

AG6QO Packet BBS

Effective Use



Outline

- Node Services
- BBS Services
- Message Types
- NTS Messages
- Emergency Services
- Theme Area
- The Bigger Picture
- References
- System Details



AG6QO FPAC Node

- Supports multiple node protocols
 - Net/ROM – automatically add/remove nodes
 - Rose – statically defined node list – automatic routing
 - See this link for good example: <http://rose.fpac.free.fr/FPACroutes.txt>
 - http://www.tapr.org/pr_intro.html#NetSchemes lists various networks
- Supports multiple ports
 - 144.37, 145.05, 223.6, internet, soon HF and APRS
- Gateway services
 - Connecting to the FPAC node allows “gateway” to any node system on any supported port.
 - For example, while on 144.37, *C BERRY* to be connected to BERRY on 145.05
- Access the BBS, Telnet, Applications, Monitor Port, White Pages, many more... configurable.
- <http://rose.fpac.free.fr/>



AG6QO FPAC Node

- To connect to the FPAC node:
- On 144.37, the primary user channel:
 - *C AG6QO* or *C WINTND* (alias).
 - From outside the immediate area, use the node network:
 - *C BERR37*, and after connected,
 - *C WINTND*

```
cmd:
cmd:C WINTND

cmd:*** CONNECTED to WINTND
User call : AG6QO-7
Welcome to the FPAC node of Joe, AG6QO in Winters, CA, USA

FPAC-Node v 3.27.19 (built May  5 2013) for LINUX (help = h)
AG6QO (Commands = ?) : ?
?, Alias, APplications, BBs, Bye, CLuster, Connect, Dest, Finger, Help
HOst, Info, IPLinks, IPRoutes, Links, Mheard, MONitor, NEtrom, Nodes, PIng
Ports, Quit, Routes, SStat, Status, SYSOp, Telnet, Users, VERsions, Wp
AG6QO (Commands = ?) : █
```



AG6QO FPAC Node

- On 145.05, the backup user channel:
 - *C AG6QO* or *C WINTER* (alias).
 - Note, WINTER is AG6QO's old KA-node alias on 145.05
 - From outside the immediate area, use the node network:
 - *C BERRY*, and after connected,
 - *C WINTER*

```
cmd:
cmd:C WINTER

cmd:*** CONNECTED to WINTER
User call : AG6QO-7
Welcome to the FPAC node of Joe, AG6QO in Winters, CA, USA

FPAC-Node v 3.27.19 (built May  5 2013) for LINUX (help = h)
AG6QO (Commands = ?) : ?
?, Alias, APplications, BBs, Bye, CLuster, Connect, Dest, Finger, Help
HOSt, Info, IPLinks, IPRoutes, Links, Mheard, MONitor, NETrom, Nodes, PIng
Ports, Quit, Routes, STAT, Status, SYSop, Telnet, Users, VERsions, Wp

AG6QO (Commands = ?) : █
```



AG6QO FPAC Node

- On the internet (axudp):
 - There are many nodes accessible via internet.
 - Many of these have gateways to remote RF ports on various bands

```
User call : AG6QO-0
Welcome to the FPAC node of Joe, AG6QO in Winters, CA, USA

FPAC-Node v 3.27.19 (built May 5 2013) for LINUX (help = h)
AG6QO (Commands = ?) : N
FPAC Nodes:
Callsign  DNIC addr  Callsign  DNIC addr  Callsign  DNIC addr
AG6QO 3100,530795 DJ3PU-8 2621,130567 F1MVP-4 2080,886801
F3KT-10 2080,444501 F3KT-14 2080,444501 F3KT-8 2080,444501
F4BWT 2080,428405 F4BWT-10 2080,428501 F4DUR 2080,444501
F5KBW-8 2080,833501 F5KCK-10 2080,178504 F5ZHO-14 2080,444501
F6ARV-10 2080,444502 F6BVP 2080,175520 F6BVP-10 2080,175502
F6BVP-4 2080,175522 F6BVP-6 2080,175525 F6BVP-8 2080,175520
F6GAL-8 2080,194501 F6GGY-8 2080,847501 F6KAV-8 2080,833505
F8COJ-10 2080,854509 F8COJ-6 2080,854509 F8COJ-7 2080,854505
F8COJ-8 2080,854509 FE6BVP-10 2080,175502 GB7JD 2370,650200
GB7JD-8 2370,650200 GB7JD-9 2080,444501 GM4UPX-11 2370,650200
GM4UPX-8 2370,650206 GM4UPX-9 2080,444501 HP2NG-8 7140,507003
IR5AG-3 2220,055741 IW8PGT-6 2220,984502 IZ3LSV-9 2220,421502
K4GBB-11 3100,352727 K4GBB-5 3100,352725 K4GBB-8 3100,352726
```

```
AG6QO (Commands = ?) : C K4GBB-8
Trying (fpac wp) K4GBB-8 @ 3100,352726... Type <RETURN> to abort
*** Connected to K4GBB-8 @ 3100,352726 (Escape: ~.)
User call : AG6QO-0
You are connected to the Citrus County FPAC Node

* Located in Cedar Cove, Fla *
```

```
FPAC-Node v 3.27.19-Beta251 (built Jul 25 2013) for LINUX (help = h)
K4GBB-8 (Commands = ?) : ports
Ports:
Port Description
0 Radio - 145.030 MHz
9 Internet - AxUDP

K4GBB-8 (Commands = ?) : █
```



