

Owner

Using a D Star Gateway – The Basics

D Star is a fairly new and rapidly advancing technology which is being used all over the world. There is a bit of a learning curve involved both in setting up your new D Star Capable Radio, and how you use the Gateway of your local Repeater. This document is an attempt to familiarise new users with some of the basic information around using the system and getting the most from it. As far as we know its accurate at the time of writing (April 08), but we don't guarantee its accuracy. If you know something to be inaccurate, please let us know and we'll fix it.

In comparison to what you may be familiar with, using your traditional Analogue Radio, there are some differences you will need to get used to if you want to make the best use of a D Star Repeater where the Gateway is enabled. Perhaps that's the first lesson, not all D Star Repeaters will be connected to a Gateway, some will be exactly like a traditional Analogue repeater that you've no doubt used many times. Albeit, with all the benefits of digital audio quality. For example you may notice that if a signal is "end stop" with you, the audio quality is the same as a signal which you can hear but doesn't move the S Meter.

Programming Paths for use with the Repeater.

You can programme all the Icom Radios manually, but you can make life a lot easier for yourself by making up a cable to use with the software available for your radio to programme the various individuals and repeaters you might wish to use. As I've said you can do it manually, but this involves a lot of button pressing and dial turning. D Star does require some preparation, but it's all worth it once you've programmed your radio.

Couple of key points before we get onto programming radios, the programming needs to be precise, if its not the routing will not work. If after programming something into your radio you do not get the expected results its usually wise to check the programming first. You will usually find the answer to your problems will be a character in the wrong place. Also worth asking your local Repeater Keeper if they keep a "standard" file which you can have a copy of to get you started. The software that is available for programming radios is a great education in how to do it, and if there is a file available from your local Repeater Keeper as you get used to how the system works, you can customise it for your own use.

A D Star Repeater may have a number of different ports in its "Stack". Some will only have one, whereas others may have two or more. In any case, the convention for naming the various ports is as follows.

To use the Gateway you need to be registered on the Network. To get registered on the Network you should speak to your local Repeater Keeper who can register you locally. Once this is done you can use any repeater in the world and get access to the Network. So if you are on holiday in Florida you can speak to your friends back home with no problem as long as the Repeater in Florida is connected to the Gateway.

Ports

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The general accepted “naming” of ports is as follows:

- **A** = 1.2 GHz
- **B** = 70 Cm
- **C** = 2 m
- **G** = Gateway (The Gateway may or may not be operational on your local Repeater)
- **E** = Echo (This is optional and only available if an additional application called dplus is installed on the Gateway Server)
- **NOTE** – the port letter **must** be in position number 8 when you programme it in e.g. GB7IC B
 - 1=**G**
 - 2=**B**
 - 3=**7**
 - 4=**I**
 - 5=**C**
 - 6=**Space**
 - 7=**Space**
 - 8=**B** (the port letter in position 8)

Operating Freq	DUP	Offset Freq	TS	Mode	Name	Skip	Tone	Repeater Tone	TSQL Freq	DTCS	DTCS Polarity	DSQL	Code	Your	RPT1	RPT2
430.962500	+DUP	7.600000	6.25k	DV	DB0ADB B	Skip		88.5	88.5	023	Both N		00	/DB0ADB B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0BS B	Skip		88.5	88.5	023	Both N		00	/DB0BS B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0DS B	Skip		88.5	88.5	023	Both N		00	/DB0DS B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0DF B	Skip		88.5	88.5	023	Both N		00	/DB0DF B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0FEU B	Skip		88.5	88.5	023	Both N		00	/DB0FEU B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0HRF B	Skip		88.5	88.5	023	Both N		00	/DB0HRF B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0SLH B	Skip		88.5	88.5	023	Both N		00	/DB0SLH B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0VOXB	Skip		88.5	88.5	023	Both N		00	/DB0VOXB	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DB0WZ B	Skip		88.5	88.5	023	Both N		00	/DB0WZ B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	DF0MHR B	Skip		88.5	88.5	023	Both N		00	/DF0MHR B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	F1ZPL C	Skip		88.5	88.5	023	Both N		00	/F1ZPL C	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	HB9BO B	Skip		88.5	88.5	023	Both N		00	/HB9BO B	GB7IC B	GB7IC G
430.962500	+DUP	7.600000	6.25k	DV	HB9F B	Skip		88.5	88.5	023	Both N		00	/HB9F B	GB7IC B	GB7IC G

Using the CS2820 Software, this is how the programming would look to contact a repeater, the various fields are further explained below.

I have described below the various ways you can programme your radio to make use of the Gateway. There are 4 key fields which drive everything you do.....

MyCall

Your own callsign. Although the Icom radios give you the capability to set 5 “MyCall” callsigns, you will probably only use one. That said Raynet may have a use for tactical callsigns and could potentially use one of the 5 for something else eg Checkpoint 1 etc. Remember though, the only way you will get through any Repeater Gateway is with the Callsign that you have registered on the Network, so, probably your own Callsign.

