D-STAR InfoCon 2015

at Dayton Hamvention

Part 2 – Using D-STAR

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Georgia D-STAR

Getting on the Air

- FM Repeater
  - Mode - FM
  - Frequency
  - Offset
  - CTCSS / TSQ
  - Tone frequency
- D-STAR Repeater
  - Mode - DV
  - Frequency
  - Offset
  - UR
  - RPT1
  - RPT2

The Big Three

- **MY** *or* **MYCALL** *is your own callsign and is set once in radio*
- UR or **URCALL**: Where do I want to go?
- RPT1: The repeater and module I am transmitting to (ex. KJ4GGV C)
- RPT2: Where I want my transmission to go (normally to “G”, the Gateway)
  - *NOTE: It’s a good practice to put the callsign and “G” in RPT2 even if talking local so other linked repeaters, DV Dongles and DV Access Points can hear your transmissions*

RPT1, RPT2 Format

- Normal format (xxnxxx m)
  - Callsign is left justified
  - Module is always in 8th position
    - C=VHF
    - B=UHF
    - A=1.2 GHz
- Examples ("▪" *represents a space*)
  - WD4STR▪C
  - W4DOC▪▪C
  - W4GR▪▪▪C

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Basic QSO

- Sample for KJ4GGV VHF/2m Repeater 145.2800 MHz +5.0 MHz Offset
  - MY WB4QDX
  - UR CQCQCQ
  - RPT1 KJ4GGV▪C
  - RPT2 KJ4GGV▪G

"▪" represents a space

Used for talking on local repeater. If repeater is linked, you are also heard on any of the linked repeaters

Linking to a Repeater

- Sample for KJ4GGV VHF/2m Repeater 145.2800 MHz +5.0 MHz Offset

  - MY `WB4QDX`
  - UR `WX4GPBAL (or W4DOC▪CL, W4GR▪▪CL)`
  - RPT1 `KJ4GGV▪C`
  - RPT2 `KJ4GGV▪G`

"▪" represents a space

Key once, gateway responds with voice prompt "Remote System Linked". Change to CQCQCQ in UR for QSO.

Linking to a Reflector

- Sample for KJ4GGV VHF/2m Repeater 145.2800 MHz +5.0 MHz Offset

  - MY `WB4QDX`
  - UR `REF002AL`
  - RPT1 `KJ4GGV▪C`
  - RPT2 `KJ4GGV▪G`

"▪" represents a space

Key once, gateway responds with voice prompt "Remote System Linked". Change to CQCQCQ in UR for QSO.

Unlinking

- Sample for KJ4GGV VHF/2m Repeater 145.2800 MHz +5.0 MHz Offset

  - MY `WB4QDX`
  - UR `▪▪▪▪▪▪▪▪U`
  - RPT1 `KJ4GGV▪C`
  - RPT2 `KJ4GGV▪G`

"▪" represents a space

Key once, gateway responds with unlinked voice prompt. Change to CQCQCQ in UR for QSO.

Memory Management

- Radios have different capabilities and number of memories
- First generation radios have standard memory locations for FM or DV
  - **Method 1** – Store commands in memory for favorite reflectors or repeaters
  - **Method 2** – Use UR memories for favorite reflectors or repeaters (uses fewer memory locations
- Newer radios with DR mode simplify programming
  - **Method 3** – Use DR mode with repeater list and GPS for nearest repeater

Radio Memory Management – Method 1

Organize blocks of channels stored in memories:

- Can be used with any D-STAR radio
- Create a group or bank of memories for each repeater
- Store commands for each function in a memory of the group

CH No	Frequency	Dup	Offset	TS	Mode	Name	Your Call Sign	RPT1 Call Sign	RPT2 Call Sign
1	145.200	DUP-	0.6	10kHz	DV	KI4SBA C	CQCQCQ	KI4SBA C	KI4SBA G
2	145.200	DUP-	0.6	10kHz	DV	UNLINK	U	KI4SBA C	KI4SBA G
3	145.200	DUP-	0.6	10kHz	DV	SBA C ID	I	KI4SBA C	KI4SBA G
4	145.200	DUP-	0.6	10kHz	DV	REF001C	REF001CL	KI4SBA C	KI4SBA G
5	145.200	DUP-	0.6	10kHz	DV	REF002A	REF002AL	KI4SBA C	KI4SBA G
6	145.200	DUP-	0.6	10kHz	DV	REF004A	REF004AL	KI4SBA C	KI4SBA G
7	145.200	DUP-	0.6	10kHz	DV	REF030A	REF030AL	KI4SBA C	KI4SBA G
8	145.200	DUP-	0.6	10kHz	DV	REF030B	REF030BL	KI4SBA C	KI4SBA G
9	145.200	DUP-	0.6	10kHz	DV	REF030C	REF030CL	KI4SBA C	KI4SBA G
10	145.200	DUP-	0.6	10kHz	DV	ECHOTEST	E	KI4SBA C	KI4SBA G

Radio Memory Management - Talk

- Use this channel for general QSO
- No linking commands required or repeater already linked
- CQCQCQ in UR field

CH No	Frequency	Dup	Offset	TS	Mode	Name	Your Call Sign	RPT1 Call Sign	RPT2 Call Sign
1	145.200	DUP-	0.6	10kHz	DV	KI4SBA C	CQCQCQ	KI4SBA C	KI4SBA G
2	145.200	DUP-	0.6	10kHz	DV	UNLINK	U	KI4SBA C	KI4SBA G
3	145.200	DUP-	0.6	10kHz	DV	SBA C ID	I	KI4SBA C	KI4SBA G
4	145.200	DUP-	0.6	10kHz	DV	REF001C	REF001CL	KI4SBA C	KI4SBA G
5	145.200	DUP-	0.6	10kHz	DV	REF002A	REF002AL	KI4SBA C	KI4SBA G
6	145.200	DUP-	0.6	10kHz	DV	REF004A	REF004AL	KI4SBA C	KI4SBA G
7	145.200	DUP-	0.6	10kHz	DV	REF030A	REF030AL	KI4SBA C	KI4SBA G
8	145.200	DUP-	0.6	10kHz	DV	REF030B	REF030BL	KI4SBA C	KI4SBA G
9	145.200	DUP-	0.6	10kHz	DV	REF030C	REF030CL	KI4SBA C	KI4SBA G
10	145.200	DUP-	0.6	10kHz	DV	ECHOTEST	E	KI4SBA C	KI4SBA G

