Newsletter May 2016 – 10th Edition

Hello and Welcome to the newsletter.

The News from around New Zealand. Note: Only new updates are added each month

Auckland
Steve ZL1SB has converted his hotspot into a duplex system and is waiting for a duplexer to arrive.
Call sign is ZL1AKD.
For now users can access the hotspot by setting up their rigs in repeater reverse mode.
145.375 MHz -600kHz is the repeater frequency but for now use repeater reverse.
Dashboard is at http://zl1akd.ddns.net:82
Now running an Odroid C1+, eMMC RAM and the DG9VH dashboard.
The DG9VH dashboard features remote desktop control and BER signal quality read out not available on the G2 Dplus dashboards.

Hawkes Bay HamFest 8 April 2016
As part of the Hawkes Bay HamFest John ZL2TWS and I agreed to assist the organisers of this event as presenters. We decided to split the 60 minute time allocated into two 30 minute sessions – I spoke first of D-STAR basics and D-STAR Five Years on.
John then spoke about the technical side of things, especially covering off on Hotspots and other recent developments in the D-STAR world.

As you all know D-STAR and I guess all digital radio is a moving beast, and at times it feels that it is moving almost every day, with new products coming out on regular basis.

Over the hour we manage to get through most of our topics before the Q&A sessions at the end of get talk. We received a great deal of feedback about the session with many positive comments.
We are hoping to hear more D-STAR users coming on from the Hawkes Bay now that ZL2HBD UHF Repeater is up and running.

Next on the talking circuit is NZART Conference, over Queens Birthday Weekend in Christchurch.
Brian ZL1HN and I will be running two 30 minute sessions on the Sunday.
Brian will be speaking about Hotspots: what are they and how to set them up and programming your D-STAR radio. My topics will be a quick update on all things D-STAR & what's happening in the D-STAR World. Plus Q&A session.

So there is plenty going on and sessions to get to.
Make a point of trying to get to one of these venues as they are announced, so get updates and to rub shoulders with other D-STAR users.

Mark ZL2UFI

HOTSPOTS Update – John ZL2TWS
Ramdisk for Raspberry Pi2 running VK4TUX F21 image.
Odroid C1 observations and comparisons.

The TUX F21 image has been in use on various Raspberry Pi hotspots for some time now.
It has some nice features such as remote control "linkto" scripts, delayed start DVAP and DVRPTR modem scripts and DL5DI dashboard with easy to configure D-Star programs.

DummyRepeater works with DV Dongles (Blue), DV3K (White) and DV3000 (Red) devices.

However regular complaints were received about the image locking up or becoming unresponsive.
This was often indicated by a high CPU temperature.
Users were forced to find an alternative solution.
After the known hardware issues such as PSU quality and SMPS external light masking was dealt with the next step of investigation was the uSD card usage.

Some hotspots have changed to the Western D-Star RPi image with similar reported problems so it was not the image that was at fault but more the D-Star application dealing with slow media.

More hotspots have changed to the Western D-Star Odroid image but they were found to have auto start problems with the DVAPs and DVRPTR USB port connected modems.
Western D-Star was advised and agreed that I had found a problem with the widget program.
Brian GW6WTK is working on a solution for this.

It was observed that the Odroid C1 uses a separate USB port controller and Ethernet port controller where as the RPi series of ARM devices uses a common shared controller.

This has lead to an on going investigation into data flow clashes that could cause further issues.
At this time no proof has been clearly identified that there is a problem between the two different controllers used on each device.

The Odroid C1 also uses eMMC Ram instead of uSD card as an option.
The difference between eMMC and uSD can be researched on the Inter-Web.
Test results indicate that the eMMC was fast with consistence write speed over variable uSD card speed.
Odroid C1 hotspots have had a very reliable long time running record while using eMMC ram instead of the uSD card.
This lead me to look more closely at the reliability of the uSD card for anything else than to boot and run the OS and applications.

uSD cards have a well documented limited number of write cycles and eventually the uSD fills in size with ircDDBGateway, Timerserver, DStarRepeater and other D-Star log files.
The access time also seems to be a problem with this being proven by upgrading SanDisk uSD cards from Ultra Class 10 to Extreme versions of the cards.
Tests I have done with the Ubuntu disk utility benchmark tool show that write speeds for Ultra class 10 is 10MB/sec and for Extreme is 20MB/sec. (both can also be seen to be slow and erratic on used cards indicating bad media)

A Raspberry Pi running on an Extreme uSD card will last longer before the CPU temperature increases and the hotspot becomes unresponsive.

