

# DI G I C O M

The Newsletter of MAXPAK,  
The Midlands Packet User Group

Editor: David Maydew M0DCM @ GB7MAX

DC73

June / July 2004

## Node/BBS News

Correct 11th July 2004

### GB7MAX /BLOX Node

The BBS, now using WinFBB continues to perform satisfactorily.  
Direct Telnet access to the BBS on Port 4001 is available. The XRrouter Node continues to work well. Telnet access to the BLOX node on Port 2323 is still very much available and is working well.

TCPIP access to BLOX is now available.

Contact Chris, G0CNG, sysop, for further information or access password authorisation.

### GB7PMB

GB7PMB is currently active on 144.950 MHz, 70.3375 MHz and 432.675 MHz (attended only).  
Direct Telnet access to the BBS on Port 4001 is available. Telnet and TCPIP access to the SALOP node on Port 2323 is also available .

Contact Tony, G7BUG or Chris, G0CNG, for further information or access password authorisation

### GB7WV NODES

All nodes and the UI digipeater are working OK

### DY NODES

These nodes are working OK. TCPIP access is available to either DY25 or DY72.

Any feedback should be sent to Chris  
G0CNG@GB7MAX

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### **2004-2005 MEMBER'S MEETINGS**

Monthly Member's Meetings continue to be held at the **Sir Robert Peel Public House**, located on the main A4124 Bell Lane adjacent to the Lichfield Road / Broad Lane Junction and traffic lights (opposite the old Tildesley Ford Garage).  
**A to Z Reference: Square 7G, Page 25.**

The next meeting, at the Sir Robert Peel at 20.00 hrs in the Lounge Bar is **Wednesday 4th August**  
This meeting will be a mid-summer natter evening.

**Please note change of day for MaxPak Meetings**  
The meeting day is now the first Wednesday in the month.

We hope you may be able to pay us a visit at one of these meetings.

## CHAIRMAN'S JOTTINGS

Greetings all, now that summer has arrived, although the weather at the time of writing seems more like autumn :-)

A quiet time packet radio wise but our Network is still working well. GB7MAX and GB7PMB continue to function satisfactorily and the new 4m user and forwarding link between GB7MAX and the new Pelsall BBS, GB7WAL, operated by David, G7BNK, one of our Members, is working well. Some of you may wish to give GB7WAL a try, particularly if you find radio access to GB7MAX slower than you may wish. GB7WAL may be found on 70.3375, 144.850 and 432.650, all port baud rates are 1K2.

I am working to get our nodes IP active. BLOX is now TCPIP active, as well as the DY and GB7WV nodes. If you'd like IP access to any of the Ports please contact me.

We are introducing, on an experimental basis, **split frequency 9K6 Baud 70cms IP facilities** at our Wolverhampton GB7WV node system, utilizing a now redundant link to Buxton since the Buxton node and BBS closed last month.

You will need to be able to **receive on 439.925 MHz** and **transmit on 431.900 MHz** both 9K6 vertical polarisation. 431.900 is now a quiet frequency, ideal for IP working. If you are interested in participating in this experiment, and can receive GB7WV satisfactorily on 439.925 MHz, then please contact me so I can set you up appropriately on the system.

It was good to meet many members at last month's Elvaston Rally, held on a very warm and sunny day (I managed to get a sun-tan in spite of using Factor 25 sun-cream). A very enjoyable, if warm, day was had by all.

During mid May, I and several other Members attended the Packet Conference PKCONF 2004, hosted this year by Fourpack and held in the Worcester area. This was an excellent day and Parts 1 and 2 of the Minutes appear elsewhere in this publication.

Although the Summer Months are traditionally a quiet time for Maxpak, we continue to hold our Monthly Member's and friend's Meetings on the first Wednesday of each month in the Lounge Bar of the Sir Robert Peel Public House, in Bell Lane, Bloxwich. Everyone is very welcome to join us at any of these meetings for an informal drink and chat in pleasant surroundings. August's meeting is on **Wednesday 4th August** from about 19.45 hrs onwards (local time).

