

Understanding DMR Networks

Presentation By:
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www.DMRTexas.net

www.LiveFromTheHamshack.tv

Ham Radio 2.0

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HAMRADIO2.0

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DMR – Digital Mobile Radio

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A Place to Find All Things DMR in Texas

Different Networks

- DMR-MARC

- First in USA
- Uses C-Bridges



- Brandmeister

- Master Server
- Allows Hotspots
- Some Talkgroups inter-connected



- DMR+

- Connects DV4Mini USB Hotspots to DMR-MARC Network

Which One Is Better ??



History of DMR in USA

- Ratified in 2005 by the European Telecommunications Standard Institute
- March 2009: Paul K6EH was operating a UHF TRBO repeater in standalone digital mode from Hollywood Hills in Los Angeles county, California in 2008. This site has a very wide area coverage location and spurred our initial interest in DMR. It is likely that Paul's repeater (DMM actually long before DMM was included in the MotoTRBO firmware) was the very first Ham TRBO repeater in the USA and this was well before IPSC was provided by Motorola.
- June 27, 2009: On this Saturday morning we had our first IPSC connection. The repeaters were located in Mt Pleasant IA (Randy WB0VHB), Culver City CA (Ray WA6NVL, master repeater) and Costa Mesa CA (Mike WB6WUI; now NO7RF). We successfully connected the 3 repeaters and were up and chatting on the "All Call" talkgroup, using the new repeater firmware R01.04.09 (6500's running R01.04.01). All three repeaters were sitting on the desks and all 3 repeaters were the original R01.xx demo repeaters that had been sitting on the dealer shelves for several years.
- Full history at <http://www.trbo.org/history.html>

History of DMR in USA, Page 2

- At the 2009 Dayton Hamvention, Jim Hopper (W5EBQ) and Paul Alred (W5PCA) had a meeting with the DMR-MARC folks and decided to setup the first Cbridge in Texas, named Lonestar
- Brandmeister started in 2015

DMR Networks

- DMR-MARC
- DCI TRBO
- Lonestar
- DMRX
- K4USD
- Crossroads
- Chicagoland
- Rocky Mountain Ham
- DMR-FL
- Bronx TRBO
- Brandmeister
- DMR+

C-Bridge Configuration

DMR-MARC

Worldwide
N. America
WW English
Regionals

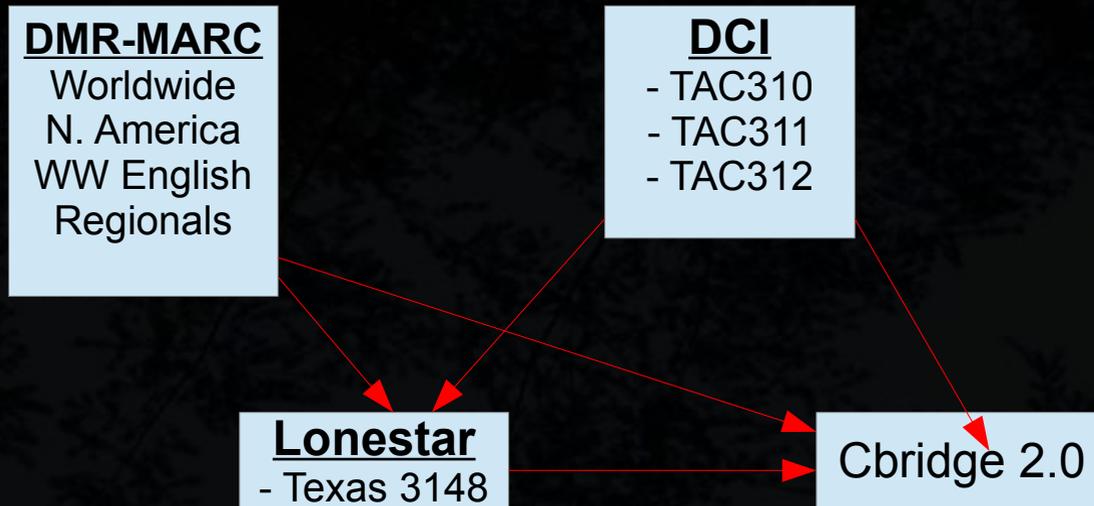
DCI

- TAC310
- TAC311
- TAC312

Lonestar

- Texas 3148

Cbridge 2.0



C-Bridge Configuration

DMR-MARC

Worldwide
N. America
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Regionals

