



# Packet Type III

## Part A



Santa Clara County ARES®/RACES  
Last Updated 21 June 2023

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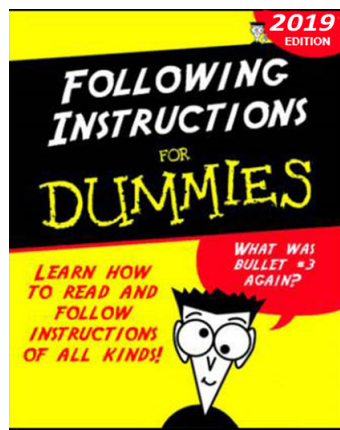
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## HOUSEKEEPING

- Introductions
- Pen/pencil & paper
- Cell phones
- Side conversations
- Questions
- Corrected Handouts
- Breaks
- Restrooms (code: 9033)
- In case of emergency
- No wandering or exploring other areas of the building.



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## 1. OVERVIEW

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## Overview: Packet Classes

### Packet Type III, Part A

- Packet Operator Credentials
- 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:

- Describe the purpose and use of packet communications
- Describe the Santa Clara County BBS network
- Describe the components of the baseline packet station
- Describe the Outpost and PackItForms software and their basic use

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## Agenda

- Packet Operator Credentials
- Packet Network Overview
  - What is packet? Why do we use it?
- Packet Network Components
  - SCCo BBSs, other networks, antennas, radios, TNCs, PCs, printers
- Baseline Packet Station: hardware & software
- Accessing the Network
- Standard Workflow
- Homework Intro

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## 2. PACKET OPERATOR CREDENTIALS

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## Packet Operator Type III



- Capabilities and services offered
  - Fully independent operator
  - Set-up an existing, pre-installed packet system that is currently disconnected and stored
  - Turn everything on and verify connectivity
  - Operate a PC that has Outpost and PackItForms already pre-installed
  - Configure Outpost options to the county standard
  - Operate a packet station to send, receive, print, log and track packet messages
  - Send 7 standard PackItForm messages (Check-In/Out message, ICS 213 Message, ICS 213RR Resource Request, OA Jurisdiction Status, Shelter Status, Allied Health Status, RACES Mutual Aid Request)

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## Packet Operator Type III

A green square icon with the white text 'P3' inside.



- Typical Assignments
  - Locations with low-to-medium traffic and pre-installed packet station
  - Small city EOC
  - Small staging area
  - Small aid station
  - Shelter
  - Health facility
  - Point of Distribution/Dispensing site

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## Packet Operator Type II, Type I

- Packet Operator Type II = Advanced OperatorA green square icon with the white text 'P2' inside.
  - Perform the tasks of a Packet Operator III
  - Equipped with a complete packet station
  - Able to install Outpost and PackItForms
  - Able to send messages, including PackItForms without Outpost
  - Medium to high traffic conditions
- Packet Operator Type I = Specialist OperatorA green square icon with the white text 'P1' inside.
  - Capable of the most complicated, highest traffic levels
  - Capable of designing, deploying, operating and coordinating complex multi-radio, multi-band, multi-node packet networks for larger events or incidents
  - Set-up, manage, and troubleshoot a packet BBS
  - Equipped for and capable for out-of-county and extended deployments

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## For more information...

### Credentialing Program

- Program Information

<https://www.scc-ares-races.org/credentials>

- Discussion group

<https://www.scc-ares-races.org/discuss-groups.html>

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What is packet radio? Why do we use it?

## 3. PACKET RADIO OVERVIEW

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## What is Packet Radio?

- One of many digital modes available in Amateur Radio
- Transmitted information is error free!
- AX.25; based on the X.25 protocol, with Amateur Radio features
- Sends a “packet” of data at a time: envelope + payload
  - Differs from character-at-a-time modes (PSK31 or RTTY)
  - Envelope contains header at beginning & checksum at end



- Header contains addressing information (to, from)
- Payload contains the data to be sent
- Checksum used to determine if packet was received error-free... the error check
- Typically operates at 1200, 9600 baud on VHF & UHF and 300 baud on HF

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## Why Packet Radio?



- It's fast
  - When there is no Internet, it's fast!
  - ~15 times faster than voice
  - 80+ messages sent/received, logged, acknowledged, printed in triplicate, perfectly legible, in < 2 hrs, with 0 errors, by 1 person!
- It's easy
  - Hardware: pre-built cables; straight-forward connections
  - Software: if you can use e-mail, you can use Outpost
  - Procedures: extensive documentation on the website
- It's deployable
  - Virtually anywhere in the county and most of surrounding counties
- It fits our served agencies' needs and workflow
  - Preferable for long, complex, and/or high-volume messages; forms; message numbering; explicit acknowledgments, logging, tracking

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## Why Use Packet Radio?

- Packet is ideal for passing complex messages
  - Lists of information
  - Addresses
  - Instructions
  - Complex words  
“turboencabulator”, “thymidylate synthetase”
- Messages are transmitted accurately
  - Originator can verify contents before it is sent
  - Reduces transcription errors
- Messages are transmitted quickly
  - Keeps the voice channel clear



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## Typical Message Content

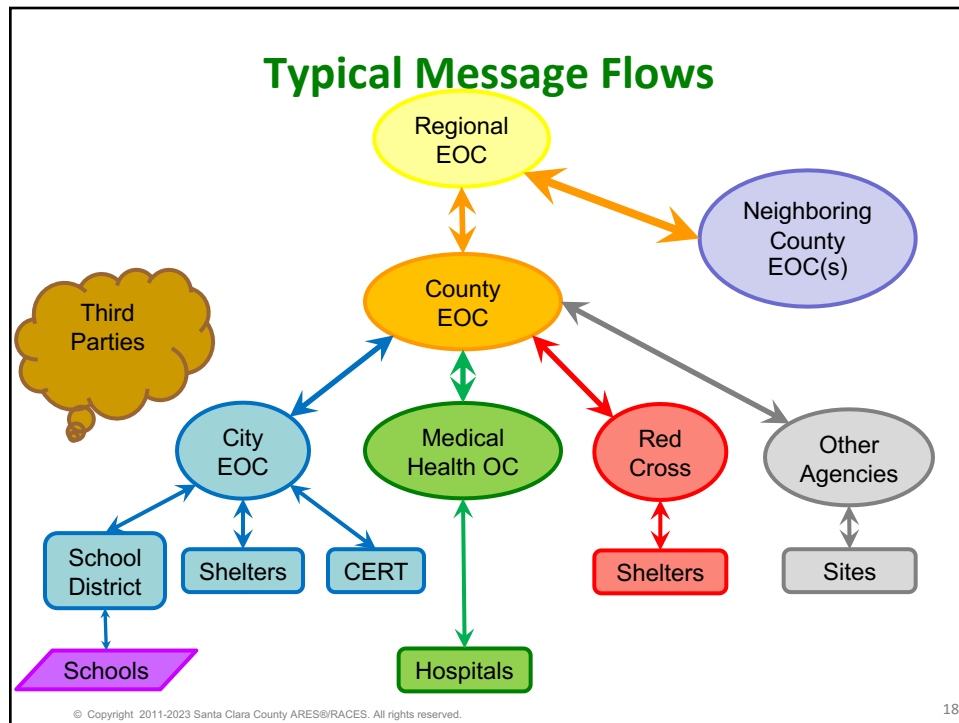
- Unstructured Text (informal message)
  - Check-ins, and -outs
  - Health and Welfare
  - Simple text messages
- Forms
  - Status
  - Resources
  - ICS 213
  - Others.....
- Structured Text
  - Lists
  - Addresses
  - Tables



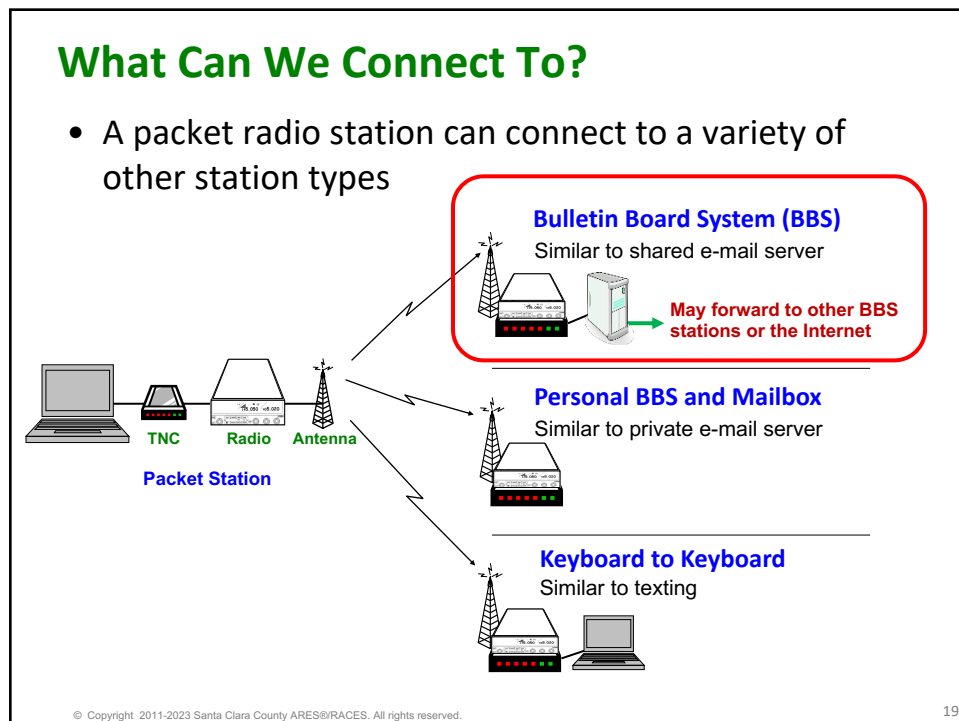
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High level overview

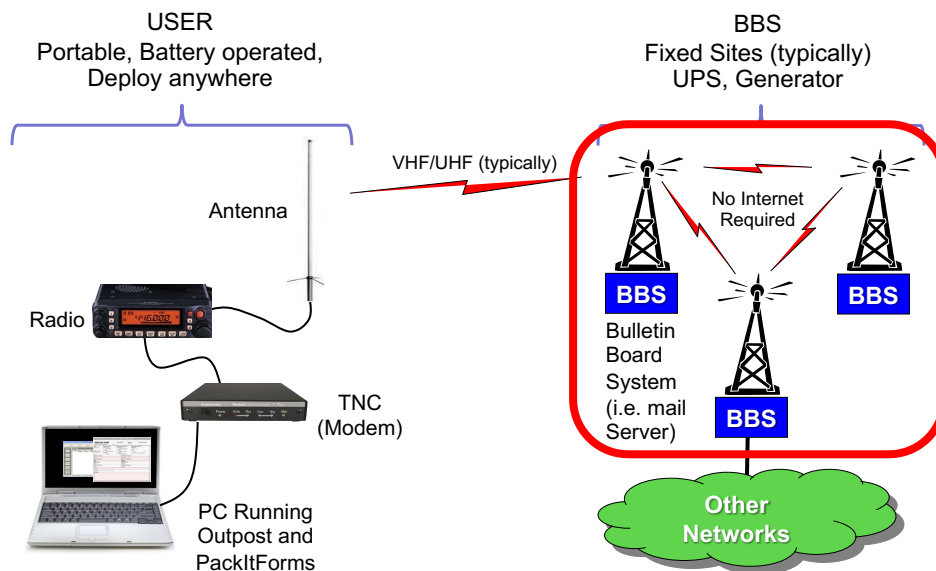
## 4. PACKET NETWORK COMPONENTS

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## Typical Packet Network Components

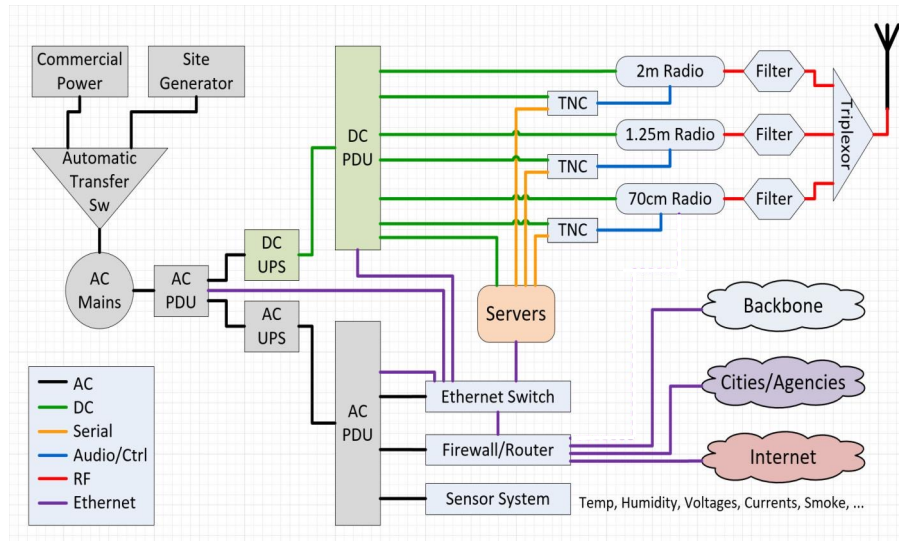


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## Typical SCCo BBS Block Diagram



