NCPA Downlink

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Hints on Message Preparation

...or: How to make sure your messages will be read

Larry Kenney, WB9LOZ
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Everyone wants their messages to be read, otherwise they wouldn't spend the time to send them, but many people do not spend the little bit of extra time it takes to make sure the message is addressed properly and entered correctly. Here are some hints that will help you get your messages delivered to where you want them delivered in a form that will invite users to read them.

Every message entered has a **Type**, an **Address**, a **Subject**, the **Text** of the message, and the **End Character(s)**. For example, look at this short message:

```
SP W7ABC @ K7XYZ.AZ
I'm on packet!
Hi, John!  I'm now on
packet at N6DEF BBS.
Drop me a line.
73,
Dan, KC6ZYX @
N6DEF.#NOCAL.CA
^Z
```

In this message, the type is SP, the address is W7ABC @ K7XYZ.AZ, the subject is "I'm on packet!", and the end character is CONTROL Z, which echoes as "^Z". The text of the message is, of course, everything in between. We will discuss each of these parts of a message in turn.

Type

First you need to determine what TYPE of message you want to send. There are three types found on a packet bulletin board system: Personal messages, Bulletins, and Traffic for the National Traffic System. You should always select the type of message you're sending. Don't use just an S and let the BBS software determine the type for you. You might end up sending a personal message as a bulletin that everyone can read, or, worse, sending a bulletin as a personal message that only you and the sysops will be able to read. "SP" is used for sending a personal message to one other station, "ST" for sending a message that's going to be handled by the National Traffic System, and "SB" for sending a bulletin that all users can read.

Address

You're able to send a personal message to anyone who's on packet anywhere in the world, an NTS message to just about anyone, and a bulletin to everyone on the local BBS, to everyone at every BBS in Northern California, in the entire state, or all across the entire country. It all depends on your addressing.

The address is entered on the same line following the SP, ST, or SB, with a space in between. The address can have several parts, and it is different for each type of message.

For personal messages...

If you wish to send a message to one particular person, enter SP followed by a space and then that person's callsign. If the person uses the same BBS that you do, no further addressing is needed. If the person uses another BBS, you have to indicate the call of the other BBS and, if it's out of state, the two-letter abbreviation of the state it's located in. For example, to send a message to N5PQ who uses the W5XYZ BBS in Texas, you would enter: SP N5PQ @ W5XYZ.TX The BBS call and the state abbreviation are separated by a period. This is the bare minimum required for delivery of messages to other BBSs in the United States.

To send a message to other countries, a more complete system of addressing is needed. This more complete address is also helpful in directing your messages to stations in the U.S. more quickly. It's called hierarchical addressing, and includes the local area, country and continent codes in addition to the state. The full form is:

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In This Issue

Editorial

Steve Harding, KA6ETB

First of all...my apologies to the membership for the late delivery of this issue. When I was pressed into service as "editor pro tem," we were late for the last issue. In betwixt, NCPA has hosted a very successful CNC for the ARRL, and we were behind again for this issue. Hopefully, soon we will be back on schedule.

Secondly, you members and other readers of these pages can make the job much easier. Tell me the kinds of articles and features you would like to see in these pages. This is *your* newsletter, and you deserve to get the information you want. That's part of what your membership dues pays for.

As I said above, the Computer Networking Conference was a success. All events were well attended. Our thanks to Glenn Tenney, AA6ER, the CNC chairman for yeoman service and a job well done. All the people who volunteered their time for this event are to be commended.

On the Sunday of the conference, NCPA sponsored two beginner's seminars: Introduction to Packet Radio and Introduction to TCP/IP. Both were well attended. In fact, the Intro to TCP/IP seminar was standing room only.

Speaking of volunteers...the NCPA has a volunteer speaker's bureau, headed by Allan Chapman (W6MEO). We have no shortage of requests, but we do have a shortage of speakers. Those of you willing to speak on any topic can contact W6MEO@AL7IN.CA. Let Allan know what your field of expertise is, how far you are willing to travel, and what your availability is.

Also...if your club is doing a training class and you would like to have a speaker for one of your classes, let Allan know.

73 de Steve
PBBS: KA6ETB @ N6LDL.CA
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NCPA Has Moved!

Due to problems with our old mail box manager (misplaced and lost mail, billing errors, etc.), the NCPA has moved its address to a box run by Uncle Sam. Please note the new address for all future correspondance regarding membership information, book orders, newsletter submissions, and other official business. The old box will be maintained for some time until the word gets around. Thanks to everyone for your patience.

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FCC Acts on Packet Radio Violations

*From **W5YI Report**, May 1, 1991*

On January 25, 1991, the FCC sent violations notices to eleven east coast amateurs. Three of them were fined $300 each. The citations were issued due to a single packet radio BBS message allegedly posted by Joseph L. Reed, WA3QNS of Norristown, PA, on the N3LA/Rolf Jesperson bulletin board in Spring City, Pennsylvania.

The message, addressed to @USA (all U.S. amateur stations) publicized a 900 telephone number to call to register opposition to the war in Iraq. One amateur who saw the message was NZ2D, Russel "TJ" Tjepkema of Virginia Beach, VA. Since operators of 900 numbers share revenue with the phone company, "TJ" believed the message was a business communication outlawed under amateur radio rule 97.113(a). The message mentioned a New York City organization known as the "Coalition to Stop U.S. Intervention in the Middle East." It was also reported that callers in the 1-900-44-NO WAR number were assessed a $10.00 charge. "TJ" reported the matter to the FCC in Norfolk, Virginia.

Up until this point, most amateurs were of the opinion that only the originator of a prohibited transmission is responsible for its message content. Such is not the case and J. Jerry Freeman, the Engineer-in-Charge of the Norfolk FCC field office, issued the citations. He is also an Extra Class amateur, W4JJ. Amateurs nationwide were stunned and believed the action might spell an end to automatically controlled packet radio as we know it since all message traffic would now have to be manually reviewed before relay down the line. We chatted with Jerry Freeman about the incident this past weekend.

W5YI: *How did you get involved? Did "TJ" call you in person or write to you?*

FCC: He wrote us a letter and indicated he was concerned about a possible violation. He said "I am writing you to formally report what I believe to be a violation of the FCC regulations regarding commercialized use of the amateur radio frequency spectrum." He described the problem and sent me a copy of the message adding "I realize the legal right to state any political ideology as long as it is done within FCC current regulations." Based on that, we looked at the message and the rules and decided that it was in violation.

W5YI: *You cited eleven different amateurs ...and fined three of them. What determined whether they got a fine or a citation?*

FCC: We have administrative procedures we must follow. If we have sufficient information we can issue a Notice of Apparent Liability, which we did in some cases. The Notice of Violation letters went to operators who automatically retransmitted the message. It simply said "this has occurred. We want your comments."

We have options based on those comments. We can close the matter out. We can ask for additional information. We can issue a Notice of Apparent Liability. Or we can designate the matter for hearing. Situations can be so severe that we must judge whether the individual has the qualifications to remain a Commission licensee. Our job [in the Field Operations Bureau] is to achieve compliance. There are times when this can not be achieved and we have to utilize the criminal justice system in the courts.

We issued Notices of Apparent Liability [for $300] to the alleged message originator and [to station operators] where it first entered the packet system...and where it came out. I wanted information from the other [relaying] operators and [to] call their attention to the fact that this message had gone all over the United States. Our objective was to get the message across to amateurs that you may not automatically retransmit prohibited communications.

A lot of concerns have come up about messages such as 'How can you hold a station operating automatically in violation of the rules. They are exempt.' They really aren't. In fact, Section 97.103(a) of the Amateur rules provides that the licensee of an amateur station shall be responsible for its proper operation. A necessary corollary to this proposition is that if one is responsible for something, it must be under their control.

A licensee of this commission upon being granted a license becomes subject to the requirements as spelled out in the Communications Act. Very specifically, Section 310(d) of Act prohibits a radio station licensee from giving his or her license or any of the rights conveyed by the license to anyone else unless an application is first made so that the Commission may pass upon the qualifications of the would be transferee.

With every right granted, there is also a consistent corollary duty. In this instance, the privilege of holding a radio license gives a licensee a right to transmit and a duty to control these transmissions so that they comport with the Rules. Therefore, it is really not within the power of the Commission to change Section 97.103(a) since it is based on section 310(d) of the Act. When a Rule's basis is statutory in origin, the advocate to rule change must make their desires known...to Congress. That is almost verbatim from some problems that occurred back in the early eighties with repeater stations.

W5YI: *Amateurs have developed a sophisticated packet network and the success of this network is based being able to quickly transfer traffic in time of need. Doesn't your action requiring each automatic relay point to be responsible for message content adversely impact the amateur's ability to effectively network traffic?*

FCC: Amateur radio operators are very resourceful. As I said before, they may not abdicate their responsibilities and I believe they will come up with a system which will be able to prohibit dissemination of unauthorized traffic. It is like someone running a phone patch...sometimes a participant might want to use a foreign language. If the amateur involved trusts the participants, he allows them to speak in a foreign language. If he doesn't, he requires them to speak in English. He is taking a calculated risk. The same thing applies here.

