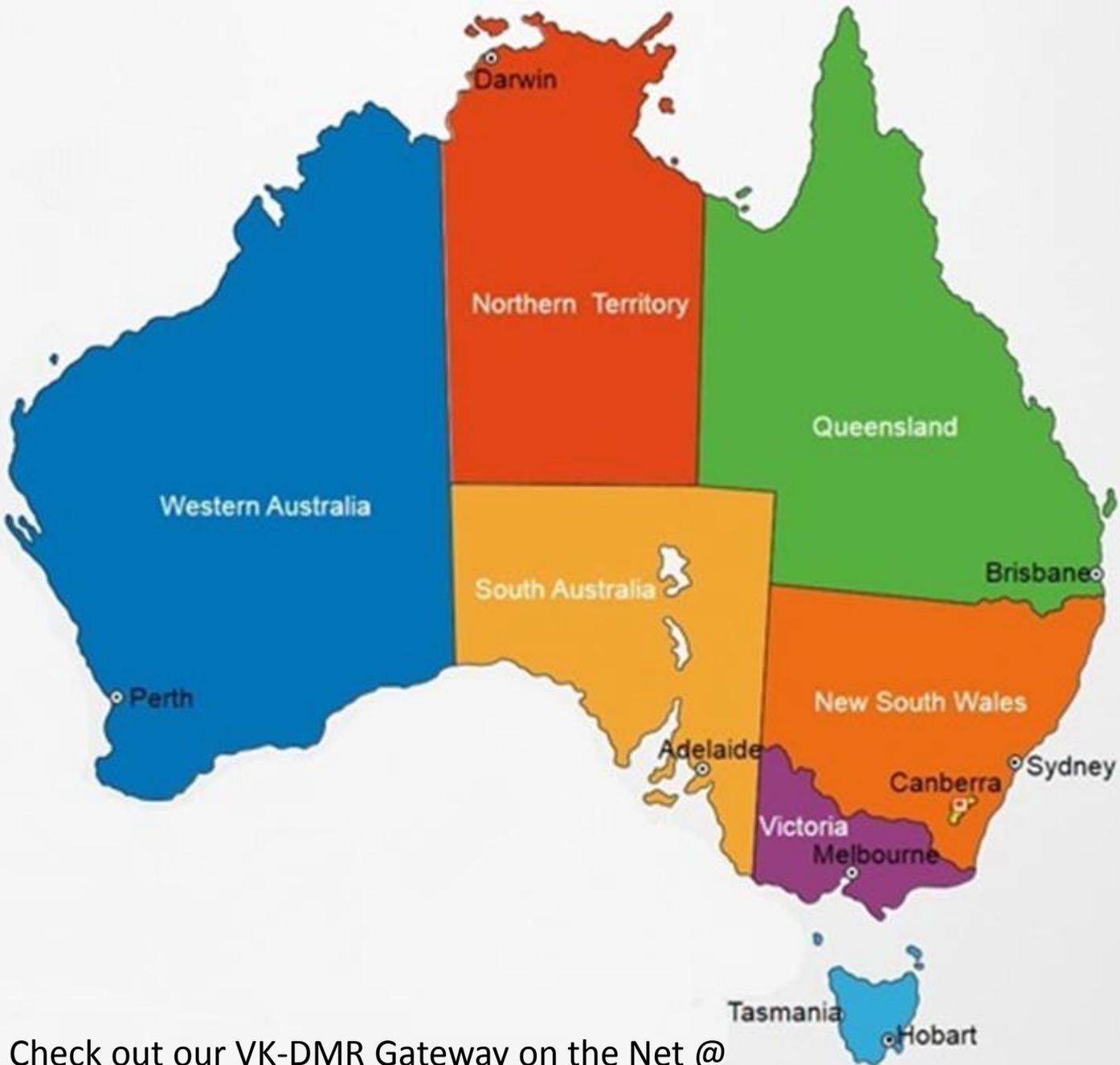


VK DMR Network Newsletter July 2016

VK-Trbo DMR Network

Issue 4, July 2016



Check out our VK-DMR Gateway on the Net @

<http://vkdmr.net/>

This Internet Gateway will show you who is on and who they are if you do not have them in your Contact list.