AG6QO BBS Services

- **Message Store and Forward**
 - Forwards messages (Packet mail) anywhere in the world
 - Hierarchical message addressing : VE3WBZ@VA3BAL.#SCON.ON.CAN.NOAM
 - *The above address will route your message to Peter, VE3WBZ who uses the VA3BAL BBS system in south-central Ontario, Canada. The routing happens automatically!*
 - “Home” BBS – the BBS where you will pick up all your BBS messages.
 - KG6SJT@AG6QO.#NCA.CA.USA.NOAM
- **Server Mode – store/retrieve files (packet “dropbox”)**
- **Gateway Services – connect to other ports / frequencies**
- **Run Applications – customizable**
- **Real-time Conference with other BBS users**
- **More...**
- **See Online User Guide**
 - <http://f6bvp.free.fr/logiciels/BBS-f6fbb/html/docbbs.htm>



What is a Full-Service BBS?

- Online 24/7
- Provides automated message store/forward on behalf of third parties.
- Uses one or more standard protocols for forwarding.
- Provides one or more ports dedicated to forwarding only.
- Maintains “White Pages” for routing information.
- Usually provides other services as well, such as file storage, applications, gateways to other ports, nodes, and BBSs
- Is NOT limited to forwarding messages for a single user or single target.



Full-Serve vs. PBBS

- **P**BBS – means **P**ersonal BBS
 - Personal BBS's are small, limited-resource systems (memory, bandwidth, availability, forwarding paths, etc).
 - Do not handle messages on behalf of “third-parties”, only those for (or from) the PBBS owner.
- Full-service BBS
 - Has adequate resources to handle large volumes of traffic
 - Sole purpose is to handle traffic on behalf of third parties.
 - Operate 24/7
 - Maintain complete and robust forwarding paths in order to ensure reliable message delivery to remote nodes.



Hierarchical Addressing

- Perhaps the most valuable feature of a full-service BBS is message store and forward.
- This service uses a message addressing scheme called “Hierarchical Addressing” which helps BBS systems worldwide to route messages to their destinations.
- In order for this system to work well, each BBS system user must declare and maintain a consistent “Home BBS”.
- A “Home BBS” is a full-service BBS where you will have all your BBS mail delivered.
- You can pick it up or have it delivered to your personal MBX, or use a “client” program like [Outpost](#), or [AirMail](#) to retrieve your mail from the Home BBS for you.
- Full services BBSs keep lists of known BBS users’ Home BBS’s in something called White Pages. It is, effectively, a routing table.



Setting Your Home BBS

- AG6QO BBS runs BBS software known as FBB.
- You can find a user-guide for FBB at:
 - <http://f6bvp.free.fr/logiciels/BBS-f6fbb/html/>
- On all FBB BBS's, you can set your hierarchical Home BBS address when you register.
- If you incorrectly set it, or want to change it later, you can use the following commands to set your user information, including Home BBS
- To use AG6QO as your Home BBS, type :
 - *NH AG6QO.#NCA.CA.USA.NOAM*

```
N : Enters or modifies the name (max 12 characters allowed).
NH :
    Enters or modifies the Home BBS. A point deletes the current Home BBS.
NL : Enters or modifies the QRA locator.
NP : Modifies the password for the access via telephone modem.
NQ : Enters or modifies the city (Qth).
NZ : Enters or modifies the Zip Code.
```

- To display your user parameter settings, type:

```
I yourcallsign (0) AG6QO BBS>
i ag6qo
AG6QO @AG6QO.#NCA.CA.USA.NOAM Joe 95694 Winters, CA
(0) AG6QO BBS>
```



AG6QO BBS

- To connect,
- On 144.37 , the primary user channel:
 - C AG6QO-1 ... or,
 - From outside the immediate area, use the node network:
 - C BERR37, and after connected,
 - C AG6QO-1

```
cmd:C AG6QO-1

cmd:*** CONNECTED to AG6QO-1
[FBB-7.05f-AB1FHMRX$]
AG6QO BBS, Winters, CA .
Hello Joe. 170 active messages, last is 6347, last listed is 6347.

Assigned channels:
Ch. 1 (144.370) : AG6QO-7 - Sun 05/01/14 13:50
ENTER = continue, A = Abort, N = Next, C = remove paging -->
BBS AG6QO-1 (software by F6FBB Linux version 7.05f)
OS : Linux Raspbian (Debian Wheezy) - kernel 3.6.11+
Local Time is 13:50 (+/-30 s)
Type I for more information - 73's Joe, AG6QO

ENTER = continue, A = Abort, N = Next, C = remove paging -->
```