I believe that RPi and others can run for a long time between re-boots if the excessive cards writes are reduced if not eliminated and transferred to share the 1GB onboard RAM.

To avoid excessive uSD card writes create a ramdisk.

WARNING:
Before continuing further take a backup image of your 16GB uSD card.
You might prefer to use a freshly created image on a new 16GB SanDisk Extreme card.

Procedure follows:
In terminal type: mkdir /mnt/ramdisk

Navigate to /etc from a terminal window.
Type: nano fstab
Enter this line below the existing entries and note the tabs / spaces used are important.

tmpfs /mnt/ramdisk tmpfs nodev,nosuid,noexec,nodiratime,mode=1777   0 0

Save using Ctrl-x, Yes to save.

Note:
1) If you want to set a size limit of the ramdisk to 100Meg then edit the line like this.

tmpfs /mnt/ramdisk tmpfs nodev,nosuid,noexec,nodiratime,size=100M,mode=1777   0 0

2) When the hotspot is rebooted the ramdisk is flushed clean and all log files are lost.

Once the ramdisk is created check by re-booting the RPi.
When the desktop is back and ircDDBGateway is running open a terminal window.
Type: df –h

The result will show you how much uSD card space is in use and the ram in use by the ramdisk as tmpfs,
size, used size, available size, used % /mnt/ramdisk.
Immediately after creating the ramdisk there will be no usage of the allocated space.
This is just to check that the ramdisk was created and the size you selected is correct.

Now edit the following files to tell D-Star and dashboard where to store and use the log files.
Replace any text found "/var/log" and "/var/log/dstar" with /mnt/ramdisk and use Ctrl-x, Yes to save.

nano /usr/bin/irc
nano /usr/bin/dstar1
nano /usr/bin/dstar2
nano /usr/bin/dstar3
nano /usr/bin/dstar4
nano /usr/local/bin/ircddbgateway.sh
nano /usr/lib/systemd/system/timeserver.service
nano /usr/bin/tail.sh
nano /usr/bin/delay.sh
nano /var/www/lighttpd/ircddblocal.php

Re-boot after saving.
With the desktop displayed as above, open a terminal window.
Type: df –h and hit return.
This can be repeated every so often to check on the ramdisk usage so you know it is working.

You can also take a look with Dolphin file manager at /mnt/ramdisk to see the log files in action.
From the F21 menu>D-Star>Logs the multitail-Konsole display will show the new /mnt/ramdisk location and activity on ircDDBGateway and DStarRepeater.
This is used to view the log only otherwise use Dolphin and view the files directly in /mnt/ramdisk.

Clean up time and further notes.
Once the ramdisk is operational a clean up of the old log files can take place.
This serves two purposes.
1) Clean up and gain back disk space but if you would rather leave them there then you know those sectors will never be used again with possibility of corrupt writing.
2) Ensures that all the log files are being written to the ramdisk. Log file location can be checks a few days after operation on the ramdisk.
3) Original ircddbgw_conf and dstarrepeater_conf configuration files still have /var/log/ locations and don't need changing as the above edits instruct auto-start scripts to relocate the log files from the already installed and setup executables.

Log file location for deleting if required.
Log files are located in /var/log and /var/log/dstar

Conclusion:
Many images have been developed by hams willing to share their knowledge and progress the development of D-Star.
Because digital radio is a high speed growth area using computers and the Inter-Web it is not uncommon for programs and devices to be quickly superseded.

The frustration is often programs and low cost devices that have never had the "final touches" put on them.
A down fall of open source and hams doing things in their own shack for free perhaps?

Join in the D-Star community to experiment with these changes described in this article.
Constructive feedback is welcome.
Please remember this is fun and we all want to enjoy using D-Star hotspots with reliability.

I hope that this article is a step toward that goal.

73, John ZL2TWS.