VK DMR Network Newsletter July 2016

4th Edition

Well it's another VK DMR Network newsletter time, and I would like to say we are growing in numbers for VK and below is a State by State number count

VK1 = 11

VK2 = 174

VK3 = 84

VK4 = 101

VK5 = 12

VK6 = 38

VK7 = 8

VK8 = 1

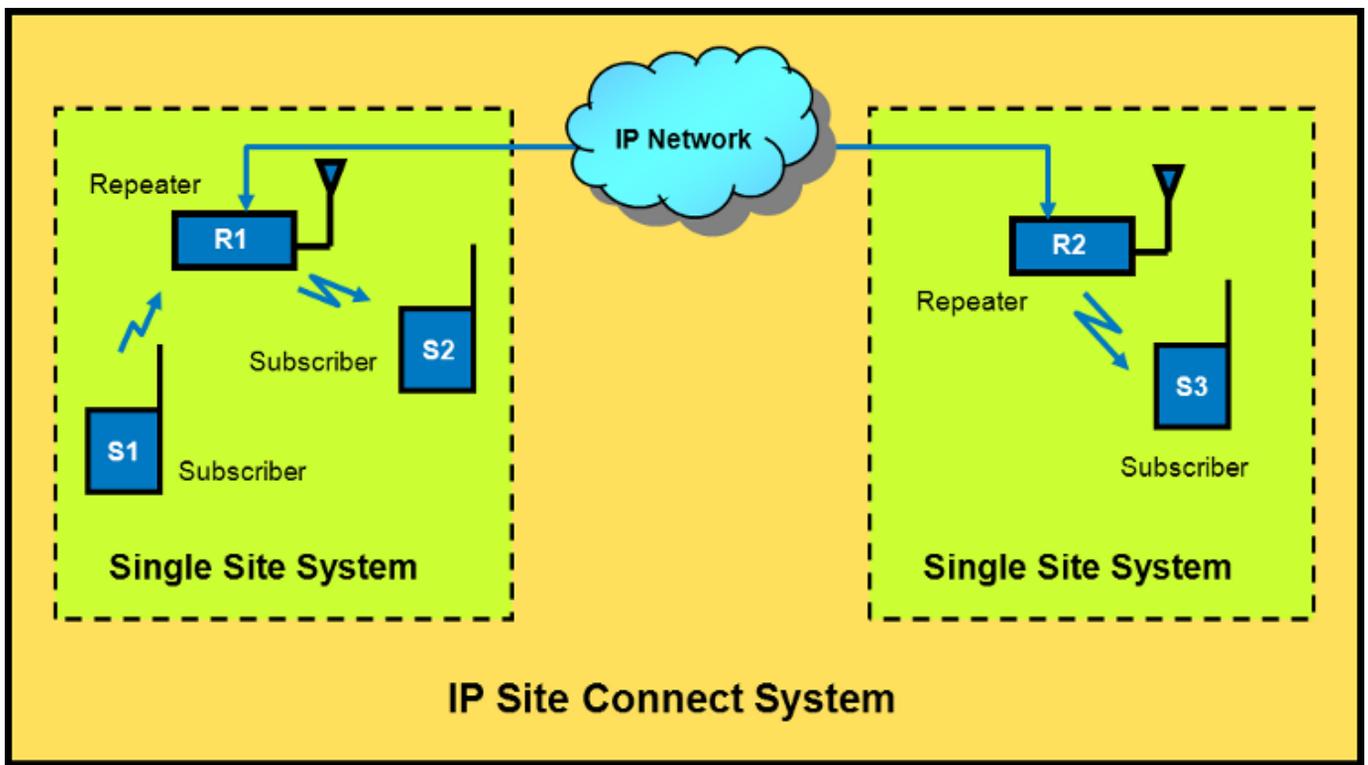


Total DMR ID's for VK is currently at **428 Users**, Not all of the ID's are on our VK DMR Network, as some are using Dongles / DV4 Mini's

And just for some information on the number of users in ZL = **286 Users**, and the same here not all are on the ZL Trbo Network.

