



## COLORADO ARES DISASTER RESPONSE TEAM

### ANNEX D DIGITAL COMMUNICATIONS

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**Document under construction – check frequently for updates!**

The DRT Digital Communications Annex D was developed to overcome various challenges, difficulties and inefficiencies both anticipated and encountered when planning for large-scale incidents and exercises. The DRT (in conjunction with ARES Districts 10 & 14) has formed a nine-member Digital Development Group (DDG) made up of experienced emergency communicators, digital operators, computer experts and software engineers that meet for a full-day every month to explore and test the latest equipment, software and to develop efficient digital communication techniques. This document could not have been produced without the considerable insight, expertise and dedication of our DDG members.

#### **BASIC V/UHF Packet Protocol**

The DRT utilizes a *Packet Tactical Callsign System* in conjunction with closely-related *Tactical Message Numbering* and *Tactical Filename Systems*. These systems eliminate the need to remember individual operator callsigns and the callsigns of all the various operators assigned to all the various locations. It also facilitates the tactical callsigns of the various locations to remain constant – day-in/day-out, if necessary – despite operator changes at those locations.

The *Packet Tactical Callsign System* takes advantage of all the established and obvious benefits of using tactical callsigns on phone nets – and adapts them for use with packet and some other digital modes.

*NOTE: The TNC commands used for illustration purposes in the packet portion of this document are based on the Kantronics command set since the Kantronics KPC-3 and KPC-3+ TNCs are some of the most commonly-used for 1200 baud packet in emergency operations. Operators using other brand TNCs will need to translate these commands to accommodate their particular TNC command structure. Most TNCs have similar command sets, but often use slightly different commands to achieve the same result or function (consult your TNC owner's manual for specifics)*

When setting up for digital emergency or exercise operations, operators should first:

1. Turn **H(Id) ON** – a feature that will automatically send your ID string once every 9.5 minutes when your station is being used. **Your ID string includes your legal callsign and the associated tactical callsigns you are using. This keeps your tactical callsign usage legal.**
2. Remove all non-related messages from your mailbox.
3. Reset your TNC message counter (optional, but recommended).

- a. To reset message counter, type **PBBS** – the TNC will return a number (N)
- b. Type **PBBS (N)** where (N) = the same (N) displayed previously
- c. Your message box numbering should be reset to start with message “1.”

## Packet Tactical Callsigns

A Packet Tactical Callsign is similar in function to a tactical callsign used on a phone net. The “tactical” designation generally denotes a location and/or function. Packet Tactical Callsigns should be assigned and set up using the following procedure:

- **Base Callsign** – Before configuring a packet tactical callsign, the control operator should first make sure that their FCC callsign is entered properly into the TNC (this makes the use of packet tactical callsigns legal).
  - This is done by entering **MYC(all) [CALLSIGN]**
    - *NOTE:* If the operator has another packet station on the same frequency, using the same callsign (like their home-based packet station), then they must attach a Secondary Station Identifier (SSID) to their callsign on the portable station. This can be any available SSID between 1 & 15). The operator must be careful NOT to use any [CALLSIGN]-SSID combination currently in use on any other station on the same frequency.
- A **Packet Tactical Callsign** consists of a 2-5 letter tactical abbreviation that will be easy to remember based on the operator’s location and/or function (*VERY IMPORTANT:* do NOT exceed 5 letters in the Packet Tactical Callsign – *more on this later*). Some examples:
  - “EOC” for the Emergency Operation Center
  - “ICP” for the Incident Command Post
  - “PMH” for Penrose Main Hospital
  - “MH” for Memorial Hospital
  - “AMR” for American Medical Response (usually AMR operational HQ)
  - “ARC” for American Red Cross (generally denotes the operational HQ)
  - “RCS” for Red Cross Shelter (RCS1, RCS2, etc., if more than one)
  - “SA” for Salvation Army (generally denotes the operational HQ)
  - “SAC” for Salvation Army Canteen (SAC1, SAC2, etc., if more than one)
  - “CHS” for Columbine High School
  - “MLKHS” for Martin Luther King High School (*NOTE:* the 5-letter maximum)
    - *NOTE:* Packet Tactical Callsigns will vary somewhat from the tactical being used by the phone operator at the same location.
      - *EXAMPLE:* At Penrose Main Hospital, the packet tactical callsign would likely be “PMH” while the phone operator might be using the tactical callsign “Penrose Main.”
- **Secondary Station Identifiers (SSIDs)** are used in conjunction with the packet tactical callsign to designate specific functions of the station.
  - **No SSID** – the TACTICAL callsign by itself is used to access the digipeater.
    - This is set with **MYA(lias) [TACTICAL]**
    - For example, a station needing to use the Emergency Operation Center (EOC) packet station as a digipeater would simply connect to another station “via” EOC.
      - *EXAMPLE:* the packet station at AMR needs to send a message to the ICP mailbox, but can’t connect direct. They want to use