Radio Memory Management - ID

- Use to see if repeater is linked or unlinked
- If linked, repeater says “Remote system linked”
- Data line will indicate where repeater or reflector linked
- Return to CQCQCQ channel to talk

CH No	Frequency	Dup	Offset	TS	Mode	Name	Your Call Sign	RPT1 Call Sign	RPT2 Call Sign
1	145.200	DUP-	0.6	10kHz	DV	KI4SBA C	CQCQCQ	KI4SBA C	KI4SBA G
2	145.200	DUP-	0.6	10kHz	DV	UNLINK	U	KI4SBA C	KI4SBA G
3	145.200	DUP-	0.6	10kHz	DV	SBA C ID	I	KI4SBA C	KI4SBA G
4	145.200	DUP-	0.6	10kHz	DV	REF001C	REF001CL	KI4SBA C	KI4SBA G
5	145.200	DUP-	0.6	10kHz	DV	REF002A	REF002AL	KI4SBA C	KI4SBA G
6	145.200	DUP-	0.6	10kHz	DV	REF004A	REF004AL	KI4SBA C	KI4SBA G
7	145.200	DUP-	0.6	10kHz	DV	REF030A	REF030AL	KI4SBA C	KI4SBA G
8	145.200	DUP-	0.6	10kHz	DV	REF030B	REF030BL	KI4SBA C	KI4SBA G
9	145.200	DUP-	0.6	10kHz	DV	REF030C	REF030CL	KI4SBA C	KI4SBA G
10	145.200	DUP-	0.6	10kHz	DV	ECHOTEST	E	KI4SBA C	KI4SBA G

Radio Memory Management - Link

- Tune to channel and key briefly to initiate link command
- System will say “Remote system linked” if successful
- Return to CQCQCQ channel to talk

CH No	Frequency	Dup	Offset	TS	Mode	Name	Your Call Sign	RPT1 Call Sign	RPT2 Call Sign
1	145.200	DUP-	0.6	10kHz	DV	KI4SBA C	CQCQCQ	KI4SBA C	KI4SBA G
2	145.200	DUP-	0.6	10kHz	DV	UNLINK	U	KI4SBA C	KI4SBA G
3	145.200	DUP-	0.6	10kHz	DV	SBA C ID	I	KI4SBA C	KI4SBA G
4	145.200	DUP-	0.6	10kHz	DV	REF001C	REF001CL	KI4SBA C	KI4SBA G
5	145.200	DUP-	0.6	10kHz	DV	REF002A	REF002AL	KI4SBA C	KI4SBA G
6	145.200	DUP-	0.6	10kHz	DV	REF004A	REF004AL	KI4SBA C	KI4SBA G
7	145.200	DUP-	0.6	10kHz	DV	REF030A	REF030AL	KI4SBA C	KI4SBA G
8	145.200	DUP-	0.6	10kHz	DV	REF030B	REF030BL	KI4SBA C	KI4SBA G
9	145.200	DUP-	0.6	10kHz	DV	REF030C	REF030CL	KI4SBA C	KI4SBA G
10	145.200	DUP-	0.6	10kHz	DV	ECHOTEST	E	KI4SBA C	KI4SBA G

Radio Memory Management - Unlink

- Tune to channel and key briefly to initiate link command
- System will say “Remote system unlinked” if successful
- Return to CQCQCQ channel to talk

CH No	Frequency	Dup	Offset	TS	Mode	Name	Your Call Sign	RPT1 Call Sign	RPT2 Call Sign
1	145.200	DUP-	0.6	10kHz	DV	KI4SBA C	CQCQCQ	KI4SBA C	KI4SBA G
2	145.200	DUP-	0.6	10kHz	DV	UNLINK	U	KI4SBA C	KI4SBA G
3	145.200	DUP-	0.6	10kHz	DV	SBA C ID	I	KI4SBA C	KI4SBA G
4	145.200	DUP-	0.6	10kHz	DV	REF001C	REF001CL	KI4SBA C	KI4SBA G
5	145.200	DUP-	0.6	10kHz	DV	REF002A	REF002AL	KI4SBA C	KI4SBA G
6	145.200	DUP-	0.6	10kHz	DV	REF004A	REF004AL	KI4SBA C	KI4SBA G
7	145.200	DUP-	0.6	10kHz	DV	REF030A	REF030AL	KI4SBA C	KI4SBA G
8	145.200	DUP-	0.6	10kHz	DV	REF030B	REF030BL	KI4SBA C	KI4SBA G
9	145.200	DUP-	0.6	10kHz	DV	REF030C	REF030CL	KI4SBA C	KI4SBA G
10	145.200	DUP-	0.6	10kHz	DV	ECHOTEST	E	KI4SBA C	KI4SBA G

