

The WCS-D31 Programmer is designed to give you the ease and convenience of programming the memories and set menu options of your radio from your PC including settings for D-STAR operations. The D-STAR calculator built into the program gives you D-STAR information from all around the world to use. You can easily set up your D-STAR channels with just a few mouse clicks.

Memory Channels Include:

- 500 Memory Channels (FM and D-STAR)
- 50 Limit Memories (25 pair)
- 700 DR Channels
- 2 Call Channels
- 100 GPS Memories

Other Menu Item Categories Include:

- Common
- DV
- GPS
- DTMF

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

With the WCS-D31 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-RTS05 interface cable. The cable connects the radio to the computer from the USB port on the computer to the data jack on the radio.

Limit Memory Functions
(left to right)

Field	Field
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

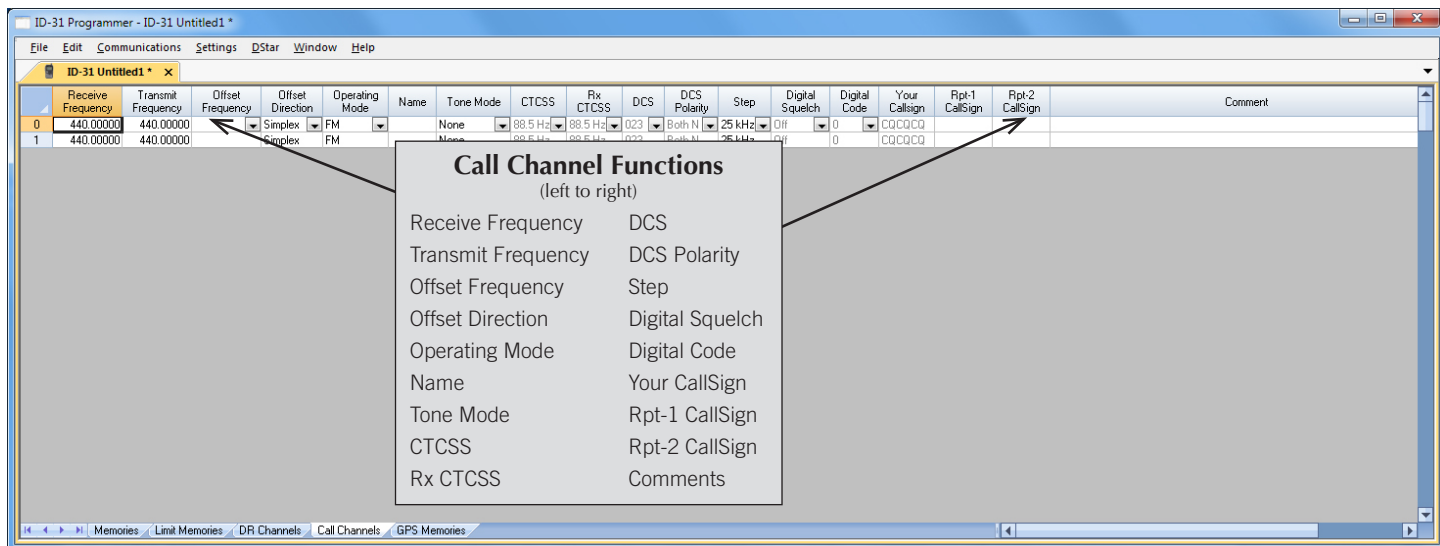
Limit Memories are used by the radio for Program Scan. Program the same details for Limit Memories as for regular memory channels.

DR Channel Functions
(left to right)

Field	Field
Receive Frequency	Rpt-2 CallSign
Transmit Frequency	LatLng
Offset Frequency	Latitude
Offset Direction	Longitude
Repeater Use	UTC Offset
Name	Bank
Sub Name	Comments
Rpt-1 CallSign	

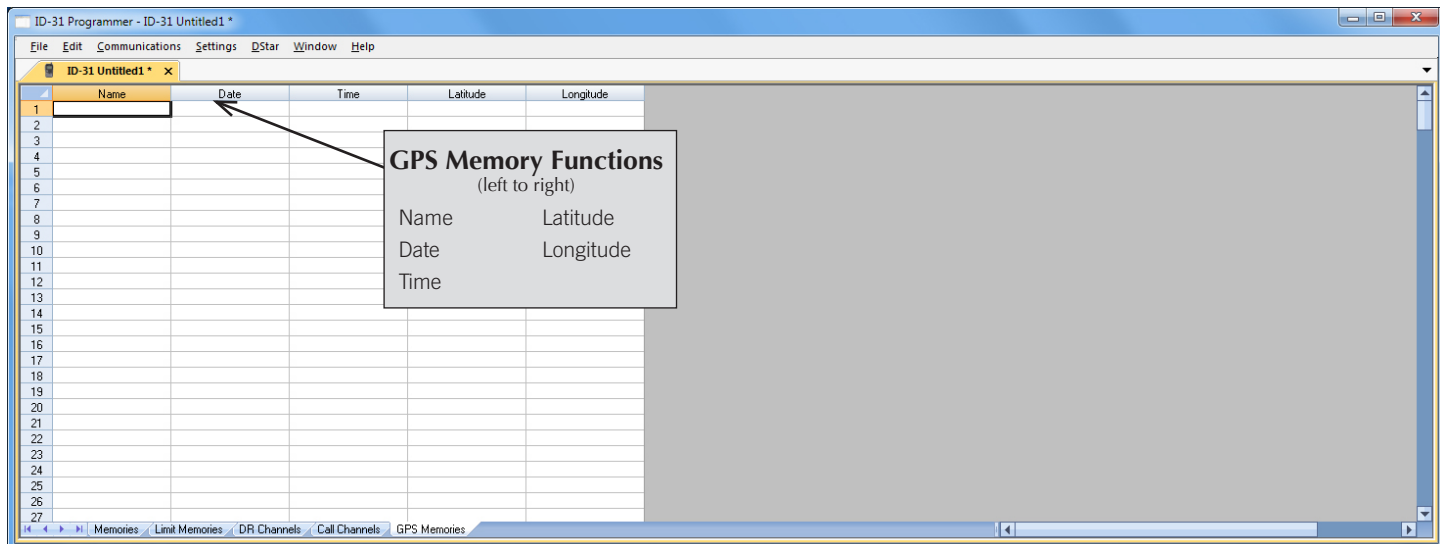
DR Channels

The DR Channels are preprogrammed in the radio with D-STAR information for you to use for quick manual channel setup from the radio's face. D-STAR channels do not need to be programmed here.