The packet operator may decide that certain individuals can be trusted. Amateurs should come up with some sort of a system to insure that they are complying with the regulations. An amateur who retransmits a business or prohibited message is violating the rules. If there is an emergency their procedures could be changed...they could have various

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Hints on Message Preparation

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```
SP CALLSIGN @
BBSCALL.#AREA.STATE.COUN
TRY.CONTINENT
```

The #AREA, such as our #NOCAL, is optional, but helps direct the message more closely to its final destination and it should be used if you know what it is. The AREA is always preceded by the "pound sign" #. The STATE is the *two*-letter state abbreviation, COUNTRY is the *three*-letter country code, and CONTINENT is the *two*-letter continent code. A list of these country and continent codes is included as a sidebar to this article.

For NTS traffic...

If you have traffic for the National Traffic System, you enter ST ZIPCODE @ NTSXX, where the XX is the two-letter state abbreviation. Examples:

```
ST 03452 @ NTSNH
ST 60626 @ NTSIL
```

For bulletins...

If you wish to send a bulletin, a general message that everyone can read, the ADDRESS will have two parts. The first is the CATEGORY, and the second is the DISTRIBUTION DESIGNATOR.

First, you enter SB followed by a space and then the category of the message. Examples of categories are PACKET, SALE, WANTED, EXAMS, DX, ARRL, AMSAT, INFO, etc. Next, you enter the distribution designator. This designator indicates the area where you want the message distributed. In northern California:

@ ALLCAN indicates that you want the message sent to all Northern California BBSs, which includes all of them north of SantaCruz, Gilroy, and Bakersfield.

@ ALLCA is used for sending a message to EVERY BBS in the state.

@ ALLUSW is used for distribution to CA, AZ, NV, OR, WA and ID.

@ ALLUS is the designator to use for sending a message to *every BBS in the country.*

Extreme care should be exercised when using the @ ALLUS designator. Make sure that the subject matter is of interest to packet users everywhere. Also, keep the text of the message as brief as possible. "Sale" messages, meeting, hamfest and fleamarket notices, and other messages having a local or regional interest should NOT be sent with the @ ALLUS distribution designator. The National HF Packet Network is used for forwarding messages to stations outside of California, and due to varying band conditions, noise and QRM, the network is quite fragile and unnecessary traffic can keep important messages from getting through.

The above list is not complete. Numerous local and specialized designators are also in use. Details on these designators are available from your local BBS help document or from the groups using them.

Here are a few examples of how you would correctly address a bulletin:

```
SB PACKET @ ALLCA
SB SALE @ ALLCAN
SB AMSAT @ ALLUS
```

Subject

When you have completed the address line of your message, you enter a carriage return (<CR>). You'll then receive a prompt from the BBS asking for the SUBJECT or TITLE of the message. Enter a brief description of the message, in 30 characters or less, followed by another <CR>.

For personal messages, your choice of a subject is not important, since hams generally read all their personal mail. So

Continental Designators

North America	NA
South America	SA
Europe	EU
Asia	AS
Africa	AF
Oceania	OC

Common Country Codes

Argentina	ARG
Australia	AUS
Austria	AUT
Belgium	BEL
Bermuda	BMU
Bolivia	BOL
Brazil	BRA
Brunei	BRN
Bulgaria	BGR
Canada	CAN
Chile	CHL
China	CHN
Colombia	COL
Costa Rica	CRI
Cuba	CUB
Denmark	DNK
Dominican Republic	DOM
Ecuador	ECU
Egypt	EGY
El Salvador	SLV
Finland	FIN
France	FRA
French Polynesia	PYF
Germany	DEU
Greece	GRC
Greenland	GRL
Guatemala	GTM
Haiti	HTI
Honduras	HND
Hong Kong	HKG
Hungary	HUN
Iceland	ISL
India	IND
Indonesia	IDN
Ireland	IRL
Israel	ISR
Italy	ITA
Japan	JPN
Korea,North	PRK
Korea,South	KOR
Lebanon	LBN
Liechtenstein	LIE
Luxembourg	LUX
Malaysia	MYS
Mexico	MEX
Monaco	MCO
Morocco	MAR
Netherlands	NLD
New Zealand	NZL
Nicaragua	NIC
Norway	NOR
Pakistan	PAK
Panama	PAN
Paraguay	PRY
Peru	PER
Phillipines	PHL
Poland	POL
Portugal	PRT
Romania	ROM
Saudi Arabia	SAU
South Africa	ZAF
Spain	ESP
Sweden	SWE
Switzerland	CHE
Syria	SYR
Taiwan	TWN
Thailand	THA
Turkey	TUR
United Kingdom	GBR
United States	USA
Uruguay	URY
USSR	SUN
Venezuela	VEN
Yugoslavia	YUG

Courtesy of AA4RE

there's no need to dwell on selecting a subject.

For NTS traffic, selecting a subject is easy, because a definite format is followed: QTC City, State, Area code/phone exchange

It is for bulletins that careful thought is important in selecting the wording for your subject. This is where you attract readers to your bulletin. On a SALE message, for example, identify the equipment. If you're looking for something, list the item you want as the subject. The subject should catch the eye of the user when the messages are listed and make him/her want to read it. On the other hand, do not be overly broad or vague. BBS users should not have to spend time reading messages they're not really interested in reading, nor should they have to read messages to find out what they're about.

Text

Next, you'll be asked to enter the TEXT of the message. There are two considerations here--the actual content of the text, and the mechanics of entering it.

In personal messages and bulletins, the content is up to you. This is where you apply your own style to the message you want to convey.

This is not the case for NTS messages since you must use the ARRL messagegram format for the text of all NTS messages. Refer to the NTS files on your local BBS for detailed information on the National Traffic System.

Here are a few hints concerning the mechanics of entering the text of messages. You should insert carriage returns at the end of each line, as if you were typing a letter on a typewriter. A normal line has a maximum of 80 characters, so when you have 70 to 75 characters typed, enter a carriage return and continue on the next line. On some terminal software, a carriage return is required at the end of a line or the reader will miss any information given after the 80th character. Most software will automatically add a <CR> at the end of a line, but this doesn't prevent words from wrapping around to the next line and unnecessary blank lines being added to the text. Use paragraphs, as you would in a letter, and spell words correctly. You can give a good or bad impression to the reader by the appearance of your message. Many people also recommend that you refrain from using all capital letters in the text. Use both capital and small letters, as I have done in this article. It makes the message easier to read and doesn't give the impression that you're shouting.

End Character

When you have completed the text, you end the message with a CONTROL Z. (You send a CONTROL Z by holding down both the CONTROL key and the Z key simultaneously.) You must follow the CONTROL Z with a carriage return. Some systems will also allow you to use /EX on a separate line to end a message. Check the help document on your local BBS for information. You'll know that the message has been accepted by the BBS when you receive the prompt. Some BBS software will also send you a note advising that the message was saved.

Advance Preparation of Messages

If your packet terminal program allows you to send prepared files, you may want to prepare your messages using a word processor prior to checking into the BBS. This will allow you to rewrite the parts of the message you would like to change, check your spelling and make corrections before transmitting it.

If you enter the address, subject, text, and end characters all starting on separate lines, one or more complete messages can be contained in one file. If several messages are included, don't leave any blank lines between the end of one message and the beginning of the next. Also, make sure that the file is saved as an *ASCII text file* so that it doesn't contain special characters that are unique to your particular word processor. These special characters can make a message completely unreadable once it's entered into the BBS.

I hope these suggestions and hints will help you get the most out of your packet messages! You can send one to me:

```
SP WB9LOZ @
W6PW.#NOCAL.CA.USA.NA
```

73, Larry EOF

ARES/Data Version 1.5 Now Available

W. E. Moerner, WN6I

ARES/Data is a general-purpose database accessible by packet radio. This program was designed for use in emergency situations such as helping locate family members.

Version 1.5 fixes some minor bugs found in Version 1.4, and provides one major new feature: the ability to utilize any KISS TNC as the TNC at the main database station. To do this, the sysop only needs to run the new (Version 4.01 or higher) version of the G8BPQ switch code, which makes the KISS TNC into a full-fledged network switch. Then, using a terminate-and-stay-resident (TSR) module provided with the new versions of the G8BPQ switch program, the switch may be made to look to the computer like a WA8DED host mode TNC.

The ARES/Data program runs as an application on top of the G8BPQ switch. When a user connects to the switch, he/she first gets access to a G8BPQ node complete with the usual NODES, PORTS, ROUTES, etc. commands. Entering the "?" command, the user sees that there is also one additional command, "ARESDATA" which then connects the user to the ARES/Data program.

We note that any ham who has a PK-232, KAM, or other TNC that does not have the capability of accepting a WA8DED EPROM can now run ARES/Data for the first time. For example, in the past, PK-232 users could not run ARES/Data, and now that restriction has been removed. The added bonus is that an existing G8BPQ switch can also act as an ARES/Data system, which means that one less processor/radio/tnc is needed to have both capabilities available and on the air at all times. Of course, SYSOP's with WA8DED TNC's or DRSI PC*PA cards can still run ARES/Data as before.

ARES/Data Version 1.5 is available for downloading from the ham radio area of Compuserve, or you can get a copy by anonymous FTP from the San Jose TCP/IP switch. EOF

A Look Under the Hood of the N0ARY BBS Software

Bob Arasmith, N0ARY

This article by Bob presents a technical discussion of his BBS software. Non-technical readers may also find this article interesting, as it describes many of the unique user features of the N0ARY BBS.

Where most BBS software is designed with the thought of networking to other BBSs, this code is designed to answer to the needs of the users. In the first year that N0ARY BBS was in operation, the user base has grown to over 300.

The major differences between N0ARY BBS and others fall into the following categories:

Command parser — how the user interacts with the BBS.

Commands— intuitive and powerful.

User accounts — allows the user to customize this interaction, gives them more control, makes it fun

Servers and modules — events calendar, on-line callbook, weather information

Message body editing — allows users to correct errors, delete lines, include other messages, etc.

Access to non-hams — In a controlled manor of course

The Parser

The parser was designed to be efficient to use for the experienced user yet forgiving for the novice user. The first time you logon to a BBS, it can be very intimidating.

All commands on the N0ARY/BBS are based on words rather than letters. These words can be abbreviated to the minimum number of letters that make them unique. The minimum number is context sensitive.

As an example, all packet BBS users are familiar with the **RM** command. This BBS will understand any of the following:

```
RM
READ MINE
READ MI
RE MINE
R M
```

Throughout this article, the BBS manual, and the BBS help messages, case is used to indicate what is the minimum letters required to issue the command.

```
Read Mine [Header]
```

The [ ] characters indicate that the parameter is optional and can be omitted. The [ ] characters themselves should not be typed.

The command set for the BBS was derived by the users themselves. Every users keystrokes are logged. On a weekly basis these logs are reviewed to identify what commands are giving users problems. This results in two courses of action, send a message to the user explaining what is happening and the preferred method of getting the desired response, and/or modifying the command set and parser to make this more intuitive.

An easy example is terminating a BBS session. Many users don't know what to type to disconnect gracefully. N0ARY BBS will accept any of these commands.

