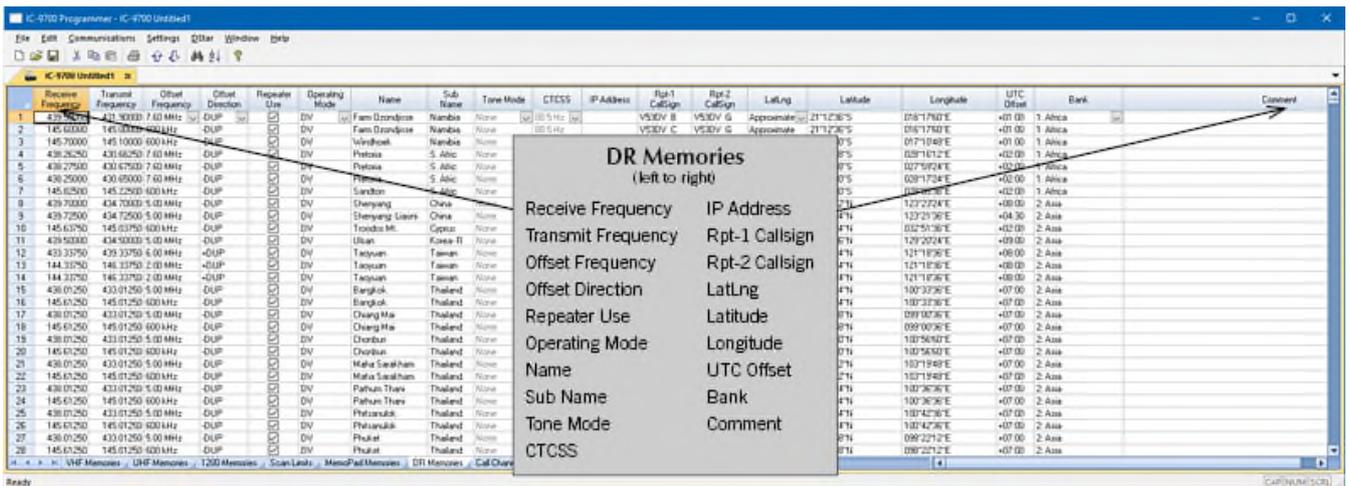
Scan Limits

Three pairs for each band of upper and lower frequencies to set ranges for scanning within the band. The scan limits are used for Programmed scan operations.



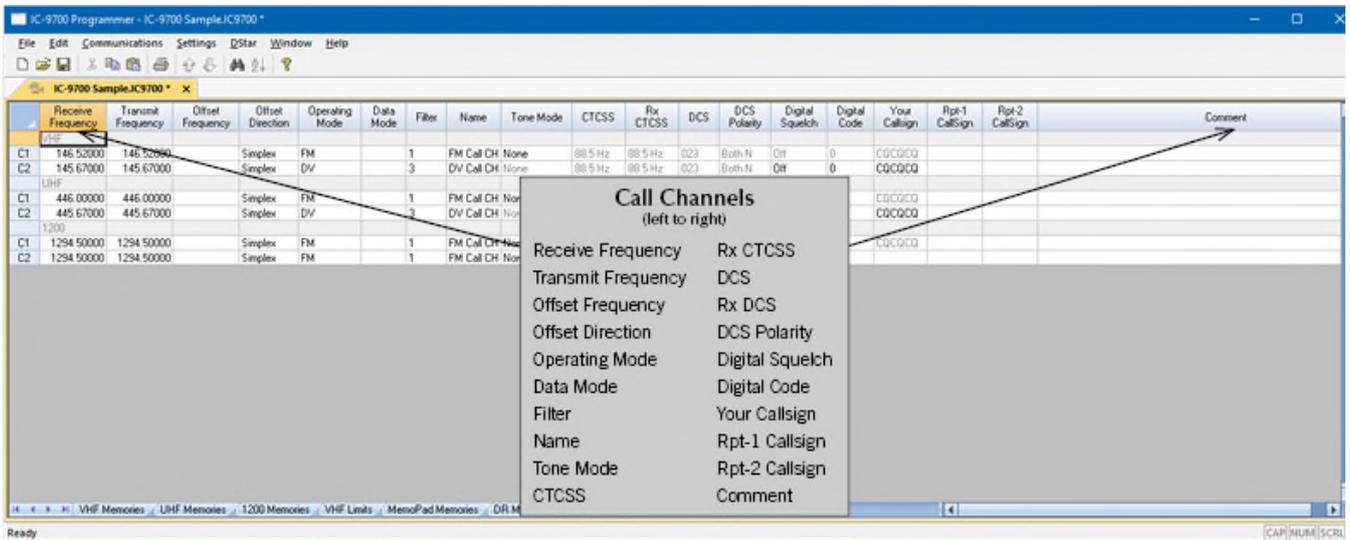
MemoPad Memories

Up to 10 memories per band that as separate from memory channels. These channels are easily saved from the face of the radio using the MPAD button. These are temporary VFO channels that are overwritten in the radio when all the memopad memories are full. They are quickly recalled with the MPAD button.