Call Channel

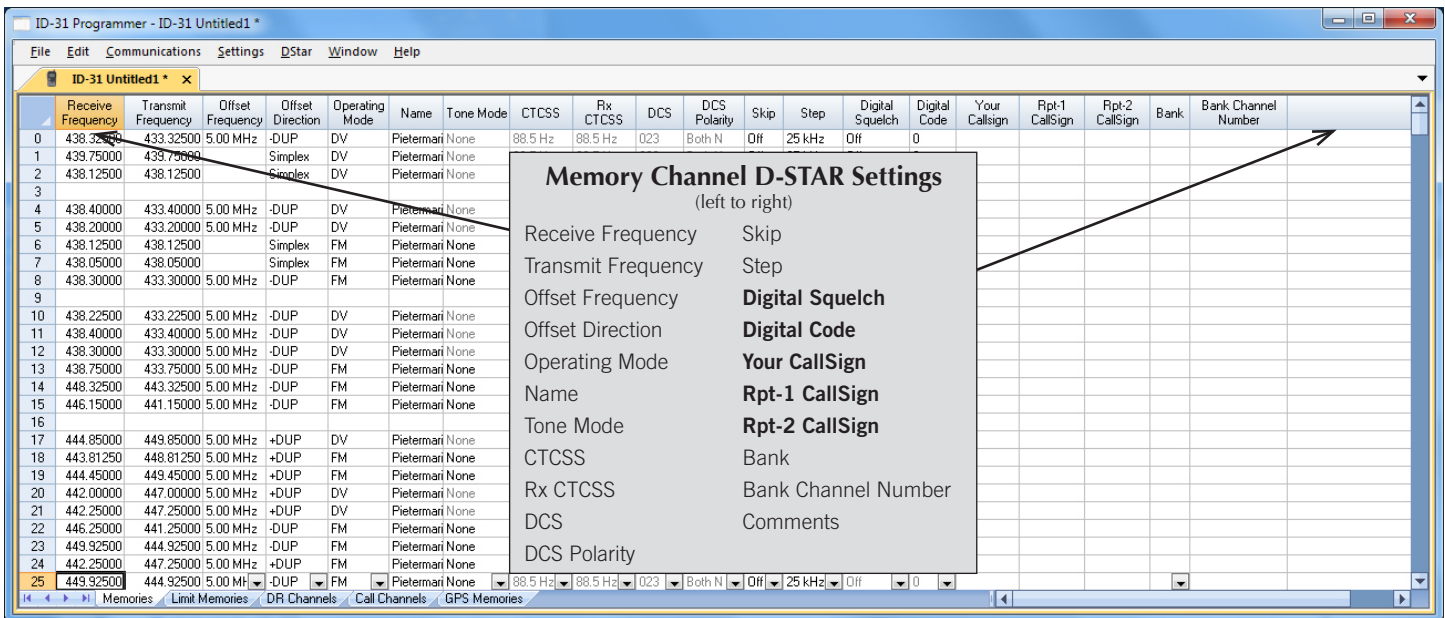
Home/Call channels are special memories accessed through one button recall on the radio. These channels are preprogrammed in the radio and while the frequency can be changed to another within the band, they cannot be left blank.



GPS Memory

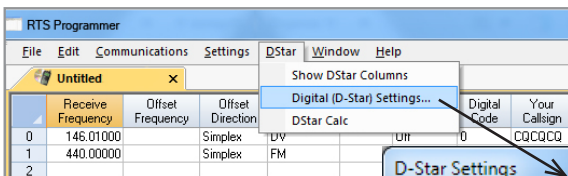
Once stored in the radio during GPS operations, these channels are read from the radio with the other details.

Buy Now



Memories and D-STAR Columns

The ID-31 handles D-STAR and FM memories in 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.



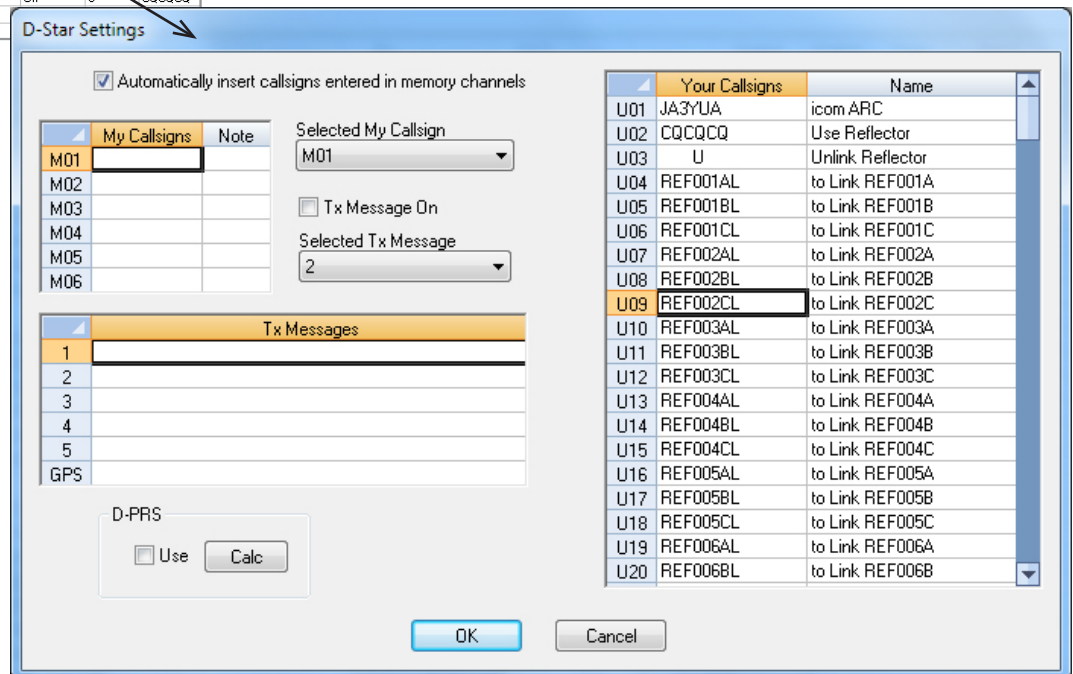
D-STAR Settings

Set "My Callsign" to your FCC issued callsign.