Acknowledgments of software developers:
Adrian VK4TUX
Brian GW6WTK
Kim DG9VH
Jonathan G4KLX
Hans DL5DI

CCS7 (Call Connection System 7)
The following list of stations that are working at the time of publication.
Please try them. You can check each hotspot dashboard to verify your connection.
ZL2ARN (530)1082
ZL1SB (530)1091
ZL2JML (530)2009
ZL2SFM (530)1072
ZL2NSA (530)2018
ZL3CHD (530)3049
ZL1HN (530)1074
ZL2TWS (530)1011
ZL2TWT (530)1073

NOTE: If your call sign is missing from this list and you want to be included please let us know.

DV Dongle and DVAP devices
New "bluespot" device is on the market and already being included in the latest hotspot images.
www.pa7lim.nl/bluespot/

How to contribute to this newsletter
The newsletter is published in the first week of each month.
Send any articles and pictures sized no larger than 200kbs to one of the contacts listed below.
The close off date is the **last day** of each month.

Auckland and Hamilton is Brian ZL1HN (zl1hn@xtra.co.nz)
Tauranga is Kevin ZL1KRH (zl1krh@ihug.co.nz)
Hawke's Bay region is Jan ZL2CZE (jan.s@eastek.co.nz)
Wellington region is John ZL2TWS (zl2tws@clear.net.nz)
Christchurch is Mike Barnes ZL3TMB (mike@barnes.net.nz)
Invercargill and ZL4 is Daniel ZL4DE (zl4de@icloud.com)

Hint: Each month useful links will be placed on the last two pages of the newsletter so you always know where to go quickly to find them.

facebook page called ZL DSTAR https://www.facebook.com/groups/184445028555391/

Repeater Gateways with dashboards:

Auckland. https://zl1vhd.dstar.org.nz/ (Dplus)

Auckland. https://zl1hk.dyndns.org (Dplus)

Auckland. http://zl1akd.ddns.net:82 (ircDDB)

Hamilton. http://zl1cct.d-star.nz (ircDDB) **CCS7 8530100**

Tauranga. http://222.154.227.90:81 (ircDDB) **CCS7 8530001**

Te Puke. https://zl1ibd.dstar.org.nz (Dplus)

Hawke's Bay. http://zl2hbd.ddns.net:82 (ircDDB) **CCS7 8530002**

Wellington. http://123.255.47.67 (dual dashboard with Dplus below the ircDDB) **CCS7 8530304**

Wellington. https://123.255.47.67 (Dplus only dashboard)

New Zealand Reflector XRF063. http://162.248.141.148

Other sites for reference information:

ZL2VH Web site. http://zl2vh.org.nz/d-star/

KiwiD-Star group. https://groups.yahoo.com/neo/groups/KiwiD-STAR/info

Examples of these hotspots with dashboards that you can view and connect to this month:
ZL1AKD (http://zl1akd.ddns.net:82)
ZL2JML (http://zl2jml.ddns.net:82)
ZL2NSA (http://zl2nsa.ddns.net:82)
ZL3CHD (http://zl3chd.ddns.net:83)

ZL Host lists
ZL gateways and hotspots.
On the Branch 63 site you can retrieve the host files at any time. They are small text files.
 http://zl2vh.org.nz/d-star/links/
Title is "ZL Gateways and Hotspot Host files"
Alternatively here. http://zl2vh.org.nz/assets/d-star-hosts/

ircDDB Visibility
For those who want to be visible on the ircDDB "live" list.
http://www.ircddb.net/live.htm
Do the following from this URL:
http://ircddb.net/live-vis.html
UR:VIS ON and then transmit once.
Then revert the UR:CQCQCQ
Once you transmit via an ircDDB enabled gateway using RF your call sign will be seen to be live on the dashboard and also listed on the ircDDB "last heard" list on the local dashboard.

Previous issues of this newsletter are available from http://zl2vh.org.nz/d-star/newsletter/
or the KiwiD-Star Yahoo group.
https://groups.yahoo.com/neo/groups/KiwiD-STAR/files/D-Star Newsletters/

D-Star Net to join
http://www.dstarinfo.com/nets.aspx
Friday afternoon at 16:00 REF012A **PAPA D-Star round table net** is a technical net and well worth joining. The net runs for 3 hours or more and has a "shout box" type web forum you can also contribute to.
http://d-star-roundtable.boards.net/

Editor Note:
Always have a D-Star newsletter available for lookup of gateways and hotspots.
Really helps when you can't remember where to go or haven't programmed in the destination call yet.

73 and good DV.

Chief editor John ZL2TWS. Proof reader Brian ZL1HN.