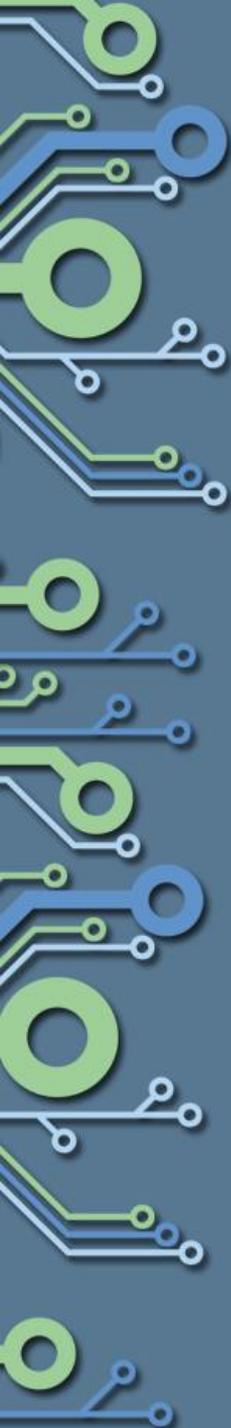




How to Use DMR



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KN6UMV (Kirk)

How to Use DMR

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- **Section 1: Introduction**

Introduction

- **Previously presented “Introduction to DMR”**
 - 08/13/24 GOTAhams
- **Presentation emphasis was on:**
 - **My Use Case for HAM**
 - “... general purpose and emergency communications in remote areas ...”

Introduction (cont)

- **What I did cover:**
 - **Technical details to reach a DMR repeater**
 - **Color Code, Time Slot, Talk Group #, Static vs Dynamic Talk Groups**
 - **Benefits of using DMR**
 - **Clearer reception for longer distances, lower power use, linked repeaters**
 - **Feedback on 3-day Jeep trip to Mojave National Preserve with HAM radio**

Introduction (cont)

- **What I did not cover**
 - **How to find and listen to DMR traffic out there**
 - Your Use Case may be just to Listen
 - **How to Communicate via DMR**
 - How to reach someone that may be distant

Introduction (cont)

- **Those are the two things I'll cover tonight**
 - How to find and Listen to DMR traffic
 - How to have a QSO via DMR
- **But first, must revisit Talk Groups**
 - Key to how DMR traffic is routed

Introduction (cont)

- Review basic differences between Channel configuration for Simplex vs FM Repeater vs DMR Repeater

Zone	Channel Name	RX	TX	BW	PL/CTCSS		CC	TS	TG
					Up	Dn			
Simplex	Simplex 146.520	146.520	146.520	Wide					
FM Repeaters	FM GOTAhams	449.160	444.160		100.0	100.0			
WSDMR	SUN California	446.0375	441.0375	Narrow			1	1	3106
	SUN TAC310								310
	SUN Cactus								2

Introduction (cont)

- **Simplex**
 - RX and TX frequencies are the same

Zone	Channel Name	RX	TX	BW	PL/CTCSS		CC	TS	TG
					Up	Dn			
Simplex	Simplex 146.520	146.520	146.520	Wide					
FM Repeaters	FM GOTAhams	449.160	444.160		100.0	100.0			
WSDMR	SUN California	446.0375	441.0375	Narrow			1	1	3106
	SUN TAC310								310
	SUN Cactus								2

Introduction (cont)

- FM Repeater
 - RX and TX frequencies are offset
 - PL/CTCSS needed for TX, optional RX

Zone	Channel Name	RX	TX	BW	PL/CTCSS		CC	TS	TG
					Up	Dn			
Simplex	Simplex 146.520	146.520	146.520	Wide					
FM Repeaters	FM GOTAhams	449.160	444.160		100.0	100.0			
WSDMR	SUN California	446.0375	441.0375	Narrow			1	1	3106
	SUN TAC310								310
	SUN Cactus								2

Introduction (cont)

- **DMR**
 - Has Color Code # instead of PL/CTCSS
 - Narrowband

Zone	Channel Name	RX	TX	BW	PL/CTCSS		CC	TS	TG
					Up	Dn			
Simplex	Simplex 146.520	146.520	146.520	Wide					
FM Repeaters	FM GOTAhams	449.160	444.160		188.8	188.8			
WSDMR	SUN California	446.0375	441.0375	Narrow			1	1	3106
	SUN TAC310								310
	SUN Cactus							2	3185

Introduction (cont)

- **Need to route data on a TimeSlot**
 - DMR repeaters have two – 1 and 2

Zone	Channel Name	RX	TX	BW	PL/CTCSS		CC	TS	TG
					Up	Dn			
Simplex	Simplex 146.520	146.520	146.520	Wide					
FM Repeaters	FM GOTAhams	449.160	444.160		100.0	100.0			
WSDMR	SUN California	446.0375	441.0375	Narrow			1	1	3106
	SUN TAC310				310				
	SUN Cactus				3185				

Introduction (cont)

- This is all it takes to get data to/from a DMR repeater

Zone	Channel Name	RX	TX	BW	PL/CTCSS		CC	TS	TG
					Up	Dn			
Simplex	Simplex 146.520	146.520	146.520	Wide					
FM Repeaters	FM GOTAhams	449.160	444.160		100.0	100.0			
WSDMR	SUN California			Narrow			1	1	3106
	SUN TAC310	446.0375	441.0375						310
	SUN Cactus							2	3185

Introduction (cont)

- To route your data, you need to specify a Talkgroup

Zone	Channel Name	RX	TX	BW	PL/CTCSS		CC	TS	TG
					Up	Dn			
Simplex	Simplex 146.520	146.520	146.520	Wide					
FM Repeaters	FM GOTAhams	449.160	444.160		100.0	100.0			
WSDMR	SUN California	446.0375	441.0375	Narrow			1	1	3106
	SUN TAC310								310
	SUN Cactus							2	3185

Introduction (cont)

- The key for Listening to and Talking with others on DMR is Talk Groups
 - With HF,VHF,UHF you think in terms of a frequency to reach someone
 - With DMR you think in terms of a Talk Group to reach someone



- **Section 2: Closer look at Talkgroups**



Closer look at Talkgroups

- **All DMR traffic is associate with a Talkgroup (TG) (number 1-7 digits)**
- **Possible TG numbers are enumerated by the Network you are on**
 - **Brandmeister, DMR-MARC, TGIF, PNWDigital, etc**

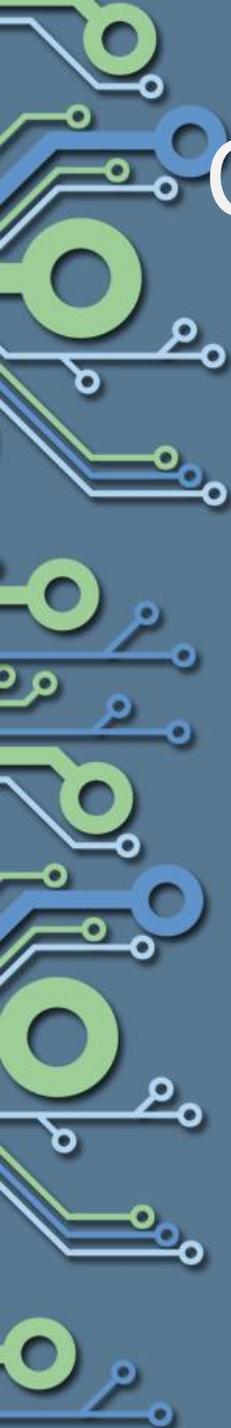


Closer look at Talkgroups (cont)

- **Main focus tonight is on Brandmeister TG's**
- **Brandmeister has 1,725 TGs as of 12/01/25**
 - **At any given time, there could be that many ongoing QSO's simultaneously**

Closer look at Talkgroups (cont)

- **Brandmeister TG numbers are based upon Mobile Country Code (MCC) prefixes**
 - <https://brandmeister.network/?page=talkgroups>
- **The prefix is the first part of every Talkgroup number**



Closer look at Talkgroups (cont)

- **All North America & Caribbean TG's begin with 3**
- **All USA TG's begin with 31**
 - **Those are the TG's I'll be using as examples today**



Closer look at Talkgroups (cont)

- **3-digit TGs are TAC Channels**
 - TAC 310-319
 - Will explain TAC Channels later...
- **4-digit TGs are Statewide and some Special Interest**
 - California TG's begin with
 - 3106 or 3107



Closer look at Talkgroups (cont)

- **5-7 digit TG's may be State-relevant or Special Interest relevant TG's**
 - The first 4 digits determines which

Closer look at Talkgroups (cont)

- **3-digit: TAC Channels**

310	Tac 310 NOT A CALL CHANNEL
311	TAC 311 USA NO NETS!!!
312	TAC 312 USA NO NETS!!!
313	TAC 313 USA NO NETS!!!
314	TAC 314 USA NO NETS!!!
315	TAC 315 USA NO NETS!!!
316	TAC 316 USA NO NETS!!!
317	TAC 317 USA NO NETS!!!
318	TAC 318 USA NO NETS!!!
319	TAC 319 USA NO NETS!!!

Closer look at Talkgroups (cont)

- **4-digit: Statewide and Special Interest**

3100	USA Bridge
3101	Alabama - 10 Minute Limit
3102	Alaska - 10 Minute Limit
3104	Arizona - 10 Minute Limit
3105	Arkansas - 10 Minute Limit
3106	California - 10 Minute Limit
3108	Colorado - 10 Minute Limit
3109	Connecticut - 10 Minute Limit
3110	Delaware - 10 Minute Limit
3111	D.C. - 10 Minute Limit
3112	Florida - 10 Minute Limit

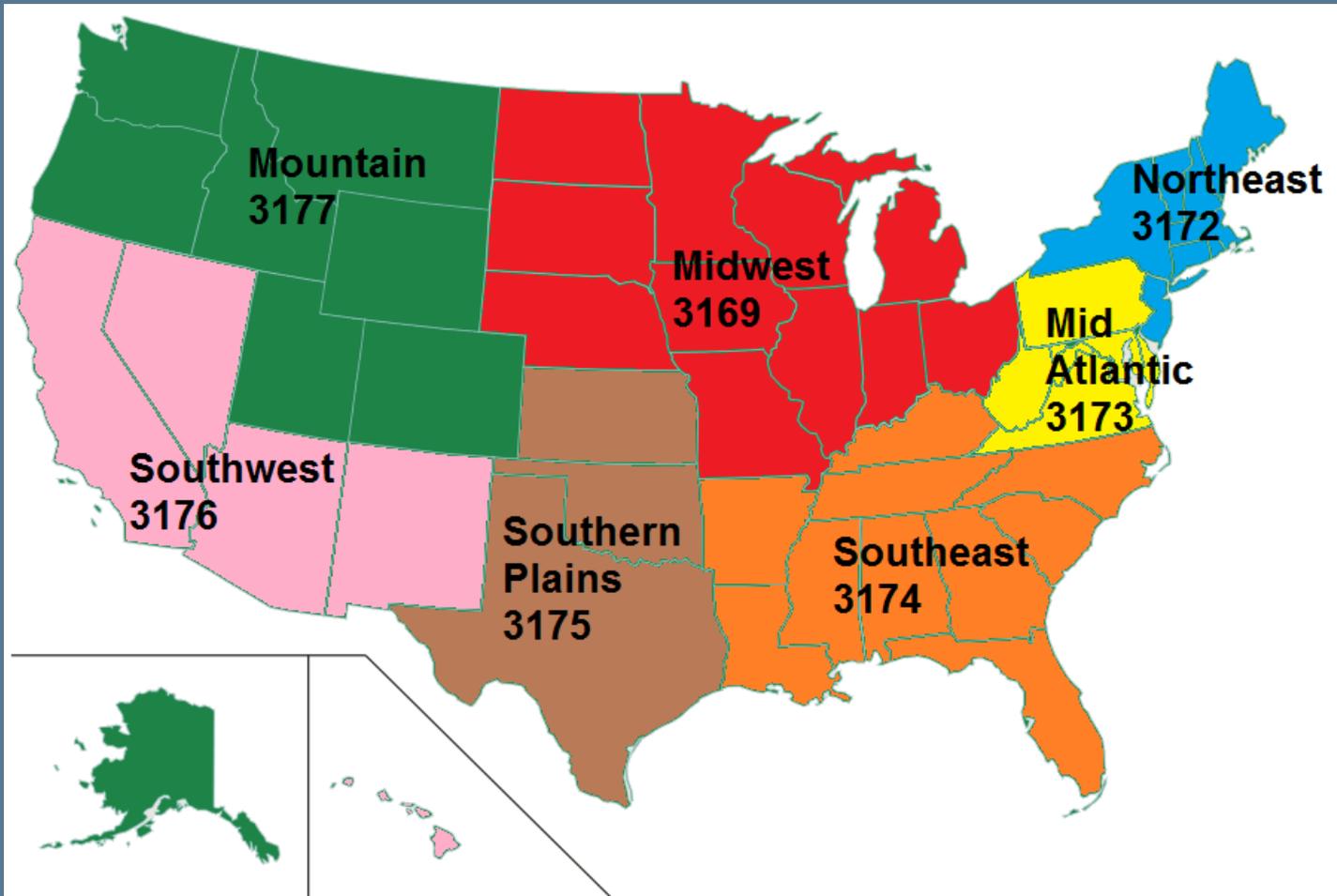
Closer look at Talkgroups (cont)

