August 2012

Presidents Report

Hi everyone... thanks to all of you that turned out for the two recent minuted meetings. Quite a number of items were on the agenda, and with two additional items added to the last of the two meetings meant two long nights of discussion. I feel that the output from the two meetings was good and we now have a path forward for the next year of so... well at least until December 2013.

For those not able to attend the biggest news is that the club has approved the building of a 6M Repeater for Mt Climie. We have agreed to the purchase of new duplexers for this band which together with the new 6M antenna built recently by Neil ZL2TNG for the 6M Beacon means that a delivery date of no later than December 2012 is an achievable target. As this project will involve funds from not only the club, but members as well, I extend the opportunity for club members to assist with the cost by donating additional funds to the project. Already Richard ZL2FY and one anonymous donator have each donated $25.00 each. This project will not only benefit branch members but the wider Wellington and New Zealand amateurs as well. We hope to use the frequencies previously allocated to Mt Climie a few years ago of TX 53.800 and RX 52.800.

New (retuned eight cavity) duplexers have been installed on D-Star 860 so improvements should be experienced there, thanks to John Zl2TWS and Gerry ZL2TDN.

The D-Star 5425 VHF Repeater will have been on site for its first twelve months as of 6 August 2012.

And finally, the interference that has been an issue on Climie 730 has been resolved. This interference had driven many users away from 730 as they struggled to get into the repeater from afar or with weak signals. We hope that the interference doesn't return but please report all these issues to the repeater trustees Simon ZL2BRG and Peter ZL2HM so these can be tracked and resolved ASAP.

Well that's about it from me....good DX and 73's.

Mark ZL2UFI

Repeater Update

Beacons

6m 10m

Nothing to report. Both beacons operational.

3cm

The 3cm Beacon construction is progressing. An alternate DDS Driver and keyer set of PCB's have been ordered. For info on the keyer we are using see

http://rudius.net/oz2m/ngnb/index.htm

1292 (23cm) Repeater

Nothing to report.

860 (D-Star 70cm) Repeater

John ZL2TWS and Jerry ZL2TDN plan a site visit to install 860's eight cavity duplexer's in an effort to improve 860's performance. A report will be provided in the next issue.

5425 (D-Star 2M) Repeater

Nothing to report.
Loan D-Star Radio's.
The Club has two IC2820's D-Star Dual Band Mobile radios and at least one of these is available to loan to club members who want to try out D-Star. Contact Mark ZL2UFI for details.

730 (FM 2M) Repeater

Telecom / Downer recently did some work on their pager system installation at Climie and I'm pleased to say that the interference on 730 from the pagers has disappeared. Many thanks to all those involved at Telecom, Downer and our own ZL2TWS and ZL2HM for their efforts.
At the End of June Peter Moore ZL2HM and ZL2BRG used a portable network analyser and spectrum analyser to check the condition of 730, 5425 and 860 antenna installations. The results were pretty much as expected with no major issues found.
A couple of weeks later 730 developed a fault going off Air. Initially diagnosed to be a PSU fault but turns out to be a TX exciter problem. The backup Slimline repeater has been installed as temporary cover until the main 730 repeater is repaired.

Save Ham Radio...

Keep our bands...

Transmit on them!

After being appointed as the webmaster, I noticed a few things on the website that could be done slightly more efficiently. Because of this, I tweaked the way in which the website works behind the scenes.

I'm still using most of the original HTML put up by Mark, but I've interwoven a bit of PHP code. This new code lets elements that are repeated across each page be stored in only one place and effectively copied and pasted temporarily into a page (the title, menu bar etc.) when it's being delivered to a visitor.

My job is also made easier when changing the look or layout of the entire website as I only need to edit one page and the changes are applied to all.

Changes you'll notice:

> Inevitably, any pages on the club website you bookmarked before early June will no longer be valid. Please check your bookmarks and correct them if necessary.
>
> The About page which had previously listed contact details for the President, Vice President and Secretary has now been deleted. The details were already on the Contact page and these duplicates were not needed.
>
> For convenience's sake, I have extended the menu bar as well. It now contains direct links to the Repeaters page and the D-Star links page. Both of these pages contain useful information and are accessed frequently but hadn't previously had a link to them on the main menu.

