Packet Type III
Part B

Santa Clara County ARES®/RACES/ACS
Last Updated: 2 October 2023

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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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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 know how to:
- Verify the setup of an existing packet station
- Select a BBS and connect to it
- Create a message with Outpost and PackItForms
  - Properly format the subject line
  - Send a proper check-in message
- Retrieve SCCo notices and send local notices
- Produce event documentation for archiving
- Conduct packet messaging field operations

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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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I couldn't do my packet homework because my packet station has a virus.

PACKET IIIA HOMEWORK AFTER-ACTION

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Type III Part A Homework observations

- For the most part, everyone did quite well.
- Held 2 office hours, about 6 folks showed up with various questions from on the homework and BBS access.

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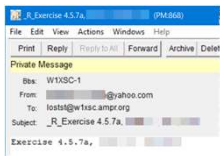### Type III Part A Homework observations

- Messages from the internet …

- *These look like manual messages created on home email accounts.*

- *What happened to the Message ID?!*

- *If you intend to originate a message from the Internet into the Packet-world, then as a best practice, create and used your own Message ID sequence.*

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Type III Part A Homework observations

- The cost of HTML Text email.
- Several class members saw first hand turning a 40 character message…
- … into a 2085 character message
  - More than a 50X size increase in the text to be transmitted!
  - Both plain text and HTML text are sent in the same message.
  - *Bottom Line:*
    Be careful sending messages into the packet system from email accts!
  - And, don't forget that Subject Line rules apply here as well.
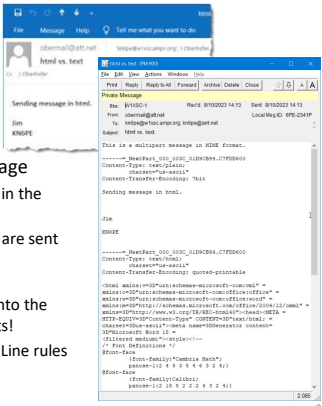
9

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PACKET FIELD DEPLOYMENT

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Packet 3A recap

- Packet Network Overview and Components
- Packet Station HW & SW
- Accessing the network
- Standard workflow
- Working with messages
- Customizing message handling
- Miscellaneous Outpost settings
- Localizing packet

How does this all fit together during a field deployment?

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Thinking in terms of a Packet Field Deployment

1. **First Shift…** when assigned to start up a station

2. **Initial station setup…** equipment check-out

3. **Packet Operations…** managing the message flow

4. **Incoming Shift Change…** if you are relieving someone else

5. **Outgoing Shift Change…** if you are being relieved

6. **Securing Operations…** when directed to shut down

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1. First Shift
Packet Field Deployment Process

1. **First Shift:** Establishing a packet station

_____ 1. Inform Resource Net Control that you have arrived. Check out of the Resource Net before you leave your car.

_____ 2. Check into the assigned voice net before you leave your car. Start an ICS 309 Comm Log for the voice net.

_____ 3. Make an ICS 214 Unit log entry.

_____ 4. Sign in on the site's ICS 211 Check-in sheet.

_____ 5. Find the supervisor and inform them of your arrival.

✓ 6. Request a safety and assignment briefing; get details on any site- or event-specific conditions that exist. You need to know:

    a. Supervisor's Name
    b. Activation Number
    c. Operational Period
    d. ICS Location
    e. Your Tactical Call and Message ID Prefix
    f. BBS to use
    g. Band and frequency
    h. Primary and secondary packet addresses for any preferred destinations

_____ 7. Find and establish the workspace to set up packet operations.

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2. Initial setup
Packet Field Deployment Process

2. **Initial setup:** Equipment check-out

✓ 8. Find, assess, and setup the packet radio equipment (see _Section 3, Packet Startup Procedure_)

✓ 9. Confirm or set your User Identification (FCC Call Sign) and **_Tactical Call for the assigned agency_**.

✓ 10. Check settings before transmitting:
    Correct BBS in Outpost
    Correct Interface in Outpost
    Correct radio frequency

_____ 11. Begin packet operations. Make ICS 214 Unit log entry.

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3. Packet Operations
Packet Field Deployment Process

3. **Packet Operations:** Managing the message flow

✓ 12. Download all notices to ensure you have the latest; read them.

✓ 13. Set up a folder named "SCC Notices" (**Tools** > **General Settings**, **Startup** tab) and move all notices to this folder.

✓ 14. Send a test message to yourself to confirm you can create, send to, and receive from the assigned BBS.

✓ 15. Create a Check-In message to your assigned agency using your Tactical call sign (see _Section 5 Check-in, Check-out Message_).

✓ 16. Send, receive, log and process packet messages. To only send a message as soon as it is created, use **Actions** > **Send Only**

✓ 17. Manually initiate an Outpost Send/Receive at least every 10 minutes.

✓ 18. If a message was not acknowledged:
    a. Check the message address and BBS
    b. Resend the message if needed
    c. Let your supervisor know

… more

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3. Packet Operations (continued)
Packet Field Deployment Process

3. **Packet Operations:** Managing the message flow

✓ 19. If new notices are retrieved, follow any new instructions.
____ 20. Maintain voice radio contact on the designated voice net.
____ 21. Make ICS 214 Unit log entries as appropriate.
____ 22. Report any issues or problems to your supervisor in person or over the voice net (if remote).

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4. Incoming Shift Change
Packet Field Deployment Process

4. **Incoming Shift Change:** If you are relieving someone else, do the following:

____ 23. Inform Resource Net Control that you have arrived. Check out of the Resource Net before you leave your car.
____ 24. Sign in on the local ICS 211 Check-in sheet.
____ 25. Find the supervisor and inform them of your arrival.
____ 26. Request a safety and assignment briefing; get details on any site- or event-specific conditions that exist.
____ 27. Find the person you are relieving and receive a shift change briefing (see *Shift Change Information* below).
✓ 28. Make packet system updates – Station ID, Tactical Call, etc.
____ 29. Make all relevant shift change entries in your ICS 214 Unit log.

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5. Outgoing Shift Change
Packet Field Deployment Process

5. **Outgoing Shift Change:** If you are being relieved, do the following:

____ 30. When contacted by your replacement, provide a shift change briefing (see *Shift Change Information* below).
✓ 31. Generate and sign a packet ICS 309 Comm Log for your shift.
✓ 32. Generate all event packet documentation for your shift and deliver as instructed (see *Section 10 Archiving Event Documentation*).
____ 33. Turn over all assigned equipment to your replacement.
____ 34. Find your supervisor and inform them of the shift change and your departure.
____ 35. Make the appropriate shift change entries in your ICS 214 Unit log. Complete and sign the form.
____ 36. Turn in all paperwork to your supervisor.
____ 37. Sign out on the site's ICS 211 Check-in sheet.
____ 38. Check into the Resource Net. Inform Net Control what you plan to do (go home, return to EOC, etc.).