```
Bye
Quit
EXit
```

In addition to allowing the user some flexibility in how commands are entered, the commands themselves are more intuitive and substantially more powerful. As stated earlier, the majority of the standard W0RLI commands are supported as not to confuse the experience users.

The **LIST** command illustrates this power.

List [TYPE] [QUALIFIERS] [RANGE] [PATTERNS]

TYPE:
Personal, Bulletins, NTS, Secure

QUALIFIERS:
All, Clubs, Held, Killed, LOcal, Mine, New, Old, PENDing, Read, Unread

RANGE:
Last [cnt], First [cnt], #-, -#, # #

PATTERNS:
pattern, FRom pattern
pattern, TO pattern
@ pattern, AT pattern
pattern *(look for pattern anywhere in the subject of the message)*

The text between the [ ] indicates optional parameters to a command. They can be mixed and matched to achieve a desired result. Which would you rather use?

```
L N6UVY
```

or

```
LIST LAST 10 BULLETINS
TO SALE FROM N6UVY
LL B FR N6UVY 10 TO
SALE
LB 10 SALE LAST N6UVY
```

All of the above will yield the same result, along with a few hundred other permutations. Notice that the order is unimportant with the exception of the pattern search requests. It is easy to see the power of this from a sysop standpoint where you have a few thousand messages on your system and you are trying to find that one message about a censorship. If you can remember even a single word from the subject you can get a listing.

```
LIST ALL CENSOR
LA CENSOR
```

These would match any of the following:

```
Censorship AGAIN???
(2/3)
Effects of Censoring
bulletins
LAST WORD ON CENSOR-
SHIP...
```

Table 1 shows a comparison between W0RLI commands and N0ARY commands.

SEND — If the user types only **Send** without additional parameters the BBS will prompt the user for the necessary information. It will also assign the appropriate type Bulletin, Personal, NTS or Secure based on the TO and @ fields. Flexibility is the name of the game.

There is also the concept of a secure message. This message type can only be

read if the user is logged in on a secure channel, phone modem, or console. Passwords can also be attached to messages to further enhance their security. Secure messages can never be forwarded or read over via an RF link.

READ (and other file system commands) — The BBS allows the user to use the same syntax for reading and writing files that he uses to read and write messages. The BBS distinguishes between a file read and a message read by the parameter. Messages are numeric while file names are alphanumeric.

The users also moves about the file system in the same form that he moves through the file system on his computer at home, using CD to change directories and either LS or DIR to display the contents of the current directory.

To read a file, the user enters **read *filename***. The inclusion of TYPE and CAT are being considered as possible command set expansions.

Table 2 shows commands that are supported by W0RLI that don't have a N0ARY counterpart. If interest is shown by the users they will be adopted.

Table 3 lists commands that are supported by N0ARY only.

User Accounts

A user can control interaction with the BBS interacts in a number of ways. This control helps optimize the connection time and enables special features depending on what is being used as a terminal program.

Command Macros

Users of computers know how nice it is to be able to define function keys to execute repetitive sequences of commands. The software allows all users to take advantage of this feature.

Each user has ten command macros that can be setup to suit individual needs. These macros can hold up to 80 characters of commands, separated by semicolons. The macros can call other macros and can be nested.

To execute a macro you simply type the macro number and return. Macro 0 is special in that it executes automatically every time a user connects.

Here is an example macro list for a sysop:

macro 0: LIST UNREAD MINE

macro 1: LIST MINE

macro 2: LIST UNREAD CLUBS; LIST NEW

macro 3: LIST UNREAD TO SYSOP

macro 4:USERS SYSOP

macro 5:USERS NEW; 3; 4; USERS NONHAMS

Terminal Parameters

There is no typical equipment setup for a user. Some have dumb terminals others computers, but most likely not the same make and software. The BBS supports parameters to allow it to better present information.

LINES Allow the user to specify the number of lines that his terminal is capable of displaying before scrolling off the top. The BBS will send this number of lines and pause, waiting for either a carriage return or a Q for quit indicating that the user wishes to abort the rest of the request. This feature can be disabled to allow disk capture of files, etc.

NEWLINE When the BBS asks the user a question it waits at the end of the question for a response. Some terminal programs will not display a line until a newline is received. This parameter will force a newline to be sent after every prompt.

ECHO When connected to the BBS over the phone the user can instruct the BBS to operate in full duplex or half duplex modes.

TERM If the user is using a terminal emulation program or a particular terminal, the software can control cursor, color, scrolling, etc. This is just being developed at this time.

Help Levels

The BBS supports four levels of help rather than two. New users are started at level 3 and can move down as there confidence grows.

Level 3: The BBS gives very verbose error messages and tries to lead the user by the hand to build the command.

Level 2: The BBS continues to give verbose error messages but will not prompt the user for command completion. It simply returns to the main prompt.

Level 1: Very terse error messages. No explanation

Continued on page 8

Table 1 – This is a list of the commands that the W0RLI and N0ARY BBSs have in common. It also shows if the W0RLI form of the command is supported.

W0RLI	Supported	N0ARY	W0RLI	Supported	N0ARY
H	Yes	Help	LM	Yes	List Mine
H*	No	Help ALL	LO	Yes	List Old
B	Yes	Bye, Quit, EXit	LP	Yes	List Personal
CM	No	COpy	LT	Yes	List NTS
D	No	Read	LY	No	List Read
I	No	Info	N	No	Fname
I call	No	WP, WHEreis	NE	No	Help #
I@ call	No	WP HOME	NH	No	HOmeBBS
IL	No	Users	NQ	No	QTh
J	No	Ports	NZ	No	Zip
K	Yes	Kill	R	Yes	Read [Header] [Mine] [Who]
KM	Yes	Kill Mine			
KT	Yes	Kill	RH	Yes	Read Header
L	Yes	List	RM	Yes	Read Mine
LA	Yes	List All	SR	Yes	REPly, Send Reply
LL	Yes	List Last	SB	Yes	Send [Bulletin]
L	Yes	List TO	SP	Yes	Send [Personal]
L	Yes	List FRom	ST	Yes	Send [NTS]
L@	Yes	List AT	T	Yes	Talk
LB	Yes	List Bulletins	U	No	Write, Send FILE
LH	Yes	List Held	V	No	Info
LK	Yes	List Killed	W	No	DIr, LS, CD

A Look Under the Hood...

Continued from page 7

of what may have gone wrong or prompting. This is very similar to the EXPERT setting on other BBSs.

Level 0: No error messages. This is the level that is assigned to BBSs since they wouldn't understand an error message if it was sent. Of course there is no prompting either.

Listing Modifiers

This feature is used to either selectively ignore certain messages or to call special attention to them. Each users has 20 words that is compared to a message's TO, FROM and AT fields. If there is a match a special action is taken.

EXCLUDE / SKIP If a match occurs the message will not show up in the listing. For example, a user that has no interest in satellites may issue: **EXCLUDE AMSAT KEPS SAT**

Another popular setting is **EXCLUDE SALE WANT** or **EXCLUDE HAPPY**.

INCLUDE/CLUBS If a user wants to bring special attention to certain messages he can use this category. An example is: **CLUBS LERA ATV**

The following command will display just the unread messages that relate to these items: **LIST UNREAD CLUBS**

Each list can hold up to 20 words.

Equipment Database

The equipment associated with packet is very prone to user error and machine malfunction. Sometimes one is mistaken for the other. The N0ARY/BBS has fields that a user can fill to indicate what type of setup is being used for packet. When a novice user experience problems he can call a sysop and indicate what his equipment setup is. The sysop can then scan the database and find another user with a similar setup and put the two of them together.

Participation is optional but encouraged.

The following fields are present:

RIG, TNC, COMPUTER, SOFTWARE

Cp	Connect to call using port p
IH	List users of this bbs at location
IZ	List users of this bbs at zip
Mp	Monitor port p
RT	Round table
S	Show system status

Table 2 — W0RLI commands that have no equivalent on N0ARY.

Personal Signature

Every user can define a signature that is automatically appended to the end of every message sent. An obvious benefit of this is making sure the users puts his proper return address in each message. For example mine is:

```
73, bob
N0ARY@N0ARY.#NOCAL.CA.USA.NA
bob@arasmith.com  (internet)
```

This saves typing and cuts down on errors. It also allows for a little user personality to show through. For you UNIX users, yes, I stole this.

Personal Information

In addition to the information gathered for White Pages the user can make additional information available to the BBS and other users.

LNAME — Users last name.

PHONE — Users phone number.

UUCP — Users uucp or internet address. The user can set a variable that will automatically forward all his personal mail to this address.

FREQ — The user can use this field to indicate voice repeaters and frequencies that are typically monitored.

Sysop Fields

Each users has a set of bits that are under the control of the sysop. Privileges can be restricted, access methods can be controlled, users can be made immune to aging, etc.

Callbook

Users can lookup call signs and partial call signs on-line. They can also search the US callbook for hams by name, city, state, zip, etc. These features can also be accessed by users of other BBSs via a server function.

The callbook is also used by the BBS to validate users upon initial contact. Since the BBS has phone access and is available to non-hams, the callbook is used to control privileges. If the ham is not in the callbook or his address is out of the area then his access to the BBS is limited.

Events

This module allows users to display events that are scheduled for any date or over the next few weeks or months.

WX

The BBS also displays weather information on command. This info can be presented in tabular form or in graphical form. The weather info is updated 8 times per day and the user can request displays from as far back as 3 months.

Table 4 is an example graph showing barometric pressure.

Message Body Editing

A feature that was suggested by a great number of users was the ability to edit messages bodies while they were being entered. Of course a full screen oriented editor is not practical over packet so a simpler approach was adopted.

The following commands must appear as the first thing on a line to be evaluated by the BBS.

EXit Quit the message body and send the message.

ABort Quit the message body but don't send it.

SIgnature Place users signature here; this can be automatic.

NOSIgnature Don't automatically append a signature

CC Prompt user for additional hams to get copies of this message. Each call supplied will be recorded in the body of the message as:

```
cc: call @ BBS
```

HElp or **/?** Display a menu of possible message body commands.

NUmber Display the current message with line numbers.

EDit # Retype the line specified.

ADd # Add the next line typed before the line specified.

KIll # Kill the line specified.

CHeck IN/OUT	NTS message handling
EVent	Events calendar
LOOkup	Callbook lookup by call or a partial call
MAcro	User defined command macros
ME/WHo	View users accounts
Read Who	Show calls of all users that have read a message
SEArch	Search callbook by name, city, state, zip, etc
Send Secure	Secure message handling
WX	On-line weather information and graphs

User account commands:

EQUipment, RIg, COMPuter, SOFTware, LINes, NEWLine, ECHO, TERM, CLubs, INClude, SKip, EXClude, PASSword, UUCP, FREQuency, SIGNature

Table 3 — N0ARY commands not available under W0RLI.

INclude # Include the message specified in this message. Identify the include message by offsetting it with "".

\RF name Include a file in the message, this is a sysop command.

Access to Non Hams

The BBS will support access to users on phone modems. This includes users that are not currently hams. Non hams are encouraged to browse through messages and files, use the on-line callbook and other features. They are allowed to send SECURE messages but cannot generate a message that will go out over the air. Half of the non hams that have been on the BBS now have their tickets.

This also gives non-packet hams an opportunity to experiment with packet prior to spending a bunch of money.

Hardware and Software Requirements

The N0ARY/BBS is designed to run on a UNIX workstation. It was originally written on a Sun Sparcstation 1+ but could be easily ported to any machine running a version of UNIX that supports sockets. Conversion to message passing for System V should be feasible with minimum effort.

The BBS is a group of background tasks that eat up very little resources of the machine, cycle wise. There is a tnc daemon that monitors the serial ports and spawns BBS process as needed. While a BBS process is waiting on a user it blocks and effectively goes to sleep.

The BBS source code is currently about 20K lines of C code. It is currently being expanded to make the network side of the BBS easier to configure and maintain. The behind the scenes stuff. It should be complete by the first quarter of 1992.

The disk requirements vary depending on how many messages are maintained. My current configuration has about 8000 messages on the system at any given time which occupies about 12Mb. User accounts for 320 users is 1.3Mb, the system can support a maximum of 640 users by default.

The callbook was placed on disk and partitioned to allow for faster access. Index files are created to further increase performance when searching on name, city, zip. The callbook and index files occupy 100Mb of disk.

The BBS has no limits on the number of BBS sessions that can be run concurrently. The bottleneck is the bandwidth of the RF link. At 1200 baud more than 5 users connected make frequency unusable. The BBS has been tested with as many as 25 BBS sessions running concurrently with no noticeable degradation in system performance.

My current configuration for the system that hosts the BBS is:

Sun Sparcstation 1+
1.5Gb of disk
28MB Ram
8mm Tape drive
3 tnc ports
2 phone modem ports
CDROM drive

If you are interested in using the code or portions of the code, or you'd like additional information or a users manual, please give me a call or send me a message.

phone: 408-749-0501

packet: N0ARY
@ N0ARY.#NOCAL.CA.USA.NA

internet: bob@arasmith.com

In conclusion, the goal of the BBS was to make the users the focal point. After all without them the BBS system is worthless.

The users provide a good measure of success. In northern California the average BBS has around 70 users registered as home users. Typically that number again check in but are actually registered elsewhere. In a year the BBS has grown to over 320 users with over 210 registered as home users.

EOF

