COMMUNICATOR

Mountain Amateur Radio Club

What I Learned the Last Few Months
Foreign Operation

Bill, AC0ED

I went to the UK in June and Switzerland and Austria in July. I went to see a friend, speak at a conference and see Stonehenge in the UK (Stonehenge was great). Later in July I attended two scientific conferences with some time in the middle to hike the Alps in Lauterbrunnen Valley in Switzerland (hiked my legs off for three days). The Lauterbrunen Valley is where Tolkein got his inspiration for Middle Earth. I didn't know this until later and actually mentioned that the place had the feel of a place for Hobbits.

I feel naked now without my radio close at hand and I wanted to take my HT for emergencies. I didn't plan on having any emergencies, but then again you never know. Given customs and government formalities, differing rules in each country, security, and my always thrilling experiences with airport security – I was expecting trouble. Actually it was easy. In spite of carrying my radio and antenna, assembled, in my carryon – security never chose to look at it. Even after 6 trips through security from Salzburg to Chicago there wasn't a glance at my radio. Interestingly, they seemed really concerned about my laser pointer. Go figure. In researching how to take your radio abroad, here's what I learned:

There are three ways you can take and operate your radio abroad: a) as part of the CEPT agreement (European Conference of Postal & Telecommunications Administrations, European

countries and their possessions), b) as part of the IARP (International Amateur Radio Permit, South American countries), or a reciprocal permit (a bilateral agreement on amateur radio between the two countries). Canada is different. You should read the rules of operation for the country you intend to visit carefully so that you operate within the rules of that country and you don't embarrass yourself on the air. It was quite clear that Americans are not thought of very highly in Europe, perhaps a separate topic, but an important thing to appreciate. Some places and people were more cranky than others, but there is an unmistakable tension in the air when people know you're American.

Where to get started? Go to:
http://www.arrl.org/FandES/field/regulations/io/#IARP

I thought I'd mention Canada because people are people are probably more likely to go to Canada than Europe. Here are their rules:

The U.S. and Canada have an automatic reciprocal operating agreement.

U.S. hams MUST carry proof of their U.S. citizenship and their valid U.S. License. It should be emphasized that you should bring BOTH your ORIGINAL U.S. License AND a few photocopies of your license.

Some websites also emphasize

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OF SPECIAL NOTE

MARC Campfest is just around the corner.
August 25th—27th
At Lake George, Colorado
See additional info at the club website:
http://nx0g.org/2006_cf.html

MARC MEETING AUGUST 16

Club Information

CLUB OFFICERS

President:
   Paul Moraine, NØPWM

Vice-President:
   Sharon Agun, KCØPBR

Secretary:
   Bill Wallick, KCØFNV

Treasurer:
   Dean Haskins, KAØPII

Director:
   Carol Wilson, KCØDTQ

Director:
   Wes Wilson, KØHBZ

Past President:
   Melinda Wright, KCØQQO

MEMBERSHIP INFORMATION:

Membership is open to everyone interested in Amateur Radio pursuant to club regulations.

Membership Dues:

$20.00 Annually for Individual or Family Membership, Membership includes full autopatch privileges.

CLUB MEETINGS

Held the 3rd Wednesday, monthly **except** December - 7 pm at the
Woodland Park Library
218 East Midland Ave
Woodland Park

VE TESTING

VE Testing Session are held on Odd numbered months at the Woodland Park Library. Testing starts at 10:00.

Planning to attend? Please notify Wes, KØHBZ at KØHBZ@arrl.net

**Mountain Amateur Radio Club
P.O. Box 1012
Woodland Park CO 80866**

REPEATER INFORMATION & STATUS

MARC operated linked Teller Connection repeater system on:

448.650- Tranquil Acres

146.820- Tranquil Acres

146.685- Badger Mountain

147.015+ Cripple Creek/Victor

447.475– Colo. Springs

All repeater require 107.2 Hz I/O tone

CLUB WEBSITE

http://www.nx0g.org
Webmaster—Kirby at
kc0qps@arrl.net

MARC TRADING POST

The MARC Website has a used equipment classified section. Please send submissions to Kirby at kc0qps@arrl.net.

http://www.nx0g.org/classified.html

CLUB RADIO NETS

MARC hold a radio net Weekly on Tuesdays at 1930 on the MARC linked repeater system.

MARC SUPPORTS

MARC is an ARRL® affiliated Club

PUBLICATION INFO

The MARC Communicator is published monthly except December. Send submissions for publication (electronic submissions preferred) to Editor/Publisher:

Tomas Dawson, KCØNRZ
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Colorado Springs, CO 80906

Phone: (719) 328-9764

Packet: KCØNRZ-1 (144.930)

E-Mail: KCØNRZ@arrl.net

Deadline for submissions is 10 days prior to meeting date.