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6. Securing Operations
Packet Field Deployment Process

6. Securing Operations: when directed to shut down, do the following:

_____ 39. Get permission from your supervisor to shut down.

✓ 40. Create a text Check-Out message to your assigned agency using your Tactical Call sign (see *Section 6 Check-in, Check-out Message*).

✓ 41. Generate and sign a packet ICS 309 Comm Log for your shift.

✓ 42. Generate all event packet documentation for your shift and deliver as instructed (see *Section 8 Archiving Event* Documentation).

_____ 43. Complete and sign your ICS 214 Unit log.

_____ 44. Shut down and pack up all assigned equipment.

_____ 45. Turn in all paperwork to your supervisor.

_____ 46. Sign out on the site's ICS 211 Check-in sheet.

_____ 47. Check out of the assigned voice Net and check in with the Resource Net. Inform Net Control what you plan to do or where you will go.

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Amateur Packet Radio Field Reference, Type III

What is it
- Provides a reminder (job aid) for how to perform tasks that need to occur during a packet field deployment.
- Helps ensure task consistency, completeness, and operational alignment with SCCo RACES policies and procedures.

What it is not
- the only source of information on which you should rely.
- an official SCCo RACES deliverable.

Amateur Packet Radio Field Reference, Type III

For SCCo RACES Responders

September 2023

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Initial Setup – Scenario

- Upon arrival at your assignment, your supervisor explains that someone from the local ham club tried to get the packet station working. They were unsuccessful and had to leave.
- He takes you over to the hardware:

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No Problem! … Right?

- Assembling and configuring a packet station is simple

- And problems are rare, especially for regular users

- But at some point …
  - … especially when using someone else's gear,
  - … you may face at least one of these problems

- Use a logical process to find and resolve problems

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Verifying Packet Station Readiness

1. Connections

2. Initial power-up

3. Equipment settings

4. Application settings
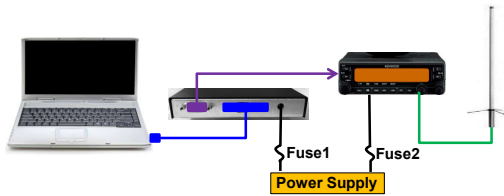
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1. Connections

Fuse1   **Fuse2**

Power Supply

PC/Laptop
- Comm Port, or
- USB port and a USB-to-Serial adaptor
- **Windows USB Driver**

TNC
- Serial (or USB) cable
- **Custom** TNC/radio cable
- Power cable, fused, to power supply or battery
  - Fuse1 = 1A (typical)

Radio
- Antenna coax connected
- Power cable, fused, to power supply or battery
  - Fuse2 = 15-20A (typical)

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1. Connections – What You May See

Here is what you see when you find the hardware…
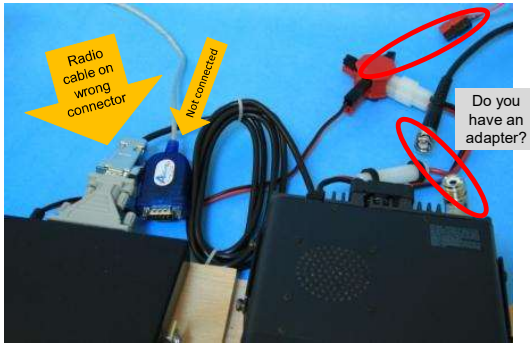
25

1. Connections – After Correct Assembly

You've straightened out the hardware and cabling

To prevent problems, especially on shared stations,
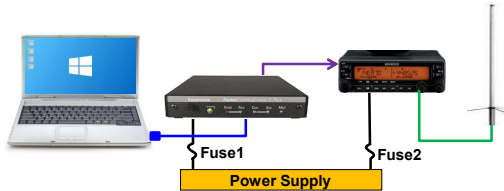Consider labeling the TNC and radio interfaces
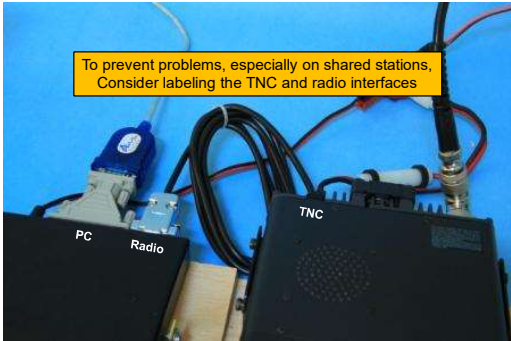
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2. Initial Power-up

PC/Laptop
• Laptop boots up
• Battery charged, or power adaptor is plugged in

TNC
• Apply power
• Power LED lights up

Radio
• Apply power
• Radio turns on correctly

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2. Initial Power-up - TNC

- **IF:** TNC power cable is plugged directly into a RigRunner

- **AND:** TNC's power light is on
  - You may or may not notice that it appears a little dimmer than usual.

- **BUT:** No response from the TNC via a serial connection; it behaves like it's turned off.

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2. Initial Power-up - TNC

- **THEN:** It probably *IS* off!
- Check the RigRunner. Is there a red light on behind the fuse?
  - Replace the fuse
  - RigRunner lights an LED behind the fuse when the fuse is burned out
  - But the current needed to power the fuse LED is just barely enough to light the power light on the TNC (dimly)!
- Or, try another port on the RigRunner.
  - Your model may not have an LED light or it may not be working
- Or, try another power cord
- Avoid blowing a fuse:
  - ALWAYS plug the power cord into the TNC first, then into the power source.
  - This avoids the chance of the TNC power connector plug tip touching the TNC chassis, thereby shorting positive to ground, and blowing the fuse
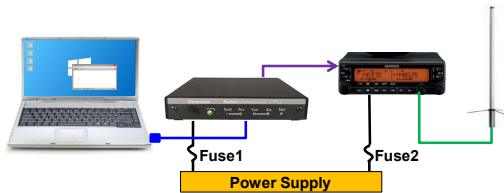
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3. Equipment settings

PC/Laptop Settings
- Terminal Program: Comm Port Setting
  - Com Port #
  - 9600 baud
  - 8 data bits
  - No parity
  - 1 stop bit
  - RTS/CTS flow control

TNC Settings
- Comm Port Settings
  - 9600 baud
- Other KPC-3s default to 8-N-1
- Carrier Detect settings
  - INTFACE TERMINAL
  - CD SOFTWARE

Radio Settings
- Correct frequency
- No Tone
- No offset
- Squelch open
- High power
- Correct side is selected for packet

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3. Equipment settings – TNC
What could go wrong?