- **4-digit: Statewide and Special Interest**
 - Last state is Wyoming (3156) followed by Regional and Special Interest TG's

3156	Wyoming - 10 Minute Limit
3160	CAP - Civil Air Patrol
3166	DVSwitch
3167	Allstar
3169	Midwest
3171	NoCo
3172	Northeast
3173	Mid-Atlantic
3174	Southeast
3175	Southern Plains
3176	Southwest
3177	Mountain
3181	POTA
3196	Amateur Television Network (ATN)
3199	US Hurricane Net

Closer look at Talkgroups (cont)

- Regional TG's



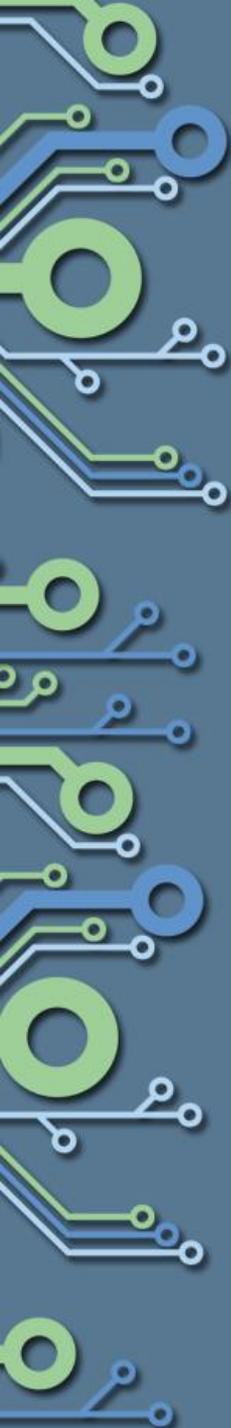


Closer look at Talkgroups (cont)

- **5-7 digit: State or Special Interest TG's (look at 1st 4 digits for clues)**
- **Any TG that begins with 3106 or 3107 is California related.**

Closer look at Talkgroups (cont)

31058	NW Arkansas
31060	PVARC
31061	Cal 1
31062	Mountain West
31063	Mtn West 1
31064	Santa Clara County
31066	SoCal
31067	SoCal 1
31068	NorCal
31069	NorCal 1
31070	VCDRC
31072	California TAC
31073	SBARC
31075	BayNet
31076	CDM
31077	PAPA Chat
31078	PAPA Bridge
31079	Alert Radio
31080	Colorado TAC

- 
- **Section 3: How to Find and Listen to DMR traffic**



How to find and Listen to DMR traffic

- **Now that we've revisited Talk Groups, let's get to tonight's main two topics:**
 - **How to find and Listen to DMR traffic**
 - **How to have a QSO via DMR**



Find and Listen to DMR traffic (cont)

- **Don't need a radio to Listen to DMR traffic.**
 - Can live stream via a computer
- **This may help you decide whether a DMR radio is right for you before buying one!**



Find and Listen to DMR traffic (cont)

- **How to Find and Listen to what is going on now on Brandmeister**
 - All the DMR traffic information on Brandmeister is routed to a single public-facing website
 - <https://brandmeister.network/>

Find and Listen to DMR traffic (cont)

The screenshot displays the BrandMeister User Dashboard. The interface includes a top navigation bar with 'BrandMeister', a menu icon, and links for 'Register', 'Login', 'EN', and 'Settings'. A left sidebar lists navigation options: 'User Dashboard', 'Last Heard (DMR)', 'Last Heard (TETRA)', 'Repeaters' (7253), 'Hotspots' (19894), 'Terminals' (224), 'Masters' (46), 'Alerts', 'SelfCare', 'Documentation', and 'Information'. The main content area is titled 'User Dashboard' and features four summary cards: 'REPEATERS' (7253), 'HOTSPOTS' (19894), 'MASTERS' (46), and 'VOICE CALLS' (27). Each card includes a 'Full report' link. Below these are three donut charts for 'Repeater in RX', 'Repeater in TX', and 'External calls'. A 'Map' section on the right shows a world map with red highlights in North and South America, and parts of Europe and Asia.

Metric	Count
Repeaters	7253
Hotspots	19894
Terminals	224
Masters	46
Voice Calls	27



Find and Listen to DMR traffic (cont)

- **Three main features to use**
 - **Hoseline**
 - **Last Heard**
 - **Call Statistics**

Find and Listen to DMR traffic (cont)

The screenshot shows the BrandMeister User Dashboard. The interface includes a sidebar menu on the left, a main content area with various statistics and a map, and a news section at the bottom. Red boxes and lines highlight specific features:

- Last Heard (DMR)**: A box on the right side of the dashboard, connected by a red line to the 'Last Heard (DMR)' menu item in the sidebar.
- Call Statistics**: A box on the right side, connected by a red line to the 'Call Statistics' menu item in the sidebar.
- Hose line**: A box on the right side, connected by a red line to the 'Hose line' menu item in the sidebar.

The dashboard content includes:

- REPEAT...**: 7276 Full report
- HOTSP...**: 19889 Full report
- MASTERS**: 46 Full report
- VOICE C...**: 24 Full report
- Map**: A world map with red markers indicating locations.
- Repeater in RX**, **Repeater in TX**, and **External calls**: Three donut charts showing call statistics.
- Latest BrandMeister NEWS**: A news article dated 2025-08-25 about repeater descriptions.



Find and Listen to DMR traffic (cont)

- **Hoseline shows ALL ongoing worldwide Brandmeister traffic**
 - Now and for last 3 minutes
 - You can narrow it down to just USA, a state, or certain TG's



Find and Listen to DMR traffic (cont)

- **Hoseline (cont)**
 - For Brandmeister, Hoseline is how you find and listen to ongoing QSOs on your computer
 - But it only shows last Talker, not everyone in conversation



Find and Listen to DMR traffic (cont)

- **Last Heard**
 - If you want to see what recent activity has been going on for a TG or Repeater, and all its participants, use Last Heard.



Find and Listen to DMR traffic (cont)

- **Call Statistics**

- If you want to see if a TG has any previous activity for the past month use Call Statistics
- Excellent way to forecast when a TG may be active next

Find and Listen to DMR traffic (cont)

- Hoseline

The screenshot shows a DMR traffic player interface with a dark theme. At the top right, it says "PLAYER" with a warning icon. Below that is a search filter set to "Everything" and a "RegEx mode" toggle. The main area is a grid of 20 channel cards, each with a call sign, frequency, duration, and a small thumbnail image.

Call Sign	Frequency	Duration	Thumbnail
91	3102	00:04	Blue and green circles
2501	2502	03:31	Russian flag
2504	2502	00:00	Russian flag
3131	3102	00:11 ago	US flag
21480	2141	00:07	Spanish flag
31011	3102	00:12 ago	US flag
31328	3103	00:19	US flag
46020	4602	00:49	Chinese flag
46110	5051	00:22	Chinese flag
73209	3341	00:01 ago	Spanish flag
262810	2621	00:27	German flag
302375	3021	00:33	Canadian flag
312681	3102	00:19	US flag
313136	3104	00:14 ago	US flag
330058	3341	01:02	US flag
330107	2141	01:02	Puerto Rican flag
369369	4602	00:01 ago	Blue and green circles
460250	4602	00:04 ago	Chinese flag
515051	5151	00:17 ago	Philippine flag

Find and Listen to DMR traffic (cont)

- **Hoseline**

- Shows all the ongoing and recent QSO's for the past 3 minutes
- Ongoing QSO's have red outline
 - Upper right is length of current PTT
- Recent QSO's no outline
 - Upper right is time in seconds since PTT

	31011 Gulf Coast DMR	00:12 ago		31328 SNARS (Reno/Tah...	00:19 
N4TAE (Nick)			K7DFH (Daniel)		
N4TAE Nick		3102	K7DFH Dan		3103

Find and Listen to DMR traffic (cont)

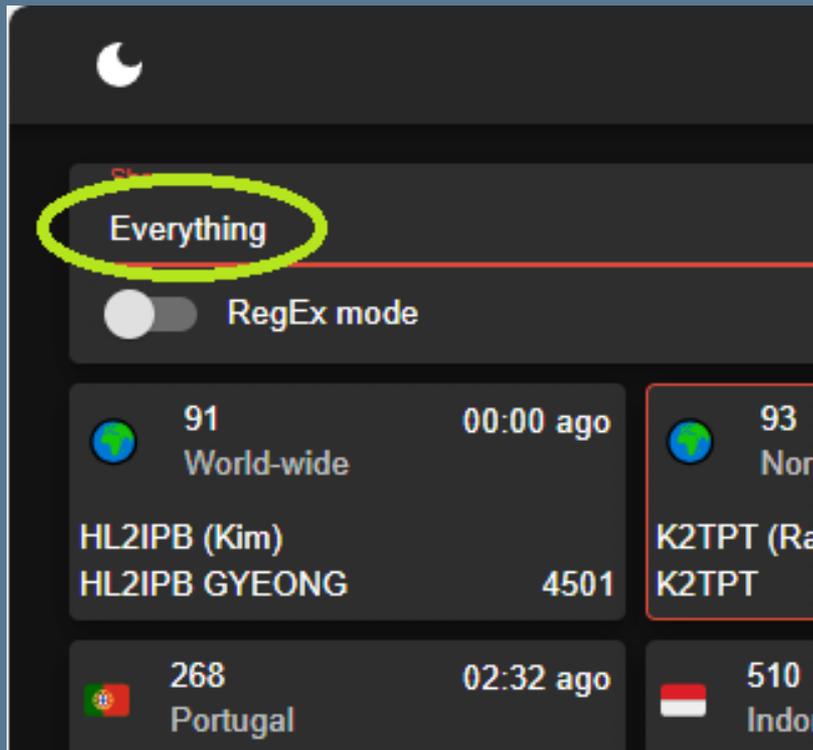
- **Hoseline (cont)**

- Shows TG # & Name and Country flag
- Shows Talker's User Name
- Shows Talker's User Alias (if any)
- Shows Brandmeister Server number