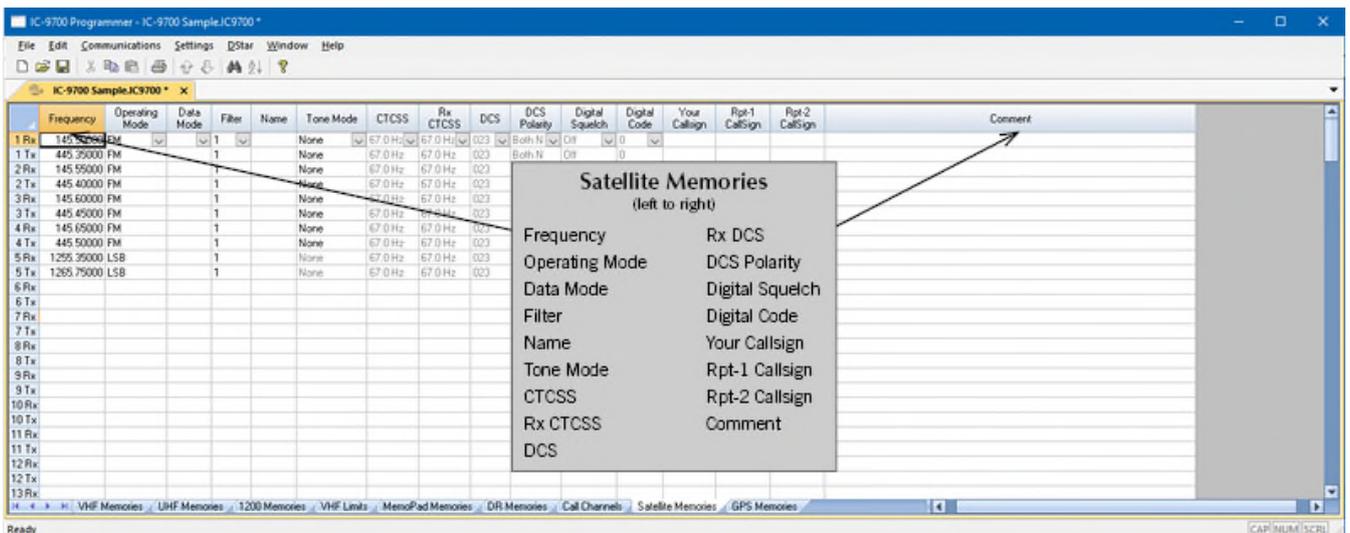
DR Memories

Memories to be use in DR mode. The list consists of frequencies for worldwide locations.