Meaning, what are the symptoms?
1. Can't find the Com Port for my USB-Serial adaptor
2. TNC is stuck in Autobaud routine
3. When I type something, I see *garbled* text
4. Can't communicate with the TNC
5. Wrong audio output level

If you are stuck here and cannot 'talk' to the TNC, do not even try to proceed to the next step!

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3. Equipment settings – TNC
USB-Serial adaptor problems/missing PC Com Port

Most TNCs use: 9600 baud, 8-N-1, RTS/CTS

Outpost:
Setup > Interfaces … > [Choose TNC] > Comm Port

Windows:

Ipserial:
Setup > Comm Port Settings

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3. Equipment settings – TNC
KPC-3's Autobaud Routine

• With everything properly connected and powered on, you might see this…

• This is the **KPC-3 Autobaud** routine that assures that the KPC-3 Plus baud is the same as that for whatever communication software you are using.
• AUTOBAUD sends and resends the message "`PRESS (*) TO SET BAUD`" at one baud after another.
• When the KPC-3 baud matches that of your terminal program, you can read the text.
• When the two bauds do not match, the message appears garbled, if it appears at all.

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3. Equipment settings – TNC
KPC-3's Autobaud Routine

- **WHEN** does this occur:
  - **The first time** your KPC-3 Plus is ever used (from the factory)
  - **Dead TNC memory battery**
  - User performs **a hard reset** with the `RESTORE DEFAULT` command

- **HOW** to fix:
  - *Get ready…* when you clearly see the `PRESS (*) TO SET BAUD RATE` text, immediately press the "*" key.
  - Then, enter the following commands:
    ```
    ENTER YOUR CALLSIGN=> W6XRL4    (your call sign or tactical call)
    cmd: INTFACE TERMINAL          (enables the full TNC command set)
    cmd: CD SOFTWARE               (TNC Carrier Detect is performed in
                                    software; lets you keep the radio
                                    squelch open)
    ```

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3. Equipment settings – TNC
More on the *TNC Carrier Detect* command

- We recommend operating the packet station with the squelch on the radio fully open (static/hiss all the time)
  - Allows the TNC to receive the weakest of signals
  - Unaffected by poorly chosen squelch level on the radio
- If squelch is open and the TNC's "Receive" light is on all the time, then the TNC's carrier detect mode is incorrectly set
- After setting `CD SOFTWARE`, the TNC's "Receive" light is only on when packets are heard
- To do that for a Kantronics TNC, at the TNC Prompt, enter:
  - cmd: `CD SOFTWARE`
  - Carrier Detect performed by the TNC software, not squelch-dependent
  - Other TNCs default to this option (Timewave) or have a different command for this option; check your TNC manual
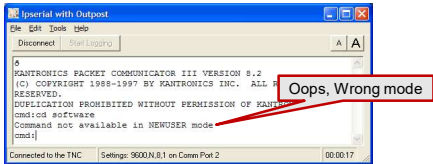
35

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3. Equipment settings – TNC
Some more on the *Intface Terminal* command

Full Command Set
- After a hard reset, the Kantronics TNC puts you in **NEWUSER** mode.
- NEWUSER mode allows only the most basic commands. As a result, you might see this:

To fix, at the cmd: prompt, you type:
```
cmd: INTFACE TERMINAL        (allows all commands)
cmd: CD SOFTWARE
```
- Now, the RCV light only lights when the TNC hears packets

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3. Equipment settings – TNC
Garbled text

- **What you see:**
  - Press a key, see garbled text.
- **WHEN** does this occur:
  - TNC previously worked great!
  - But someone changed the program's baud rate
- **HOW** to fix:
  1. TNC baud is likely 9600
  2. **Change** the program baud **Setup** > **Com Port Settings**, change baud to 9600...
  3. **Disconnect**, **Reconnect, press** any key.
  4. Try other baud rates if this does not fix it.

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3. Equipment settings – TNC
Can't communicate at all with the TNC (#1)

- **What you see:**
  - TNC previously worked great!
  - The cable, USB drivers, and power are good, and no blown fuse
  - But Press any key and I get no reply
- **WHEN** might this occur:
  - Someone or some program put the TNC in **KISS mode**
- **HOW** to fix:
  1. Start Ipserial
  2. Verify the TNC Com Port and baud rate
  3. Verify Com Port Connect, then
  4. **Tools** > **Kantronics Kiss Off**
  5. TNC is restored to **TERMINAL** mode

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3. Equipment settings – TNC
Can't communicate with the TNC (#2)

If you have a **USB-Serial Adaptor**, it is likely to be a problem with the **USB-Serial Adaptor Driver.**

Windows Device Manager is next.

- Device Manager is a Microsoft Windows O/S tool.
- It allows users to view and control the hardware attached to the computer.
- When a piece of hardware is not working, the offending hardware is highlighted for the user to deal with.
- To run Device Manager...
  1. Press **Windows** key + **R** key together to open a Run box.
  2. Type **devmgmt.msc**, press **OK**. Device Manager opens.
  3. Or, enter **device manager** in the Windows Search field on the task bar... Device Manager opens.

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Windows Device Manager
Can't communicate with the TNC

- Find and expand the **Ports (COM & LPT)** dialog.
- Don't see it? Then check:
  - USB-Serial connector is attached to the PC
  - For KPC3+ USB, make sure KPC3 is powered on
- Also, try
  - **View > Show hidden devices**

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Windows Device Manager
Can't communicate with the TNC

1. Find and expand **Ports (COM & LPT)** dialog.
2. **You should see something like this…**

> Portable Devices
> Ports (COM & LPT)
>   Keyspan USB Serial Port (COM7)   …or…
> Print queues

> Portable Devices
> Ports (COM & LPT)
>   USB Serial Port (COM3)
> Print queues

3. **You do not want to see anything like this…**

> Other devices
>   USB-SER!   …or…
> Portable Devices
> Print queues

> Portable Devices
> Ports (COM & LPT)
>   PL2303HXA PHASED OUT SINCE 2012
> Print queues

!!! These are not all the problems you might see.

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Yes, you have a problem… now what?
Can't communicate with the TNC

- Troubleshooting USB-Serial driver problems is a class by itself… we do not have time to cover it here.
- However, here are 5 (not all) things you can do:
  1. Review the SCCo RACES USB-to-Serial Adapter page… **Data Networking** > **AX.25 over VHF** > **Equipment and Software** > USB-to-Serial Adapter
  2. Post your problem or questions to the packet email list. It is likely there are SCC RACES packet ops who have encountered and solved this problem before.
  3. If you know the USB-Serial adaptor chipset, try searching, downloading, and installing its Windows driver.
  4. Buy yourself a new USB-Serial Adaptor, then label it, practice with it, build confidence with it, put it in your packet kit, and deploy with it.
  5. Lastly, if you have a bunch of old, unknown, or confirmed non-working USB-Serial Adaptors in your junk box, then throw them out NOW and save yourself from future headaches.

