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Packet Type II

Santa Clara County ARES®/RACES/ACS
Last Updated: 17 October 2024

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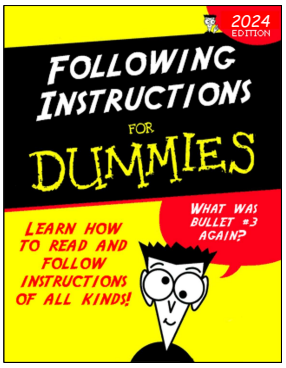
Housekeeping



- Introductions
- Pen/pencil & paper
- Cell phones on silent or vibrate
- Side conversations
- Questions
- Breaks
- Restrooms
- In case of emergency
- No wandering or exploring other areas of the building.

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Overview: Packet Classes

Packet Type III, Part A
- Role of the Packet Operator
- Packet Network Overview
- Packet Network Components
- Packet Station HW & SW
- Accessing the Network
- Standard Workflow

Packet Type III, Part A+
- Packet Operations Self-Paced Exercise workbook

Packet Type III, Part B
- Packet Operations
- Diagnosing Setup Problems
- Selecting a BBS
- Creating Messages
- Event Documentation
- Productivity Hints
- Exercises

Packet Type II: Advanced Techniques, such as County EOC Packet Station Setup & Operations, Operating without Outpost.

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Learning Objectives

At the end of this class, you should be able to:

- Understand the setup and operation of the county EOC radio room packet station
- Set up and use a terminal program to access a BBS
- Without Outpost…
  - Connect to a JNOS BBS
  - Send and receive plain text messages with BBS commands
  - Send and receive PackItForms with BBS commands

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A Note on receiving Class Credit

To get credit for this class, there are 3 things that you need to do:

1. Attend the classroom session.
2. Complete the evaluation by Saturday, one week after the class. See the instructions at the end of this material.
3. Complete a short exercise by Saturday, one week after the class.

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Fictitious Examples

- We use fictitious call signs in this presentation to avoid SPAM
- W6XRL4: Herman Munster

- XNDEOC: City of Xanadu Emergency Operations Center

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What about Xanadu?

- Xanadu received lasting fame in the western world thanks to the Venetian explorer Marco Polo's description of it in his celebrated book *Travels* (c. 1298).
- Distant and mysteriously lost Xanadu, thus, came to represent a place of mystery, splendid luxury and easy living.
- Fortunately, you get to visit Xanadu only during Packet classes and Packet exercises.
- Only use an XNDxxx tactical call that has been specifically assigned to you for an exercise or training event and then only for the duration of that event, including any homework follow-up.
- ***PLEASE NEVER USE*** XNDxxx tactical calls during any other time. Instead, use one of your City's extra tactical calls for practice (with your EC's permission, of course).

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How to process high volume traffic efficiently

COUNTY EOC PACKET STATION SETUP & OPERATIONS

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Packet Net Operations at County EOC

- County message handling can be non-stop action
- Have separate send & receive stations
- Learn to use the automation
  - Automated polling every 5 minutes by Telnet
  - Automated ICS 309 Logging
- Watch message handling order
- Move the messages to the Traffic Manager as quickly as possible
- Balance outgoing and incoming traffic
- Follow the *SCCo Radio Room packet procedures*

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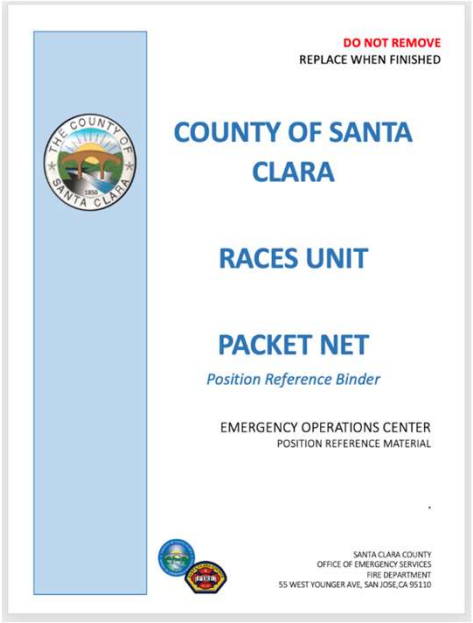
SCCo Packet Net

Reference Binder

What's inside

- There is a "standardized" binder for every position in the SCC EOC, including *each position in the RACES radio room*.
- General content includes:
  - activation and operation
  - end-of-shift and demobilization
  - Packet-specific activities



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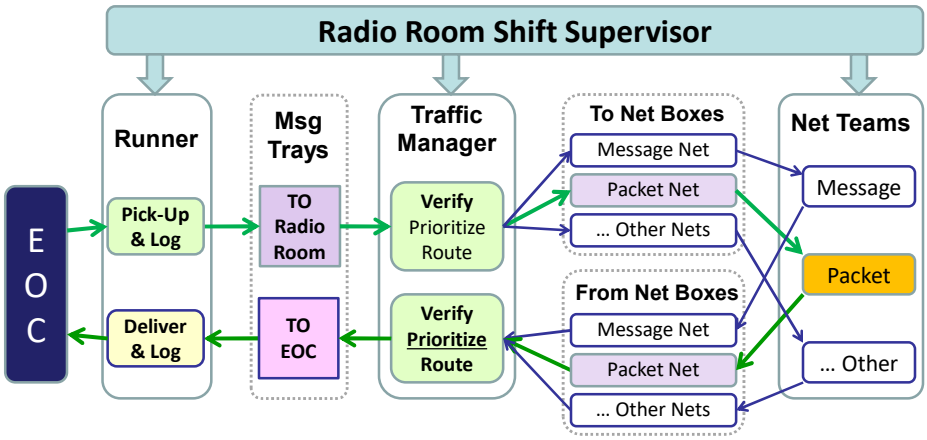
County Radio Room Traffic Routing



- For small, low traffic events, radio room supervisor may also perform the traffic manager role

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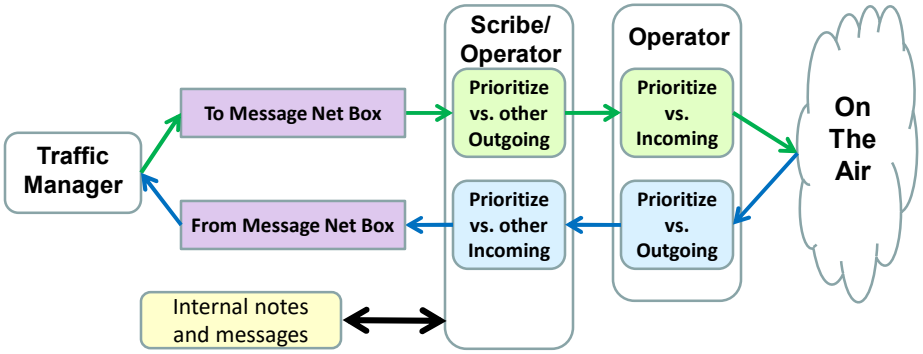
Prioritizing Packet Traffic



- Operator prioritizes message in Outpost
  - Holds incoming for high priority outgoing and vice versa
- Scribe/Operator prioritizes & logs message in to & out from the team
  - Maintains prioritized incoming and outgoing message bins
- Separate Send & Receive stations facilitate processing

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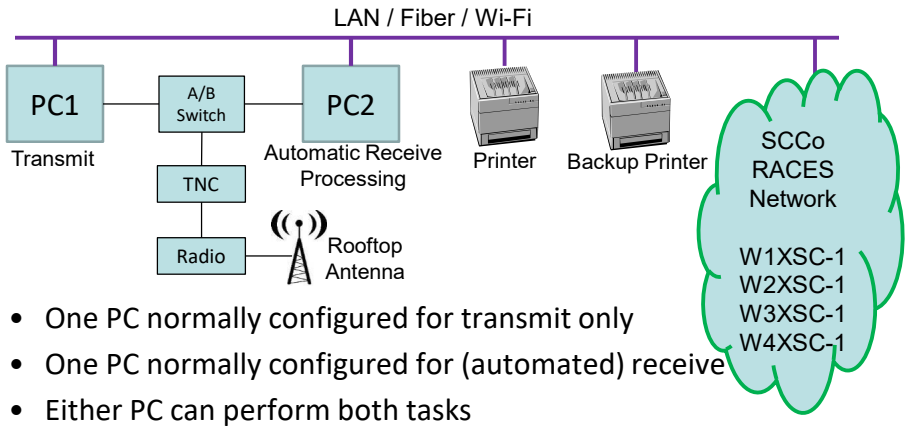
County EOC Packet Station Overview



- One PC normally configured for transmit only
- One PC normally configured for (automated) receive
- Either PC can perform both tasks
- Both PCs have a primary and backup printer defined
- Backup TNC/radio can be switched to either PC

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INTERACTING WITH THE BBS WITHOUT OUTPOST

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Its all about control with Text Commands

- Simple text commands control the **TNC**
  - MYCALL *callsign* = set the TNC's Mycall command to your *callsign*
  - CD software = set **C**arrier **D**etect mode to software
  - C *callsign* = **C**onnect to station *callsign* (ax.25 address)
- Simple text commands control the **BBS** mailbox
  - SP *address* = **S**end a **P**rivate message to an *address*
  - LA = **L**ist **A**ll messages in this area (mailbox)
  - R *n* = **R**ead message number *n*
- Outpost simply automates the process of typing the commands to the TNC (to connect) and then to the BBS (to send/receive messages)
  - Watch the Outpost session window to see what it's doing
  - View the Outpost transaction log later to see what it did
    - Actions > View Outpost Data Directories > logs > transaction*YYMMDD*.log

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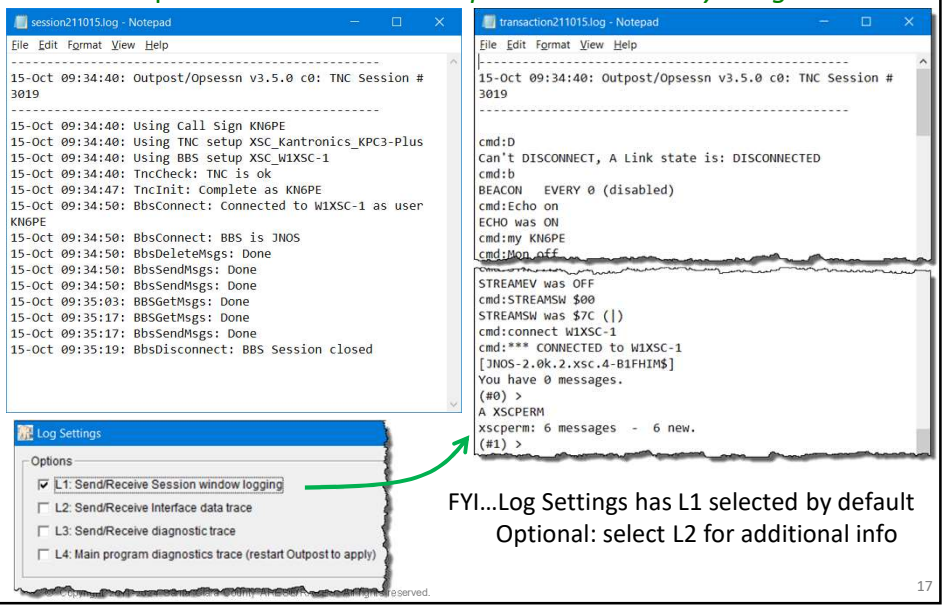
Sidebar: Outpost Logs

From Outpost: *Actions > View Outpost data directory > logs*



FYI…Log Settings has L1 selected by default
Optional: select L2 for additional info

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Everything Can Be Done Manually

- Why would I want to/need to?
  - Outpost is not installed or installed incorrectly; no administrative access to PC
  - Browse the BBS to read bulletins
  - Gain deeper understanding of how packet radio works
  - Perform clean up or diagnostic activities on your setup or to maintain the BBS
- All you need is a terminal emulator program
  - Suggested: PuTTY (free download) https://www.putty.org/
    … or just do an Internet search for "PuTTY"
  - But any terminal emulator will do …
- The following examples will use PuTTY
  - Select and copy: highlight/select (not <ctrl>C)
  - Paste: Right-click (not <ctrl>V)

Note!