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## Typical SCCo BBS Installation



## Cavity Filters

## Sensor System

KB/Mouse/Display

## Routers

## Ethernet Switch

- Firewall

Wi-Fi PoE

Server(s)

Radios

## Radios

### Power

Power Dist/Control

## AC & DC UPS

All strapped or bolted down



Commercial installation standards,  
shielding, frequency coordination



No moving parts (fanless)  
Mirrored SSD storage  
Commercial temp range (120F)

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Typical Sensors and Alarms

Summary

Internal Sensors					
No.	Description	Type	Value	Status	Action
1	Internal Temperature	Temperature	61.5°F	Normal	<a href="#">View</a> <a href="#">Edit</a>
2	Internal Humidity	Humidity	25%	Normal	<a href="#">View</a> <a href="#">Edit</a>
3	Inout Voltage	Voltage	13.6V	Normal	<a href="#">View</a> <a href="#">Edit</a>

Sensors

Conn.	Description	Type	Value	Status	Action
1	<a href="#">Thermostat Temp (TH1)</a>	Temperature	76.4°F	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
1	<a href="#">Thermostat Humidity (TH1)</a>	Humidity Combo	26%	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
2	<a href="#">Room Temp (TH2)</a>	Temperature	80.1°F	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
2	<a href="#">Room Humidity (TH2)</a>	Humidity Combo	23%	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
3	<a href="#">Cabinet Temp (TH3)</a>	Temperature	80.3°F	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
3	<a href="#">Cabinet Humidity (TH3)</a>	Humidity Combo	25%	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
5	<a href="#">Mains AC Vols (ACL1.1)</a>	ACLM-V AC Voltage	120.6V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
5	<a href="#">Mains AC Freq (ACL1.1)</a>	Frequency	60.1Hz	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
5	<a href="#">Inverter AC Vols (ACL1.2)</a>	ACLM-V AC Voltage	123.4V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
5	<a href="#">Inverter AC Freq (ACL1.2)</a>	Frequency	60.1Hz	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
9	<a href="#">DC UPS Batt1 Vols (DCL1.1)</a>	Voltage	13.6V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
9	<a href="#">DC UPS Batt2 Vols (DCL1.2)</a>	Voltage	13.6V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
10	<a href="#">AC UPS Batt1 Vols (DCL1.3)</a>	Voltage	13.6V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
10	<a href="#">AC UPS Batt2 Vols (DCL1.4)</a>	Voltage	13.6V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
11	<a href="#">DC UPS Load Vols (DCL1.5)</a>	Voltage	13.6V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
11	<a href="#">AC UPS Load Vols (DCL1.6)</a>	Voltage	13.6V	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>

Digital Inputs

Conn.	Description	Type	Value	Status	Action
8	<a href="#">Smoke</a>	Digital Input	0	Normal	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>

IP Devices

No.	Description	Type	Value	Status	Action
1	<a href="#">NFE Primary WAN IP</a>	IP Device	192.168.1.1	Responding	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
2	<a href="#">W2XSC-GW</a>	IP Device	192.168.1.2	Responding	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
3	<a href="#">W4XSC-GW</a>	IP Device	192.168.1.3	Responding	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
4	<a href="#">CPK-FPK-B1</a>	IP Device	192.168.1.4	Responding	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
5	<a href="#">WHD-CPK-B2</a>	IP Device	192.168.1.5	Responding	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>

IP Sensors

No.	Description	Type	Value	Status	Action
-----	-------------	------	-------	--------	--------

Report on JNOS forwarding failures for WDXSC from /opt/jnos/utills/check-fwd-failed on Thu Jan 21 01:00:01 PST 2016

Log filename = /opt/jnos/logs/nos.log

Default Match string = ' fwd failed - '

Additional match string = ' DM received '

3 matching log file line(s) found:

Wed Jan 20 17:40:21 2016 - MBOX (n6zx-4) fwd failed - DM received error

Wed Jan 20 21:41:22 2016 - MBOX (n6zx-4) fwd failed - DM received error

Thu Jan 21 00:41:51 2016 - MBOX (n6zx-4) fwd failed - DM received error

End of Report.

Room Temp (TH2) Status

Type: Temperature Combo Connector: 2

80.2°F

40°F 22.5°F 185°F

Status: Normal

Handle Alert: [Dismiss](#) [Apply Changes](#)

Last alert was at: 12-20-2015 07:44:09 AM N/A

Highest Reading: 12-01-2015 08:38:07 PM 83.1

Clear Records

Configure

54:00 56:00 58:00 10:00 12:00 14:00 16:00 18:00 20:00 22:00 24:00 26:00 28:00 30:00 32:00 34:00 36:00 38:00 40:00

Typical Access Connectivity

The diagram illustrates the access connectivity for a W#XSC Site. On the left, four yellow cloud shapes represent different access methods: 2m Access (1200 baud AX.25), 1.25m Access (1200 baud AX.25), 70cm Access (1200 baud AX.25), and Wi-Fi Access (N\*Mbps TCP/IP). These are all connected to a central grey box labeled 'BBS'. The BBS is then connected to a green cloud shape labeled 'Site Network'. The Site Network is connected to a green rounded rectangle labeled 'Connect to other sites via SCCo ARES/RACES High Speed TCP/IP Network'.

Key Points:

- Low speed packet access allows countywide, non-line of sight coverage
- Higher speed TCP/IP access available where line of sight exists

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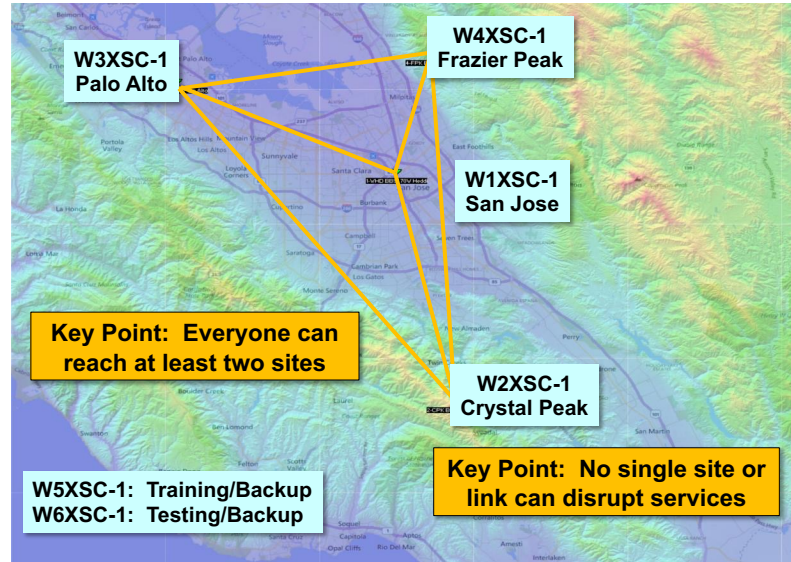
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## WnXSC BBS Locations

*Redundant Sites; Redundant Links*



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## Which BBS Should I Use?

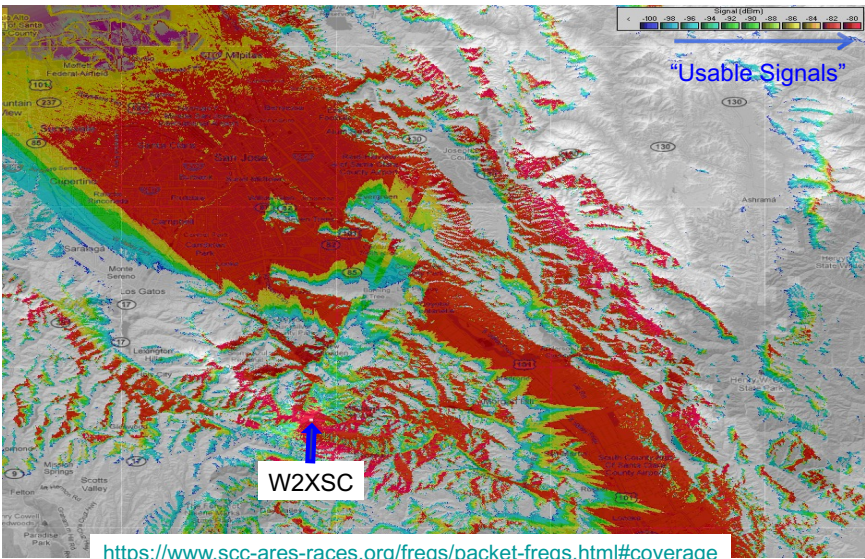
- Every city/agency has a primary and secondary BBS
  - Based on RF coverage and user load
  - All users in that city/agency should use those BBS's
- Use the primary BBS whenever possible
- If the primary is not available, use the secondary
- If the primary and secondary are not available, use whatever you can reach

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Coverage Maps Available On The Web



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Primary & Secondary BBSs

- Primary and Secondary BBSs are listed on the website

#	Agency	Prefix	Primary BBS	Secondary BBS
Santa Clara County Cities and Agencies				
1	American Red Cross	ARC	W1XSC	W4XSC
2	CAL FIRE VIPs - Santa Clara Unit	SCU	W2XSC	W1XSC
3	Campbell, City of	CBL	W1XSC	W4XSC
4	Cupertino, City of	CUP	W1XSC	W4XSC
5	Gilroy, City of	GIL	W2XSC	W1XSC
6	Hospitals (all SCCo) & DEOC	HOS	W2XSC	W1XSC
7	Loma Prieta Region	LMP	W2XSC	W1XSC
8	Los Altos, City of	LOS	W3XSC	W1XSC
9	Los Altos Hills, Town of	LAH	W3XSC	W1XSC

<https://www.scc-ares-races.org/freqs/packet-freqs.html>

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## BBS Call Signs and Frequencies

- BBS access frequencies are also listed on the website

Call Sign	AX.25	User Access	BBS-BBS	Location
W1XSC	W1XSC-1	145.750, 223.620, 433.570		Santa Clara Co Office Bldg (San Jose)
W2XSC	W2XSC-1	145.730, 223.560, 433.590		Crystal Peak (South County)
W3XSC	W3XSC-1	144.310, 223.540, 433.450		Palo Alto
W4XSC	W4XSC-1	145.690, 223.600*, 433.550	223.600	Frazier Peak (above Milpitas)
W5XSC	W5XSC-1	varies	varies	Training, events, backup
W6XSC	W6XSC-1	varies	varies	Testing, backup

- Recommendation
  - Individuals use 2m or 440 access ( more readily available equipment)
  - EOCs use 220 access (less congested)
  - Download and print this listing for your Go Kit
  - Check web site and bulletins for changes

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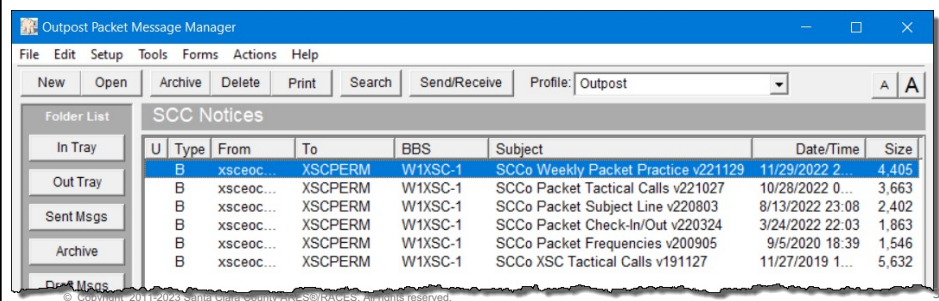
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## BBS information on packet

What if the web site is not available?