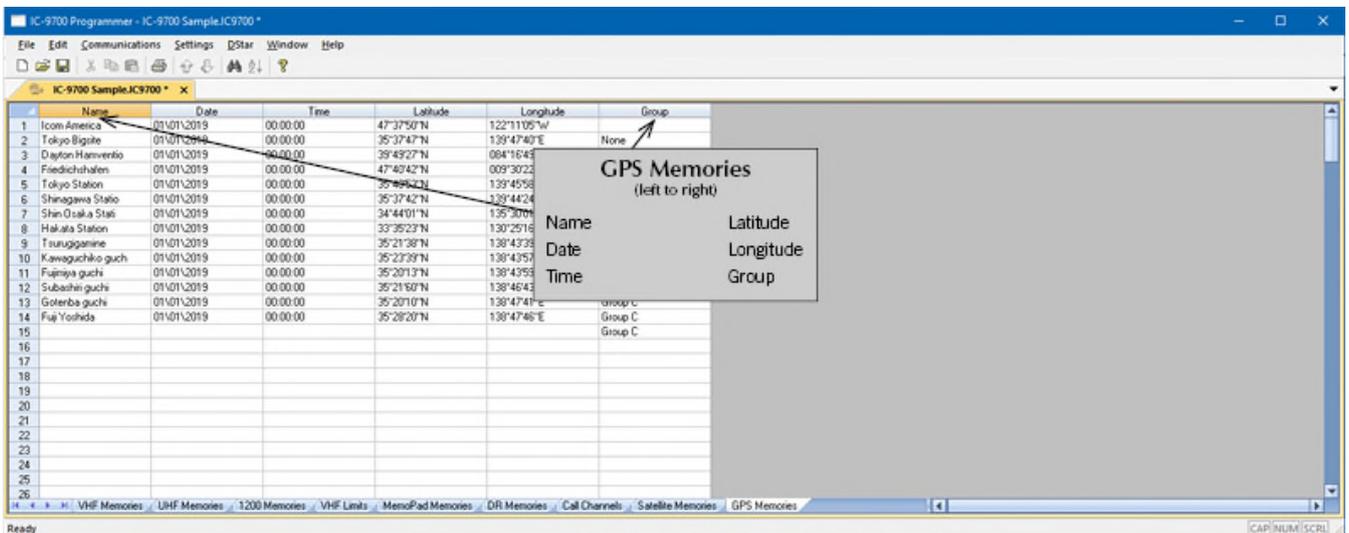
Call Channels

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.



Satellite Memory

99 pair of TX (uplink) and RX (downlink) frequencies for use in satellite operations.



GPS Memory

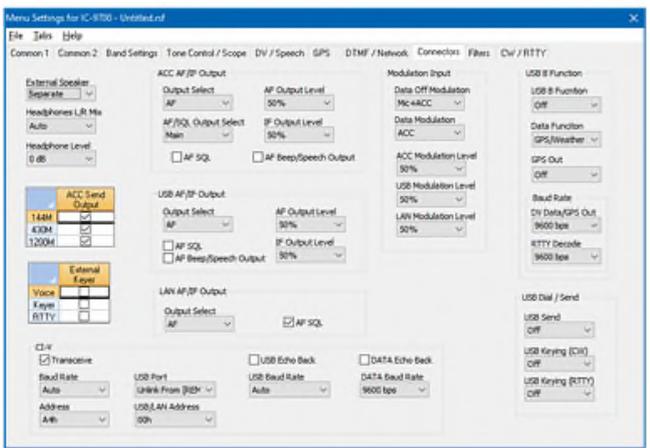
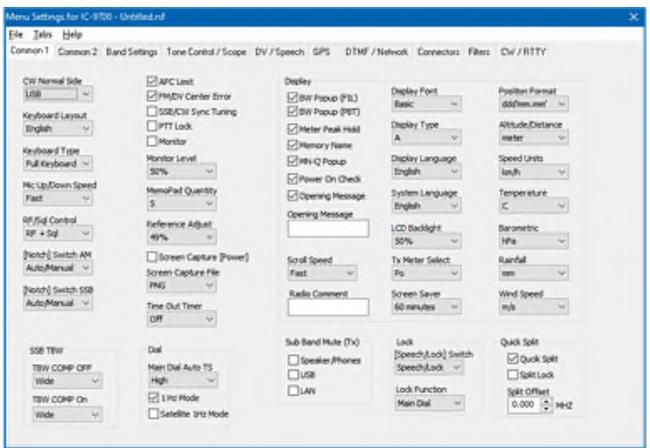
Once stored in the radio during GPS operations, these channels are read from the radio with the other details.

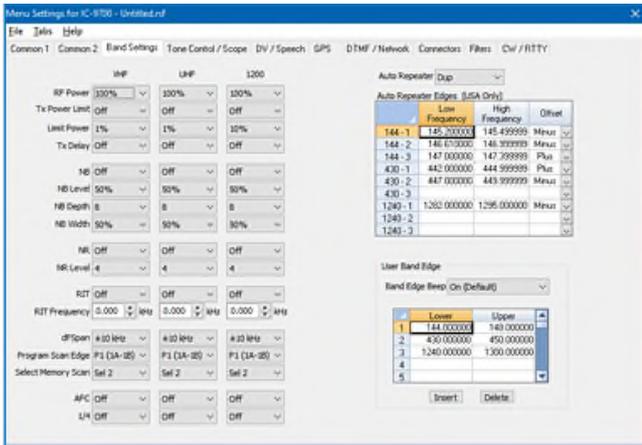
Radio Menu Settings

Common

Use this screen to customize many set menu features of the radio. Check boxes toggle features on or off, use 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.

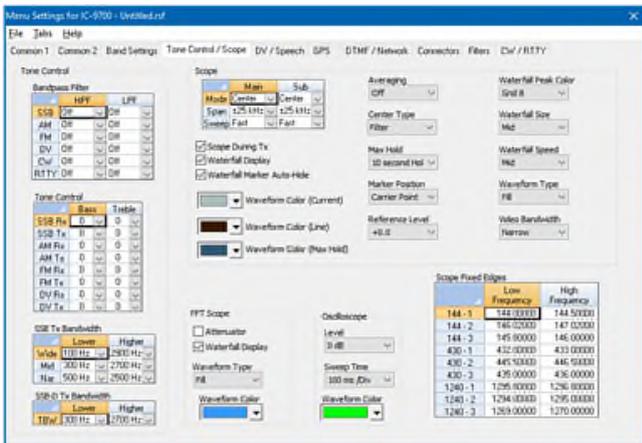
The entries on the Settings screens are made for you to "Set and Forget". Once settings are customized, you are prompted to save before exiting. The saved settings will be there every time you create a new frequency file.