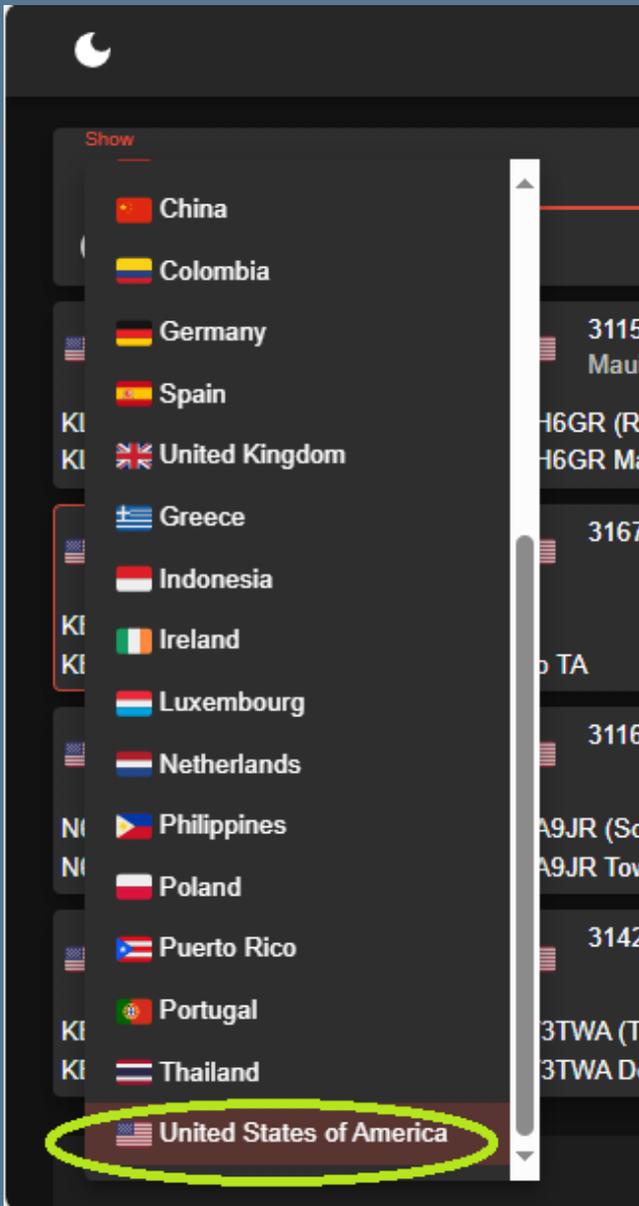
	31011 Gulf Coast DMR	00:12 ago		31328 SNARS (Reno/Tah...	00:19 
	N4TAE (Nick)			K7DFH (Daniel)	
	N4TAE Nick	3102		K7DFH Dan	3103

Find and Listen to DMR traffic (cont)

- **Hoseline (cont)**
 - Defaults to showing Everything
 - Worldwide



Find and Listen to DMR traffic (cont)



- **Hoseline (cont)**
 - Use pull-down to select country(s) you are interested in
 - Can select multiple countrys simultaneously

Find and Listen to DMR traffic (cont)

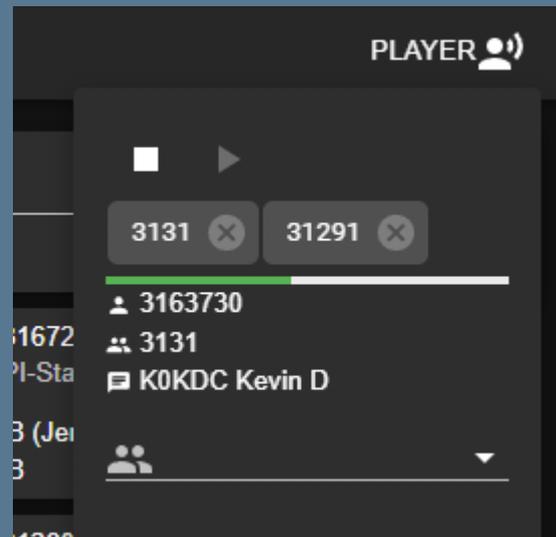
- **Hoseline (cont)**
 - Now you just see ongoing US QSOs

The screenshot shows a DMR traffic player interface with a dark theme. At the top right, it says "PLAYER" with a play button icon. Below that is a "Show" button and a dropdown menu showing the United States flag. A "RegEx mode" toggle is set to off. The main area displays a grid of QSO cards, each with a call sign, name, location, and time. The cards are arranged in a 3x4 grid. The first card in the first row is highlighted with a red border. The first card in the third row is also highlighted with a red border.

3100 USA Bridge 00:09 KR4EKV (Frank) KR4EKV Frank 3102	3140 Oklahoma - 10 M... 00:46 ago KC5KB (David) KC5KB DMR ID: 3102	31078 PAPA Bridge 00:39 ago WB6YES (Leo Memorial Dm) WB6YES Leo Memorial 3103	31151 Maui County 00:56 ago AH6GR (Randal) AH6GR AH6GR Randy 3103
31362 () No TA 00:00 ago 3104	31771 PNWR 00:15 ago KJ7RRO (Steve) KJ7RRO Steve 3103	310501 N5DBC (Dan) N5DBC Dan 00:14 ago 3102	310787 () No TA 00:00 ago 3102
310999 N4NNX (John) N4NNX N4NNX 02:38 ago 3102	311095 KE4TZN (John) KE4TZN 00:03 3104	312584 WA4TAL (Lake Martin) WA4TAL/LMARC 00:39 3104	312801 N6PJW (Woody A) Woody PoolsonN6PJW 00:34 3102

Find and Listen to DMR traffic (cont)

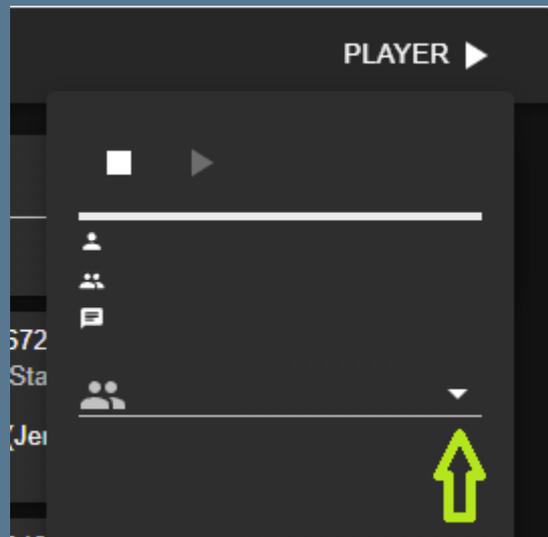
- **Hoseline (cont)**
 - To Listen to a QSO, click on its box
 - Select Player in upper right to see playlist



Find and Listen to DMR traffic (cont)

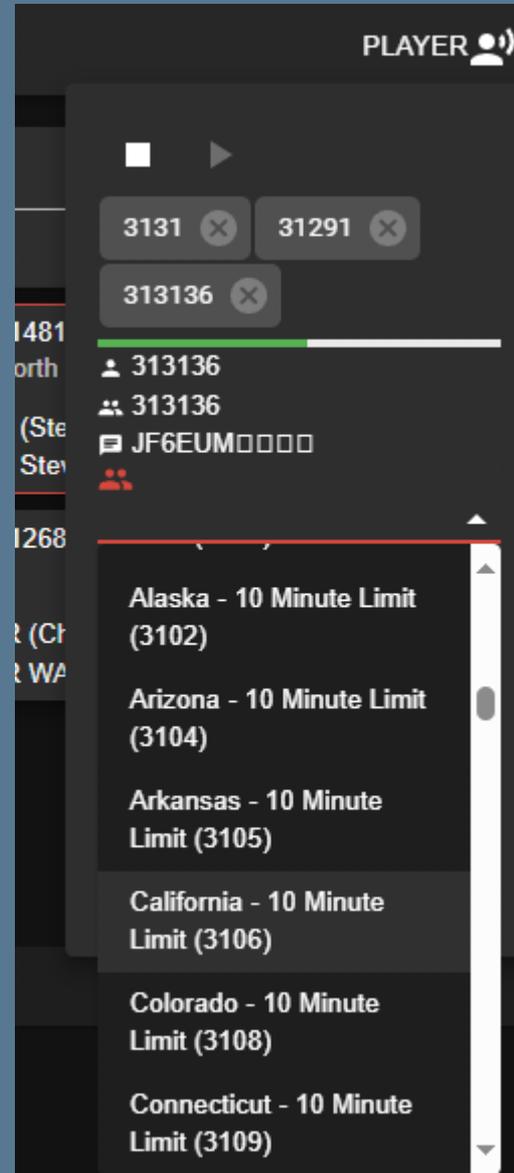
- **Hoseline (cont)**

- Can add any TG to your playlist – not limited to ongoing QSOs
- Under player, use pull-down menu to select and add any Brandmeister TG



Find and Listen to DMR traffic (cont)

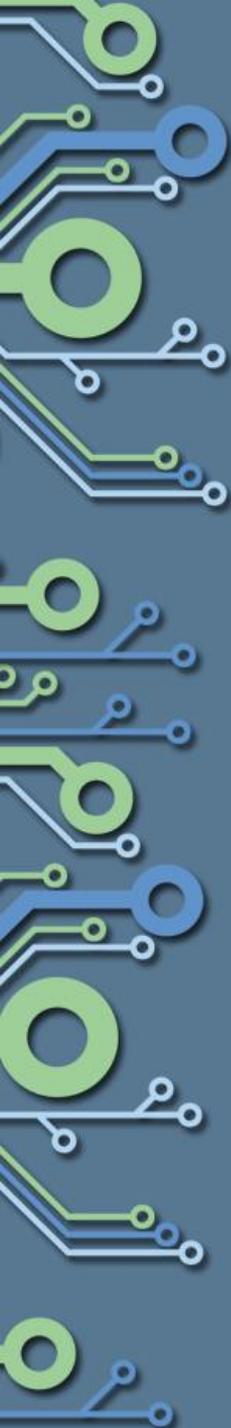
- Hoseline (cont)





Find and Listen to DMR traffic (cont)

- **Hoseline (cont)**
 - With a Playlist, you can listen to ongoing QSOs, or just establish what TG's you want to hear during the day anytime those TGs are active.



Find and Listen to DMR traffic (cont)

- **Key Takeaway:**
 - Hoseline is how you find and listen to ongoing QSOs

Find and Listen to DMR traffic (cont)

- Last Heard

The screenshot displays the BrandMeister User Dashboard. The left sidebar contains navigation options: User Dashboard, Last Heard (DMR) (highlighted with a green circle), Last Heard (TETRA), Repeaters (7563), Hotspots (20506), Terminals (209), Masters (46), Alerts, SelfCare, Documentation, and Information. The main dashboard area features four summary cards: REPEATERS (7563), HOTSPOTS (20506), MASTERS (46), and VOICE CALLS (17). Below these are three donut charts for Repeater in RX, Repeater in TX, and External calls. A world map on the right shows activity locations in red.