The list of Your Callsigns is storage.

In the ID-31, these come programmed from the factory. You can make changes to the list.

The callsigns used during a transmission are programmed in the memory channel. This list is 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. Be sure to turn on the Tx message with the checkbox.

Advanced DSTAR Calculator

Source

☒ Source Repeater

Country: United States

State: Colorado

City: Broomfield

Callsign: KD0LUX

Frequency: 147.3750 +0.6000

☐ DVAP Hotspot

Frequency: 146.55000 Name: 14655000

RPT1 (Source): KD0LUX C RPT2 (Destination): KD0LUX G

Destination

☒ Talk KD0LUX T

☒ Echo KD0LUX E

☒ Status KD0LUX I

☒ Unlink KD0LUX U

Repeater Channel Name

☒ Callsign ☐ Location (City)

Callsign Routing

Link to Repeaters

☐ Repeaters

- ☐ 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

0 repeaters selected Reset

Link To Reflectors

☐ Reflectors

- ☐ 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 ai
- ☐ REF005C - London, England
- ☐ REF006A - Scottish Net
- ☐ REF006B - Denmark, Sweden, and Nor
- ☐ REF006C - German Net
- ☐ REF007A - Italy
- ☐ REF007B - Italy

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.

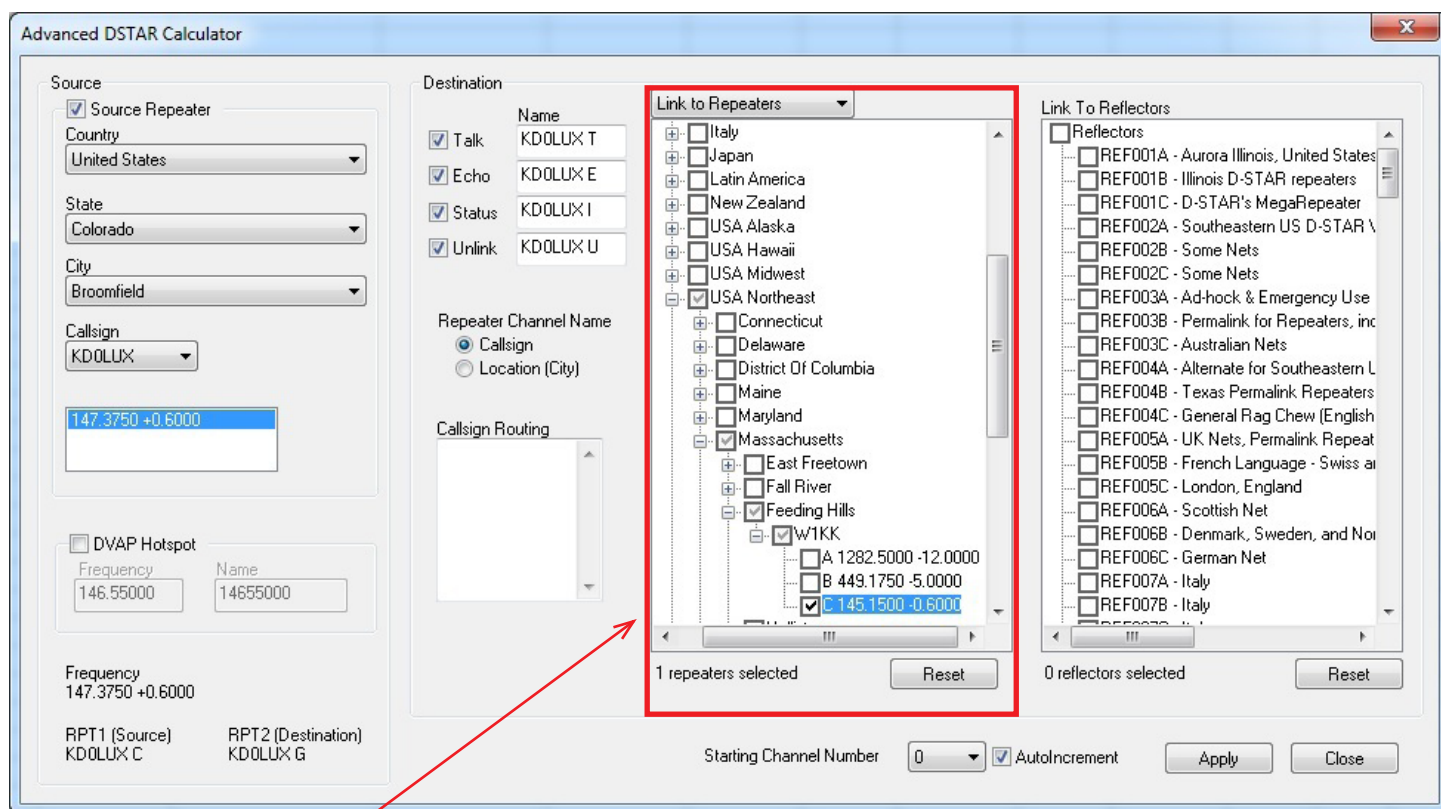
Talk - the CQ channel for talking with others.

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.