Please feel free to contact me if you have any ideas, suggestions or proposals for the site. It's a powerful tool which can be used to raise awareness of the club's and amateur radio so any suggestions are welcome.

Thanks and 73s

David ZL2DBP

Do you know what RPT1 or RPT2 are?

Do you know what Urcall or Mycall mean??

D-Star 101 Training session

Saturday 4 August 2012, 10.00 am at the clubrooms.

This session will be two hours long.

It will cover the basics of D-Star.

Find out how to set up a D-Star transceiver.
Find out what a DV-Dongle is.
Find out what you do with a DVAP.
Open to current Branch 63 members only.
BBQ after.

IRLP Node 6931: A beginning 2003-2012

By Mark Gooding – ZL2UFI

The original IRLP Node 691 was setup in November 2001. This node was connected to Mt Climie 730 Repeater in March 2002. Later the same year the node numbers were changed to 4 digit numbers – the node became 6910. In early 2003, the club decided to take control of the node itself. An IRLP Board, Node PC, and a link radio were obtained, and building commenced. This initial work was done by Shane Harvey ZL2WKI. This is where the story of Node 6931 starts.

Would you be prepared to take on this task?

Arrrrr….. Neil's famous or should that be infamous email he sent to me one night about taking on the installation and operation of the IRLP Node. Of course, always up for the challenge. So I said yes, without a second thought. Hmmm… maybe I should have thought this through first – anyway, something new to learn I thought. I have been involved with computers for many years now and thought this would be a great challenge…. this proved to be a huge undertaking, not unlike making the Lord of the Rings trilogy.

The hardware arrives

On Friday night; 28 November 2003 I met Neil ZL2TNG at the Clubrooms. He said I have something for you. I was then handed over the Node PC, keyboard, mouse, Kenwood TR 2200G, various cables, and three IRLP installation documents.

"Take them home, have a play and see if you can get them going" said Neil.

Hmm… I thought, assemble it, turn it on, configure it, and I should have it going!

Installation

Shane had already installed the IRLP software. The software installation included the operating system, Red Hat version 7.3 (a version of Linux). Shane had previously setup the original Node 6910 in Masterton and Node 6920 in Palmerston North - so had quite a lot of experience. However he has since moved to Auckland and had no time to complete the installation. Shane had completed the install to the point where the Node number had been assigned. (Node numbers are assigned randomly by country at the time of the initial install process.) All that was required from here was a broadband Internet connection and a link radio. One of the security features of IRLP is that it uses is PGP – Pretty Good Privacy. PGP is used to generate security keys which each node uses to authenticate itself on the IRLP network – so when calling another node PGP keys are exchanged. If the keys are accepted the call goes through, if not the call is declined. This stops nodes from faking other nodes, and also unauthorised access to the network. This authentication process can take as long as two weeks to complete from initial installation of the IRLP software. This work by Shane saved valuable time in the end, and probably not an easy task in itself. Anyway onto getting this PC going.

Week One – The setup

As luck would have it, I had just commenced two weeks of annual leave – I had to take it or lose it (the leave that is). I had not really planned too much so this would be an ideal time to commence this task. This week consisted of sorting through all that I had been given. I put the Node PC to one side, and read through the documents. I then spent some time on the IRLP web site reading and downloading as much as possible. It took me several days to find a sample interface cable schematic. I then realised that this project was not going to be straight forward. What I had found was an example that Don Lee W6FYI had produced for his Kenwood THF6A handheld. This proved the basis for the making of a cable for the Kenwood we had. During the week, the Dynalink Router (ADSL Modem/Router) arrived, more equipment and more documentation to read. So after week one, I went to the next meeting at the clubrooms, not much further on, but a whole lot wiser about this project. Have router will travel? Read on!