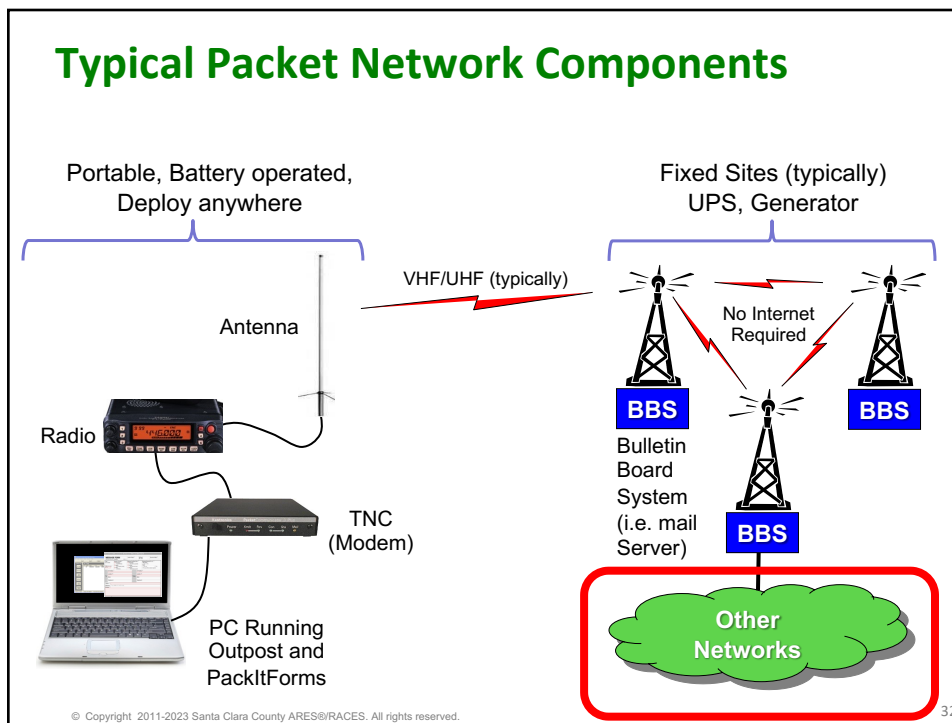
- The same information is also posted in a notice on all BBSs
  - Currently located in the “xscperm” area.
- Keep a copy in your Outpost “Archive” folder or create a “XSC Notices” folder
- Post it at your EOC or packet operating position



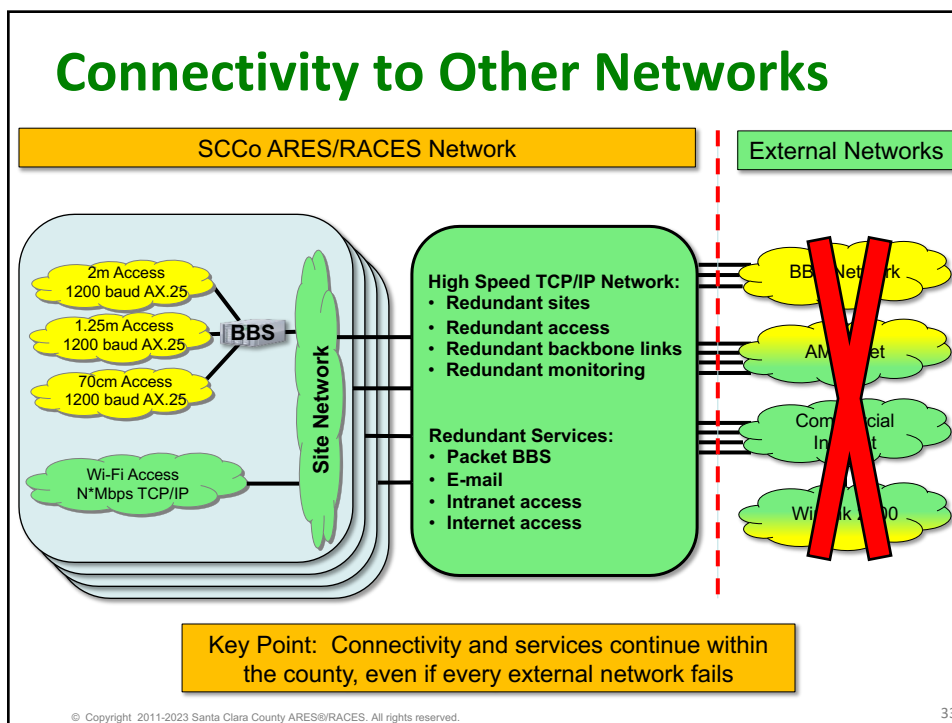
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## Designed for harsh conditions

- January 2020: winter conditions on Crystal Peak (3600 ft ASL)... about 6 to 8 inches of snow
- Some sites experience high winds (100+ MPH), freezing conditions (including snow and ice), high temperatures (when A/C fails), power outages, or worse
- Conditions may make sites inaccessible for days or even weeks.
- Regardless of the situation, the network has to keep running or it won't be useful in an emergency
- This influences everything we do:
  - Station design (redundancy), equipment selection
  - Hardware installation standards, software configuration practices
  - Monitoring and alarms



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## "When All Else Fails"

- 2016 Loma Fire
- Failure on top of failure
  - Commercial power failed
  - Generator at radio site failed
  - Roads closed; no access to site to bring backup generator
  - Internet service provider networks failed
  - Most private communications systems failed
- Santa Clara County ARES/RACES network continued to run
  - Provided temp, humidity, smoke sensor info to other site tenants
  - Used to send/receive Internet email while ISP networks were down



Source: NBC

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## 6. Typical Packet Network Components

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## Packet Station Components (Details)

**Santa Clara County ARES®/RACES**

Home Services Operations Data Training & Events Reference About June 21, 2023

**Network Access using AX.25 over VHF/UHF Amateur Radio**

Overview | Services | Connect | Equipment | Resources

**Overview**

AX.25 is a protocol based on the X.25 protocol and uses amateur radio call signs for addresses. It is efficient for low bandwidth, lossy environments, such as VHF/UHF radio. This makes it ideal for access to the packet BBS network from anywhere in Santa Clara County. The use of VHF/UHF radio means RF coverage throughout the county is good enough for most locations to reach at least two of the packet BBS systems.

**Accessible Services**

AX.25 over VHF/UHF Amateur Radio can be used to access the following SCCo ARES/RACES service:

- Packet BBS Service
  - User Access: Users can connect to the packet BBSs using one of the VHF radio channels allocated for user access.
  - BBS Forwarding: Other packet BBSs can connect to the SCCo BBS network using AX.25 on a radio

- Detailed information is available to help select each component of your packet station

**Equipment and Software**

- AX.25 over VHF Station Configuration Diagram (PDF)
- Consider the following when building an AX.25 (packet) over VHF radio station:
  - City/Agency EOC/DOC Equipment
  - Antenna
  - Feedline
  - Lightning Arrestor
  - Radio
  - TNC
  - USB-to-Serial Adapter
  - Computer
  - Printer
  - Software
  - Network
  - Power
  - Make sure your station helps to reduce/eliminate the "hidden node" problem

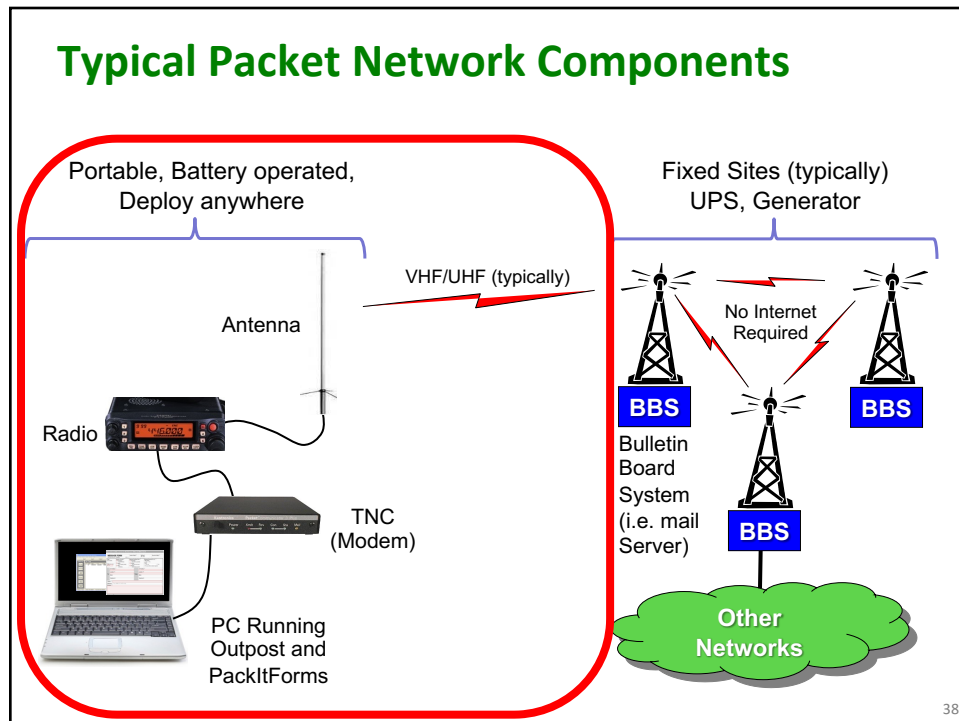
<https://www.scc-ares-races.org/data/access/ax25-vhf/ax25-vhf-access.html>

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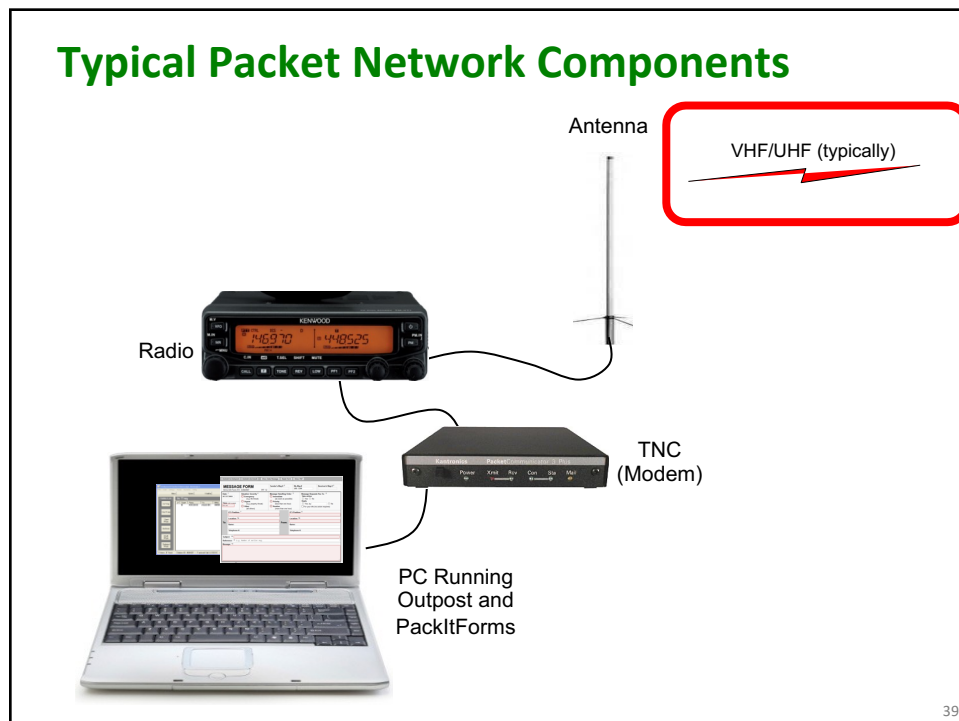
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## Access Frequencies

- Access is simplex with no tone
- 2m band access
  - User access; typically individuals, some EOCs
- 1.25m (220) band access
  - User access; typically EOCs, some individuals
- 70cm (440) band access
  - User access; typically individuals, some EOCs
- Advantages:
  - Simple antennas such as J-pole
  - Line of sight not required; county-wide coverage
  - But remember... do not be a “hidden node”

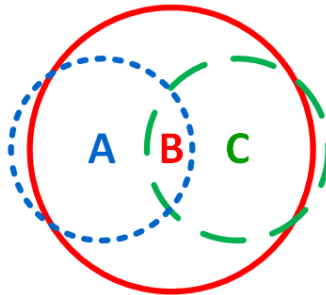
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## Hidden Node Problem

- Affects ALL simplex communications (voice, packet, Wi-Fi, CW, ...)