Advanced DSTAR Calculator

Source

☒ Source Repeater

Country:

State:

City:

Callsign:

☐ DVAP Hotspot

Frequency: Name:

Frequency: 147.3750 +0.6000

RPT1 (Source) RPT2 (Destination)
KD0LUX C KD0LUX G

Destination

☒ Talk KD0LUX T
☒ Echo KD0LUX E
☒ Status KD0LUX I
☒ Unlink KD0LUX U

Repeater Channel Name
☒ Callsign
☐ Location (City)

Callsign Routing

Link to Repeaters

- ☐ Italy
- ☐ Japan
- ☐ Latin America
- ☐ New Zealand
- ☐ USA Alaska
- ☐ USA Hawaii
- ☐ USA Midwest
- ☒ USA Northeast
 - ☐ Connecticut
 - ☐ Delaware
 - ☐ District Of Columbia
 - ☐ Maine
 - ☐ Maryland
 - ☒ Massachusetts
 - ☐ East Freetown
 - ☐ Fall River
 - ☒ Feeding Hills
 - ☐ W1KK
 - ☐ A 1282.5000 -12.0000
 - ☐ B 449.1750 -5.0000
 - ☒ C 145.1500 -0.6000

1 repeaters selected

Link To Reflectors

☐ Reflectors

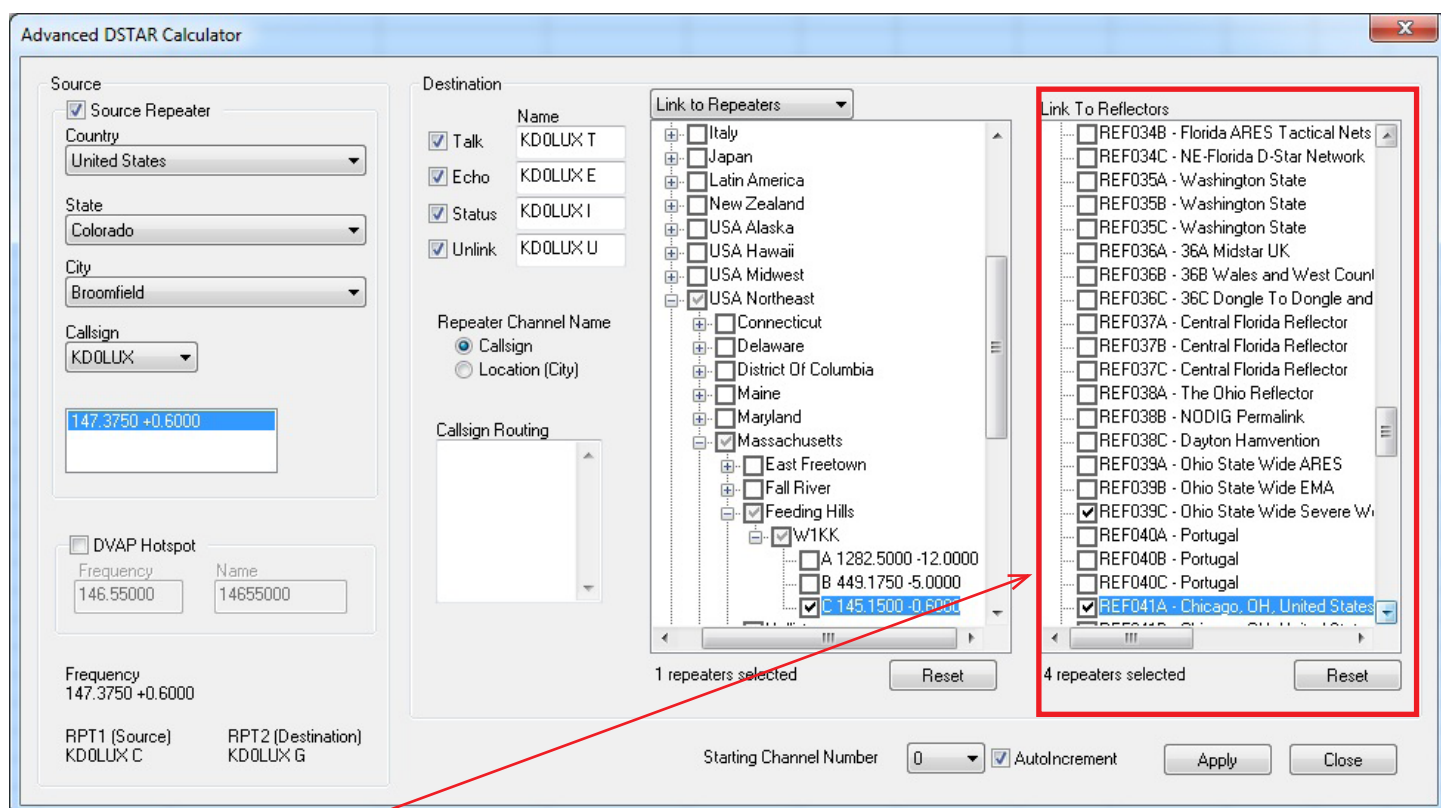
- ☐ REF001A - Aurora Illinois, United States
- ☐ REF001B - Illinois D-STAR repeaters
- ☐ REF001C - D-STAR's MegaRepeater
- ☐ REF002A - Southeastern US D-STAR \
- ☐ REF002B - Some Nets
- ☐ REF002C - Some Nets
- ☐ REF003A - Ad-hock & Emergency Use
- ☐ REF003B - Permalink for Repeaters, inc
- ☐ REF003C - 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 a
- ☐ REF005C - London, England
- ☐ REF006A - Scottish Net
- ☐ REF006B - Denmark, Sweden, and Nor
- ☐ REF006C - German Net
- ☐ REF007A - Italy
- ☐ REF007B - Italy

0 reflectors selected

Starting Channel Number ☒ AutoIncrement

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.



