WT1IM DMR Cheat Sheet

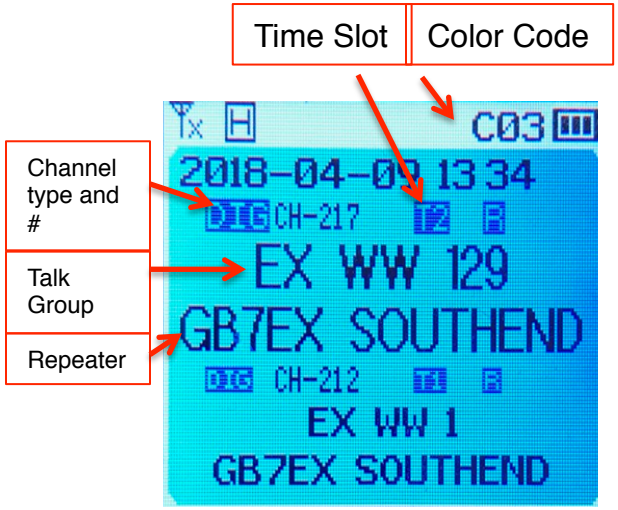
DMR is complicated, but not overwhelmingly so. This cheat sheet should help you become familiar with some of the basics so you can get started soon!

DMR Repeater Basics

- Frequency bands and offsets are generally the same as analog, but frequencies use 12.5kHz spacing (e.g. 440.7625)
- Repeaters use a "Color Code" which is analogous to CTCSS/PL tones (and has nothing to do with actual colors!)
- Repeaters operate on two simultaneous "time slots" which means that two conversations can happen at once, if they're on separate time slots
- Repeaters support various Talk Groups (TG's), some of which are active full-time, others of which you can turn on by keying up on that TG.
- Most, if not all, DMR repeaters are connected to the Internet and, thus, to other repeaters and hotspots around the world—but not always full-time. See the Talk Groups section.
- Fun fact: when you key up on DMR, your radio will indicate whether you have a strong enough signal into the repeater (at that moment) to communicate.

What are Talk Groups?

- Analogous to "conferences," where a user of any repeater or hotspot connected to that TG can participate in a conversation
- Many are defined by a region; some by interests or other themes
- Some are local to a specific repeater. The time slot is always part of the TG definition.
- Full-Time: the talk group is always available and you'll hear traffic on it unless someone keys-up a different TG on the same time slot on that repeater
- PTT: With your radio set to the repeater and talk group, key up the radio to join that TG. It will stay up for a certain amount of time (variable; called a "hold-off timer.")



Typical DMR radio screen showing a primary and secondary channel. Both are on the same repeater, but on different talk groups.

What is a hotspot?

- Almost like a mini DMR repeater you can install at home, or even carry with you.
- It does not actually repeat your signal via RF. It pipes it into the Internet DMR backbone. It typically does this via WiFi.
- A great thing about hotspots is that you can support and have QSOs on a huge variety of TGs. Some repeater owners prefer to minimize ragchewing on DMR repeaters. With a hotspot, you are the "repeater" owner. Want to join a TG in France and chat the night away? Have at it via your hotspot.
- You can NOT use a hotspot as a gateway between an analog radio and the DMR network. This is because the radio itself has to send certain control data into the DMR network.

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Common Radio Setup Items (not an exhaustive list)

Item	Description	Notes
Channel	A channel usually encompasses the repeater frequency, offset, color code, and a talk group. Sometimes other settings are also defined in a channel. Typically there is only one talk group in a channel. For analog channels (repeater or simplex) it has the usual data—offset, CTCSS/PL tone, etc.	If a repeater supports 10 talk groups, then you'd typically need 10 channels for that repeater—one for each TG
Zone	A zone is a group of channels (analog, digital, or both). The user has flexibility in how they define zones. Some common organizations of zones can be: • A set of analog channels (such as "ACS UHF" repeaters) • A DMR repeater, with a channel for each talk group supported by that repeater • A talk group, with a channel for each nearby repeater that supports the talk group	Zones are a very useful way to personalize the configuration of a DMR radio.
DMR ID	DMR requires a numerical identifier, which is transmitted automatically as part a data packet whenever you key up. The ID generally corresponds to a user, so you can use the same ID on multiple radios.	Get your DMR ID at radioid.net.
Code Plug	A code plug is a configuration file for a radio. It contains everything needed to get the radio up and running on repeaters, hotspot, etc. DMR enthusiasts often share and modify code plugs to help build up good configurations for an area, for a given radio model, etc. Because they can be customized, many users will write different code plugs to their radios depending on what they're doing, e.g. if they are traveling to a different part of the country, they can use a code plug with repeaters in that area, without having to have those repeaters permanently using up channel space on their radio.	Most DMR rigs are very challenging, or even impossible, to program via the front panel. Use programming software to make or modify code plugs.

Resources

- pnwdigital.net: Pacific NW DMR, a great resource with listings of local DMR repeaters and their supported talk groups, as well as lots of operating best practices. Join their groups.io group for discussions, Q&A, Elmering, etc
- radioid.net: this is where you can get your DMR ID. It's free of charge, so if you're considering jumping into DMR, get your ID so it's ready when you get your rig.
- hose.brandmeister.network: The "firehose" of talkgroups on the Brandmeister network. You can listen to worldwide activity online.
- dmr-marc.net: The site of the Motorola Amateur Radio Club. Motorola was the first big purveyor of DMR gear to the commercial/public service world
- dmr1.psrg.org: a real-time table of current or recent activity on the PSRG DMR repeater
- https://www.raqi.ca/~ve2rae/dmr/Amateur_Radio_Guide_to_DMR.pdf : Amateur Radio Guide to DMR—a great overview of the technology that goes into a bit of technical depth and background