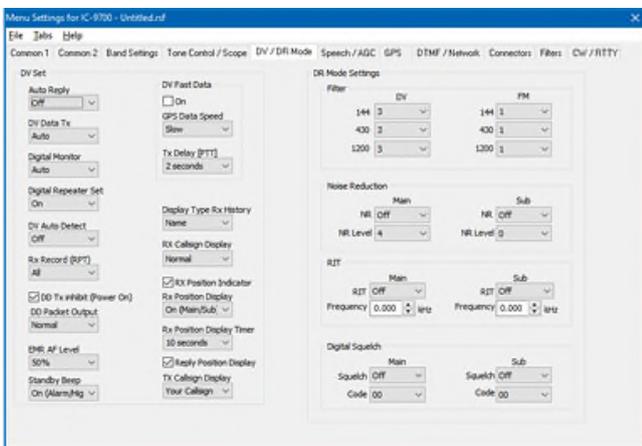
Band Settings

Set options for functions that operate differently for each band (VHF, UHF and 1.2 GHz). Power, Auto Repeater Edges and User Band Edge are just a few that can be set separately for each band. The options are laid out in a way that makes it easy to know what you are setting for which band.



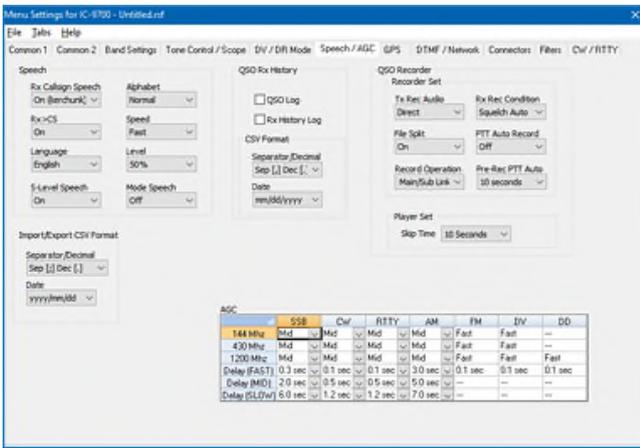
Tone Control/Scope

Set options for Bandpass filters and bass and treble pitch for each of the operating modes, SSB Bandwidth and options for the performance of the Scope and Waterfall display with the options on this screen.



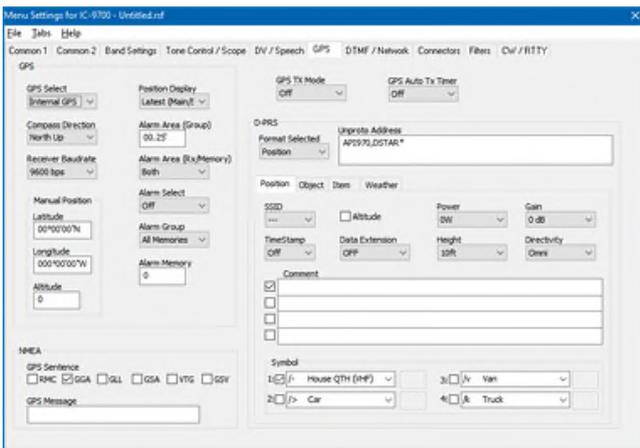
DV/DR Mode

Options that control performance in digital modes are found and set on this page. Options include Filter settings for DR and FM modes, Noise reduction that is set separately for the Main and Sub bands, Digital Squelch set separately for the Main and Sub bands and DV Fast data options for use in GPS operations.



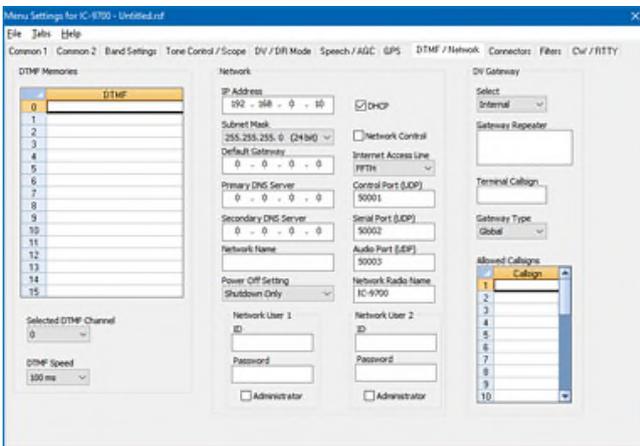
Speech/AGC

Control options for how the radio announces call signs and other details, QSO history logging options, QSO Recorder options, and AGC options for each mode.



