FORTUNE FAVORS THE PREPARED · COMMS ONE-PAGER

Getting Started with DMR

Digital voice that scales from your town to the world, and back down again.

1. What is DMR, in plain words?
2. What do all the terms mean?
3. How do I get on the air?
4. Which talkgroups, and a hotspot?
5. Where does it fit in my PACE plan?

1 What DMR is

Digital Mobile Radio is a digital voice and data standard from commercial radio, now common on ham VHF and UHF repeaters. It uses **TDMA** (time division): each 12.5 kHz channel is split into **two time slots**, so one repeater carries two conversations at once.

Time Slot 1	Time Slot 2
Often wide-area, networked TGs	Often local or tactical traffic

Still ham radio. DMR on ham bands needs a license to transmit (Technician or higher). Your DMR ID does not replace your callsign: say it at the end of a contact and every 10 minutes. No encryption (47 CFR 97.113), and TGs show on public dashboards: keep it brief, no personal details or movement plans.

2 The vocabulary decoder

Term	What it means
Talkgroup (TG)	A numbered virtual channel: who hears you. TG 3100 = USA.
Time slot (TS)	Slot 1 or 2 on the repeater. Each TG is set to one slot.
Color code (CC)	0–15. Does the job a CTCSS (PL) tone does on analog.
Contact	A TG (group call) or one person's ID (private call).
RX group list	The TGs a channel will let you hear.
Channel	Frequency + CC + TS + TG + RX group list, all in one.
Zone	A folder of channels, e.g. one repeater or one trip.
Codeplug	The whole programming file for your radio.
DMR ID	Your free 7-digit number from RadioID.net.
Hotspot	A tiny low-power box that links your radio to the network over Wi-Fi.

3 Getting on the air · in this order

1 License	2 DMR ID	3 Radio	4 Codeplug	5 Repeater	6 Test
Technician or higher. See our *Ham Radio License* one-pager.	Free at RadioID.net. Have your callsign and FCC license copy ready.	Dual-band VHF/UHF DMR handheld that also does analog FM.	Build your own, a little at a time. Start with your local repeater only.	Freq, offset, CC, slots and static TGs from the owner or club.	Key up the parrot (echo test), then check in to a local net.

From 1 July 2026 RadioID.net emails you once a year to confirm your ID is still needed. Answer it, or the ID is turned off. Keep your email address current.

4 Talkgroup basics

- **Static** TGs are always on; **dynamic** (PTT) TGs come up when keyed.
- **Networks:** BrandMeister (largest), TGIF, regional c-Bridges. Repeaters pick TGs.

BrandMeister TG	Use it for (other networks differ)
9	Local: this repeater or hotspot only
31 + state code	Statewide, e.g. 3137 North Carolina
3100 · 93 · 91	USA · North America · Worldwide
310–319	US TAC: move a long chat off a busy TG
9990	Parrot echo test (private call)

5 Hotspot basics

A hotspot (an MMDVM board, often a Raspberry Pi running Pi-Star or WPSD) is a milliwatt radio. Your radio talks to it on simplex; it reaches BrandMeister or TGIF over Wi-Fi, a phone hotspot or a MiFi.

- ☐ Pick a **simplex** frequency the local band plan allows. Stay off repeater inputs and the 435–438 MHz satellite segment.
- ☐ Set a **hotspot security password** in BrandMeister SelfCare (not your login password).
- ☐ Change the default password. **DMR mode only** at first.
- ☐ Same freq, CC and slot for every channel; only the TG changes.

6 My local repeater card · ask the owner or club; RepeaterBook data is kept by volunteers

Repeater / call	Output (RX)	Offset	CC	TS1 static TGs	TS2 static TGs	Network / notes
Example: Anytown ARC	*443.xxxx*	*+5 MHz*	*1*	*3100, statewide*	*TG 2 local*	*BrandMeister, generator*

7 DMR in preparedness, and its limits

Strengths	Limits
Clear audio. Separate TGs for command, ops, logistics. Two nets per repeater. Shrinks to local when links drop.	Wide-area needs linked repeaters or internet. Weak signals cut out, they don't fade. Codeplugs take work.

Simplex fallback (no repeater)	Set it as
441.000 · 446.500 · 446.075	TG 99, TS 1, CC 1. A common convention, not an FCC rule: check your band plan.
433.450 · 145.790 MHz	

In your PACE plan: P local DMR repeater · A hotspot on a phone or second ISP · C analog FM · E HF. See the *POC Radios and Your PACE Plan* one-pager.

8 Programming checklist

- ☐ Back up the codeplug **before** you change anything
- ☐ Contacts: only the TGs you will use, plus parrot
- ☐ Channels: freq, offset, CC, slot, TG, group list
- ☐ Zones: one per repeater, plus simplex and analog
- ☐ Latest programming software and firmware
- ☐ Your DMR ID and callsign entered in the radio
- ☐ RX group lists for each repeater
- ☐ Short names, e.g. "AT 3100" (repeater + TG)
- ☐ Simplex channels from section 7, on low power
- ☐ Tested: parrot, local net, then a statewide TG

Build it
Start with DMR Programming, then Talk Groups and Roaming.

Read more
MMDVM Hotspot setup, DMR Networks by state, and Mapping DMR Repeaters.

Run the net
Ready Messenger builds SITREPs, SALUTE reports and other standard messages so your DMR net traffic is short and standard.

The full guide: *Digital Mobile Radio (DMR)*
fortunefavorsthepreprepared.com/comms/ham-radio/dmr/

The QR code opens the guide: networks, talkgroups, time slots, c-Bridges, hotspots, COMSEC and DMR in your PACE plan.

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Semper Paratus, Semper Gumby