- If: A & B can hear each other, and B & C can hear each other, but A & C cannot hear each other ...
- Then: A will transmit while C is transmitting (and vice versa), causing B to hear a “double”, which causes retries and slows down the channel for everyone

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## Hidden Node Solution

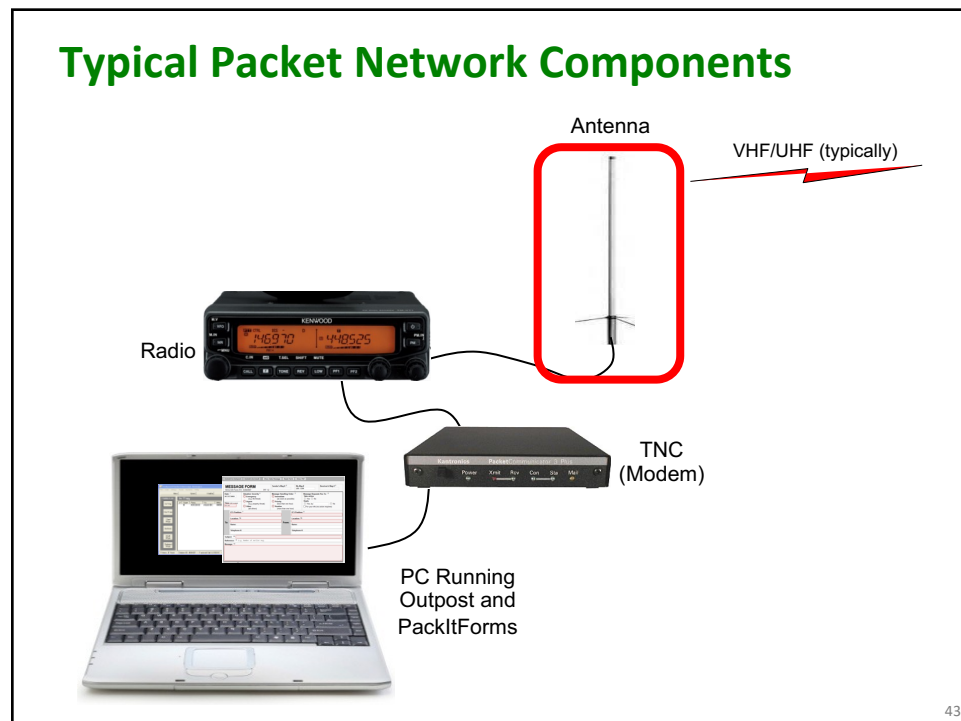
- Solution: don't be a hidden node!
  - Make sure your signal is heard by EVERYONE that is using the same BBS (multiple cities)
- Get your antenna up high
  - High enough that your signal is heard by as many people using the same BBS, as possible
- Use plenty of power
  - Enough that your signal is heard by as many people using the same BBS as possible

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## Typical Packet Network Components



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## Antennas

- Get your antenna up high
- Home or EOC installation recommendation:
  - Tri-band ground-plane mounted on a tower or a mast above the roof
- Go Kit recommendation:
  - Roll-up j-pole antennas for 2m/440 and 220
  - 32 ft collapsible fiberglass windsock mast
    - Collapses to < 4 feet; weighs just a few pounds
    - Gets antenna above all 1-story and many 2 story buildings
  - Tripod with sandbags to support mast in wind
  - 50 feet of quality coax

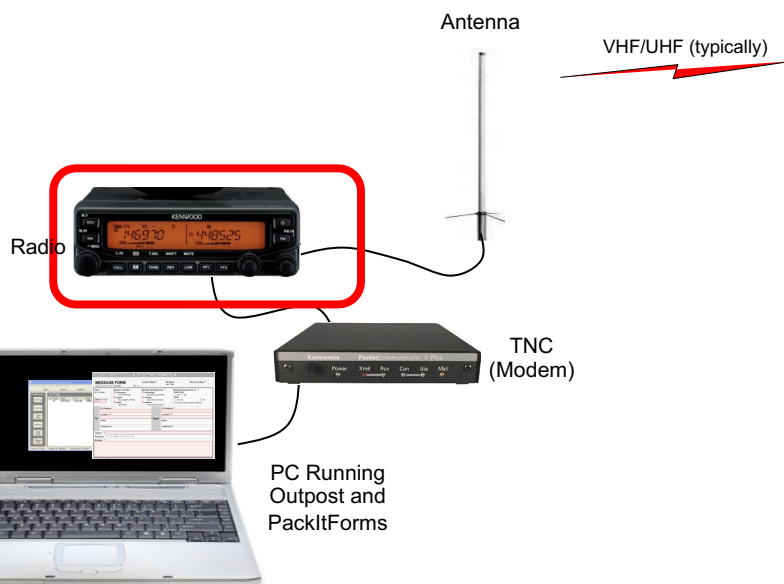


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## Typical Packet Network Components



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## Radios

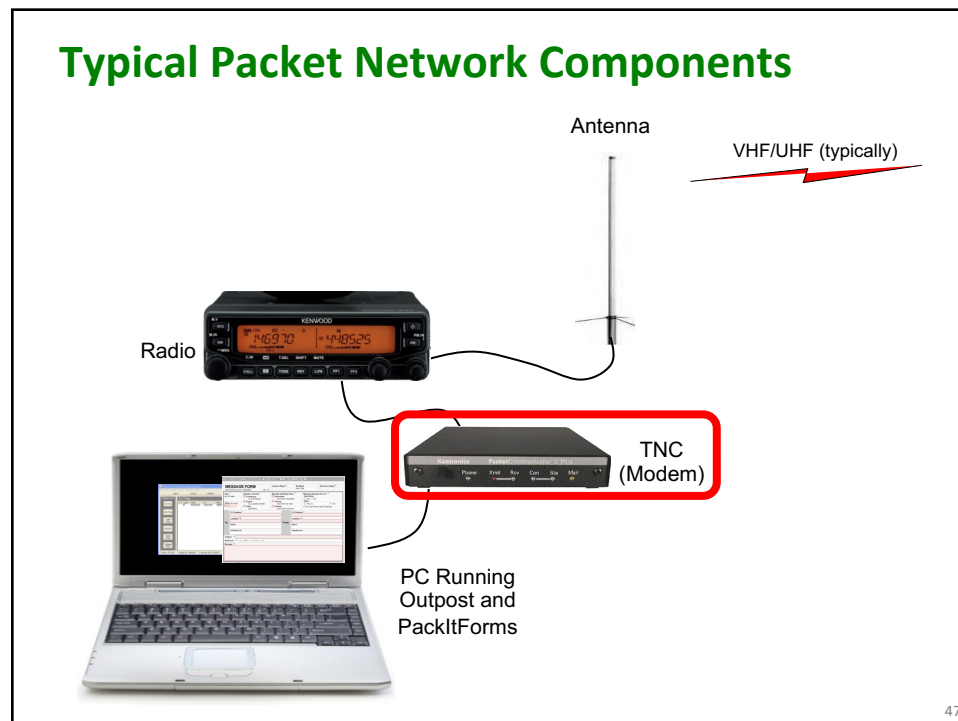
- Use plenty of power (25 to 50 Watts)
- Recommendation:
  - Mobile radio with 25 or more Watts of output
  - Data connector on back (usually 6-pin DIN)
    - Consistent audio levels between radio and TNC; unaffected by volume control
    - Allows operator to listen to speaker while operating
  - Dual receive – allows simultaneous monitoring of voice channel
- What about an HT?
  - Yes, it will work, BUT you will be a hidden node to everyone except your next door neighbors!
  - May be OK for hobby time or experimentation when the frequency is not busy (how would you know?), but will cause problems during real EmComm deployments.

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## Typical Packet Network Components



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## Terminal Node Controller (TNC)

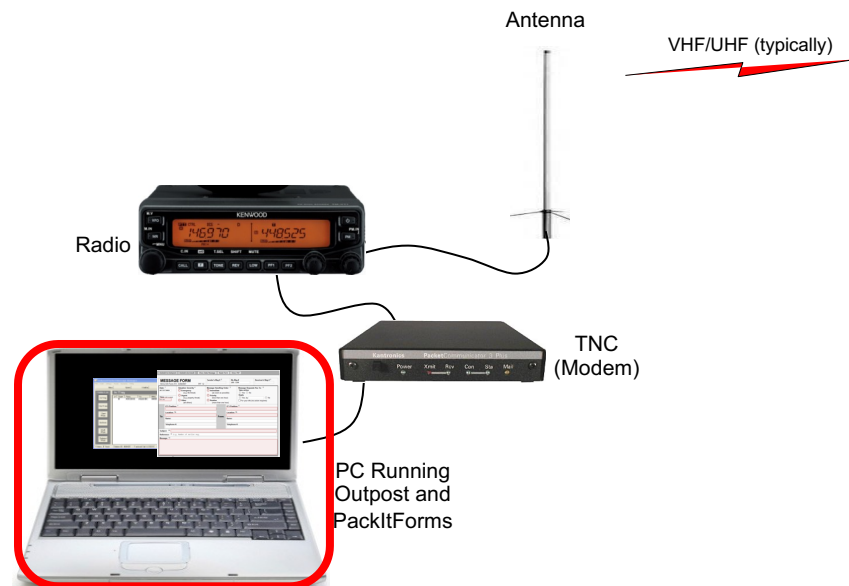
- Reliable, consistent, out of the box operation needed
- Hardware TNCs preferred
  - County BBSs make extensive use of Kantronics KPC 3+ TNC
  - KPC 3+ has other features, such as:
    - Personal BBS, digipeater, node
    - Command line interface (Outpost not needed)
- What about software TNCs?
  - Yes, they will work
  - HOWEVER, experience shows they are finicky to set-up and operate; good for personal use or hobby work
  - But, not recommended for EmComm work

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## Typical Packet Network Components



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## PC

- Characteristics
  - Must run a current version of MS Windows
  - Screen must be big enough to read and fill in large forms easily
  - Keyboard must allow for easy, reliable typing
  - Battery runtime of at least 1 hour
- Recommendation
  - Laptop or larger netbook running at least Windows 10 (end of W8.1 extended support... January 10, 2023)
- What about tablets?
  - As long as it runs Windows and has an external keyboard and mouse. But most people find the screen sizes too small for extended use.
- What about Linux or MAC?
  - Not recommended. The software we use runs on Windows. Running a virtual machine or emulator just complicates things. Experience has shown that people who try this struggle to make it work effectively.

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Required for Type III Qualification

## 7. ASSEMBLING A PACKET STATION

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## Type III Scenario

**W6XRL4, this is Xanadu  
EOC**

**This is W6XRL4, go ahead**

**W6XRL4, please deploy to  
Xanadu Community  
Hospital and set up the  
on site packet station.  
Tactical call is XNDHSP.  
Do you need directions?**

**Acknowledged. I know  
the location and will  
deploy immediately.  
W6XRL4**

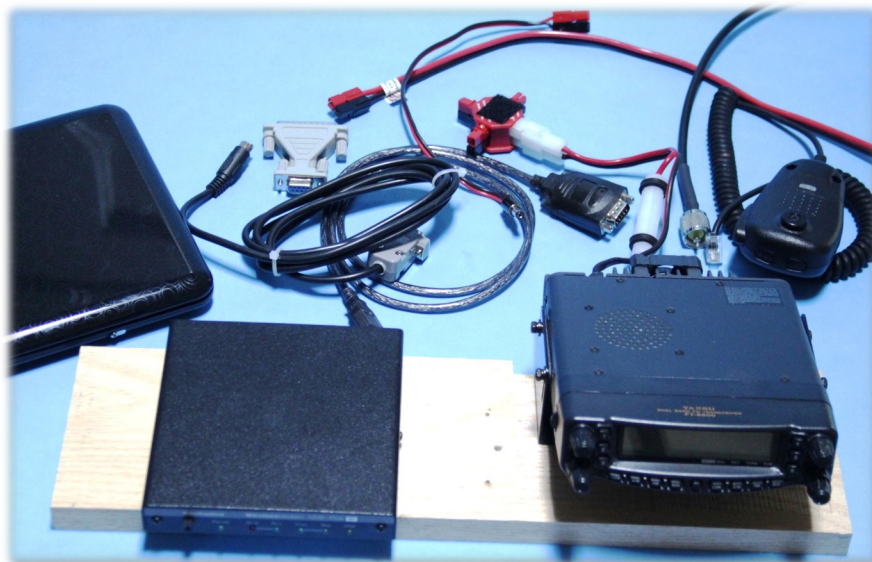
**Xanadu EOC**

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## “Thinking outside the box”



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## But first, what's in the box? (partial list)

<b>Radio</b>	2m, 220, 440, 25-50W Power Cable, adaptors 12VDC Microphone
<b>Antenna</b>	2m, 220, 440 roll-up J-Pole Mast, tripod, straps, sandbags, etc. 50ft of Coax
<b>TNC</b>	KPC-3+ Packet Communicator <i>RS232 Serial</i> cable to PC; 25pin/M to 9pin/F, or USB (newer KPC's) <i>Custom</i> cable to Radio; 9pin/M to <whatever_your_radio_has> Cable to 12VDC
<b>Laptop, PC</b>	Windows PC USB-to-Serial Adaptor (older KPC3's) or USB cable Power adaptor Mobile Printer
<b>Power</b>	Battery or Power Supply Splitter, jumper cables

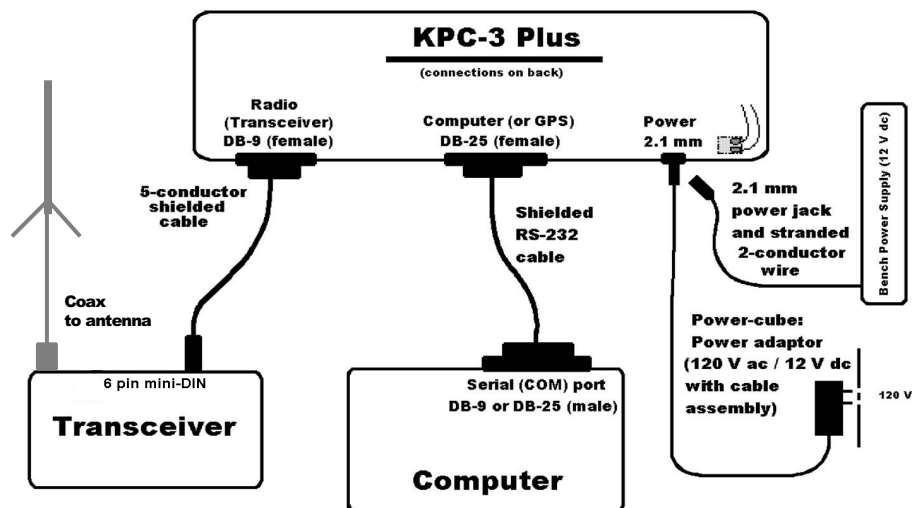
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## Building The Packet Station

### KPC3 Plus / Serial Connector



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## Connect TNC to PC

*KPC3+ Serial port version*



- KPC-3+ serial port has a DB-25 connector
  - DB-9 adapter may be needed
- Standard RS-232 serial cable; with USB-to-Serial for newer PCs
- **Caution – The Radio connector is a DB-9 !**
  - PTT, Transmit audio, Received Audio (NOT RS-232!)