BrandMeister Register Login EN Settings

User Dashboard

REPEATERS 7563 Full report	HOTSPOTS 20506 Full report
MASTERS 46 Full report	VOICE CALLS 17 Full report

Repeater in RX Repeater in TX External calls

Map

Find and Listen to DMR traffic (cont)

- Last Heard
 - Use Search to narrow down

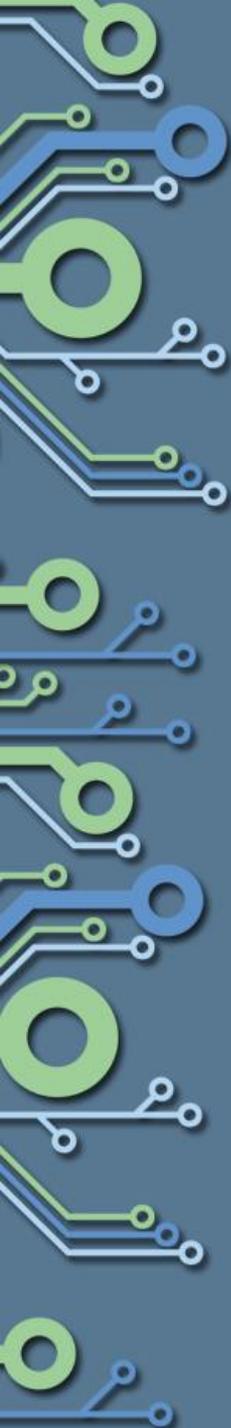
BrandMeister

Register Login EN Settings

User Dashboard > LastHeard (DMR)

Search

Time	Link name	My call	Talker Alias	Source	Destination	Options
0 Seconds	MMDVM Host	(3166048)		(3166048)	(312679)	DMR
0 Seconds	MMDVM Host	(3190521)		(319052111)	(330068)	DMR
0 Seconds	Hytera Multi-Site Connect	(460137)		(460137)	(460322)	TS1 DMR
0 Seconds	MMDVM	(3175474)				DMR



Find and Listen to DMR traffic (cont)

- **Last Heard**
 - Search for TG you are interested in
 - Add rule
 - Destination ID -> equal -> TG#
 - 31060 for PVARC
 - Source Call -> contains -> repeater
 - K6PV for PVARC
 - My Call -> equal -> callsign
 - Anyone's callsign

Find and Listen to DMR traffic (cont)

- Last Heard
 - Search for TG you are interested in
 - Add rule
 - Destination ID -> equal -> TG#
 - Search

The screenshot shows the 'LastHeard (DMR)' interface. At the top right, it says 'User Dashboard > LastHeard (DMR)'. Below the title is a search bar with a magnifying glass icon and the text 'Search'. The main area contains a rule configuration bar. On the left, there are 'AND' and 'OR' buttons. A red arrow points to the 'AND' button. In the center, there are two dropdown menus: the first is set to 'Destination ID' and the second is set to 'equal'. A red arrow points to the 'equal' dropdown. To the right of these dropdowns is a text input field containing '31481'. A red arrow points to this input field. Further right, there are two green buttons: '+ Add rule' and '+ Add group'. A red arrow points to the '+ Add rule' button. On the far right of the rule bar is a red 'Delete' button. Below the rule bar, there are two buttons: 'Load SQL' and 'Copy Query Url'. At the bottom right, there is a blue 'Search' button with a magnifying glass icon. A red arrow points to this 'Search' button.

Find and Listen to DMR traffic (cont)

- Last Heard (cont)

The screenshot displays the BrandMeister web interface. The top navigation bar includes 'BrandMeister', a menu icon, and links for 'Register', 'Login', 'EN', and 'Settings'. The left sidebar contains navigation items with associated counts: 'User Dashboard', 'Last Heard (DMR)', 'Last Heard (TETRA)', 'Repeaters' (7307), 'Hotspots' (19786), 'Terminals' (223), 'Masters' (46), 'Alerts', 'SelfCare', 'Documentation', and 'Information'. The main content area is titled 'LastHeard (DMR)' and features a search bar with a filter rule: 'Destination ID equal 31481'. Below the search bar are buttons for 'Load SQL', 'Copy Query Url', and a 'Search' button. The main display is a table of traffic logs with columns: Time, Link name, My call, Talker Alias, Source, Destination, Options, and RSSI. The table contains five entries, each with a play button icon for listening to the traffic.

Time	Link name	My call	Talker Alias	Source	Destination	Options	RSSI
3 Seconds	MMDVM Host	W5SBP [Steve] (3181974)	W5SBP Steve	W5SBP (3181974)	North Texas (31481)	DMR	S9+40dB
14 Seconds	Homebrew Repeater	N5OAR [Michael] (3215065)	N5OAR Michael W	N5OAR (3215065)	North Texas (31481)	DMR	S9+40dB
2 Minutes	Homebrew Repeater	N5OAR [Michael] (3215065)	N5OAR Michael W	N5OAR (3215065)	North Texas (31481)	DMR	S9+40dB
2 Minutes	MMDVM Host	W5SBP [Steve] (3181974)	W5SBP Steve	W5SBP (3181974)	North Texas (31481)	DMR	S9+40dB
3 Minutes	Homebrew Repeater	N5OAR [Michael] (3215065)	N5OAR Michael W	N5OAR (3215065)	North Texas (31481)	DMR	S9+40dB

Find and Listen to DMR traffic (cont)

- Last Heard (cont)

Time	Link name	My call	Talker Alias	Source	Destination	Options	RSSI
3 Seconds	MMDVM Host	🇺🇸 W5SBP [Steve] (3181974)	W5SBP Steve	🇺🇸 W5SBP (3181974)	🇺🇸 North Texas (31481)	DMR	★ S9+40dB
14 Seconds	Homebrew Repeater	🇺🇸 N5OAR [Michael] (3215065)	N5OAR Michael W	🇺🇸 N5OAR (3215065)	🇺🇸 North Texas (31481)	DMR	S9+40dB
2 Minutes	Homebrew Repeater	🇺🇸 N5OAR [Michael] (3215065)	N5OAR Michael W	🇺🇸 N5OAR (3215065)	🇺🇸 North Texas (31481)	DMR	S9+40dB
2 Minutes	MMDVM Host	🇺🇸 W5SBP [Steve] (3181974)	W5SBP Steve	🇺🇸 W5SBP (3181974)	🇺🇸 North Texas (31481)	DMR	★ S9+40dB
3 Minutes	Homebrew Repeater	🇺🇸 N5OAR [Michael] (3215065)	N5OAR Michael W	🇺🇸 N5OAR (3215065)	🇺🇸 North Texas (31481)	DMR	S9+40dB



Find and Listen to DMR traffic (cont)

- **Key Takeaway:**
 - If you want to see what recent activity has been going on for a TG or Repeater, and all its participants, use Last Heard.

Find and Listen to DMR traffic (cont)

- Call Statistics

The screenshot displays the BrandMeister User Dashboard. The top navigation bar includes the BrandMeister logo, a menu icon, and links for Register, Login, EN, and Settings. The left sidebar contains a navigation menu with the following items: User Dashboard, Last Heard (DMR), Last Heard (TETRA), Repeaters (7551), Hotspots (20484), Terminals (208), Masters (46), Alerts, SelfCare, Documentation, Information, Talkgroups, Clusters, Network Map, Call Statistics (highlighted with a red circle), and Contacts export.

The main content area is titled "User Dashboard" and features four summary cards with wrench icons:

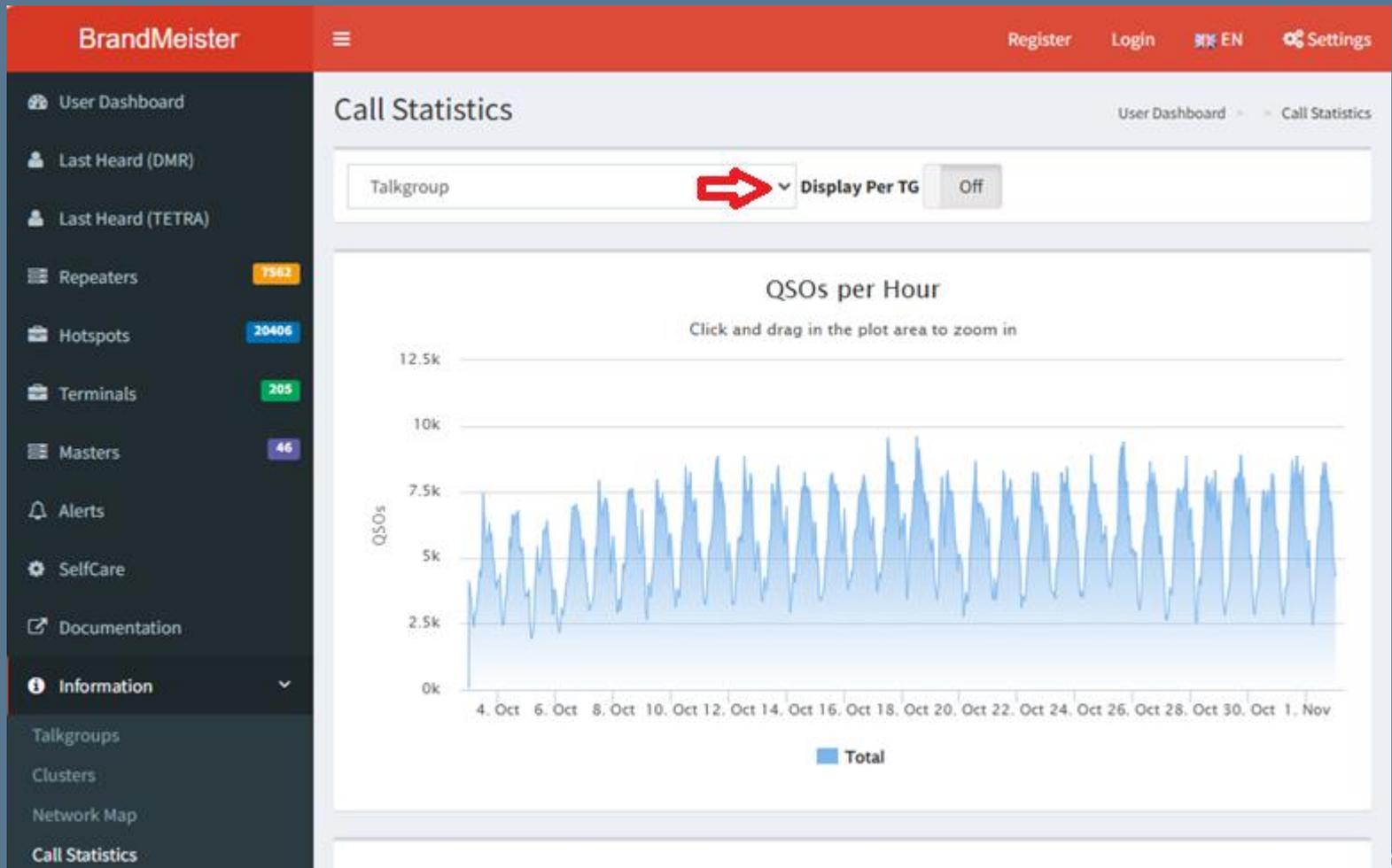
- REPEAT...**: 7551 (Full report)
- HOTSP...**: 20484 (Full report)
- MASTERS**: 46 (Full report)
- VOICE C...**: 24 (Full report)

Below these cards are three donut charts labeled "Repeater in RX", "Repeater in TX", and "External calls". To the right is a "Map" section showing a world map with red highlights in North and South America.

At the bottom, there is a "Latest BrandMeister News" section with a date of 2025-08-25.