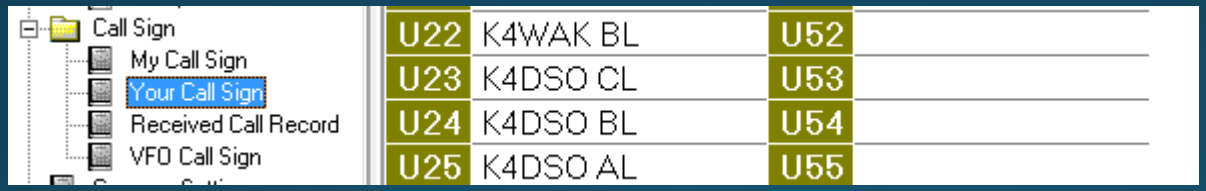
Radio Memory Management - Echotest

- Tune to channel, key and speak
- System will echo back your transmission
- Return to CQCQCQ channel to talk

CH No	Frequency	Dup	Offset	TS	Mode	Name	Your Call Sign	RPT1 Call Sign	RPT2 Call Sign
1	145.200	DUP-	0.6	10kHz	DV	KI4SBA C	CQCQCQ	KI4SBA C	KI4SBA G
2	145.200	DUP-	0.6	10kHz	DV	UNLINK	U	KI4SBA C	KI4SBA G
3	145.200	DUP-	0.6	10kHz	DV	SBA C ID	I	KI4SBA C	KI4SBA G
4	145.200	DUP-	0.6	10kHz	DV	REF001C	REF001CL	KI4SBA C	KI4SBA G
5	145.200	DUP-	0.6	10kHz	DV	REF002A	REF002AL	KI4SBA C	KI4SBA G
6	145.200	DUP-	0.6	10kHz	DV	REF004A	REF004AL	KI4SBA C	KI4SBA G
7	145.200	DUP-	0.6	10kHz	DV	REF030A	REF030AL	KI4SBA C	KI4SBA G
8	145.200	DUP-	0.6	10kHz	DV	REF030B	REF030BL	KI4SBA C	KI4SBA G
9	145.200	DUP-	0.6	10kHz	DV	REF030C	REF030CL	KI4SBA C	KI4SBA G
10	145.200	DUP-	0.6	10kHz	DV	ECHOTEST	E	KI4SBA C	KI4SBA G

Memory Management – Method 2

- Can be used with any D-STAR radio
- Program one memory location per repeater with CQCQCQ in UR field
- Utilize “Your Call Sign” memories for UR field



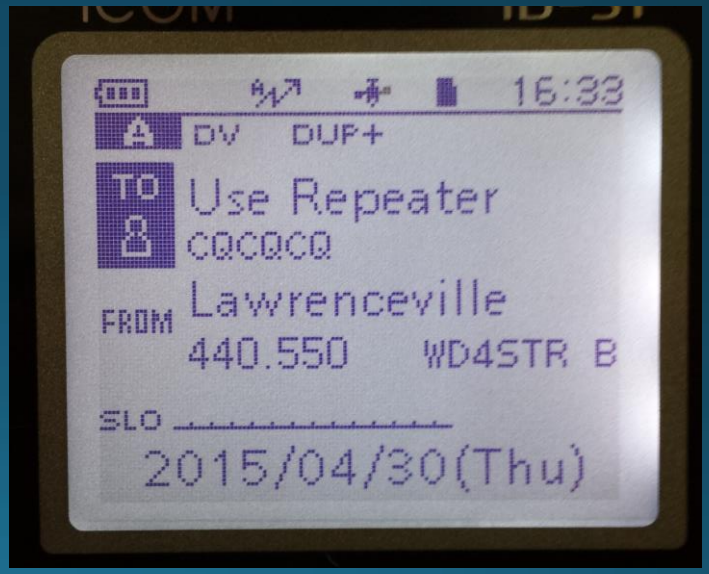
- Select Memory location and change UR field for favorite linking command

Memory Management – Method 3 (DR Mode)

- Available on ID-31, ID51, IC-7100, ID-5100
- Radios have regular memories usually used for FM
- Geocoded Repeater List / DR memories used for D-STAR
- ID-51A (Anniversary Edition or Plus) and ID-5100 Repeater List may be used for FM or D-STAR
- DR Mode introduces TO/FROM screen for easy use

DR Mode – Easiest to Use

- DR Mode is Digital Repeater Mode
- Current generation of radios have two sets of memories
  - Regular Memories for traditional frequency storage
  - Repeater List is geocoded for location-based lookup
- Easy to Use
  - Press DR
  - Select Source Repeater in FROM field
    - Pick by region
    - Find Nearest Repeater to current location
  - Select function in TO field
- Automatic Programming of Radio