AG6QO BBS

- To connect,
- On 144.05 , the backup user channel:
 - C AG6QO-1 ... or,
 - From outside the immediate area, use the node network:
 - C BERRY or C KBERR, and after connected,
 - C AG6QO-1

```
cmd:
cmd:C AG6QO-1

cmd:*** CONNECTED to AG6QO-1
[FBB-7.05f-AB1FHMRX$]
AG6QO BBS, Winters, CA .
Hello Joe. 170 active messages, last is 6347, last listed is 6347.

Assigned channels:
Ch. 1 (145.050) : AG6QO-7 - Sun 05/01/14 13:44
ENTER = continue, A = Abort, N = Next, C = remove paging -->
BBS AG6QO-1 (software by F6FBB Linux version 7.05f)
OS : Linux Raspbian (Debian Wheezy) - kernel 3.6.11+
Local Time is 13:44 (+/-30 s)
Type I for more information - 73's Joe, AG6QO

ENTER = continue, A = Abort, N = Next, C = remove paging -->
```



Message Types

- General Messages
 - Hierarchical Addressing
 - Everyone sees
- Private Messages
 - Hierarchical Addressing
 - Not listed for everyone (but not private, really)
- Bulletins
 - Intended for a group
 - Example: YARES, BARK, etc.
- Formal NTS(D) Traffic
 - Special Addressing: 95694@NTSCA
 - Special Handling – must be delivered or forwarded
 - <http://www.arrl.org/files/file/Public%20Service/MPG604A.pdf>

```
LD> YYMMDD : Lists the messages received after the specified date.
LD< YYMMDD : Lists the messages received before the specified date.
LE : List messages that could not be forwarded.
LF : List FORWARDED messages.
LH : List HELD messages.
LK : List KILLED messages.
LM : Lists the messages TO YOU.
LN : Lists the NEW messages TO YOU.
LP : List PRIVATE messages.
LU : Lists all unread messages to/from the user.
LX : List messages with status X.
LY : List messages that have been read (status Y).
LL 10: Lists the last 10 messages.
LR : Equivalent to L but the messages are listed in reverse order.
LS text :
  Searches for a text in the messages titles. Usage of wildcards is allowed.
LT : List Traffic (for NTS-messages).
L$ : List bulletins with status $.
L< Callsign :
  Lists the message originated from [Callsign]. The wildcards are allowed.
L> Callsign :
  Lists the messages destined to [Callsign]. Wildcards are allowed.
L@ [BBS] :
  Lists the messages VIA BBS if specified. L@ alone lists the message without
  route. The wildcards are allowed.
L msg#- : Lists all messages, starting from msg#
L msg#-msg# : Lists messages between the given numbers.
```



To Send NTS Traffic

- First compose and format your message:

Required:
Means
"I have radio-gram"

Required:
Locality of
Addressee

Required:
Area code and
Phone exchange of addressee if given.
If not given: "No PHONE"

Subject Line

QTC WOODLAND / NO PHONE

```
NR 1 R HXG AG6QO 24| WINTERS CA JAN 5 2014  
BARK Members  
637 Fairview Drive  
Woodland, CA 95695  
NO PHONE  
BT  
AG6QO BBS can ACCEPT NTS  
TRAFFIC X USE THE ST  
COMMAND X SEE AG6QO DOT  
COM SLASH BBSUSE DOT PDF  
FOR MORE INFO X  
BT  
JOE AG6QO  
AR
```

} Message No; Priority; Instructions; Originator;
Count; Orig Location; Date

} Addressee

} Message
Body

See <http://www.arrl.org/files/file/Public%20Service/MPG604A.pdf> for details and standards.



To Send NTS Traffic

- Next enter it into the BBS:

```
(0) AG6QO BBS>
st 95694@NTSCA
We have no forwarding route for 95694. SYSOP will be advised.
Enter the title for this message to 95694 :
QTC WOODLAND / NO PHONE
Enter the text for this message, end with Ctrl-Z or /EX on a blank line) :
NR 1 R HXG AG6QO 34 WINTERS CA JAN 5 2014
BARK Members
Woodland, CA 95695
NO PHONE
BT
AG6QO BBS can ACCEPT NTS
TRAFFIC X USE THE ST
COMMAND TO SEND X USE
THE LT COMMAND TO LIST
TRAFFIC X SEE AG6QO DOT
COM SLASH BBSUSE DOT PDF
FOR MORE INFO X
BT
JOE AG6QO
```

End your message with a line that starts with:

/EX

That's IT! Your message will be sent via packet to the area specified in the address zip !

See <http://www.arrl.org/files/file/Public%20Service/MPG604A.pdf> for details and standards.