the EOC digipeater to reach the ICP. They would issue the following command:

- **C(onnect) ICP-1 V(ia) EOC**
  - **PLEASE NOTE:** The AMR operator doesn't have to remember, or look up, any of the individual operator callsigns at any of the locations.
- **[TACTICAL]-1** Use of a "-1" SSID designates that station's mailbox or PBBS. In emergency operations using packet tactical callsigns, the PBBS (mailbox) function should ALWAYS be "-1."
  - This is set using **MYP(bbs) [TACTICAL]-1**
    - **EXAMPLE:** A station needing to leave a message at American Red Cross would simply C(onnect) ARC-1. This will put them directly in the ARC mailbox to leave a message.
- **[TACTICAL]-7** Use of a "-7" SSID designates that station's node function (if the TNC at that location has node capability and it is enabled). The node function (if available) should ALWAYS be "-7."
  - This is set using **MYN(ode) [TACTICAL]-7**
    - **EXAMPLE:** A station wanting to use Penrose Main Hospital as a node to reach another more distant station would C(onnect) PMH-7, then – at the node menu – issue a connect request for the next station.
    - **NOTE:** For the node function to work, it must be enabled by setting NUMNODES to a value greater than zero, i.e., NUMNODES 1 (or higher). To disable the node function, set NUMNODES 0
- **[TACTICAL]-9** A "-9" SSID is reserved, and should ONLY be used to designate a Winlink 2000 gateway or Telpac node. These stations generally require special software for access and will be discussed fully in the section **Advanced Packet Operation** later in this document.
- **CHAT or FILE UP/DOWNLOAD** – In order to "chat" keyboard-to-keyboard or to upload or download files using a direct connection, stations will have to connect using the control operator's BASE CALLSIGN or CALLSIGN-SSID as entered in MYC(all) above. This is rarely necessary as most messaging is accomplished using the receiving station's PBBS or mailbox [TACTICAL]-1
- **Identifying your Station to the Net** – Other stations on the net need to know the location/purpose of your station, what tactical callsign you are using and the available functions. This is accomplished using the ID, Beacon and various Connect Text strings.
  - **ID** – as soon as a station is set up, configured and on the air, the control operator should issue an "ID" command or **ID [ENTER]**. This will send an unproto identification packet based on the TNC configurations. This will usually consist of MYCALL/R (if digipeat is turned on) MYALIAS/D, MYNODE/N, and MYPBBS/B.
    - If KØDRT is at the Emergency Operations Center (EOC) and issues an "ID" command, it should look something like the following
      - **KØDRT/R EOC/D EOC-1/B EOC-7/N** where
        - KØDRT/R = KØDRT is the base callsign and can be used as a digipeater or for direct connects.
        - EOC/D = EOC is the tactical to access the digipeater

- EOC-1/B = EOC-1 is the tactical to access the Bulletin Board (mailbox)
- EOC-7/N = EOC-7 is the tactical to access the Node
- **Beacon & Connect Text Strings** – *the Beacon and various Connect Text strings should all be the same and provide ESSENTIAL information to the other net stations:* station location and/or function; tactical callsign and the SSIDs for various station functions. By keeping all these strings exactly the same, these can be set up very quickly under emergency situations by using the “Cut & Paste” feature of many terminal programs. Consider the following example, assuming operator KØDRT is assigned to the Emergency Operation Center and the designated packet tactical callsign is “EOC.”
  - **B(eacon)T(ext)** would be set as follows:

**Emergency Operation Center; EOC/DIGI; EOC-1/PBBS; EOC-7/NODE**

- After the beacon, other net stations monitoring will have all the information they need to communicate with – or utilize all the available functions of – the EOC station.
  - **C(onnect)T(ext)** should be set exactly the same. Any station connecting to the base callsign “KØDRT” will receive the same information sent in the beacon above (although most stations will be connecting using the packet tactical callsign, rather than the base callsign)
  - **P(bbs)T(ext)** should be set exactly the same. A station connecting to the EOC-1 PBBS will receive a message like:

**THERE ARE 9 MESSAGES NUMBERED 1-9  
Emergency Operation Center; EOC/DIGI; EOC-1/PBBS; EOC-7/NODE  
ENTER COMMAND: B,J,K,L,R,S, or Help >**

- **N(ode)T(ext)** should be set exactly the same. Operators connecting to the EOC-7 node will receive a message like:

**###CONNECTED TO NODE EOC-7(KØDRT) CHANNEL A  
Emergency Operation Center; EOC/DIGI; EOC-1/PBBS; EOC-7/NODE  
ENTER COMMAND: B,C,J,N, or Help ?**

- **Build a Net Directory**
  - By keeping the monitor function turned on (**MON ON**), operators can monitor the beacons and traffic on the net and – by using “cut & paste” – quickly assemble a net directory without having to tie up the frequency asking somebody for the information.
  - Operators should post their directory as a bulletin (**SB ARES** or **SB RACES**) on their own mailbox to help other operators know what stations are available and how to access them. The subject line of the bulletin should be “**NET DIRECTORY.**”
  - Any station connecting to the mailbox and issuing a **L(ist)** command will see something like . . .

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**Msg#      Size    To            From   @ BBS   Date            Time   Title**

- If possible, in the body of the directory message, the agencies should be alphabetized (for easy reference) and the message body should look something like:

**American Red Cross; ARC/DIGI; ARC-1/PBBS; ARC-7/NODE  
Emergency Operation Center; EOC/DIGI; EOC-1/PBBS; EOC-7/NODE  
Incident Command Post; ICP/DIGI; ICP-1/PBBS; ICP-7/NODE  
Martin Luther King HS; MLKHS/DIGI; MLKHS-1/PBBS; MLKHS-7/NODE  
Memorial Hospital; MH/DIGI; MH-1/PBBS; MH-7/NODE  
Virgin Mary Birthing Center; VMBC/DIGI; VMBC-1/PBBS; VMBC-7/NODE**

- New stations deployed late can connect to a nearby station and capture their bulletin and have an almost instantaneous net directory. They should capture that information, add their own information as it comes available, and paste the info into a bulletin in their own mailbox – then update it as necessary.
- Once the net is established and a “net directory” in place, that directory won’t have to be completely overhauled every time there is an operator shift change. The directory will remain constant and valid throughout the incident (with occasional minor modifications if new locations are added – or if some locations secure their operation).
- **System Advantages** – the *Packet Tactical Callsign System* has many advantages:
  - If the packet station is remaining in place, and a relief operator arrives, the only TNC parameter the new operator must change is **MYC(all)**. All other TNC parameters will remain the same. This facilitates quick and simple operator change-out.
  - Simplicity: Operators don’t have to keep track of individual operator callsigns for all the various locations – which would change every time an operator change took place. “EOC” will always be “EOC” no matter what operator is controlling the EOC station. “EOC” will always be the EOC digipeater, “EOC-1” will always be the EOC mailbox and “EOC-7” will always be the EOC node (much easier than trying to remember that the EOC mailbox is KF4QMZ-1 and the EOC node is KF4QMZ-7 – but after the relief operator arrives the EOC mailbox has now changed to KQØRVP-1 and the EOC node has changed to KQØRVP-7).

### Tactical Message Numbering & Filenames

The *Tactical Message Numbering System* utilizes the packet tactical callsign system (above) to generate agency-specific sequential message numbers. These message numbers can be utilized for BOTH messages sent over packet and those sent over radio-phone modes, i.e., FM or SSB (obviously, the packet and phone operators need to coordinate message number assignments when using both modes for simultaneous messaging from the same agency).