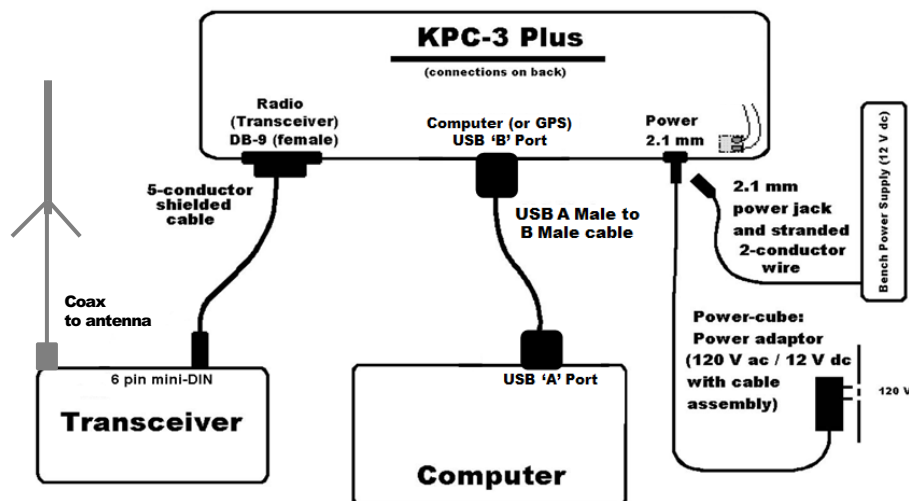
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## Building The Packet Station

**KPC3 Plus / USB Connector**



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## Connect TNC to PC

*KPC3+ USB version*



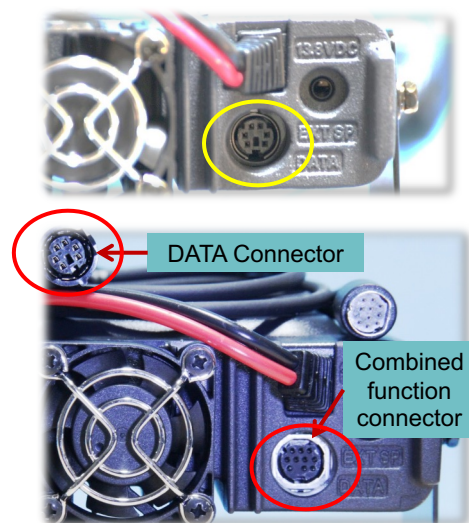
- KPC-3+ USB port is a 'B' connector
- No longer requires a separate USB-to-Serial adaptor (FTDI USB chip is built in); **BUT...** not the case for other TNCs
- **Caution – The Radio connector is a DB-9 !**
  - PTT, Transmit audio, Received Audio (NOT RS-232!)

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## Connect TNC to Radio



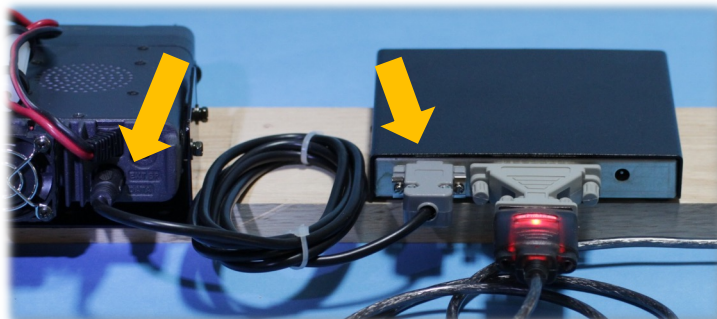
- Most radios have a dedicated 6 pin mini-DIN DATA connector
- Some have a combined 8 pin mini-DIN connector and a breakout cable
  - **Best Option!!**
- Otherwise, you will use the speaker and mike connectors

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## Connect TNC to Radio



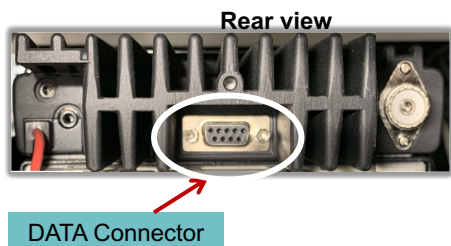
- KPC-3+ has a DB-9 connector
- Radio will have a dedicated “data” connector for packet
  - 6 pin mini-DIN
  - May have to use mic connector and external speaker

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## A note on the Alinco radios for packet



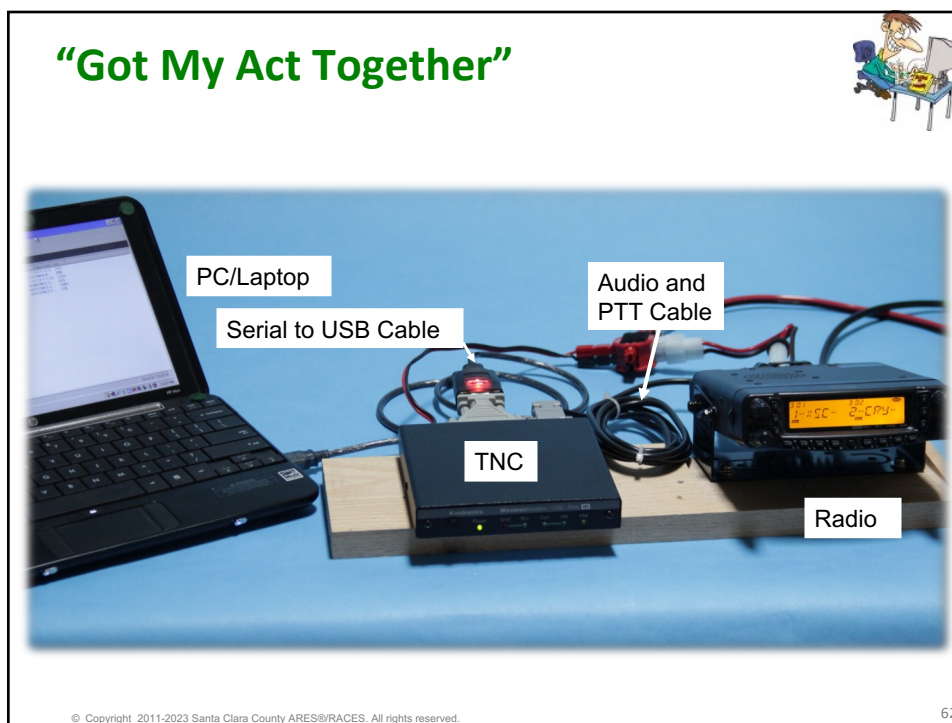
DATA Connector

- Alinco DR-135T (2m), DR-235T (220) and DR-435T (440) are single-band radios and very popular for packet.
- The radios use a DSUB-9 connector for their data port.
- **Do not use** the internal **EJ-41U module** as a TNC; it has insufficient memory for EMCOMM message passing.
- For an **external TNC**, **do not use a standard RS-232 modem cable!** You need a **custom cable** for **PTT, Transmit Audio, Receive Audio, and GND**.
- **Lastly...** the DR-235T and DR-435T are no longer in production, but still could be found on the 2<sup>nd</sup> hand market.

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### PC Setup

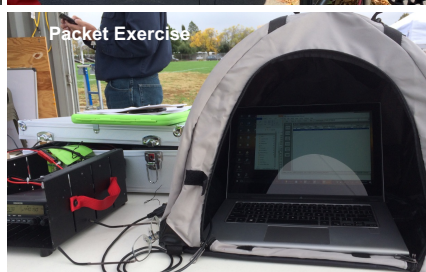
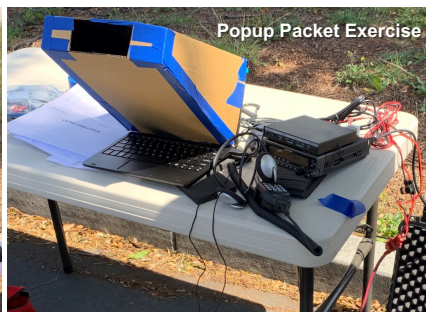
- Secure a work area suitable for computer use
  - Protected
  - Out of sunlight
  - AC power, if possible
- Set up PC
  - Verify that Outpost and PackItForms are installed
  - Verify the version
  - Set up user identification and Tactical ID (if needed)
  - Make sure computer date and time are set correctly
  - Verify correct Profile
  - Verify BBS and TNC settings
  - Adjust other settings as needed for the assignment

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## Creative “Get-out-of-the-Sun” ideas



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## Radio Settings

- Consult radio manual for packet settings
  - Packet or data mode
  - Packet baud rate – 1200 bps
  - If Dual Receive, which side does Packet use?
  - Simplex
  - No tone or tone squelch
    - Yaesu users - make sure WIRES is off
  - RF squelch/S-meter squelch to minimum
  - Turn off any function that might interrupt radio function
  - 25 W or more transmit power



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## KPC-3+ Setup Overview

- Use a *terminal emulator* (such as Outpost's Ipserial program) to communicate with the TNC
  - Verify Com Port settings
  - Verify that TNC “connected” – “**cmd:**” prompt
  - Adjustment of serial connection baud rate may be needed
- Use the Command mode to instruct the TNC
  - Actions to be performed
  - Parameters to be set
  - Diagnostic information

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Outpost and PackItForms

## 8. NOW THE SOFTWARE...

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## What is Outpost?



- A Windows-based packet messaging client; email-like GUI; hides the complexity of the packet world
- Helps ARES, RACES, and other amateur radio emergency response teams meet the needs of their served agencies
- Automates and manages all message handling between you and your BBS
- Lets you read, delete, create, send, reply to, and forward messages back to the BBS
- SCCo Packet Installer is available from County web site
  - [www.scc-ares-races.org/data/packet](http://www.scc-ares-races.org/data/packet)
- General release version available from Outpost web site
  - [www.outpostpm.org](http://www.outpostpm.org)

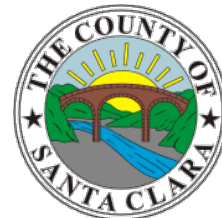
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## Install Santa Clara County Version

- Combined Installer for Outpost & PackItForms
  - Unique directory names
    - Programs: C:\Program Files (x86)\SCCo Packet
    - Data: C:\SCCo Packet
  - Does not interfere with general release version of Outpost on the same machine
- Includes all updates
  - Standard TNC and County BBS setups
  - Standard County user settings
  - Standard County forms
  - Updates will not overwrite user defined settings



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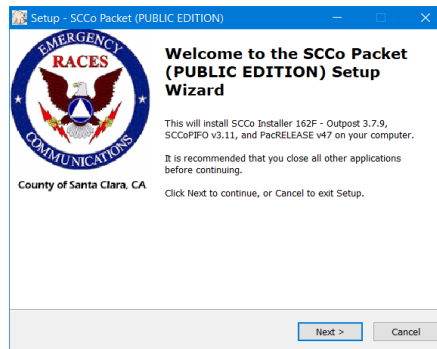
69



## Install Outpost and PackItForms

- Single click install process for both Outpost and PackItForms
- Click the defaults

Start



Finished

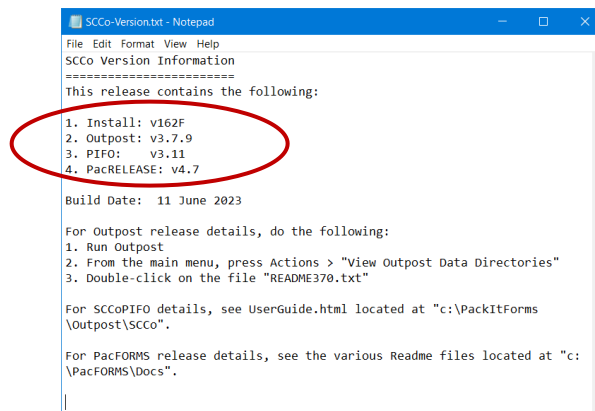


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## Confirming the installed version



From the Start Menu, look for **SCCo Packet** under:

- Windows 10: Start > scroll down through the list of apps
- Windows 11: Start > All Apps, scroll down through the list of apps

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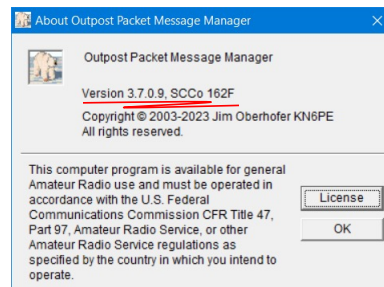
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## Confirming the installed version