To Receive NTS Traffic

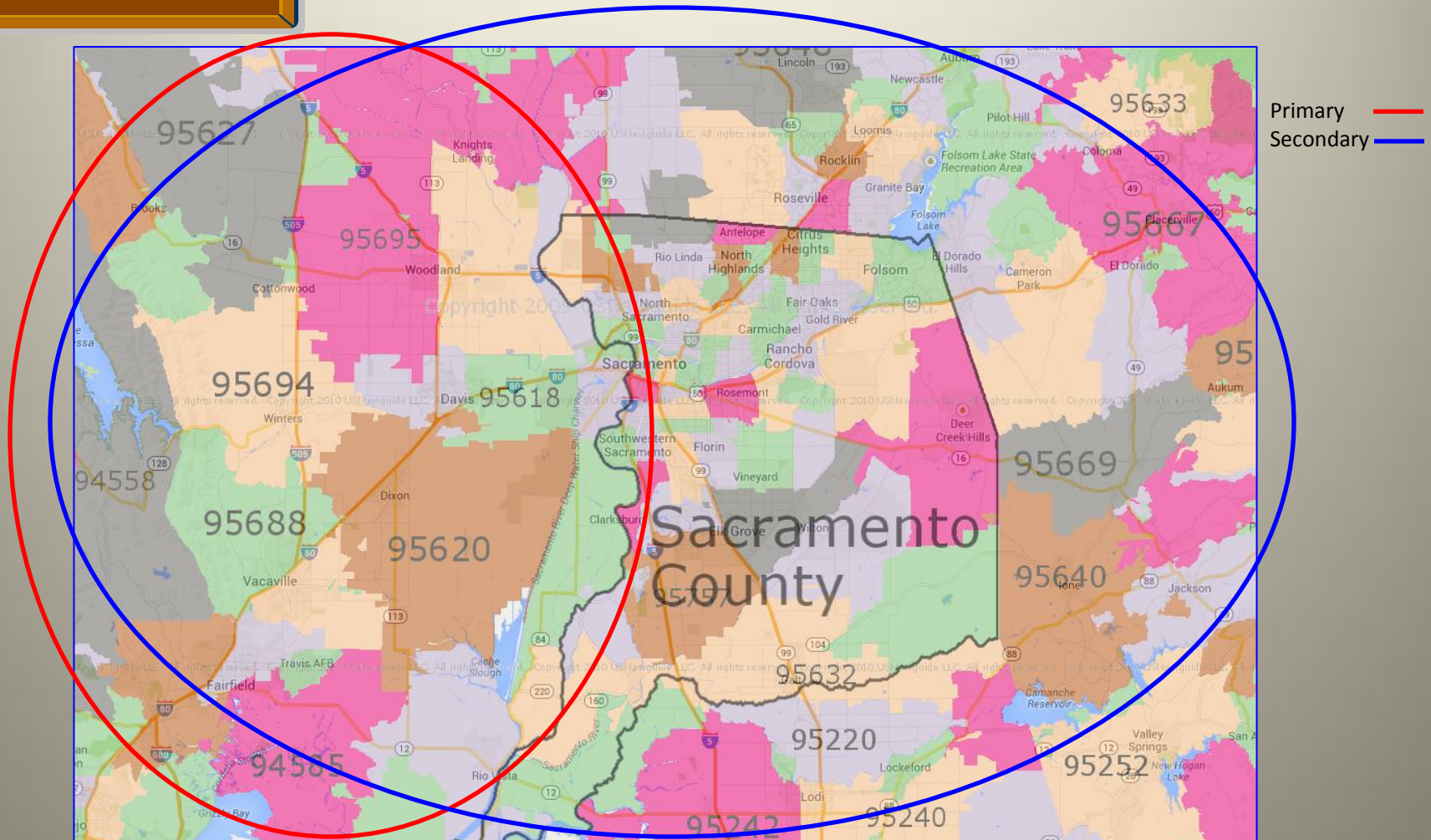
- Use the LT command to “List Traffic”
- Must follow strict protocol to avoid loss or dead-ending of messages
 - Do not “kill” a message unless you are committed to delivering it to the addressee !
 - “Killing a message tells everyone YOU are going to deliver it.
 - If you read but DON’T kill a message, do NOT deliver it ! Some folks get annoyed at multiple calls for the same message. It’s unprofessional !

```
(0) AG6QO BBS>
1
Msg#  TSID  Size To    @Route  From    Date/Time Subject [LC-choice: *]
7263   B$    30065 DX    @WW      KB8NW   0209/1137 Ohio/Penn DX Bulletin No. 1149
(0) AG6QO BBS>
1t
Msg#  TSID  Size To    @Route  From    Date/Time Subject [LC-choice: *]
7262   TKL    232 18201 @NTSPA   AG6QO   0209/1129 QTC HAZLETON / 570454
7261   TKL    232 18201 @NTSPA   AG6QO   0209/1050 QTC HAZLETON / 570454
7260   TKL    235 18201 @NTSPA   AG6QO   0209/1022 QTC HAZLETON / 570454
(0) AG6QO BBS>
```

AG6QO logs into the California NTS hub and picks up messages for the 956* @NTSCA zip codes daily



NTS Traffic Areas





Bulletins

- To read Bulletins:
 - “L” – lists all messages received since your last “L”
 - “LB” – lists ALL Bulletins on the BBS (can be a long list!)
- To send Bulletins:
 - “SB ADDRESSEE” – “send bulletin”
 - For example:
 - SB BARK
 - SB YARES
 - Can use “hierarchical” addressing, with “keyword” addressing.
 - For example:
 - SB SATDIG@WW – intended for all satellite digital stations, worldwide
 - SB LETTER@ARRL- LETTER intended for all ARRL members

```
(0) AG6QO BBS>
SB YARES
Enter the title for this message to YARES :
AG6QO LOOKING FOR RF PARTNERS
Enter the text for this message, end with Ctrl-Z or /EX on a blank line) :
If you are a packet-user, or user of other digital modes, you may want to consid
er becoming a packet BBS SYSOP.

I am looking for hams in Northern California who may be interested in establishi
ng a new packet BBS station and using VHF or UHF forwarding. I am willing and ab
le to provide technical assistance, and may be able to assist with hardware for
serious operators.

Contact me if you are interested:
Joe AG6QO@AG6QO.#NCA.CA.USA.NOAM
AG6QO@WINLINK.ORG
```