Advanced DSTAR Calculator

Source

☒ Source Repeater

Country:

State:

City:

Callsign:

Frequency:

☐ DVAP Hotspot

Frequency: Name:

Frequency: 147.3750 +0.6000

RPT1 (Source) RPT2 (Destination)
KD0LUX C KD0LUX G

Destination

☒ Talk KD0LUX T
☒ Echo KD0LUX E
☒ Status KD0LUX I
☒ Unlink KD0LUX U

Repeater Channel Name
☒ Callsign
☐ Location (City)

Callsign Routing

Link to Repeaters

☐ Italy
☐ Japan
☐ Latin America
☐ New Zealand
☐ USA Alaska
☐ USA Hawaii
☐ USA Midwest
☒ USA Northeast
☐ Connecticut
☐ Delaware
☐ District Of Columbia
☐ Maine
☐ Maryland
☒ Massachusetts
☐ East Freetown
☐ Fall River
☒ Feeding Hills
☒ W1KK
☐ A 1282.5000 -12.0000
☐ B 449.1750 -5.0000
☒ C 145.1500 -0.6000

1 repeaters selected

Link To Reflectors

☐ REF034B - Florida ARES Tactical Nets
☐ REF034C - NE-Florida D-Star Network
☐ REF035A - Washington State
☐ REF035B - Washington State
☐ REF035C - Washington State
☐ REF036A - 36A Midstar UK
☐ REF036B - 36B Wales and West Counl
☐ REF036C - 36C Dongle To Dongle and
☐ REF037A - Central Florida Reflector
☐ REF037B - Central Florida Reflector
☐ REF037C - Central Florida Reflector
☐ REF038A - The Ohio Reflector
☐ REF038B - NODIG Permalink
☐ REF038C - Dayton Hamvention
☐ REF039A - Ohio State Wide ARES
☐ REF039B - Ohio State Wide EMA
☒ REF039C - Ohio State Wide Severe W
☐ REF040A - Portugal
☐ REF040B - Portugal
☐ REF040C - Portugal
☒ REF041A - Chicago, OH, United States

4 repeaters selected

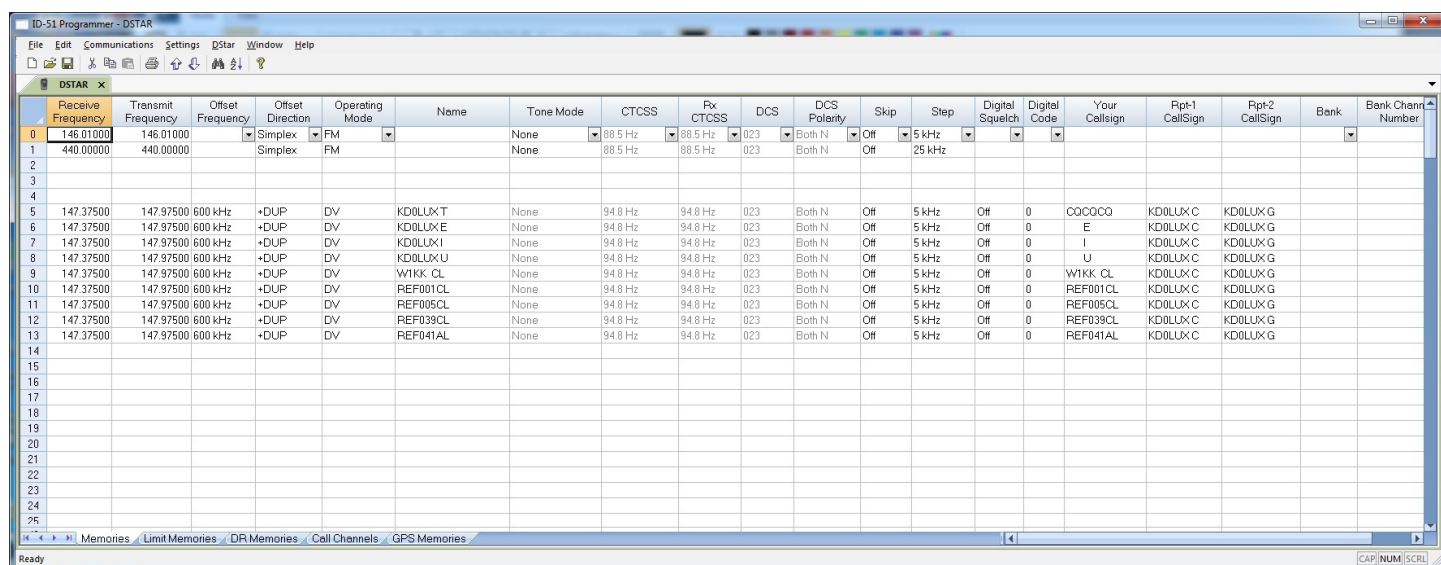
Starting Channel Number: ☒ AutoIncrement

Apply **Close**

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.



	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Name	Tone Mode	CTCSS	Rx CTCSS	DCS	DCS Polarity	Skip	Step	Digital Squelch	Digital Code	Your Callsign	Rpt-1 CallSign	Rpt-2 CallSign	Bank	Bank Channel Number
0	146.01000	146.01000		Simplex	FM		None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz							
1	440.00000	440.00000		Simplex	FM		None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz							
2																				
3																				
4																				
5	147.37500	147.97500	600 kHz	+DUP	DV	KD0LLX T	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	COCOCQ	KD0LLX C	KD0LLX G		
6	147.37500	147.97500	600 kHz	+DUP	DV	KD0LLX E	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	E	KD0LLX C	KD0LLX G		
7	147.37500	147.97500	600 kHz	+DUP	DV	KD0LLX I	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	I	KD0LLX C	KD0LLX G		
8	147.37500	147.97500	600 kHz	+DUP	DV	KD0LLX U	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	U	KD0LLX C	KD0LLX G		
9	147.37500	147.97500	600 kHz	+DUP	DV	W1KK CL	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	W1KK CL	KD0LLX C	KD0LLX G		
10	147.37500	147.97500	600 kHz	+DUP	DV	REF001CL	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	REF001CL	KD0LLX C	KD0LLX G		
11	147.37500	147.97500	600 kHz	+DUP	DV	REF005CL	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	REF005CL	KD0LLX C	KD0LLX G		
12	147.37500	147.97500	600 kHz	+DUP	DV	REF039CL	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	REF039CL	KD0LLX C	KD0LLX G		
13	147.37500	147.97500	600 kHz	+DUP	DV	REF041AL	None	94.8 Hz	94.8 Hz	023	Both N	Off	5 kHz	Off	0	REF041AL	KD0LLX C	KD0LLX G		
14																				
15																				
16																				
17																				
18																				
19																				
20																				
21																				
22																				
23																				
24																				
25																				

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.