COMMUNICATOR SUBMISSION GUIDELINES

Please follow these easy guidelines when you submit an article to be published in the communicator:

- Submit article in either plain text or Word.
- Do not indent your paragraphs
- Use only one carriage return between paragraphs.
- Please do not apply any formatting.
- When using a Zero in a call sign please use the special slashed zero character "Ø" . To generate this character in Word do the following; with your caps lock on press <CTRL> + / + O. This is the letter O. Or the character can be selected from the Insert/Symbol menu.
- Note the location in your document of any graphics using "<< Picture 1, caption >> and include the graphics as an attachment in your message. You do not need to create a compact image unless required to email.
- Please include Title followed by First and Call sign.
- Trust that your submission is appreciated.

MINUTES OF THE MEETING   18 JULY 2006

President Paul Moraine (NØPWM) called the monthly meeting to order at 7:05pm. Following introductions all around, the minutes of the last meeting were discussed. A motion to accept them was made by Pat Kelly (KC0MIR) and seconded by George Smith (KC0UIQ). The motion passed. Paul noted that raffle tickets were on sale. Paul also talked about Mona Beck's recent triple bypass. She may be hospitalized, but she is still worried about the Campfest plans. Wes Wilson (K0HBZ) next gave the Treasurer's report. Wes reported that there was no information in Quicken prior to 2004, that no balancing had been done between Quicken and the bank and that most bank statements have not been opened. Wes started with 2004 and has since reconciled all three accounts. The total adjustments needed have amounted to 34 cents. Wes suggested that we keep all records and files in our office at the library.

Next Wes talked about the number of QSL requests that we have, and the fact that we don't have any QSL cards to send out. A motion was made to get simple stock QSL cards by Pete Rawson (N3VW), seconded by Jeff Smith (KB0YCI) and passed. Wes also indicated that Lucie Haskins needs help this weekend to prepare for Dean coming home. We need to change the oil on two generators and return one of them to Dean Haskins. And we need to return the tents to Scotty West. Scotty West (KC0HIL) then made a suggestion that we have an Assistant Treasurer. Paul Moraine is already on the signature cards and indicated that perhaps he could assume this role. Kudos to Paul Moraine and Paul Mallon (KC0USG) for their ticket sales at the last Swapmeet.

Next we talked about the County funds that need to be allocated. Kit Haskins (KA0WUC) is looking into an antenna analyzer. Other items that were suggested, a Bird wattmeter and slugs, some portable printers, tents and a backup UHF repeater. Melinda Wright (KC0QQO) made a motion to purchase the backup UHF repeater. This was seconded by Jeff Smith (KB0YCI) and passed. Next Wes Wilson (K0HBZ) made a motion to purchase two antenna analyzers. Seconded by Pat Kelly (KC0MIR) and passed. Lee Inman (K0QED) will look into recommendations for portable printers (small and 12 volt operation). We also discussed putting together a Raffle Sales Case with wheels. Scotty West indicated that he was the next to use the existing box, so will look into putting some wheels on it. Pat Kelly (KC0MIR) made a motion to allocate $50 to do this. Seconded by Pete Rawson (N3VW) and passed.

Elections for club officers will be coming up, so be thinking about it. Next we discussed plans for this years Campfest. There will be a planning meeting at Melinda's house on August 5th at 3pm. Carol Wilson's church will donate tables and chairs. Kirby Wright (KC0QPS) noted that Dean Haskins and Bill Wallick were the only two raffle games managers in the club, and suggested that we have another. We need to write up a Release of Liability for Dean Buckhouse (KB0VVA).

Pete Rawson told us that during his recent travels he managed to stop and visit Al Penny (VO1NO). Pete also mentions a Ham in Nova Scotia that is selling a collection of vintage equipment, 1920-1940. Carol Wilson told that Mona Beck had received a get well card from Dean Haskins, with a hand written note and signed. Dean is certainly progressing. Also George Lockhart (W0GHL) went SK on Sunday morning. His memorial service will be on July 30th.

We began our break at 8:08pm and continued at 8:25pm with a discussion on Test and Measurement equipment, given by Bob Witte (K0NR). Bob is the Technical Coordinator for the Colorado Division of the ARRL.

Our meeting adjourned at 9:05pm

Submitted by the Secretary, Bill Wallick (KCØFNV)

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bringing receipts for your radio to show where and when it was purchased, unless the radio is so obviously worn that you would have been unlikely to have purchased it in Canada.

When identifying in Canada you should transmit your call sign followed by the stroke or slash, and then the appropriate Canadian prefix identifier. For example, AC0ED/VE3. The appropriate prefixes based on Province or Territory are given in 'g' below.

Basically, U.S. amateurs have the same privileges in Canada as in the U.S. but with the following differences or emphases:

All operations must comply with FCC Part 97 Rules.

Amateur operation may not exceed U.S. band edges [97.301(a)]

FCC mode restrictions must be followed.

You can get more information on the band limits and modes at: http://www2.arrl.org/FandES/field/regulations/bandplan.html.

You can get more information on the Canadian/USA reciprocal operating agreement at: http://www.rac.ca/regulatory/rcip.htm and http://www.rac.ca/regulatory/faqgovt3.htm

Note also that there are some differences in the 70cm band when you're operating near the U.S./Canada border.