Just remember that only real DMR Radios can be used on the VK DMR Network, Dongles and Mini DV4 Minis are not connected on the VK DMR Network.

We can add to the VK-Trbo network any other Amateur club or individual DMR repeater to the network to expand the coverage and enhance the DMR experience for all.



VK DMR Network Newsletter July 2016

4th Edition

Hello all DMR Users in VK

First up I would like to say we have had some changes to our Network for VK with a change in the Connection settings for the DMR Repeaters.

I can say currently not all of the Repeaters are connected back again to the VK-Trbo Network

Also we have now added some new TG (Talk Groups) to the VK-Trbo Network

Below are the new TG (Talk Groups) and the Time Slot they are on TS 1 (UA 10minute time without activity)

TG 133 = USA National

TG 143 = UK National

TG 153 = South Pacific Region

Also TG 5 on TS 2 was the VK/ZL Connection, but this has now been removed and is now APAC

TG 5 on TS 1

So for the next bit of news we now have Total of 428 Registered users in VK

Now not all of these are on the VK-Trbo network as some are on the Brandmeister System and this is NOT connected to the VK-Trbo Network at all.

This Network is mostly users of DVMini Dongles that are part of the D-Star users where this came from originally.

We currently only know of 1 Brandmeister Repeater that is working and supports DMR Portables and Mobiles as real DMR radio users.

We have added a New Repeater in Melbourne VK3RMC location is Berwick and on 439.375 MHz with a -5 MHz offset

Colour Code is 1 and all of the Standard connections apply to this new Repeater.

Hopefully in a week or so the New VK1 Repeater will be on line as well.

This New DMR Repeater is VK1RBM on 438.81250 MHz with a -7MHz off set

Again with a colour Code 1 with all of the standard connections to the rest of the VK-Trbo Network.

Also we have hit a new connections level for VK with a Total of 15 DMR Repeaters

1 for VK1, 3 for VK2, 5 for VK3, 4 for VK4, 2 for VK6

Also we have a total of 428 Users for VK

VK1 we have 11 users, VK2 we have 174 users, VK3 we have 84 users, VK4 we have 101 users, VK5 we have 12 users, VK6 we have 38 users, VK7 we have 8 users and VK8 we have 1 user.

As we are expanding at a great rate now, I would like to see if some of the users have Programming files to share with the rest of the VK users who receive this newsletter, and help new users to program their radios.

VK DMR Network Newsletter July 2016

4th Edition

Back in October 2015

In VK we currently have 242 Registered users and in ZL they have 152 Registered users, and we are growing all the time.

Now in July 2016 we have 428 registered users, so in 9 months we have almost added 200 more DMR users.

We are growing very fast and I see more and more users coming into the DMR world very quickly. This is not just here in VK but a global expansion for DMR and what DMR can do.

Do you have a Club Night, if so please drop us a email and we will try to arrange a DMR Demo for the Night to show your club the VK-Trbo DMR network on how it works and what the digital world can bring to users and also show you how 2 users can use the same repeater at the same time.

Also it is a real eye opener if you also have a Hamfest coming up as this can also be displayed to a even larger group of people how attend the Hanfest.

We are not a Single Branded Radio product, we have many different types of Radio brands on the VK-Trbo Network



VK DMR Network Newsletter July 2016

4th Edition

Digital vs. Analog

If you are use to operating on analogue FM repeaters, you will have noticed that the audio quality degrades as a station's signal into the repeater (uplink) gets weaker; you start hearing an increase in noise bursts intermixed with the audio until the signal gets so weak that the station can no long access the repeater or you cannot understand the audio because of noise. As you move further from the repeater you will start hearing the same noise bursts into your receiver as the repeater's signal gets weaker (downlink) until you can no longer hear the repeater.

