



A Sample Method of D-STAR Radio Programming

Charlotte Digital Radio Group
Digital Voice Communications

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There are many ways to program your D-STAR radio for easy and convenient use. Frequently used D-STAR commands can be stored in memories for quick and easy recall. The following method is one way to program and arrange memories. After becoming more familiar with D-STAR, you may find a more convenient method.

Memory Channel								
CH	Frequency					Call Sign		
	Operating Freq	DUP	Offset Freq	Mode	Name	Your	RPT1	RPT2
1	145.140000	-DUP	0.600000	DV	KI4WXS C	CQCQCQ	KI4WXS C	KI4WXS G
2	145.140000	-DUP	0.600000	DV	WXS C Un	U	KI4WXS C	KI4WXS G
3	145.140000	-DUP	0.600000	DV	WXS C ID	KI4WXS I	KI4WXS C	KI4WXS G
4	145.140000	-DUP	0.600000	DV	WXS Echo	KI4WXS E	KI4WXS C	KI4WXS G
5	145.140000	-DUP	0.600000	DV	REF001C	REF001CL	KI4WXS C	KI4WXS G
6	145.140000	-DUP	0.600000	DV	REF002A	REF002AL	KI4WXS C	KI4WXS G
7	145.140000	-DUP	0.600000	DV	REF030B	REF030BL	KI4WXS C	KI4WXS G
8	145.140000	-DUP	0.600000	DV	REF030C	REF030CL	KI4WXS C	KI4WXS G
9	145.140000	-DUP	0.600000	DV	REF054A	REF054AL	KI4WXS C	KI4WXS G
10	145.140000	-DUP	0.600000	DV	REF054B	REF054BL	KI4WXS C	KI4WXS G
11	145.140000	-DUP	0.600000	DV	REF054C	REF054CL	KI4WXS C	KI4WXS G

This memory organization creates a group of adjacent memory channels for use on one repeater. In this example, KI4WXS, module C (VHF) is used. Its frequency, shift, offset, RPT1 and RPT2 are the same for each memory. The UR entry is what differentiates the desired D-STAR command. These are described below.

Channel 1 – This is used for general QSOs on this repeater. CQCQCQ is in the UR field. CQCQCQ means that your transmission will be directed to no one in particular. If the repeater is already linked to another repeater or reflector, you will transmit on both your local repeater and on the linked repeaters and reflectors.

Channel 2 – This is used to issue an UNLINK command to the repeater. (There are 7 blanks before the U so the U is in the eighth position.) To unlink the repeater, tune to this channel and momentarily key your radio. A voice reply will announce that the repeater is now unlinked. Return to channel 1 to use the repeater unlinked.

Channel 3 – This is used to determine if the repeater is linked. To use, tune to Channel 3 and momentarily key your radio. If the repeater is linked, a voice will announce “Remote System Linked”. The linked repeater or reflector ID will scroll across the radio’s data display. If the repeater is not linked, the voice will announce the repeater call sign and the radio’s data display will scroll the repeater call sign. Be sure to return to Channel 1 to continue.

Channel 4 – This provides a method for the repeater to record your transmission and play it back. This can be useful to see how well you are getting into the repeater. To use, tune to Channel 4 and make a short voice transmission. After you un-key, your transmission will be played back (echoed) over the repeater. When finished, be sure to tune to Channel 1 for normal operation.

Channels 5 - 11 – These are used to issue a link command to your favorite repeater or reflector. For example, to link the repeater to REFLECTOR 1C, tune to Channel 5, and momentarily key the radio when clear. Upon successful linking, a voice will announce “Remote System Linked” and the linked status will scroll on the radio’s data display. Be sure to return to Channel 1 to continue.



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Alternate programming method for certain ICOM radios with the DR mode

The method described on the other page can be used on all ICOM radios, but consumes many memory slots. Newer ICOM radios (IC-80AD, ID-880H, ID-31, ID-51, IC-7100, IC-9100) have the DR (D-STAR Repeater) mode and you can use the method described below. This uses fewer memories and makes it easy to change a configuration on the fly.

The radio has separate memories for a Repeater List and a Call Sign List. The table below shows 7 memory channels taken up by the D-STAR Charlotte area repeaters. These are in the radio's Repeater List of an IC-9100.

Group 1 (Remain 491 CH)							
No.	Name	Call Sign		Frequency			RPT1 USE
		Repeater Call Sign	Gateway Call Sign	Operating Freq	DUP	Offset Freq	
0	Hood Rd C	KI4WXS C	KI4WXS G	145.140000	-DUP	0.600000	Yes
1	Hood Rd B	KI4WXS B	KI4WXS G	443.862500	+DUP	5.000000	Yes
2	Spencer A	KA4YMZ A	KA4YMZ G	1292.000000	-DUP	20.000000	Yes
3	Spencer B	KA4YMZ B	KA4YMZ G	443.987500	+DUP	5.000000	Yes
4	Crowdrs A	KK4JDH A	KK4JDH G	1291.400000	-DUP	20.000000	Yes
5	Shelby C	W4NYR C	W4NYR G	145.080000	+DUP	1.400000	Yes
6	Shelby B	W4NYR B	W4NYR G	444.187500	+DUP	5.000000	Yes

Notice that RPT1 USE on the far right is set to "Yes", which means that the channel will be available when the radio is in DR mode. Also notice that there is no UR call sign specified in the Repeater List.

A separate set of Your Call Sign Memories are programmed with call signs or commands that you would want to select to populate the UR field. These are shown below in the radio's Your Call Sign List. This takes up only 14 memory slots.

Your Call Sign	
No.	Call Sign
U01	CQCQCQ
U02	U
U03	I
U04	E
U05	CQCQCQ
U06	REF001CL
U07	REF002AL
U08	REF004AL
U09	REF030AL
U10	REF030BL
U11	REF030CL
U12	REF054AL
U13	REF054BL
U14	REF054CL

There is no duplication of UR call signs assigned to separate repeater memories, thus consuming fewer memory slots.

Each reflector linking command (U06 – U14) is listed just once and can be selected to apply to any repeater in the Repeater List. Likewise there is the only one unlink command (U02), one ID command (U04) and one echo command (U03). Note that there are 7 spaces before the U, E or I. The command letter must be in the 8th position. The repeater call is usually not needed for these commands.

Notice the two memories used for CQCQCQ (U01 and U05). This is because when using the radio's DR mode the radio's internal CQCQCQ sets the RPT2 field to "NOT USE*" and it cannot be populated with the repeater's gateway call sign. By selecting either U01 or U05 the radio will then place the proper call sign in the RPT2 field. More that one CQCQCQ is programmed so that one is never too far away in the list. Note the radio's menu item for "Gateway Auto Set" must be set to "Auto".