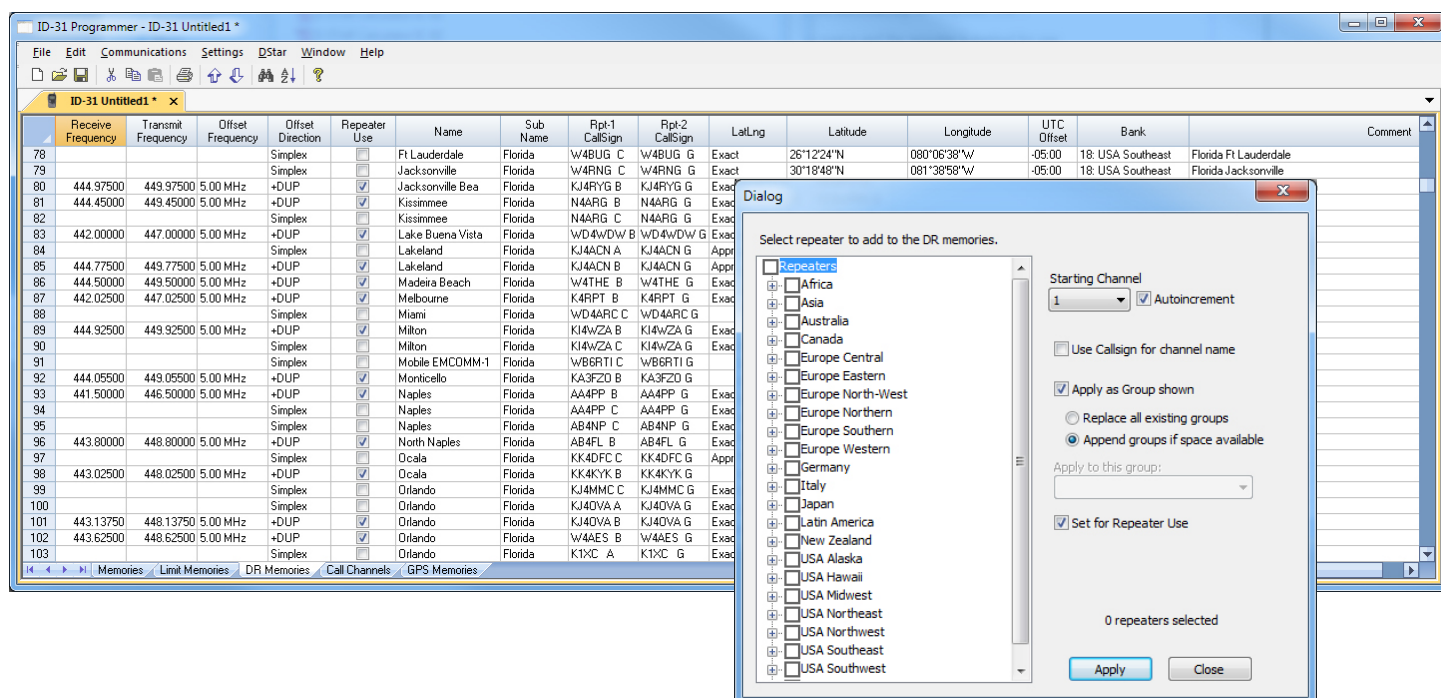
Name can be edited here to better identify the station. Name is what you see on the radio. It is not part of the D-STAR commands for use of the system. It may be all you have to identify the function of a channel. (Notice the frequency is the same for ALL these channels although they each do something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



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".

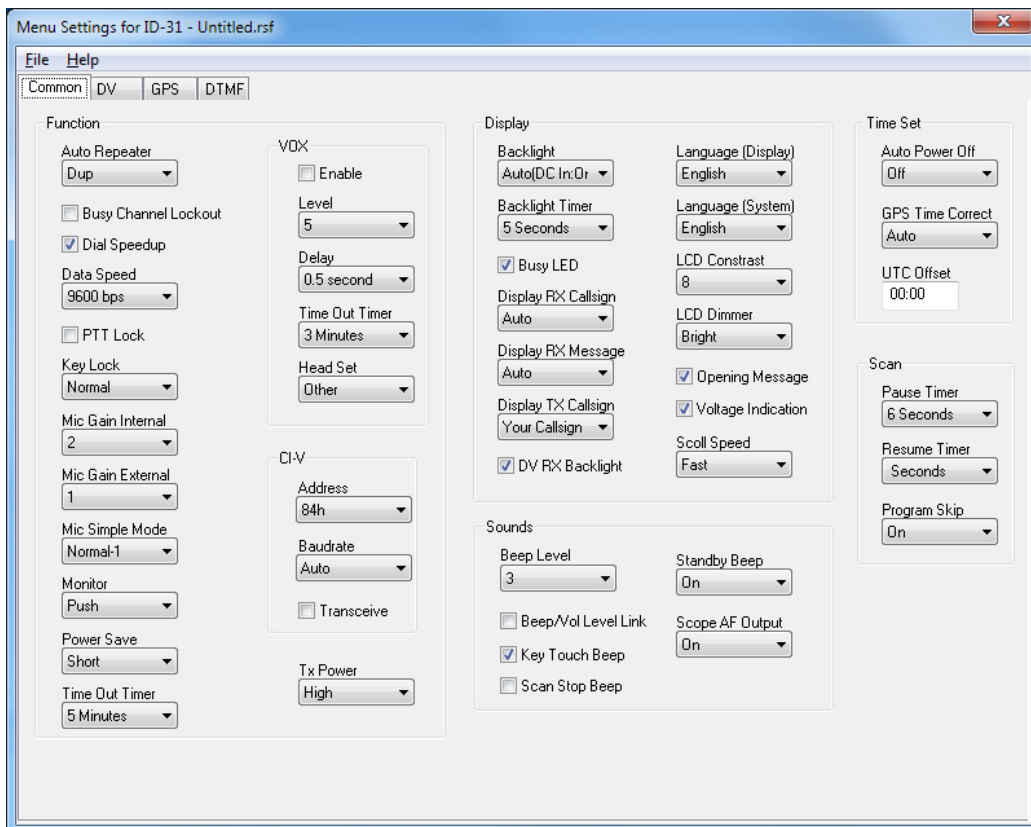
Latitude and Longitude are included where that info is available from the source and the repeater is marked for use.