A combination of a station's weak signal into a repeater and a repeater's weak signal to the listener can make the usability degrade faster.

The basic difference with digital repeaters is that the audio quality remains the same on the uplink and downlink until the very end of the coverage range; then the audio starts sounding broken (missing portions of the speech) on DMR systems caused by lost packets.

The Internet can also drop the UDP packets used for moving traffic between repeaters and bridges, causing the same broken audio affect. Analog static is a thing of the past using DMR. DMR has Forward Error Correction (FEC) which can correct small bit errors, slightly extending the usable range and improving communication quality.

Better quality receivers can operate at a lower noise floor, higher power transmitters, and higher gain antenna systems will also extend coverage of both analogue and digital systems.

Two-Slot TDMA

DMR Tier II/Tier III occupies a 12.5 kHz bandwidth that two channels share using Time-Division Multiple Access (TDMA).

This results in spectrum efficiency of 6.25 kHz per channel.

Comparing the spectrum efficiency of DMR to a wideband analogue FM, DMR only uses 25% of the bandwidth per talk channel.

Each channel can carry either voice and or data depending on system design.

The two time slots are called Time Slot 1 (TS1) and Time Slot 2 (TS2)

For the amateur, this means one repeater allows two separate channels at the same time.

Currently most amateur DMR repeater system implementations utilize both channels for voice and some limited text messaging. Typically one channel (time slot) is used for wide-area and the second is local and regional Talk Groups.

For repeater operators, a single two-slot TDMA repeater offers a significant savings over two standalone repeaters to obtain two separate communication channels as only one repeater, one duplexer, and one antenna system is required.

The utilization of TDMA offers about a 40% battery savings on transmit, extending talking time over non-TDMA and analogue transmissions for Portable users.

VK DMR Network Newsletter July 2016

4th Edition

The two-slot TDMA implemented in DMR uplinks (portable or mobile to repeater) uses a 30-ms window for each time slot, the 30-ms is further divided into a 27.5ms frame and a 2.5-ms gap.

This means when transmitting, your transmitter is only

Turned on for 27.5ms every 60ms, resulting in extended battery life for portables. The DMR repeater (downlink) transmits a continuous data stream even if only one timeslot is being used; the 2.5-ms uplink gap is replaced with a CACH burst (Common Announcement Channel) that is used for channel management and low speed signalling.

The 27.5-ms frame consists of a total of 264-bits; 108-bit payload, 48-bit SYNC or embedded signalling, and a second 108-bit payload for a total of 216-bits of payload per frame.

The vocoder must compress 60-ms of audio with FEC (forward error correction) into 216-bits of data for transmission. The 2.5ms-gap is used for guard time to allow PA ramping and propagation delay.

Talk Groups

Talk Groups (TG) are a way for groups of users to share a time slot (one-to-many) without distracting and disrupting other users of the time slot.

It should be noted that only one Talk Group can be using a time slot at a time.

If your radio is not programmed to listen to a Talk Group, you will not hear that Talk Group's traffic.

The VK-Trbo Mototrbo™ network supports a number of Talk Groups on TS1 including World Wide,

TG 505 on TS 2 is for VK Calling and chatting.

TG 13 on TS 1 is for World Wide English (TG13).

TS2 is for local, state, and regional Talk Groups.

Example TG 5052 on TS 2 will only connect the VK2 Repeaters and will not pass outside of VK2, also this is the same for TG 5053 on TS 2 will only connect VK3 Repeaters and will not pass outside of VK3.

Now we also have TG 9 on TS 1 and this is LOCAL only, and is only for the LOCAL repeater and is not passed to any other repeater

Check with your local repeater operator to find out what Talk Groups/Time Slots are available on a repeater.

For simplex traffic, the accepted standard in the amateur community is to use TG 505 on TS1 with Colour Code 1 (CC 1)

We have a Digital Simplex frequency for VK on 70cm which is 439.200MHz

VK DMR Network Newsletter July 2016

4th Edition

Some Talk Groups are available all the time, while others only at pre-programmed times, these TG are User defined as TG 113 and TG 123 both are on TS 1.