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3. Equipment settings – TNC
Wrong audio output level

- The TNC sets the audio output level (transmit drive audio) to your radio.
- The transmit drive level can be set from the command line, but it implies you know to what value it should be set.
- While calibrating the drive level is beyond the scope of this course, being able to view and set a previously determined value is in scope.
- To view the currently set transmit drive level:
  cmd:**XMITLVL**   (**XM** for short command)
  XMITLVL 100   (displays the value. Default=100, range is 0 to 255)
- To set the transmit drive level:
  cmd:**XMITLVL 180**   (example)
  XMITLVL was 100

```
Ipserial with Outpost
File  Edit  Setup  Tools  Help
Disconnect    Start Logging

XMITLVL
XMITLVL  100
cmd:XM
XMITLVL  100
cmd:XMITLVL 180
XMITLVL was 100
cmd:XMITLVL
XMITLVL  180
cmd:
```

- Most packet station owners will have the XMITLVL written down. If you cannot find it, see your Shift Supervisor.

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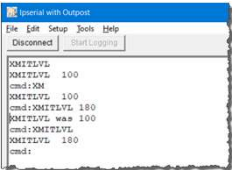
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3. Equipment settings – Radio Frequency

- Use the correct frequency for your primary or secondary BBS

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)

http://www.scc-ares-races.org/freqs/packet-freqs.html

- The same information is available as a packet notice

```
Frequencies are in MHz.

Call Sign  AX.25 Connect  User Access             BBS-BBS Forwarding
---------  -------------  --------------------    ------------------
W1XSC      W1XSC-1        145.750, 223.620,  433.570
W2XSC      W2XSC-1        145.730, 223.560,  433.590
W3XSC      W3XSC-1        144.310, 223.540,  433.450
W4XSC      W4XSC-1        145.690, 223.600*, 433.550  223.600

*223.600 is primarily for BBS forwarding; user access should be limited to
emergency/backup situations.  Interference to/from other BBSs will be significant.
```

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3. Equipment settings – Radio Settings

- Everything is now on. You are supposed to use the W2XSC BBS. But no packets are heard.

Voice side is set for transmit
Varies with radio settings

Repeater offset

Low Power

Frequency is incorrect

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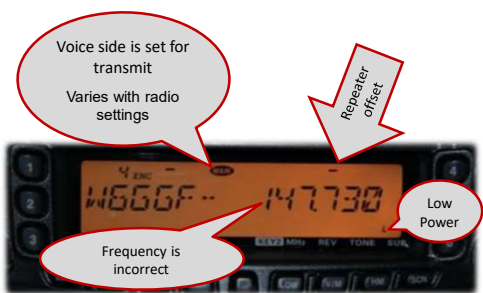
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3. Equipment settings – Radio Settings

- You change the radio settings
  - High Power
  - Correct Frequency
  - Squelch is open (BUSY)
  - Correct side is set for packet (dual rcv/xmt radios, only)
    - Some radios "force" packet to a particular side

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4. Application settings

Fuse1   Fuse2

Power Supply
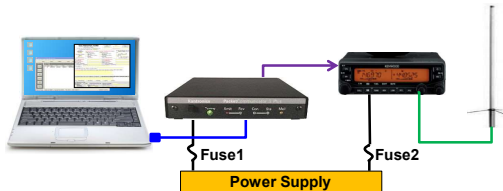
Application Settings
- Station ID
- Tactical Call
- PC Time
- BBS
- TNC
- Other Outpost configurations

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Starting Outpost > Station ID

- You get to the Outpost Station ID screen….

Is this your call sign, name, initials?

Have you been assigned a tactical call sign?
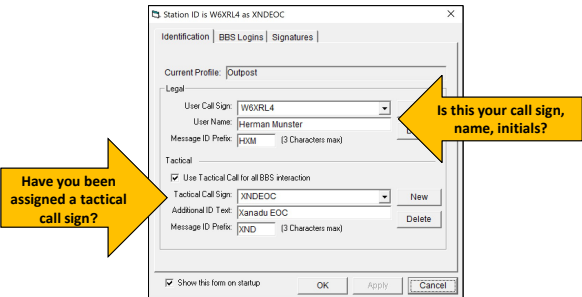
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Outpost PC Time Check
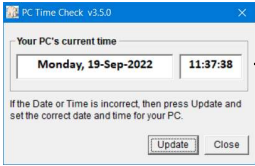
Is the date and time correct?

Correct date and time is important!
It will be used in a variety of places.
Verify each time you start up.

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Checking the BBS and TNC settings

… but you were assigned to W2XSC

… and you have a KPC-3+ TNC

- After setting the BBS and TNC, we are ready to go.
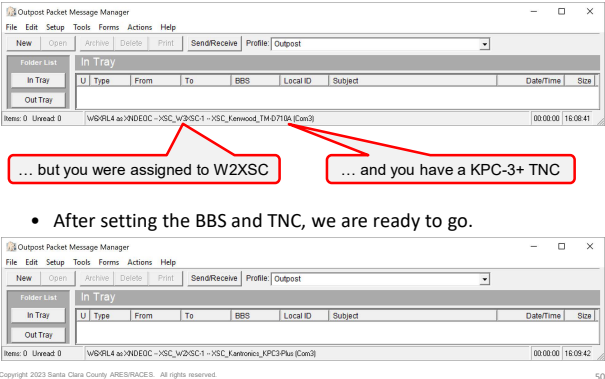
50

Best Test? – Press Send/Receive

You are talking to the TNC!
TNC prompt = cmd:

You are talking to the BBS!
JNOS BBS prompt = '>'
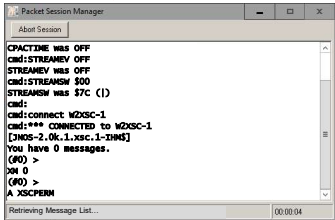
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W1XSC W2XSC W5XSC W3XSC W4XSC

Where should I connect?