Digital operators will bring a wide variety of computers using many different operating systems to an incident – from simple DOS-based computers to the latest and greatest Windows or Linux systems. The *Tactical Message Numbering System* has been

developed to meet the lowest common denominator in file management, the 8x3 file name format (FILENAME.EXT) used on DOS-based and Windows 3.1 operating systems. This enables this message numbering system to be compatible with virtually ANY computer file system.

- **Saving Messages to Disk** – all messages, both SENT and RECEIVED, should be saved to disk using the message number as the file name and adding the appropriate suffix (most packet messages will be ASCII-text based, hence an extension of .TXT is appropriate in most cases).
  - **Message Number Format** – The message number format consists of the following:
    - [TACTICAL CALLSIGN] consisting of 2-5 letters (see “Packet Tactical Callsigns” above), followed by . . .
    - ### -- three numbers assigned sequentially
      - *NOTE: The reason the tactical callsign abbreviation is limited to 5 letters is so the total number of characters of the tactical callsign PLUS the required 3-number sequential numbering does not exceed a total of 8 characters, which would cause filename problems on some older computer operating systems that can only accommodate an 8x3 filename.*
      - Use all three numbers (###) in all message numbers, i.e., the first message number will always be 001 – then 002, 003, 004, etc. You **MUST** use the leading zeros for the computer to organize the files sequentially in the directory.
      - **EXAMPLES:**
        - The EOC’s message numbers would be issued as follows:  
EOC001  
EOC002  
EOC003  
etc.
        - The ICP’s message numbers would be . . .  
ICP001  
ICP002  
ICP003  
etc.
        - WPHS (Woodland Park High School) message numbers would be . . .  
WPHS001  
WPHS002  
WPHS003  
etc.
  - **Computer File Management** – the beauty of this system is that the computer will keep the files neatly arranged in alpha-numeric order in the folder or directory for quick reference and retrieval. If all files sent and received are saved in the same directory, it will look like this:
-

EOC001.TXT  
EOC002.TXT  
EOC003.TXT  
ICP001.TXT  
ICP002.TXT  
ICP003.TXT  
WPHS001.TXT  
WPHS002.TXT  
WPHS003.TXT

- *If you need to review, reference or retrieve, for example – message WPHS002 – it is very easy to locate in the directory using this system.*

- Optional: For organizational purposes, an operator may want to keep multiple folders for messages SENT and messages RECEIVED – the directories would then look like this, assuming – for example – this is the EOC station computer directory:
    - **SENT**
      - EOC001.TXT
      - EOC002.TXT
      - EOC003.TXT
    - **RECEIVED**
      - ICP001.TXT
      - ICP002.TXT
      - ICP003.TXT
      - WPHS001.TXT
      - WPHS002.TXT
      - WPHS003.TXT
    - If, or when, a relief operator arrives, the message directory – or directories – can be copied and transferred to the new operator’s computer if the computer is, in fact, being swapped out. The new operator will have a complete directory(ies) of ALL the messages sent and received at that station since the incident started.
    - Because the *Packet Tactical Callsign System* (above) was used to generate message numbers, the messages from each location will remain organized in the computer directory even after operator changes take place at various locations.
  - **Use of the Mailbox (or PBBS) for Messaging**
    - The fastest and most efficient method of message delivery during a packet net is to deposit a message (or messages) directly into the receiving station’s mailbox.
      - About the only exception to this is if the size of the message (or file) exceeds the receiving station’s available mailbox memory.
-

- Make note of the message size when you save it to disk on your “station of origin” computer. When you connect to the receiving station’s mailbox you should receive a message similar to this . . .

**28-Apr-05 12:19:04 \*\*\* CONNECTED to EOC-1  
 [KPC3P-9.0-HM\$]  
 462400 BYTES AVAILABLE IN 15 BLOCK(S)  
 THERE ARE 9 MESSAGES NUMBERED 1-9  
 Emergency Operation Center; EOC/DIGI; EOC-1/PBBS; EOC-7/NODE  
 YOU HAVE 1 MESSAGE(S) WAITING  
 ENTER COMMAND: B,J,K,L,R,S, or Help >**