```
BAROMETRIC PRESSURE (in)
             29.         29.         29.         30.         30.
              7           8           9           0           1
              0 2 3 4 6 8 0 2 4 6 8 0 2 4 6 8 0 2 4 6 8 0
             +-----------------------|-------------------
10/25 12:00 |                       *
      15:00 |                   *
      18:00 |               *
      21:00 |    <  *                 >
10/26 00:00 |     *
      03:00 |  *
      06:00 | *
      09:00 | *
      12:00 |  *
      18:00 |< * >
10/27 03:00 |             *
      06:00 |                 *
      09:00 |                     *
      12:00 |                     *
      15:00 |                     *
      21:01 |<                      >
```

Table 4 – An example graph showing barometric pressure.

A 38.4kbps Transceiver Design

Matjaz Vidmar, YT3MV

This text is dated October 1989. All described projects were published in Italian magazine ***CQ Ellectronica.***

Already at the very beginning of packet radio in our area we noticed the severe limitations of a single channel, 1200bps CSMA network: the terrain configuration requires many repeaters to serve all the amateur population and our network has to handle the traffic among Austria, Italy, Hungary and other parts of Yugoslavia as well.

The solution we found is to build a network of nodes with user-access channels in the 2m and 70cm bands at low speeds (1200bps and soon 2400bps), interlinked with 38.4kbps links operating in the 23cm band. At the time of writing this message the network has three such high-speed links linking four main nodes: 4N3K, 4N3L, 4N3H and 4N3P. The network is operating well and several other nodes are currently under construction.

The 1.2GHz, 23cm network in Slovenia is the result of a collective effort of a group of more than 10 enthusiasts, whose work was coordinated by Iztok YU3FK. Within this group I was in charge of developing the hardware and in this message I am going to describe the technical aspects of our network.

Selecting the transmission standards

It was immediately clear that we could not use standard narrowband amateur transceivers and low speed modems for our network interlinks and some new hardware had to be developed. Further we could not use the 70cm band since the latter only extends from 432 to 438MHz in Yugoslavia without overriding the IARU bandplan. Finding a clear, wideband channel in this frequency band is a challenge too! Therefore it was decided to use the 23cm band.

The modulation standard also had to be selected, considering the constraints of both modem and transceiver design. Coherent modulation techniques (like straightforward PSK) provide the best spectrum efficiency and longest communications range. Unfortunately they require a very good frequency stability of both transmitters and receivers. Further, the lock-in time of the demodulator may require long synchronization headers (long TXDELAY). Finally, the transceivers themselves have to be designed for this particular transmission standard: alignment and testing may be very difficult for amateurs without much test equipment.

Considering the above constraints it was decided to build wideband FM transceivers equipped with 200kHz wide ceramic filters (like FM broadcast receivers). Such transceivers together with suitable modems can support digital communications up to about 64kbps. The penalty for using a FM discriminator in place of a coherent demodulator is around 5dB in terms of receiver sensitivity or communications range, with well-designed modems.

The FM transceiver could be straightforward modulated with the NRZI data. Unfortunately the NRZI data has a noticeable DC component, which requires a DC restoration network in the receiver, even with data randomization (scrambling). Manchester coding was therefore selected: although it requires twice the bandwidth, a manchester coded signal has no DC or low frequency component. Manchester modems can be built as simple digital state-machines (no alignment!) with a fast and reliable digital carrier-detect logic.

To remain 100 percent compatible with the existing network, TNC2 clones with NETROM or TheNet software are used. This software packages can operate up to about 40kbps with a 10MHz Z80 clock, so a standard speed of 38.4kbps was selected for the network. Initial problems with TNC2 clones operating at 10MHz were solved by a careful selection of the components used and by designing a new TNC2 clone logic with less critical timings.

Right from the beginning it was agreed to use simplex transceivers and CSMA like with low-speed 1200bps packet-radio on 2m and 70cm. A network with full-duplex transceivers could provide a slightly higher capacity at a significantly higher cost: each node would require two or three transceivers with bulky duplexer filters and dedicated TNCs. The selection of the operating frequencies in the network would cause problems too. Further, such a network could not support advanced high-speed users in the 1.2GHz band, thus precluding the possibility for any further experimentation. Finally, such a complicated solution was considered out-of-reach for our limited resources!

Transceiver design

The wideband transceiver is a simple single-channel crystal-controlled FM transceiver. Except for the RX/TX antenna and supply switches the receiver and the transmitter circuits are completely independent.

The receiver is a double conversion receiver: the first (variable) IF is in the 65MHz range and the second IF is 10.7MHz. A single crystal oscillator operating between 26.5 and 27MHz, is used for both conversions. The oscillator output is multiplied by 45 (5*3*3) for the first conversion and by 2 for the second conversion. The receiver has two RF amplifier stages at 1.2GHz (BFQ69 and BFR91), a mixer 1.2GHz/65MHz (BFR34A), another mixer stage 65MHz/10.7MHz (BF981) and a standard 10.7MHz FM IF (CA3089). The receiver achieves a noise figure of about 4dB.

The transmitter includes a varactor-modulated crystal oscillator in the 9.8 to 10MHz range followed by 7 frequency doubler stages for a total multiplication factor of 128 and a power amplifier. High-speed switching transistors (BSX39) are used up to 300MHz. The last two multiplier stages use a BFR91 and a BFR96. Finally, the four stage power amplifier uses a BFR91, two BFR96s and a BFQ68, supplying between 1.5 and 2W at 1.2GHz.

All the RX/TX switching (supply, antenna) is fully electronic. The RF switch uses four BA379 PIN diodes. To speed-up the switchover the receiver is powered on all the time except for the two front-end RF amplifier stages. The transceiver was found to be able to work reliably with a TXDELAY of only 5ms, but for reliability reasons the TXDELAY parameter was finally set to 2 (20ms).

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FCC Acts on Packet Radio Violations

Continued from page 3

degrees of readiness. It is a challenge for them. I think they will do that. I hope for the sake of the Amateur Radio Services that the abusers will not proliferate to the extent where more restrictive regulations have to be promulgated.

W5YI: *Violations take place almost instantaneously when retransmitted by a repeater, whether it be voice or digital.*

FCC: That is correct. The Commission addressed this matter in a Petition for Reconsideration (RM-3618, adopted April 16th, 1982, and released on April 23rd) which looked toward holding a repeater operator blameless [for a retransmission.] It says 'There...is no intention on the part of the Commission to relinquish the control of a repeater licensee must have over his or her station... Control is not severable into technical control, content control of messages the repeater licensee originates, and content control of messages originated by repeater users. On the contrary, the concept of control insofar as it relates to radio licensee responsibility is indivisible.'

Essentially, nothing has really changed. What has now happened, I am pleased to say, is the action that we took in this enforcement [incident] has certainly improved compliance. More people are aware of what has happened and are now making sure that their messages are conforming. I think we are accomplishing our objective. That is, not to have stations operate improperly. Automatic control of an amateur station is less reliable than that of local or remote control [and is allowed]...on the condition that improper transmissions do not emanate from the stations.

Section 97.105(a) requires proper operation regardless of whether the station is under local, remote or automatic control. The Commission licenses individual amateur stations, not systems or networks of amateur stations. ...all amateur service rules apply to each amateur station even when it is operating in a system, not the system as a whole. I think that the amateurs will come up with a system so that they can operate properly.

Incidentally, I did not take this action unilaterally [alone] as some other publications have indicated. Rest assured that I consulted with many others. This is the Federal Communications Commission. We communicate ...certainly I touched base with other departments. We got a report of violation and it was my duty to act on it -- notwithstanding the content of the message.

Some people said "What would happen if there was a 1-900 number supporting the war?" Even the 900 number did not have to be in there for that message to be violative. It was still a business message. I will agree that the 900 phone number made it a little easier to distinguish [it as a prohibited communication]. That organization, I believe, was receiving proceeds from anybody that called them.

Even though we wrote the stations involved, no forfeitures [fines] are being issued. That was the second step. Our goals and those of the public interest were obtained in this first enforcement action in that we are getting compliance. Those stations which refused to take any corrective action have had their authority to operate automatically withdrawn. We will reconsider this action when we receive assurances that these individuals have taken steps to preclude prohibited transmissions while under automatic control. I am not assessing the [Notices of Apparent Liability for] forfeitures that were initially proposed.

W5YI: *I have a packet system and I am afraid to leave it on over night. How can I guard against illegal transmissions?*

FCC: It may be that you would authorize certain individuals who you trust to put stuff on your station. Some amateurs, according to the responses I have gotten, are allowing personal messages to go through -- but are reviewing the bulletins. You may allow certain stations to use your facility and put a 'hold' on others. We have accepted that. It is a judgement that you, as a licensee have to make.

The individual that supposedly submitted the message now denies it. Obviously, a message could be circulated worldwide that did not even originate in the amateur service. I think there will be a lot of discussion and a good system will develop in the end. We are especially interested in keeping violative actions from reoccurring. You may have to shut a person out, or in the case of a repeater, shutting down the repeater temporarily.

W5YI: *Tom Clark, W3IWI is a recipient of one of your Notices of Violation. He asks in another widely distributed editorial entitled FCC Drops Another Shoe: "What is the limit ...the guidelines for a legal transmission on amateur radio?"*

FCC: Dr. Clark brings up a good point. Essentially, you have to go back to the rules which says which transmissions are authorized or prohibited. Each licensee will have to decide. Some repeaters operate more strict than others. The Commission is not going to respond to 'can we do this, can we do that.' You have to use good judgement and not cross the line. Otherwise you are going to have more restrictive regulations. You have to use some discretion.

W5YI: *A petition has been filed, assigned RM-7649, which seeks to differentiate between primary and secondary offenders operating under automatic control. Any comment on that approach?*

FCC: I should not comment on a request under commission consideration, but you might want to refer yourself to the decision on Rule Making-3618. That was the one to relieve repeater operators of liability other than technical responsibility. I think it is along similar lines. The Commission denied the petition saying: number one, Section 310 of the Act prohibits a radio station from conveying its rights and, two: station control includes transmission content. The Petition for Reconsideration of RM-3618 also was denied. We will have to see how this one works out.

In letters we have written [to those issued Notices] we address control operator responsibility. We said: "You...state that the onus of message screening should only be on the originating station, rather than on your station. We cannot agree. The concept of control of an amateur station and responsibility for the station's transmissions are based on Section 310(d) of the Communications Act of 1934, as amended, 47 U.S.C., Section 310(d). ...The provisions of Section 97.109(e), pertaining to sta-

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A 38.4kbps Transceiver Design

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Modem design

Two different modems were developed. Both modems include a state machine that operates with a clock that is 64 times the bit-rate frequency. The same state machine is used both during transmission and during reception to synchronize a 50% duty-cycle square wave with the incoming signal.