We will be attending the 2004 Telford Rally on **Sunday 5th September**, again to be held at the popular RAF Aerospace Museum at Cosford. Once again there is Free Admission to the Site and Rally so do come along for an enjoyable day out.

I conclude this issue's jottings by wishing you all a very happy Summer Break.

Regards from Chris G0CNG  
Maxpak Chairman.

[www.maxpakgb.org.uk](http://www.maxpakgb.org.uk)

# **Minutes of the UK Amateur Packet Radio Conference 2004 (Held in Worcester on Saturday 15th May)**

## Introduction:

This record of the proceedings of the above event has been compiled by Mike G7RAZ, to whom corrections should be sent (either by packet to G7RAZ@GB7WIS.#22.GBR.EU or by email to MikeWager@aol.com).

As in previous years, these minutes are not intended to be an exhaustive account of the proceedings, and readers who would like more details are asked to refer to the PowerPoint presentation files of the main presentations, which are stored at <http://www.pzt.org.uk/pk2004> (courtesy of Paula, G8PZT, and with thanks to their authors).

The circulation of the minutes will be to GBR packet (PK2004, SYSOP and UKIP) and to the web address above.

The minutes will be released as follows:

- Part 1 - Administrative matters - see below
- Part 2 - Items 1-3 (Talks)
- Part 3 - Items 4-7 (Talks)
- Part 4 - Items 8-10 (Discussions and AOB)

There may be delays between these Parts, owing to the considerable time required to process the Conference data. Readers are asked to be patient - or to volunteer their secretarial services for the forthcoming PK2005...

## Part 1 - Administrative Matters

### List of Radio Amateurs Present:

2E1GJN Martin  
G0CNG Chris  
G0EWH Richard  
G0HHH Geoff  
G0KFS Albert  
G0LGS Stewart  
G0SYR Bryan  
G0TWN David  
G0WCI Mark  
G1DVA Paul  
G1PLT Paul  
G1IXV Colin  
G1YGY Chris  
G3ZFR Roger  
G4APL Paul  
G4DIE Ian  
G4FPV Steve  
G6AWT Nick

G6KUI Peter  
G6TJZ Peter  
G6VEY Ian  
G7BNK David  
G7NZM Geoff  
G7RAZ Mike  
G7VBJ David  
G8MNY John  
G8PZT Paula  
M0CYP Andy  
M0DCM David  
M1FDE Anthony

Apologies:

M0PZT, M1CUK, G0FTD, G1DVU, G1NNB, GM3YEW, G4JCP, G4ROA, G6HJP

Initial business

The Conference began at 10.00am and Steve G4FPV (Chairman of Fourpak) welcomed the delegates and thanked Paula for organising and recruiting sorting out agenda recruiting volunteers.

Steve was then persuaded to continue in the role of Conference Chairman, after which Mike G7RAZ was appointed Minutes Secretary.

Steve proceeded to invite the speakers and chair the debates. See Minutes Parts 2-4 for further details.

Conference Agenda

1. Presentation: The MAXPAK Local Area Network  
Speaker: Chris, G0CNG
2. Presentation: GlobalNet - A Global Packet Routing System  
Speaker: Paula, G8PZT
3. Presentation: A KISS RF LAN project  
Speaker: Anthony, M1FDE

Coffee Break

4. Presentation: ARMAPS - Amateur Radio Messaging and Paging System  
Speaker: Paula, G8PZT.
5. Presentation: Wireless LANs  
Speaker: Anthony, M1FDE

### Lunch Break

6. Presentation: XARPM - A packet mail and news reader for Linux  
Speakers: Ian, G6VEY and Colin, G1IXV
7. Presentation: The current 70cm licensing situation  
Speaker: Nick, G6AWT

### Coffee break

8. Discussion: Managing the combined RF/Internet-linked Network  
Speaker: Paula, G8PZT
9. Discussion: Private Mail Routing Issues  
Speaker: Paula, G8PZT
10. Any other business

### Closing business

A brief update on progress since the last conference brought proceeding to an end a little after 5.00pm. Steve G4FPV thanked all who had contributed to the organisation of the conference, most notably Paula G8PZT for having cajoled contributions, coordinated the agenda and arranged the venue.