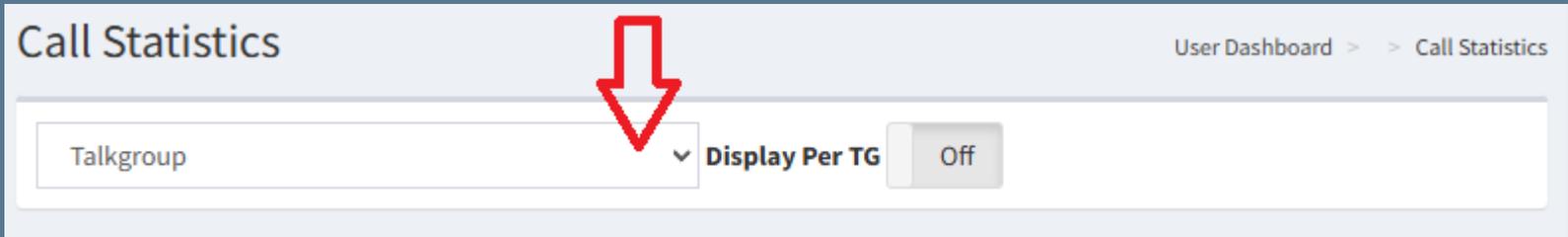
Find and Listen to DMR traffic (cont)

- Call Statistics



Find and Listen to DMR traffic (cont)

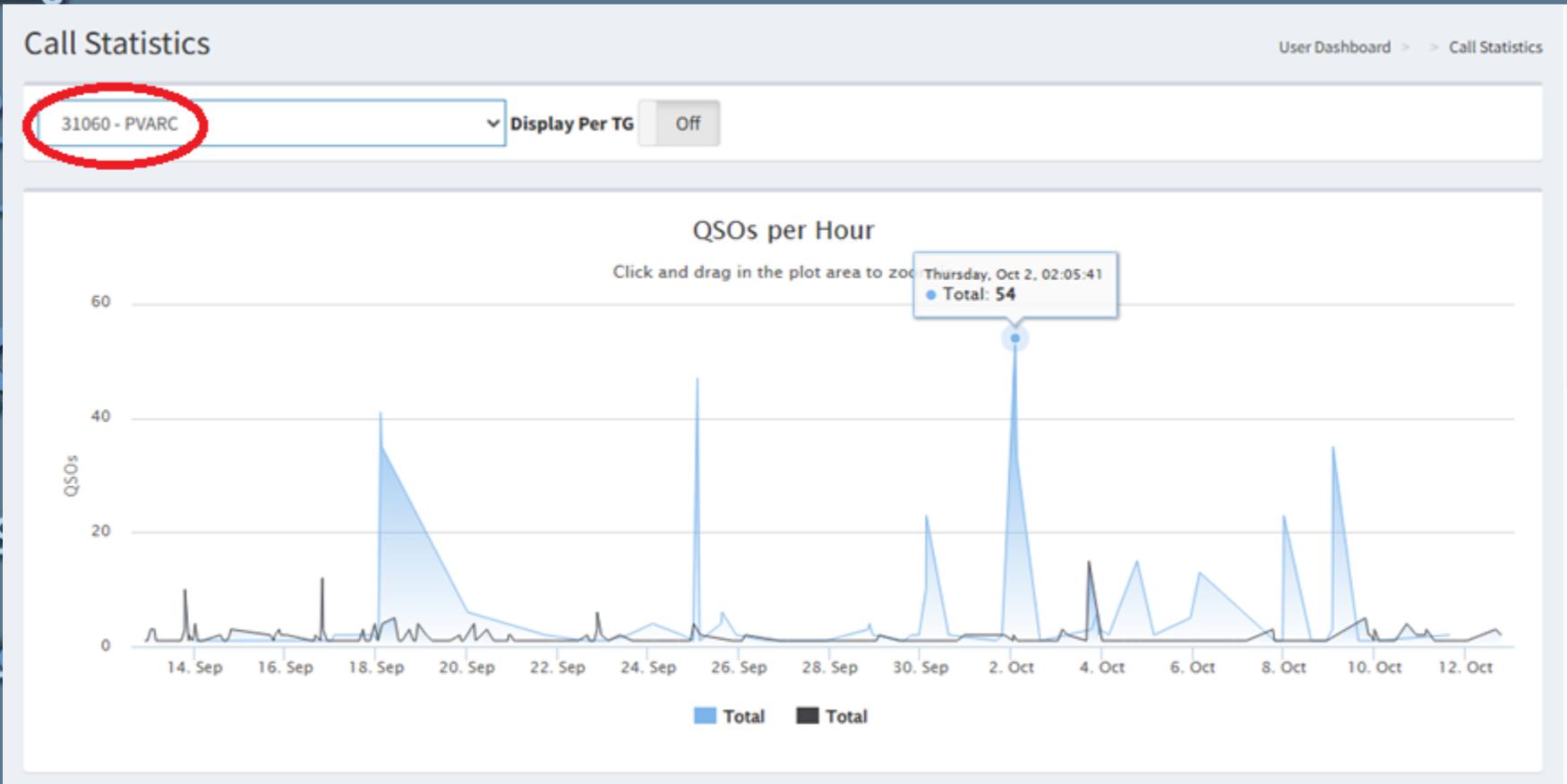
- **Call Statistics (cont)**
 - Let's lookup PVARC's TG
 - Use pull-down menu to select 31060



The screenshot shows the 'Call Statistics' interface. At the top left, the title 'Call Statistics' is displayed. At the top right, the breadcrumb navigation reads 'User Dashboard > > Call Statistics'. Below the title bar, there is a search input field containing the text 'Talkgroup'. To the right of this field is a dropdown menu with a downward-pointing arrow icon. A red arrow points to this dropdown menu. Further right, there is a label 'Display Per TG' followed by a toggle switch currently set to 'Off'.

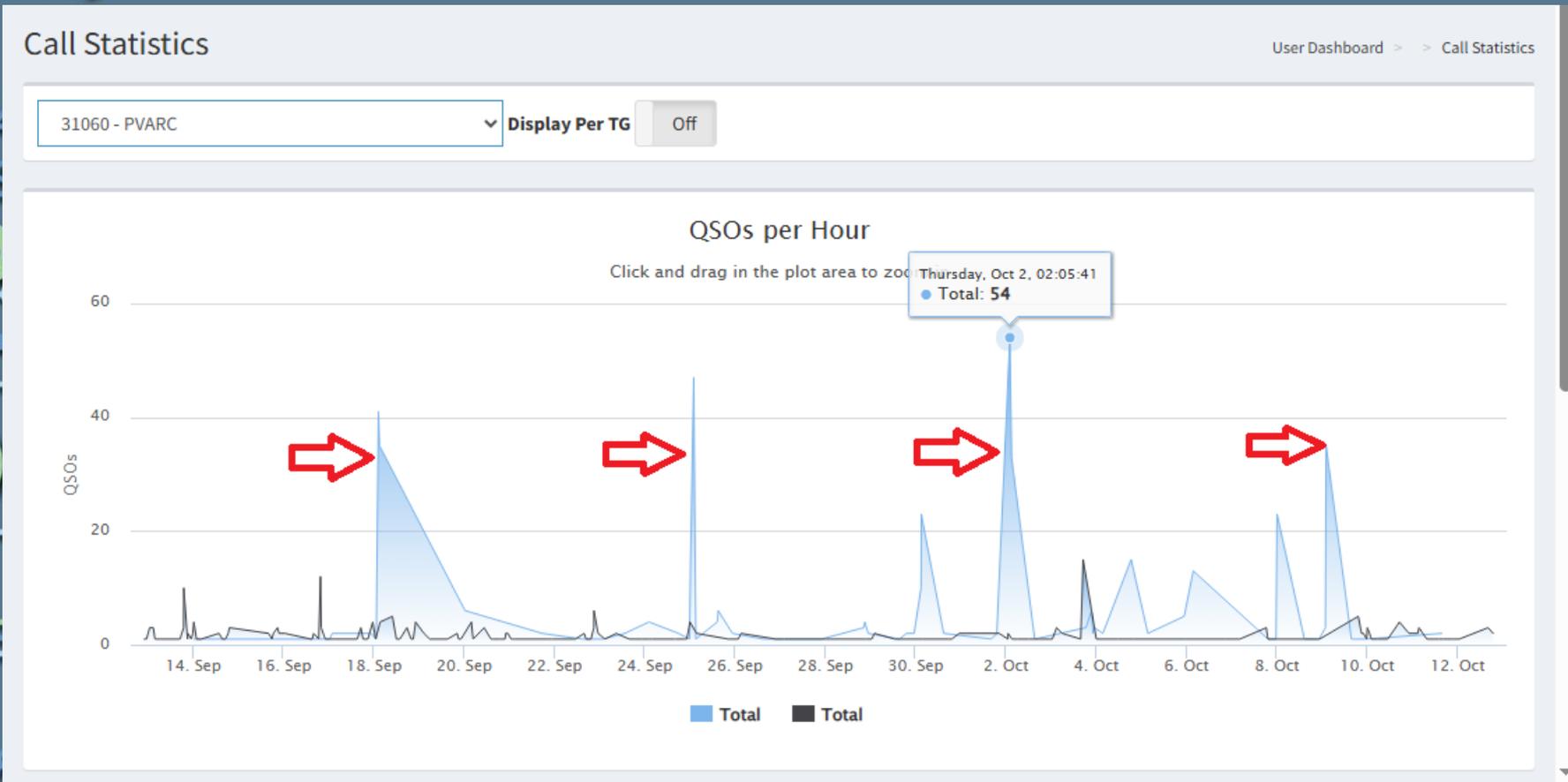
Find and Listen to DMR traffic (cont)

- Call Statistics (cont)



Find and Listen to DMR traffic (cont)

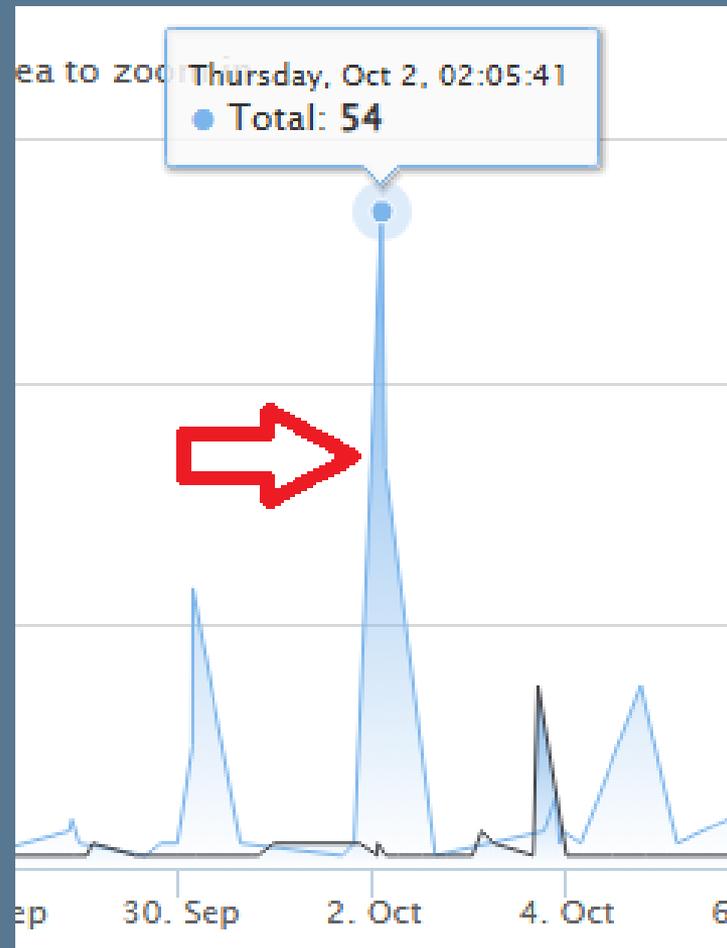
- Call Statistics (cont)



Find and Listen to DMR traffic (cont)

- **Call Statistics (cont)**

- Time is GMT
- Thurs 0200-0300 GMT is club DMR Net
- Which is 1930+ on Wed





Find and Listen to DMR traffic (cont)

- **Key Takeaway:**
 - If you want to see if a TG has any previous activity for the past month use Call Statistics
 - Excellent way to forecast when a TG may be active next



Find and Listen to DMR traffic (cont)

- With Call Statistics, you can forecast when a Net is likely to occur.
 - But, there are other ways to find upcoming Nets...