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Summary of Steps to be Discussed

- What you need to know to operate without Outpost
- Setting up PuTTY for BBS access (serial)
- The connection basics
  - Start of shift: Configure optimized TNC settings
  - Per session: Using you FCC call sign, -OR-
  - Per session: Using a tactical call sign (plus your FCC call sign)
  - End of shift: Restore default TNC settings
- Managing Messages on JNOS
  - Access user and bulletin areas (mailboxes)
  - Read a message
  - Send a message
- Reading notices and bulletins on JNOS
- Working with PackItForms

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What you need to know

Operations without Outpost

1. Connect Parameters
2. TNC Standard Settings and Manual Workflow
3. TNC User Commands
4. TNC Init Settings
5. BBS User Commands
6. BBS Init Settings

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1. Three Connect Parameters

Operations without Outpost… need to know

- **Call Sign or Tactical Call of the user**
  example : W6XRL4
  XNDEOC
- **TNC Comm Port Settings**
  example : COM3,9600,8,N,1
  COM5,9600,7,E,1
- **BBS Connect Name**
  example : W1XSC-1
  W3XSC-1

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2. TNC Standard Settings

Operations without Outpost … need to know

- SCCo RACES determined the optimum TNC parameters for our BBS system that significantly improves message traffic throughput.
- Document contains parameters for both **Outpost** and **Manual** sessions. Details of each parameter are explained.
- See: https://www.scc-ares-races.org/data/packet/index.html → Application Notes → Standard TNC Parameter Settings

… and specifically, the section titled: *Standard TNC Settings for Manual BBS Sessions*

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2. TNC Standard Settings

Operations without Outpost … need to know

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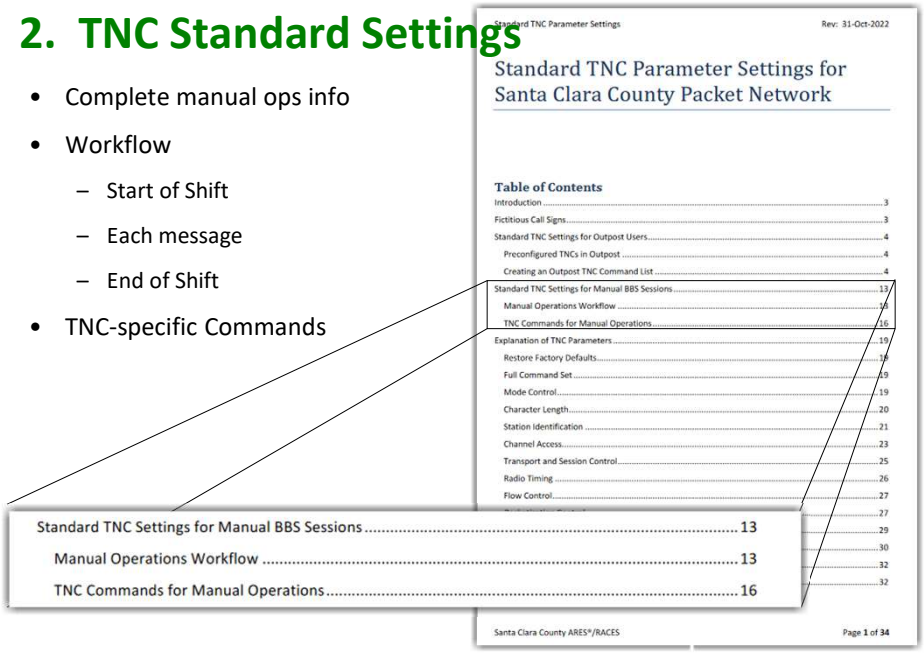
2. TNC Standard Settings

- Complete manual ops info
- Workflow
  - Start of Shift
  - Each message
  - End of Shift
- TNC-specific Commands



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3. Eight TNC user commands

Operations without Outpost (Kantronics KPC-3+)

1. **HELP** [command]
   When entered alone, lists all available commands. With a command, provides details on that specific command.
2. **MYCALL** xxxxxx
   Tells the TNC what its' call sign is.
3. **CONNECT** call1 [via call2, call3, …]
   Call1 = Call sign of the station to be connected to. Adding "via call2…" connects to the BBS by digipeaters.
4. **CONVERS**
   Puts the TNC into **Conv**ersational mode. Then, whatever you type is immediately transmitted.
5. **<ctrl>C**
   Puts the TNC into Command Mode. Then, enter TNC commands at the prompt.
6. **RESTORE DEFAULT**
   Resets the TNC to the factory default settings; performs the AUTOBAUD routine. Defaults INTface to NEWUSER. Hard reset can be triggered by temporarily removing the battery.
7. **INTFACE** [TERM | …]
   When set to TERMinal, the full command set of the TNC is available.
8. **XMITLVL** [value]
   Displays or sets the TNC's transmit drive level

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4. TNC Init Settings

Operations without Outpost … need to know

- Go to the ***"Standard TNC Settings for Manual BBS Sessions"***
- Follow instructions in "***Manual Operations Workflow***"
- Use the "***TNC Commands for Manual Operations***" appropriate for your particular TNC

TNC Type	Manual Ops: Start of Shift	Manual Ops: End of Shift
Kantronics KPC-3+	INTFACE TERMINAL MONITOR OFF CD SOFTWARE NEWMODE ON 8BITCONV ON BEACON EVERY 0 SLOTTIME 10 PERSIST 63 PACLEN 128 MAXFRAME 2 FRACK 6 RETRY 8 CHECK 30 TXDELAY 40 XFLOW OFF STREAMEV OFF STREAMSW $00	STREAMSW $7C

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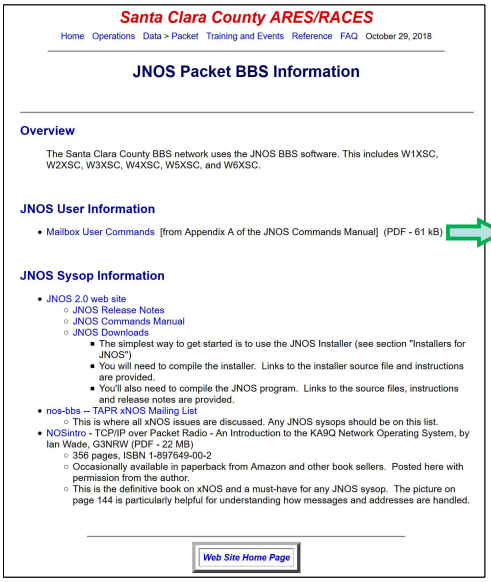
5. Eight BBS user commands

https://scc-ares-races.org > Data Networking > Packet BBS > Reference > JNOS BBS Information



Santa Clara County ARES/RACES

Home Operations Data > Packet Training and Events Reference FAQ October 29, 2018

JNOS Packet BBS Information

Overview

The Santa Clara County BBS network uses the JNOS BBS software. This includes W1XSC, W2XSC, W3XSC, W4XSC, W5XSC, and W6XSC.

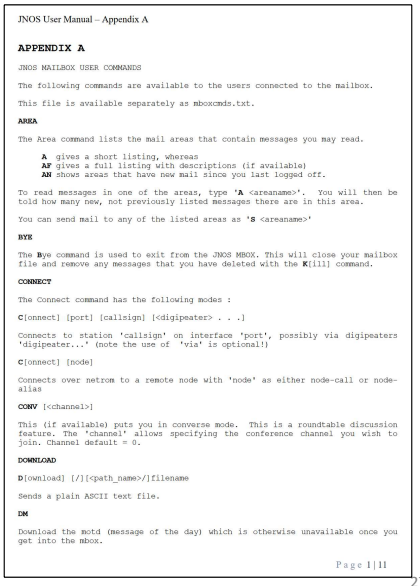
JNOS User Information

- Mailbox User Commands [from Appendix A of the JNOS Commands Manual] (PDF - 61 kB)

JNOS Sysop Information

- JNOS 2.0 web site
  - JNOS Release Notes
  - JNOS Commands Manual
  - JNOS Downloads
    - The simplest way to get started is to use the JNOS Installer (see section "Installers for JNOS")
    - You will need to compile the installer. Links to the installer source file and instructions are provided.
    - You'll also need to compile the JNOS program. Links to the source files, instructions and release notes are provided.
- nos-bbs -- TAPR xNOS Mailing List
  - This is where all xNOS issues are discussed. Any JNOS sysops should be on this list.
- NOSintro - TCP/IP over Packet Radio - An Introduction to the KA9Q Network Operating System, by Ian Wade, G3NRW (PDF - 22 MB)
  - 356 pages, ISBN 1-897649-00-2
  - Occasionally available in paperback from Amazon and other book sellers. Posted here with permission from the author.
  - This is the definitive book on xNOS and a must-have for any JNOS sysop. The picture on page 144 is particularly helpful for understanding how messages and addresses are handled.

Web Site Home Page



JNOS User Manual – Appendix A

APPENDIX A

JNOS MAILBOX USER COMMANDS

The following commands are available to the users connected to the mailbox.

This file is available separately as mboxcmds.txt.

AREA

The Area command lists the mail areas that contain messages you may read.

A gives a short listing, whereas
AF gives a full listing with descriptions (if available)
AN shows areas that have new mail since you last logged off.

To read messages in one of the areas, type '**A** <areaname>'. You will then be told how many new, not previously listed messages there are in this area.

You can send mail to any of the listed areas as '**S** <areaname>'

BYE

The **B**ye command is used to exit from the JNOS MBOX. This will close your mailbox file and remove any messages that you have deleted with the **K**[ill] command.

CONNECT

The Connect command has the following modes :

C[onnect] [port] [callsign] [<digipeater> . . .]

Connects to station 'callsign' on interface 'port', possibly via digipeaters 'digipeater...' (note the use of 'via' is optional!)

C[onnect] [node]

Connects over netrom to a remote node with 'node' as either node-call or node-alias

CONV [<channel>]

This (if available) puts you in converse mode. This is a roundtable discussion feature. The 'channel' allows specifying the conference channel you wish to join. Channel default = 0.

DOWNLOAD

D[ownload] [/][<path_name>/]filename

Sends a plain ASCII text file.

DM

Download the motd (message of the day) which is otherwise unavailable once you get into the mbox.

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5. Eight BBS user commands

Operations without Outpost … need to know

1. **HELP** [command] or **?**
   When entered alone, generates a summary of available commands. With a command as a parameter, provides details on that command.
   H List = shows all the List command options and what they do
2. **LIST**
   L = by itself will display the headers for all ***unread*** messages, if any.
   LA = **L**ist **A**LL messages, both ***read*** and ***unread***
   LM = **L**ists **M**Y messages addressed to me
   L> addr = **L**ists all messages that have "addr" in the ***To:*** field of the message
3. **READ #**
   # = The message number to be displayed.
4. **KILL #**
   # = The message number to be deleted.
5. **AREA** [Area_name]
   A = Lists all available bulletin areas.
   AF = Gives a full listing with descriptions of areas.
   A area_name = moves you to that area. Then use the **L**ist and **R**ead commands to view messages.