Getting the Router working

Well, this was a job than I was confident of cracking quickly, since I have had some experience in this area. Again the learning curve was to provide steep, and a difficult climb was ahead for me. Getting the router, a Dynalink RTA 220, up and running on Telecoms' Jetstream was not a problem at all. Read the Quick Install manual, following the instructions, and the router was up and running. Initially, I used my own PC, as I had all the software I needed on this PC if things went wrong – nothing did but better to work with something you know. The Node PC runs Red Hat Linux in a text-only version, meaning command line bashing, this would normally prove bit of a challenge (i.e. similar to typing commands in DOS, if you remember this prior to Windows coming along). No problems I was a DOS/Windows man from way back. Most versions of Linux have a graphical front end but this is not required for IRLP, and as such is not installed (not recommended to install later either!). So have you ever tried surfing the Internet with a text-only browser – not a graphical one like Internet Explorer or Netscape? Well, it has been some years since I first got on the Internet, in late 1995 – even then I was using Windows 3.11 and Netscape 2.02, although the Internet was a lot of grey pages, some had graphics. So I did all of the configuring of the router through my Windows PC, not the Node PC although this could be done. (Red Hat has a text browser called Lynx so it can all be done from Linux.) The router like all similar boxes offers two ways to configure them – a graphical way through a web browser like Internet Explorer or through a text only browser using a program called Telnet. Let me say this – graphical use is the best way! To cut a long story short – the full documentation with the router gives some hint on things but is short on explanations. I even called Dynalink support on their 0800 number but this wasn't helpful – the discussion with Tech Support went like this – have you read the manual? Yes. Have you read the FAQ on the Web Site? Yes. Have you tried this, or that? Yes. Can't help at present don't have one in front of me. Tell you what; have another go, and call me back if it doesn't work. Great – I'm still on my own. So I tried my current adage "It's all on the Internet, you just have to find it." I searched on Google for all of about 30-40 minutes, and located a setup describing an earlier model the RTA 100. I read the details and thought that I could apply this to the RTA 220. Because I am an Echolink fan – and having set this up on my router at home, I thought, if I can get Echolink going from my PC then getting the Node PC to work would be easy. The secret was to use the Virtual Servers module in the routers setup to forward ports from the router, to the Node PC. Think of ports on a PC as doors into and out of your PC. Don't be alarmed but there are some 65,000 ports on PC's that can be opened or closed. These ports are one of things that hackers exploit to hack your PC – so here is the reason to have a firewall to keep the hackers out. A firewall is a piece of hardware or software that allows you to be in effect the gatekeeper of the ports. All PC's connected to the Internet should have a firewall and of course a good antivirus program. Back to router – EchoLink like IRLP requires special ports to be open in both directions to allow communication – in and out. Once I had "forwarded" these ports from the router, to my Windows PC EchoLink worked immediately. I then set up the Node PC's IRLP ports – and I had the Node PC talking to the IRLP Servers across the Internet. Another step to having the IRLP Node working – minus the radio equipment I had the node "on the air" so to speak. Currently there are two PC's connected to the Jetstream connection at the Clubrooms (it will support more) – the Node PC and one of the clubs other PC's running Windows 98. This Windows PC is idea for web surfing, controlling the router or any other task as well; although not overly powerful it is suitable for most tasks at the clubrooms. Note: it should be possible to run EchoLink and IRLP on the same connection without any difficulty – either as on a required basis or if an EchoLink Link/repeater connection was setup in the future.