These can be used to have a 1 to 1 Talk without interfering with Other TG's on the network, Example you have a friend in the UK and he can access his local repeater using TG 113 and you can go to TG 113 on your local repeater and Key up the repeater and they key up their repeater and they will be joined for a time before resuming normal operations.

Some Talk Groups require a local user to PTT on the Talk Group to activate it for a period of time.

Since only one Talk Group can be active at a time on a time slot, many systems will disable other Talk Groups when a local user is active on a different Talk Group on the time slot. Be ham friendly and try to use Talk Groups that tie up the fewest number of repeaters if you are going to have a long QSO's.

Code Plugs

A code plug is simply a radio's configuration file. Using a manufacturer's programming software you configure the channels and operating parameters of a radio.

This file is uploaded to the radio and typically should also be saved on your computer as a backup.

You can also download the code plug from a radio to modify it.

Building a code plug can take many hours, especially if you want to program hundreds of channels.

The code plug can also contain a Contact List of Radio IDs, call signs, and names to be displayed.

You can find copies of configured code plugs on the web for different models of radio; check out the different Yahoo DMR groups.

All DMR radios support a limited number of entries in the Contact List; you can download Code Plugs with the Contact List populated using a generator on the DMR-MARC home page.

VK DMR Network Newsletter July 2016

4th Edition

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Contact People in Australia below.

Peter Brennan	VK3TE	vk3te@bigpond.com
Joe Nevin	VK6ZTN	joe.nevin@gmail.com
Danny Ainsworth	VK4ZUK	vk4zuk@gmail.com
John McNamee	VK6AG	vk6ag@wia.org.au

Yahoo Group:

<https://groups.yahoo.com/neo/groups/VK-DMR/info>

If you have any Code Plugs (Program files to share upload to here please.)

Various Links:

<http://vkdmr.net/> - VK C-Bridge status

<http://vk6rrr.blogspot.com.au/>

<http://dmr.darc.de/>

<http://dmr-bridge.digital-hamradio.net:42420/MinimalNetwatch>

<http://www.foxhollow.ca/DMR/Contacts/MD380/DMR-Contacts-CS700-MD380%20AUSTRALIA.TXT>

<http://www.trbolnk.com/dmr/>

<http://arec.info/downloads/>

<http://dmrtechtalk.org/index.php/repeaters/>

<http://dmrtechtalk.org/>

VK DMR Network Newsletter July 2016

4th Edition

Please use the Table below to add in the correct TG with the TS for programming of your DMR Radio.

As we add to our VK-Trbo network we will be updating this Table below, so keep this handy.

Name	Talk Group	Time Slot	Description
WW	1	1	World Wide calling channel only and then move off to other TG (Talk Group)
APAC	5	1	This is the main talk group APAC, but full configured yet (Still setting up)
Local	9	1	Local traffic (Only the repeater you are on)
			World Wide English language talk group
WWE	13	1	This is the main talk group for worldwide contacts
UAE1	113	1	World Wide English language user activated talk group
UAE2	123	1	World Wide English language user activated talk group
TG 133	133	1	USA Nation Wide.
TG 143	143	1	UK Nation Wide.
TG 153	153	1	South Pacific
All VK	505	2	VK-wide Network
Simplex	505	1	439.200 MHz Simplex for Digital
VK1	5051	2	Local VK1 Repeaters
VK2	5052	2	Local VK2 Repeaters
VK3	5053	2	Local VK3 Repeaters
VK4	5054	2	Local VK4 Repeaters
VK5	5055	2	Local VK5 Repeaters
VK6	5056	2	Local VK6 Repeaters
VK7	5057	2	Local VK7 Repeaters
VK8	5058	2	Local VK8 Repeaters

If you have any requests for special Talk Groups (TG) please let us know via Email and you can find us on page 8 of this July 2016 VK DMR Network Newsletter