DCI

- TAC310
- TAC311
- TAC312

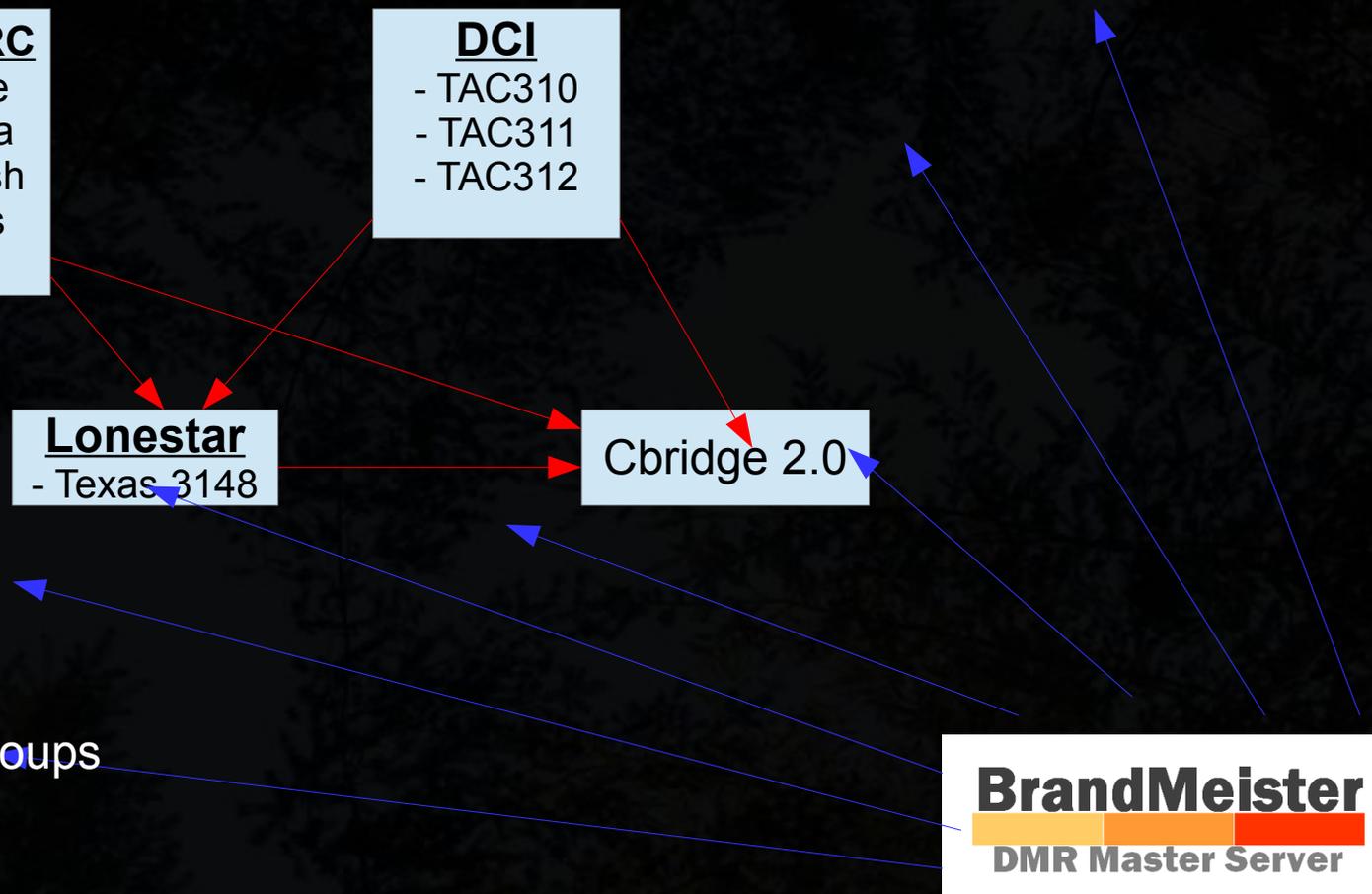
Lonestar

- Texas 3148

Cbridge 2.0

+1000 Talkgroups

BrandMeister
DMR Master Server



C-Bridge – more than DMR

Examine some/all Bridge Groups on CBridge 2.0

Connection type	Bridge Groups	Site name	Link ID	Group ID	
all	all	all	all	all	
all					
Analog					
Control Center Inbound	Inbound	AR Statewide - CC	BM-US-3102	5	silence
Control Center Outbound	Inbound	AZ Statewide - CC	BM-US-3102	4	silence
Host n Host	Inbound	BM Amarillo WIRES-x - CC	BM-US-3102	85	silence
I.P.S.C. group voice	Inbound	BM Corsicana Link - CC	BM-US-3102	49	silence
Network Sound	Inbound	BM DMR Track - CC	BM-US-3102	89	silence
Rnipc					
RnPC					
SIP					
edit	Control Center Inbound	BM Hillshero Link - CC	BM-US-3102	78	silence
edit	Control Center Inbound	BM Howe Link - CC	BM-US-3102	33	silence
edit	Control Center Inbound	BM North Texas - CC	BM-US-3102	81	silence
edit	Control Center Inbound	BM RFinder - CC	BM-US-3102	70	silence
edit	Control Center Inbound	BM South Texas - CC	BM-US-3102	82	silence
edit	Control Center Inbound	BM SouthEast Texas - CC	BM-US-3102	84	silence
edit	Control Center Inbound	BM TGIF - CC	BM-US-3102	65	silence
edit	Control Center Inbound	BM TX.Chat - CC	BM-US-3102	80	silence
edit	Control Center Inbound	BM Texas-Nexus - CC	BM-US-3102	88	silence

DMR-MARC \neq C-Bridge

C-Bridge Netwatch

BridgeCom
SYSTEMS

Control Center CBridge 2.0

00:03:50 June 08, 2018 UTC

Active calls and History filter

start time	duration	source peer alias	source radio alias	dest. bridge group	RSSI (dBm)	site name	loss rate
00:03:38.898 Jun 8	11.0	1118291	N9RUT - James - Noblesville Indiana USA -- 1118291	BM TGIF - CC	0.000	BM-US-3102	0.0%
00:03:31.319 Jun 8	19.0	314845302	KB5RAB - Russell - Conroe Texas USA -- 3148453	BM SouthEast Texas - CC	0.000	BM-US-3102	0.0%
00:03:46.797 Jun 8	3.0	Hotspot	KB5QAT - Theodore - Egan Louisiana USA -- 3122205	TAC310 - CC	0.000	DMRX-P	0.0%
00:03:34.012 Jun 8	16.0	K3OCM - Towson Maryland USA -- 312401	K3TEL - Arnold - Baltimore Maryland USA -- 3124094	North America - CC	0.000	DMR-MARC-CC1	48.3%

start time	duration	source peer alias	source radio alias	dest. bridge group	RSSI (dBm)	site name	loss rate
00:03:37.198 Jun 8	2.0	Hotspot	KN4ILH - Frank - Churchville Virginia USA -- 1151054	TAC310 - CC	0.000	DMRX-P	0.0%