Themes Area

- Sorts and presents Bulletins by Topic
 - For Bulletins only !
- For Special Interests, such as ARES, BARK, etc.
- Enter number of listed theme of interest
- List, Read, Send Bulletins of Theme interest

```
File Edit Setup Web Control Window Help
xfbbC V3.3 (Nov 3 2013) - Callsign : ag6qo - Remote host : localhost
ENTER = continue, A = Abort, N = Next, C = remove paging -->
You have 8 redundant message(s).
Please kill them with KM.

(1) AG6QO BBS>
th
0:POUBELLE 156 1:COMPUTER 0
2:COMMERCE 0 3:SATELLITE 16
4:RESEAU 0 5:DX 5
6:IMAGES 0 7:TECHNIQUE 0
8:TRX 0 9:ATV 0
10:GAMES 0 11:SCOUTS 0
ENTER = continue, A = Abort, N = Next, C = remove paging -->
12:DIGEST 0 13:BBS 0
14:BARK 0 15:YARES 2
16:NTS 0 17:TPK 0
18:ASSOCIATION 0 19:EDUCATION 0
YARES - 2 bulletins (B,F,H,L,R/V #) :
```

```
File Edit Setup Web Control Window Help
xfbbC V3.3 (Nov 3 2013) - Callsign : ag6qo - Remote host : localhost
th
0:POUBELLE 156 1:COMPUTER 0
2:COMMERCE 0 3:SATELLITE 16
4:RESEAU 0 5:DX 5
6:IMAGES 0 7:TECHNIQUE 0
8:TRX 0 9:ATV 0
10:GAMES 0 11:SCOUTS 0
ENTER = continue, A = Abort, N = Next, C = remove paging -->
12:DIGEST 0 13:BBS 0
14:BARK 0 15:YARES 2
16:NTS 0 17:TPK 0
18:ASSOCIATION 0 19:EDUCATION 0
YARES - 2 bulletins (B,F,H,L,R/V #) :15
YARES - 2 bulletins (B,F,H,L,R/V #) :L
Msg# Dim To From Title (Theme:YARES)
1 30259 ARES CK2SA ARES E-Letter December 18, 2013
2 27361 ARES CK2SA ARES E-Letter January 15, 2014
YARES - 2 bulletins (B,F,H,L,R/V #) :
```



Standard BBS Interface

```
xfbbs V3.3 (May 5 2013) - Callsign : ag6qo - Remote host : localhost
[FB-7.05e-AHMR$]
AG6QO BBS, Winters, CA
Hello Joe. 198 active messages, last is 4760, last listed is 4755.

Assigned channels:
BBS AG6QO-1 (software by F6FBB Linux version 7.05e)
OS : Linux Raspbian (Debian Wheezy) - kernel 3.6.11+
Local Time is 20:24 (+/-30 s)
Type I for more information - 73's Joe, AG6QO

You have 4 redundant message(s).
Please kill them with KM.

(0) AG6QO BBS>
lm

Msg#  TSLD  Size To      @Route  From      Date/Time Subject [LC-choice: *]
4755  PYL    534 AG6QO  @AG6QO  KG6SJT  0916/1338 RE: Welcome back
4751  PF     622 AG6QO  @AG6QO  N6RME   0916/0729 another one...
4743  PF     115 AG6QO  @AG6QO  N6MEF   0915/2313 DELIVERED: Testing
4718  PF     2007 AG6QO @AG6QO  N6RME   0915/1059 Re: test

(0) AG6QO BBS>
r 4755
From      : KG6SJT
To        : AG6QO
Type/Status : PY
Date/Time  : 16-Sep-13 13:38
BID (MID)  : 4755_AG6QO
Message #   : 4755
Subject    : RE: Welcome back

(This message has been read 6 times so far in this BBS).

HI Joe!

Back in Davis and the BBS is working great! THANK YOU!
It was lovely in the mountains. Actually caught a nice 14 inch trout that was de
licious!
```

Requires “connect” command and login.

Requires individual commands to list, Read, and delete (kill) messages.

