

DMR Introduction (Digital Mobile Radio)

Repeater – Local operation and connected to the Internet for distant conversations.

Hotspot – A 10 to 20 milliwatt transceiver that must be connected to the Internet for any conversation. Use your personal DMR number as the number but add 01 to the first, 02 to the second ect.

Talk Group – The name given to a conference bridge to which any number of stations can be connected at once for conversations.

Timeout – a conversation on a repeater will stay connected for about 20 minutes after the last activity. A conversation on a hotspot will stay connected until a new talk group is selected or a disconnect command is issued.

DMR-MARC – The Motorola Amateur Radio Club network that allows interconnect of Motorola repeaters using a special router. No hotspots or home brew repeaters allowed on the network. Some talk groups in common with Brandmeister. A sysop determines routing.

Brandmeister – A network that allows home brew repeaters and hotspots. The user determines the routing for each talk group desired. An area grouping as well as an individual grouping is allowed rather than the point to point repeater grouping in MARC.

Time Slot – The DMR network allows two simultaneous conversations on the same frequency at the same time. Some radios can monitor both time slots at the same time and some cannot. A time division multiplex is utilized to allow the two time slots to coexist.

Color Code – Different packet headers are utilized to allow different users to access the same repeater without hearing each other. Think of is as a different CTCSS tone or DCS code in the analog world to prevent interference. This is used mostly in the commercial world rather than amateur repeaters. It could be used to avoid interference to users on the same frequency that would normally interfere with each other.

Bandwidth – DMR requires twice the bandwidth of the other digital modes and thus uses the same bandwidth as a normal FM voice transmission.

Operating Procedure – First key up with the Status talk group (5000 when it's working). Make sure on a repeater that you disconnect (4000) a previously active talk group (if it is still active) before keying up with the talk group you want to contact. A hotspot will automatically drop an existing talk group when a new one is keyed. Remember that when you key to a busy talk group you may be interrupting an ongoing conversation. After keying to a talk group, listen for a few minutes before giving your callsign. No CQ or QRZ is necessary, just give your callsign after being sure you are not interrupting an existing QSO.

DMR Registration – The current registration site for getting your DMR number is:

<<https://register.ham-digital.org/>>

Be sure to register as an individual user and not a public unattended station (repeater).

Adding a New Talkgroup to Your Codeplug

So let's say you found a talkgroup you want to add to your codeplug. There are 3 steps for making that addition. Use the Contact Manager program to load your code plug and add the new channel.

- Add the Talkgroup to your Contacts list.
- Add a Channel for the Talkgroup.
- Add the Channel to a Zone

The details for doing this are outlined below. The concepts are the same for Motorola, Hytera and other DMR radios.

Add the Talkgroup to Your Contact List

You have a couple of choices depending on your radio. For the CS700 and MD380, and MD-2017 the Digital Contacts list can be easily modified or contacts added using the EDIT function in the Contact Manager program. Enter your desired talkgroup number and the Contact Name as something you will recognize and this part is complete. Make sure the Call Type is a Group Call.

Add a Channel for the Talkgroup

Copy an existing channel for the frequency desired and paste it into the contact list. You will be allowed to change the channel name and save it. After it is added, edit the new channel and select the new Contact Name to your new channel and verify the timeslot is set to the same timeslot you have used for the rest of the channels for that frequency.

Add the Channel to the Zone

Go to the Zone list and add the channel to the zone. The MD-380 will only allow 16 channels per zone, so you may have to remove one to be able to add a new channel.

Save the code plug and load it back into your radio programming software and upload it to your radio.

Note: Google "DMR Contact Manager" to find the free N0GSG program that will allow a much simpler manipulation of a code plug than the manufacturers program. Transfer of one radio type code plug to another radio type is possible by executing two copies of Contact Manager side by side and copy/paste from one copy to the other.