SELECTING A BBS TO USE

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Selecting a BBS

- Santa Clara County ARES/RACES operates six BBSs
  - FCC Call Signs: W1XSC, W2XSC, W3XSC, W4XSC, W5XSC, W6XSC
- All six are identical in function but operate independently to maximize survivability during disasters
- All six have appropriate addresses for AX.25 packet radio, the Internet, AMPRnet, BBS Network and NetROM

Call Sign	AX.25	Internet/AMPRnet	BBS Network	NET/ROM Alias
W1XSC	W1XSC-1	w1xsc.ampr.org	w1xsc.#nca.ca.usa.noam	XSCBB1
W2XSC	W2XSC-1	w2xsc.ampr.org	w2xsc.#nca.ca.usa.noam	XSCBB2
W3XSC	W3XSC-1	w3xsc.ampr.org	w3xsc.#nca.ca.usa.noam	XSCBB3
W4XSC	W4XSC-1	w4xsc.ampr.org	w4xsc.#nca.ca.usa.noam	XSCBB4
W5XSC	W5XSC-1	w5xsc.ampr.org	w5xsc.#nca.ca.usa.noam	XSCBB5
W6XSC	W6XSC-1	w6xsc.ampr.org	w6xsc.#nca.ca.usa.noam	XSCBB6

This information is also available as a packet notice in the xscperm area

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

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Selecting a BBS

- Each city/agency has a "primary" and "secondary" BBS
  - Minimizes hidden nodes
  - Distributes load on our radio channels
  - Eliminates BBS-to-BBS forwarding for messages within a single agency
  - Makes it easy to know where to send messages

#	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) & MHJOC	HOS	W2XSC	W1XSC
7	Loma Prieta Region	LMP	W2XSC	W1XSC
8	Los Altos, City of	LOS	W3XSC	W1XSC

This information is also available as a packet notice in the xscperm area

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

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Selecting a BBS

- Connect to the primary BBS whenever possible
- Otherwise, connect to your secondary BBS
- Otherwise, connect to whatever BBS you can reach
- Access frequencies
  - EOCs should use 1.25m (220) whenever possible, because …
  - Most individual users will be on 2m or 440
- Action Items
  - Print out and keep a copy of the Packet Frequencies and BBS Listing page in your go kit (maps cities to Tactical Calls to BBSs)
  - Keep a copy of the equivalent packet notices in an Outpost folder
  - Know your own primary and secondary BBS call signs!

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BBS Connect Names for AX.25 Packet Radio

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

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

- The AX.25 protocol uses an SSID (Secondary Station IDentifier):
  - The "-1" following the call sign… W1XSC-1
  - Allows more than one device, or more than one service on a device, to use the same FCC call sign on the same frequency
- The BBS mailbox function on all SCCo BBSs uses an SSID of 1
- To connect to your mailbox on an SCCo BBS using AX.25 packet radio, you connect to:
  - W1XSC-1, W2XSC-1, W3XSC-1, W4XSC-1, W5XSC-1 or W6XSC-1

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Selecting a BBS in Outpost

- Setup > BBS …
- The SCCo Installer includes setups for all SCCo BBSs
- All SCCo-supplied setup names start with "XSC_"
- For the W1XSC BBS, you will connect to W1XSC-1
- Then tune your radio to proper frequency from your BBS frequency list
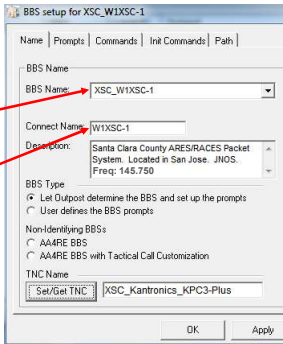
57

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CONNECTING TO YOUR MAILBOX

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___

Call Sign Determines "Login" and Mailbox

- BBS "logins" are based on the call sign used by the connecting station
  - Defined by the TNC's "mycall" setting
  - Outpost sets this automatically based on information in **Setup > Station ID…**

- The call sign can be either an FCC or tactical call sign
  - FCC call sign: W6XRL4 (Herman Munster)
  - ✓ Tactical call sign: XNDEOC (Xanadu EOC)
  - ✓ Additional ID Text: where you are located
  - ✓ Message ID Prefix: unique identifier

Setup > Station ID …

NOW ALSO REQUIRED!

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___

Tactical Call Signs

- Tactical call signs must be *pre-defined* before use
  - Your City/Agency EC/AEC can request tactical call signs as needed
    https://www.scc-ares-races.org > Packet BBS > How to Request Tactical Calls

- You can connect to any SCCo BBS using any valid tactical call sign, but:
  - You should only do so when assigned by your city/agency
  - You should use the primary BBS for your agency
  - You should only use another BBS if authorized by your city/agency

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CHECK-IN/OUT MESSAGES

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Check-In/Out Messages

- Properly formatted Check-In/Out messages are important
  - Recipient can easily find them among other messages in the In Tray
  - They inform the EOC or other "net control" which stations are ready
  - They are part of DSW supervision
- General rules during field assignments
  - Check in and out using your *assigned Tactical Call*, not your FCC call
  - Check-in as soon as the station is ready
  - Check-out before shutting down the station using your *Tactical Call*
  - Always send as plain text messages
  - Always use [HandlingOrder] = "_R_"
    - Handling Order = R (Routine)
  - Always follow the standard subject line format
    - With specific check-in/out details for subject and message body

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Check-In/Out: PackItForms

- PackItForms includes a Check-In/Out message form
  - Option for both check-in and check-out messages
  - Handles FCC call signs and Tactical Calls
  - Correctly formats the subject line and message body

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Practice: Weekly SPECS/SVECS Nets

NEW!

- **What's new!**
  - There are no longer scheduled rotating BBS outages
  - You do not have to create your own message content.
  - You will send a message form that is virtually handed to you by viewing it on the instructions page.
  - Visit scc-ares-races.org/pacpractice to get instructions!
- **To participate:**
  - Check in any time during the week before 19:00 on the day of the net
  - The instructions are different each week
  - Software will test your check-in for accuracy

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CREATING A MESSAGE

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Creating Messages with Outpost

- Start a new message:
  - Press **New**
  - Fill in all remaining fields
- Multiple source options
  - Free-form plain text
    - Supports TAB characters, reducing the character count
  - Cut and Paste from other apps, like Word, Excel
  - **File** > **Open a File**, then choose a .csv file
  - Import text files directly into the message form
- Press Send
  - Message goes to Out Tray
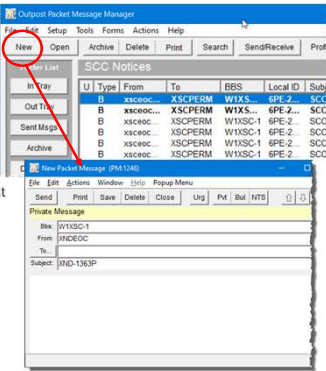
66

Outpost Message Window Details

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Message Prioritization

- Prioritize according to handling order, then date/time
  - Handling order: Immediate, Priority, Routine
  - Use Date/Time to prioritize between same handling order
  - Ultimately, the served agency decides the order

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Standard Packet Subject Line

[OriginatorMsg#]_[HandlingOrder]_[Subject]

Example: XND-200P_R_Packet 3B Class Exercise Instructions

[OriginatorMsg#]
- 3-character message prefix for the originator, a hyphen, followed by a message number.
- Outpost adds a P suffix if it generates the message number

NOTE on Immediate messages:
Immediate messages are usually are sent by voice. But, if an *Immediate* has to be sent via packet, send it PLUS send/receive asap, and also contact the TO: party by a voice net (e.g. command net, message net) to let them know an *Immediate* message is coming their way by packet.