VE1, VA1-Nova Scotia; VE2, VA2 Quebec; VE3, VA3 Ontario; VE4, VA4 Manitoba; VE5, VA5 Sas-

(Continued from page 3)

katchewan; VE6, VA6 Alberta; VE7, VA7 British Columbia; VE8 Northwest Territories; VE9 New Brunswick; VE0 International Waters; V01 Newfoundland; V02 Labrador; VY1Yukon Territory; VY2 Prince Edward Island; VY0 Nunavut Territory.

Okay, so off to Europe. Prior to going abroad you should print out the FCC Public Notice: Amateur Service Operation in CEPT countries and carry it with your radio. This public notice defines the CEPT agreement and lists the countries that are part of the agreement. You should also have several copies of the photo page of your passport with your radio. Again, some websites also thought you should have a copy of the receipt for your radio. Interestingly, and some good advice, is the idea that you should have multiple copies of your documents and keep in mind that immigration and customs people generally don't know a thing about amateur radio so you may also need a healthy amount of patience. Throw language problems on top of this and you have a recipe for lots of unintentional misunderstandings. The Public Notice document can help with this because it is printed in several languages.

One of the best websites on foreign radio operation, of course, comes from the ARRL: http://www.arrl.org/FandES/field/regulations/io/faq.html. Since I was going to Europe I would be operating under CEPT authority. If I was going to South America I would operate under IARP. Somewhere else would result in operating (if at all) using a Reciprocal Operating Permit. I'm going to stick with the CEPT information for the sake of brevity and use the UK as my example. Switzerland and Austria were quite similar except for the prefixes to your call sign.

I must admit that the information for a particular country is not easy to find. Moreover, websites tend to disagree a bit. After considerable Google searching, I found the Radio Society of Great Britain (http://www.rsgb.org/). Here are the rules for operating as an American citizen in the UK:

You can operate under CEPT Recommendation T/R 61-01.

You must obey all terms, limits, and provisions of a UK amateur radio license. For example, if you are permitted higher powers in the U.S. you must still constrain your power to the UK limits.

You must also comply with all the limitations of your U.S. license.

What documentation do you need? The RSGB website indicated that you need your home license and a copy of the current UK "License Terms, Provisions, and Limitations" booklet. You can get this booklet at: Radio Licensing Centre, PO Box 885, Bristol BS99 5LG, Telephone: 0117 925 8333, Minicom: 0117 921 9550. Other websites did not indicate you needed to have this booklet. Again, websites also indicated you need to bring your actual license and not just a copy.

How do you identify yourself? You use your home call sign preceded by "M/". For example, my call sign would be M/AC0ED. The Radio Society of Great Britain also indicates that there may be a letter after the "M" indicating a locator. They write in their website that these "locators" are available in the booklet mentioned above. The locator I was told to use for Cambridge was "D".

How long can you operate? It's not really clear. Using the call sign convention described above, you're allowed to operate for "temporary stays." I assume that means that if you intend to live semi-permanently or permanently in the UK then you'll need to obtain a UK license.

If you're going to Europe, a website with a list of European repeaters and their frequencies, tones, etc. can be found at: http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=2713

What I learned was that it's not too difficult to take your radio to Europe, but you should spend a little time doing some research. I also had a friend in the UK call the UK's equivalent of the FCC to get more information. The result was a little government-speak (we're the government and we're here to help…), but essentially I was welcome to operate as long as I stayed within the rules. A secondary thing I learned is that the country with the most repeaters appears to be Germany.

BUILDING A VHF PACKET RADIO GO KIT

Tomas, KC0NRZ

VHF Packet radio is making resurgence as a critical element of emergency communications. Packet involves digital transmission of text or ASCII encoded data between 2 stations. Packet is well suited for the delivery of more complex messages. There is error checking imbedded in the protocols that ensure the data reaches the receiving station as it was transmitted. Packet communications works best when blended with voice networks

where the voice channels are used for messages and network control.

Pikes Peak ARES, Colorado District 14, has made a large commitment to utilizing packet as a key element of emergency operation. Within this structure there are recommendations for both hardware and software that will be discussed here. While it is recognized that there are many different hardware and software components that can be utilized, the systems discussed here facilitate integration into the PPARES and CODRT Em-Comm structure.

By implementing the systems discussed in this article you will be able to draw from a large base of users that are familiar with and currently using them for both home based and portable packet operations.

This article will discuss, in some detail, all components needed to build a functioning station. However this article must be considered an introduction and additional sources of information will be needed to become a proficient packet operator.

Components

A packet station consists of the following components, some are required and others are optional and will be

noted as such. These components will be discussed in more detail later on:

- VHF or VHF/UHF Radio
- TNC
- Computer
- Communications Software
- Antenna
- Yagi Antenna (optional)
- Printer (optional)
- Cables

Radio

As in any communications hams are involved in, the radio is a core component. As FM packet is currently being utilized by PPARES a single band VHF radio is all that is necessary. However, you must also consider that there have been some instances in the past where being able to run 1200 Baud packet on UHF has been necessary. The range of radios available and utilized varies from old to new and from low to high power. The newer radios provide for a cleaner packet interface by utilizing a standard DIN connector. For older radios a cable must be built that interfaces with the speaker and microphone connections. Most cable configurations for older radios are available from either the radio manual or on the internet. The author currently utilizes radios requiring both types of connections and has found that the DIN connection is much more reliable for field operations.