Other ways to find DMR Nets

- **Other ways to find DMR Nets...**
 - **Online Net Tools**
 - **Web-based aggregators**
 - **Club websites**



Other ways to find DMR Nets (cont)

- **Other ways to find DMR Nets...**
 - **Online Net Tools**
 - List Scheduled Nets
 - Track Net check-ins
 - Content driven by users
 - Very current and accurate
 - But only lists Nets that the tools know about
 - **Example:**
 - [NetLogger](#)



Other ways to find DMR Nets (cont)

- **NetLogger**
 - Go there to listen to any active DMR Nets and look for any upcoming ones.
 - <https://www.netlogger.org/>

Other ways to find DMR Nets (cont)

- NetLogger – Upcoming Nets

Nets In Progress

	Net Name	Frequency	Mode	Server	Net Control	Logger	Band	Start Time	IM Enable	Update Interval	ibscrib
1	3905 40m SSB Early Net	7.248	SSB	NETLOGG...	K9GWS	K9GWS	40m	2025/10/13 23:42	YES	20000	21
2	YLSYSTEM 40 METER EC SHRIMP BOAT	7.238	SSB	NETLOGG...	NT8F	NT8F	40m	2025/10/13 22:28	YES	20000	13
3	AHRN EAST COAST 40 M NET	7.219	SSB	NETLOGGER	KY4REX	KY4REX	40m	2025/10/13 23:40	YES	20000	2
4	Bradley TN Emergency Service Net	146.925	FM	NETLOGGER	KD5UBL	KD5UBL	2m	2025/10/13 23:43	YES	20000	3
5	CNY Fresde Chat Net EL KD2SL-R	146.670	FM	NETLOGGER	N2VZD	KB2GDZ	2m	2025/10/13 22:30	YES	20000	3
6	DELMARVA 8802 DMR NET	TG 8802	DMR	NETLOGGER	KB3GPX	K3LT	70cm	2025/10/13 23:37	YES	20000	2
7	DFW EARLY TRAFFIC NET	146.80	FM	NETLOGGER	KF5OMH	KF5OMH	2m	2025/10/13 23:29	YES	20000	2
8	Essex ARES - EchoLink KC2TXA-R	146.595	FM	NETLOGGER	K2EXX	KC2NJ	2m	2025/10/13 23:44	YES	20000	2
9	Hudson Valley NY NTS Net	146.970	FM	NETLOGGER	KD2VQP	KV2J	2m	2025/10/13 23:25	YES	20000	4
10	LCVC Tuesday Net	147.015	FM	NETLOGGER	KQ4COV	KQ4COV	2m	2025/10/13 22:29	YES	20000	1
11	Louisiana Traffic Net	3910	SSB	NETLOGGER	RYAN	KI5GZO	80m	2025/10/13 22:58	YES	20000	6
12	Michiqan One DMR Tech Net	BM 31266	DMR	NETLOGGER	KF0CQN	KF0CQN	DMR	2025/10/13 23:29	YES	20000	5
13	Monday Mills Co ARES	145.29	FM	NETLOGGER	KD0IVV	KD0IVV	2m	2025/10/13 23:38	YES	20000	1
14	MOONLIGHTERS SHARONS MONDAY	7.271	SSB	NETLOGGER	K3EMF	K3EMF	40m	2025/10/13 22:33	YES	20000	24
15	Northern Virginia Traffic Net	147.300	FM	NETLOGGER	N8JAA	N8JAA	2m	2025/10/13 23:30	YES	20000	4
16	PAARS	146.550	SSB	NETLOGGER	KJ\$BCF	KJ4BCF	40m	2025/10/13 23:32	YES	20000	1
17	PAWA Monday Night 2 Meter Net	146.775	FM	NETLOGGER	KB1FZB	KB1FZB	2m	2025/10/13 23:00	YES	20000	3
18	PNW Digital Happy Hour Net 3141	TG 3141	DMR	NETLOGGER	N5GB	K7ZPJ	DMR	2025/10/13 22:59	YES	20000	6
19	RV RADIO NETWORK HF NET	7.230	SSB	NETLOGGER	ROB	N0ROB	40M	2025/10/13 23:35	YES	20000	7
20	SHARK 6M NET SPRING HILL FL	50.150	SSB	NETLOGGER	KQ4TDQ	KQ4TDQ	6m	2025/10/13 23:27	YES	20000	4

Server Status

NETLOGGER NETLOGGER2 NETLOGGER3

Poll Time (degrades automatically)

Monitor Net

Seconds

20

Other ways to find DMR Nets (cont)

- NetLogger – Check-ins

The screenshot shows the NetLogger 3.1.7 interface for the Michigan One DMR Tech Net. The top section displays the current time as 23:51 in UTC. Below this, the 'Net Status and Control' section includes fields for NetLogger Mode (MONITORING), Net (Michigan One DMR Tech Net), Profile (*NONE*), Timeout (30), Operator (KN6UMV-KIRK), Frequency (BM 31266), Mode (DMR), Band (DMR), NCS (KF0CQN), and Logger (KF0CQN). A row of buttons includes 'Stop Monitoring', 'Start Logging', 'AIM Window', 'View Monitors', 'Log Contact', and two arrow buttons.

The 'Check-ins' section contains a table with the following data:

#	Call Sign	M/P	State	embd Id	Remarks	QSL Info	City	Name	Status	RST Rcvd	RST Sent
10	KC0MYP		MI		Tech Net NCS		Eaton Rapids	Dana F West			
11	N8TMP		MI		(no club info)		Sterling Heights	James J Bilski			
12	KF0CQN		MO		(no club info)	LOTW and eQ...	VILLA RIDGE	Curtis R Bates Jr			
13	KD8PTE		MI		NCS for UP Net		Marquette	Lucille T Scotti			
14	VA3PC		ON		(no club info)	LotW EQsl QS...	CALLANDER	Paul Caccamo			
15	N8TJ		MI		(no club info)		Clarkston	Thomas E Janke			
16	KN6UMV		CA		(no club info)		Manhattan Beach	Kirk Beasley	(op)		

The 'Contacts' section at the bottom features a list of filter options: Call Sign Filter, Remarks Filter, Operator Filter, Net Filter, Member Id Filter, and Custom Filter. The 'Current Station Location' is set to 'Default'. Below the filters is a table with columns: Call Sign, M/P, Date, Time (UTC), Frequency, Mode, Band, Preferred Name, Name, Member Id, DXCC, RST Rcvd, RST Sent, State, and City.

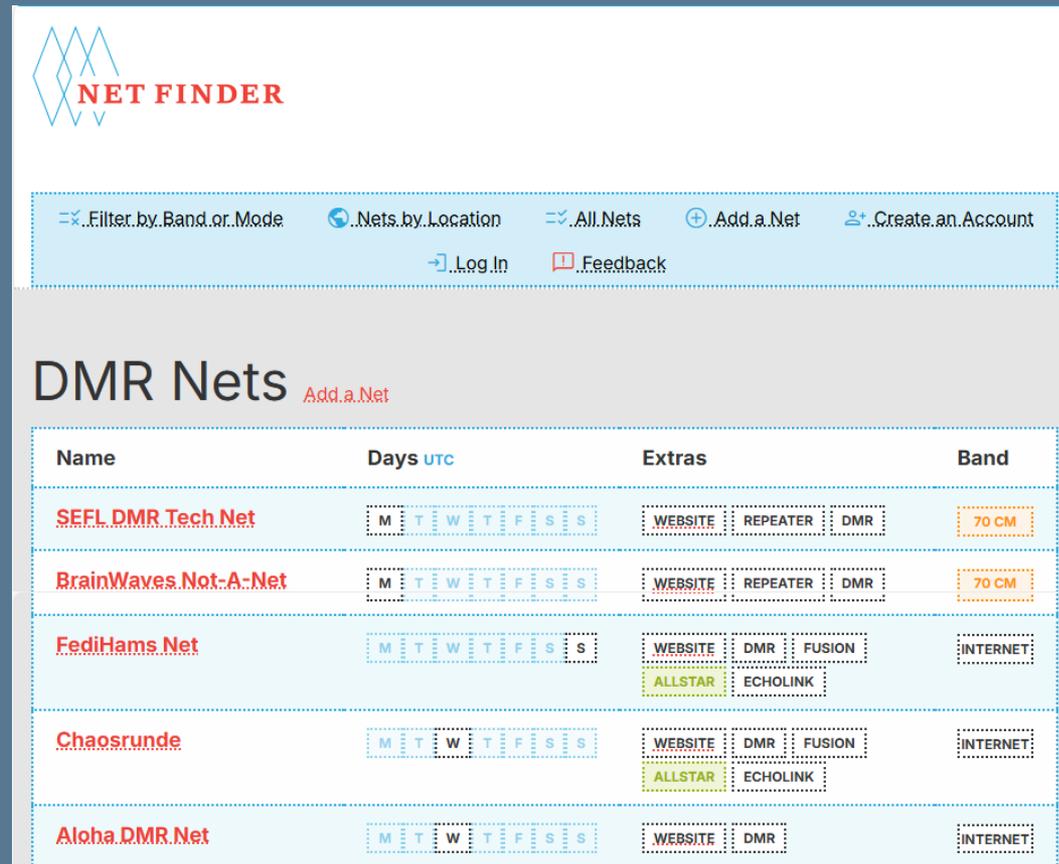


Other ways to find DMR Nets (cont)

- Other ways to find DMR Nets...
 - Web-based aggregators
 - Compiled lists of Nets online
 - Not always accurate or up to date
 - Example:
 - NetFinder
 - <https://netfinder.radio/nets/modes/dmr>

Other ways to find DMR Nets (cont)

- Other ways to find DMR Nets...
 - NetFinder



The screenshot displays the NET FINDER website interface. At the top left is the logo, which consists of three overlapping diamond shapes in blue and green, followed by the text "NET FINDER" in red. Below the logo is a navigation bar with several links: "Filter by Band or Mode", "Nets by Location", "All Nets", "Add a Net", "Create an Account", "Log In", and "Feedback".

The main content area is titled "DMR Nets" with a red "Add a Net" link next to it. Below the title is a table listing various DMR networks. The table has four columns: "Name", "Days UTC", "Extras", and "Band".