[HandlingOrder]
- 1-letter indicator as follows:
  - **I = Immediate**
  - **P = Priority**
  - **R = Routine**

[Subject]
- Short description of the contents of the message
- Autofilled by PackItForms or entered by you

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Why The Subject Line Matters

- The receiving station must process messages according to handling order, then date/time
  - Must be able to easily scan the subject lines
- Which is most important? What is handling order?

Subject
PTS-834P Urgent: Need bulldozer
PTS-835P Water distribution
PTS-836P Barricades

- How about now?

Subject
PTS-834P_P_Urgent: Need bulldozer
PTS-835P_P_Water distribution
PTS-836P_I_Barricades

Even a large In Tray is easily scanned

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PackItForms

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Creating a PackItForms

- Select the form on Outpost's **Forms** drop down menu
  - Default web browser will start
  - Form will be displayed with fields to be completed
  - Note the items highlighted in RED… these are all *required fields*.

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Address it to whom?

- SCCo ARES/RACES Recommended Form Routing Cheat Sheet
- PackItForms now auto-fills most forms with the
  - *Handling Order*
  - *To Location*
  - *To ICS Position*

Form Type	Handling		To Location **	To ICS Position **
General EOC				
ICS-213 Message Form	Author defined		Author defined	Author defined
EOC-213RR Resource Request	If "Priority" (Field 11) is:	Then "Handling" is:	County EOC	Planning Section
	Now	Immediate (ASAP)		
	High (0-4 hrs)	Immediate (ASAP)		
	Medium (5-12 hrs)	Priority (<1 hr)		
	Low (12+ hrs)	Routine (<2 hrs)		
OA Jurisdiction Status	Immediate (ASAP)		County EOC	Situation Analysis Unit Else: Planning Section
OA Shelter Status	Priority (<1 hr)		For city-managed: City EOC For county-managed: County EOC	Mass Care and Shelter Unit Else: Care and Shelter Branch Else: Operations Section

https://www.scc-ares-races.org/ > Forms & Signs > Go Kit Forms

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Submit the PackItForm to Outpost

- Operator info is filled in automatically
  - Operator call sign and name
  - "Sent" by "Packet"
  - Date and Time (when Submit button is pressed)
- Click the Submit button to send to Outpost

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Submission Successful

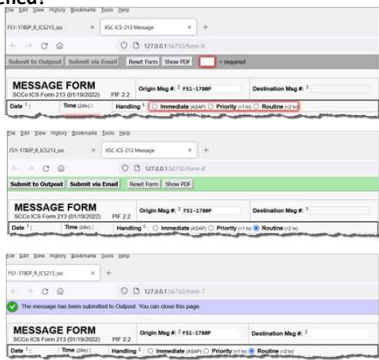- Form is transferred to Outpost; OK to close this form

75

Message Progression
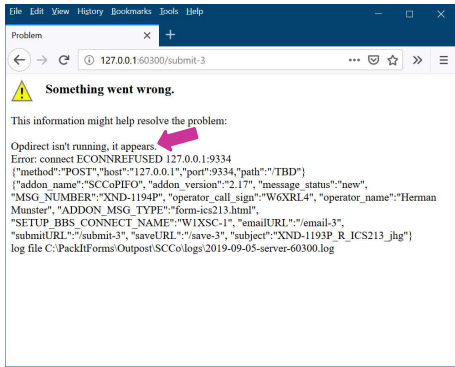
Did you see what happened?

- *Incomplete Message*; controls are grayed out, required fields in Red, gray banner

- *Complete Message*; controls are enabled, ready to send, green banner.

- *Submitted Message*; controls are removed; displayed success status, purple banner.

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Error During Submission

⚠ **Something went wrong.**

This information might help resolve the problem:

Opdirect isn't running, it appears.
Error: connect ECONNREFUSED 127.0.0.1:9334
{"method":"POST","host":"127.0.0.1","port":9334,"path":"/TBD"}
{"addon_name":"SCCoPIFO", "addon_version":"2.17", "message_status":"new",
"MSG_NUMBER":"XND-1194P", "operator_call_sign":"W6XRL4", "operator_name":"Herman
Munster", "ADDON_MSG_TYPE":"form-ics213.html",
"SETUP_BBS_CONNECT_NAME":"W1XSC-1", "emailURL":"/email-3",
"submitURL":"/submit-3", "saveURL":"/save-3", "subject":"XND-1193P_R_ICS213_jhg"}
log file C:\PackItForms\Outpost\SCCo\logs\2019-09-05-server-60300.log

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Correcting Submission Errors

- Is Opdirect running?
 - Opdirect interfaces PackItForms to Outpost

  Windows Taskbar
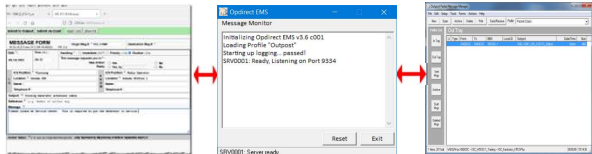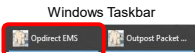
- Solution –
  - In Outpost: **Tools** > **Message Settings, Adv** Tab;
    - ☑ Automatically Start Opdirect…
  - Restart Outpost. Verify Opdirect is running
  - Press "Back" on web browser
  - Click "Submit" button again

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Enter the "To" Address

- An Outpost message window appears, containing a condensed and formatted message
- Subject line is correctly formatted
- Enter the "To:" address
  - More on this in a bit!
- Click "Send"
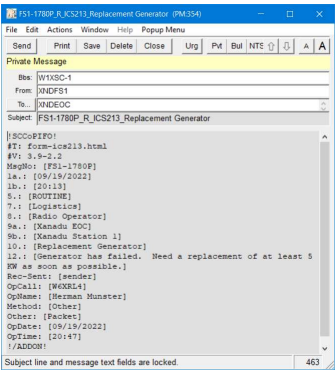
79

Press Send/Receive

- Message is in the Out Tray
- Press "**Send/Receive**"
- Messages will be sent if…
  - message is from the currently configured user (Setup > Station ID), and
  - message is being sent to the currently configured BBS (Setup > BBS), and
  - message is not a DRAFT message