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5. Eight BBS user commands

Operations without Outpost … need to know

6. **SEND** [option] <dest_address>
   S[P] = **S**end **P**rivate; *example:* SP w6xrl4@w5xsc.ampr.org
   SB = **S**end **B**ulletin; *example:* SB xsctest
   SC = **S**end **C**opy; to multiple destination addresses
   example: SC w6xrl4@w5xsc.ampr.org
   (BBS then prompts with Cc: for all other addresses)
7. **BYE**
   Disconnects from the BBS
8. **XM #**
   displays or sets the page length for viewing messages

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6. BBS Init Settings; Page Length

Operations without Outpost … need to know

- The BBS "XM" command displays or sets the page length
  - **XM** = displays the current page length setting
  - **XM 24** = sets the page length to 24 lines
  - **XM 0** = turns off pagination (required when using Outpost)
- If a page length is set, message listings, messages and other content longer than the page length are paused and a "More (N=no)?" prompt is shown.
  - Press <ENTER> to see the next page; 'n' to stop
  - Good for reading content on the screen
  - BUT… will cause Outpost to hang if not set back to XM 0
- Note: The SCCo Packet Installer includes **XM 0** in the BBS Init Commands for all SCCo BBSs. Outpost will send **XM 0** as soon as it connects to the BBS so message output is never paused.

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SETTING UP PUTTY FOR BBS ACCESS

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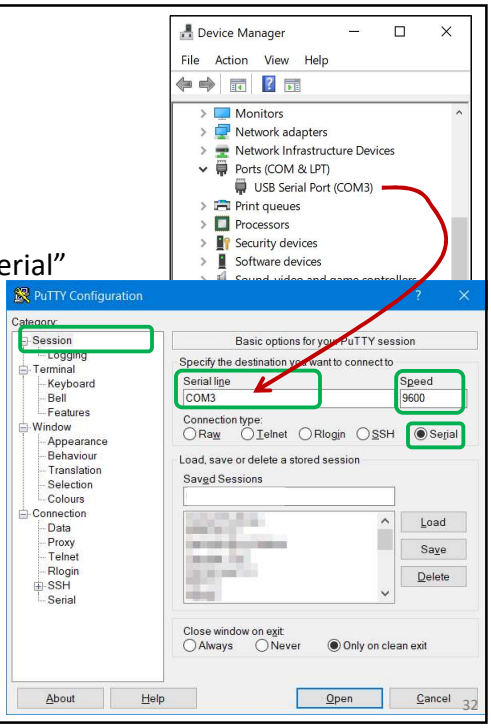
Serial Access

Setting up PuTTY

Install and run PuTTY

1. Select the ***Session*** tab
2. Select Connection Type = "Serial"
3. Enter the Com Port
   - Verify with Windows Device Manager
4. Enter the Speed (baud rate)

NOTE: Not all TNCs use 9600,8,N,1 as the configuration. All fields must match what you actually have set in your TNC.



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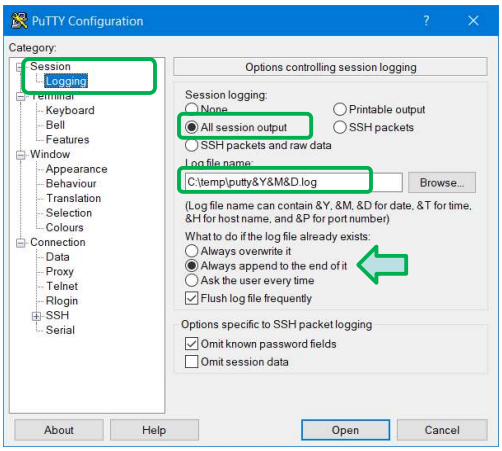
Set up Session Logging

Setting up PuTTY

5. Next, click on the ***Session > Logging*** tab
6. Set Session Logging to
   ⊙ All session output
7. Set up a log file name
   NOTE: &H does not work on Windows
8. … if the file exists:
   ⊙Always append to the end



Why do logging at all?

- During manual operations, it is easy to lose track of what is going on.
- Logging creates a history of your manual interactions and a reference if you ever need to go back and check if you got it all right.

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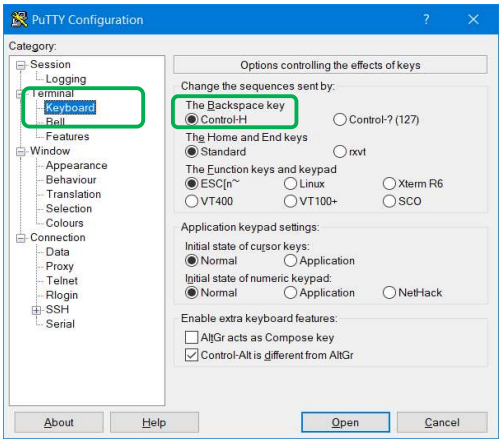
Change PuTTY's Backspace Key

Setting up PuTTY

9. Next, click on the ***Terminal > Keyboard*** tab

The PuTTY default does not send the backspace key code that the KPC-3+ expects. To correct this:

10. Set the Backspace key option to **Control-H**



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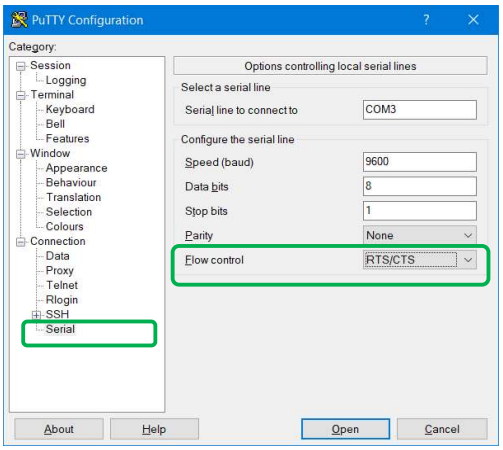
Serial Access

Setting up PuTTY

11. Next, click on the… ***Connection > Serial*** tab
12. Set Flow control to **RTS/CTS**



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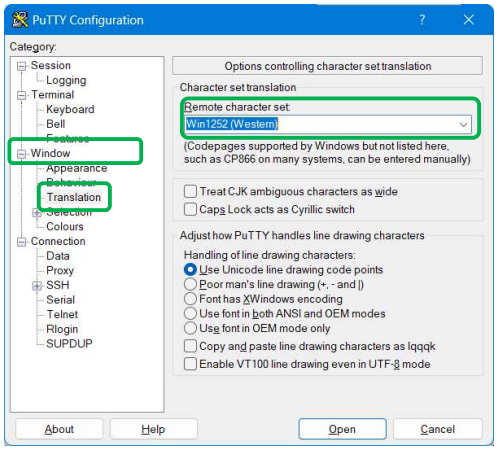
Character Set change

Setting up PuTTY

13. Next, click on the… ***Window > Translation*** tab
14. Change **Remove character set** to Win1252 (Western)
    - This change matches the default setting in PackItForms
    - PuTTY's default is UTF-8, which works poorly with JNOS and non-ASCII characters.



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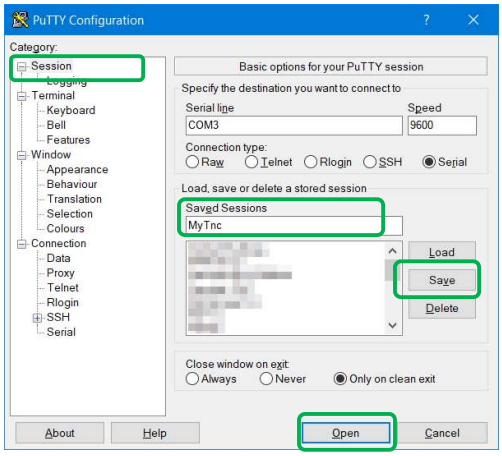
Name it, Save it, and Open it

Setting up PuTTY

15. Finally, click on the... ***Session*** tab
16. Give this connection a name in **Saved Sessions**
17. Press **Save**
18. Press **Open** to open the connection

NOTE: If you ever change any setting, remember to press **Save**!



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THE CONNECTION BASICS

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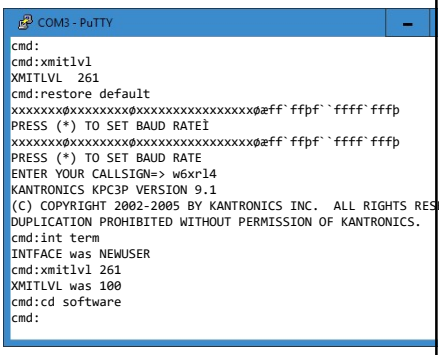
Start of Shift: Configure TNC settings

The connection basics

- TNC settings affect overall performance
  - Start with the factory defaults
  - Make other settings for efficient use of the BBS
- To be **absolutely positively certain** that **all** TNC settings are at the **current** SCCo standard values, at the TNC prompt, perform the following:

1. cmd: **XMITLVL** (for KPC-3+) to display the existing transmit level <value>
2. cmd: **INT Term** (just in case)
3. cmd: **restore default**
4. **PRESS (*) TO SET BAUD RATE**
5. Enter your call sign
6. cmd: **INT Term**
7. cmd: **XMITLVL <value>**
8. cmd: **cd software**
9. Apply SCCo standard TNC settings for **manual** operations



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Start of Shift: Configure TNC settings

The connection basics

- Outpost configures the TNC at the start of each Send/Receive session
- For manual operation, you only need to send these commands once, at the start of your shift

NOTE: Manual Ops commands are slightly different from the Outpost list of commands.

TNC Type	Manual Ops: Start of Shift	Manual Ops: End of Shift
Kantronics KPC-3+	INTFACE TERMINAL MONITOR OFF CD SOFTWARE NEWMODE ON 8BITCONV ON BEACON EVERY 0 SLOTTIME 10 PERSIST 63 PACLEN 128 MAXFRAME 2 FRACK 6 RETRY 8 CHECK 30 TXDELAY 40 XFLOW OFF STREAMEV OFF STREAMSW $00	STREAMSW $7C

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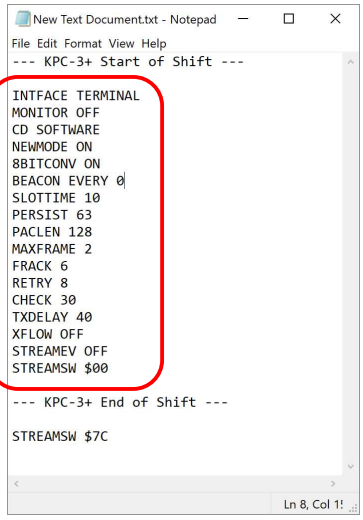
Start of Shift: Configure TNC settings

The connection basics

- Create and save a text file with the "Start of Shift" and "End of Shift" TNC commands.
  CAUTION: Do NOT cut-and-paste directly from the PDF into your terminal emulator; ***it doesn't always work.***
  *****Best practice:*** copy the commands first into a text editor (Notepad), save it, and then copy-and-paste from there into your terminal program.
- To send the "Start of Shift" TNC commands,
  - Connect to the TNC with PuTTY
  - Select and copy the entire "Start of Shift" command list from the text file
  - Paste it into Putty (right-click) at the TNC cmd: prompt.



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During the Shift: FCC Call Sign Session

The connection basics

```
1  cmd:mycall w6xrl4
2  cmd:c w5xsc-1
3  cmd:*** CONNECTED TO W5XSC-1
4  [JNOS-2.0k.1.xsc.2-B1FHIM$]
5  You have 0 messages.
6  (#0) >
7  b
8  *** DISCONNECTED
9  cmd:
```

Note: All SCCo BBSs have a 2 minute Inactivity Timer!

