

HOW to USE AX25 Packet Radio Nodes

by

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This article has come about due to the lack of information that is about on how to use the AX25 Packet Network in the United Kingdom.

It has been assumed that the reader is already familiar with the use of his/her Terminal Node Controller (TNC).

The areas to be covered

Caterham Nodes

How to use the Nodes from a Users point of view

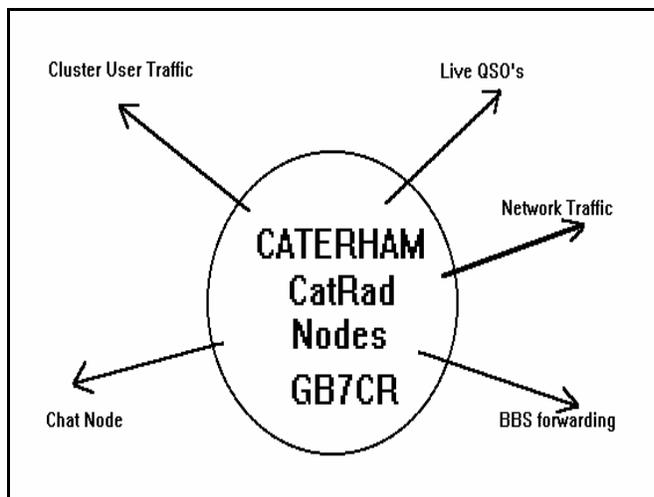
How to make use of the information supplied by the Nodes

How to use the Chat Nodes

First a little about the author. We first came in to Packet Radio in 1984 when at that time there was a program known as BBC Cambridge packet. Which gave us a very good background into Packet Radio. (This system was presented in an Article in RadCom March 1985 page 178).

In 1986 when it appeared that AX25 was starting to take off. We joined the throng and have been heavily involved since then.

Being a member of the Caterham Radio Group (CatRad). Two of us G8DTQ and myself (G4APL) set up TheNet type of nodes to improve the linking for our main interest of having LIVE contacts up and down the country via the 'network'.



As mentioned above the CatRad nodes have been set-up to encourage the use by other Radio Amateurs to have live contacts with different parts of the country, these nodes also assist access to the DX Clusters and movement of the BBS mail forwarding.

The CatRad nodes are privately supported by the System Operators (SysOps).

The sites of the CatRad nodes are located on the North Downs about 1 kilometre apart with back-bone linking on 70cm 9600bd.

There are two 6 metre 1200bd nodes which also gives an access to the network for the Novice Radio Amateurs that have 6m.

These nodes have been designated Caterham A (CATAnn) Caterham B (CATBnn)

Technical details

All TNC's are Pac Com tiny 2's running TheNet Plus 2.08 or 2.10 (at the time of writing this article)

GB7CR-7 (CATA72) 1200bd 432.675Mhz local user access and BBS forwarding

GB7CR-6 (CATA61) 1200bd 50.650Mhz vertical beam south east novice user access and BBS forwarding Surrey<> Sussex point to point

GB7CR-9 (CATA70) 9600bd 432.625Mhz Surrey <> Bucks point to point link no user access

G4APL-10 (CATA81) 9600bd 70cm back bone point to point link no user access

G4APL-4 (CATA42) 1200bd 70.4875Mhz Surrey<>London<>New York link

G4APL-3 (APLTLK) Multi-QSO CatRad Chat Node

G8DTQ-10 (CATB81) 9600bd 70cm back bone point to point link no user access

G8DTQ-6 (CATB62) 1200bd 50.670Mhz horizontal beam north east novice user access and BBS forwarding

G8DTQ-2 (CATB22) 1200bd 144.675Mhz local user access

User's view

This sub heading though not very friendly, what is meant is that the Radio Amateur who has a simple terminal, computer TNC, transceiver.

There are various types of node software in use that supports the NetRom type of node, for example TheNet, TheNet Plus, NETROM, TheNode to list a few. After logging onto these nodes it is possible to work and have a live contact with stations on the other side of the English Channel e.g. Luxemburg, Berlin, USA, Moscow, Sweden, Isle of Man or anywhere with access in the United Kingdom and Eire.

So how do we use the nodes, first of all connect to a Node which will respond with something in the following format

Connected to CATA72:GB7CR-7

not very helpful, enter a ? to get a list of node commands , the node will respond with a list which may include

Bye Connect CQ Heard Nodes Info Routes Users

enter U for Users to list circuits in use and will identify type of node software in use.

this will respond

```
CATA72:GB7CR-7 } TheNet Plus 2.06 (577)
Uplink(G4APL)
Circuit (KUTBBS:GB3KP GB3KP) <--> Circuit (HSNBBS:GB7HSN GB3KP)
Circuit (KUTBBS:GB3KP GB3KP) <..> Circuit (HW72:G6MTQ-7 GB3KP)
Uplink(G3GKF) <..> CQ(G3GKF-15)
Circuit(HSNBBS:GB7HSN GB7HSN) <--> Downlink (G8DTQ-5)
```