Both demodulators include a limiter followed by an exclusive-or gate and an integrator. Limiting the incoming signal degrades the demodulator sensitivity by 2 to 3dB: this is the price paid for such a simple circuit. A few dB are lost in the integrator too, which is a simple RC low-pass followed by a voltage comparator in place of a synchronized integrate-and-dump.

The first modem has an EPROM based state machine together with a 74HC374 8bit D-latch. Most of the analog functions are performed with a LM339 quad comparator. A 16 bit shift register (two 74HC164) generates a 1/4 bit delay for the DCD detector since this modem was developed to work with standard TNC2 clones. The modem may have its own clock oscillator, but for 38.4kbps the required 2.4576MHz clock can also be derived from the TNC.

The second modem uses 74LS logic only, thus eliminating the need for a relatively slow EPROM, that needs to be programmed too. The state machine is built with just four TTL ICs: 74LS86 ex-or gates, 74LS153 multiplexer, 74LS163 counter and 74LS175 D-latches. LM311 comparators are used for the analog functions. Since this modem is intended to work with the new TNC2 clone (to be described later) and the latter already has a very reliable DCD circuit, no DCD circuit was included in the modem itself.

The described manchester modems were also tested with standard amateur narrowband FM transceivers. By connecting the modem to the MIC and SPKR connectors a very reliable operation was possible at 2400bps. Higher speeds (up to 4800bps) require a direct connection to the varactor and discriminator. We belive that 2400bps manchester is a valid and cheaper alternative for user links to the now widely used BELL-202 1200bps. Unfortunately 2400bps manchester is not compatible to the Kantronics 2400bps QPSK standard, but in our area very little amateurs have commercially-built TNCs anyway.

Revised TNC2 clone

The first experiments at 38.4kbps and the first internode link were made with off-the-shelf TNC2 clones. These have a number of drawbacks that can be summarized as follows:

- Most clones have a very unreliable RESET circuit/nonvolatile RAM protection logic. This leads to very undesirable "latchups", especially if the TNC is installed on a difficult-to-reach mountain top!
- Although the original TNC2 had an EPROM-based state machine RX synchronization, most clonemakers replaced it by a 74LS393 counter with a rough RESET logic. The performance of this circuit is very poor with weak signals.

First 38400 bd packet QSO

YU3FK @ YT3A

It was already reported on YU backbone 23 cm project. Matjaz YT3MV designed 1.2 GHz station for packet network and Manchester code modem.

PIN diodes TX/RX switch and non-stop powered XTAL oscillators with carrier detect build in modem state machine are keeping TXDELAY between 10 and 15 ms.

The problem was - what about software and TNC ? TNC-2 limit is 19200 bd, but we tried 38400 with turbo TNC (Z80H, Z80B-SIO, 200ns EPROM, 9.8 MHz CPU clock).

38400 bd packet radio results: (test made April 9th, 1989 by YU3RM, YT3RM and YU3FK)

First station used (YU3RM): - PC-AT 16 MHz, YAPP program, 9600 bd RS-232 to TNC - turbo TNC with 38400 bd PSK modem and N2WX 1.1.4 software - TNC parameters:

FRACK 1
DWAIT 0
MAXFRAME 7
PACLEN 0
TXDELAY 2
TRANSPARENT mode

Second station (4N3H-12): - turbo TNC with NORD the NET 1.1 software - parameters: TXDELAY 2, node PARAMS 70 1 100 255 6 5 3600 10 60 2 2 180 6 6 3600 255 1 1 7 10 5 18000 1 1 0 1

test file: YU3C WW WPX contest log, 1918 QSOs, 122 752 bytes, less LF 120834 bytes (Linefeeds are not transferred using YAPP ASCII download)

YU3RM connected YU3RM via 4N3-12 (first test, level 2) YU3RM connected 4N3H-12, then back to YU3RM (second test, level 3 ?)

Both tests gave same result: 120 834 bytes transferred in 222 seconds. FRACK 7 and PACLEN 0 (256) means there were 67 INFO packets with 473 frames. 67 acknowledge (RR) frames/packets were send also.

Effective data transfer speed using two radio links (to node and back) is 4350 bits/second; thus giving 8700 b/s for one radio link.

YU 23 cm backbone is build for single QRG interconnection of 1200/2400 bd user access nodes and main BBSes. It had to be compatible with existing network (theNET and NET/ROM nodes, 1200 bd DIGICOM users etc). We feel this configuration is maximum that can be obtained with TNC-2 and existing software on single QRG.

Some changes to modem and station are expected, and they HAD to be tested on real packet traffic. In next few months first real nodes will be interconnected with 23 cm stations. Results will be reported to BBS network.

Best 73 and good packeting de Iztok, YU3FK @ YT3A

A 38.4kbps Transceiver Design

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- Most clones have a poorly designed address decoder. MREQ is gated with A15 to select the 27256 EPROM. This circuit requires a very fast 150ns EPROM for a 10MHz Z80 clock operation. Gating MREQ with RD releases the EPROM access time requirement by at least 50ns.
- TNC2 clones usually do not have a digital carrier-detect logic. This is not a problem for manchester modems, where a reliable DCD can be built easily. It is a problem with AFSK modems (BELL-202): the transceiver squelch has to be adjusted critically and an unnecessary long TXDELAY is required...
- The RS-232 drivers and related negative supply are a source of troubles. In a multiple NETROM or TheNet node it is much simpler to interconnect the TNCs at TTL levels.
- Many TNC2 clones have other design mistakes that cause an unreliable operation. These are different from one TNC to another.

To avoid all these problems a revised TNC2 clone was developed. The latter includes a very reliable RESET logic and an improved address decoder. The RX synchronizer is a state machine operating with a clock that is 32 times the bit-rate frequency. The state machine uses four TTL ICs: 74LS86 ex-or gates, 74LS157 multiplexer, 74LS163 counter and 74LS175 D-latches. The state machine includes a DCD logic that looks where do the transitions occur. If the latter occur at the beginning or towards the end of the bit time, the signal is OK, if they occur in the middle of a bit, the input is considered noise. A RC low-pass followed by a LM311 comparator finally supplies the DCD.

The remaining circuits are similar to other TNCs: a 74LS74 and an ex-or gate are used for the NRZI/NRZ conversion and a 74LS109 is used for the NRZ/NRZI conversion. A 74LS14 drives the asynchronous port: RS-232 receivers do accept TTL signals while the TTL inputs can be protected by resistors form RS-232 voltages. The clock oscillator uses a 74HC00, followed by a 74LS74 and a 4040. There are of course the four big chips too: Z80CPU, Z80SIO-0, EPROM and RAM. Interestingly, in spite of all the additions and improvements, the revised TNC2 has LESS chips than some clones?

Experimental results

The results of some early test were already reported by YU3FK in two previous messages. The most important information is certainly the capacity of the link, which was experimentally measured as 8.7kbps of useful data (not including headers, address information and acknowledge packets) between two stations on an otherwise clear channel.

The theoretical range between two transceivers in free space is around 1000km with medium gain antennas (10dBd). This is about 10dB less than a link with transceivers with ideal coherent modems could do. The range was confirmed by a practical experiment: the link 4N3K-12, 4N3L-12, 99km apart, operated reliably with an additional 20dB attenuator in the antenna cable.

The single channel, CSMA network allows us to do something we did not even think about. It allows us to monitor the propagation conditions on 1.2GHz. With good propagation conditions we noticed connections between nodes that do not have a common visibility nor antennas oriented in the right direction. Although these effects are a nuisance for a packet-radio network, they can be easily made unharmful by a correct setting of TheNet parameters.

Additional information about our network is being prepared, including a new map. We intend to publish all the circuit diagrams and other details of our network in popular magazines.

73 de Matjaz, YT3MV

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FCC Acts on Packet Radio Violations

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tions using the American Radio Relay League, Inc. AX.25 Amateur Packet-Radio Link-Layer Protocol, Version 2.0, October 1984 or compatible, must be read in conjunction with section 97.105(e) ...which states that the control operator must ensure the immediate proper operation of the station, regardless of whether the station is under local, remote or automatic control. The commission licenses individual amateur stations, not systems of amateur stations. Further, all amateur service rules apply to each amateur station even when it is operating in a system, not to the system as a whole. Station licensees and station control operators, therefore, are both responsible for the messages originated as well as those retransmitted by the station." That is the law.

A couple of months ago, the Field Operations Bureau did an enforcement effort with regard to those individuals operating out of band ...the so-called 'freebanders' — those illegally operating between ten and eleven meters. Most of the content of their communications were along the line, 'Well, you know, we have been up here for eight months now and obviously the FCC is going along ...condones us, because they aren't doing anything.' And they reinforced each other to the point where we actually had to go out and take some action. Substantial fines were issued.

The situation here with [retransmitted] messages has become the same. More and more business type messages have appeared on the packet radio systems and I guess everybody was reinforcing each other with 'Well, I guess we can do that, the FCC has said nothing and as long as we are using this protocol, we are not responsible. Anything goes.' That is not true. Our enforcement action will bring this to light. I am sure that the amateur radio community will come up with a system so that this won't continue.

EOF

A Software Developer's View

By Ken Williams

Sierra On-Line is a software company headquartered in Coarsegold, CA. Periodically they mail their Sierra/Dynamix Newsmagazine *to those people who have registered there software purchases with the company. The following article was authored by the president of Sierra On-line and appeared in Volume 2 Number 2 of their magazine. The comments below have been edited*

For Christmas, 1988, I bought my parents a Tandy HX computer. Because Sierra does a lot of business with Tandy, I was able to get the special discounted price of around $1,250 for this turbo-charged 8088 machine with 512K of RAM, a color monitor, and even a 360K disk drive!

Obviously, this was a bit of a stretch as a Christmas present, but I figured at least my parents would finally be able to see what I do for a living.

Now, less than four years later, it has been over a year since Sierra has shipped a new product that will run on my parents Tandy Computer. Even worse yet, it would be cheaper and wiser for them to by a new computer than to perform an upgrade.

This is horrible, and I feel bad about it. But I know it could be worse! At least my parents software investment might be salvaged if they buy a new computer.

Imagine how you would feel if you were one of the unlucky people who purchased a 2GS from Apple. You now find that: (a) your macine is discontinued; (b) few, if any, new products are coming out for your machine; (c) you can't upgrade the macine to be compatible with the Mac, no matter how much you spend and; (d) if you do switch to a Mac, Amiga, or a PC, all of your software will have to be repurchased.

The problem is, computer technology is moving too fast these days. It seems like every computer more than a year old is incompatible.

Last Christmas, Roberta and I bought our son a a PS/2, Model 30/286 computer. This month I spent over $1,500 to: (a) replace the processor with a 386SX; (b) change the 20 megabyte hard drive to 80 megabytes and; (c) add 2 megabytes of memory (so he can run Windows).

I wouldn't be that unhappy, except that the 386SX upgrade seems incredibly flakey. Strange garbage keeps showing up on the screen, and I'm tired of trying to figure out why. Also, the PS/2 has a built-in VGA board which only has 256K of RAM and can't be upgraded to handle higher resolution graphics. Now I'm considering giving up and buying him a new computer.

I can't afford to buy a new computer every two years. It doesn't make sense that I'm penalized just for being the first one on my block to invest in a computer!

If you were hoping that this was the paragraph where I'd provide some simple solution to this problem, I'm afraid I'll have to disappoint you. Technology is moving at a faster rate than ever, and the problem of computer obsolescence is getting worse.

What if there wasn't a hardware evolution? What if technology froze for the next ten years? It sounds crazy, but let's explore this.

From 1978 to 1983 the personal computer industry was dominated by the Apple computer. The Apple II, which I purchased in 1979, served me well through this period. I remember many discussions with Steve Wozniak at Apple where he commented on his amazement at the applications his creation had been put to.

He never imagined when he first created the Apple II how far the software community would push his hardware.