### Outpost Startup



### Outpost: Help -> About



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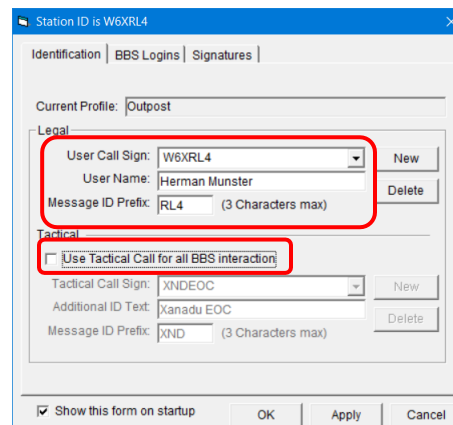
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## Setting up Outpost's User ID

### Outpost Setup > Station ID

- Previously setup? Select your call from the **User Call Sign** drop down
- First time user setup? Press New
- Fill in all Legal ID fields:
  - User call sign
  - User Name (Your full name)
  - Message ID Prefix
    - Defaults to the last 3 letters of your call sign
- To change from FCC call to Tactical
  - Click/Uncheck - **Use Tactical Call**
  - When unchecked and fields are greyed out, you are using your FCC call
- Press OK when done
- When you take over a shift as a Packet Operator, you will need to change the User Call sign and User Name



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## Tactical Calls

### Outpost Setup > Station ID

- Tactical Calls are assigned to support message processing
  - Independent of operator's FCC call sign
- Once added to BBSs:
  - Packet users can log in with city tactical call signs
- Updates occur upon request from an agency
- Tactical calls for your city are available from your EC
- Tactical calls also added for Coastal Region and all surrounding counties
- To request new or update your agency's tactical calls, see:
  - <http://www.scc-ares-races.org/data/packet>
  - "How to Request Tactical Calls"

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## Setting up a Tactical Call ID

### Outpost Setup > Station ID

- If Using a Tactical Call, check the "Use Tactical Call ..." box
- Previously setup? Select the tactical call from the **Tac Call Sign** drop down
- First time Tac call setup? Press New
- Fill in all Tactical fields:
  - Call Sign
  - Additional ID Text
  - Message ID Prefix
    - 3 letter prefix used in msg number
    - Set per your served agency policy
- Press OK when done
- When you take over a shift as a Packet Operator, you will need to change the User Call sign and User Name, and confirm the tactical call

Station ID is W6XRL4 as XNDEOC

Identification | BBS Logins | Signatures |

Current Profile: Outpost

**Legal**

User Call Sign: W6XRL4 New

User Name: Herman Munster Delete

Message ID Prefix: RL4 (3 Characters max)

**Tactical**

☒ Use Tactical Call for all BBS interaction

Tactical Call Sign: XNDEOC New

Additional ID Text: Xanadu EOC Delete

Message ID Prefix: XND (3 Characters max)

☒ Show this form on startup OK Apply Cancel

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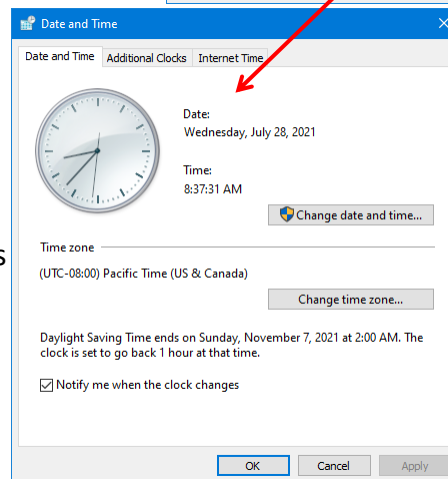
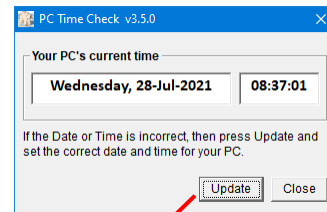
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## Confirming the PC Time

### Outpost Startup > time check

- Old and/or seldom-used PCs are usually not set to the correct time
- Outpost and PackItForms use the PC time
- If wrong, causes incorrect and confusing information on message listing and logs
- On startup, Outpost displays the current PC time and offers a chance to change it



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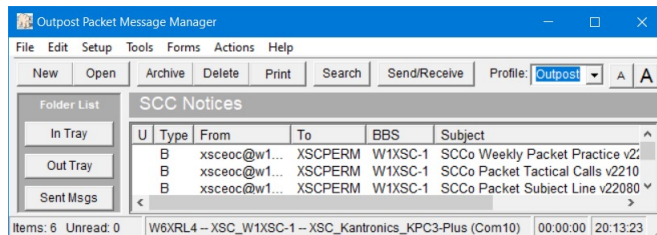
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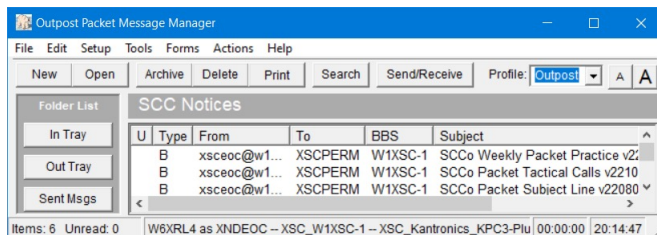
## Confirming the Station ID

### Outpost Setup > Station ID

- **FCC Call** - Only the call sign is listed



- **Tactical Call** – listed as "<call\_sign> as <tactical\_call>"



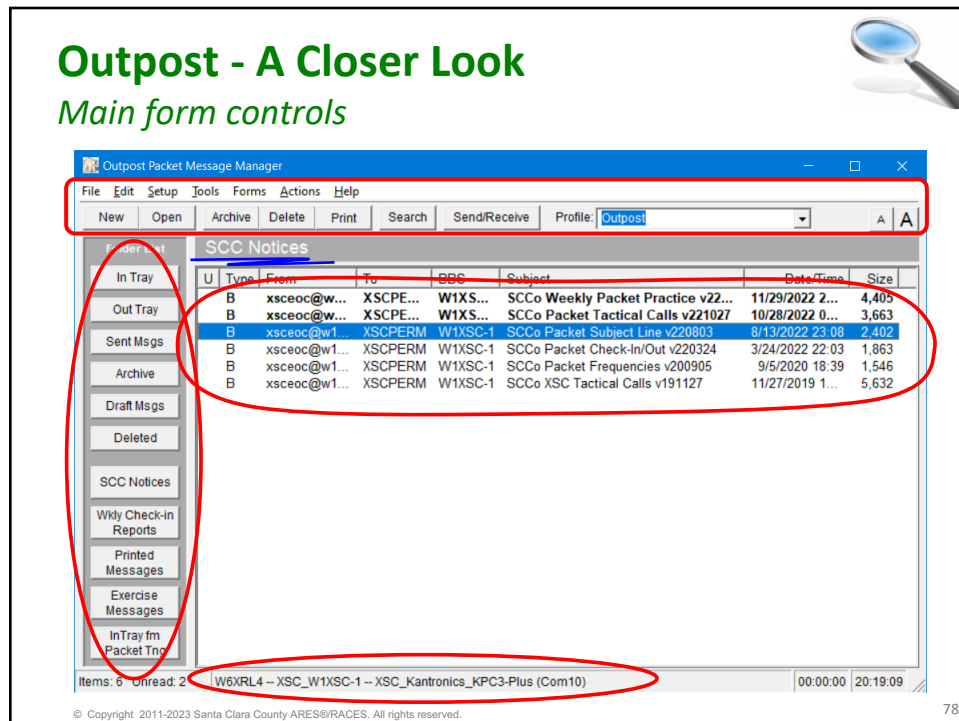
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## Outpost - A Closer Look

### Main form controls

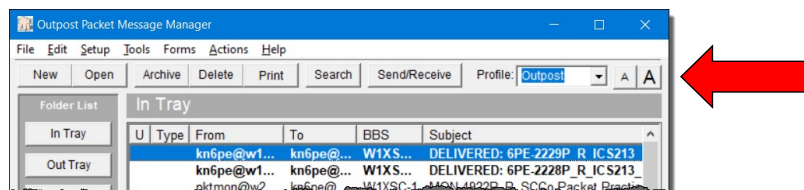


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## Outpost – Profiles

### Main form controls

- Profiles store Outpost settings under a name
  - Tools menu settings, Station Identification, BBS, TNC selection, etc.
  - The “OUTPOST” profile contains all of the default SCCo settings
- Switch between profiles without restarting Outpost
- Verify that the Profile is correct



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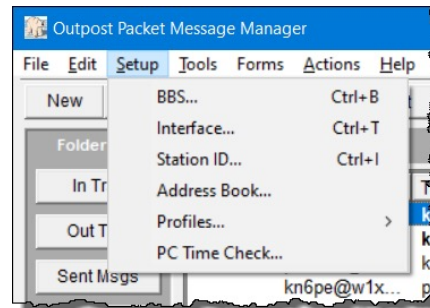
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## Configuring Outpost

### Setup menu

All configuration items are under two Menu items

- The **Setup** menu...
  - **BBS...** Santa Clara County BBS's are preloaded
  - **Interface...** Preconfigured TNCs
  - **Station ID...** for setting your FCC and tactical call
  - **Address Book...** create alias and distribution lists
  - **Profiles...** manage different configurations
  - **PC Time Check...**



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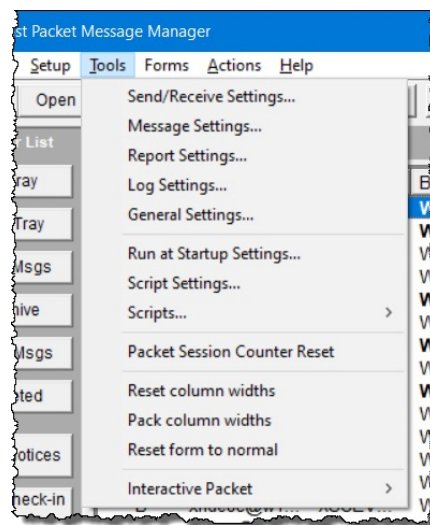
80

## Configuring Outpost

### Tools menu

All configuration items are under two Menu items

- The **Tools** menu...
  - **Send/Receive...** Automation, Auto Printing, etc.
  - **Message...** defaults, numbering, receipts
  - **Log settings...** helps with troubleshooting
  - **General...** Print settings, name extra folders
  - Running programs or scripts
  - Column resets
  - Manual packet programs



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## Configuring Outpost

*Tools menu > Message Settings > Msg Numbering Tab*

- ☒ Add message number...
  - With hyphenation
- ☒ Add message number suffix.
 

Adds a "P" suffix to all inbound and outbound message numbers

  - Check this box
  - Plain Text
  - PackItForms
- ☐ Add message num separator
  - leave unchecked
- ☒ Assign a local message ID
  - check this box
- Message numbering is common across profiles
  - Numbers are common across all profiles

Message Settings

New Msgs | **Msg Numbering** | Replies/Fwds | Receipts | Deleting | Adv

Outbound Message Identification

☒ Add message number to the Subject Line for outbound messages

☐ without hyphenation... "6PE646P..."  
☒ with hyphenation... "6PE-646P..."  
☐ with DateTime Format... "6PE220730161747P..."

☒ Add a character as a message number suffix: **P**

☐ Add a message number separator

Inbound Message Identification (Local ID)

☒ Assign a local message number to inbound messages  
standard format... "6PE-646P"

Edit Subject Line Identifier values

OK Apply Cancel

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## Message numbers

### Considerations

- If you are given a paper form with an existing message number, do not change it!
- For instance: If you are given this:

**MESSAGE FORM**  
For paper: use ballpoint pen – blue or black ink only (See back for instructions)

Origin Msg #: <sup>2</sup> **XND-123** Destination Msg #: <sup>3</sup> [ ]

Handling: <sup>5</sup> (✓ one): ☐ Immediate (ASAP) ☐ Priority (< 1hr) ☐ Routine (< 2hr)

- then replace the Outpost-generated number with:

Submit to Outpost Submit via Email Reset Form Show PDF [ ] = required Show Text Message

**MESSAGE FORM**  
SCCo ICS Form 213 (01/19/2022) PIF 2.2

Origin Msg #: <sup>2</sup> **XND-123** Destination Msg #: <sup>3</sup> [ ]

Date <sup>1</sup>: [ ] Time (24hr): [ ] Handling <sup>5</sup>: ☐ Immediate (ASAP) ☒ Priority (< 1hr) ☐ Routine (< 2hr)

- It's that simple!