- With 462,400 bytes available, this TNC has an exceptionally large memory chip (probably 512,000 bytes total). Obviously, there would be ample room for many incident messages which typically range in size between 1,000 to 6,000 bytes.
  - Mailbox memory varies widely depending upon the TNC and optional memory that may have been installed. Small mailboxes vary between 17-32K, intermediate boxes run around 100-128K and large boxes, like the one above, can have 512K up to 2Mb (SCS PTC-II Pro).
  - Operators using boxes with limited memory need to constantly capture messages from their mailbox and save them to disk, then delete the messages from the mailbox to conserve TNC memory.
    - This is good practice for all operators, as less messages in the mailbox make for less clutter and confusion.
- **Mailbox Subject Line Usage** – a properly formatted mailbox subject line can convey powerful message information in a single line, including – PRECEDENCE (priority), MESSAGE NUMBER, STATION OF ORIGIN and RECEIVING STATION – all in one brief line – and all pertinent information about the message is immediately displayed to the receiving operator as soon as they list their mailbox messages.
  - **Subject Line Format**  
**[PRECEDENCE] [MESSAGE NUMBER] to [LOCATION]**  
**EXAMPLE:**  
**Subject: EMERGENCY ICP128 to EOC-1**
  - What essential information does this subject line convey?
    - **Precedence** – the example above is an **EMERGENCY** message – absolutely highest priority. The first thing the operator sees when he lists this message is EMERGENCY at the beginning of the subject line – before they ever open or read the message body.
      - About Precedence



- Utilizing the ARRL Radiogram precedences, there are four levels of priority:
    - EMERGENCY
    - PRIORITY
    - HEALTH & WELFARE (H&W)
    - ROUTINE
  - For simplicity, and to conserve time and bandwidth, all messages should be considered ROUTINE with the exception of those specifically designated as EMERGENCY or PRIORITY.
  - If the message above were either ROUTINE or H&W, the subject line would simply read: **Subject: ICP128 to EOC-1**
    - *NOTE: No need to say ROUTINE*
- **Station of Origin** – as indicated by the message number (ICP128) – this message originated at the Incident Command Post packet station (ICP).
- **Message Number** – the message number is ICP128
  - When the receiving station captures this message from the mailbox, without even opening the message, the operator automatically knows what filename to assign it – “ICP128.TXT”
- **Receiving Station** – this message was sent to the Emergency Operation Center packet station mailbox (EOC-1).
- **Subject Line Reply Format**
  - Every message sent from a location will be issued a new and unique sequential message number. This includes replies to previous messages.
    - *EXAMPLES:*
      - A routine reply to the emergency message above would look like this:

**Subject: EOC143 REPLY TO EMERGENCY ICP128**

- or, if the reply itself were an EMERGENCY message:

**Subject: EMERGENCY EOC143 REPLY TO ICP128**

- If these messages had both been ROUTINE rather than emergency, the reply would look like this

**Subject: EOC143 REPLY TO ICP128**

- **Reply to a Reply** – if the ICP, in turn, had a reply to this EOC reply, it would look something like this:

**Subject: ICP129 REPLY TO EOC143**

- Notice that the ICP number has advanced from ICP128 to ICP129 for this reply to the reply. Every message, and reply message thereafter, will have its own unique sequential message number.

## Digital Message Formats

For many years, the ARRL Radiogram format used by the National Traffic System (NTS) has been the amateur radio messaging standard. With the advent of the Incident Command System (ICS) most agencies now utilize the ICS-213 General Message Form. ARRL Radiogram forms should only be used for long-haul messaging that will be handled through the National Traffic System. One example of this would be health and welfare traffic, should we be asked to handle it. Some agencies may have their own forms developed to meet specific agency needs, see “Agency Specific Forms” below.

During digital operations agencies need to know that, while we can move binary files (MS-Word Documents, Excel Spreadsheets, Access database files, etc.) that they are unnecessarily large and move VERY slowly. This can totally destroy the efficiency of a digital net and these formats MUST BE AVOIDED if at all possible. For instance, if an agency has a MS-Word template that creates ICS-213 General Message Forms, these binary documents are unsuitable for simple text messaging. Operators should give the agency the ASCII text version of the form below and ask that they use it to create their messages. If this is not possible, the operator may have to convert these binary files to ASCII before transmission.