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Delivery Receipts

- Message Recipient
  - When you receive a message, Outpost generates a delivery receipt
  - Receipts are sent during the same Send/Receive session that retrieved the message
- Message Originator
  - Receives receipt with Subject line: "DELIVERED: <original subject>"
  - Message contents: the date and time downloaded by **Outpost** by recipient
  - Eliminates the need to ask "Did you get my packet message?"
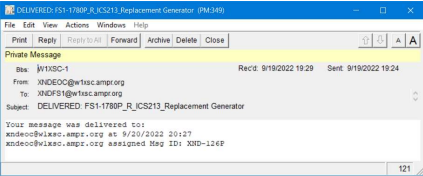
81

ADDRESSING RECAP

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Top 5 Addressing Take-aways

5. Addresses within the SCCo packet network use the standard Internet-style username@domain address format : *usercall*@*bbscall*.ampr.org

   examples: *W6XRL4*@*w2xsc*.ampr.org
   XNDEOC@*w4xsc*.ampr.org

4. Three different addressing formats for sending messages:
   To: *W6XRL4*@*w2xsc*.ampr.org … *Full address always works!*
   To: *W6XRL4*@*w2xsc*   … At least always add the *bbscall* sign
   To: *W6XRL4*   … **Do not use this shortcut**

3. Always send to the user's **Primary BBS**, unless
   a) that BBS is down (then, use their **Secondary BBS**), or
   b) that user cannot reach his/her primary BBS (bad location), or
   c) you are told to use a different BBS

2. When sending from email to a packet address, send as a plain text e-mail

1. Read and understand the *Packet Network Addressing Guide*!
   http://www.scc-ares-races.org/data/packet/packet-addressing.html

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Complete Addressing Guide Available Online
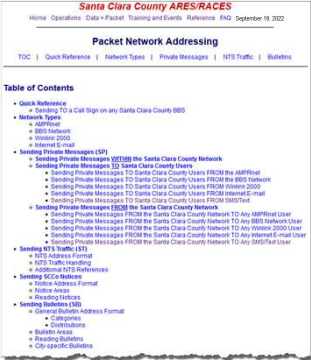
- Quick Reference
- Network Types
- Sending Private Messages
  - Within our network
  - To other networks
  - From other networks
- Sending NTS Traffic
- Sending Notices
- Sending Bulletins

https://www.scc-ares-races.org/data/packet/packet-addressing.html

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Distributing network-wide messages

NOTICES AND BULLETINS

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Slide 86

Notices and Bulletins: Overview

- Bulletins are messages intended for a broad audience
  - They are a great way to get information out to everyone
  - Better than a mailing list; no need to know all the desired addresses
  - When configured, Outpost will take care of retrieving them for you
- The SCCo BBSs support two types of bulletins
  - *SCC Notices* are a special type of bulletin specific to Santa Clara County BBSs
    - Only distributed to SCCo BBSs (W*XSC)
    - Simple to address
    - SCCo uses 3 special *Notice* categories
  - General bulletins are used for wider (local to worldwide) distribution
    - Organized by general *categories* (e.g.: "equake", "ARES"), and
    - *Distribution* ID defining how widely it is distributed (e.g.: "XSC", "BAY", "NCA", etc.).
    - Outside the scope of this class (will cover in the Packet Type 2 Class!)
- Regardless of the bulletin type, when configured in Outpost, they will automatically be downloaded

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SCCo Notice Areas   NOTICE

- SCCo ARES/RACES has four 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
  - allxsc
    - Where you can write city and jurisdiction notes
    - Notices posted here automatically expire after 8 days
- Advantages
  - Limits on-air time required to check bulletins
  - Focuses readership so important information is not missed
  - Outpost only downloads a notice once

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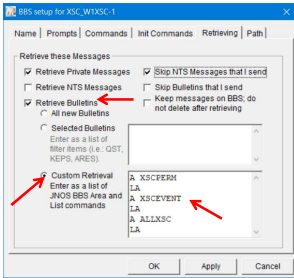## Outpost is Pre-Configured for SCCo Notices


- The SCCo Packet Installer pre-configures Outpost to download SCCo notices
  - XSCPERM
  - XSCEVENT
- In Outpost:
  - Setup > BBS, Retrieving Tab
  - Check "Retrieve Bulletins"
  - Check "Custom Retrieval"
  - Custom Retrieval:
    ```
    A XSCPERM    (Area)
    LA           (List All)
    A XSCEVENT   (Area)
    LA           (List All)
    A ALLXSC     (Area)
    LA           (List All)
    ```

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Using City Bulletins

Setup
- **Setup > BBS > Retrieving**
- Change to your city's three char prefix (ex: "XND", "SJC", "MTV", etc.)

NOTE: only one City entry is allowed.
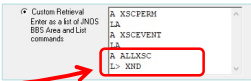
Create, send a city bulletin
- Start a new message
- Click the "**Bul**" button
- Address it to "**xnd@xsc**"
- Enter your message and click Send
- Addressing it to **@xsc** distributes to all XSC (Santa Clara County) BBSs.

See the details here…
https://www.scc-ares-races.org/data/packet/packet-addressing.html#bull-city
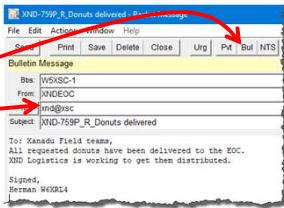
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EVENT DOCUMENTATION

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Accuracy and Completeness

FEMA

Excerpts from the FEMA|Office of Inspector General report titled *"Summary of Key Findings of Fiscal Year 2016 FEMA Disaster Grant and Audits"*

- "Over the 7-year period, FYs 2009 to 2015, we found $1.64 billion, or 15 percent, in questioned costs out of the $10.9 billion that we audited, which we recommended FEMA disallow as ineligible and unsupported costs."
- "In fiscal year 2016, we found $155.6 million, or 23 percent, in questioned costs out of the $686 million that we audited, which we recommended FEMA disallow as ineligible and unsupported costs."

In cases where FEMA payments were made and claims later disallowed, recipients were required to repay these payments, with audits sometimes taking place years later.

Because our documentation could be a used as part of the City's justification for either an expense reimbursement or cost recovery request, ensuring the accuracy and completeness of what we submit is critical.

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Archiving event documentation
Introduction

- The job is not done until the paperwork is complete... and submitted.
  - Every scrap of paper used during an activation is part of the event or incident and goes to the Documentation Unit (or your Supervisor)
    - It must be legible (print)
    - Use one side only
  - These are legal documents that may be needed to defend decisions
  - Most of this documentation is 'discoverable'
  - If it is not in the documentation, then it did not happen
  - Some documentation is specifically created after the event or incident, such as the After Action Report
- And, all this applies to our packet operations

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Archiving event documentation
Introduction

- During a Packet Deployment, you will produce the following:
  1. ICS 214-SCCo Unit Activity Log
  2. ICS 309-SCCo Communications Log (if participating on a voice net)
  3. All third party sent & received PackItForms and plain text messages
  4. All sent and received operator to operator packet messages
  5. ICS 309 Communications Log (packet)
  6. Any *Form 1* / hand-scribbled / sticky notes, documentation.