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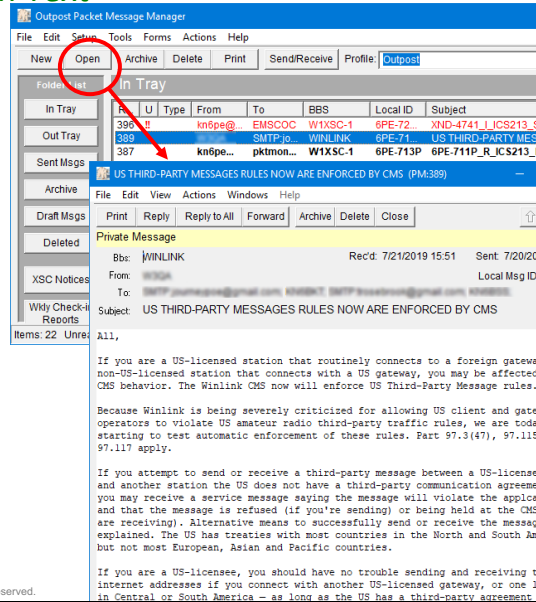
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## Working with messages

### Viewing messages – Plain Text

- Supports viewing, printing, deleting or saving a message to a local file
- Reply and Forward message formatting
- To view a message,
  1. Highlight, then press Open, or
  2. Double-click on a message



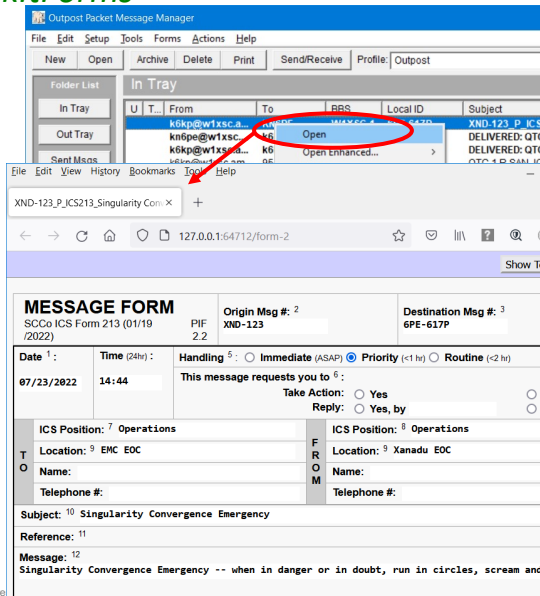
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## Working with messages

### Viewing messages – PackItForms

- What if it is a PackItForm?
- To view a message,
  1. Highlight a PackItForms message, then press Open, or
  2. Right-click to open the popup menu



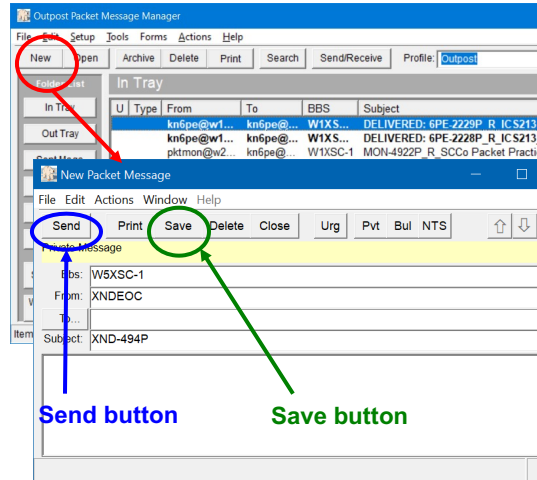
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## Working with messages

### Creating messages

- Start a new message:
  1. Press New
  2. Fill in all remaining fields
- Multiple message sourcing options
  1. Free-form: what you see is what you get
    - Supports TAB characters thereby reducing the character count
  2. Cut and Paste from other apps, like notepad, Excel
  3. Import .csv files
  4. Import text files directly into the message form
  5. Press **Send** or **Save** when done



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## Watch out for Drafts

### Creating messages

Folder List		Out Tray				
In Tray		U	Type	From	To	BBS Subject
Out Tray		D...	KN6PE	KD6CMV	KN6PE-1	6PE-1999P-Regex-Test
		cupcsa@w1...	cupec...	W1XSC-1	CSA-231	R SitStat-Creekside.csv
		D...	KN6PE	95825@	K6FB-2	QTC 1 R SACRAMENTO CA 916 55

- If you click **"Save"**, the message is saved as a DRAFT and will not be sent
  - The blue highlighted text means it is a DRAFT message
  - Lose your Saved Message? Check the Draft Folder
- If you click **"Send"**, the message will be saved, and
  - A black text entry means it is ready to be sent
- Check the **Out Tray** after a **Send/Receive** to make sure your messages were sent

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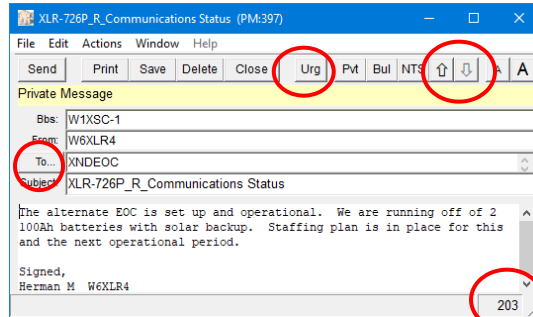
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## Message form specifics

### Creating messages

- Message character counter
  - Watch when preparing large messages... this is a shared channel
- Moving between messages
  - Up/Down arrows allow easy movement to previous or next message
- Urgent Message
  - Flags a message as urgent and displays in **RED** in your folders and the receiving station
- Address Book entries
  - Press To: button to select previously defined address book entries



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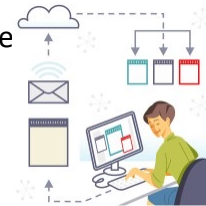
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## Outpost Workflow

### How it Gets Done

1. On Outpost: press "New" to create a new message
2. On the Message Form
  - Compose the message. Fill in all blank fields
  - Press "**Send**" – message is moved to Out Tray (Press "**Save**" to store to the **Draft Msgs** folder)
3. On Outpost: Press "Send/Receive"
  - Looks for and sends messages from the **Out Tray** for this User and BBS
  - When sent, message is moved to the **Sent Msgs** folder
  - Checks for and retrieves new messages, places them in bold in **In Tray**
4. Read and handle new messages
5. Print, Delete, Archive, or move messages to a folder as needed
  - Deleted messages are automatically moved to Deleted Messages folder



If you think there is a problem with a message, refer the message to your Shift Supervisor for resolution

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## Outpost do's and don'ts

- DO...
  - Keep your message short enough to communicate what needs to be passed... same as a voice message
  - Be Patient; after your message is downloaded by the recipient, they will send a delivery receipt. Then you will retrieve it on your next Send/Receive session.
- DON'T...
  - Continuously press Send/Receive to check for a reply. This ties up the channel needlessly.
  - If a message was not acknowledged:
    - Check the message address and BBS
    - Resend the message if needed
    - Let your supervisor know

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## PackItForms

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## Introduction to PackItForms



- PackItForms are an enhanced tool for forms-based messaging and supports sending Santa Clara County forms by packet radio
  - Minimizes data actually sent
  - Web tool to “fill in the blanks”
  - Code to extract the text information from the forms into a string of ASCII text data that contains the form information

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## County Use of PackItForms

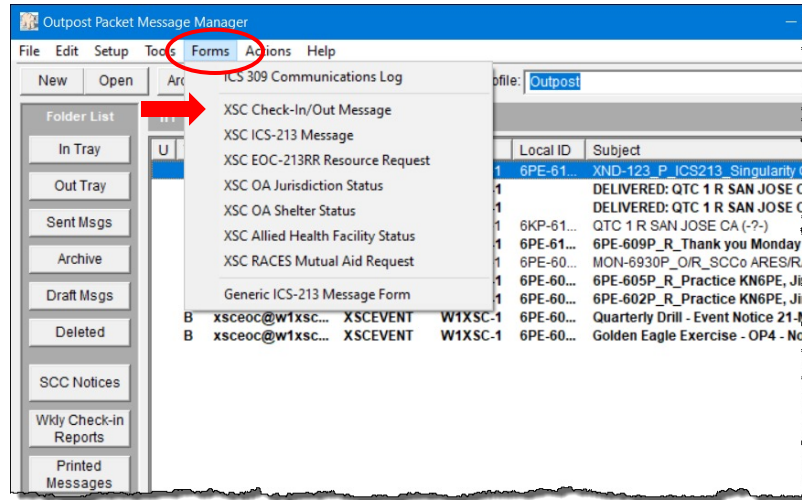
- Santa Clara County PackItForms contains these public forms
  1. [XSC Check-In/Out Message](#) Form
  2. [XSC ICS-213 Message](#) Form adapted for Santa Clara County to transmit messages.
  3. [XSC EOC-213RR Resource Request](#) Form – Requests specific resources needed to support an emergency.
  4. [XSC OA Jurisdiction Status](#) Form – Reports jurisdiction emergency situation status to county OEM.
  5. [XSC OA Shelter Status](#) Form – Reports information and status on shelters opened in the cities to county OEM.
  6. [XSC Allied Health Facility Status](#) – Reports information & status of private Skilled Nursing facilities to SCC Public Health Department.
  7. [XSC RACES Mutual Aid Request](#) Form used by a jurisdiction to request a RACES Mutual Aid.
- The SCC Installer program automatically installs these packet forms along with Outpost.
  - Additional forms may be provided by your EC

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## PackItForms and Outpost



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## XSC Check-In/Out Message

- For check-in and check-out messages
- Most fields are automatically filled in
  - Message Number
  - Call Sign
  - Name
- If **Use Tactical Call** is checked,
  - Tactical Call
  - Tactical Name
- Make your selections:
  - Check-in or Check-out
  - Use Tactical Call

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## XSC ICS 213 Message Form

**MESSAGE FORM**  
SCCo ICS Form 213 (01/19/2022)

Submit to Outpost Submit via Email Reset Form Show PDF [ ] = required Show Text Message

Origin Msg #: 2  
Destination Msg #: 3

Date: 07/24/2022 Time: 11:00 AM Handling: ☒ Immediate (ASAP) ☐ Priority (<1 hr) ☐ Routine (<2 hr)

This message requests you to 5: Take Action: ☐ Yes ☐ No Reply: ☐ Yes, by ☐ No

ICS Position: 7 Location: 8 Name: 9 Telephone #: 10

ICS Position: 5 Location: 6 Name: 4 Telephone #: 3

Subject: 10 Reference: 11 e.g. Number of earlier msg. Message: 12

Action Taken: 13 (For use by Originator/Recipient) USE SEPARATE MESSAGE FORM IF SENDING REPLY!

CC: ☐ Management ☐ Operations ☐ Planning ☐ Logistics ☐ Finance

Operator Use Only: 14 Relay: Rcvd: Sent: How Received: ☐ Telephone ☐ Dispatch Center ☐ EOC Radio ☐ FAX ☐ Courier ☒ Amateur Radio ☐ Other: Packet

Operator Call Sign: WEXRL4 Operator Name: Herman Munster Date: {{date}} Time: {{time}}

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- SCC IS 213 Message Form
  - Message Number Fields
- Paper form should come to you already filled out
  - If you have to fill it out, have the originator review and initial it
- For drills, fill in the blanks just like the paper version
- No need for 5 words per line
- Replies to a received message must have the original message number in the reference line

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## XSC EOC Resource Request 213RR

**Santa Clara County EOC Resource Request Form 213RR**  
Version: 8/17

Message Numbers: Origin: 814-2250P Destination: PF: 2.4

Date: 06/21/2023 Time: 11:00 AM Handling: ☒ Immediate (ASAP) ☐ Priority (<1 hr) ☐ Routine (<2 hr)

ICS Position: Planning Section Location: County EOC Name: Contact Info: ICS Position: Location: Name: Contact Info:

1. Incident Name 2. Date Initiated 3. Time Initiated 4. Tracking Number (OA EOC)

5. Requested by (name, agency, position, email, phone) 6. Prepared by (name, position, email, phone)

7. Approved By (name, position, email, phone)

Signature: ☐ with signature

Requesting Agency / EOC Section

8. Qty/Unit 9. Resource Description (and type if applicable) 10. Arrival (date/time) 11. Priority: 12. Est'd Cost

13. Deliver to (name, agency, position, email, phone) 14. Location (address or lat/long, site type)

15. Substitute/Suggested Sources (name, phone, website)

Medical Resource Request forms also have a new 'with signature' checkbox.

