
Cupertino Amateur Radio Emergency Service

Topic: Introduction to Packet Radio
Speaker: Jim Oberhofer KN6PE, EC Cupertino ARES
Date: Thursday, 01-April-2004, 19:30
Event: Cupertino ARES meeting, Orientation Training

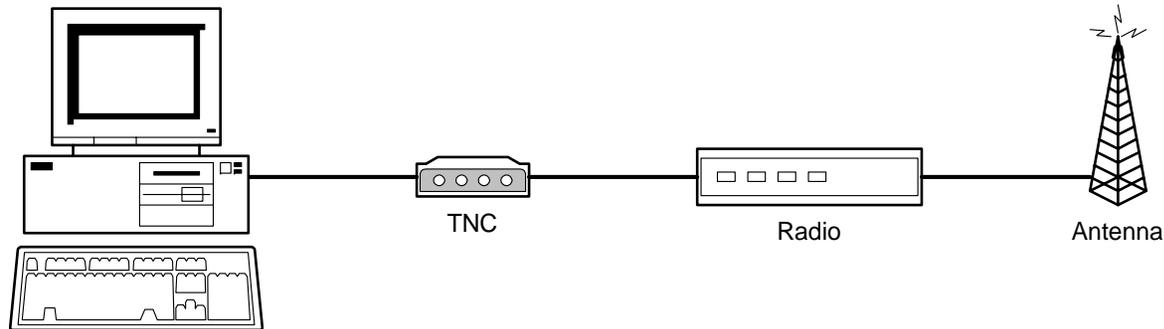
Introduction to Packet Radio



What is Packet Radio?

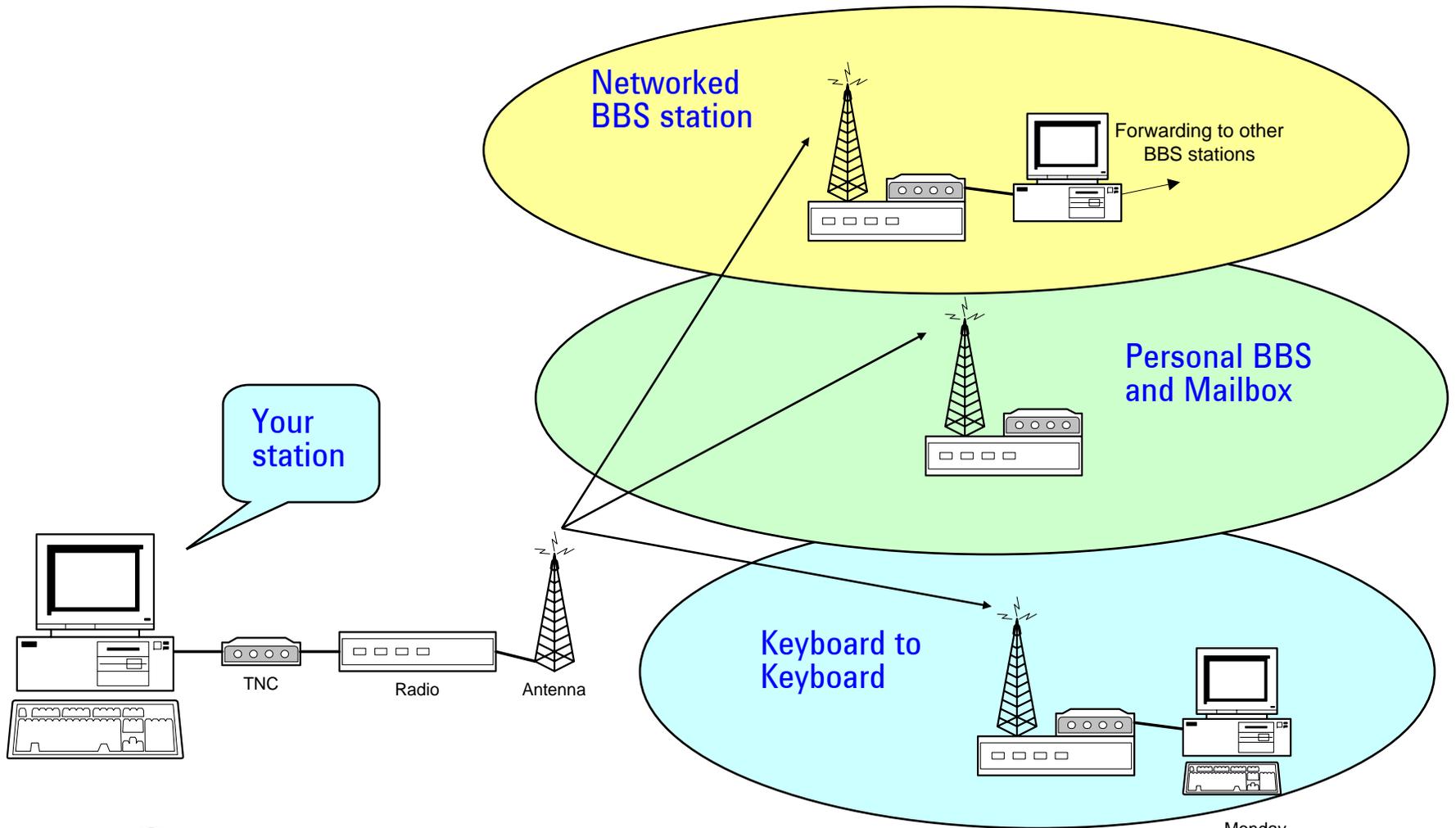
- Amateur Packet Radio is one of many digital modes we can use
- Packet establishes a “private connection” between two stations while sharing a frequency with other stations
- Packet can be used for reading the mail from a Packet BBS (bulletin board system)
- Packet gives you a personal mailbox
- Packet has three great advantages over other digital modes: transparency, error correction, and automatic control