### Part 2 - Items 1-3 (Talks)

#### Item 1 - Presentation: The MAXPAK Local Area Network

Speaker: Chris, G0CNG, Chairman of MAXPAK

Chris gave an update of the MAXPAK network in the Wolverhampton area. He observed that the network had many radio links even in this era of Internet usage. Hard copies of his PowerPoint slides were offered and he reminded delegates that information was also available from Digicom, the MAXPAK newsletter.

The main MAXPAK node, GB7WV, is situated in the Mander Centre in the middle of Wolverhampton. It runs Xrouter and is giving good service, with thanks to various assistants (including Peter G6KUI). Some jobs remain to be done, but Chris was pleased with the current situation.

Chris outlined WV's various links (e.g. to GB7VT in Newcastle-under-Lyme, to Worcester, to Corley, to GB7MAX/BLOX in Bloxwich), described its user ports (accessible within a 30 mile radius), and mentioned its APRS digipeater.

New links were in the pipeline. A link to a node in Telford is being developed; one port is already working, with a 4m port still to complete. Coming soon will be a 23cms link into the WV system - possibly in the summer. Links to Sedgley, and Kings Heath (south Birmingham) are also envisaged.

Chris described the BBS provision within the network. GB7MAX in Bloxwich has both telnet and RF access (4m, 2m, 70cms). Also GB7PMB in Newport. AXUDP links from BLOX extend to a range of national and international destinations.

During the questions which followed, delegates were pleased to note the amount of RF being used for linking. Chris also invited applications from anyone interested in linking, as there was some spare capacity.

Item 2 - Presentation: GlobalNet - A Global Packet Routing System  
Speaker: Paula, G8PZT

Paula explained that her inspiration for this idea was seeing people texting each other on their mobile phones; it was a slow but popular means of communication. Why not have a similar application with Packet Radio? We have the equipment - it only needs some software and a suitable protocol. APRS might be seen to perform this function, but it relies on a single congested frequency and is not reliable over long distances. Need to route packets from source to destination without knowledge of intervening nodes. Paula's focus is to develop a global infrastructure software and protocols, reliant in part on the Internet but using radio where possible and most essentially at the users' end.

The existing packet network has severe limitations. If we are on holiday in Spain, the local packet node may well be ignorant of any UK nodes, so we'd have to node-hop (which could take a longer time to get through, with RTT timing means that the link will drop out). Moreover users are not part of the network, so you can't connect directly to them. Finally NETROM doesn't have a datagram mode, for sending a single self-contained packet from one end user to another.

We need a global addressing and routing scheme to allow connections without knowing the routes. E.g. "CONNECT ZL2VAL" is all you want. Should support all layers, support datagrams, support control protocol, and remain compatible with existing software and protocols (as there will always be those who will not change).

Can change in an evolutionary manner. If idea good - otherwise system will remain as before.

NETROM is widely used and it works well on radio and routing is self-configuring, but has only a finite space for nodes table. It is not scaleable (e.g. can't handle a node table of 100,000 nodes) It has no datagram mode and so can't do user-to-user circuits.

On the other hand IP would be OK. But it needs wire links or very reliable links. Its protocol is verbose making it inefficient on radio. Despite the presence of IP in some nodes it is not realistic to get IP to every node.

Paula said she didn't know much about ROSE or FlexNET, but in any case there was little chance of getting sysops to all change to a different system.

She suggested a possible compromise - to extend Netrom without breaking the existing network. Some of the current nodes in the Netrom list could be GlobalNet routers. These nodes would form a network of their own, exchanging GlobalNet traffic through the Netrom network. They could also tunnel GlobalNet through TCP/IP networks.

By making the protocol open and extensible we allow any software author to implement it, experiment with it and develop it further. It would be a virtual private network, free from the spamming, jamming and hacking in the Internet world.