00:03:35.416 Jun 8	1.0	Hotspot	WA5KYV - Charles - El Paso Texas USA -- 3158042	BM-Texas - CC	0.000	BM-US-3102	0.0%
00:02:57.381 Jun 8	38.0	Hotspot	KD4L - Victor - Orlando Florida USA -- 3157845	TAC310 - CC	0.000	DMRX-P	0.2%
00:03:12.347 Jun 8	19.0	Hotspot	K4WZV - Robert - Brooksville Florida USA -- 1112526	BM TGIF - CC	0.000	BM-US-3102	0.0%
00:02:50.935 Jun 8	34.0	K3OCM - Towson Maryland USA -- 312401	K3TUJ - William - Arbutus Maryland USA -- 3124413	North America - CC	-114.2	DMR-MARC-CC1	10.2%
00:03:04.252 Jun 8	22.0	314844013	WB8ZFL - Bob - Pearland Texas USA -- 3148444	BM SouthEast Texas - CC	0.000	BM-US-3102	0.0%
00:03:07.236 Jun 8	3.0	KJ4KKB - Dallas Georgia USA -- 311311	KN4FRS - Nathan - Cartersville Georgia USA -- 3113687	DCI Bridge - BM USA - CC	-84.4	DMRX-P	1.2%
00:03:04.951 Jun 8	1.0	3158236	N5ZSO - Ray - San Angelo Texas USA -- 3158236	DCI Bridge - BM USA - CC	0.000	DMRX-P	0.0%
00:02:08.432 Jun 8	58.0	1118291	N9RUT - James - Noblesville Indiana USA -- 1118291	BM TGIF - CC	0.000	BM-US-3102	0.0%
00:02:57.664 Jun 8	2.0	Hotspot	W9EO - Eric - Monrovia California USA -- 3107249	TAC311 - CC	0.000	DMRX-P	Not avail.
00:01:39.198 Jun 8	79.0	314845302	KB5RAB - Russell - Conroe Texas USA -- 3148453	BM SouthEast Texas - CC	0.000	BM-US-3102	0.0%
00:02:31.117 Jun 8	21.0	Hotspot	KB5QAT - Theodore - Egan Louisiana USA -- 3122205	TAC310 - CC	0.000	DMRX-P	0.0%
00:02:43.042 Jun 8	3.0	K3OCM - Towson Maryland USA -- 312401	K3TEL - Arnold - Baltimore Maryland USA -- 3124094	North America - CC	-69.3	DMR-MARC-CC1	35.0%
00:02:44.189 Jun 8	1.0	Hotspot	W9EO - Eric - Monrovia California USA -- 3107249	TAC311 - CC	0.000	DMRX-P	Not avail.
00:01:27.953 Jun 8	69.0	K3OCM - Towson Maryland USA -- 312401	K3TUJ - William - Arbutus Maryland USA -- 3124413	North America - CC	-115.0	DMR-MARC-CC1	5.1%
00:02:31.990 Jun 8	1.0	Hotspot	W9EO - Eric - Monrovia California USA -- 3107249	TAC311 - CC	0.000	DMRX-P	Not avail.
00:02:21.229 Jun 8	2.0	1126190	KA9FON - Milton - Hastings Michigan USA -- 1126190	TAC311 - CC	0.000	DMRX-P	0.0%
00:02:11.738 Jun 8	10.0	Hotspot	KD4L - Victor - Orlando Florida USA -- 3157845	TAC310 - CC	0.000	DMRX-P	0.0%
00:02:03.229 Jun 8	2.0	Hotspot	KB5QAT - Theodore - Egan Louisiana USA -- 3122205	TAC310 - CC	0.000	DMRX-P	0.0%