Components of a Packet Station



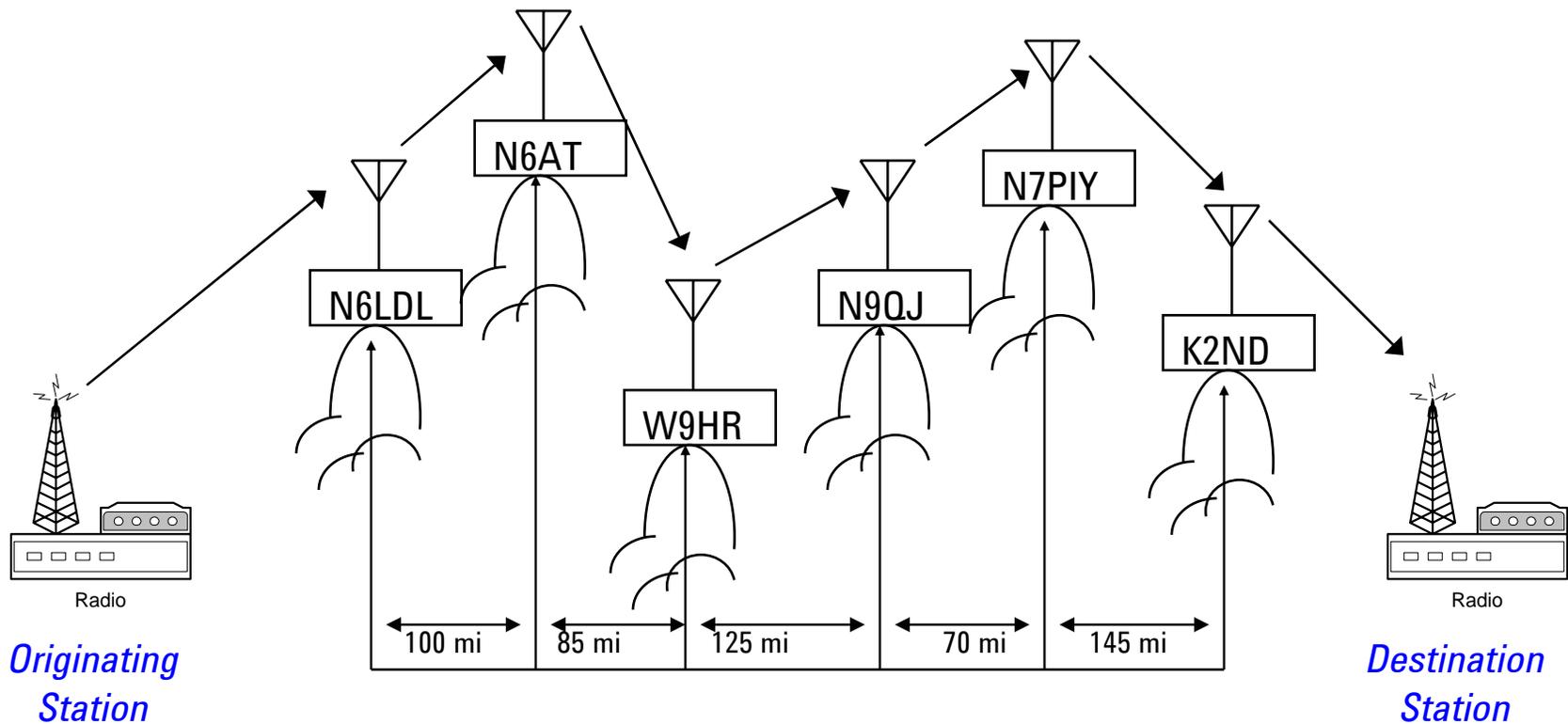
- Computer: runs a “terminal emulation” program
- TNC: Terminal Node Controller; similar to a modem, the interface between your radio and your computer
- Radio: with antenna, transmits the digital data from the TNC to another packet station
- Various interconnecting cables and power supplies