GlobalNet would need to adapt Netrom by replacing callsigns with hierarchical information, which can then be used to route the packet to its desired destination. Compare IP where Paula's address (44.131.91.2) tells anyone in the world where her station can be located.

A GlobalNet node would know how to reach the major routers in each country and then they in turn know how to get to the local nodes, and so on.

These addresses should be made easy to understand, remember and administer (at a local level).

They should also be as short as possible to avoid waste of space.

Paula's preference was to use the dotted quad system (as with IP). The hierarchical system is fairly easy to understand and administer. Also a DNS service could be instated to enable looking up of calls, names, etc.

Paula outlined various routing considerations. IP routes are configured manually at the moment, but eventual automatic configuration is envisaged, using a node discovery protocol (currently implemented in Xrouter, albeit temporarily disabled).

Packet format was presented in some detail. Also the range of services which could be catered for (e.g. APRS, node, PMS, name server, time server, etc).

GlobalNet would have a diagnostic side, and be able (for example) to report reasons for a packet having been dumped - Netrom just dumps any packet it cannot route.

The project is at an early stage. Basic functionality is present in Xrouter, but as yet not implemented, nor is it fully documented. Node sysops can ping GlobalNet nodes (using the GPING command) and can connect

from one GlobalNet node to another using the GlobalNet address. It has been tested between UK and NZ. But it is still at an experimental stage, and may see changes yet, for example in packet format.

Future development. The self-configuring of Netrom is a plus. Paula would like the sysop to be able to enter the node's address and leave the node to self-configure. It needs protocol numbers and client protocols. Open source client software needs to be developed. Dynamic address allocation would be desirable to enable transportability of users. Hopefully GlobalNet would make PR much more fun.

Conference delegates were interested in this new venture, although there was concern about its name which may be shared by an existing ISP.

When asked about help, Paula said that individual users' help was not so much sought as input from a software writer for the user interface - user to node protocol.

The problem with IP's fixed nature was addressed. We need a dynamic DNS. Would also have DHCP - where users connect to local node and are allocated a dynamic IP-type address. Ideally amateurs should be able to "roam" (e.g. if in a car).

Paula wanted to put out some test bed software (open source) and let people play with it and develop in the light of experiences. It could work over IP and AX25 frames but there is a problem of an absence of protocol. Protocol numbers have nearly all be snapped up - no more for allocation to protocol developers - we would have to pinch one of already allocated protocols numbers.

We need to introduce the concept to the users, so that users can know it exists and play with it - using existing equipment. We should be able to connect to a local node and then connect to a GN node.

If you're not running Xrouter, Paula could supply the source code, so that it could be written into Linux, for example. Interested parties can go to web site and further cooperation and development is now possible. Once up and running, users can be invited into the experiment - publicity can be placed into magazines etc.

The time scale for delivery of messages was raised. Would it be minutes? Ideally, it would be instant. But if a message doesn't get sent, the user will be informed of non-delivery. The message would be stored on the destination system. If the sending user had roamed, the users' home node would be informed of non-delivery, then when the user logged on from another location, the message will be passed back to home node and then the user could be sent the message once logged on elsewhere.

For more information, contact Paula:

G8pzt@gb7pzt.#24.gbr.eu

G8pzt@blueyonder.co.uk

Or visit her website:

<http://pzt.org.uk/gnet>

### Item 3 - Presentation: A KISS RF LAN project

Speaker: Anthony, M1FDE

Anthony introduced his talk by referring to the problems posed to network development by the current restrictions on 70cms node clearance. He quoted from the TVIPUG website, saying "...our main network which we have painstakingly built operates at 9k6 full duplex on ... 70cms. There are to our knowledge no designs for transceivers for high speed data for higher bands which are readily reproducible."

His talk was aimed at proposing a 2.3GHz transceiver, which could enable the packet data network to be plugged where there are holes - and continue developing into higher transfer rates.

A suitable transceiver exists and is being used by the military - delegates were shown pictures of this - and it could be modified for use with KISS, particularly as this made it independent of modulation being used. It could be accessed by other devices - PCs, Palmtops, Unix devices etc. As the 2.4GHz module is widely obtainable, it can be bought at reasonable cost.