It is recommended that a full power 50 watt mobile radio be utilized. There are times that the full power setting will be needed to reach into the packet network. For a dual band radio the Icom IC-207H is recommended. The author uses a Yaesu FT-1500M for portable packet operations. The Yaesu FT-1500M makes for a compact, high power, 2 Meter packet radio. The radio has the following features:

LOCAL AND REGIONAL RADIO NETS

| Net Name / Organization	Day / Time (Local unless otherwise noted)	Repeater / Frequency
MARC	Tuesdays, 1930	MARC Linked Repeater System
PPARES	Tuesdays, 1900	PPRMA Rep 146.970 - 100.0
Pikes Peak FM Association	Sunday at 8:30 p.m.	PPFMA Linked Repeater System
PPRAA	Thursdays, 1900	146.58 MHz Alt. 146.55 MHz
Southern Colorado Traffic Net	Daily, 2000	PPFMA Rep 146.970 - 100.0
PPARES Skywarn Midday Weather Net	Daily, 1230 may 15—Aug 31	PPFMA Rep 146.970 - 100.0
PPARES Skywarn 1530 Update	Daily, 1530 May 15—Aug 31 As Needed	PPFMA Rep 146.970 - 100.0
Colorado ARES HF Digital Net	1st & 3rd Sundays at 0730	3615 kHz (mark tone)
Colorado ARES HF CW Net	2nd & 4th Sundays at 0730	3713 kHz
Colorado ARES HF SSB Net	Sunday, 0800	3928 kHz
Colorado ARES State Wide VHF Net	Sundays 0830	Colorado Connection Linked Repeater System
Colorado ARES 2 Meter SSB Net	Mondays, 1900	144.22 MHz USB
El Paso County RACES Net	Tuesdays on the at 1930L	CMRG 147.345+
Columbine Net	Daily, 1900	3989 kHz
Colorado Amateur Radio Weather Net	0630-0730	3945 kHz
`Southwest Traffic Net	Daily2130 Central Time.	3.935 MHz
Colorado RACES Net	Sundays and Tuesdays, 0100Z	3990.5 kHz

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- Compact Design: 5 inches wide and under 1.5 inches high
- Power output is: 50/25/10/5 watts
- 130 alphanumeric memories
- A 6 pin mini-DIN jack provides for a quick TNC connection.
- Die-cast aluminum shell construction dissipates heat throughout the entire transceiver chassis and eliminates the need for a cooling fan. This also makes the radio extremely durable.
- The radio mount can be used as a stand.
- This radio is discontinued but can be purchased used for less than $100.00.

Terminal Node Connector (TNC)

Digital communications is made possible by the TNC. It is the TNC's responsibility to encode and decode the data being transmitted between stations. The TNC functions in a similar way to a computer MODEM. The TNC takes the ASCII data being provided by the computer and translates or modulates it into an analog format that can be sent by the radio and also demodulate the data being received. The TNC provides two distinct parts in this process. First, it must encode the data packet following the AX.25 (http://www.tapr.org/pdf/AX25.2.2.pdf) standard. AX.25 is a complex protocol and can be further understood with additional reading. Once the packet
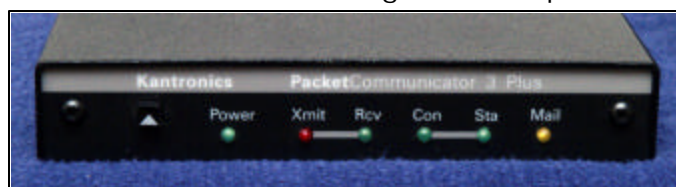
has been encoded the TNC will then modulate the data utilizing   Audio Frequency-Shift Keying (AFSK) which is then sent by the radio.

The TNC recommended by PPARES and CODRT is the Kantronics KPC3+ (firmware version 9.1 or higher). This is a full function TNC and provides node, digipeater and mailbox facilities.

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Many PPARES members utilize this TNC or the KPC3. Listed here are a few key features of the KPC-3+.

- Large capacity internal mailbox and mail forwarding feature
- GPS operation mode allows use for APRS®
- Low power requirements (9 volt battery power capability)
- BBS, KISS, XKISS, HOST, TERMINAL, GPS and MODEM operating modes
- "Online" HELP feature
- Upgradeable as new firmware is released (Firmware is upgraded by ordering a new chip)
- Digital control of audio drive level -- set from keyboard or by remote control
- 128k memory standard; 512k optional
- Comes with data connector, data wire, coaxial power plug, detailed manual & software
- Usable with base, mobile or hand-held radios

Computer

The computer is one of the key components of your packet station. To allow for portability a laptop computer works best. A reasonable laptop can be purchased off eBay used for around $250.00.