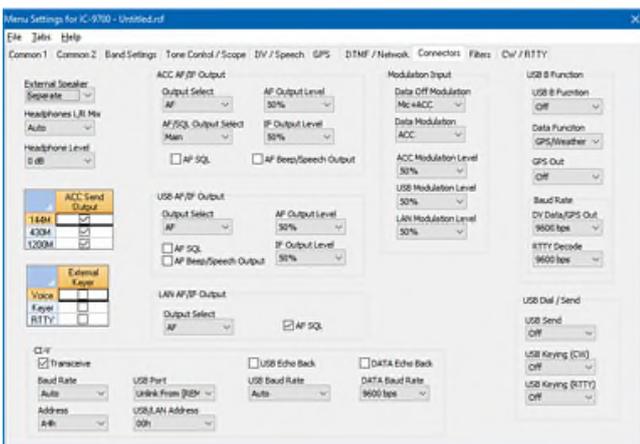
GPS

Set option for GPS functionality. Remember, this screen has more options than those shown. Be sure to click on each of the Position, Object, Item and Weather tabs to set options for each of those D-PRS operations.



DTMF/Network

Set DTMF memories for those DTMF strings you use repeatedly. Network options let you give the radio details of the network on which it is operating. DV gateway gives you even more functionality in this radio and your D-Star activities.



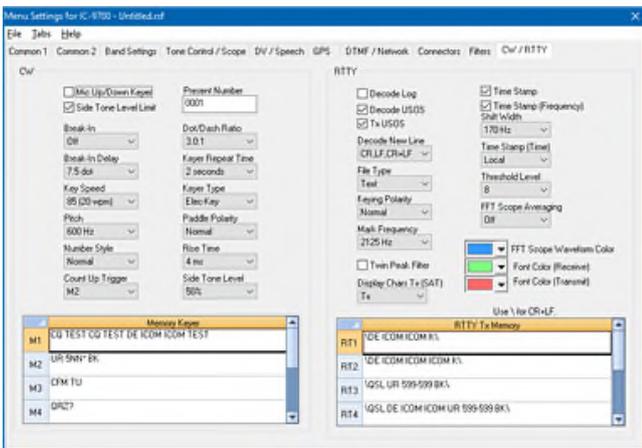
Connectors

Set options here for input and output through the many connectors on the back of the radio including the external speaker, the headphone jack, the CI-V port, the ACC port, and the USB B port.



Filters

Customize filters for each mode and each band. Set upper and lower limits for peak performance.



CW/RTTY

Set options for CW and RTTY activities including the 8 messages for each.

D-Star Calculator Advanced

The screenshot shows the 'Advanced D-Star Calculator' window. The 'Source' section is highlighted with a red border. It contains the following fields and options:

- Source Repeater
- Country: United States
- State: Colorado
- City: Broomfield
- Callsign: KD0LUX
- Frequency: 147.3750 +0.6000
- DVAP Hotspot
- Frequency: 146.55000, Name: 14655000
- Frequency: 147.3750 +0.6000
- RPT1 (Source): KD0LUX C, RPT2 (Destination): KD0LUX G

The 'Destination' section includes:

- Talk: KD0LUX T
- Echo: KD0LUX E
- Status: KD0LUX I
- Unlink: KD0LUX U
- Repeater Channel Name: Callsign, Location (City)
- Callsign Routing: [Empty text box]

The 'Link to Repeaters' list includes:

- Africa
- Asia
- Australia
- Canada
- Europe Central
- Europe Eastern
- Europe North-West
- Europe Northern
- Europe Southern
- Europe Western
- Germany
- Italy
- Japan
- Latin America
- New Zealand
- USA Alaska
- USA Hawaii
- USA Midwest
- USA Northeast
- USA Northwest
- USA Southeast

The 'Link To Reflectors' list includes:

- REF001A - Aurora Illinois, United States
- REF001B - Illinois D-STAR repeaters
- REF001C - D-STAR's MegaRepeater
- REF002A - Southeastern US D-STAR \
- REF002B - Some Nets
- REF002C - Some Nets
- REF003A - Ad-hock & Emergency Use
- REF003B - Permalink for Repeaters, inc
- REF003C - Australian Nets
- REF004A - Alternate for Southeastern L
- REF004B - Texas Permalink Repeaters
- REF004C - General Rag Chew (English
- REF005A - UK Nets, Permalink Repeat
- REF005B - French Language - Swiss ar
- REF005C - London, England
- REF006A - Scottish Net
- REF006B - Denmark, Sweden, and Nor
- REF006C - German Net
- REF007A - Italy
- REF007B - Italy

Buttons at the bottom include: 0 repeaters selected, Reset, 0 reflectors selected, Reset, Starting Channel Number: 0, Autoincrement, Apply, Close.