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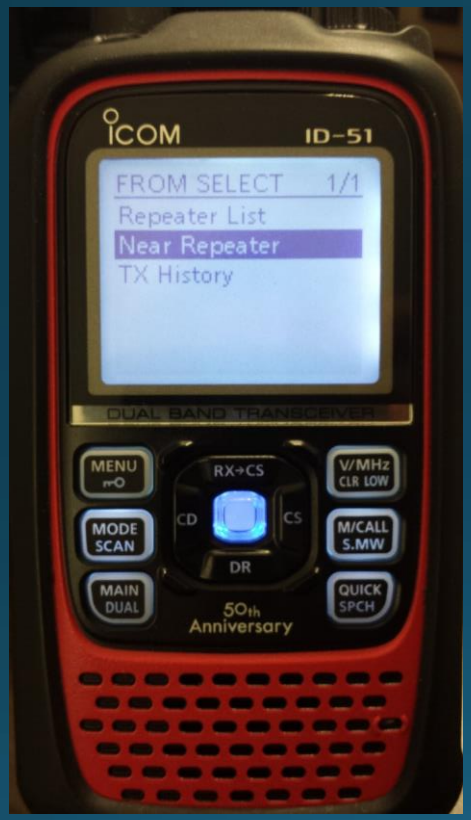
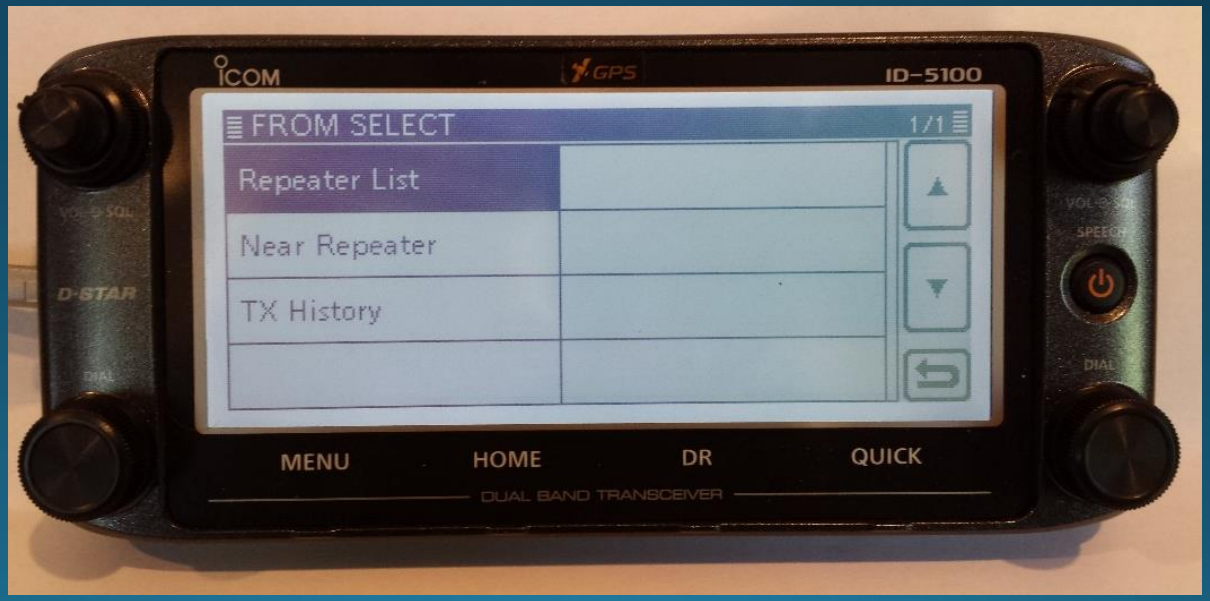
What Repeater?

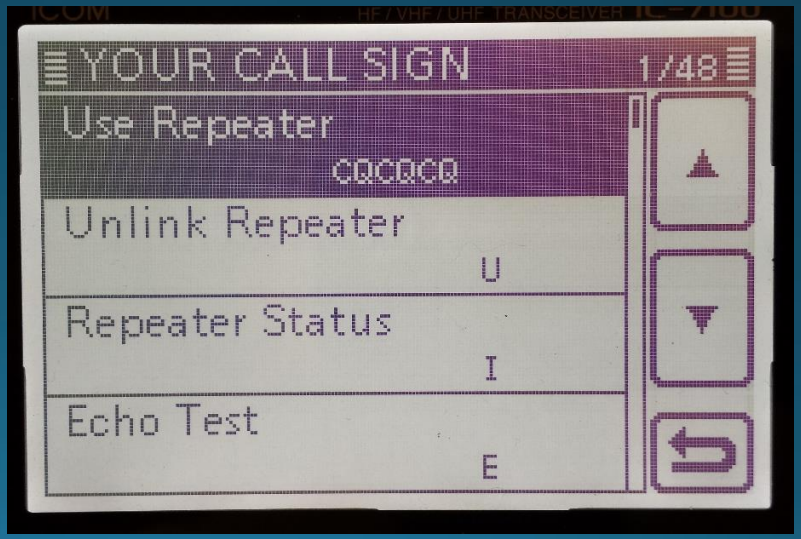


- Select FROM field:
- Repeater List shows region, then list of repeaters
- Near Repeater uses built-in GPS to show list of nearest repeaters



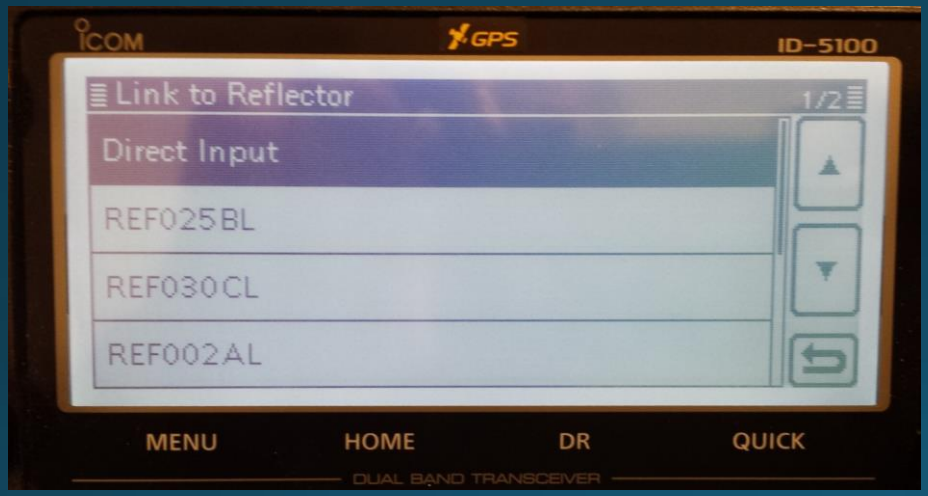
Which CQ?