Listed here is a basic laptop configuration:

- 300 MHz or faster CPU (Faster CPUs will allow you to perform additional functions on the laptop simultaneous to running the Packet interface software)
- The hard disk should be 10-20 gig or larger. The main issue here is that you need to be sure to maintain adequate free disk space to both prevent disk fragmentation and provide space for your message traffic.
- The operating systems should be Windows 98 Second Edition (Second edition provides TCP/IP networking capability) or higher. If your laptop can handle it Windows XP provides a stable platform. (The author runs Windows XP On a 233MHz Dell laptop with no problems)
- An external mouse makes navigation easier.
- Wired and Wireless Ethernet is a plus to allow your Laptop to be networked to others. There are some situations where message traffic may be generated on other systems with yours being the system that manages only the transmission and reception of message traffic. This will also allow you to connect to a work group printer if available.
- At least one serial port needs to be available for connection to the TNC.. A physical serial port is preferred, but a good quality USB to Serial adapter can

be used.

Communications Software

There are 2 separate communications applications that are being utilized by both CODRT and PPARES. They are WinPack and Airmail.

Winpack

WinPack provides a full function TNC interface. By utilizing this package you will be conforming to a standard set forth by a local EmComm digital communication development group. Having your system configured with WinPack will allow any PPARES or CODRT packet trained communicator to utilize your system.
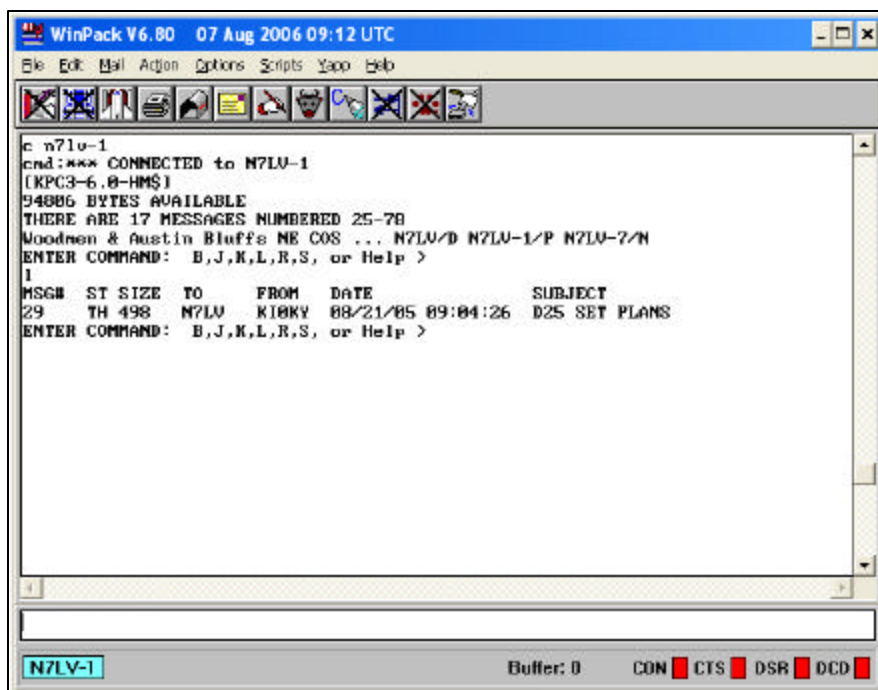
WinPack is available at http://www.winpack.org.uk/. The same server provides a number of WinPack plug-ins, some of which are mentioned here.

Airmail (See article on page 10)

Airmail provides a uniform interface into the Winlink 2000 system. This system provides an interface to the Internet via a number of gateway systems. The system is primarily an HF based network however the system has been enhanced to allow for local VHF Telpack gateways. This software should also be installed on your system to provide internet email capabilities during emergency operations.
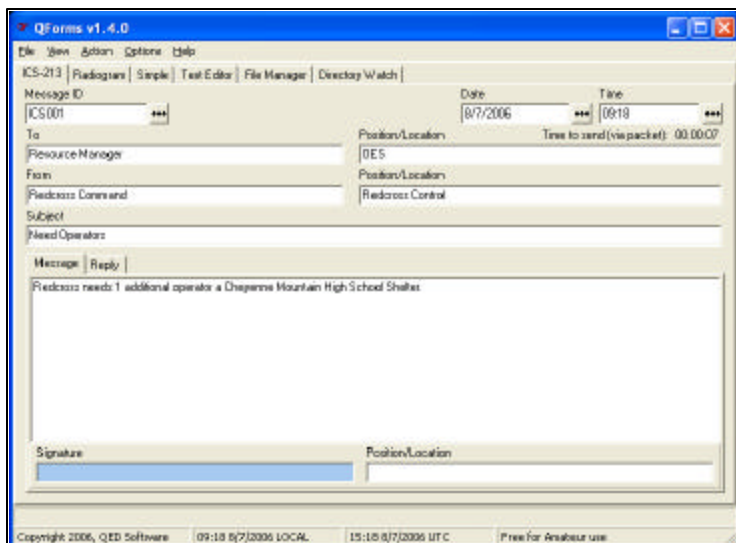
(Continued from page 7)

Additional Software

QForms

Qforms was developed by PPARES member Lee Inman, K0QED to provide automated ICS-213, ARRL Radiogram, and basic message formatting. This system utilizes a standard markup language to tag the message elements for transmission and then format the message on the standard ICS-213

form for printing. This software will be utilized for digital emergency packet operations by CODRT and PPARES and is designed to interface with Win-Pack and Airmail. QForms can be downloaded from http://www.activeham.com.