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- For material, equipment, and staff requests, never for RACES Mutual Aid
- **New Checkbox!**
  - ☐ with signature
- **Form defaults**
  - To ICS Position: **Planning Section**
  - To Location: **County EOC**
- **Note!** Fields can be changed at message create time
- Paper form should come to you already filled out
- Should answer
  - What do you need
  - Who needs it
  - Where do you need it
  - When do you need it
  - How long do you need it
  - How do you get there

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## XSC OA Jurisdiction Status Report

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- For jurisdiction status & incident reporting to County EOC
- **Form defaults**
  - Handling Order: **Immediate**
  - To ICS Position: **Situation An...**
  - To Location: **County EOC**
- Note!** Fields can be changed at message create time
- Paper form should come to you already filled out
- Replaces the City Scan form

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## XSC OA Shelter Status Report

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- For local shelter status reporting
- **New layout!**
  - Better aligns with the .pdf
- **Form defaults**
  - Handling Order: **Priority**
  - To ICS Position: **Mass Care and...**
- Note!** Fields can be changed at message create time

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## XSC Allied Health Status Report

**Allied Health Status Report Short Form (pEOC-9)** Version: February 2018 PIF: 2.3

Message Numbers: Origin: RL4-2253P Destination:   
 Date: 06/21/2023 Time: 10:00 AM Handling: ☐ Immediate (ASAP) ☐ Priority (<1 hr) ☒ Routine (<2 hrs)   
 ICS Position: EMS Unit ICS Position:   
 Location: MHJOC Location:   
 Name: Name:   
 Contact Info: Contact Info:   
 Report Type: ☐ Update ☒ Complete   
 Facility Name: Facility Type: Date: 06/21/2023 Time: 10:00 AM   
 Contact Name: Phone # 000-000-0000 x00 Fax # 000-000-0000 x00   
 Other Phone, Fax, Cell Phone, Radio: Incident Name and Date: mm/dd/yyyy   
 Facility Status: Green - Fully Functional ☐ Red - Limited Services ☐ Black - Impaired/Closed ☐   
 Additional Attachments Provided: NHCSICS Organization Chart ☐ Yes ☐ No   
 DEDC-9A Resource Request Forms ☐ Yes ☐ No   
 NHCSICS Status Report Form - Standard ☐ Yes ☐ No   
 NHCSICS Incident Action Plan ☐ Yes ☐ No   
 Phone/Communications Directory ☐ Yes ☐ No   
 Facility Contact Information: Facility EOC Main Contact Number 000-000-0000 x00   
 Facility EOC Main Contact Fax 000-000-0000 x00   
 Facility Liaison Officer Name: Liaison to Public Health/Medical Health Branch   
 Facility Liaison Contact Number 000-000-0000 x00   
 Facility Information Officer Name   
 Facility Information Officer Contact Number 000-000-0000 x00   
 Facility Information Officer Contact Email   
 If Facility EOC is Not Activated, Who Should be Contacted for Questions/Requests   
 Facility Contact Number 000-000-0000 x00   
 Facility Contact Email   
 General Summary of Situation/Conditions:   
 Bed Resource Availability: Staffed Bed-M Staffed Bed-F Vacant Beds-M Vacant Beds-F   
 Skilled Nursing   
 Associated ICS form

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- For skilled nursing facility status reporting
- **Form defaults**
  - Handling Order: **Routine**
  - To ICS Position: **EMS Unit**
  - To Location: **MHJOC**
  - **Note!** Fields can be changed at message create time
- Hand off SCC Public Health Department

## XSC RACES Mutual Aid Request

**Santa Clara County RACES - Mutual Aid Request** Version: 2020129 PIF: 2.4

Message Numbers: Origin: RL4-2254P Destination:   
 Date: 06/21/2023 Time: 10:00 AM Handling: ☐ Immediate (ASAP) ☐ Priority (<1 hr) ☒ Routine (<2 hrs)   
 ICS Position: RACES Chief Radio Officer ICS Position:   
 Location: County EOC Location:   
 Name: Name:   
 Contact Info: Contact Info:   
 Agency: Name:   
 Event / Incident: Name: Number:   
 Assignment: Duties, conditions, equipment, shift times   
 Amateur Radio Resources Requested: Qty Role Position Preferred Type Minimum Type   
 Requested Arrival: Date(s) Time(s)   
 Needed Until: Date(s) Time(s)   
 Reporting Location: Street Address, Parking, Entry Instructions   
 Contact on Arrival: Name/Position and contact info   
 Requested By: Name Title   
 Contact: E-mail, phone, frequency   
 Approved By: Name Title   
 Contact: E-mail, phone, frequency   
 Signature: ☐ with signature   
 Date: 06/21/2023 Time: 10:00 AM   
 Radio Operator Only:   
 Relay: Rcvd: Sent:   
 Name: Herman Hunter Call Sign: W6XRL4 Date: {{date}} Time: {{time}}

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- For RACES Mutual Aid requests only
- **New Checkbox!**
  - ☐ with signature
- **Form defaults**
  - Handling Order: **Routine**
  - To ICS Position: **RACES Chief...**
  - To Location: **County EOC**
  - **Note!** Fields can be changed at message create time
- For jurisdiction material, equipment, and staff requests, use the ICS 213RR form.

## What Really Gets Sent



- PackItForms creates the Outpost subject line automatically
- Subject line and message body are locked (grayed out); cannot be changed.
- If you need to make changes,
  - Open (or double-click on) the message in Outpost
  - it will open in the Browser and now can be updated,
  - Then press “Submit to Outpost” to resubmit the updated message.

Urgent, Private Message

Bbs: W1XSC-1

From: KN6PE

To: XNDEOC

Subject: XND-123\_IICS213\_Singularity Convergence Emergency

!SCCoPIFO!

#T: form-ics213.html

#V: 2.6-1.2

MsgId: XND-123

1a.: [07/27/2019]

4.: [EMERGENCY]

5.: [IMMEDIATE]

6a.: [Mo]

1b.: [21:38]

7.: [Operations]

8.: [Operations]

9a.: [EMC EOC]

9b.: [Xanadu EOC]

10.: [Singularity Convergence Emergency]

12.: [Yes, it is happening, and there is nothing we can do to stop it. When in danger or in doubt, run in circles, scream and shout.]

Rec-Sent: [sender]

OpCall: [KN6PE]

OpName: [Jim Oberhofer]

Method: [Other]

Other: [Packet]

!//ADDON!

Subject line and message text fields are locked.

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## Generic ICS-213 Form

- Use XSC ICS-213 Message Form in Santa Clara County
- Use Generic ICS-213 Message Form elsewhere
  - Communications to/from Regional EOC
  - Communications to/from other county EOCs

Outpost Packet Message Manager

File Edit Setup Tools Forms Actions Help

New Open Arc

Folder List

In Tray

Out Tray

Sent Msgs

Archive

Draft Msgs

Deleted

SCC Notices

Forms

ICS 309 Communications Log

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

Generic ICS-213 Message Form

File: Outpost

Local ID	Subject
1	6PE-61... XND-123_P_IICS213_Singularity C
1	DELIVERED: QTC 1 R SAN JOSE C
1	DELIVERED: QTC 1 R SAN JOSE C
1	6KP-61... QTC 1 R SAN JOSE CA (-7-)
1	6PE-61... 6PE-609P_R_Thank you Monday
1	6PE-60... MON-6930P_O/R_SCCo ARES/R
1	6PE-60... 6PE-605P_R_Practice KN6PE, Ji
1	6PE-60... 6PE-602P_R_Practice KN6PE, Ji
1	6PE-60... Quarterly Drill - Event Notice 21-F
1	6PE-60... Golden Eagle Exercise - OP4 - No

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## WRAP UP

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## Final Assignment

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

The screenshot shows the SCC ARES/RACES website. On the left is a sidebar with a menu. The 'Events' section is expanded, showing links: 'List Events By Date', 'List Events I Joined', 'Create a New Event', 'Modify an Event', 'Delete an Event', 'List/Print an Event Roster', 'Log Event Participation', and 'Submit Class Evaluation'. A red arrow points to the 'Submit Class Evaluation' link. The main content area is titled 'Calendar of Events' and shows a table of events. The first event is 'Packet Operations Type III, Part A' on 08/05/23 at 9:00 AM, County Training, with a 'Credential Credit?' of 'Yes'. Below this is a link for 'Course Details'. The second event is 'SARES Member Meeting' on 08/09/23 at 7:00 PM, City Training, with a 'Credential Credit?' of 'No'.

Date:	Start:	Type:	Credential Credit?
08/05/23	9:00 AM	County Training	Yes
Course Details: Click here to visit the course description and Attendees should have their own printed or ele...			
<b>SARES Member Meeting</b>			
08/09/23	7:00 PM	City Training	No

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

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HOMework!

- Complete the following tasks before attending the next class.
  1. Familiarize yourself with entire SCCo ARES/RACES Packet web page
    - <http://www.scc-ares-races.org/data/packet>
  2. Join the scc-packet group (packet@scc-ares-races.groups.io)
  3. Install Outpost and review the settings menus
  4. Read and Understand the “Packet Network Addressing” web page
    - <http://www.scc-ares-races.org/data/packet/packet-addressing.html> (linked from main packet page)
    - Use packet groups.io for questions
  5. From your packet station
    - Connect to your primary BBS and send yourself a message
    - Download, save, read and understand the SCCo Notices
    - Check in to the Mon/Tue packet net (see the SCCo packet web page)
  6. And... complete the SCC Packet Exercise Workbook!

SCCo RACES  
Packet Exercise  
Workbook  
2023 edition

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## For Your Information

- Download SCC Notices into Outpost
  - Store in Archive folder to save for reference
  - Check-In/Out
  - Frequencies (and BBS's)
  - Subject Line Format
  - Tactical Calls
  - Weekly Packet Practice
  - XSC Tactical Calls
- Force a one-time SCC Notice download
  - Actions -> Force one-time bulletin retrieve

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## For Your Information

- These documents are recommended for your Go Kit
  - Packet Frequencies and BBS Assignments
  - Outpost Configuration Settings
  - Message Addressing
  - Standard Subject Line Format
- Download and print out a hardcopy

<http://www.scc-ares-races.org/data/packet>

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## Stay Current, Stay Informed

- Visit the County web site often
- Check the Announcement space
- Check the Packet page
- Check for updates often
- Take personal responsibility for keeping yourself and your equipment up-to-date
- Join the SCC-Packet group

[packet@scc-ares-races.groups.io](mailto:packet@scc-ares-races.groups.io)



**Keep your equipment,  
software, and yourself  
up to date**

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**Santa Clara County, California ARES®/RACES**

Welcome to the Santa Clara County ARES/RACES (Amateur Radio Emergency Services / Radio Amateur Civil Emergency Services) homepage. Add this page to your bookmarks to stay up-to-speed on amateur radio emergency communications capabilities throughout Santa Clara County, California.

**ANNOUNCEMENTS**  
**This is a Non-Emergency, Information Only Message:**

**WASH - Linking is down:** The WASH repeaters are being relocated during the next two to three weeks. Both the 2 meter and 440 WASH repeaters will be usable from other temporary locations during the relocation. However, linking of WASH to ARES for the Resource Net will not be available during this transition. All users that used WASH should determine if they can reach either ARES or NEMAC during the interim. The relocation is expected to be completed by the 2nd week of July (06/26/22 KESTIM) UPDATE: Repeaters have been successfully relocated but are awaiting some cabling before they can be turned on. This is expected to take another 2 to 3 weeks. The temporary repeaters are still operational but without the ability to link WASH to the Resource Net (07/18/22 KESTIM)

**Command Net:** The WGGF-UHF repeater is currently operating on reduced power. While it is being repaired, the KSSNT-UHF repeater (443.275 (+/-) 107.2) will be used for the primary county Command Net repeater. WGGF-UHF will be used as the backup Command Net. (3/2/20 NOMEF)

**Training & Events Calendar**  
Click on an event title for more detail.

**QUICK LINKS**  
**ALERTS**  
Frequency Lists: County Voice, County Packet, Regional

**SERVICES**  
Overview  
**Emergency Management:** Op Area EOC, Jurisdiction EOCs, Credentialing, Mutual Aid  
**Agencies and Community:** Allied Health, County Fire, Hospitals, ...

**OPERATIONS**  
Activation Info, Contact Info, DSW, Forms & Signs, Frequency Lists, Go Kit, Mutual Aid, Nets, Programs (Credentialing Program, Hospital Net), Standards & Procedures, Monthly EOC report, More.

**DATA NETWORKING**  
Overview  
**Services:** Packet BBS, E-mail, Internet Access, Internet Access  
**Access:** AX.25 over UHF, AX.25 over INRDP, TCP/IP over UHF, TCP/IP over Mesh, TCP/IP over WIFI, TCP/IP over LAN

**TRAINING & EVENTS**  
Calendar and Sign-Up  
**Courses:** ARES/RACES, Emergency Mgmt  
**Events:** Practice Sessions, Drills/Exercises, Public Service Events  
**More:** Credentialing Program, Licensing, Misc ...

**REFERENCE INFORMATION**  
ARRL, Band Plans, Call Signs, EmComm, Glossary, Preparedness, Repeaters, Rules & Regulations, Utilities, Weather, General Info

**ABOUT SCCo ARES/RACES**  
**Who We Are:** County Leadership, City/Agency Leadership, City/Local Repeater

**DRILL/EVENT PICTURES**

- Masked Pumpkin Festival Parade, Drill 10/12/20 (PDF)
- Radio Direction Finding Drill, 10-10-19
- Advanced Packet Class, 09-05-09

If you have training or other events, send E-Mail to the Webmaster, Phil Henderson, and they will be posted here.

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## Summary

- You should now understand
  - The role of a Packet Operator Type III
  - What packet is and why we use it
  - The Santa Clara County BBS network and BBS assignments
  - How to set up the baseline packet station
  - The use of Outpost and PackItForms
- Next Class – Packet III B
  - Operating Procedures
  - Troubleshoot a packet station
  - Bulletins and Message addressing
  - Send and receive PackItForms messages using Outpost

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## Thank You!

Please complete the Course Evaluation  
and packet exercise homework  
**on or before** next Saturday!

If you have questions or feedback about this or other training  
activities, you can join our Training discussion group.

<https://scc-ares-races.groups.io/g/packet>

Make sure you're signed up for the second part:  
Packet Type III, Part B

Questions, comments, suggestions?  
kn6pe@arrl.net

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