Brandmeister Dashboard

Master Menu

- Master Dashboard
- BM3101
- BM3102
- BM3108

BM Core Menu

- User Management

Actions

Get IP address Drop call on slot 1 Drop dynamic groups on slot 1 Drop call on slot 2 Drop dynamic groups on slot 2 Reset repeater connection

Reflector Settings

Active reflector 4000 Set

Default reflector 4639 Set

Reflector timeout (sec) 0 Set

Static Talkgroups Timeslot 1

→ ←

- North America (93)
- Australia (505)
- USA - Nationwide (Bridge) (3100)
- Arizona (3104)

Static Talkgroups Timeslot 2

→ ←

- World-wide (91)
- Connecticut (3109)
- Texas (3148)
- NorPA (3190)

Clusters + Add Cluster

Active Clusters:

Remove

Scheduled static + Add Scheduled Static

Active Timed Statics:

- Slot: 2 TG: 31665: Friday 19:30 - 20:30
- Slot: 2 TG: 31648: Tuesday 20:30 - 21:30
- Slot: 2 TG: 3109: Sunday 20:30 - 21:00
- Slot: 1 TG: 3106: Monday 23:00 - Tuesday 00:00

Remove

</> with ❤️ by the Brandmeister Dev Team [Like us on Facebook!](#) [Donate a ☕ or a 🍷](#) [Support](#) [Legal Information](#) [Project Halligan Version 1.3.2-b4198528](#)

Brandmeister Hoseline

Hose line

Talk groups

Scanner

Explore

Online

EN

BRANDMEISTER

Active calls in the last 15 minutes

Time	Duration	Call	Group
19:18:15	2s	3110842	310
19:18:12	1s	3110842	310
19:18:04	5s	KD2ISX (Tracey L Neidel)	310
19:18:00	2s	3110842	310
19:17:57	2s	K3IHI (Luis D)	310
19:17:40	17s	N5JLB	310
19:17:26	8s	KD2ISX (Tracey L Neidel)	310
19:17:04	19s	N5JLB	310
19:16:58	2s	KD2ISX (Tracey L Neidel)	310
19:16:49	4s	N5JLB	310
19:16:38	1s	WB2MLY (Raymond M Burns)	310
19:16:28	5s	KD2ISX (Tracey L Neidel)	310
19:16:22	0s	KD9HLD (Kelvin B Joy)	310
19:16:06	3s	WA4ASI (George C)	310

Who's talking?



Audio level



Controls

300-12000 Hz BPF

AGC

Bass

Middle

Treble

Spectrum



Hoseline Access

- Monitored by everyone
- Passes audio
- Can connect to talkgroups from hotspots

C-Bridge and Brandmeister

C-Bridges

- Originate Talkgroups
- Anyone can own
- Pass Talkgroups from other C-Bridges
- Pass Talkgroups from Brandmeister
- Repeater and Hotspot Access

Brandmeister

- Originate Talkgroups
- Master Server – Owned by Brandmeister
- Pass Talkgroups from Brandmeister
- Repeater and Hotspot Access

Strengths

C-Bridge

- More customizable
- Private talkgroups easier
- Multiple networks
- Mostly repeaters

Brandmeister

- More uniform
- Easier Hotspot setup
- Repeater Owner (Sysop) access to Dashboard
- APRS enabled

More Info

- Video series on Ham Radio 2.0
 - www.LiveFromTheHamshack.tv