- On the TNC:
  1. Set **MYCALL** to your FCC call sign
  2. **CONNECT** to the BBS / mailbox service (SSID=1) on W5XSC
  3. Connected message from TNC
- On the BBS:
  4. BBS says it is a JNOS BBS, version is 2.0k.1.xsc.2, with options
  5. You have no messages
  6. BBS Prompt: You are on message #0
  7. You type "**B**" (bye) to terminate the BBS session
     The BBS drops the connection
- On the TNC:
  8. Disconnected message from the TNC
  9. TNC is ready for the next command

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FCC Call Sign Session – On the Air

The connection basics

FROM TO

```
AX25: W6XRL4->W5XSC-1 CONNECT

AX25: W5XSC-1->W6XRL4
DATA: [JNOS-2.0k.1.xsc.2-B1FHIM$] .You have 0 messages..(#0) >.

AX25: W6XRL4->W5XSC-1
DATA: b.

AX25: W5XSC-1->W6XRL4 DISCONNECT
```

Note: Protocol codes have been removed

- FROM and TO addresses of all packets contain legal call signs
- Both stations are meeting the FCC identification requirements with every packet (more than required)

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During the Shift: Tactical Call Sign Session

The connection basics

```
1  cmd:mycall xndeoc
2  cmd:c w5xsc-1
3  cmd:*** CONNECTED TO W5XSC-1
4  [JNOS-2.0k.1.xsc.2-B1FHIM$]
5  You have 0 messages.
6  (#0) >
7  b
8  *** DISCONNECTED
9  cmd:conv
   This is w6xrl4
10 cmd:
```

Note: All SCCo BBSs have a 2 minute Inactivity Timer!

- On the TNC:
  1. Set **MYCALL** to your tactical call sign
  2. **CONNECT** to the mailbox service (SSID=1) on W5XSC
  3. Connected message from TNC
- On the BBS:
  4. BBS says it is a JNOS BBS, version 2.0k.1.xsc.2, with IHM$ options
  5. You have no messages
  6. BBS Prompt: You are on message #0
  7. You type "**B**" (bye) to terminate the BBS session
     The BBS drops the connection
- On the TNC:
  8. Disconnected message from the TNC
  9. Enter **CONVerse** mode, and then type in at least your FCC call sign, press enter to transmit
  10. Enter **Cntl-C** to return to Command Mode. TNC is ready for the next command

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Tactical Call Sign Session – On the Air

The connection basics

FROM TO

```
AX25: XNDEOC->W5XSC-1 CONNECT

AX25: W5XSC-1->XNDEOC CONNECT
DATA: [JNOS-2.0k.1.xsc.2-B1FHIM$].You have 0 messages.(#0) >.

AX25: XNDEOC->W5XSC-1
DATA: B.

AX25: W5XSC-1->XNDEOC DISCONNECT

AX25: XNDEOC->CQ
DATA: This is w6xrl4.
```

Note: Protocol codes have been removed

The extra converse mode packet lets you identify your station XNDEOC as FCC call sign W6XRL4

- XNDEOC is not a legal call sign
- Keep session under 10 minutes and use ID process at the end of session to satisfy the FCC requirements.

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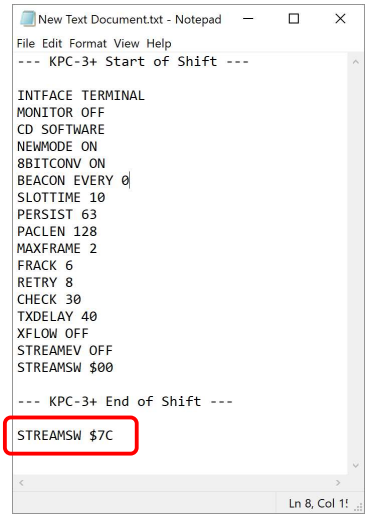
End of Shift: Restore TNC settings

The connection basics

- After the BBS session has disconnected, you should be back to the TNC command prompt, usually: cmd:
- When your shift is finished and before you pack up the gear or turn it over to someone else, return the TNC to “normal” settings
- Cut-and-paste the “End of Shift” Send/Receive settings into PuTTY at the TNC command prompt



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MANAGING MESSAGES WITH JNOS COMMANDS

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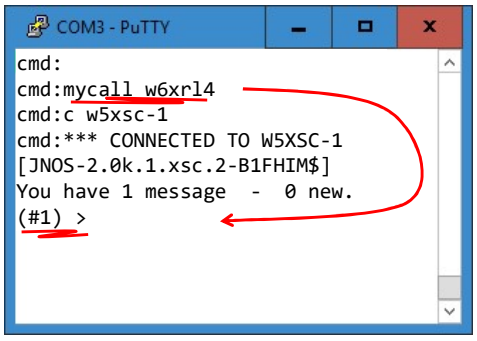
BBS Connect & Login

- Ready to connect to BBS
- Set your call (FCC or tactical) in the TNC for login

  cmd: MYCALL W6XRL4 or **cmd:** MYCALL XNDEOC
- Connect

  cmd: C W5XSC-1
- JNOS gets login info from MYCALL
- No login prompt needed



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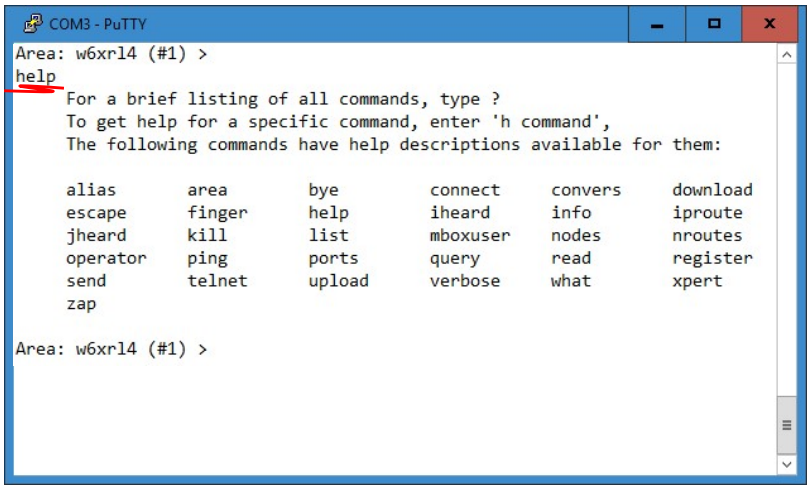
HELP

JNOS Commands

- Basic commands can be seen with HELP command



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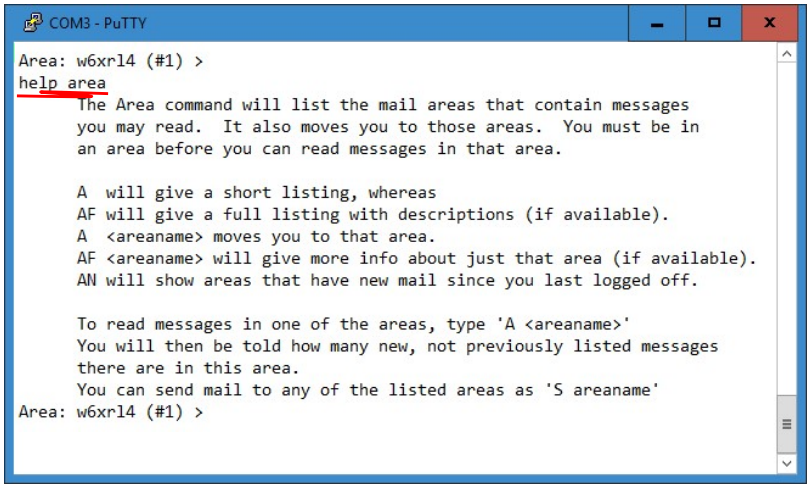
HELP <command>

JNOS Commands

- Help with the command will give a detailed explanation



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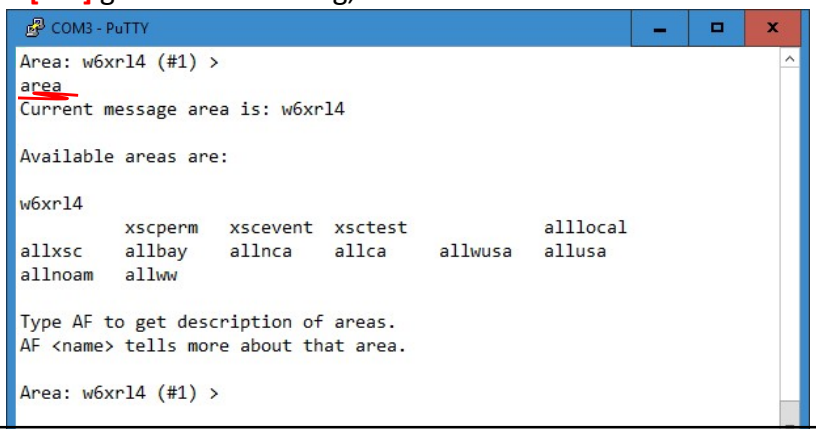
AREA

JNOS Commands

- Messages are organized in **AREAs**
  - Your mailbox is an area
  - Bulletins: xscperm, xscevent, xsctest are each their own AREA

A[rea] gives a short listing, whereas …



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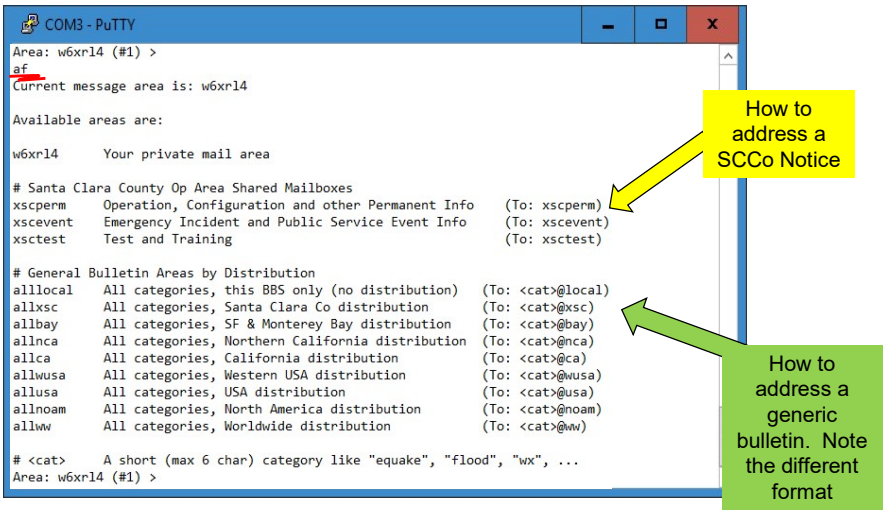
AREA

JNOS Commands

AF gives a full listing with descriptions (if available)



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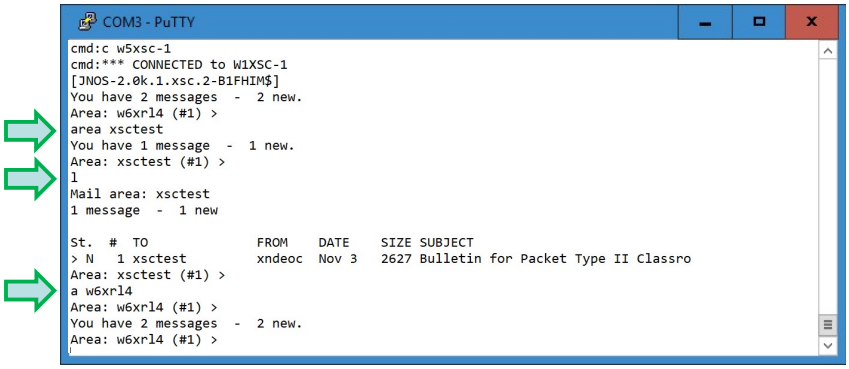
AREA Example

JNOS Commands

- Change areas to read SCCo bulletins
  - "area xsctest" – changes to the "xsctest" area
  - "L" or "LA" – *lists* or *lists all* bulletins in that area
  - "area <callsign>" – returns you to your own area