These PRRs (Personal role radios) have been used by the Army when they realised the value of these radios over shouting at each another. Every soldier can be equipped with these high volume, low cost, hands free devices.

Anthony demonstrated the module block diagram of the radio, going on to outline the specifications of the RF operation. The microcontroller was described along with the hardware adaptations required for individual amateur use. Anthony outlined the software adaptations still required. It would have to run with KISS protocol, using control packets to set frequency and power. Test modes would be needed (a licence requirement) - for measuring frequency, power, etc.

The difficulties of the project were addressed. The unit has only small RAM and so there is a shortage of buffer space, with significant limits on MAXFRAME and MAXWIN. With additional limits on MTU, packet fragmentation is forced. Data is passed via the serial port (with maximum standard rate of 19200) but other options might be possible.

The frequency of transmission would be 2.3GHz (the unit can be re-tuned down from its usual 2.4GHz. Within the allocated amateur band, transmissions of 1Mz bandwidth were anticipated. Anthony reported the status of the project as having 4 RF modules tested, 2 case units built and tested, and having parts for 2 more. An ISP has been built and tested (with Win9x/NT). Ongoing work included AVR KISS firmware, a demonstration network, trial links, and antenna experiments.

Anthony illustrated the properties of the 2.3GHz deployment as compared to a 2m operation. The distance covered is considerably less (obstacles such as tree leaves are significant at this frequency) and so there would be a pressing need for a “mesh” type network to be developed, in order for data to be successfully passed between distant users. Every station would need to digipeat for this to work properly.

Delegates were interested in the project and asked how soon before members of public could buy into the project? Anthony said that modules should be available soon, but as to who would build and design the boards, this was unclear.

He also discussed the possible use of higher specification chips, but concluded that it would be advisable to use what is currently in the existing hardware.

The wider viability of the project was raised. Even with units retailing possibly as low as £25, how would we get one in every street? Nonetheless experimentation with the devices was encouraged, along with experimental development of suitable dishes.

For further information on the project, consult the following websites:

<http://homepage.ntlworld.com/mtn/> (but this may not last long)

<http://www.m1fde.org.uk/> (under development)

<http://www.g0mwt.org.uk/>

Also Anthony may be contacted as follows:

[m1fde@g0mwt.org.uk](mailto:m1fde@g0mwt.org.uk)

Parts 3 and 4 to follow in a later issue

**MAXPAK modems  
price list for 2004/05  
Specially reduced prices  
Prices include P & P  
Whilst stocks last!!**

**MAX-01 1200 baud PACKET MODEM**  
Baycom type modem (3 IC's), PCB, circuit diagram & parts list plus all the components required to populate the PCB.  
Price £10.00  
Ready built and tested modems available £5.00 extra

**PRE DRILLED AND PUNCHED CASE  
including installation kit etc.**  
Price £5.00

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**MAX-02 1200 & 9600 baud MODEM.**

Unfortunately, we have now sold our existing stocks of ready built units and kits.  
We do still have some PCB's and cases remaining, together with constructional documentation.

**MAX-02 PCB + construction details and component listing**  
Price £5.00

**PRE DRILLED AND PUNCHED CASE  
including installation kit for MAX-02.**  
Price £7.00

**All above prices + Postage/Packing**

The MAX-01 has been tested with, Windows 3.1x, Windows95, Windows98 and Windows ME

The MAX-02 will **NOT** work with Win 3.1x but has been tested with, Windows95, Windows98 and Windows ME using the AGW software available from the MAXPAK Web Site.

**MAXPAK who's who?**

**2004 - 2005 COMMITTEE MEMBERS**

**Chairman and Membership Secretary**

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**SysOp GB7MAX, GB7WV, MB7UV  
& GB7DY nodes**

Chris G0CNG

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**Hon SysOp GB7PP nodes**

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**All sales items available from Chris  
G0CNG, QTHR as above.**