What can we connect to?



Networked BBS Stations

passing a message from station to station



Some 2 meter packet frequencies

... and local stations of interest

Freq (MHz) “organized” stations or use

144.910	W6XSC-1 (County EOC)
144.930	
144.950	
144.970	N6LDL (networked BBS station)
144.990	
145.010	
145.030	
144.050	K6FB-2 (Los Cumbres ARC BBS)
145.750	tcp/ip on packet
146.595	N6ST (DX spotter network)

TNC vs BBS Commands

TNC Commands

Some of the commands that control the TNC

- MYCALL - sets the TNC call sign
- HELP, ? - displays available commands and usage
- CONNECT - connects to another TNC

Other useful TNC commands

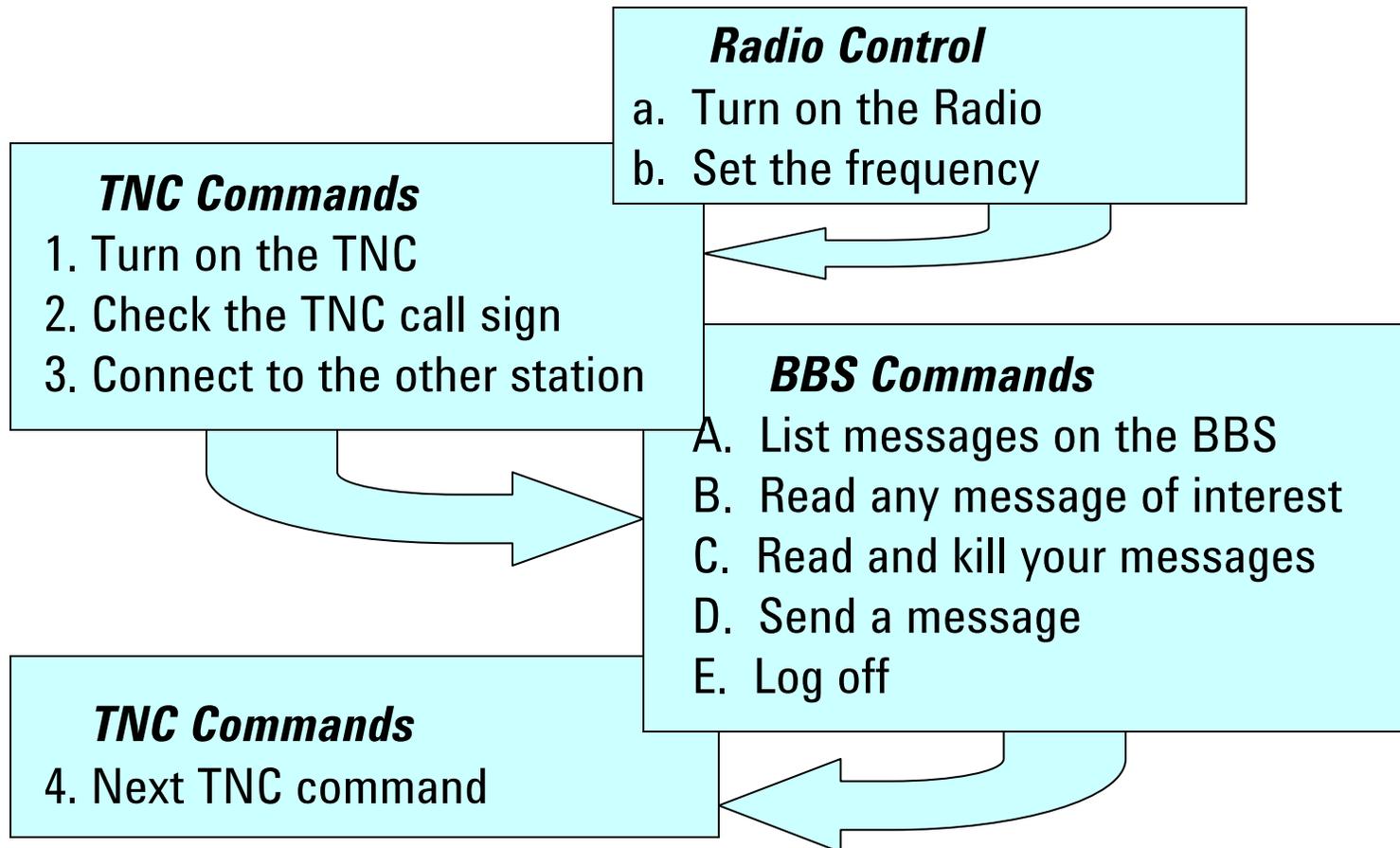
- MONITOR - turns on or off frequency monitoring
- RESET - re-initializes the TNC to the power-on state
- CONVERSE - force the TNC into "connected" mode

BBS Commands

Commands that control the remote BBS station

- Help, ? - displays list of commands
- List - lists messages you can read
- Read - read a message
- Send - send a message
- Kill - delete a message
- Bye - log off this BBS

Summary of a typical TNC session



Powering On the TNC

Power-up Message

KANTRONICS PACKET CONTROLLER III VERSION 5.0

(C) COPYRIGHT 1988-1992 BY KANTRONICS INC. ALL RIGHTS RESERVED.

DUPLICATION PROHIBITED WITHOUT PERMISSION OF KANTRONICS.

cmd:

Basic TNC set-up commands

Setting the TNC callsign

```
KANTRONICS PACKET CONTROLLER III VERSION 5.0
(C) COPYRIGHT 1988-1992 BY KANTRONICS INC.  ALL RIGHTS RESERVED.
DUPLICATION PROHIBITED WITHOUT PERMISSION OF KANTRONICS.
cmd: ? mycall
MYCALL  This station's callsign  {call[-n]}
cmd: my
MYCALL  NOCALL
cmd: my kn6pe
MYCALL was NOCALL
cmd: my
MYCALL  KN6PE
cmd:
```

TNC Commands

Using the '?' command

*Show the list of commands
that this TNC can execute*

cmd: ?