It's important to point out that hardware is now evolving so fast that new computers are becoming obsolete before the software community even learns to program them.

Computers aren't cheap, ease-to-use, or very standard. Even the Macintosh is starting to approach PC complexity these days. My suggestion to the hardware and software industry is that we agree on a platform which should dominate the '90's.

We could cost reduce it and make it simpler to use. The problem with this is that it isn't going to occur (and, it may not even be legal).

Hardware companies feel they must compete with each other on power and price, so they keep adding new features that make them incompatible.

On the other hand, television, radio, tape player, VCR, and even CD player consumer electronic companies have found ways to compete on features and price in a standard way which allows the software to run on hardware from different companies.

All of us in the computer industry realize that this kind of conformity has got to evolve, but we can't seem to find a way to agree on anything. Maybe the recently announced relationship between Apple and IBM means standardization is coming.

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Buying a new computer?

Here are 10 thoughts for you to consider when upgrading your computer or as you counsel others regarding their computer purchases:

Think about how much support you need after you make your purchase.

You will pay more at some retail outlets than others and, generally, less through mail order. If you need to call your dealer every five minutes as you set up your machine, you'd be best served by paying full list price at a full-service dealer.

Buy a copy of *Computer Shopper.*

If you know what to look for, and you're willing to do a little research, you'll be surprised how cheap it can be to replace your computer. I just bought a 4 megabyte 386/33 Mhz, 80 megabyte hard drive, high-density 5.25 inch and 3.5 inch floppy drives, Super VGA, mouse, Windows, etc., system from a top mail order company for $2,295 complete. It even came with the hard drive formatted, DOS 5.0, and Windows installed. All I had to do was plug it in.

Buy more than you need.

Some retailers will try to focus you on not wasting money by buying more machine than you actually need. This is fine if you're only going to run the applications that you initially bought. But every year's software will need a faster machine to run, so it's good to prepare ahead.

Buy an expandable machine so you can upgrade.

No matter how big a hard disk you buy, there's a chance you'll want a bigger one some day. Who knows, perhaps you'll want to add a higher resolution graphics card. Machines with the graphics built into the motherboard are prone to obsolescence. Gets lots of slots and drive bays.

Don't buy an expandable machine and plan on obsolescence.

I realize this is the complete opposite of the above, but think about this. If you buy a PS/1 or a Mac LC, you have a greater chance of having to replace your machine next year. (Even within Amiga, the 500 isn't as upgradable as the 2000). But, it's possible you could be dollars ahead buying the cheapest possible machine that meets your needs for the next 24 months. Then re-evaluate, rather than pay $1.500 more to allow for expansion you may not do. It wouldn't surprise me if the $1,500 you save now can buy a whole new faster machine next year.

Fear new techology.

I was the first person I know to buy a tape backup unit for my hard disk. Imagine how I felt after paying $2,000 for a device which would back up my hard disk in an hour or on 6 tapes when, if I'd waited 90 days, I could have bought a unit for $7090 that would do the job in ten minutes on one tape.

If you own or buy a 386, get DOS 5.0.

I've seen DOS 5.0 as low as $39.95, and it is a delight to run. Even with a CD-ROM drive, I suddenly have 600K of free RAM. Dr. DOS 5.0 and QEMM are good alternatives.

Take a techy to lunch.

Seriously! Pick the person you know who is the most knowledgable about computers and be extra nice to them. Don't always trust in advertisements or in people who are trying to sell you something. Ask the opinion of someone you trust before you buy. Then talk them into helping you set it up or installing it. Alternately, check out CompuServe or Prodigy. The both have hardware forums where you can talk to fellow computer owners about potential purchases.

Ask lots of questions.

The most important question to ask is whether you can return your purchase if it doesn't work. Pay with a credit card so you have a little extra clout in getting a refund. Beware of fly-by-night vendors, expecially if you buy through mail order. Ask if the product is in stock and when your order will arrive. Many reputable dealers have a satisfaction guarantee. I'd rather pay more and know that I'll be happy with my purchase.

Be a good sport.

No matter what you do, from time to time you're going to feel like you've been burned. If you buy a 386 computer for $2,000, expect to see a 486 for $1,900 next week. Computers are coming down in price and they are getting faster. Relax! When I was in college, a computer with the computing power of a Mac Classic cost about $3 million. In the U.S. we're getting higher class hardware at a lower cost than in any country in the world.

Northern California Packet Band Plan

50 MHz

51.12	SOCAL backbone
51.14	Experimental
51.16	Keyboard to Keyboard
51.18	Experimental

144 MHz

144.91	Keyboard to Keyboard
144.93	LAN[1]
144.95	DX Cluster
144.97	LAN
144.99	LAN
145.01	Keyboard to Keyboard
145.03	Keyboard to Keyboard
145.05	Keyboard to Keyboard
145.07	LAN
145.09	LAN
145.71	9600 bps
145.73	LAN
145.75	TCP/IP
145.77	DX Cluster
145.79	LAN
146.58	DX Cluster

[1]Some TCP/IP in Sacramento grandfathered

220 MHz

223.54	Node uplink (East Bay)[1]
223.56	Node uplink (East Bay)
223.58	Node uplink ("Other")[2]
223.60	Node uplink (Sacramento Valley)
223.62	Node uplink (South Bay)
223.64	TCP/IP
223.66	Keyboard to Keyboard
223.68	LAN
223.70	Node uplink (Monterey Bay)
223.72	Node uplink (North Bay)
223.74	DX Backbone

[1]To move to .56 when SOCAL coordinates

[2]TCP/IP interlink (Sacramento) Not to interfere with node uplink.

440 MHz

433.05	TCP/IP Backbone (100 Khz wide)
433.15	NETROM Backbone (100 Khz wide)
433.25	DX Cluster Backbone (100 Khz wide)
433.31	Experimental
433.33	Experimental
433.35	Experimental
433.37	LAN
433.39	DX Cluster backbone
433.41	BBS Interlink
433.43	9600 Bps
433.45	BBS Interlink
433.47	NETROM Interlink (KB-to-KB)
433.49	TCP/IP
441.50	All

433MHz allocations are currently the subject of negotiations with NARCC and other band occupants and may be subject to modification at some point in the future. Contact AA4RE for details.

900 MHz

903.500	1 Mhz wide - TCP/IP
904.500	1 Mhz wide - TCP/IP
915.500	1 Mhz wide - Experimental
916.100	200 Khz Wide - Experimental
916.300	200 Khz Wide - Experimental
916.500	200 Khz Wide - Experimental
916.650	100 Khz Wide - Experimental
916.750	100 Khz Wide - Experimental
916.810	20 Khz Wide - Experimental
916.830	20 Khz Wide - Experimental
916.850	20 Khz Wide - Experimental
916.870	20 Khz Wide - Experimental
916.890	20 Khz Wide - Experimental
916.910	20 Khz Wide - Experimental
916.930	20 Khz Wide - Experimental
916.950	20 Khz Wide - Experimental
916.970	20 Khz Wide - Experimental
916.990	20 Khz Wide - BBS links (Contra Costa County only)

900 MHz activity is on a non-interference basis to vehicle locator service. 900 MHz is not considered suitable for omindirectional systems, use for point-to-point links only.

1296 MHz

1248.500	1 Mhz wide - Full duplex with 1299.500 Experimental
1249.000 to 1249.450	Unchannelized - Experimental
1249.500	100 Khz wide - Experimental
1249.600	100 Khz wide - Experimental
1249.700	100 Khz wide - Full duplex with 1299.700 Experimental
1249.800	100 Khz wide - Full duplex with 1299.800 Experimental
1249.870	20 Khz wide - Experimental
1249.890	20 Khz wide - Experimental
1249.910	20 Khz wide - Full duplex with 1299.910 Experimental
1249.930	20 Khz wide - Full duplex with 1299.930 Experimental
1249.950	20 Khz wide - Full duplex with 1299.950 Experimental
1249.970	20 Khz wide - Full duplex with 1299.970 Experimental
1249.990	20 Khz wide - Full duplex with 1299.990 Experimental
1250.500	1 Mhz wide - Experimental
1251.500	1 Mhz wide - Experimental
1297.000 to 1298.000	Unchannelized - Experimental
1298.500	1 Mhz wide - Full duplex with 1299.500
1299.000 to 1299.450	Unchannelized - Experimental
1299.500	100 Khz wide - Experimental
1299.600	100 Khz wide - Experimental
1299.700	100 Khz wide - Full duplex with 1249.700 Experimental
1299.800	100 Khz wide - Full duplex with 1249.800 Experimental

Northern California Packet Band Plan

Continued from previous page

1299.870	20 Khz wide - Experimental
1299.890	20 Khz wide - DX Packet Cluster users
1299.910	20 Khz wide - Full duplex with 1249.910 Experimental
1299.930	20 Khz wide - Full duplex with 1249.930 Experimental
1299.950	20 Khz wide - Full duplex with 1249.950 Experimental
1299.970	20 Khz wide - Full duplex with 1249.970 Experimental
1299.990	20 Khz wide - Full duplex with 1249.990 Experimental

Definitions

Experimental — Anything goes except full service BBS or any 24 Hr/Day services (nodes, gateways, etc). This is where you can come and test new gear, programs, etc. These channels may be reassigned in the near future so no permanent activities please.

Backbone, Uplink, Interlink — No uncoordinated stations. These channels are for specific purposes as defined by the NCPA and affiliated groups. This is where the various BBS, nodes, and clusters interlink and are very high usage channels. Please use the normal 2 meter entry points of the network you want to access rather than these channels.

Keyboard to Keyboard — Anything but full service BBS, TCP/IP, or DX Cluster. Primarily chat channels. These are also the primary emergency channels. Some existing BBS systems (eg. WA6RDH) were grandfathered.

A gray area is "Personal BBS." A PBBS is one with a small number of users (rule-of-thumb: five or less). A PBBS should not be attracting general users thru beacons, etc. Bulletins should be confined to local information and not duplicate the general bulletins send to the community. That's the job of a full service BBS and we have lots of them in Northern California to use.

LAN — Local Area Network. Anything except TCP/IP and DX Cluster is tolerated. Please avoid placing high level digipeaters or nodes on these channels since they are "local." A low-level node that links into a backbone on another frequency is the preferred implementation.

TCP/IP — Stations using TCP/IP protocol on top of AX.25. Some AX.25 tolerated to communicate to TCP/IP stations if p-persistance access method used.

DX Cluster — Northern California DX spotting network. No other activity should be on these channels.

9600 Bps — Stations using 9600 Bps with direct FSK (G3RUH, TAPR, etc.) modems.

Procedure for changes

Users should contact either the frequency coordinator or the NCPA board. The frequency coordinator will then present the requests to the board at the next meeting along with suggested assignments. The NCPA board elected by you, the packet user, makes all assignments!

Electronic mail is preferred.

Note: NCPA does not coordinate individual stations, nodes, etc. The only station coordination is done by K6RAU for bulletin board systems.

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Where to Find a BBS

N0ARY-1	Sunnyvale	144.93
KE6BX	Hollister	144.93
KJ6FY-1	Benicia	144.93
KI6YK	Danville	144.93
WD6CMU	Richmond	144.97
N6EEG	Berkeley	144.97[3]
W6FGC-2	Twain Harte	144.97
K6LY	Monterey	144.97
KK6SZ-2	Sonora	144.97
N6LDL	Los Gatos	144.97, 145.71[1]
KI6WE	Pleasant Hill	144.97
KD6XZ-1	Sacramento	144.97, 441.50
AA4RE-1	Gilroy	144.99
KA6FUB	Martinez	144.99, 441.50
N6OA	Lemoore	144.99
W6PW-3	San Francisco	144.99
WA6RDH	Dixon	145.01, 441.50
KG6EE	Santa Cruz	145.07
KI6EH	Santa Cruz	145.07
KM6HK	Madera	145.07
N6IIU-1	Palo Alto	145.07, 223.56
AL7IN	Rohnert Park	145.07
KE6LW-1	Yuba City	145.07, 441.50
KG6XX-1	Carmichael	145.07, 441.50
W6CUS-1	Richmond	145.09
N6ECP	Redding	145.09
KB6IRS	Soquel	145.09
N6IYA-2	Felton	145.09
K3MC	Fremont	145.09, 145.75[2]
WA6NWE-1	North Highlands	145.09, 441.50, 144.93[2]
K6RAU-1	Merced	145.09
WA6YHJ-1	Livermore	145.09
W8GEC	Boulder Creek	145.73
WA6HAM	Pittsburg	145.73
KB5IC	San Jose	145.73
KA6JLT-2	Menlo Park	145.73, 145.71[1]
WB6LYE	Eureka	145.73
AA6QR	Orinda	145.73
N6MPW	Ben Lomond	144.79
WB6ODZ-1	Lake Isabella	145.79
N6QMY-1	Fremont	145.79, 441.50
N6REB-2	Modesto	145.79

[1]9600 baud port
[2]TCP/IP port
[3]Temporarily QRT

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NCXPN Meeting Minutes

Brad Watson WA6AEO
NCXPN Director

September 19, 1991

Here are the highlights of the NCXPN / BBS Sysop meeting held at the Computer Networking Conference on Sunday, September 29, 1991:

1. AL7IN gave a report on the good work he's doing to link Northwest CA with the rest of our network. We all agreed that it will be a great step forward to have this previously disenfranchised area as a part of our net.

2. AL7IN reminds us of the importance of submitting NTS station activity reports to your STM. These reports help the league defend our frequencies, and help show the FCC we deserve new privileges.

3. The majority of the SYSOPs felt that current NCPA/NCXPN frequency coordination is adequate - and that it should greatly rely on peer pressure and our ability to not forward to BBSs not complying with policy.