Name	Days UTC	Extras	Band
SEFL DMR Tech Net	M T W T F S S	WEBSITE REPEATER DMR	70 CM
BrainWaves Not-A-Net	M T W T F S S	WEBSITE REPEATER DMR	70 CM
FediHams Net	M T W T F S S	WEBSITE DMR FUSION ALLSTAR ECHOLINK	INTERNET
Chaosrunde	M T W T F S S	WEBSITE DMR FUSION ALLSTAR ECHOLINK	INTERNET
Aloha.DMR.Net	M T W T F S S	WEBSITE DMR	INTERNET

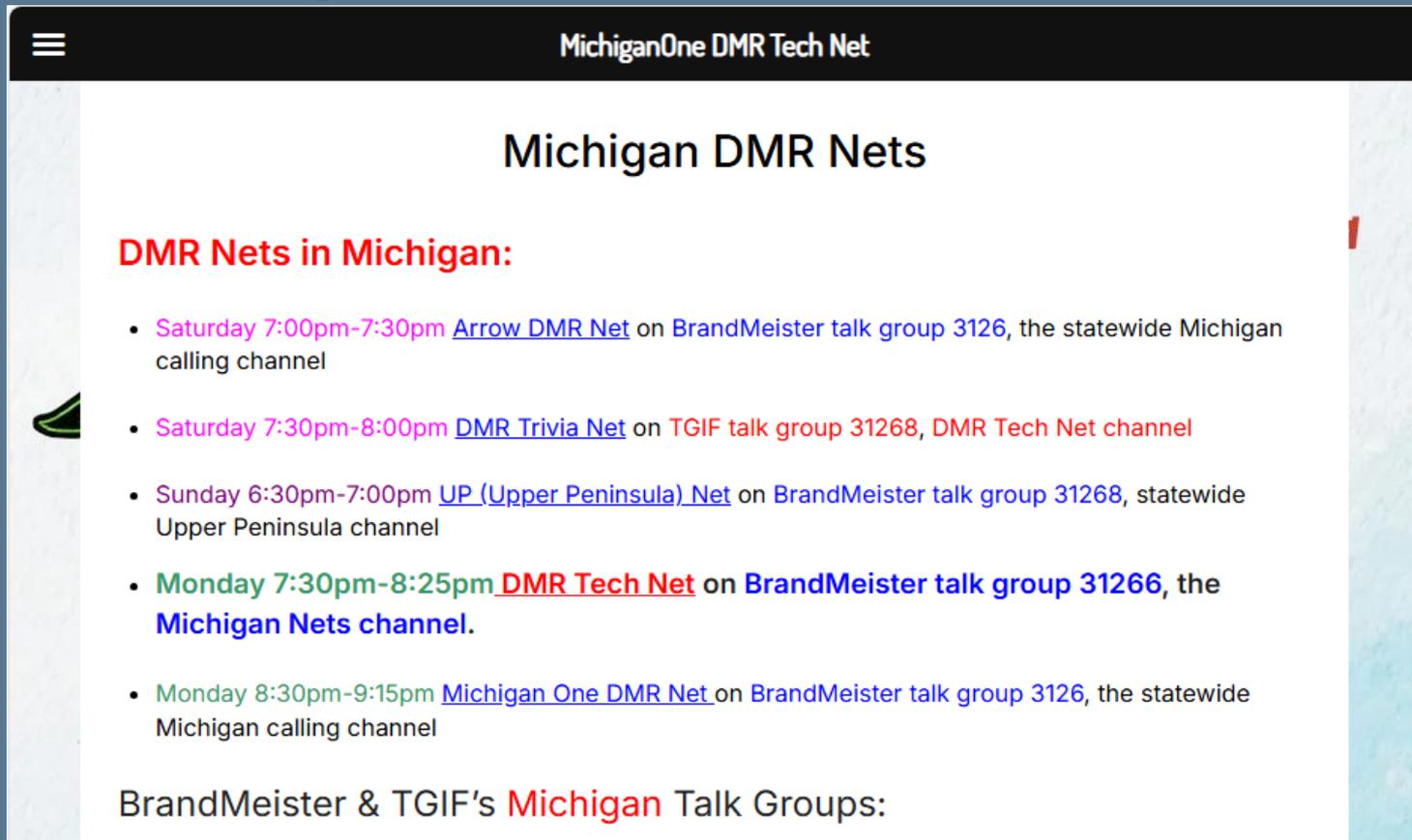


Other ways to find DMR Nets (cont)

- **Other ways to find DMR Nets...**
 - **Club websites**
 - Tend to be the most accurate, but you have to search and find them.
 - **Example:**
 - MichiganOne DMR Tech Net
 - <https://michiganonedmrtech.net/dmr-nets/>

Other ways to find DMR Nets (cont)

- Other ways to find DMR Nets...
 - MichiganOne Nets



The screenshot shows a mobile application interface for "MichiganOne DMR Tech Net". The title bar is black with a white hamburger menu icon on the left and the text "MichiganOne DMR Tech Net" in white. Below the title bar, the main content area has a white background with the heading "Michigan DMR Nets" in black. Underneath, there is a red heading "DMR Nets in Michigan:" followed by a bulleted list of five items. Each item includes a time slot, a link to a specific DMR net, and a description of the channel and group. At the bottom of the screenshot, there is a text label "BrandMeister & TGIF's Michigan Talk Groups:".

MichiganOne DMR Tech Net

Michigan DMR Nets

DMR Nets in Michigan:

- **Saturday 7:00pm-7:30pm** [Arrow DMR Net](#) on BrandMeister talk group 3126, the statewide Michigan calling channel
- **Saturday 7:30pm-8:00pm** [DMR Trivia Net](#) on TGIF talk group 31268, DMR Tech Net channel
- **Sunday 6:30pm-7:00pm** [UP \(Upper Peninsula\) Net](#) on BrandMeister talk group 31268, statewide Upper Peninsula channel
- **Monday 7:30pm-8:25pm** [DMR Tech Net](#) on BrandMeister talk group 31266, the Michigan Nets channel.
- **Monday 8:30pm-9:15pm** [Michigan One DMR Net](#) on BrandMeister talk group 3126, the statewide Michigan calling channel

BrandMeister & TGIF's Michigan Talk Groups:

Other ways to find DMR Nets (cont)

- Other ways to find DMR Nets...
 - MichiganOne DMR Tech Net Schedule

February 2, 2026	DMR troubleshooting with Brad KE8WXM
February 9, 2026	Celebrating the MichiganOne DMR Tech Net's 4th Anniversary (February 14, 2022 was our first net)
February 16, 2026	DMR handheld radios. We discuss what we use & want to know what radio(s) you utilize and Curt will go over the new Anytone 890 handheld
February 23, 2026	Codeplugs, channels, zones, & talkgroups
March 2, 2026	DMR operating etiquette and basic steps
March 9, 2026	Using APRS (Automatic Packet Reporting System) and GPS
March 16, 2026	Is DMR actual “ amateur radio ” and why use it
March 23, 2026	Hotspots vs repeaters
March 30, 2026	Advantages of DMR over amateur radio
April 6, 2026	Text messaging with DMR
April 13, 2026	Custom or vanity callsigns and you
April 20, 2026	What is the MI-5 network in Michigan
April 27, 2026	Talkgroup basics
May 4, 2026	Organizing DMR on-air contests and trivia nights to increase engagement
May 11, 2026	How to get better hotspot performance



Other ways to find DMR Nets (cont)

- **Not covered tonight - Other DMR Networks besides Brandmeister**
 - DMR-Marc
 - PNWdigital
 - TGIF
- **They each have different traffic monitoring tools.**



Find and Listen to DMR traffic (cont)

- **Review:**
 - **How to find upcoming Nets**
 - **Hoseline:** ongoing now
 - **Last Heard:** on recently
 - **Call Statistics:** past month
 - **Online Net Tools**
 - **NetLogger:** starting soon
 - **Web-based aggregators**
 - **Netfinder:** homebrew list of Nets
 - **Club websites**

- 
- **Section 4: How to have a QSO via DMR**

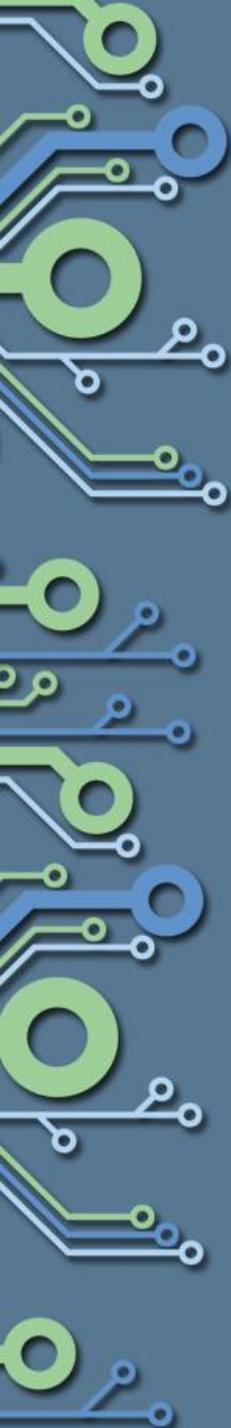
How to have a QSO via DMR

- Although Finding and Listening to DMR traffic can be done without a radio, having a QSO requires one*
- If you don't have one, now may be the time to acquire one.
- * Non radio alternatives not covered tonight include:
 - DroidStar, M1KE, OpenSPOT4 app, etc



How to have a QSO via DMR (cont)

- **Once you have a radio, your TX and RX goes through a Repeater or Hotspot**
- **With Repeaters or Hotspots, your Talkgroup access may be Static or Dynamic**



How to have a QSO via DMR (cont)

- **Static vs Dynamic TG's is an important concept**
 - Let's revisit

- 
- **Section 4.1:**
 - **Static vs Dynamic TG's**



Static vs Dynamic TG's

- Repeater owners determine what TGs are Static or Dynamic on their repeaters.
- Hotspot owners determine what TG's are Static or Dynamic on their Hotspot.



Static vs Dynamic TG's (cont)

- Repeaters always broadcast any traffic they receive over the Internet for a Static TG
- Whenever you dial a Channel using a Static TG, you will hear any ongoing TX (just like FM)



Static vs Dynamic TG's (cont)

- Repeaters only broadcast any traffic they receive over the Internet for a Dynamic TG if someone has requested it.
- Whenever you dial a Channel using a Dynamic TG, you won't hear any ongoing TX unless someone has connected it
 - This is done by kerchunking that TG on your radio



Initiate calls on a Static TG

- **Section 4.2:**
 - **Initiate calls on a Static TG**

Initiate calls on a Static TG (cont)

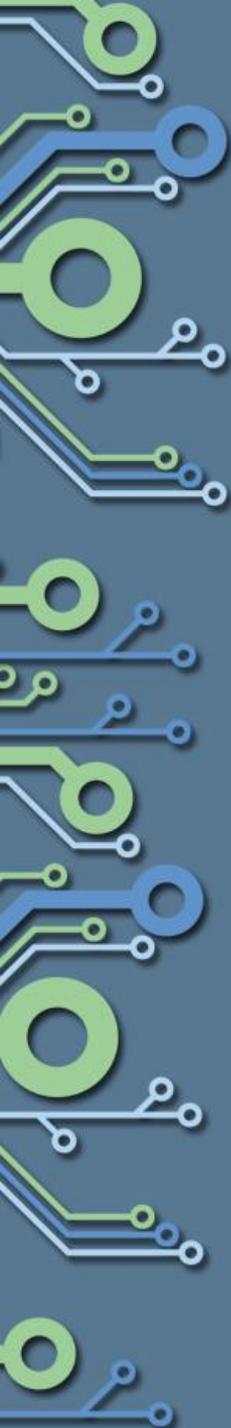
- There are no DMR National Calling Frequencies to establish contact with someone like VHF/UHF.
- To reach someone via DMR, don't think in terms of Frequency, think TG

Initiate calls on a Static TG (cont)

- You need to select a Static TG on a repeater your contact can reach.
 - If you call on a Static TG, you will be heard if they are listening
 - If you call on a Dynamic TG, you won't be heard unless they kerchunk every 15 minutes
 - Not practical

Initiate calls on a Static TG (cont)

- You want to use a Static TG that covers a sufficiently wide area to encompass who you are trying to reach
 - Wide area Static TG's tie up a TS on a greater number of Repeaters than a smaller area Static TG
 - But, it has to be a TG that the person you are trying to reach is using.