TYPE 'HELP' OR ? FOLLOWED BY COMMAND FOR MORE INFORMATION

8BITCONV	AX25L2V2	ABAUD	AUTOLF	AXDELAY	AXHANG	BEACON	BKONDEL
BTEXT	BUDLIST	BUDCALLS	CONNECT	CANLINE	CANPAC	CALIBRAT	CD
CHECK	CMDTIME	CMSG	COMMAND	CONLIST	CONMODE	CONOK	CONVERS
CPACTIME	CR	CRSUP	CSTAMP	CTEXT	CWID	DISCONNE	DAYTIME
DAYTWEAK	DAYUSA	DBLDISC	DELETE	DIGIPEAT	DISPLAY	DWAIT	ECHO
ESCAPE	FLOW	FILTER	FRACK	FULLDUP	HELP	HBAUD	HEADERLN
HID	ID	INTFACE	K	KNTIMER	LEDS	LCOK	LCSTREAM
LFADD	LFSUP	LLIST	MONITOR	MALL	MAXFRAME	MAXUSERS	MBEACON
MCON	MCOM	MHEARD	MHCLEAR	MRESP	MRPT	MSTAMP	MYCALL
MYALIAS	MYNODE	MYPBBS	MYREMOTE	NDHEARD	NDHCLEAR	NDWILD	NEWMODE
NOMODE	NTEXT	NUCR	NULF	NUMNODES	PACLEN	PACTIME	PARITY
PASS	PASSALL	PBBS	PBHEADER	PBLO	PBPERSON	PERSIST	PID
PTEXT	REDISPLA	RELINK	RESET	RESPTIME	RESTORE	RETRY	RING
RNRTIME	RTEXT	STATUS	SCREENL	SENDPAC	SLOTTIME	START	STATSHRT
STOP	STREAMSW	STREAMCA	STREAMEV	SUPLIST	SUPCALLS	SWP	TRANS
TRACE	TRFLOW	TRIES	TXDELAY	TXFLOW	UNPROTO	USERS	VERSION
WEFAX	XFLOW	XMITOK	XOFF	XON			

cmd:



Cupertino
ARES

Introduction to Packet Radio

Monday,
December 20,
2004

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Starting a BBS Session

Connecting to the BBS

```
cmd: help connect
CONNECT callsign [via calls] can be used to reconnect with different path
cmd:
cmd: c k6fb-2
*** CONNECTED to K6FB-2
[KPC3-5.1-HM$]
67331 BYTES AVAILABLE
THERE ARE 9 MESSAGES NUMBERED 24-555
Welcome to the LCARC packet mailbox.
ENTER COMMAND: B,J,K,L,R,S, or Help >
```

An alternative way of getting help on TNC commands

Connect to the k6fb-2 Club BBS

BBS Commands

Using the '?' command

```
ENTER COMMAND:  B,J,K,L,R,S, or Help >
?
B(ye)          PBBS WILL DISCONNECT
J(heard)       CALLSIGNS WITH DAYSTAMP
J S(hort)      HEARD CALLSIGNS ONLY
J L(ong)       CALLSIGNS WITH DAYSTAMP AND VIAS
L [x [y]] [;]  LIST MESSAGES x THRU y YOU CAN READ
L <|> call    LIST MESSAGES FROM OR TO CALL
LB            LIST BULLETINS
LC [cat]      LIST CATEGORIES
LL n          LIST LAST n MESSAGES
LM(ine)       LIST UNREAD MESSAGES ADDRESSED TO YOU
LO [+|-]      LISTING ORDER
LT           LIST TRAFFIC
K(ill) n     DELETE MESSAGE NUMBER n
KM(ine)      DELETE ALL READ MESSAGES ADDRESSED TO YOU
R(ead) n     DISPLAY MESSAGE NUMBER n
RH n        DISPLAY MESSAGE n WITH HEADERS
RM(ine)     READ ALL MESSAGES ADDRESSED TO YOU
S(end) call  SEND MESSAGE TO callsign
S[B|P|T] call SEND BULLETIN, PRIVATE, or TRAFFIC
ENTER COMMAND:  B,J,K,L,R,S, or Help >
```