- Select TO on screen
- DO NOT USE Local CQ
  - Shows as CQCQCQ
- 3rd Generation (ID-31, ID-51, ID-7100)
  - Select “Your Call Sign”
  - Select “Use Repeater” to talk
- 3rd + Generation (ID-51+, ID-5100)
  - Select (“Reflector”)
  - Select (“Use Reflector”) to talk



Linking to Reflectors

- To link to a Reflector, select Reflector, Link to Reflector, Direct Input, then select Reflector and Module



Once a Reflector has been selected, it's listed for quick selection

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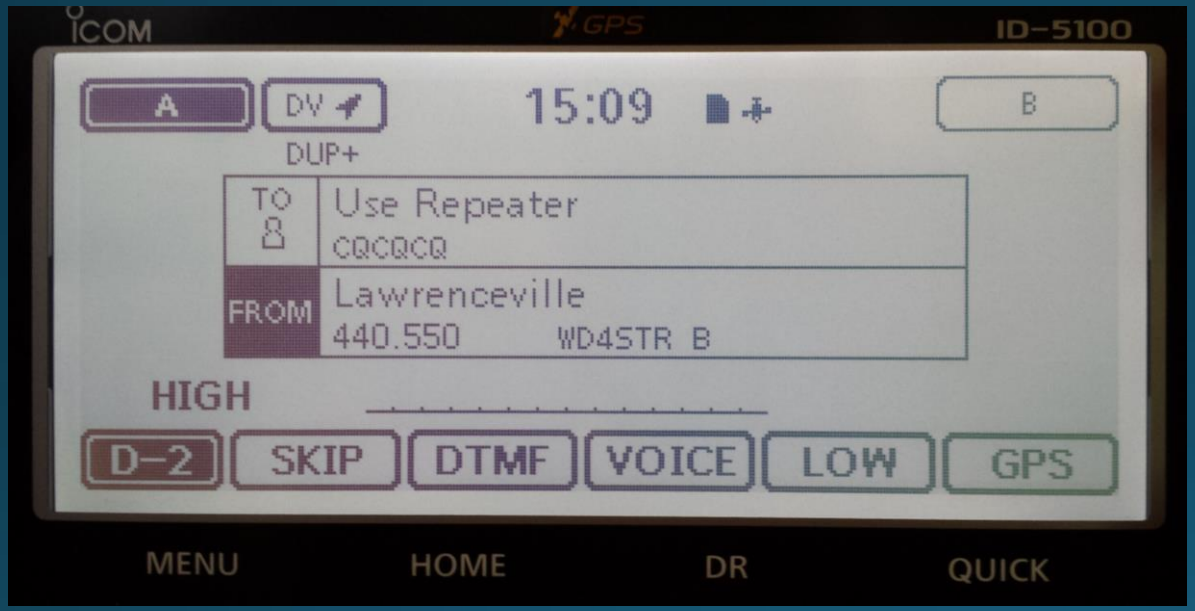
Normal DR Mode Talk Display



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Programming for a DVAP / DV Mega

- Can be programmed to standard memories

CH No	Frequency	Dup	Offset	TS	Mode	Name	Your Call Sign	RPT1 Call Sign	RPT2 Call Sign
1	145.200	Simp	0.0	10kHz	DV	KI4SBA C	CQCQCQ	DIRECT	
2	145.200	Simp	0.0	10kHz	DV	UNLINK	U	DIRECT	
3	145.200	Simp	0.0	10kHz	DV	SBA C ID	I	DIRECT	
4	145.200	Simp	0.0	10kHz	DV	REF001C	REF030CL	DIRECT	

- Use DR Memories (Repeater List) for later models

No.	Type	Name	Sub Name	Repeater Call Sign	Gateway Call Sign	Operating Freq	DUP	Offset Freq	Mode
0	DV Simplex	JD DVAP VHF		—	—	145.790000	—	—	DV
1	DV Simplex	JD DVAP UHF		—	—	441.000000	—	—	DV
2	DV Simplex	VHF DV Simplex		—	—	145.670000	—	—	DV
3	DV Simplex	UHF DV Simplex		—	—	445.670000	—	—	DV
4	DV Simplex	DVAP Default VHF		—	—	146.550000	—	—	DV
5	DV Simplex	DVAP Default UHF		—	—	446.550000	—	—	DV
6	DV Repeater	DV Mega Use		WB4QDX B	WB4QDX G	441.000000	+DUP	0.000000	DV
7	DV Repeater	DV Mega Control		RPTRCTLB	WB4QDX G	441.000000	+DUP	0.000000	DV