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.



Menu Settings for ID-31 - Untitled.rsf

File Help

Common DV GPS DTMF

Function

- Auto Repeater: Dup
- ☐ Busy Channel Lockout
- ☒ Dial Speedup
- Data Speed: 9600 bps
- ☐ PTT Lock
- Key Lock: Normal
- Mic Gain Internal: 2
- Mic Gain External: 1
- Mic Simple Mode: Normal-1
- Monitor: Push
- Power Save: Short
- Time Out Timer: 5 Minutes

VOX

- ☐ Enable
- Level: 5
- Delay: 0.5 second
- Time Out Timer: 3 Minutes
- Head Set: Other

Display

- Backlight: Auto(DC In:On)
- Backlight Timer: 5 Seconds
- ☒ Busy LED
- Display RX Callsign: Auto
- Display RX Message: Auto
- Display TX Callsign: Your Callsign
- ☒ DV RX Backlight
- Language (Display): English
- Language (System): English
- LCD Contrast: 8
- LCD Dimmer: Bright
- ☒ Opening Message
- ☒ Voltage Indication
- Scroll Speed: Fast

Time Set

- Auto Power Off: Off
- GPS Time Correct: Auto
- UTC Offset: 00:00

Scan

- Pause Timer: 6 Seconds
- Resume Timer: Seconds
- Program Skip: On

Sounds

- Beep Level: 3
- Standby Beep: On
- ☐ Beep/Vol Level Link
- ☒ Key Touch Beep
- ☐ Scan Stop Beep
- Scope AF Output: On

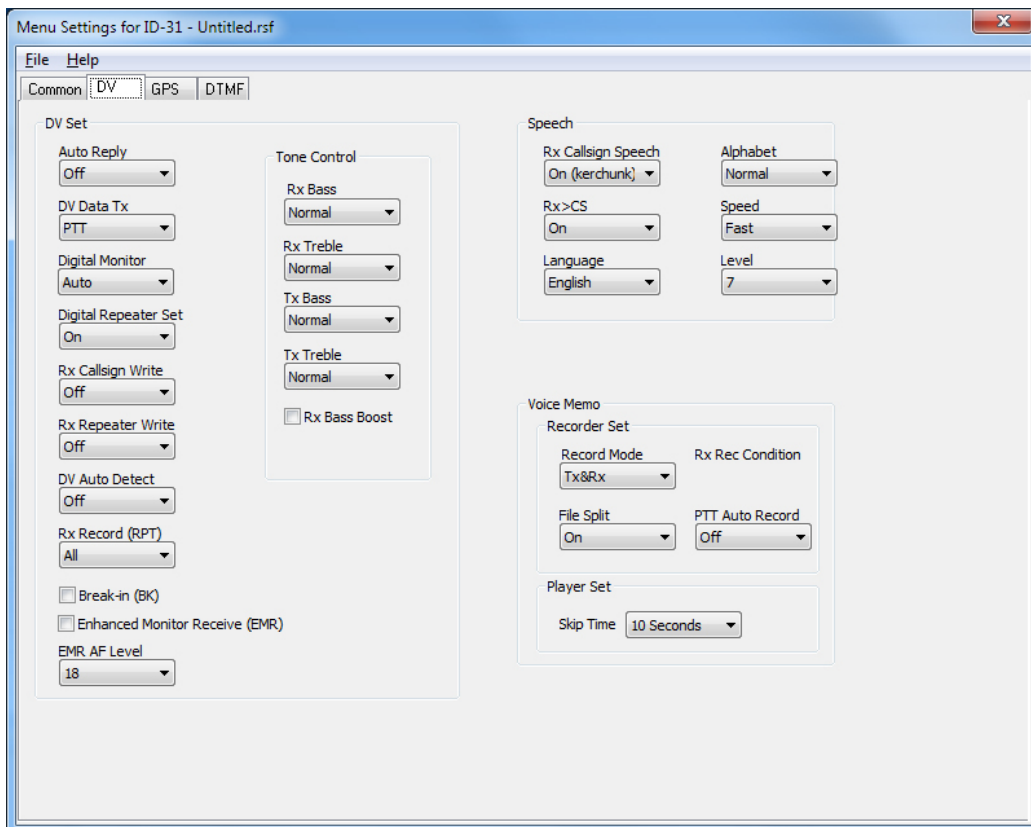
CI-V

- Address: 84h
- Baudrate: Auto
- ☐ Transceive
- Tx Power: High

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.



Menu Settings for ID-31 - Untitled.rsf

File Help

Common DV GPS DTMF

DV Set

- Auto Reply: Off
- DV Data Tx: PTT
- Digital Monitor: Auto
- Digital Repeater Set: On
- Rx Callsign Write: Off
- Rx Repeater Write: Off
- DV Auto Detect: Off
- Rx Record (RPT): All
- ☐ Break-in (BK)
- ☐ Enhanced Monitor Receive (EMR)
- EMR AF Level: 18

Tone Control

- Rx Bass: Normal
- Rx Treble: Normal
- Tx Bass: Normal
- Tx Treble: Normal
- ☐ Rx Bass Boost

Speech

- Rx Callsign Speech: On (kerchunk)
- Rx>CS: On
- Language: English
- Alphabet: Normal
- Speed: Fast
- Level: 7

Voice Memo

Recorder Set

- Record Mode: Tx&Rx
- Rx Rec Condition: On
- File Split: On
- PTT Auto Record: Off

Player Set

- Skip Time: 10 Seconds

DV

Set up options for Digital Speech and Voice operations.