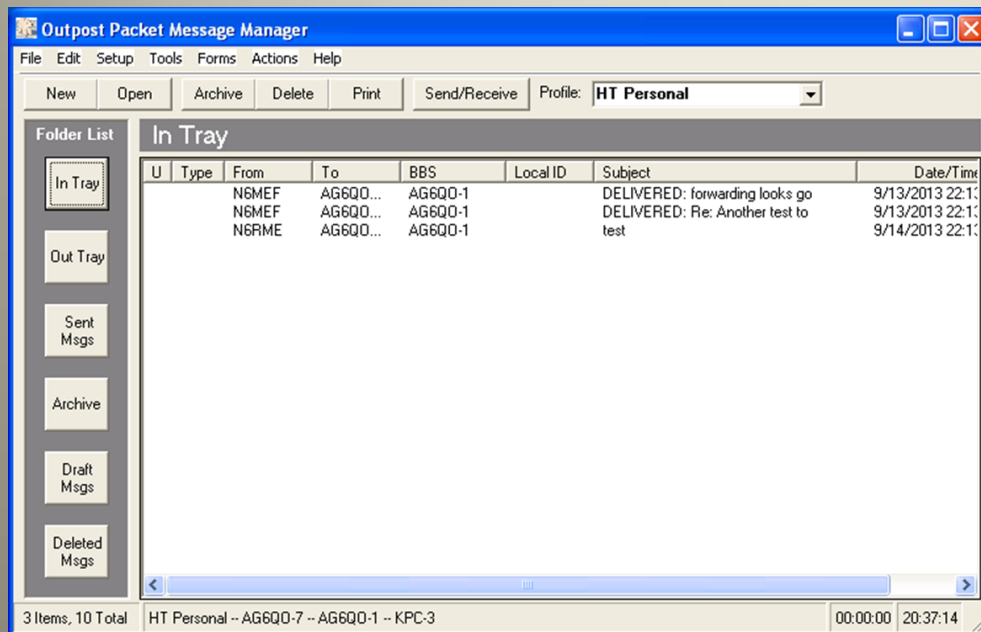
See the online user-manual for a list of commands and their use:

<http://f6bvp.free.fr/logiciels/BBS-f6fbb/html/docbbs.htm>



Outpost BBS Interface

Ideal for EMCOMM. “Focus on the message, not the medium.”



- Does all the connections and login for you.
- Automatically gets a message listing.
- Automatically downloads, and stores messages locally.
- Automatically “deletes” the messages from the BBS.
- Automatically logs out.
- Contains standard message forms.

<http://www.outpostpm.org/>

Also, see [AirMail](#) which provides NTS and WinLink connections.

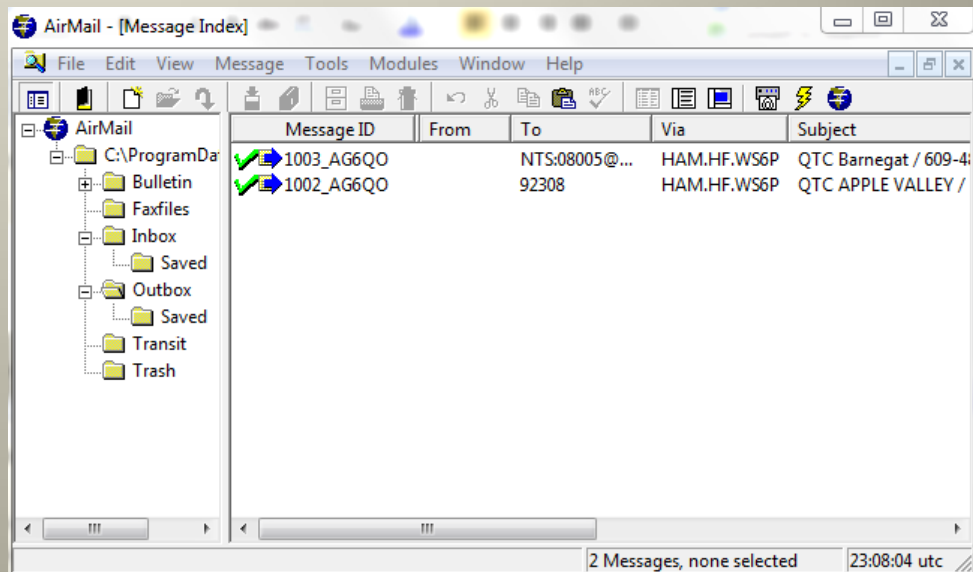


AirMail BBS Interface

Ideal for EMCOMM.

AirMail – message client also provides NTS and WinLink connections.

- Does all the connections and login for you.
- Automatically gets a message listing.
- Automatically downloads, and stores messages locally.
- Automatically “deletes” the messages from the BBS.
- Automatically logs out.
- Requires special BBS permission for Forwarding





Why Packet / BBS for EC ?

- Fast:
 - Packet is much faster than voice
- Accurate:
 - Packet is far more accurate than voice, especially for data and difficult items like drug names.
- Deployable:
 - Packet is way more deployable than wifi or cellular data
- Meets served agency needs:
 - Agencies need data/forms.
 - Automatic logging, statistics, message tracking.



2m BERR37 Node

BBS in Winters

WINTBB
AG6QO-1
(WINTBB)
Winters



BERR37
Node
144.370 MHz
Mt. Berryessa



Relay Node Mt. Berryessa

Yolo User



```
xifbbC V3.3 (May 5 2013) - Callsign : ag6qo - Remote host : localhost
(0) AG6QO BBS>
IM
Msg#  TSLD  Size To    @Route  From  Date/Time Subject [LC-choice: *]
4400  PY      285 AG6QO  @AG6QO  N6RME  0902/1113 CP N6RME: *** UNKNOWN NTS ***
4393  PYL      693 AG6QO  @AG6QO  KG6SJT 0902/0754 FW: Monday morning test
4386  PY      1008 AG6QO  @AG6QO  K4GEB  0902/0430 Re: Y
4383  PY      940 AG6QO  @AG6QO  N6RME  0902/0030 Re: CP N6RME: reply to 14
4375  PVL      419 AG6QO  @AG6QO  KG6SJT 0901/2128 Hi Joe
4365  PY      736 AG6QO  @AG6QO  N6RME  0901/1631 CP N6RME: reply to 14
4352  PY      934 AG6QO  @AG6QO  N6RME  0901/1013 Re: NTS Traffice for 95694
4337  PY      391 AG6QO  @AG6QO  KB6LTY 0831/1736 Dupl reply to 14
4241  PY      1373 AG6QO  @AG6QO  WA6EWV 0827/1536 Re: Introduction
```