Allows using TO field to select linking and other functions

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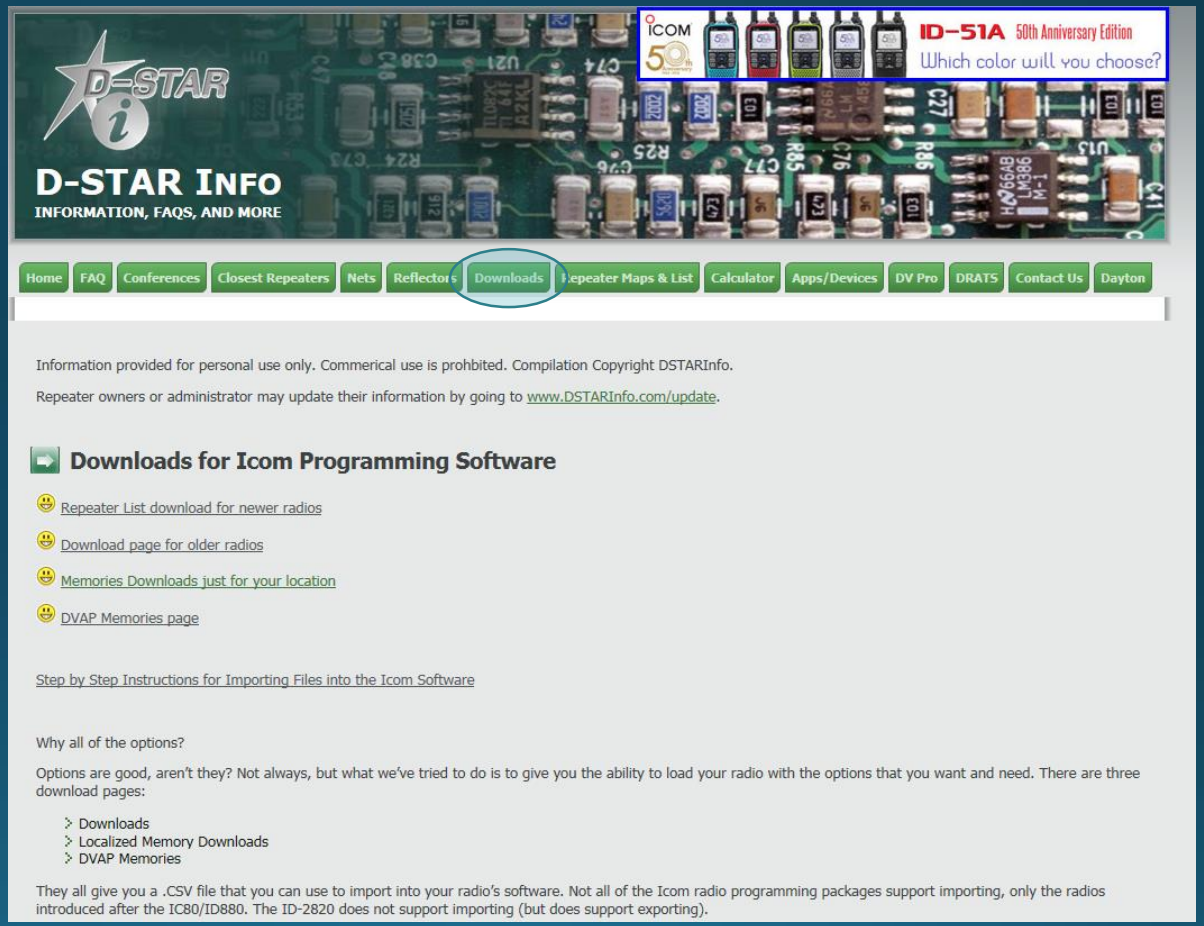
Updating Radio Memory

- Customized, localized download files available at www.DSTARinfo.com
- Creates CSV files to import to most Icom radios
- Create updated geocoded Repeater List for DR Mode
- Build DVAP Memories



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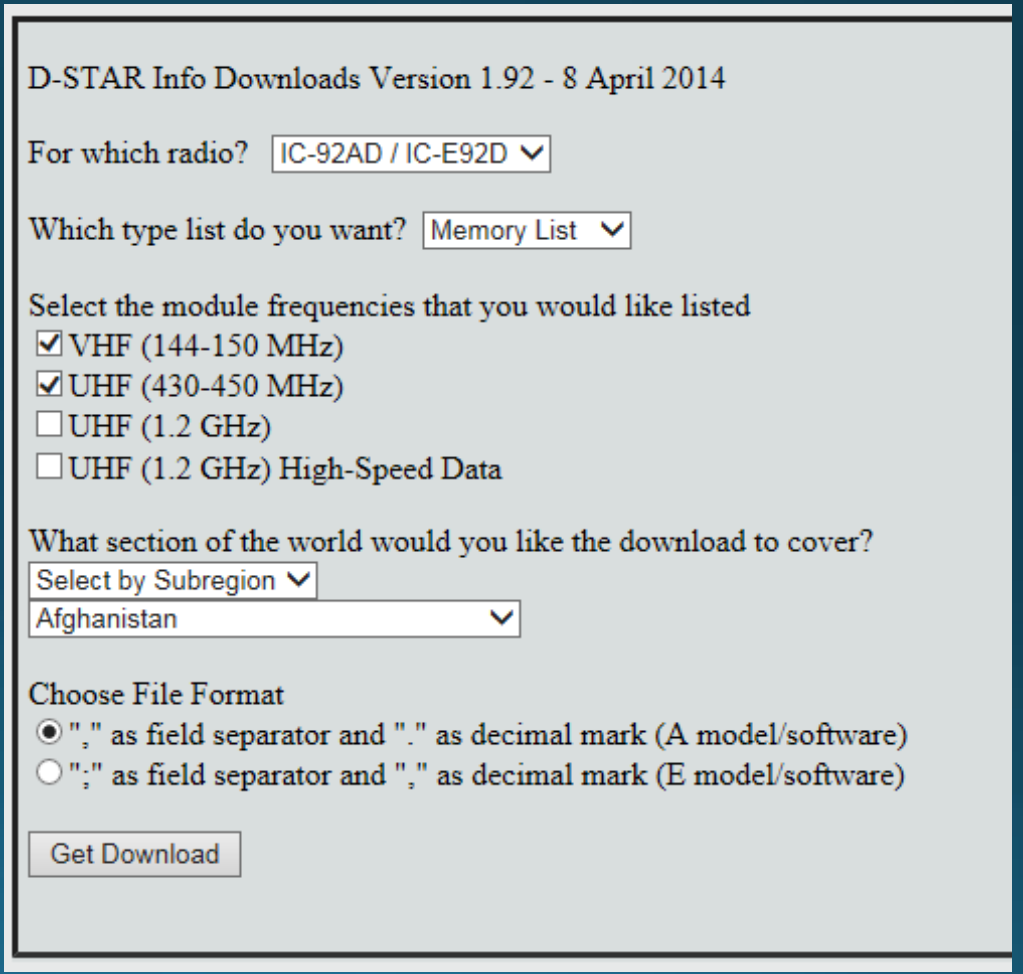
Standard Memory Download

- Select Downloads, Old Downloads for ID-80, ID-880, ID-92 and all newer radios
- Select options
- Creates CSV file
- Import into radio using Icom programming software
- Edit file size in Excel to <100 entries to import by memory group