YourCall

This is the target or destination you want to connect to. It can be a Repeater or a Specific User. The forward slash “/” is used in front of a Repeater Callsign to indicate that this is a “General Call” through that Repeater. As you will see in the examples below, you can also target a specific user Callsign. By targeting a specific user

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Callsign, the system will locate that user by targeting the last repeater that he was registered on. The advantage of this is that if a user is moving around different repeaters, you don't need to know which repeater he's on, you just need to target his Callsign and the network will find him for you.

RPT1

This will be your local repeater including the Port you want to operate through, A,B or C. Remember, the Port Designator is always in position number 8.

RPT2

This will be your local repeater including Port G to route you out through the Gateway. Remember, the Port Designator is always in position number 8.

Examples

Scenario 1 - Local Call on the same band, in this case Port B on GB7IC

MyCall	M0TMX
YourCall	CQCQCQ
RPT 1	GB7IC B
RPT 2	Not Used

This is simply putting a call through the repeater for a local contact, this is a general call like you would on any analogue repeater you may have used in the past. The MyCall field is a "set and forget" field. For the most part you will set this once and not need to bother with it any more, notwithstanding my comments above.

Scenario 2 – Local Call on different bands

MyCall	M0TMX
UrCall	CQCQCQ
RPT 1	GB7IC B
RPT 2	GB7IC C

On a repeater where you have multiple ports, you can, as in the example above, operate on 70cm, and also transmit on Port C, 2m. RPT 1 will be the band you are operating on, and RPT will be the other Port you wish to transmit on. So in the example above you are going in on 70cm and coming out on BOTH 70cm and 2m.

Scenario 3 – Locating a specific user

MyCall	M0TMX
UrCall	M1CMN
RPT 1	GB7IC B
RPT 2	GB7IC G

In this case, I am specifically trying to locate Matt, M1CMN. I'm calling him through GB7IC repeater, but since I have specified his call sign the D Star system will find the last repeater he accessed and route my transmission to him. If M1CMN is on holiday

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in the US, and has been speaking with some of the locals on the K6MDD repeater. The network will have recorded his last activity as being on K6MDD. My call will be routed using the D Star system to the K6MDD repeater, where, assuming M1CMN is monitoring, he will hear my call and then answer my call.

NOTE – although you are calling M1CMN specifically, everyone will hear your transmission, you cannot have a “private” conversation with anyone on D Star.

Please Note

If a user is jumping around on different D Star repeaters, or on different ports on the same repeater, the system can take some time to catch up to him. They have to “settle” on one repeater long enough for the D Star servers to “sync” so that your call is routed to him on the repeater he’s using. If you are trying to call W1ABC and he jumps from /W3EOC to /K2DIG, the system might still be routing your call to /W3EOC and may not have caught up with him on /K2DIG. It will do on the next “sync”. Some repeaters in the Network can also cause delays due to slow response times, this just causes a delay in the “sync” process which means you make take a bit longer to catch up with your target station. With the release of G2 Gateway software these delays are much reduced.

Scenario 4 – General Call to a different Repeater

MyCall	M0TMX
UrCall	/K6MDD B
RPT 1	GB7IC B
RPT 2	GB7IC G

I’m now calling the K6MDD repeater on their port B (70 Cm) from GB7IC. In this case it’s just a general call and you are inviting someone to respond as you would with any call you will have put through any repeater you’ve used before.

One Touch Reply

We’ve discussed above, how to deal with targeting users and repeaters through the Gateway. However its also important to think about how you respond to a call from someone coming through the Gateway. Icom radios have a One Touch Reply button, this allows you to “reverse programme” the routing that they are using, which enables you to respond to them. Again, remember, you must be registered on the Network, if you are not registered it does not matter what programming you have in your radio, the Network will not allow you through the Gateway. Speak to your local Repeater Keeper to get registered on the Network.

Please read your manual to get familiar with the exact button pushes you need to use this effectively. You need to press the One Touch Reply button during the transmission of the station coming through the Gateway to capture the programming they are using.

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General Comments

- There are no private conversations on D Star, you can be heard by everyone, and programming the specific call sign of a user will route you to them, but will also allow everyone at his location to hear you. Everyone on each Repeater will hear both sides of the conversation.
- To be able to use a gateway, you must be registered on the Network before you can access the gateway. To do this you need to inform your local Repeater Keeper that you wish to do so. Once registered locally, you are registered everywhere on the network. Note that it may take a few hours after registration for your call sign to synchronise to the worldwide Trust Servers so that the many servers around the world see that your call sign is authorised. Local use does not require registration.
- Finally, once you have the hang of it, D Star is a great system. If you are unsure of something and can't figure it out, you won't be the first. But there are many stations locally for you to ask assistance from. If something is not working as planned for you, please ask.