### ICS-213 General Message Form

The ICS-213 General Message Form is a very straightforward format that is appropriate for most incident messaging. One very important item is missing from the ICS-213 – there is no designated place for a message number. Message numbers are essential for radio operators to log, reference and track digital messages. The ASCII ICS-213 form below has a place for the message number (see *Tactical Message Numbering* above). If an agency representative brings you a handwritten ICS-213 to relay, always write the message number you assign to that message in the upper right-hand corner of the page, then make sure that the message you type and save on your computer has the same message number.

Every operator should keep a copy of this ASCII ICS-213 template on their computer and it is also recommended that operators keep a copy as a bulletin in their PBBS mailbox for others who may need it. In the subject line, simply put "ICS-213 General Message Form." The ASCII ICS-213 General Message Form template looks like this:

**EXERCISE MESSAGE**

**MSG NO: DESTINATION:**

**TO: POSITION:**

**FROM: POSITION:**

**SUBJECT: DATE: TIME:**

=====

**MESSAGE:**

=====

**REPLY:**

**DATE: TIME: SIGNATURE: POSITION:**

=====

**EXERCISE MESSAGE**

**Very Important:** any time this form is used in an exercise, the message **MUST** be preceded and concluded with the phrase EXERCISE MESSAGE as indicated in red above. Obviously, in a real incident, these are removed. Store your ICS-213 template with the EXERCISE MESSAGE tags included as a reminder. When involved in a real incident, call the file up, delete the EXERCISE MESSAGE tags, then save it back to your hard drive (same for the copy in your PBBS mailbox).

If you prefer, you can save two versions of the form on both your computer and in your PBBS mailbox as follows:

**ICS-213 General Message Form**  
**ICS-213 EXERCISE MESSAGE Form**

When saving these forms to disk it is a very good idea to "write protect" the files so you don't accidentally overwrite the blank forms with a completed form when saving a message. To do this on Windows-based operating systems

- Right-click the file name in the folder or directory
- Select "Properties"
- Check the "Read Only" box
- Click "Apply"
- Click "OK"

- Close the “Properties” window (if it doesn’t close automatically)

### ARRL Radiogram Form

Every operator involved in emergency communications should learn how to create and handle ARRL Radiograms. This is not a simple process and the time to learn and practice traffic handling is BEFORE you’re thrown into an emergency operation. Information on using ARRL Radiograms and the National Traffic System is available in the ARRL Public Service Communications Manual, in the back of older ARRL Net Directories and in the ARRL Operating Manual.

This is not the place to go into a detailed tutorial on ARRL Radiograms or NTS traffic-handling – rather we will illustrate how to properly format ARRL Radiograms for digital conveyance.

Since Radiograms are seldom used (but could be called for at any time), and most operators don’t carry blank RG forms around with them, operators should keep a digital RG template on their computers just in case.

**NUMBER PRECEDENCE HX STATION-OF-ORIGIN CHECK PLACE-OF-ORIGIN TIME DATE**

#### ADDRESS BLOCK

**NAME  
ADDRESS  
CITY, STATE, ZIP  
TELEPHONE NUMBER**

#### MESSAGE BLOCK (25 WORD LIMIT RECOMMENDED)

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

#### SIGNATURE:

**REC'D FROM:    DATE:    TIME:                                  SENT TO:    DATE:    TIME:**

- NUMBER = Message Number
- PRECEDENCE = EMERGENCY, Priority (P), Health & Welfare (W), Routine (R)
  - *NOTE: EMERGENCY is always spelled out*
- HX (optional) = Handling Instructions (single letters A through G)
  - *NOTE: When used in digital communications, include the “HX,” i.e., HXA, HXB, HXC, etc.*

- STATION OF ORIGIN = first station to transmit the message via radio.
- CHECK = number of words in the message body ONLY (not including signature)
- PLACE OF ORIGIN = location (city, state) of the station of origin
- TIME FILED (optional) = time the message was created, usually in 24-hour format UTC. Good idea to indicate “UTC” or “Z” if UTC and “L” if local time.
- DATE = date filed, usually in format MONTH DAY (i.e., OCT 31)

Below is an example of an ARRL Radiogram as it should be formatted for digital transmission:

**NR 133 R HXG W0MME ARL21 MOUNT PLEASANT IA 1700Z SEP 1**  
**MR MRS JEFF HOLTZCLAW**  
**ROUTE 1 BOX 127**  
**TONGANOXIE KS 66086**  
**913 555 1212**  
**BT (break)**  
**ARL FIFTY ONE OLD THRESHERS**  
**REUNION X HOPE YOU CAN**  
**MAKE IT AND LOOK FORWARD**  
**TO SEEING YOU THERE X**  
**LOVE**  
**BT**  
**UNCLE CHUCKIE**  
**AR (end of message)**

## Uploading Messages

Most of us use E-mail extensively, unfortunately the way E-mail works tends to give us an extremely bad habit for digital messaging. Most of us compose messages and replies while connected to the Internet. We **must not** connect to another station and then proceed to compose our messages while connected, unless the message is one **very short** sentence that can be typed very quickly.

### Compose Your Message Offline

Most PBBS mailboxes allow only a single station to connect and send messages at a time. If a station is connected to the mailbox and composing a message, other stations with messages ready to upload will not be able to connect and transfer their messages until the first station has finished and disconnected. Composing while connected locks other users out for an unnecessarily long period of time and can be **disastrous** to the flow of traffic on a digital net!!!

Most messages are sent either to a PBBS mailbox or to a cluster. In digital communications the message should be composed first and saved as a text file. Once

ready to send, connect to the receiving station (usually the mailbox), prepare to send a message and enter the subject line (tactical message number to destination tactical). When the mailbox prompts us for the message body, SEND the text file. Once the transfer is complete, exit the mailbox or cluster in the normal manner.

**HINT:** If you are using a DOS-based terminal program (like PacComm) you may find it advantageous to use a very simple directory system. One way is to use your A:\ floppy drive. The reason for this is that every time you want to SEND or CAPTURE a file, the program will require you to type in full path and filename. **A:\TEST001.TXT** is much easier to type each time than **C:\MESSAGES\TEXT001.TXT**.

A Windows-based terminal program, unanimously recommended by the *Digital Development Group*, is **WinPack** (see **Terminal Programs** section below). WinPack has an *Edit Window* function that enables the operator to load a template (like the ICS-213 template), compose/edit a message and save it back to disk without having to exit the terminal program. The edit window can then be hidden, allowing the operator to connect to the receiving station, enter a designated recipient and subject line, then “unhide” the edit window and click SEND. This instantly uploads the pre-composed message to the body of the mailbox or cluster message. The beauty of WinPack is its message and file management versatility – all the while continuing to monitor traffic on the digital net.

### **Uploading Command-Embedded Messages to a Mailbox**

An extremely efficient process used when uploading a message to a station’s mailbox (but which generally doesn’t work when using a cluster) is to include the routing instruction, subject line, message body, end of message “SAVE” indicator (/EX) and disconnect request all embedded within the message file to be uploaded. That way, once the mailbox connection is established, the entire file can be uploaded and all the various mailbox processes will be completed in a single step. A message file of this type will look like this:

**S EOC** (“S”end message to EOC, can also be “SB”ulletin, “ST”raffic, “S”[CALLSIGN])  
**ICP138 TO EOC-1** (sample subject line text)  
**[MESSAGE BODY]** (can be a simple message, ICS-213, Radiogram, etc.)  
**/EX** (this command ends the message and saves the message in the mailbox)  
**B** (automatically exits the mailbox and disconnects from the receiving station)

As you can see, formatting a message into a file with the mailbox commands embedded can reduce connect time significantly and eliminate the need to type connected mailbox commands that can be time-consuming. This makes uploading the message to a mailbox extremely efficient in terms of actual on-the-air connect time.

**NOTE: This document is still under construction, there is a lot more information to follow. The information down to this point is pretty much finalized. The info below is to be developed – notes, draft sections and placeholders only at this time. More to follow, please check back frequently for updated versions as they are posted.**

## **WinPack**

To turn the splash screen off,

1. Right click on your WinPack icon
2. Select "Properties"
3. Select "Shortcut" (in XP-Pro)
4. Add a blank space and /NOSPLASH outside the quotes at the end, i.e.,  
"C:\Program Files\WinPack\PACKET.EXE" /NOSPLASH

To turn off the registration pop-up window, go to [www.winpack.org.uk](http://www.winpack.org.uk) and register the software. The pop-up will then go away.