The Yagi

As the Node PC and radio were to be located at the Clubrooms; we needed a suitable antenna to link to the Mt Climie repeater. Initially we intended to use an omni-directional aerial such as a mobile whip or ground plane - this proved not to be very suitable. Neil sorted through the aerials available and after a re-wiring job had produced a 5 element 2 metre yagi. Neil and I then set about installing this on the new pole outside the clubrooms. We had originally planned a visit to the Mt Climie Repeater site that day but decided that this aerial would be a better use of our time. This proved to be the case, and after a couple of hours we had the aerial up, the cable run through the walls (thanks to John ZL2TDK and Gavin ZL2ACT for the tools). Even the SWR was good. What a team!!! One thing that we talked about for some time was, in which direction was Mt Climie from the clubrooms? Have a look for yourself sometime! The yagi was facing just above the roof line, but at the ridge behind the clubrooms. Testing later revealed that a tilt of some 10-20 deg. upwards would be required to improve the received signal back from the repeater. This tilt would have the yagi aiming over the ridge directly at the repeater (this was finally completed on Saturday 27 December 2003) – thanks to John ZL2TWS, Jens ZL2TJT and John's two boys for assisting getting the mast up and down. This tilt has increased the performance of the yagi by some 2-3 db – well worth the effort. This small job only took some 40 odd minutes.

Week Two - The Cable Saga

One of the many lessons learnt on this journey of discovery was how poor in some areas the documentation that is provided for IRLP. I mean not to slight the authors, but help by way of good documentation can save hours and hours of frustration – believe me! Here is a quote from the IRLP Web Site about the cabling: - "You will require a FEMALE DB-9 to interface your radio/repeater/controller and TWO mono or stereo 1/8" audio jacks to connect to your sound card. The audio circuitry (since it is specific to your hardware) is your responsibility." This cable was to provide John ZL2TWS and me some headaches over the coming week as we interfaced the radio to the PC. I was at a slight advantage to John in the beginning, having read the documentation – vague as it was. I recall saying to Neil that this cable (that he had made) doesn't look right and sure enough although Neil had done a sterling job we were missing one of the audio jacks described above. John offered to make the "cable" and left me to do the Node PC. This was one of the best suggestions made – as each of us could put all our efforts into one thing alone (in areas we are used to doing) and get to a common end. So started the week of the 8 December 2003 – each night around 4.00 pm a meeting was held at the clubrooms where John and I each brought to the table the triumphs of that day's work (or in John's case – the previous evenings work). Each nights meeting consisted of – try the cable – talk through the issue – agree on the next step and try again the next night. I must add that the link radio from the clubrooms to the repeater also travelled to John's house over the week for some open heart surgery as well! Needless to say that by Thursday the cable was complete and working. I also replaced the original Sound Blaster 16 card, with a Sound Blaster AWE64 card. This card, although the Rolls Royce of cards in its day is still one of the best around for this type of work. It has treble and bass controls which allow for a more natural sounding voice. Audio quality is one of the issues that all VOIP (Voice over Internet Protocol) modes suffer from, and is the forum of much debate amongst users, operators of IRLP. Later after several tests, most nodes contacted agreed that the audio is in fact very good on our node.

Kenwood TR 2200 – Link Radio

The Kenwood TR 2200G link radio – is a 12 channel crystal controlled 2 metre FM transceiver – made from 1976 to 1979 – 2 watts output on high power. This rig has had some major surgery done to get the right audio inputs and outputs. I have had a work colleague (Hugh ZL2TQD) draw the schematic for those interested. This describes the cable wiring so that the rig can interface with the Node PC. The initial drawing was done by hand by John, and tidied up by Hugh. On the IRLP web site, is the ability to buy pre-made cables – but these are only for specific transceivers namely Alinco and Yaesu. The Alinco brand is not available in New Zealand any more (another saga for another day) and the two Yaesu models are now discontinued. Luckily I have one of these discontinued models, the FT 1500M. I have since ordered one of these cables as it will provide a good backup, if the Kenwood fails.

Simplex Mode

Finally, after a lot of work on John's part with the cabling, we had the node up and running. To say that a high five, and a large hurrah… in the clubrooms was heard when finally we had the node running, was an understatement. We ran the node from the clubrooms on 147.525 MHz simplex from about 1700 hrs on Thursday 11 December 2003. The original idea was have the node up and running on simplex for a week or so, just to iron out any issues, but we decided the next day to get on with the project, and so our "testing" lasted all of 24 hours before we were up and operational.