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.

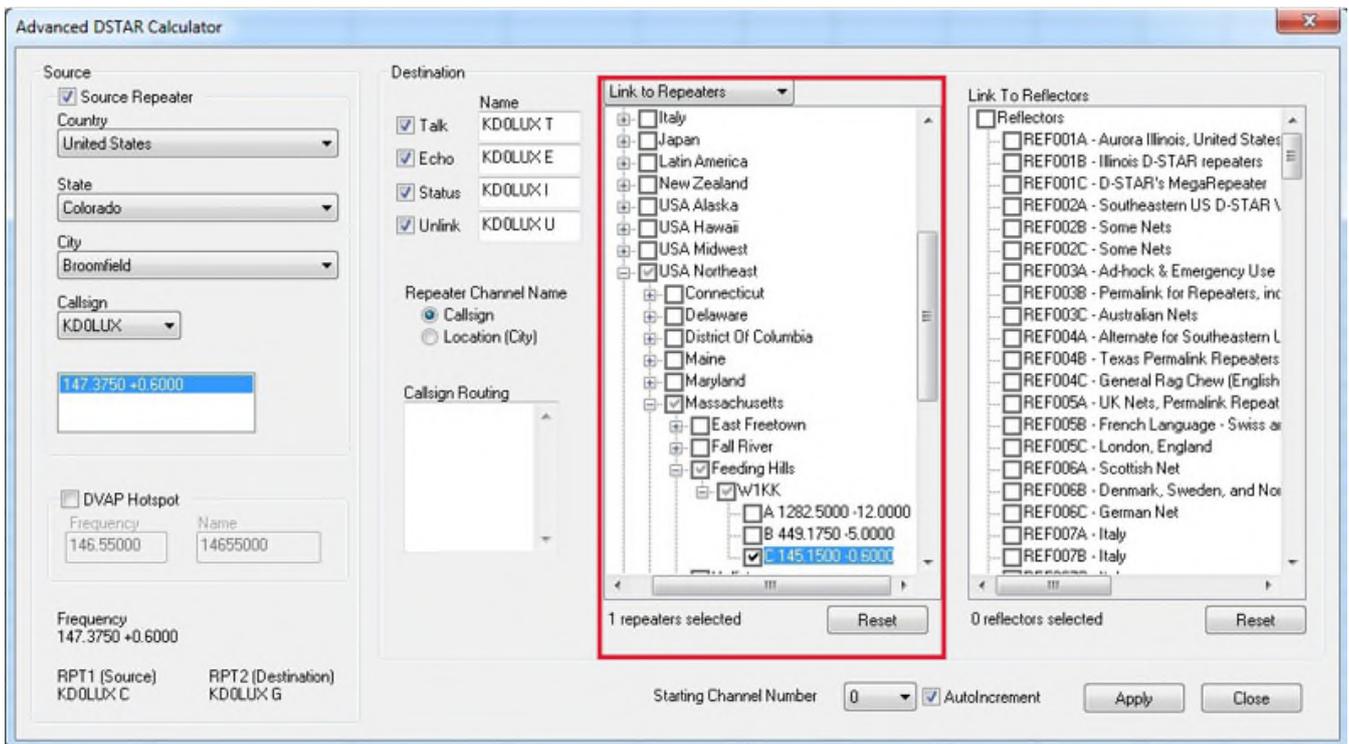
Talk - the CQ channel for talking with others.

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).