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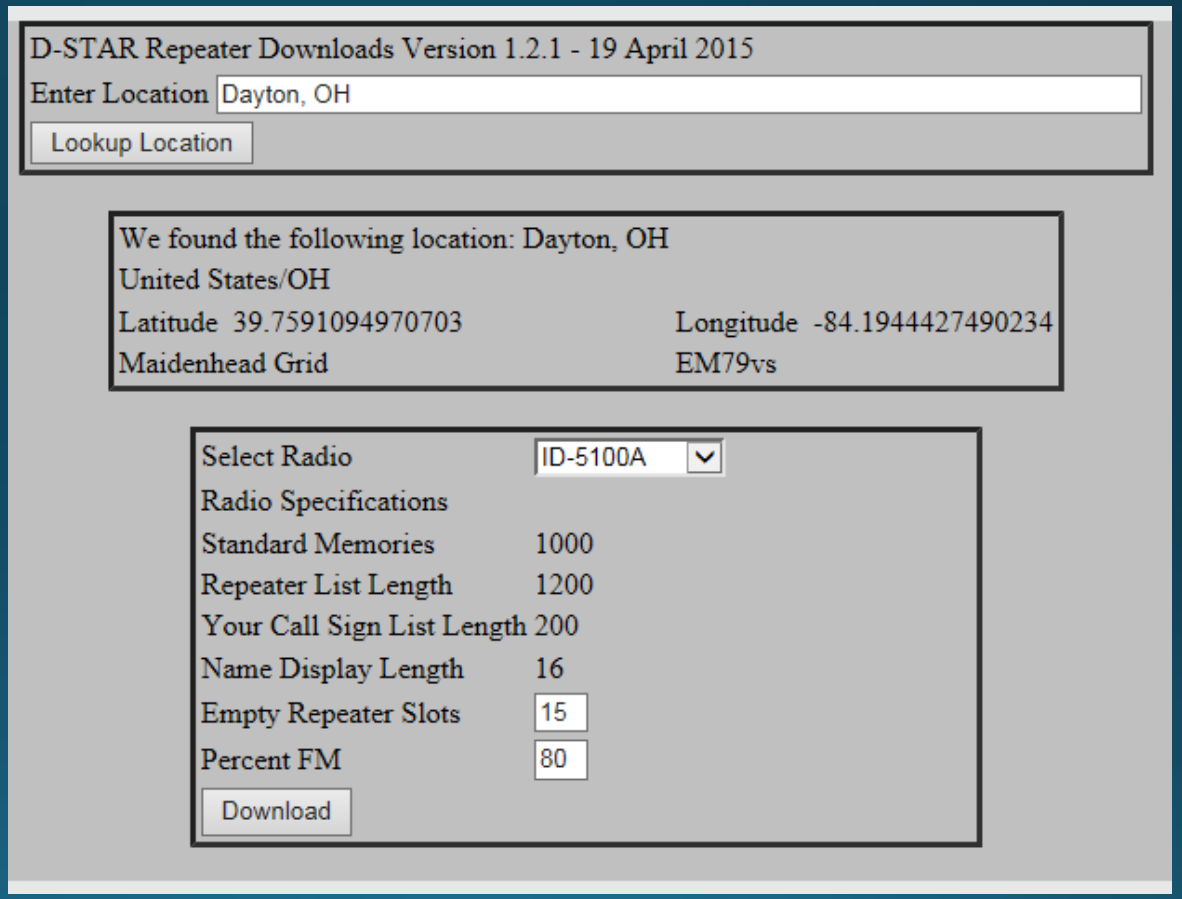
Updating Repeater List (DR)
ID-31, ID-51, ID-5100

- Select Downloads, Repeater List Downloads
- Provides geocoded Repeater List centered around location
- Adjusts for number of memories by radio
- Allows empty slots for custom or DVAP entries
- Select mix of FM and DV repeaters (ID-51+, ID-5100)
- Save as multiple CSV files on SD Card for import



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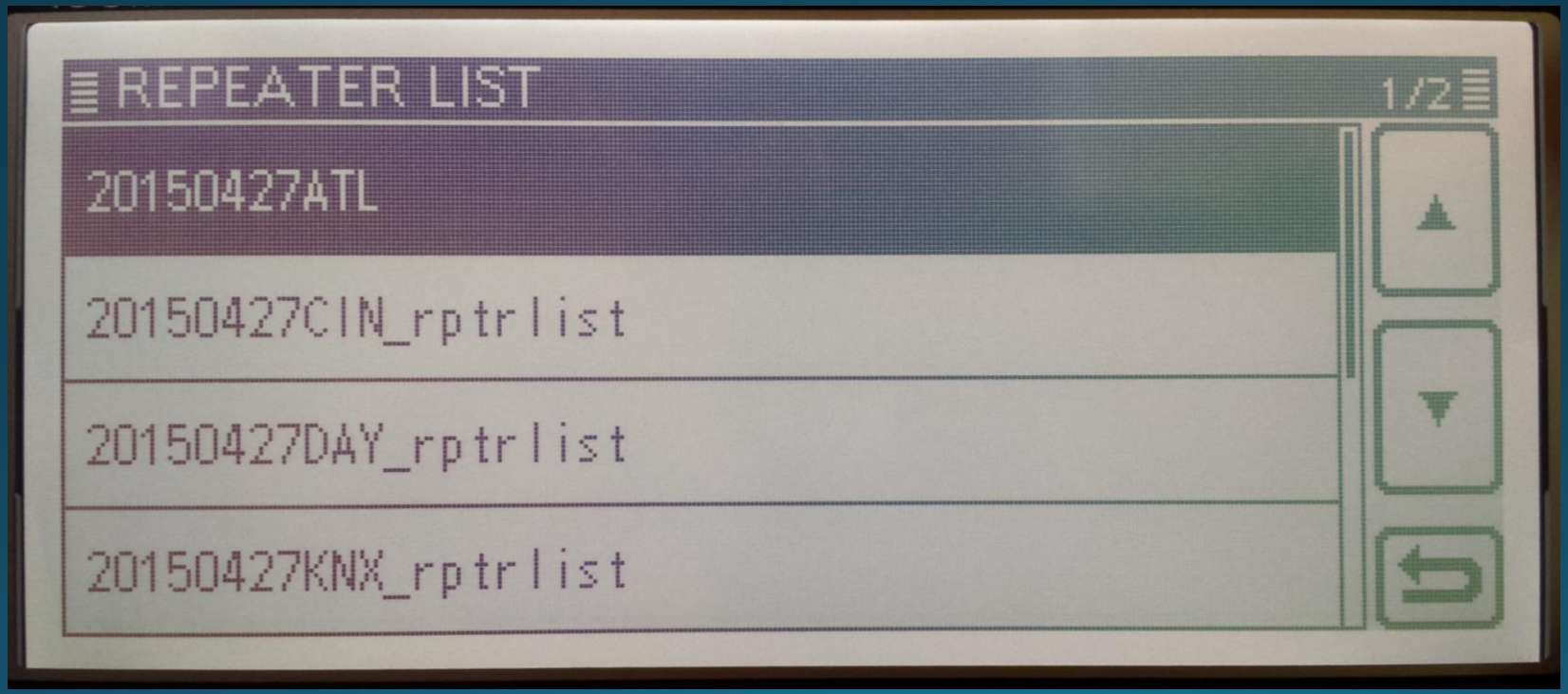
Select Repeater List on SD