1.25m #BERRY Node

BBS in Winters

AG6QO-1
(WINTBB)
Winters



#BERRY or BERR
223.6 MHz
Mt. Berryessa



Backbone Relay Node Mt. Berryessa

Forwarding Partners

N6RME
BBS





144.37 MHz – User Access BERR37 / QO37 Node(s)

- Alinco DR-135T
 - 144.37 MHz
 - 25 Watts
- Telewave Antenna
- KPC3+ TNC





223.6 MHz Forwarding

#BERRY/BERR Node(s)

- Alinco DR-235T
 - 223.6 MHz
 - 25 Watts
- Telewave Antenna
- KPC3+ TNC





223.6 MHz Backbone

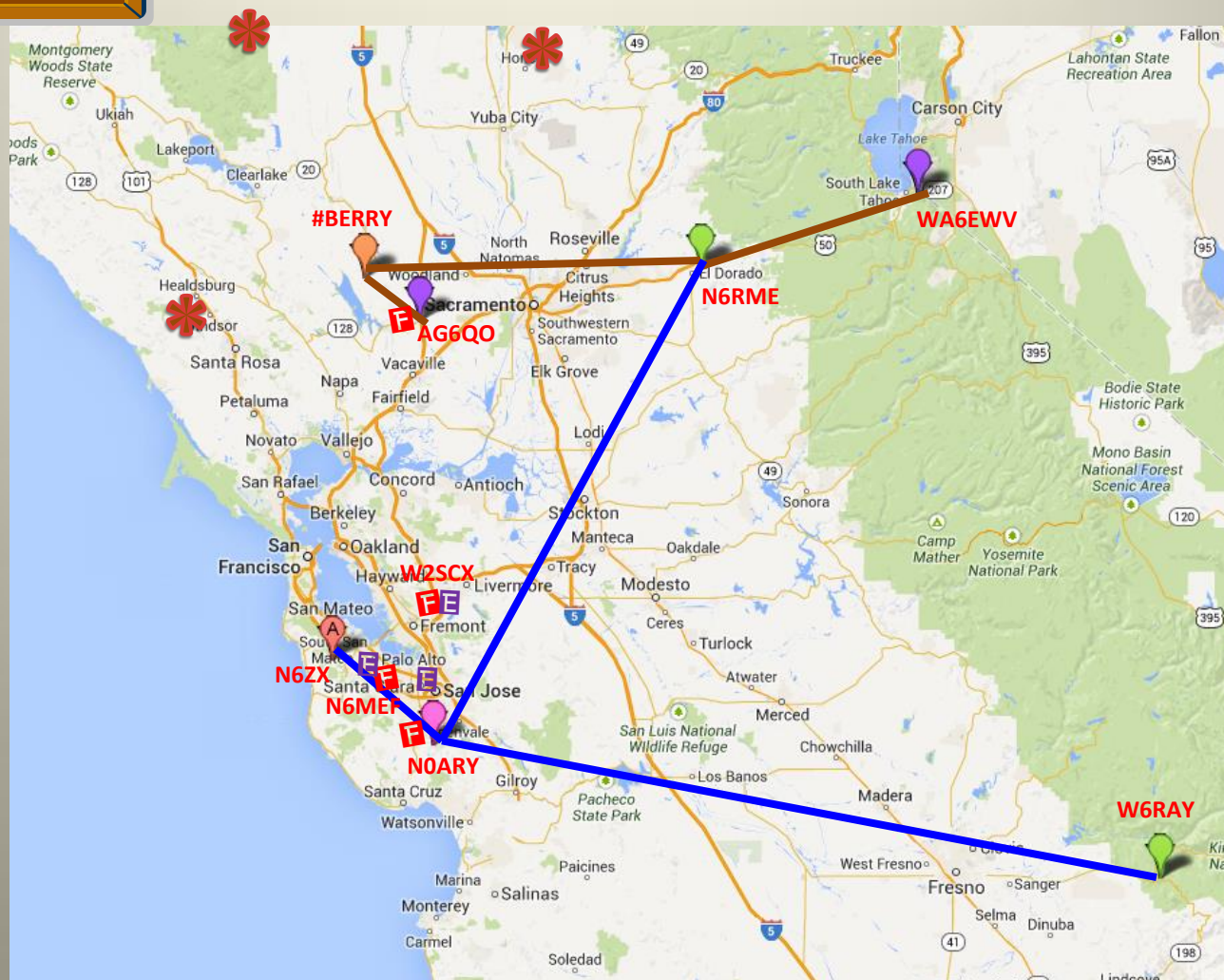
Transitioning
To 6m

Existing
223.6

Currently
Internet
Forwarding

W2XSC system
Santa Clara
ARES/RACES/
CERT

Looking for RF
forwarding
partners
(contact AG6QO if
interested)