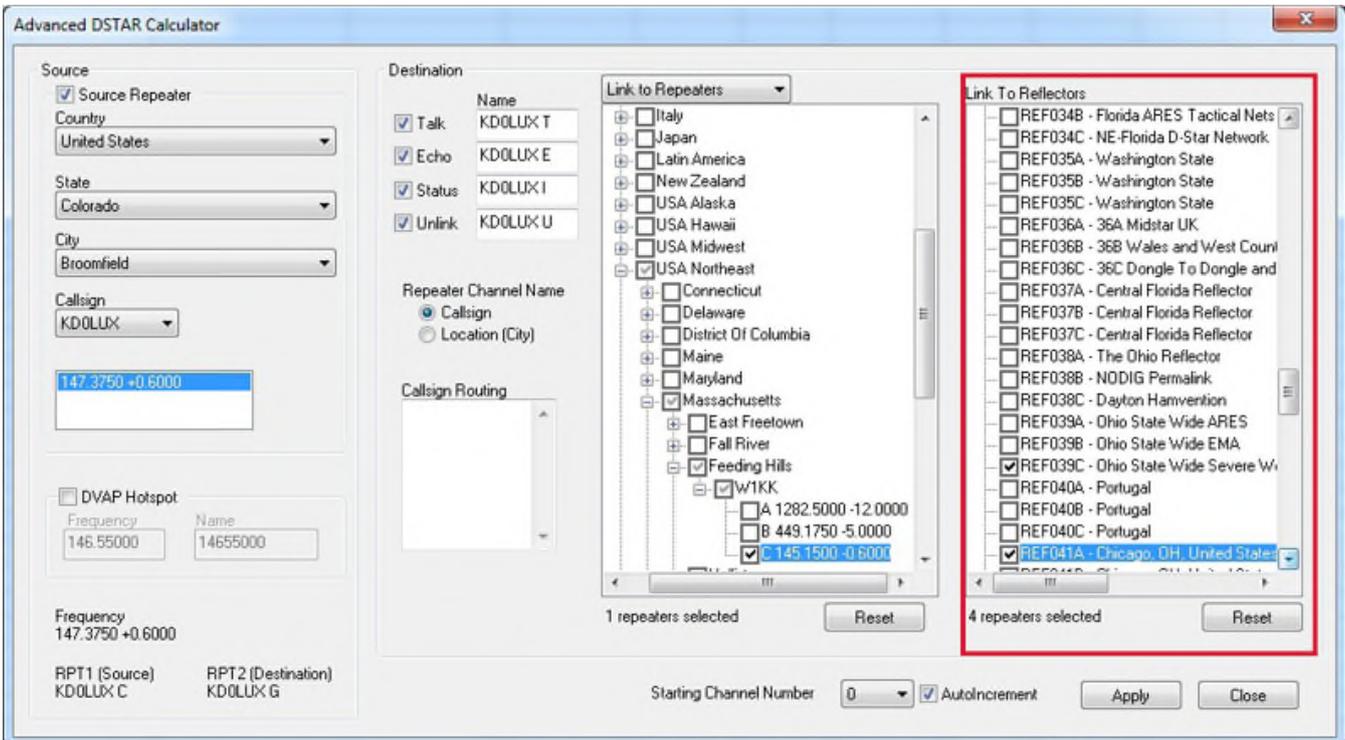
Unlink - Disconnects the current link of the repeater (where allowed). More widely used to disconnect a link you establish. Remember... if you link, it's always polite to unlink (hang up the phone) when you're done unless someone has joined you locally. Then you might leave it to them to unlink.

The calculator sets up the same channels for a DVAP hotspot. You enter your frequency only once.



Route/Link to Repeaters:

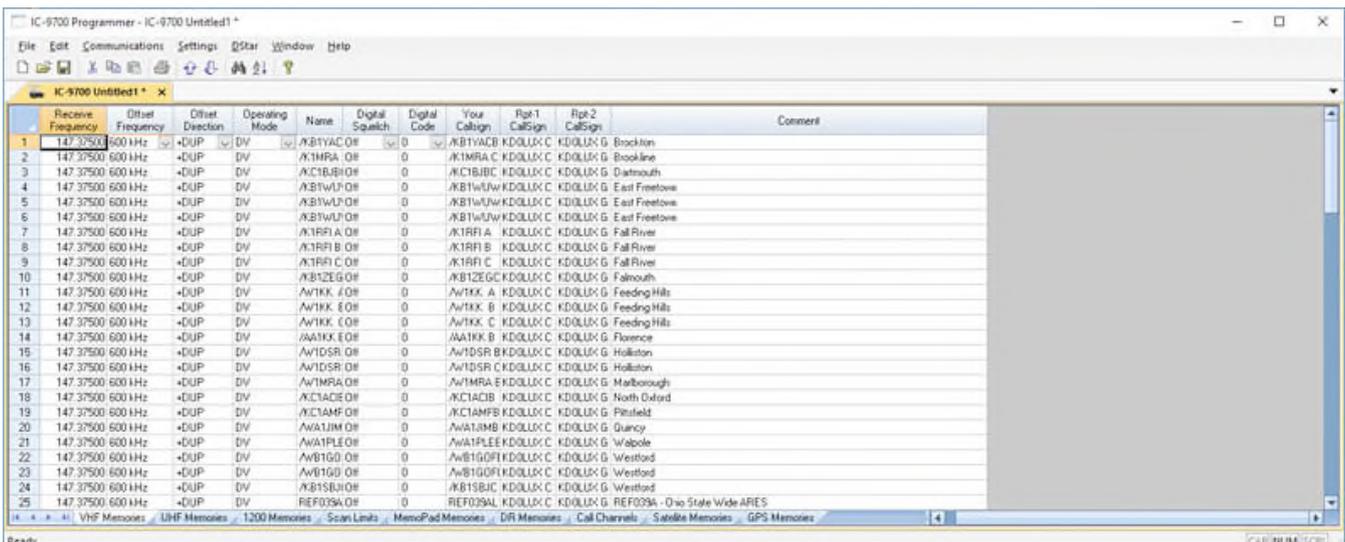
Now that you identified your “Source”, let’s set up your Destination. In D-STAR you can Link to Repeaters or Route to Repeaters. To set up channels that link or route, use the drop down at the top of the first tree to select your function, then select your repeaters by checking a country, region, state, 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.