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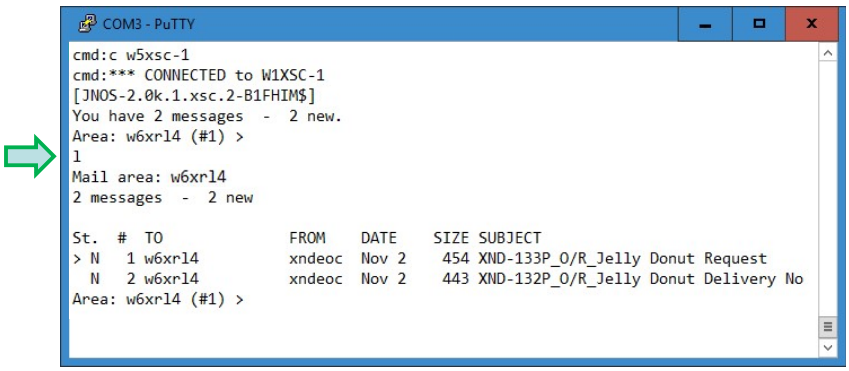
LIST

JNOS Commands

- Displays a list of the messages from the current mailbox (or "area")
  - **L** - by itself will display the headers for all unread messages, if any.
  - **LA** - list all messages, read or unread



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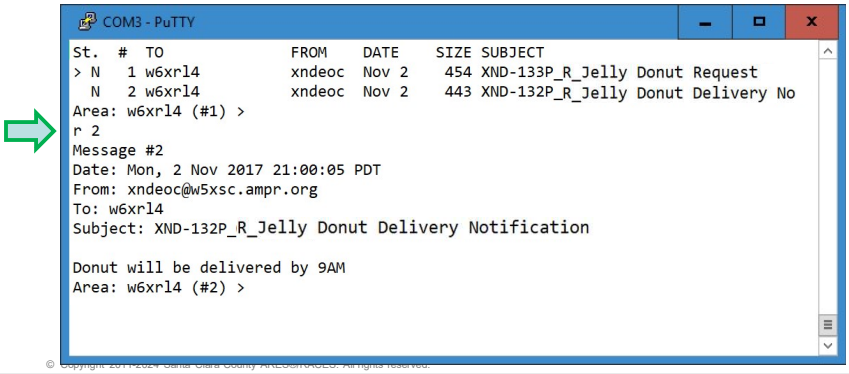
READ

JNOS Commands

- **R[ead] #**
- **R[ead] <msg_number_or_range>**
- To read a specific message, you may either type "R #" or just the number by itself. RM will display all unread messages, sequentially.



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KILL

JNOS Commands

- The **KILL** command allows you to delete messages from your mailbox

  K[ill] <message_number>
- At least one message number must be supplied. The message numbers you can select from can be displayed with the "**L[ist]**" command.
- Messages will not disappear until you disconnect and connect again

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SEND

JNOS Commands

- The send (S) or send private (SP) command allows you to enter a message and send it to a user

  S[P] <user>@<domain> where
  <user> = recipient's name
  <domain> = <bbscall>
  <bbscall>.ampr.org
  internet domain

- Send an SCCo specific Notice

  SB < NoticeArea | <category>@<distribution> >

  - SCCo Notices: SB < NoticeArea >
  - General purpose bulletins: SB <category>@<distribution>

  – As above, but ANY <user> may read the message from the mailbox. The < NoticeArea > may be…
  - xscperm
  - xscevent
  - xsctest

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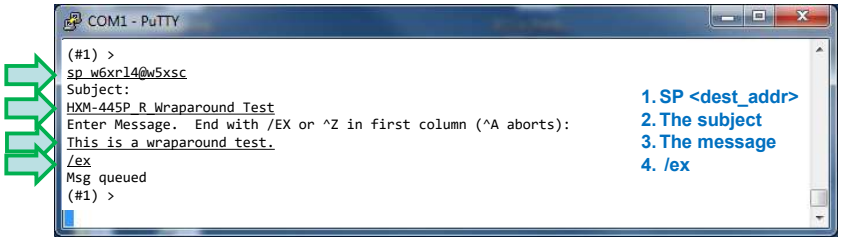
Send a Message from the Keyboard

JNOS Commands

- Connect to the BBS using a terminal program
- Use these BBS commands

  – **SP <user>@<domain>** – Send a message to a user at a specific domain.
  - When prompted, enter an SCCo standard subject
  - When prompted, type the body of message
  - When done, on the next line, add "**/EX**" and press <Enter>



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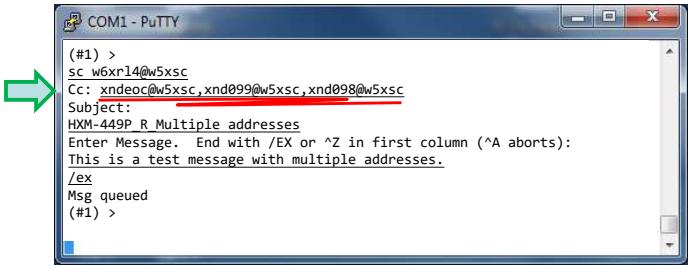
Send Copy

JNOS Commands

- The send copy command allows you to enter a message and send it to multiple users

  SC <user>@<domain>

- Enter the send copy command with one address
- JNOS responds with "**Cc:**"
  - Enter other addresses to receive a copy, separated with commas



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BYE

JNOS Commands

- When you are all done with the BBS, disconnect from the BBS

  B[ye]

- On disconnecting
  - Outgoing messages will be processed
  - Deleted (killed) messages will be removed

Don't Forget!!!
All SCCo BBSs have a
2 minute inactivity timer!

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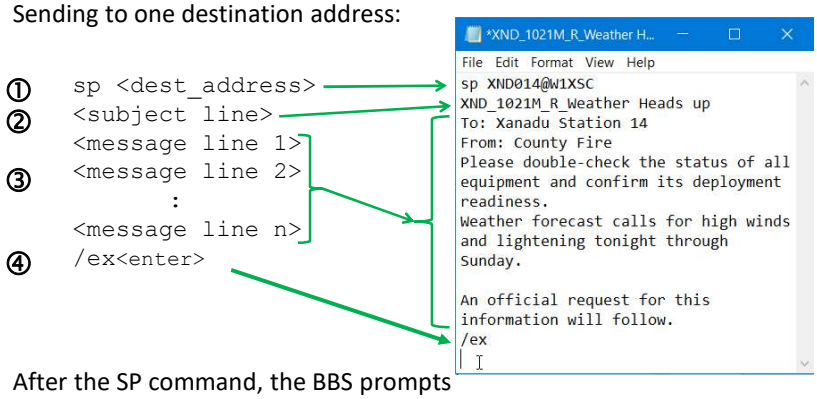
FYI… Manual message basics

Troubleshooting Hint

- Knowing how manual packet works will help you **troubleshoot problems**.
- Sending to one destination address:



- After the SP command, the BBS prompts for the subject, then the message.
- Once the ***ENTIRE*** message sequence is created, highlight and copy all of it and then paste it into PuTTY at the BBS Prompt.

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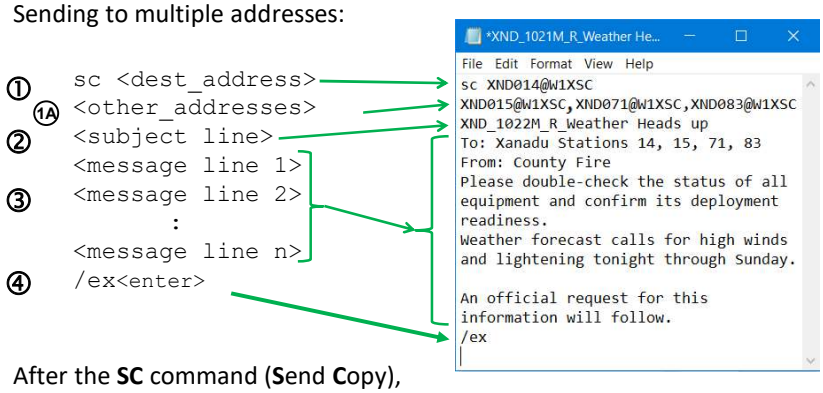
FYI… Manual message basics

Troubleshooting Hint

- Knowing how manual packet works will help you **troubleshoot problems**.
- Sending to multiple addresses:



- After the **SC** command (**S**end **C**opy), the BBS prompts with a CC: for additional destination addresses.
- Once the ***ENTIRE*** message sequence is created, highlight and copy all of it and then paste it into PuTTY at the BBS Prompt.

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FYI… Manual message basics

Saving the message

- There are reasons to save the message before sending it
  - You have copy for your records.
  - You can save all your messages before sending them.
  - Avoids having to re-enter the message if something goes wrong.
- Where you save the message is up to you. But:
  - If this is your PC, then save them anywhere where you can find them.
  - If this is a shared PC, then create a directory on the C: Drive.
- For instance: your directory structure could look like this:
  - C:\MyMessages
  - C:\MyMessages\XND-24-1009T (activation number)
- Use the message subject as the name of the file.

BUT… Manual PackItForms will do a lot of this for you!

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READING BULLETINS ON JNOS

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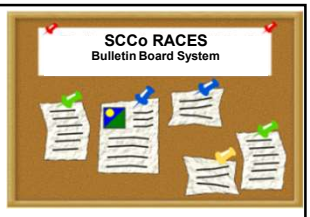
Bulletin Review

Bulletins



- Bulletins are messages intended for a broad audience
- The SCCo BBSs support two types of bulletins:
  - ***Notices*** are a special type of bulletin specific to Santa Clara County
    - Only distributed to SCCo BBSs (W*XSC)
    - SCCo uses 3 special categories for specific content
  - General ***Bulletins*** are globally compatible, used for everything else
    - User-defined *category* (e.g.: "equake", "ARES") identifies content
    - User-defined *distribution* controls how widely it is distributed (e.g.: "XSC", "BAY", "NCA", etc.).
- Regardless of the bulletin type, when configured in Outpost, Outpost will automatically download them

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SCCo Notice Areas

Bulletins

- SCCo ARES/RACES has three special ***notice*** categories:
  - xscperm
    - Used for notices that do not expire
    - examples: standard county procedures
  - xscevent
    - Notices posted here automatically expire after 8 days
    - examples: Drills, public service events, incidents, other activations
  - xsctest
    - Good for user testing; automatically expires after 1 day
  - allxsc
    - Where you can write city and jurisdiction notes
    - Notices posted here automatically expire after 8 days

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General Bulletins Overview

Bulletins

- Bulletins are messages that are intended for broad readership
- Bulletins content varies from amber alerts and earthquake reports to jokes and recipes
- Bulletin sender controls how widely the bulletin is distributed
  - Can be as narrow as “local” (this BBS only)
  - Can be as wide as “ww” (worldwide!)
- In JNOS, bulletins are sorted into shared areas (mailboxes) for easier reading

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General Bulletins – Why Do They Matter?