Antennas

Your packet station requires only a mono-band antenna; however an antenna with some gain is preferred. You also may need to mount this

antenna on a mast that is being utilized for a voice station's antenna. An offset mount can easily be made from a piece of 2 inch L shaped steal or aluminum. Cut a 2″ section and notch each end as shown. Then drill each end for 2″ u-bolts. On one end of the offset you will need to mount a 6″ round stub. This offset can then be mounted to any round mast and your packet antenna can then be mounted on the stub.

Yagi Antenna (optional)

As was experienced during the Colorado Southwest Regional exercise in 2004, the directional gain provided by a yagi may be required to reach a distant packet station. Arrow Antenna makes a great 2 meter collapsible yagi that is easy to transport. See http://www.arrowantennas.com/146-4ii.html.

Printer (optional)

A printer is a welcome, and some consider necessary, addition to any packet station. When you receive message traffic a printer will allow you to quickly transfer the message to hard copy and then deliver it to the designated party. There are a few 12 volt printers available. Some utilize special thermal paper and should be avoided. Canon

makes a series of inkjet printers, the BJC-80 or BJC-85, that work great for mobile packet operations. Both these printers support 12 volt and utilize an economic ink tank technology that reduces the operating cost. These printers can be purchased off Ebay for less than $100.00. Remember to also include paper. It is recommended that a canary yellow paper be used. This will be similar to the standard ARRL message form color and will stand-out when delivered to the receiving party. The BJC-80 shown here is built into a special portable case and was purchased used off eBay.

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Cables

A packet station requires a number of cables to be correctly configured.

- TNC - Radio cable
- TNC - Computer cable
- TNC Power cable – It is recommended that you terminate the power cable utilizing Anderson Power Poles.
- Printer Cable - This cable will be dictated by the printer you purchase.
- As well as all the additional radio and computer cables.

The most complex cable can be the TNC-Radio cable. IF your radio utilizes the standard 6 pin DIN connector this makes building the cable a little easier. However, if you are using an older radio you will need to build a TNC – Radio Speaker/Microphone interface cable.
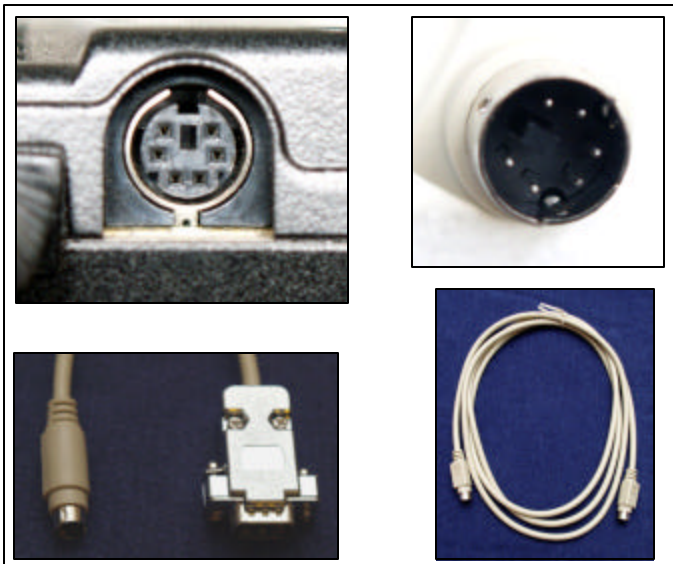
DIN standard cable

The problem with building a DIN is finding the 6 pin connector. The author has been able to find 6' 6 pin to 6 pin DIN cables at a local used equipment store (OEM). These cables can then be cut in half and used to create two TNC cables. You will need to purchase female DB9 connector to complete the cable. Connectors with a metallic housing are best due to the shielding provided.

Speaker / Microphone Interface Cable

These cables can be radio specific and it is best to find a diagram in either your radio Manual or on the internet at:
http://users3.ev1.net/~medcalf/ztx/wire/.

Standard Parts list:

- Standard 8pin microphone connector
- 1/8" mono plug
- DB-9 connector
- Shielded Cable

TNC – Computer Cable

The Kantronics KPC3 and 3+ utilize a standard RS-232 modem cable (straight-through, not a null modem cable) that is male DB-25 to female DB-9 (If your laptop has a DB-25 serial port your cable will need to terminate with a female DB-25). Be sure that this cable is also well shielded. TO support hardware flow control be sure the cable is built utilizing pins 1-8.