This tells us the software on use is TheNet Plus version 2.06
 G4APL has logged on to this node locally
 There is a forwarding session in progress between GB3KP and GB7HSN
 A circuit in the progress of being set-up illustrated by the two dots <..> between GB3KP and another node HW72.
 G3GKF has logged locally and used the CQ facility waiting for someone to connect in response.
 GB7HSN BBS if forwarding to G8DTQ-5

We need to know where the node is located and hopefully we will find something useful entered by the SysOp in the Information field on the node.

enter I for Info the node will respond with something similar as follows

```
CATA72:GB7CR-7} 432.675Mhz Caterham on the Hill Surrey IO91wh
SysOp G4APL at GB7SRC
```

You may also find other additional information added to assist your journey around the network.

The Node command lists the nodes known by node which have propagated through from adjacent nodes. Enter N for a nodes list, this will result in a four column list of nodes.

One line of which may contain something like this
 APLTLK:G4APL-3 CATA61:GB7CR-6 CATB22:G8DTQ-2 CHILDX:GB7DXI

We may want to gain further details of which adjacent node is used to reach one of these nodes which could be at least four nodule hops away.

```
Enter N GB7DXI
node responds
CATA72:GB7CR-7} Routes to: CHILDX:GB7DXI
>70 5 1 CATA61
 40 4 0 HW72
```

This informs us that the best path the system will take is via CATA61 with a Path value of 70 and obsolescent count of 5 (you would normally expect to see 4,5,6 here, anything lower will show you that the path has more likely failed in the previous hour)

The Route command Enter R will list the paths to the adjacent nodes

```
CATA72:GB7CR-7} Routes
> 1 APLTLK      240  1  !
> 1 CATA61      240  74 !
  0 HARROW      120  4  !
> 0 KUT         100  8  !
```

This shows us routes that are locked in by the SysOp indicated by the '!' nodes active are shown by the '>'

the 1 is an RS232 port link to an adjacent TNC
 0 is the radio port

The ident of node or callsign (depends on software release)
 Path quality the higher values locked in are the more reliable paths set-up by the SysOp.
 The number of paths available

With the above information you are now ready for your 'GREAT ADVENTURE' around the network, it is very useful to have a map and a callbook to plot your progress and try to decode the nodes Idents from Nodes list.

You connect to another node in the same way you would connect to another station C GB7SEK.

Once you get the remote node at the other end of the country or even abroad, the problem you are next faced with is how to find someone 'LIVE on the keys'.

Using the information already gained as described above from the User List (look for Uplink stations which may be other Radio Amateurs accessing the network) and list of params the Heard and CQ commands will become useful.

The Heard command

Enter Hea will list the last 20 stations heard in the last 15 minutes

CQ Command

So how do we use the CQ feature of TheNet NetRom type of nodes, by the lack of response we get from using this facility, we can only assume that no one knows how to respond or that there are only machines talking to each other.

The CQ command is used to broadcast a short text message from the node, an enable other users that see the broadcast to connect to the callsign as retransmitted from the remote node.

The TheNet NetRom type of nodes automatically handles the rerouting back to the originating station.

In the User list example above you will notice CQ(G3GKF-15) waiting for a response to the CQ call

```
format
CQ text
CQ CQ from Caterham Surrey anyone LIVE on the keys about Pse.k.
```

The CQ stays primed at the remote node for about 15 minutes or until another command is issued by the originating station. Sometimes the circuits are so busy that it may take 5 minutes for the data to get to the far end.

Well by now you should have a basis of information to enable you to roam around the network and have some very enjoyable contacts.

Chat Nodes

There are various Chat Nodes around, and one particular version will be described as run on the CatRad Caterham Nodes

The name of our Chat Node is affectionately known by the locals as 'APPLE-TALK' APLTLK(G4APL-3)

The software is Mini-Converse from those good people in Germany that produced TheNet software.

Connect to the Chat Node from your local Node if a Chat Node is listed, in our case in the London area, C APLTLK the system will respond connected to APLTLK(G4APL-3), you will then need to issue a further command /W to enable the software to log you on and the system will announce you to all the other stations that are currently logged on to Channel zero.

Once you have logged on anything you type will be transmitted to everybody else that is on the same channel.

Now we will cover some of the commands.

The system supports 256 software channels 0 to 255, so in theory 255 separate contacts could be in progress at the same time.

```
/B          terminate link
/C n        change to channel n (0 - 255)
/H          request help screen
/I callsign Issue an invite to another station to join you on the current channel
/M callsign to send a one line private message to another station
/W          to display WHO is logged onto the system
```

Using this facility you could run multi club packets nets, meet up with your friends at a half way ChatNode, or just logon for a chat.

With the Node and Chat Node information given you now know enough to get even more fun out of this Amateur Radio hobby of ours meeting and seeking out others who wish to have a LIVE contact via Packet Radio.

Look forward to chatting with some of you that manage to logon to the CatRad 'APPLE-TALK' Chat Node.

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