Menu Settings for ID-31 - Untitled.rsf

File Help

Common DV GPS DTMF

GPS

GPS Select: Internal GPS

Position Format: ddd°mm.mm'

Manual Position

Latitude: 00°00'00"N

Longitude: 000°00'00"E

Power Save: Auto

Speed Units: mph

GPS Out: Off

Indicator: On

Logger: Off

Record Interval: 1 second

GPS Auto Tx: Off

Alarm Area 1: 00' 25"

Alarm Area 2: Both

Altitude/Distance: meter

GPS Tx Mode

TX Mode: Off

Data Extension: Off

Time Stamp: Off

Altitude TX: Off

Unproto Address: API31,DSTAR*

GPS Sentence

☐ RMC ☒ GGA ☐ GLL ☐ VTG ☐ GSA ☐ GSV

SSID: ---

Comment:

GPS Message:

GPS-A Symbol

1: /I Person

2: /b Bicycle

3: /> Car

4: /- House QTH (VHF)

GPS

Configure GPS function settings.

Menu Settings for ID-31 - Untitled.rsf

File Help

Common DV GPS DTMF

DTMF

	DTMF
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

DTMF

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

The screenshot shows the 'Grid Display' tab of the Preferences dialog. It includes a 'Freeze' dropdown set to '1', an 'Alternate row' table with rows 1-4, 'Fore' and 'Back' buttons, a 'Use Combo for Check box' checkbox, and a 'Language' dropdown set to 'English'. A table titled 'Mark the columns to hide.' lists various fields with checkboxes for hiding them.

Column	Hide
Transmit Frequency	<input type="checkbox"/>
Offset Frequency	<input type="checkbox"/>
Offset Direction	<input type="checkbox"/>
Name	<input type="checkbox"/>
Tone Mode	<input type="checkbox"/>
CTCSS	<input type="checkbox"/>
Rx CTCSS	<input type="checkbox"/>
DCS	<input type="checkbox"/>
Tx Power	<input type="checkbox"/>
Busy Channel Lockout	<input type="checkbox"/>
Skip	<input type="checkbox"/>
Clock Shift	<input type="checkbox"/>
Battery Save	<input type="checkbox"/>
Comment	<input type="checkbox"/>

Grid Display

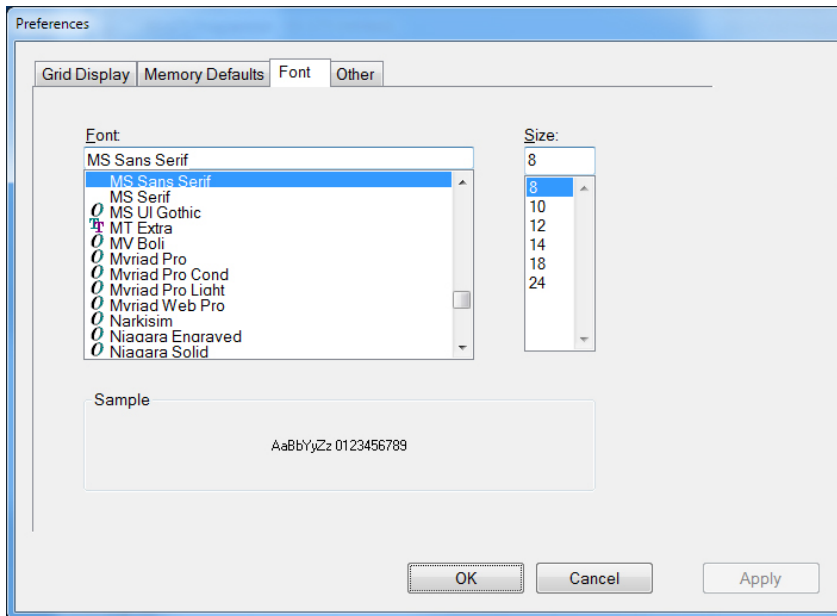
- RT Systems now available in English, French, German, Italian, Spanish, Portuguese and Japanese.
- Set colors for text (Fore) or background (Back) of alternate rows for easier viewing across the columns.
- Freeze columns to keep information on the screen as you scroll to the right of the page.
- Hide 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.

The screenshot shows the 'Memory Defaults' tab of the Preferences dialog. It includes checkboxes for 'Open last file when starting programmer.', 'Check ShowName Automatically', 'Convert Split offsets to standard Plus or Minus when available.', and 'Disable CTCSS, DCS and other Tone columns according to the Tone Mode selection.'. It also features 'Offset Frequency Defaults' dropdowns for HF, 6m, 2m, 1.25m, and 70cm bands. An 'Add and Remove Offsets' section contains a table with a list of offsets and a 'Remove' button.

Offset
1 100 kHz
2 500 kHz
3 600 kHz
4 1.00 MHz

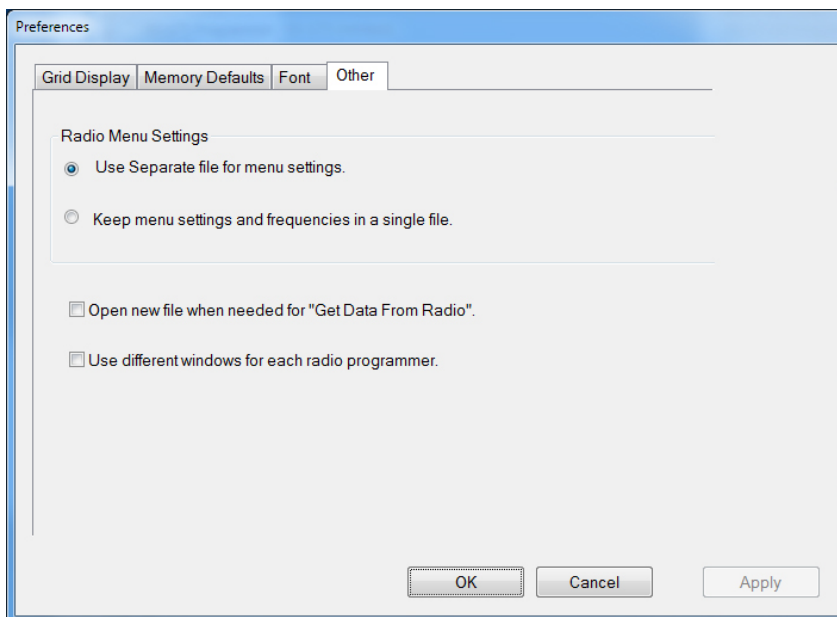
Memory Defaults

- 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 customized 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.

Buy Now