Power Supply

The author utilizes a small 12 amp power supply with a 4 port RIGrunner attached to the top. This one power supply can then be used to power most of the station's components. The same power supply can be used for both your VHF/UHF and Packet portable operations which allows consolidation of equipment.

Summary

To build a quality portable packet station takes a commitment to emergency communications. Once configured be sure to take the opportunity to deploy during any available exercises where packet is going to be used. Deploy your packet station at home every few months to refresh your memory on the configuration, update any software and test the equipment. Listed here are the estimated costs of each part of the station. The author has purchase at least 50% of his components used from eBay. If you have never used

eBay be sure to discuss how with someone familiar with online auctions.

- VHF Radio (used)- $80-$250
- TNC KPC3+ (used – new) -$145.00-$180.00
- Antenna Arrow J-Pole (new) $39.00
- Yagi Antenna Arrow (new)- $55.00
- Computer (used) - $250 and up
- Printer (used)– Canon BJC-80 $60 - $100
- Cables (new)- $25.00
- Communications Software – Shareware (Free or do-nation)
- (You may already have the power supply as a part of your VHF/UHF kit)
- Power Supply (used) – $60.00 - $100.00
- Rigrunner (new) - $60.00
- Total Investment around $600 and up

THERE'S GOT TO BE AN EASIER WAY

By Lee Inman, KØQED

Have you ever said "There's got to be an easier way"? Well, there is – at least for sending email when you don't have access to the internet. It's called Airmail.

Airmail (www.airmail2000.com) is a Windows program created primarily to connect to the Winlink 2000 Amateur email system (www.winlink.org) over HF. That system provides full email send and receive capabilities using Amateur radio (including the ability to send and receive attachments!). But, what most people don't know is that Airmail also provides the exact same capabilities when connecting via a VHF Winlink gateway – called a Telpac gateway. We have several in our area:

- KA0WUC-9 in Woodland Park
- KC0PAZ-10 in Colorado Springs
- KB0SRJ-10 in Colorado Springs
- K0QED in SE Black forest
- AI0W -9 SW of Denver
- All on 144.930

You can view a real-time status of all active Telpac gateways by going to www.winlink.org/status and then selecting either the Telpac Status or Telpac Map from the menu.

What do you need?

- VHF Radio, antenna, power supply

- TNC (Airmail supports many different TNCs)
- Computer with Windows 98 or later
- Airmail (free from www.airmail2000.com)

Basically that amounts to a working packet station plus Airmail.

Airmail is similar to other email programs – you compose a message then connect to the email server (in this case its Winlink not your ISP or email provider) to send the message. While connected, if there are any pending messages, they are downloaded to Airmail where you can read them after you disconnect. Airmail only stays connected to the Winlink system long enough to send and receive messages – not all the time. Actually, your normal email program does it the same way, you just don't notice it since you may already be connected to the internet.

Configuring Airmail for VHF operation is probably the most difficult aspect of this after you have your packet station up and operational. Not difficult to do really, just difficult to find *where* to do it.

In Airmail, go to the Tool | Options menu – the Airmail Options dialog should display. Select the Modules tab and then put a check mark next to the VHF Packet Client item. Press the Setup button next to this item to configure the TNC settings. If your TNC isn't listed, use the closest match (KPC-3 for KPC-3+, for example). If you are unsure of the individual settings, the default values should be sufficient to get you on the air. Once done here, close the dialogs using the OK buttons.

Now the fun part – Choose the Modules | Packet Client menu option. If all goes well, you should see a message saying that the TNC was initialized properly. If not, go back and check the TNC configuration settings.

Once the TNC has initialized you can attempt to connect to a Telpac gateway. Fill in the "Connect To" box with the callsign of the Telpac gateway you wish to connect to (KA0WUC -9, for example). Press the green button to initiate an automated connection. You should see the connection progress in the window below the button.

What - nothing happened? Guess you didn't have any mail waiting on the Winlink system. If you haven't used Winlink before, you'll need to send at least on message through the system to create your (free) Winlink email account. Your email address will be your callsign@winlink.org. Compose a message to anyone and then perform another