Bulletins

- Standard way to distribute information between BBSs of all types throughout the world
- Use them for fun or for emergency communications
- Use them for distributing information to broader areas:
  - Santa Clara County
  - San Francisco Bay area
  - Northern California
  - All California
  - And wider …
- Example:
  - During the 2009 cable cut, information about anticipated service restoration times were distributed via bulletins by a ham who had information from the telecom carrier

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General Bulletin Addresses

Bulletins

- Address format: category@**distribution**
- **Distribution**
  - A six-character or shorter keyword which defines how widely the bulletin will be distributed
  - Sender picks from a pre-defined list
  - Acceptable distributions:
    - local Local BBS only
    - xsc XSC Operational Area (Santa Clara County)
    - bay San Francisco and Monterey Bay area
    - nca No. California (generally north of the Tahachapi Mountains)
    - ca California
    - wusa Western USA (generally, West of the Mississippi River)
    - usa United States of America
    - noam North America (Canada, USA, Mexico, …)
    - ww worldwide

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General Bulletin Addresses (continued)

Bulletins

- Address format: **category**@distribution
- **Category:**
  - A six-character or shorter description of the main topic of the bulletin.
  - Sender picks the category based on the contents of the bulletin
  - Example categories:
    - amber – Amber alerts
    - equake – Earthquake reports
    - flood – Flood reports
    - tech – technical topics, schematics, discussion
    - mtv, cup, sjc, etc. – City bulletins
    - humor or humour – jokes, stories, etc.
  - Any category works on our SCCo BBSs because we sort bulletins by distribution, not category
  - Uncommon/unusual categories may be held on other BBSs until the sysop decides where it should go

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General Bulletin Addresses (continued)

Bulletins

- Example bulletin addresses:
  - mtv@xsc
    - City of Mountain View information for distribution to all BBSs in Santa Clara County
  - flood@bay
    - Information about flooding for distribution to all BBSs in the San Francisco and Monterey Bay areas
  - equake@nca
    - Information about an earthquake for distribution to all BBSs in Northern California
  - swpc@ww
    - Space Weather Prediction Center reports for distribution to all BBSs worldwide
  - humour@ww
    - Variety of jokes and funny stories

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Reading General Bulletins

Bulletins

- Use a terminal program like PuTTY
  - Read only the bulletins of interest
  - Be selective when listing and reading
- Read bulletins just like mail
  - Find out what areas are available
    - AREA
  - Select a bulletin area
    - AREA <area_name>
  - List bulletins
    - LA (list all)
    - L> <category_name> (where category_name matches the messages' **To:** field, ex: **equake**@ww)
  - Read a bulletin
    - R #

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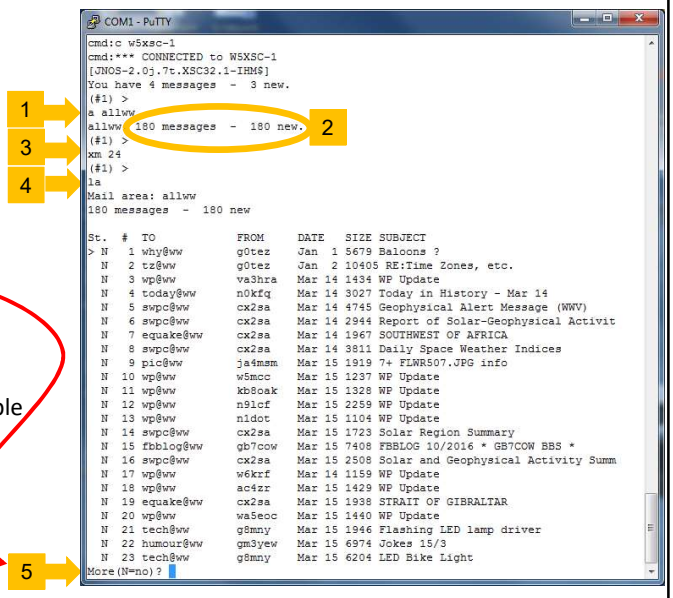
General Bulletin Example

Bulletins

1. Use “A” to change area to “allww”
2. Wow, that’s a lot!
3. **Set page length**
   XM 24
4. List All
5. JNOS pauses
   - <Enter> to continue
   - <N> to stop

- Note, there are multiple categories in the list
  - wp
  - tech
  - swpc
  - equake
  - …



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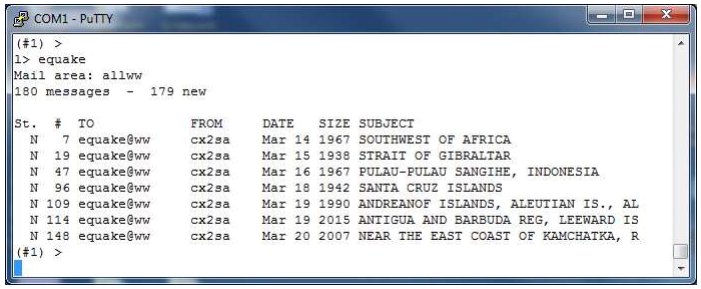
Filter the General Bulletins

Bulletins

- JNOS command L> will filter the list by To: address
  - Example: L> *category*
  - … will list only bulletins where the To: address contains *category*

- Example: list all earthquake bulletins



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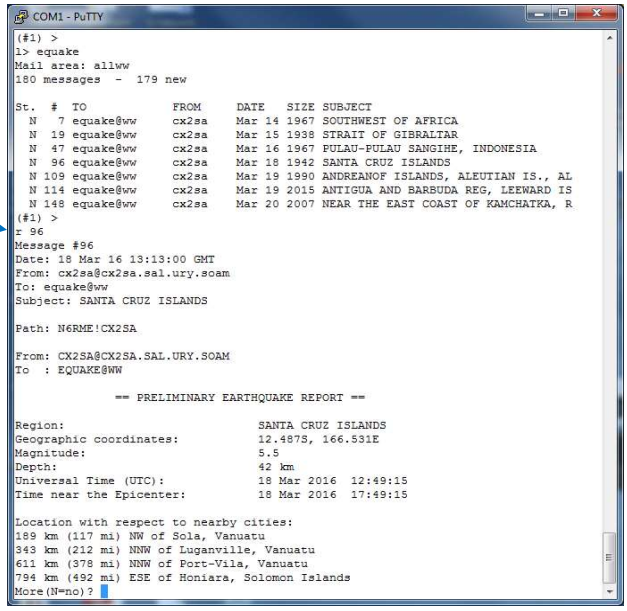
Read General Bulletins Like Messages

Bulletins

- Read using the R # command



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But, what about PackItForms?

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Submitted for your approval…

- You just arrived at ***XND Fire Station 14*** to take over as Packet Operator. This is great… Your first MAC assignment!
- As you enter, the last shift Packet Op rushes past you saying…
  "there's a couple of ICS 213's on the desk to be sent!"
- At least you won't be bored.
- Over your shoulder, you hear him yell back…
  "Oh yeah, I could never get Outpost to work after IT updated Windows… and they just left."
- The PC is running; you click the Outpost icon… Error; and you have never seen this error before ☹
- OK, deep breaths. You know what to do, right?

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Manual PackItForms

Fortunately, PackItForms is a message creation system designed to work with both Outpost or as a ***standalone*** solution for forms-based messages.

- ***Enhanced standalone message management, including:***
  - Manages setting up and using user and tactical IDs
  - Takes care of message numbering
  - Includes a Plain Text message form
  - Creates a standalone ICS-309 log
  - Creates copy-ready text (all BBS commands) to paste into PuTTY
  - Easy message saving
- **What's the same**
  - Tight integration with Outpost
  - Supports all PackItForms
  - Formats a standard packet form for sending
  - Processes a received packet form

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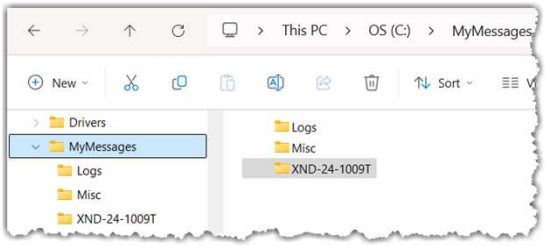
Get ready for Manual PackItForms

Things to do before you get started:

1. Create a directory where you will save your messages.
   - Consider a naming convention that is relevant for your assignment, examples:

     C:\MyMessages\XND-24-1009T (by activation number)
     C:\PacketMessages\2024-10-09 (by date)
     C:\Xanadu_Station_14 (by assignment)
2. Identify a starting message number
   - Assigned to you or your choice; PackItForm will append an **M** for **M**anual to make it unique.



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Manual PackItForm messages

Manually create and send a PackItForm message

1. Run PackItForms with the *manual.cmd*
2. Set up your user ID, tactical ID, and other fields
3. Pick and fill in a PackItForm
4. Create the packet message
5. Send the message with PuTTY
6. Save a copy of the message

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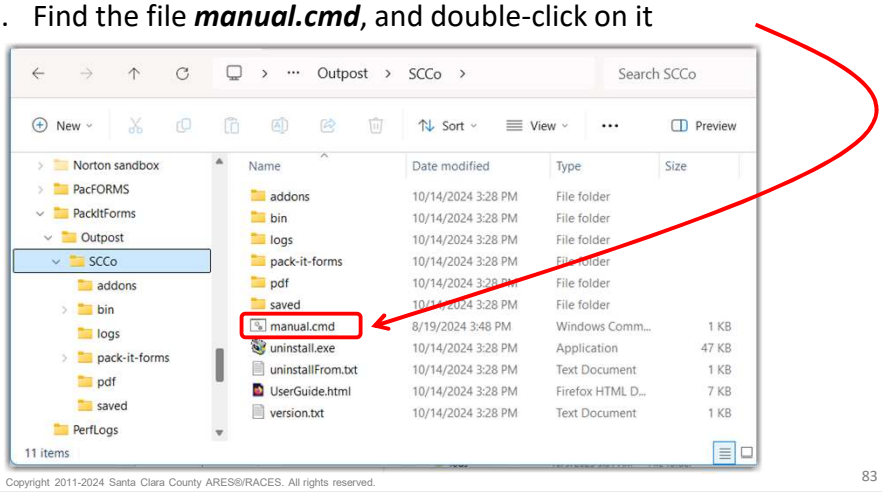
1. Running manual PackItForms

1. Open your File Explorer and navigate to C:\PackItForms\Outpost\SCCo
2. Find the file ***manual.cmd***, and double-click on it



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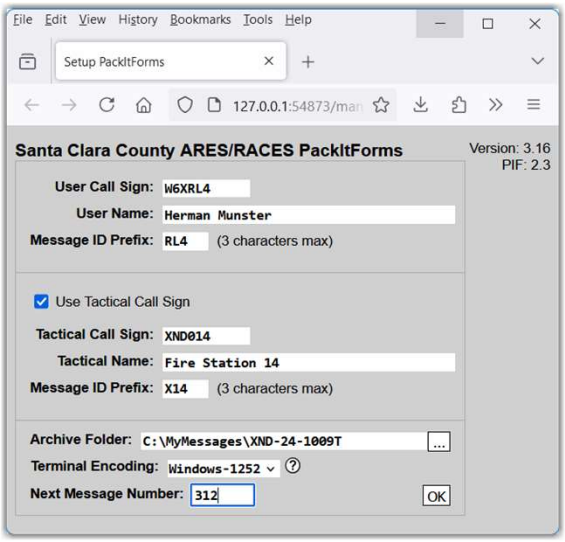
2. Set up manual PackItForm

Setup Page
Setup loads whenever you start up manual PackItForms.

3. Fill in or update all fields:
   - Your user information
   - Tactical Call information
   - Select your Archive Folder **(messages are saved here)**
   - Select Terminal Encoding
   - Next Message Number

FYI… The Next Message Number will increment automatically.

4. Press **OK** when done



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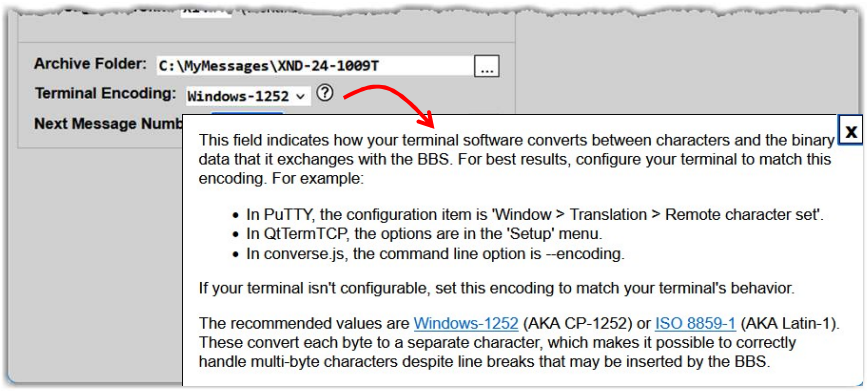
2. Set up manual PackItForm

Terminal encoding?