The First Contact

On Friday 12 December 2003, the old node, 6910 was disabled from Mt Climie for the last time and the new node 6931 was enabled, for the first time. The first contact made on IRLP was on the Western Reflector 9250 with Martin KI4CFS at 1735 hrs (local NZ time). Martin was taking a break at work and he has the honour of working John ZL2TWS and I, as the first contact on the new node. Martin resides in Raleigh, North Carolina, USA. Martin was able to spend some 20 minutes with John and me, commenting on the quality of the audio that the node was producing. Although we haven't had the pleasure to speak to Martin since, we need to record the fact, for the club's history that he was the first contact, via IRLP and the Mt Climie repeater. After this contact, the node was officially launched at 1800 hrs, and made available to all users of the repeater.

The first week of operation

After all the issues of the installation, cabling, aerials, and reading endless documentation the node operated for the first week without incident.

The second week of operation

This week has been the same as the first – no problems. The IRLP Node software can be customised quite easily with small text files called scripts. These scripts are then called by the software as and when required. This second week two scripts were added to the basic install. The previous Node 6910 – had the DTMF code of 77. This code tells the person whether or not if the node is currently connected to another node. This has proved quite useful as a check prior to linking to another node. This was missed in the first week or so of operation of the new node. The second script I added was to stop other nodes connecting if the repeater was in use locally. This means if the repeater is being used by local operators, and another node tries to connect it is given a busy signal and told to try again later. The actual response is "The node you are calling is currently being used locally, please call again later." This stops connecting nodes powering over the top of your conversation – again this proved an annoyance until installed. Other scripts are available – these will be evaluated over time, and added to the Node PC if they prove useful. So there you have it – IRLP Node 6931.

Link on/Link off wave files

On Wednesday 31 December 2003 new link on/link off files were added to the IRLP Node. These files were recorded by Jim ZL2BHF during his visit to Wellington over the Christmas/New Year period. These were recorded at Mike ZL2BPL's place, and then taken to John ZL2TWS's. John added the call of the Kiwi to the link on file. After discussion with Neil, John, and myself – two files were selected and unloaded to the IRLP Servers. These files cannot be heard locally but already good comments have been received from connecting Nodes.

Equipment Details (as at 2003)

Radio - Kenwood TR 2200G
Node PC – HP Vectra – Pentium II 233, 64MB RAM, 4.0 GB Hard drive - running Red Hat Linux 7.3 (text-only version) & IRLP software.
IRLP v 3.0 board Sound card
Sound Blaster AWE64 – Model CT 4520
Dynalink RTA 220 ADSL Modem/Router Jetstream – broadband connection.

Equipment Details (as at 2012)

After a few hardware failures and software updates, this is the current setup:

Radio - Kenwood TR 2200G (still going strong!)
Node PC – Gigabyte – Pentium 4 2.0 GHz Celeron, 512MB RAM, 80 GB Hard drive – Running Linux CentOS 4.5 (text-only version) & IRLP software.
IRLP v 3.0 board Sound card
Onboard Soundcard with the motherboard
Netcomm NB6Plus4 ADSL2+ Modem/Router – broadband connection.

Conclusion

The IRLP Node has reinvigorated Climie 730 usage and amazed those who have returned from many years away. As with any service offered it must perform and be reliable. On average over the nine or so years it has been available 97% of the time. Down time has been due to power and repeater outages, some internet issues, and computer hardware failures.

The IRLP node has proved to be a most reliable piece of hardware, and has the link radio.

All I hope is that it continues to be so....

Acknowledgments

Shane Harvey - ZL2WKI (now ZL2SH) – initial Node PC software install.
Neil – ZL2TNG – advice and encouragement.
John – ZL2TWS – the man with the soldering iron, and RF experience.
John - ZL2TDK and Gavin - ZL2ACT – power tools and GPS equipment.
Jim - ZL2BHF – wave files.

And thanks to any others I have forgotten, you all helped in big and small ways.

Mark ZL2UFI