#BERRY to N6RME

223.6 MHz Link

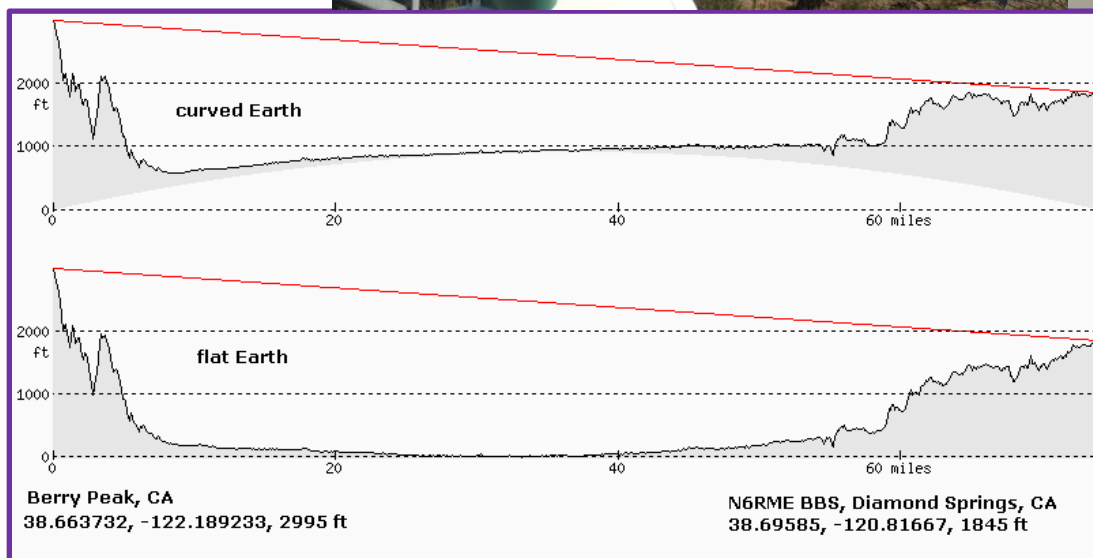
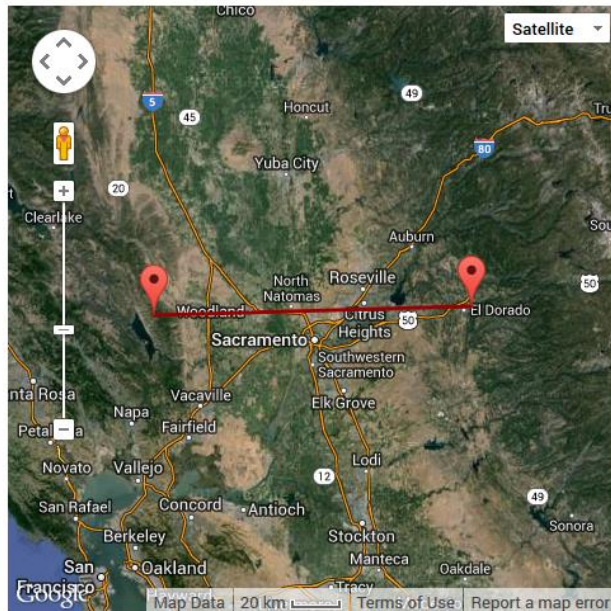
Great-circle distance between two points

Enter the co-ordinates into the text boxes to try out the calculations. A variety of formats are accepted, principally:

- deg-min-sec suffixed with N/S/E/W (e.g. 40°44'55"N, 73 59 11W), or
- signed decimal degrees without compass direction, where negative indicates west/south (e.g. 40.7486, -73.9864):

Point 1: 38.66394 , -122.18870 Distance: **119.1** km (to 4 SF^m)
 Point 2: 38.69585 , -120.81667 Initial bearing: **087°51'53"**
 Final bearing: **088°43'20"**
 Midpoint: **38°40'55"N, 121°30'10"W**

... hide map





Antennas

144.37MHz
BBS user



BBS 223.6 MHz
Forwarding



BBS Node Location





Reference Material

- Online BBS User Guide
 - <http://f6bvp.free.fr/logiciels/BBS-f6fbb/html/docbbs.htm>
- AG6QO BBS web log
 - <http://www.ag6qo.com/PiPBBS.html>
- NTS, NTSD, ARES – NTSD, WinLink interoperability reference guide
 - http://wx4j.com/MPG6_NTSD_RADIOEMAIL.htm
- ARRL National Traffic System
 - <http://www.arrl.org/chapter-one-national-traffic-system>
- ARRL NTS-Digital (NTSD) Manual
 - <http://www.arrl.org/files/file/Public%2520Service/MPG604A.pdf>
- Berks Co ARES - “Getting Started with Airmail Packet”
 - http://berkscountyaresraces.homestead.com/Getting_Started_on_Packet_Airmail2009.pdf
- NCPA – N CA packet BBS frequency coordination
 - <http://ncpa.n0ary.org/bbsindex.html>



Joe Contact Info

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- Professional Info: <http://www.linkedin.com/in/joedeangelo/>