- Press the Terminal Encoding ⓘ help icon for details…



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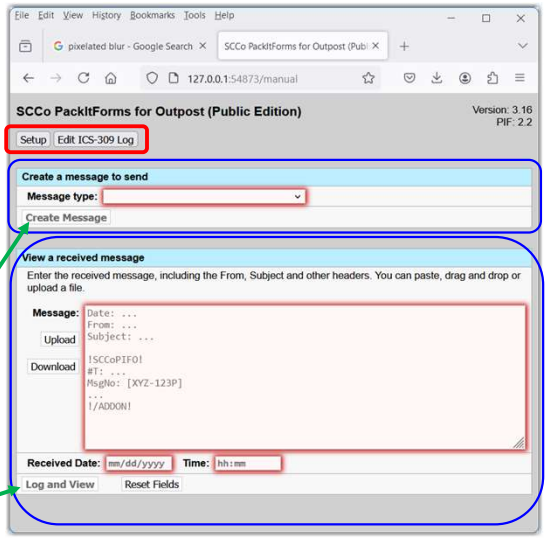
3. Pick and fill in a form

Home Page

Consists of 2 sections and a series of controls:

- **Setup button**: Opens the Setup page.
- **Edit ICS-309 Log**: lets you make updates to the manual ICS-309 Log.
- ***Create a message to send.*** Choose a PackItForm message, then press ***Create Message***
- ***View a received message.*** Paste in a received message, then press ***Log and View***



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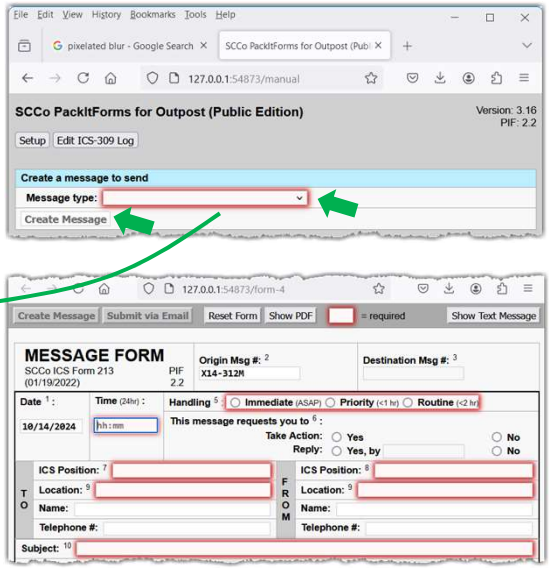
3. Pick and fill in a form

Home Page

5. From the dropdown menu, select a **PackItForm**,

```
plain text
XSC Check-In/Out Message
XSC ICS-213 Message
XSC EOC-213RR Resource Request
XSC OA Jurisdiction Status
XSC OA Shelter Status
XSC Allied Health Facility Status
XSC RACES Mutual Aid Request
```



then:

6. Press **Create Message**

The PackItForm opens with the usual fields filled in.

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3. Pick and fill in a form

Creating a message

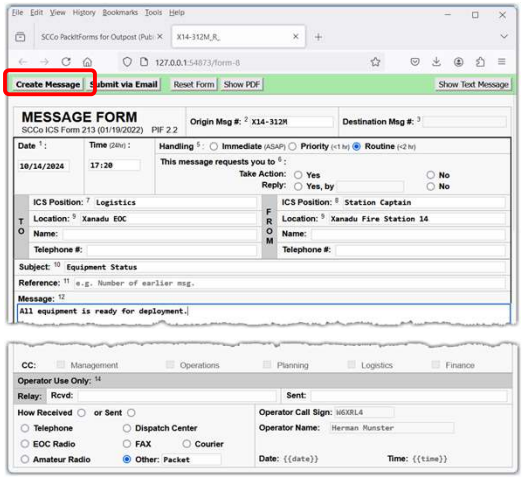
On the selected PackItForm,

7. Fill in the form as usual.

NOTE: The Message ID is set with the **M** suffix;

PackItForms takes care of this for you.

8. When done, press **Create Message**



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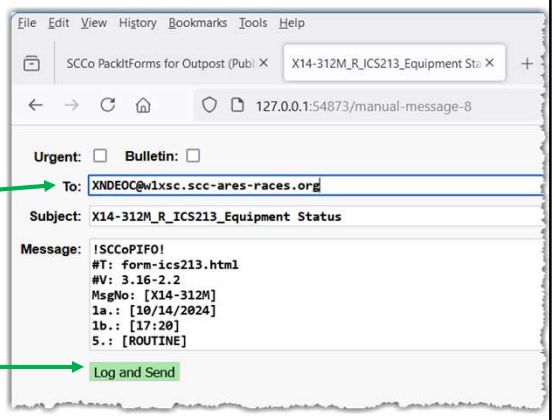
4. Create the packet message

Message Page

On the Message Page,

9. If needed, check the box if this message is **Urgent** ☐ or a **Bulletin** ☐.
10. In the **To:** field,
    - enter the Destination address
    - multiple addresses, separate with commas.
11. When done, press **Log and Send**



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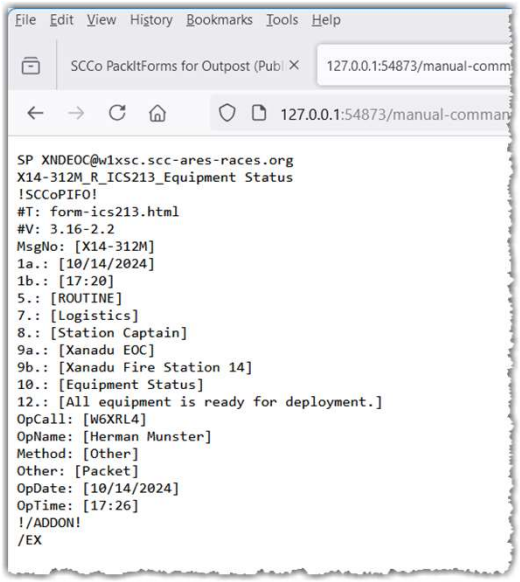
4. Create the packet message

BBS Command Page

The complete packet-ready text is ready for sending.

12. Copy the text. Put your mouse cursor in the text area, and then either:
    - From the browser menu, **Edit** > **Select All** **Edit** > **Copy**
      -- or enter --
    - **<ctrl>A <ctrl>C** (same as the menus)

Reminder: PackItForm creates a properly formatted Subject line… do not change this!



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5. Send the message

What are the Steps?

13. Make sure you previously copied the packet message from the **BBS Command** Page (previous page)
14. Start PuTTY
15. Connect to the BBS
16. Once at the BBS prompt:
    - Put the cursor in the PuTTY text area after the BBS prompt, and then
    - **M**ouse ***right-click*** to paste in the message.

    The complete packet-ready text is pasted into PuTTY and will start being transmitted to the BBS.

Reminder:
All SCCo BBSs have a 2-minute inactivity timer!

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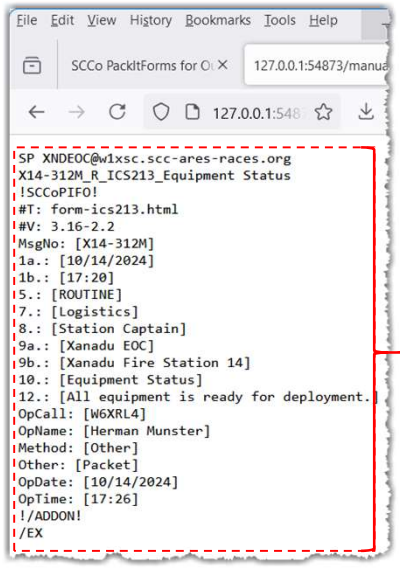
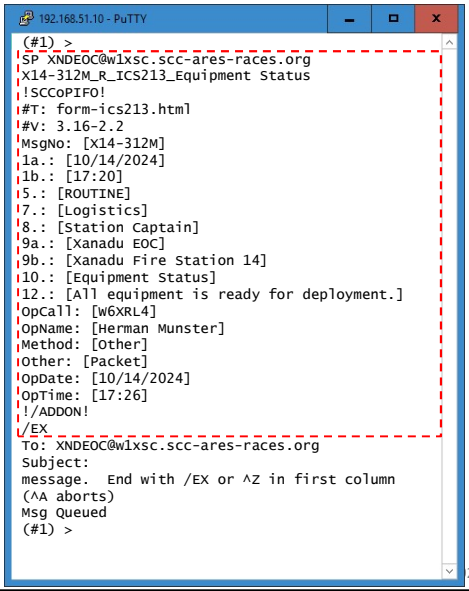
5. Send the message

BBS Command Page



PuTTY Screen



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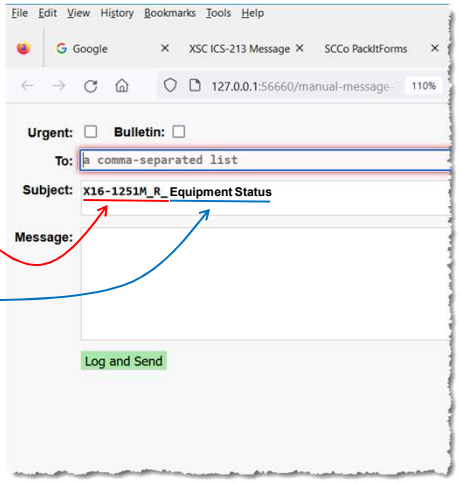
A note on manual plain text messages

- Yes, PackItForms does support manual Plain Text message sending and receiving.
- After picking plain text message from the **Home Page**, the **Message Page** opens up.
- Message ID and Handling order are filled in, DO NOT REPLACE THIS!
- Fill in…
  - To: destination packet address
  - the rest of the Subject text
  - Your plain text message
- Finally, press **Log and Send**
- The rest of the send process is the same.



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Manual PackItForm messages

Receiving messages

1. Receive messages from the BBS using PuTTY
2. Save the message
3. Once you have the message saved, delete the message off of the BBS (use the **Kill #** command)

Note: All SCCo BBSs have a 2-minute inactivity timer!

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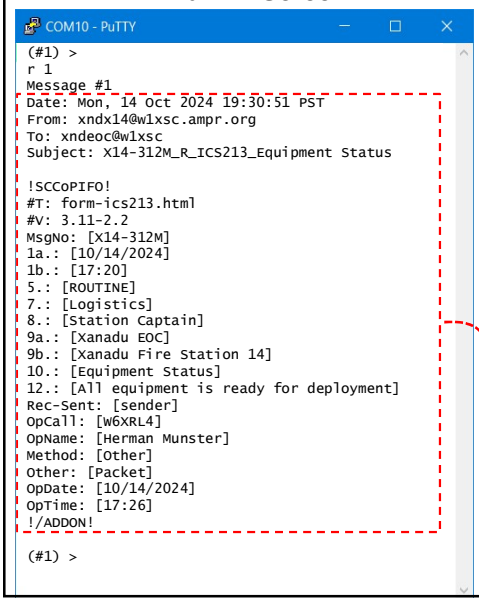
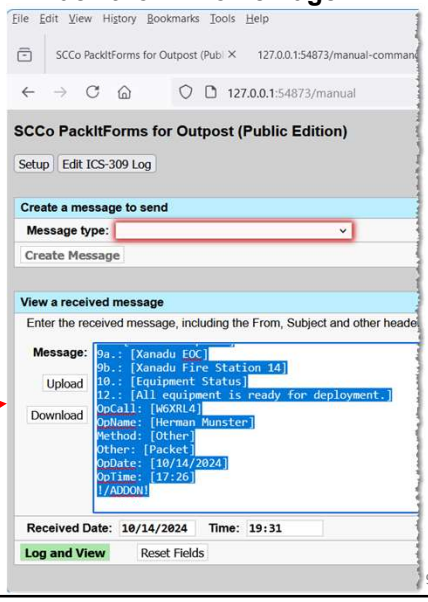
Receive manual messages

PuTTY Screen



PackItForm Home Page



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1. Receive a packet message

Suppose at XNDEOC… Outpost is not used.