- Whether it be an exercise or a real activation, when your shift is over, your supervisor will provide instructions on wrap-up tasks that need to be done. These can include:
  - Submitting all documentation (to whom and how)
  - Preparing the packet station for the next use, including archiving your shift or the event

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Archiving event documentation
ICS 309 Communications Log (packet)

1. Create the ICS 309 Comm Log

a) From Outpost, **Tools** > **Report Settings**, 3rd tab, "ICS309." Enter all fields.

b) Select **Forms** > **ICS 309 Comm Log**.

c) Select **Period** Tab. Select **Range**, set the **From:** and **To:** to the date/time range for when *your shift* (or event) occurred.

d) Select **Content** Tab. Do not exclude anything!

e) Select **Output** Tab. Check output options.

> **NOTE:** If you do not have a printer, then try the default *Microsoft Print to PDF* printer.

f) Select the Signature Tab.

g) Press **Build Data Set**, then press **Print**.

h) Sign any paper-printed ICS 309 form.

i) *Deliver this report to your supervisor.*

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Archiving event documentation
Printable Message Listing

2. Create a printable message listing

a) From Outpost, **File** > **Save All**.

b) This will create an Ascii-formatted file of all messages in the current folder with a **Page Break** between each message. Use meaningful file names.

c) Repeat this step for any other folder where event messages were stored.

d) Later, this file could be printed to generate one message per page. Or, because the messages are in a .txt file, any message could be copied and pasted into another note pad, and printed for reference.

e) *Deliver this file to your supervisor.*

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Archiving event documentation
Message Archive

3. Create a Message Archive

a) From Outpost, **File** > **Export**, then select "**All Folders**" (for your entire system).

b) Use meaningful file names.

c) The Export process will create an Outpost Archive File (.oaf).

d) This file later can be imported back into Outpost to restore the archived messages to their original folders.

e) *Deliver this file to your supervisor* (email or USB).

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Archiving event documentation
Reset Outpost for the next event

4. Reset Outpost for the next event

STOP!	Do not proceed until you have created a **Message Archive>All Folders** first.
STOP!	Do not proceed until you have permission from your supervisor.

a) If not already done, set up the SCC Notices message folder
   a) **Tools** > **General Settings**, **Start** tab.
   b) Set the name of one of the folders to *SCC Notices*.
   c) Move or drag all SCC Notices into this folder.

b) Export (backup) the SCC Notices folder:
   a) click on this folder. Then **File** > **Export**, select **This Folder**
   b) Give it a name, like "SCC_Notices-yymmdd". Press **OK**.
   c) Verify that all messages (6 today) were exported.
   d) FYI… your file is in the **C:\SCC Packet\archive** directory

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Archiving event documentation
Reset Outpost for the next event

4. Reset Outpost for the next event (continued)

c) Delete all Outpost messages:
   a) Go to **File > Delete All Messages**, answer **Yes** at the prompt.
      All your files are deleted.

d) Restore the SCC Notices:
   a) File > **Import**, select the file, press OK

e) You now have a clean system for the next event or incident.

f) Inform your supervisor that this task is complete.

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OUTPOST TIPS

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Resend option

You did what?!!?

- You just sent a message, but …
  - it was addressed incorrectly, or
  - it was sent to the wrong BBS, or
  - you forgot to include all recipients, or
  - it was incomplete, or
  - it was the wrong message, or
  - any number of other problems!
  And, you don't want to type it all back in! What now?

100

Resend option – Text Messages

Outpost's *Resend* option lets you resend a message previously sent. For *Text Messages…*

- From the **Sent** folder, open the message
- Click on **Actions** > **Resend**… choose either option
- The message is opened in edit mode.
- Make whatever changes you need to make, then
- Press **Send**, then **Send/Receive** as usual.

NOTE! If you select **Resend, Same Msg ID,** then manually change the Message ID -###P to -###R for Resend. This ensures no duplicate message confusion.

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Resend option – PackItForm Messages

Resending *PackItForm Messages* depends on your option.
For *Same Message ID*…

- From the Sent folder, **single-click** on the message to highlight it (not open it)
- Select **Actions** > **Open enhanced msg as text**
- Once the text version of the form opens, click on **Actions** > **Resend**… choose **Same Message ID**
- The PackItForm will open as a new copy of the message in the Browser, just as if it was a new message for editing.
- Make other changes and continue as usual.

NOTE! If you select **Resend, Same Msg ID,** then manually change the Message ID -###P to -###R for Resend. This ensures no duplicate message confusion.

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Resend option – PackItForm Messages

Resending *PackItForm Messages* depends on your option.
For *New Message ID*…

- First get the Next Message Number
  - In Outpost, **Tools** > **Report Settings**
  - Note the **Next Message** value. This is the number to use. Do not change it!
- Then, from the Sent folder, **single-click** on the message to highlight it (not open it)
- Select **Actions** > **Open enhanced msg as text**
- Once the text version of the form opens, click on **Actions** > **Resend**… **New Message ID**
- The PackItForm will open in the Browser.
- Manually replace the PackItForm **Origin Message Number** with the number you noted above.
- Make other changes and continue as usual.

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FIELD PACKET DEPLOYMENT

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Putting it all together

1. **First Shift…** when assigned to establish a station

2. **Initial station setup…** equipment check-out, and check-in

3. **Packet Operations…** managing the message flow

4. **Incoming Shift Change…** if you are relieving someone else

5. **Outgoing Shift Change…** if you are being relieved

6. **Securing Operations…** when directed to shut down

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Field Reference

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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

  - 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

And now, for something completely different...

- Please sign up for the Monthly Packet Message Passing Exercise planned for Wednesday 18-Oct-2023.
- These exercises simulate participating in a real event as an experienced county packet operator who has been assigned for mutual aid support for Xanadu County and City.
- You will be asked to pass at least two 3rd party messages in each direction (PacketItForm) and at least two operator-to-operator messages in each direction.
- The exercise lasts for one week, starts at 09:00 on Wednesday 18-Oct-2023 and ends a week later on 25-Oct-2023 at 17:00. A zoom debrief follows.
- Please register for this event here... https://www.scc-ares-races.org/activities/eventdetail.php?id=1371.

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Thank You!

Please complete the Course Evaluation
on or before next **Saturday 8-October!**

Please complete the Assignment
on or before Wednesday 25-October!

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 next part:
Packet Type II

Questions, comments, suggestions?
kn6pe@arrl.net

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