Initiate calls on a Static TG (cont)

- **A Statewide TG is typically static on most repeaters in a State.**
 - **To reach someone in CA, call on TG California 3106**
 - **To reach someone in another State, call on the Statewide TG for that State.**

Initiate calls on a Static TG (cont)

- When using a radio programmed with a Channel using California 3106 TG, it's essentially the same as a FM radio
- Since 3106 is static on most California DMR repeaters, you'll hear any ongoing traffic and know when it's ok to talk

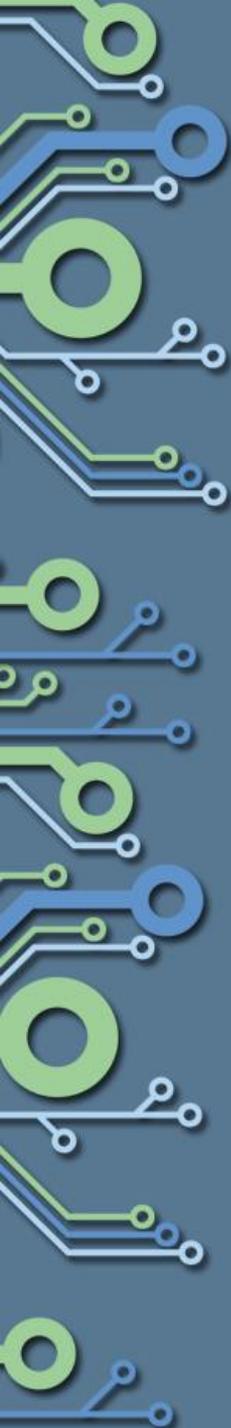
Initiate calls on a Static TG (cont)

- Press PTT when ready to talk, but allow 1-2 seconds for radio to sync with repeater before talking to prevent loss of the beginning of your transmission
- Have a great QSO!
 - Must identify per FCC rules



Move QSOs to Dynamic TG

- **Section 4.3:**
 - **Move longer calls to a Dynamic TG**



Move QSOs to Dynamic TG (cont)

- If you are going to have a “longer” QSO, it’s wise to QSY to a different TG after making a connection on a wide-area Static TG

Move QSOs to Dynamic TG (cont)

- What is a “longer” QSO?
Brandmeister suggests a 10 minute limit on Statewide TGs.

3100	USA Bridge
3101	Alabama - 10 Minute Limit
3102	Alaska - 10 Minute Limit
3104	Arizona - 10 Minute Limit
3105	Arkansas - 10 Minute Limit
3106	California - 10 Minute Limit
3108	Colorado - 10 Minute Limit
3109	Connecticut - 10 Minute Limit
3110	Delaware - 10 Minute Limit
3111	D.C. - 10 Minute Limit
3112	Florida - 10 Minute Limit



Move QSOs to Dynamic TG (cont)

- A Dynamic TG is where you should QSY to for a longer conversation
 - Only ties up one TS on your repeater and one TS on other party's repeater
 - Better than tying up one TS on most repeaters in CA if you stay on TG California 3106.
- What Dynamic TG's should you use?

Move QSOs to Dynamic TG (cont)

- TAC channels are reserved for this purpose

310	Tac 310 NOT A CALL CHANNEL
311	TAC 311 USA NO NETS!!!
312	TAC 312 USA NO NETS!!!
313	TAC 313 USA NO NETS!!!
314	TAC 314 USA NO NETS!!!
315	TAC 315 USA NO NETS!!!
316	TAC 316 USA NO NETS!!!
317	TAC 317 USA NO NETS!!!
318	TAC 318 USA NO NETS!!!
319	TAC 319 USA NO NETS!!!



Move QSOs to Dynamic TG (cont)

- **TAC 310 – 319 are Dynamic TGs**
 - Not to be used as Calling Channels
 - Not to be used for Nets
 - Just for QSY'ing to from Wide-Area TGs

Move QSOs to Dynamic TG (cont)

• DMR TAC channels

DMR TAC channels are tactical talkgroups designed to offload traffic from busy primary channels and facilitate longer, more focused conversations.

Here's a breakdown of their purpose and how they're typically used:

What Are DMR TAC Channels?

- **TAC stands for Tactical or Talk-Around Channel.**
- These are *non-primary talkgroups* used in Digital Mobile Radio (DMR) networks like BrandMeister to manage communication more efficiently. [1](#) [2](#)

Primary Functions

- **Relieve congestion:** TAC channels help reduce traffic on widely used talkgroups (e.g., worldwide or statewide channels) by moving extended conversations elsewhere. [1](#) [2](#)
- **Enable longer QSOs:** If a QSO (conversation) starts on a busy group like TG 91, users often shift to a TAC channel (e.g., TAC 310–319) to continue without interrupting new calls. [2](#) [3](#)



Move QSOs to Dynamic TG (cont)

- **So originate a QSO on a Static TG.**
- **If your call is going to be “long”, both parties should QSY to a TAC channel**
- **Since TAC Channels are Dynamic, both parties must Kerchunk it to connect their repeaters to it before resuming their QSO.**



What's next for DMR?

- What would help you with DMR?
 - Follow-up presentation(s) more narrowly focused?
 - Live demos?
 - Hands-on opportunities?
 - Programming Tutorials?
 - Sample Codeplugs?

Questions?

- Some regional DMR systems:

PAPA (Pocket Auto Patch Association)	https://papasys.com
Western States DMR	https://westernstatesdmr.com/
NorCal-DMR	https://norcal-dmr.org/
SNARS (Sierra Nevada Amateur Radio Society)	https://snars.org
CORA (Cactus Open Repeater Association)	https://coraradio.com
PNW Digital (Pacific Northwest Digital)	https://pnwdigital.net



BACKUP



- 
- **Section 4: Advanced stuff**

Advanced Stuff

- **Section 4.1: Manual Dial TG**
 - Ideally, you have a Channel defined for each desired TG on a given Repeater.
 - Dial the Channel and TX/RX...
 - What if you want to Listen/Talk on a TG that isn't programmed in as a Channel?
 - You could go program a new Channel
 - Or, you could Manual Dial the TG

Advanced Stuff (cont)

- **Manual Dial is a way to temporarily have your radio work on a TG that isn't programmed into your radio**
- **It only overrides the TG# for whatever Channel you currently have dialed in**
 - **All other Channel parameters are used as-is (freq, CC, TS)**

Advanced Stuff (cont)

- On an AnyTone radio:
 - Select an existing Channel on a reachable Repeater
 - Press and hold 0 key,
 - Enter desired TG #,
 - Kerchunk or TX
- What TG will be used on next PTT?
 - Depends on Manual-Dial Hold Time

Advanced Stuff (cont)

The "Manual Dial Hold-Time" setting on Anytone DMR radios determines how long the radio stays on a manually entered talkgroup or private ID after a transmission.

Here's a deeper look at its purpose and how it affects your radio's behavior:

What Manual Dial Hold-Time Does

- **When you manually enter a talkgroup or private ID** using the keypad (often by holding the "0" key), the radio temporarily switches to that ID for transmission.
- **The hold-time setting controls how long the radio remains on that ID** after you finish transmitting.
- If set to a short duration, the radio will revert quickly to the default talkgroup or channel.
- If set to a longer duration (or infinite), it stays on the manually entered ID until you change it or power cycle the radio.

Why It Matters

- **Convenience for active conversations:** If you're manually joining a talkgroup for a quick exchange, a longer hold-time prevents the radio from switching back mid-conversation.

Advanced Stuff (cont)

- **Default Manual-Dial Hold Time 5 sec**
 - 30 Sec, 30 Min or Infinite is better
 - Manual-Dial TG remains active until Hold-Time has elapsed or Channel gets changed
 - TG then returns to “as configured” for the Channel
 - Each PTT resets Hold-Time timer
 - Display has dark blue indicator that changes to light blue during Hold-Time

Advanced Stuff (cont)

Optional Setting

Alert Tone 1

Power-on Alert Tone Display GPS/Ranging VFO Scan Auto repeater Record Volume/Audio

Work Mode BT STE AM/FM Power Save Key Function Other Digital Func

Digital Func

Group Call Hold Time	1s
Private Call Hold Time	5s
Manual Dial -Group TG Hold Time	30s
Manual Dial -Private TG Hold Time	5s
Voice header repetitions	2
TX preamble duration	300ms
Filter Own ID In MissCall	Off
Digital Remote Stun&&Kill	Off
Digital Monitor	Double Slot
Digital Monitor CC	Any
Digital Monitor ID	Any
Monitor Slot Hold	On
Remote Monitor	Off
SMS Format	M-SMS

OK Cancel



Advanced Stuff (cont)

- **4.2 Talk Permit**
 - **Use Talk Permit to prevent Doubling**
 - Repeater lets you know if TS is busy
 - Set on a per-Channel basis
 - **Default is Always**
 - Use for Simplex or Net Control
 - **Channel Free or Same Color Code**
 - To Prevent Doubling

Advanced Stuff (cont)

The TX Permit parameter on Anytone DMR radios controls when the radio is allowed to transmit, helping prevent interference or "doubling" with other users.

What TX Permit Does

TX Permit defines the conditions under which your radio will allow you to transmit (i.e., when you press the PTT button). It helps avoid transmitting over someone else's signal, especially on busy repeaters or hotspots.

TX Permit Options Explained

Setting	Behavior
Always	Transmits immediately, regardless of channel status. Risk of doubling.
Channel Free	Only allows transmission when the channel is clear. Prevents interference.
Same Color Code	Transmits only if the incoming signal matches the same color code.
Different Color Code	Transmits if the signal has a different color code. Useful in niche setups.

Advanced Stuff (cont)

Channel Information Edit---2501

Channel Name: PVARC PVARC

Receive Frequency: 447.12000
Transmit Frequency: 442.12000
Correct Frequency[Hz]: 0

Channel Type: D-Digital
Transmit Power: Mid
Band Width: 12.5K
TX Permit: Same Color Code
Scan List: SouthBay DMR
APRS Report Type: Off
Analog APRS PTT Mode: Off
Digital APRS PTT Mode: Off
Digital APRS Report Channel: 1
Exclude Channel From Roaming: Off
DMR MODE: Repeater
Analog APRS Report Freq: 1

PTT Prohibit Talk Around(Simplex) Auto Scan
 APRS RX Work Alone DataACK Disable

Digital

Contact: PVARC

Radio ID: KN6UMV
Color Code: 1
Slot: Slot2
Receive Group List: None
Digital Encryption: Off
Extend Encryption Type: AES
ARC4 Encryption Code: Off
AES Digital Encryption: Off
Random key: Off
Multiple key: Off
TX Interrupt: Off
SMS Forbid: Off

Send Talker Alias Call Confirmation Ranging
 TDMA Adaptive SMS Confirmation BT Hands Free

Analog

CTCSS/DCS Decode: Off
CTCSS/DCS Encode: Off
Squelch Mode: Carrier
Optional Signal: Off
DTMF ID:
2Tone ID: 1
5Tone ID: 1
PTT ID: Off

Scrambler Set: Off
Custom Scrambler: 2.6k
 Comander Reverse
2TONE Decode: 1
Custom CTCSS: 0.0
R5toneBot: 1
R5toneEot: 1

OK Cancel Previous Next