**Show the list of commands
that are available on this
BBS**

Listing available Messages

Using the 'List' command

```
ENTER COMMAND:  B,J,K,L,R,S, or Help >----- List the messages on the  
1 BBS  
MSG#  ST SIZE  TO      FROM   DATE                SUBJECT  
553   BF 2319  ALL    N6GBU  07/18/99 09:27:37  NAPA REPEATER & TCP/IP  
548   PN 386   KE6CSL KN6PE  06/21/99 18:12:47  Hawaii... lucky guy!  
533   B 1658  ALL    KN6PE  01/22/99 22:33:57  1999 General Meeting Schedule  
238   B 318   ALL    AA6WK  11/28/95 18:22:28  BMHA Bicycle Mobile Hams of Ame  
27    B 3483  ALL    AA6WK  03/18/93 21:35:15  Net Preamble  
26    B 760   ALL    AA6WK  03/18/93 21:30:47  >>> how to use the node and/or  
24    B 947   ALL    AA6WK  03/18/93 21:20:33  Welcome  
ENTER COMMAND:  B,J,K,L,R,S, or Help >
```

Reading BBS Messages

Using the 'Read' command

ENTER COMMAND: B,J,K,L,R,S, or Help >

r 24

←----- **Read Message #24**

MSG#24 03/18/93 21:20:33 FROM AA6WK TO ALL

SUBJECT: Welcome

PATH: K6FB

Welcome to the Las Cumbres Amateur Radio Club's Bulletin Board.

This club also operates K6FB-7 node on 145.050 Mhz.

:

:

All machines are OPEN and they may be used by anyone wishing to do so.

Please make use of the K6FB-2 BBS. After reading messages addressed directly to you please delete them. If you originate a message addressed to all, please delete it within the month posted.

Thank you for reading this message....

73 de Las Cumbres Amateur Radio Club

ENTER COMMAND: B,J,K,L,R,S, or Help >



Sending a Message

Using the 'Send' command

```
ENTER COMMAND:  B,J,K,L,R,S, or Help >
s w9bjx ←----- Send a Message to w9bjx
67306 BYTES AVAILABLE
SUBJECT: Scouting event ←----- The subject is...

ENTER MESSAGE 556--END WITH CTRL-Z OR /EX ON A SINGLE LINE
Hi Andy,
If you want more information about Jamboree on the Air (JOTA),
check out the ARRL's web site at www.arrl.org and search for
JOTA.

regards,
jim ' kn6pe
/EX ←----- "/EX" ends message entry
MESSAGE SAVED
ENTER COMMAND:  B,J,K,L,R,S, or Help >
l ←----- Do a "l" List to verify its there!
MSG#  ST SIZE  TO      FROM   DATE                SUBJECT
556   PN  177   W9BJX  KN6PE  09/06/99 20:45:48  Scouting event
553   BF  2319  ALL    N6GBU  07/18/99 09:27:37  NAPA REPEATER & TCP/IP
:
ENTER COMMAND:  B,J,K,L,R,S, or Help >
```



Reading, deleting a Message

Using the 'Read' and 'Kill' command

```
ENTER COMMAND:  B,J,K,L,R,S, or Help >
r 556 ←----- Read Message # 556
MSG#556 09/06/99 20:45:48 FROM KN6PE TO W9BJX
SUBJECT: Scouting event
PATH: K6FB

Hi Andy,
If you want more information about Jamboree on the Air (JOTA),
check out the ARRL's web site at www.arrl.org and search for
JOTA.

regards,
jim ' kn6pe

ENTER COMMAND: B,J,K,L,R,S, or Help >
k 556 ←----- Delete this message!
MSG#556 09/06/99 20:45:48 FROM KN6PE TO W9BJX
MESSAGE DELETED
ENTER COMMAND:  B,J,K,L,R,S, or Help >
```

Ending a BBS session

Using the 'Bye' command

```
ENTER COMMAND: B,J,K,L,R,S, or Help >  
B  
*** DISCONNECTED  
cmd: "B" for Bye!  
Disconnect from this  
BBS
```