(Continued from page 10)
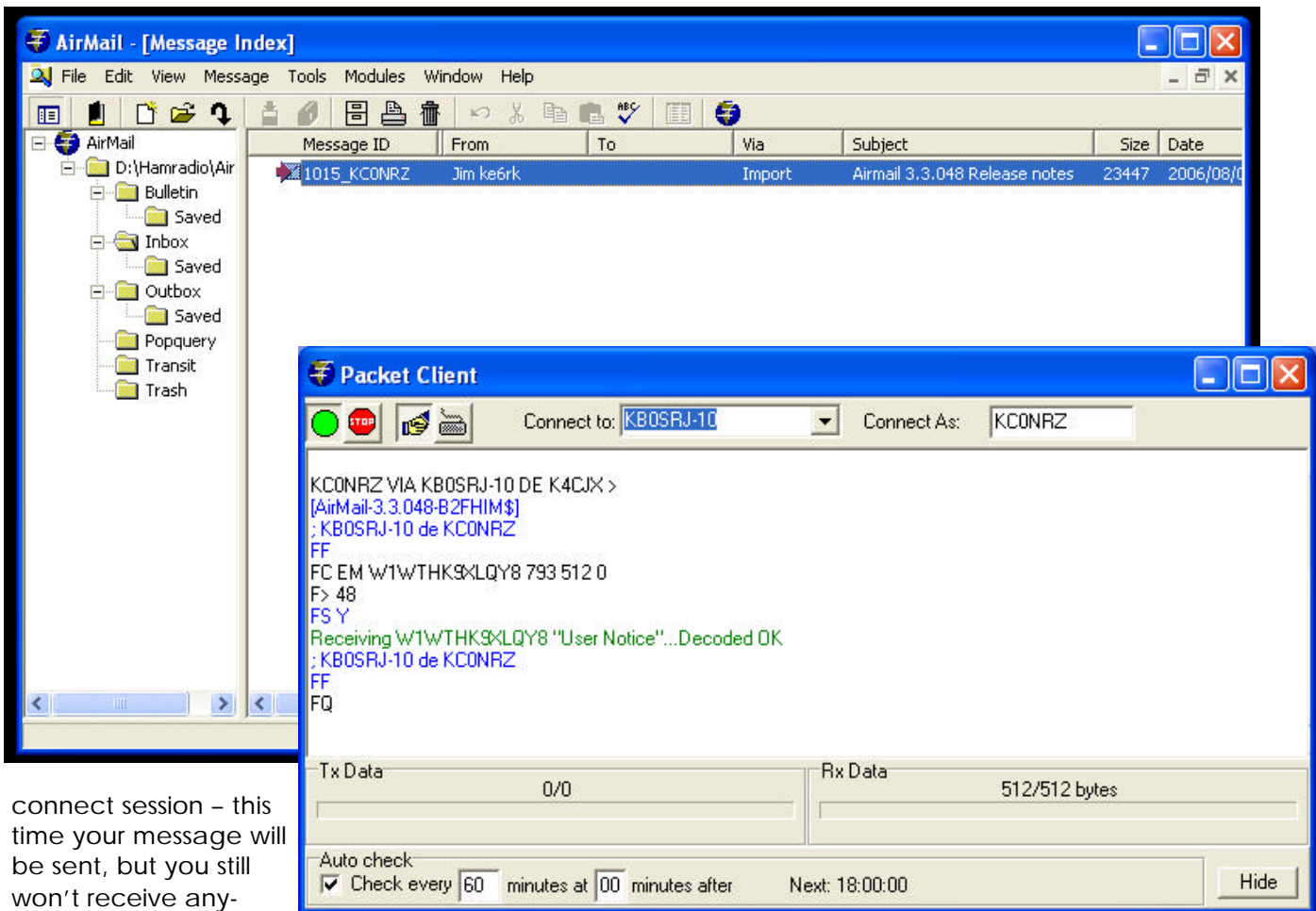
connect session – this time your message will be sent, but you still won't receive any-thing.

You can have someone send a normal email message to your new Winlink email account or even send one to yourself using your every-day email system. Prior to an external email address being allowed into the Winlink 2000 system it must be registered. All you must do to get an address registered is send an email to the external address from your packet station. This is a good opportunity to introduce the intended party to Winlink and include instruction to send email back to you in plain text and keep the messages short and concise. Wait a few minutes, perform another Airmail connect session, and you should receive your test message.

Airmail on VHF along with the Winlink 2000 system gives us an easy way to send and receive industry standard email while in the field. Give it a try.
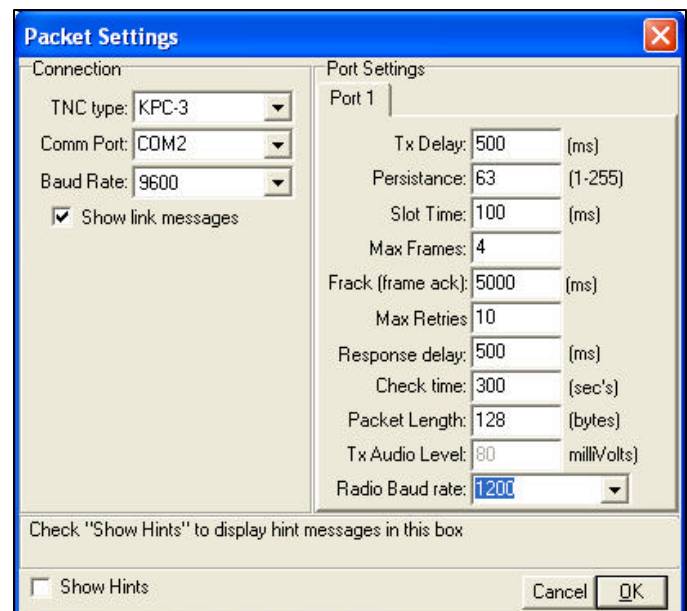
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