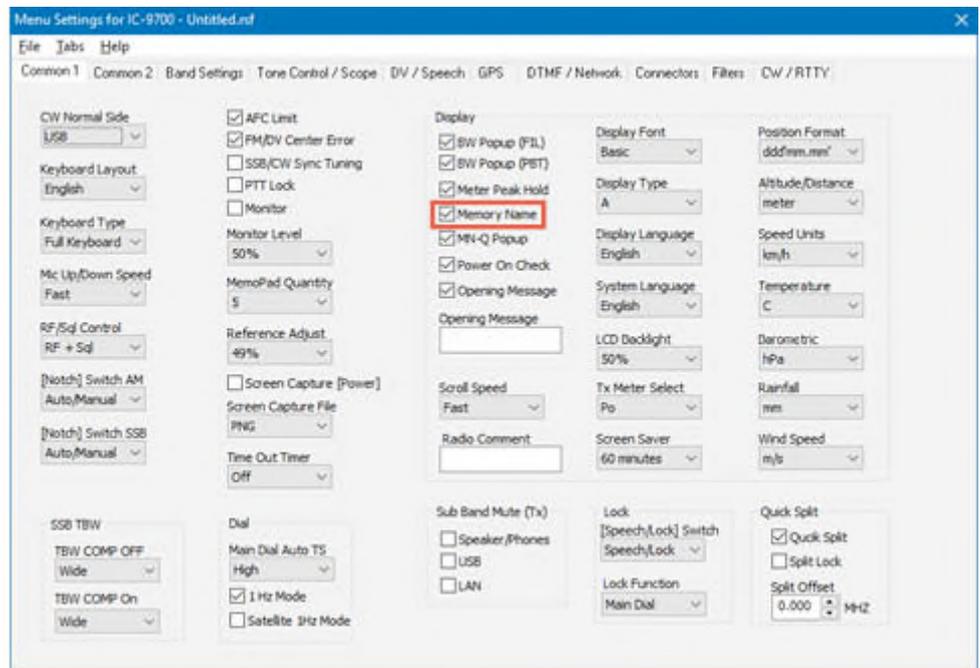
Click Apply once to set up all these channels for the radio.



The Resulting File:

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!

The screenshot shows the IC-7700 Programmer software interface. The main window displays a table of repeaters with columns for Repeater Frequency, Transmit Frequency, Offset Frequency, Offset Direction, Repeater Use, Operating Mode, Name, Sub Name, Tone Mode, CTS5, #Address, Rpt 1 CallSign, Rpt 2 CallSign, Lat, Long, Latitude, Longitude, UTC Offset, Bank, and Comment. A dialog box titled "D-STAR Calculator for DR Memories" is open, allowing users to select repeaters to add to DR memories. The dialog includes a "Starting Channel" dropdown, a "Use CallSign for channel name" checkbox, and several checkboxes for applying as a group (Africa, Asia, Australia, Canada, Europe Central, Europe Eastern, Europe Northern, Europe Southern, Europe Western, Germany, Italy, Japan, Latin America, New Zealand, USA Alaska, USA Hawaii, USA Midwest, USA Northeast, USA Northwest, USA Southwest, USA Southeast, United Kingdom). The "Apply" and "Close" buttons are visible at the bottom of the dialog.

D-STAR Calculator for DR Memories:

D-STAR Calculator for DR Memories lists repeaters worldwide for you to update or customize the list in the radio. Easily customize this list for places you plan to travel or places you want to work using a DR memory as your RPT2 repeater.

All repeater nodes are listed. Those the radio can use to transmit will be set automatically for “Repeater Use”.

Latitude and Longitude are included where that info is available from the source and the repeater is marked for use.

Click a country, region, state, city or individual repeater.

Use starting channel to replace or carefully add to your list.

No searching for data, it’s all right in the RT Systems Programmer.

The D-STAR calculator is updated automatically with the program. Just “Check for Updates” periodically to be sure you have the latest list.



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