4. Full-service BBSs should not, and for the most part are not, run on non-BBS channels. Any that are should be discouraged by peer pressure. If this fails, and they attempt to connect to your BBS, exclude them. If they are only carrying non-linked personal messages, they would not be viewed by MOST to be hurting anything.

5. KA6FUB reported on the status of the new 433 MHz / 9600 baud back-bone. He is currently having difficulties with the receivers being able to handle 9600. He has several ideas to solve this problem. What may have to happen is to decrease the baud rate to 4800, which should work fine. Work continues with an aim to get our backbone back up ASAP!

6. We discussed the role of the NCXPN BBS Coordinator. It was felt that any directives he has should be voted by the SYSOPs ahead of time, thus protecting the coordinator himself from anyone saying he is taking unilateral action. The Coordinator directives can be changed at any time by the SYSOPs. A general vote of confidence was expressed to Fred K6RAU for the fine job he is doing.

7. N0ARY gave a talk on his BBS code running at his station in Sunnyvale. For those of you who don't know, he has a VERY advanced user interface, one that other software writers should take note of. Well done, Bob.

8. K6RAU will include in his BBS listing for SYSOPs the alternate gateways and how to connect to them. All gateway SYSOPs should be set up for these alternates, and all stations on all LANs should be set up for their LAN alternate.

9. A lengthy discussion was held on the EBAY LAN and it's associated route to SOCAL. It was agreed that it is very much overloaded and that in the next year we would investigate ways to improve it and hopefully implement those - this being very important as it is the primary link to SOCAL. We hope to establish a high-speed (higher speed), frequency diverse link. We have already begun to look at possible sites and frequency bands available for use.

10. It was decided that the NCXPN should remain in existence, understanding it is now basically a group of Northern CA SYSOPs. It will remain as it is, always in hopes that anyone interested in BBSs and other networking will get involved and participate.

11. WA6AEO was elected NCXPN Chairman. That job will mainly consist of calling meetings, putting together the agenda, and reporting on the meeting via the minutes. Everyone agreed we should have more frequent meetings, and that they were a healthy thing for our network so we can all have an opportunity to know each other and vent.

12. We reviewed the 223 MHz LAN frequencies and who's where now. As LANs move and change over to the new bandplan, we should be reminded to keep the NCPA Frequency Coordinator and the NCXPN BBS Coordinator informed.

13. WB9LOZ reports someone somewhere is changing bulletin designators and/or ALLCA and ALLCAN designators are getting out of their areas. It was decided that the investigation of this would go two directions: the possibility that it was coming from Southern OR who get our bulletins and stopping it, and WB9LOZ would make some queries to see what the headers of these bulletins tell us. This is an important matter since ALLCAN is also the designator for all of Canada - and our bulletins are finding their way there!

14. WD6CMU reports the NBAY LAN frequency will have to be moved due to interference problems at the node site. Several good possibilities were discussed. He will report back when the move has occurred.

15. N8KHN from Lake Tahoe area came to the meeting to request forwarding from NCXPN for his BBS in Nevada. He was told that we would try to accommodate him. It was suggested he contact WA6RDH and set up a REAL forwarding link between Mt. Vaca and the high Sierras on 223.60. He was told that the network could not forward to him unless there was a real link in place, and anything like 2-meter forwarding was not permitted.

November 24th, 1991

Here are the notes from the NCXPN Meeting held Sunday, November 24th :

1. AL7IN will move to 145.73 to alleviate the interference problem with the N6IIU BBS. It was noted by several SYSOPs at the meeting the trend away from wide-area coverage BBSs, and that in the future any new BBSs coming online would, out of necessity, have to be low-level. Otherwise, no action was taken on the N6IIU operation.

2. There has been little progress on the new backbone. The radios purchased by the Contra Costa Repeater Association for the EBAY LAN are not working at either 9600 baud or 4800 baud. Work continues. Kantronics was suggested, but several persons had doubts as to their survivability. The Tekk radios were once again discussed, and it was decided to at least try them on the hilltops since K3MC has recently reported some success. Eric WD6CMU will be looking into getting a couple for a test. Otherwise, we all agreed we will just have to sit tight and continue work toward the goal we all have to get our backbone back up and running.

3. Larry WB9LOZ read a message from N8KHN near Reno. It looks very good for him getting his BBS linked with Mt. Vaca soon. We all look forward to having Northern NV as part of our network.

4. KI6QE was present and we discussed at great length the Satellite GateWay. We all agreed that the #SATCA concept would not be desirable. A clear consensus was that we would all be happy to send traffic over the satellite that could best be handled there — even AL7IN (an HF GateWay) indicated he supports sending it best way. For simplicity, and to solve the biggest perceived problem, we decided to send all Alaska and non-North America traffic towards the Satellite. Delivery to KI6QE would be same way as normal delivery to CENCA and SOCAL. We should all begin making arrangements with our neighbors to start this rerouting so as to avoid looping.

5. KM6HK gave another excellent talk on LZH compression and the TXMail system. He informs us he is ready to expand testing of it in the valley, and will do so soon. He says the day is coming soon when it will become a viable way for our network to pass traffic more speedily and efficiently. The system will probably require having two computers per site, one for the LZH-TXM and one for the BBS — this may add some complexity and make it's use a challenge!!! We all felt this is a very interesting and exciting project, and hope it will someday soon be something practical for us to use and contribute to making our networking better.

6. Eric WD6CMU reports polled forwarding a success in the NBAY LAN. Due to the hidden terminal problem there, they needed a way to reduce the retries and timeouts. We all should consider the NBAY LAN an example, and anyone having similar problems may want to contact Eric WD6CMU or Larry WB9LOZ for details on how it might be able to help you.

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NCPA Board Meeting Minutes

Dewayne Hendricks WA8DZP

The NCPA Board of Directors meeting took place in Sunnyvale on November 24, 1991. The meeting started at 1015. In attendance were the following:

WA8DZP N0ARY K6TAM N6QMY K9AT WB6ZLM K6RAU WA6AEO WB9LOZ KA6FUB AL7IN W6RGG W6ZRJ KA6TCT AA4RE N6FRI K3MC KA6ETB WD6CMU WB6PER

The following NCPA Directors were present:

K3MC WA8DZP WD6CMU KA6FUB N6QMY WB9LOZ KA6ETB

1. The meeting was called to order by WD6CMU. General introductions were done for everyone in attendence.

2. **Newsletter Status** The next newsletter is about ready to go to press. We are about 1 1/2 issues behind. Steve KA6ETB has taken over as newsletter editor. It is Steve's intention to get back on schedule asap.

3. Membership/ P.O. Box Status WA8DZP reported on the situation with the current maildrop for NCPA. There has been a number of problems with the firm which provides the maildrop which has resulted in either lost or delayed mail. It is hoped that these problems have now resolved. Dewayne WA8DZP recommended that NCPA obtain a regular USPS post office box asap. A motion to that effect was passed. N6QMY is responsible for finding a new location asap.

4. **Incorporation** N6QMY gave a report on the status of incorporation of NCPA. Nothing has been done to date. Pat is going to look into what it will take to get the organization certified as a non-profit association. Once this is done, then application will be made to the Secretary of State to make NCPA a non-profit corporation. The value of this approach will be that we will save the incorporation fee which is about $900.

5. **Tresurer's Report** The current bank account balance is $1,316.45.

6. **Secretary's Report** Dewayne WA8DZP reported that the current membership stands at 132. This is down from last years high of 354.

7. **Membership Cards** Steve KA6ETB reported on the status of NCPA membership cards. No change from the previous meeting. It is still an action item.

8. **QST Ads** The board discussed the possibility of placing an ad in QST magazine for the NCPA books. It was decided that this action should be tabled until the forthcoming TCP/IP book is completed.

9. **ARRL CNC Report** A brief report was made by various people on the 10th ARRL Computer Networking Conference which NCPA hosted this year. Doc W6ZRJ reported that the ARRL was pleased with the handling of the conference and the it appeared to be a big success. To date, Glenn AA6ER has not submitted a final report to the board on the conference costs. Eric WD6CMU took this on as an action item. Mike K3MC reported that he videotaped most of the conference and could make copies of various sessions available upon request.

10. **Packet Resource Database** Eric WD6CMU reported upon the status of this effort. There have been two abortive attempts in the past to put together such a database. After much discussion, Eric WD6CMU agreed to maintain the database with the assistance of Brad WA6AEO and Bob N0ARY.

11. **New Frequency Coordinator** Roy Engehausen AA4RE resigned as NCPA Frequency Coordinator. He will keep the post until a new coordinator can be found.

12. **New Secretary** Dewayne Hendricks WA8DZP resigned as NCPA secretary. Bob Arasmith N0ARY was appointed to fill the position.

13. **New Board Members** Dewayne Hendricks WA8DZP and Mike Chepponis K3MC resigned there positions on the NCPA board. Bob Arasmith N0ARY, Bill Choisser K9AT and Bob Vallio W6RGG were appointed to the board in their place.

14. **Frequency Coordinator Report** Roy AA4RE reviewed all of his coordination actions that have taken place since the last board meeting with the board. A motion was passed to have all DXPSN frequency requests to be passed to the DXPSN representative on the board, Bob W6RGG.

15. **Interference Problem** WB6PER addressed the board on a matter concerning interference of his repeater on 223.76 by a digipeater on 223.74. The board decided to take no action on this matter as it felt that none was required at this time. The board suggested that WB6PER take this matter up with the DXPSN.

16. **ATV interference on 70 cm** Roy AA4RE gave a summary of the problem. In effect, the current NCPA 70 cm band plan will can potentially cause interference with ATV usage on that band. The NARCC representative who attended the meeting, Bob N6FRI asked the board to come up with a new 70 cm band plan. A motion was passed to have the NCPA Frequency Coordinator to meet with the appropriate parties at NARCC and to come up with a proposed band plan that everyone can agree to as soon as possible.

17. **Hospital Net** Roy AA4RE gave the status on a request by an individual for an exclusive channel to tie Bay area hospitals together via a packet radio network. He recommended that no such allocation be made and the board agreed.

18. **145.01 and WA6RDH** In the current 2M band plan, 145.01 is set aside as a keyboard-to-keyboard channel. At the last board meeting, WA6RDH was granted a grandfather exception to allow his BBS to continue to operated on that frequency as an NCPA coordinated BBS. Several people in attendence at the board meeting reported that this action by the board is causing a serious traffic problem on 145.01 and asked for some relief. The board decided to seek an informal meeting with WA6RDH as soon as possible to attempt to resolve the problem. A motion was passed to set a priority to work out a plan to remove all frandfathered operations by the end of 1992.

19. **Next BoD meeting** A motion was passed to set the date of the next board of directors meeting to be February 9, 1992. The meeting concluded at 1330. EOF

NCPA Directors

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What is NCPA?

NCPA, the Northern California Packet Association, is an organization formed to foster the Digital Communications modes of Amateur Radio. So far, we have defined our goals as:

- **Education**
- **Coordination**

Education means making information available about various Digital modes, and this newsletter is but one part of that education process.

Coordination activities include frequency coordination (NCPA is recognized by NARCC as the official packet radio frequency coordinator) as well as coordinating people and their various uses of packet radio, be they DX Cluster, BBS, TCP/IP, keyboard-to-keyboard, NET/ROM, Traffic/NTS, Emergency uses of packet, or even experimenting with new frontiers of various digital modes.

We in NCPA believe that the next revolution in Ham Radio will come about in Digital Communications Technology, and in the beneficial coordination among all users of ham Digital Communications Technologies.

We invite you to join NCPA! Become part of the most dynamic group of packet folks in Northern California!

NCPA *Downlink*

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