I have had several people looking for help programming new DMR Radios.

So I put together this brief document to try to offer some suggestions to help.

I think the first thing to do is program some analog repeaters.

Go to the Channels area of the CPS and enter the frequency, PL Tone, and other information for each particular repeater. Then go to zone and create an analog repeater zone and put in all the Analog Repeaters into that zone in your preferred channel configuration.

DMR Repeaters are more complicated.

First research what Repeaters or hotspots you are going to be using and which DMR Network they are on, and what Talkgroups are supported by each repeater and Network. This often is the most difficult part since often time repeater owners and the networks are continuing to evolve and change.

For Example, the Edgewood K4TCD DMR Repeater when first put up was on the D-MARC K4USD C-Bridge. Its configuration was much different than what it is now since the owner switched it to the Brandmeister Network.

So, for example the **Edgewood K4TCD Repeater** operates on the 440.600 with a 5 MHz split. Color Code 1 and is on the Brandmeister Network. (https://brandmeister.network) The Repeater Owner has the Repeater configured for the Following STATIC Talkgroups:
In Time slot 1: 3139 Ohio Statewide
In Time Slot 2: 2 Local (Cincy Metro , AKA: Southwest Ohio 31394)
    9 Local (Repeater Only Talkgroup)
    3121 Kentucky Statewide
    31211 Kentucky ARES
All other talkgroups would be Push To Talk, and should be programmed on Time Slot 1.

A Static Talkgroup is one that the repeater listens for activity on that talkgoup full time and transmits it. Obviously only one talkgroup per time slot can be transmitted.

A Push to Talk Talkgoup is not heard until the user keys their mike on that talkgroup on the proper time slot. Then activity on that talkgroup will be heard for a specific time as programmed by the repeater owner, usually ten minutes.

Another Example would be the **K8BIG Repeater** which is on 443.900 with a 5 MHz Plus split, Color Code 1 on a conservative D-MARC DMR Plus network. It carries the following talkgroups on the designated Time Slot

Time Slot	Talkgroup	
Time Slot 1	8 Local Cincy Area	Static
Time Slot 1	3139 Ohio Statewide	Static

Time Slot 2	1 Worldwide	Push To Talk
Time Slot 2	3 North America	Push To Talk
Time Slot 2	13 World Wide English	Push To Talk
Time Slot 2	9 Talk DMR+	
Time Slot 2	4000 DMR+ Unlink Command	
Time Slot 2	5000 DMR+ Status Command	
Time Slot 2	4xxx DMR+ To link to DMR+ Reflector Command	

A Third Example would be the **WB8CRS Cincinnati FM Club DMR Repeater** on 443.400 with a Plus 5 MHz Split, Color Code 1. It also when first put on the air was operating on the D-MARC K4USD Switch, but now also is on Brandmeister Network. It is programmed for the following STATIC Talkgroups:

Time Slot	Talkgroup
Time Slot 1	9 Local Repeater Only
Time Slot 2	3139 Ohio Statewide
Time Slot 1	is to be used for all other talk groups in Push to Talk Access

Each radio make and model is programmed differently so the terminology, and exactly how that is done is slightly different.

One of first tasks is to enter the digital contacts, which is the table which takes the DMR ID and provides the call sign, Name, location information and other data depending on the radio, which is displayed when someone is talking. This area and how the data are programmed is probably one of the areas which is the most different on the different types of radios. This information usually requires the user to update in his radio with the latest data from radioed.net. I hear people all the time telling someone they are talking to that they have a problem because their information is not coming up on their radio. The person whose radio is not displaying the information has the issue and that radio needs to be updated with new DMR ID Data.

The other area which differs frequently on the radio makes and models are the Talkgroup List, which are sometimes lumped in with the Digital Contacts. Depending on the Network System, and systems to be used various DMR Talkgroups Data needs to be entered into the Talkgroup area of the software. Lists of the complete talkgroups available can be found on the network web sites, and in the case of the Anytone Radios Bridgecom has a complete Brandmeister Talkgroup list that can be imported into the CPS software, making it easy, although the more repeaters, and DMR Network systems you utilize, you probably will have to add additional talkgoups. Attention should be paid to the naming nomenclature that you use to identify the talkgroups.

The next area to program is the channel information. Each channel needs to be entered with the Frequency of the repeater, or hot spot, Talkgroup, the correct Time slot for that talkgroup

on that repeater. This process is very time consuming and repetitive. A new channel has to be made for each Talkgroup for each repeater or hot spot, that you intend to utilize. Attention needs to be paid to the name you use which should identify the repeater or hotspot as well as the Talkgroup. This will be what you see to tell you what channel you are on.

Once you have the channels programmed, then it is time to turn your attention to creating zones to put your channels into. Zones are groups of channels to be accessed quickly. While there are many strategies for organizing channels into zones, the most often used is to create a zone for each individual repeater or hot spot with each of the channels in that zone representing the different talkgroups that you have channels for that repeater or hot spot. Obviously name each zone with a name that identifies which repeater or Hotspot you are using.

Again, each DMR radio is programmed, and displays information differently which makes it difficult to provide a universal tutorial for all radios. I personally only have experience with the programming of TYT MD-380 and Anytone UV878 Radios, but the others I have been exposed to have followed similar conventions.

Also remember that like many things in Amateur Radio, especially the Digital Voice Arena, the technologies and Networks are continuing to evolve and change. Much information available on the web may be out dated. Reaching out to others with similar interests are your friend in keeping up with what is happening with a given repeater or network. Many list-serves, facebook groups, youtube videos, and web sites also support topics which can help you keep up with what is happening as well.

If you have questions or I can be of help feel free to contact me and I will try to assist.

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