1. Connect to the BBS with PuTTY and retrieve a message
2. List the message headers with **LM**
3. Read the message with **R #** (message number)

You recognize Message #1 is a PackItForm message

4. Highlight all text from **Date:** to **!/ADDON!** (inclusive)
   - In PuTTY, selecting text copies it to the clipboard

NOTE: This manual process handles both *PackItForms* and *plain text* messages. Both can be processed by pasting them into the Home Page.

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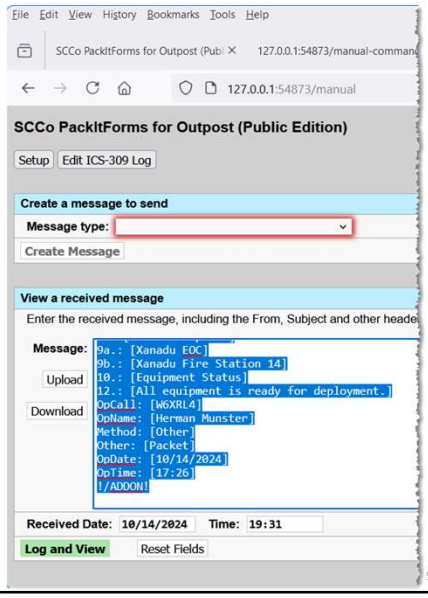
2. Recover the PackItForm message

Home Page

Back at the Browser, get back to the **SCCo PackItForms** tab

5. Put your cursor in the "View a received message" section and enter **<ctrl>V** or **Edit** > **Paste** to paste in the received message.

6. Press **Log and View**.
   - This entry is logged to the ICS 309
   - The received PackItForm is opened in its PackItForm.
   - A copy of the message is saved
7. Once the PackItForm is opened, print and hand it off for delivery.



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Sidebar: A Note on Outpost tags

- Messages sent from Outpost occasionally have "tags" inserted in messages that you might see.
- Some of the more common tags are:
  - !RRR! Request Read Receipt
  - !RDR! Request Delivery Receipt
  - !SCCoPIFO! This is a PackItForm message
  - !/ADDON! The end of a PackItForm or other Addon message
  - !UG! Mark message as urgent (lists as RED in the Outpost listing)

- PackItForms will ignore many Outpost tags that it sees and they will not show up in the message.

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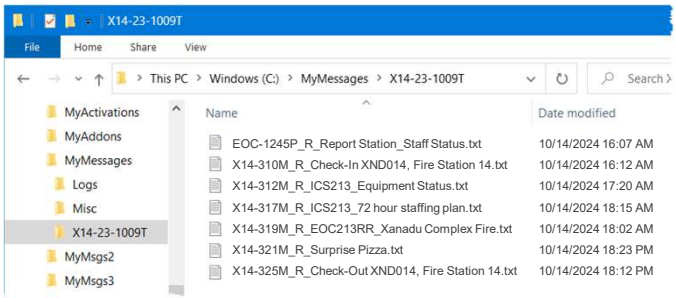
What about the saved messages?

- Take a look at your **C:\MyMessage\X14-24-1009T** manual message directory (or whatever you named it).
- The message's Subject field is used for the file name.
- Clicking on the "Name" column header sorts messages by file name.
- Clicking on the "Date Modified" column header sorts by file timestamp.
- These views can help with managing your messages.
- Submit a copy of this directory with your paperwork when done.



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What about the ICS 309?

- Manual PackItForms comes with its own ICS 309 Log, similar to what Outpost does.
- From the PackItForm **Home Page**, when you click on **Log and View**, you write a new ICS 309 Log entry for this message.
- From the PackItForm **Home Page**, when you click on Edit ICS-309 Log, you open the ICS 309 form for editing and printing.

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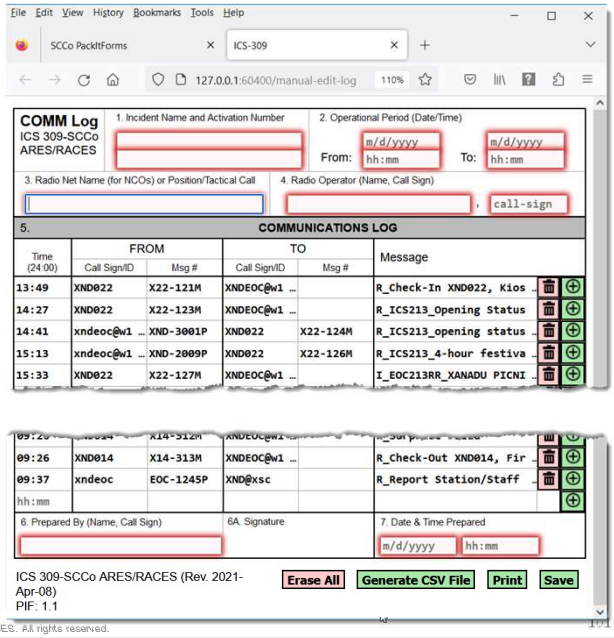
What about the ICS 309?

- All fields are editable.
- Required fields are highlighted in RED.

Deletes this line from the Comm Log

Adds another line as a manual entry.

- **Erase All** – clears the form. Also, **Undo Erase All** – restores the form.
- **Generate CSV File** – creates a .csv file of the Comm Log.
- **Print** – prints the Comm Log to the selected printer.
- **Save** – Saves any changes you made.



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Manual packet operations; not many changes

This is a ***tool change***, not a ***process change***

1. **First Shift…**
   a. Show up, request a safety and assignment briefing
   b. Find a workspace for your packet operations
2. **Initial station setup…**
   a. Find, assess, and set up the packet station
   b. equipment check-out
3. **Packet Operations…**
   a. Download notices, send yourself a test message
   b. Send the formatted check-in message with your Tac Call
   c. Manage the message flow
4. **Incoming Shift Change…**
   a. Request a safety and assignment briefing
5. **Outgoing Shift Change…**
   a. Archive the event documentation
6. **Securing Operations…**
   a. Send the formatted check-out message with your Tac Call
   b. Archive the event documentation
   c. Shutdown

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Amateur Packet Radio Field Reference, Type II

- Taking a quick look inside

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2.3 OTHER REFERENCES
3 MANUAL PACKET OPERATIONS
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3.2 BBS COMMANDS
3.3 CONNECTING TO THE TNC WITH PUTTY
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3.7 MANUAL MESSAGE BASICS
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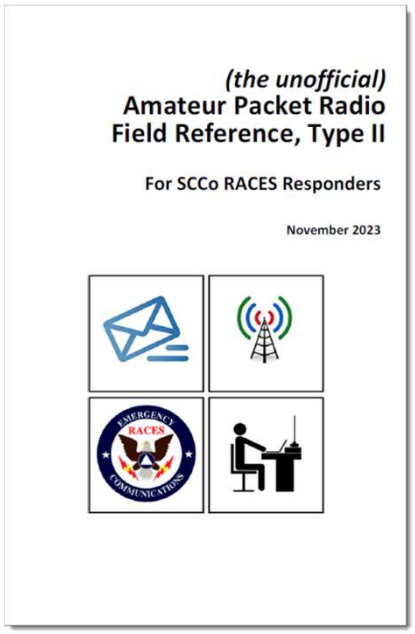
3.9 RECEIVING A PACKITFORM MESSAGE MANUALLY
3.10 VIEWING SAVED MESSAGES
3.11 NOTES ON MANUAL ICS 309 COMM LOG



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Could manual packet ops really happen to me?

- Better to be safe than sorry… Build your USB packet thumb-drive now!

- Directories (suggested)
  - x:\Programs
    - Putty installer (https://www.putty.org/)
    - Putty standalone executables (https://www.putty.org/ > Alternative binary files)
    - SCCo PackItForm Directory (C:\PackItForms\Outpost\SCCo)
    - SCCo Packet Installer - https://www.scc-ares-races.org/data/packet/client-software.html
    - SCCo PIFO-only Installer (<download_dir>\sccsetup163Cpub_includes\SccoPIFOsetup3.16pub.exe)
    - Office Libre Portable version (https://www.libreoffice.org/download/portable-versions/)
  - x:\SCC Notices
    - downloaded text version
    - Archive of the Outpost SCC Notices directory to reload if necessary
  - x:\TNC Init files
    - text version, seven total
  - x:\Miscellaneous
    - Pre-defined messages to be edited prior to sending
  - x:\MyMessages\<event>
    - Or whatever directory name you choose.

- x:\Docs
  - KPC3 TNC Manuals
  - County References… (https://www.scc-ares-races.org/data/packet/index.html)
  - JNOS References
  - Unofficial Packet Radio Field Ref, Type III
  - Unofficial Packet Radio Field Ref, Type II

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Questions?

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WRAP UP

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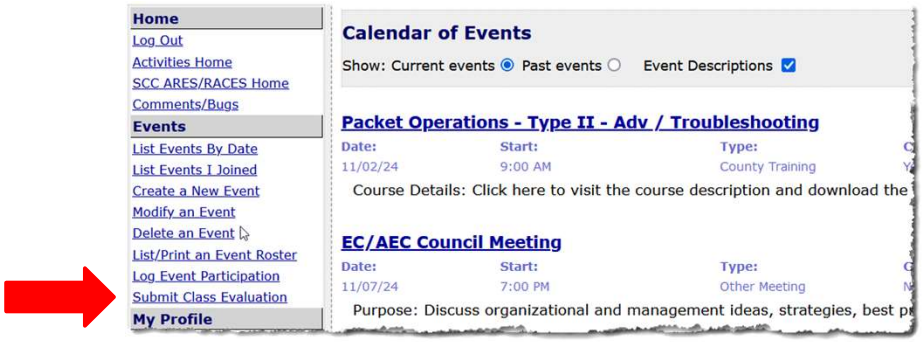
First things first

- Online Class Evaluation
  - Log into https://www.scc-ares-races.org/activities/events.php
    Click "Submit Class Evaluation" in Events



  - Submit your evaluation as soon as possible... after 1 week, the form will no longer be available for this class!

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Exercise Scenario

- You've been dispatched by the *Xanadu EOC* to provide communications for a field location.
  - Your tactical Number: ## (Assigned by your instructor)
  - Your tactical call: XND0## (Assigned by your instructor)
  - Your Message Prefix: X##
  - Your assignment Name: Xanadu Post ##

  Where "##" are the last two digits of your tactical call

  - Operate using your home city's primary or secondary BBS.
  - The EOC's tactical call is XNDEOC on W1XSC
- You arrive at your assignment and set up the station but discover that Outpost on the packet PC does not work! Looks like you need to do all packet operations manually.
- Your assignment was mailed to you ahead of time.

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Thank You!

Please complete the Course Evaluation
on or before next Saturday 9-November!

Please complete the Assignment
on or before next Saturday 9-November!

Office Hours:
Sunday, 3-November, 3:00p to 4:30p (zoom)
Wednesday, 6-November, 7:30p to 9:00p (zoom)

If you have questions or feedback about this or other training activities, you can join our packet discussion group.
https://scc-ares-races.groups.io/g/packet

Questions, comments, suggestions?
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