ID-31, ID-51, ID-5100

- Many Repeater Lists can be saved on SD Card in radio
- Have a new file for each area, import as needed



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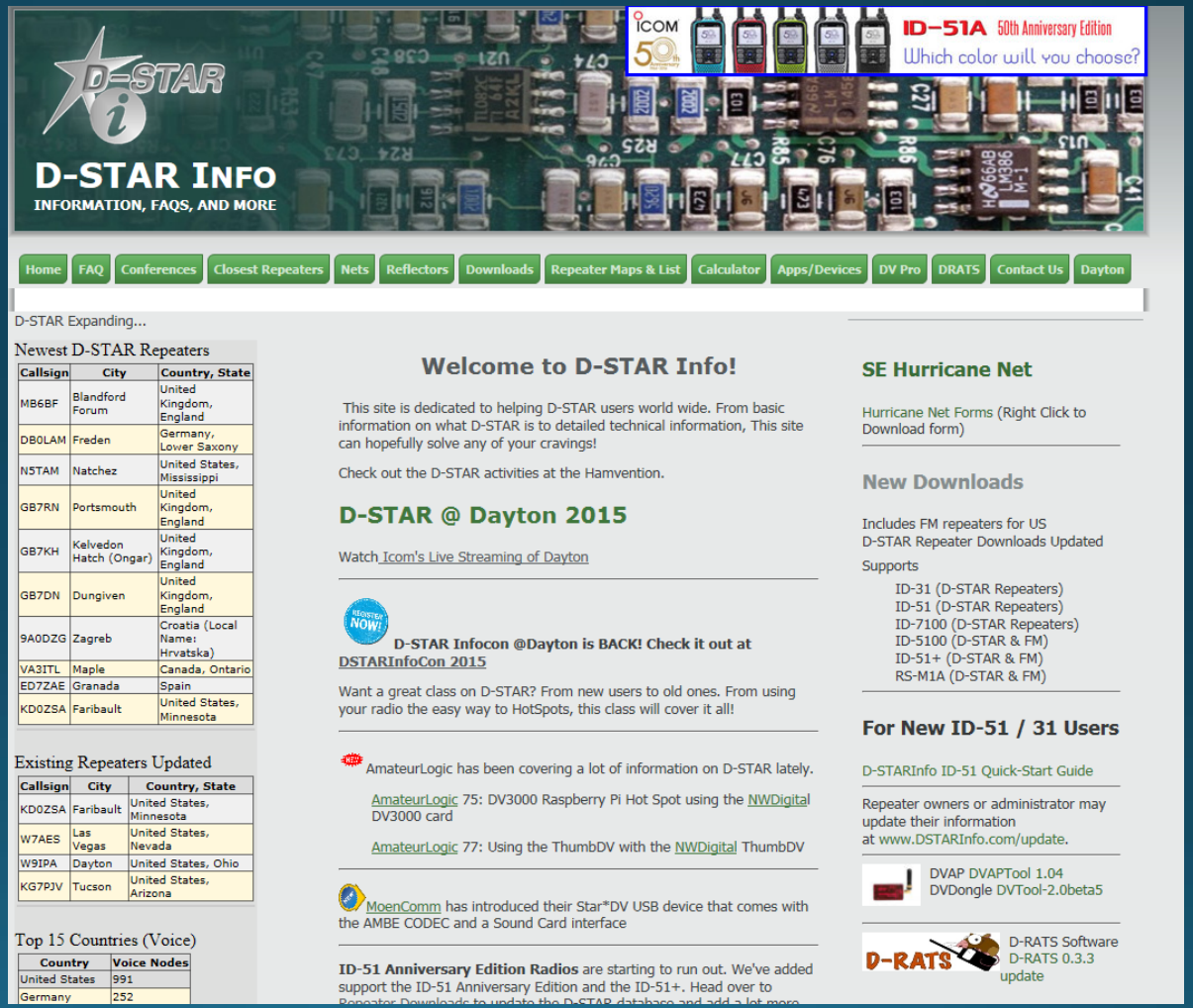
Getting Help

- Website: www.DSTARinfo.com
- Email: info@dstarinfo.com



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