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2016 Year End Summary

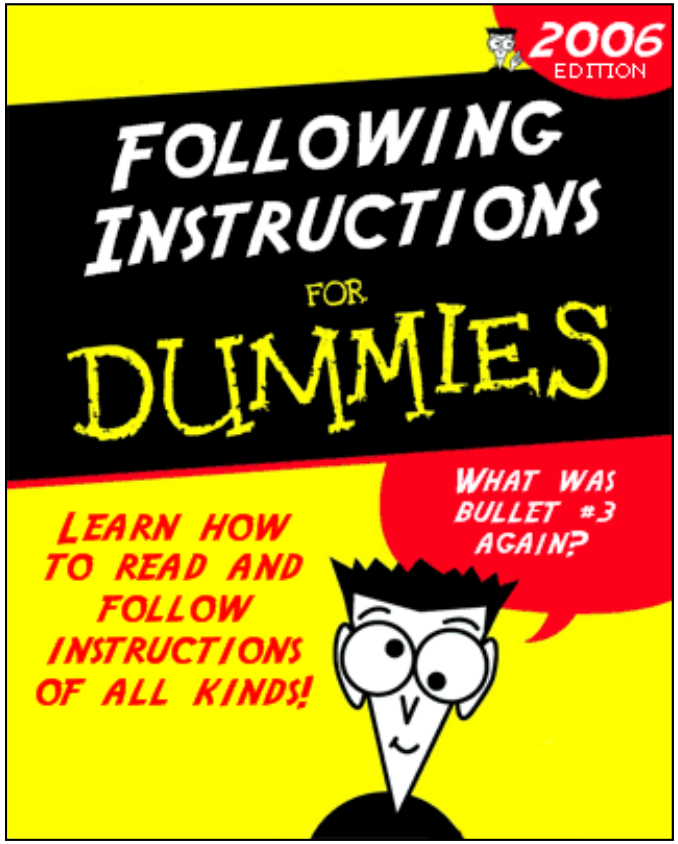
Review, Updates and Preview

Santa Clara County ARES®/RACES

Revised: 02-Dec-2016

Housekeeping

- Introductions
- Pen/pencil & paper
- Cell phones
- Side conversations
- Questions
- Corrected handouts
- Breaks
- Restrooms
- In case of emergency



Agenda

- Generally
  - A review of some key procedures
  - An summary of changes that have occurred during the past year
  - A preview of some of the enhancements planned for next year

- Topics covered
  - Training Program
  - Field Operations
  - Radio Direction Finding
  - Mesh Networking
  - Packet Operations
  - MAC Program

Training Program

2016 Year End Review, Updates and 2017 Preview

Santa Clara County ARES®/RACES

Revised: 27-Nov-2016

2016 Accomplishments

- 60 hours of classroom training offered
- 541 attendees (not including today's class)
- Defined Instructor Qualifications
- Course material updates
  - All classes had some updates
  - Significant enhancements to Net Control and Packet classes
  - Major rewrite of the Planning class

Instructor Qualifications

- Hold a current MAC qualification higher than the course being taught; or, if not a MAC the Training Coordinator or CRO may approve an instructor who can demonstrate equivalent qualifications.
- Receive approval of the Training Coordinator or CRO.
- Maintain knowledge and experience of subject matter through participation in public service events and/or drills in an activity related to the subject being taught.

Instructor Qualifications

COURSE	MAC Qualification/Knowledge
Introduction to EmComm	MAC F3
Fundamentals of EmComm	MAC F3
Field Ops Type III/II	MAC F1
Net Control Type III	MAC N2
Net Control Type II	MAC N1
Packet Type III	MAC P2
Packet Type II	MAC P1
Shadowing Type III	MAC S2
Message Passing	MAC N2 or F2
Cross-band Repeating	MAC F1
Antenna Fundamentals & Safety	MAC F2 or N2 plus demonstrated subject matter expertise.
Direction Finding Basics (RDF)	Demonstrated subject matter expertise.
WiFi/Mesh Workshop	Demonstrated subject matter expertise.
Planning Type I	MAC F1, N1, P1, or S1

Updated Event Planning Class

- Added Check Lists for each planning area
  - IC, Net Control, Packet, Field Ops, Shadow, Staging, Logistics, Safety, PIO
- Table top exercises utilize planning scenarios allowing full class participation
- Included creation of After Action Report (AAR) exercise
  - An AAR is required for all MAC qualified events
- Incorporates key concepts from:
  - FEMA IS-120 An Introduction to Exercises
  - FEMA IS-130 Exercise Evaluation and Improvement Planning
  - The Homeland Security Exercise and Evaluation Program (HSEEP)

Updated Event Planning Class

THE PLANNING PROCESS

- Establish Goals and Objectives
- Form an Exercise Planning Team
- Create/Document plans
- Meet with team and review plans
- Modify Plans – meet and review
- Conduct Exercise
- Conduct Hot Wash (Debrief)
- Produce After Action Report (AAR)
- Implement recommended improvements

Updated Event Planning Class

AFTER ACTION REPORT includes:

- Description of exercise and its goals and objectives
- Results achieved
- Problems and concerns
- Observations and feedback
- Lessons learned
- Improvement ideas for future events
- Appendices & Attachments
  - Copies of all drill planning documents
  - Copies of all drill paperwork, forms, notes, etc.

2017 Training Preview

- Course order changed
- New Instructors for many courses
  - Instructors wanted a change
  - A different view of the subject matter is often good thing
- Courses will continue to evolve and improve
  - It is a good idea to retake a class every couple of years
  - Your feedback is important, please turn in course evaluations
- Please remove yourself from the course sign-up if your plans change and you can't attend

2017 Training Schedule

Day	Date	Course	Instructor
Sat.	January 7	Field Ops Type III/II	Fox
Sat.	February 4	Message Passing	McKee
Sat.	March 4	Net Control Type III Part A	Laubach
Sat.	April 1	Net Control Type III Part B	Laubach
Sat.	May 6	Net Control Type II	Laubach
Sat.	June 3	Event Planning Type I	Howard
Sat.	August 5	Shadowing	Howard
Sat.	September 9	Packet Type III Part A	Oberhofer
Sat.	September 16	Cross Band Repeat / Antenna Fund.	Zinstmaster
Sat.	October 7	Packet Type III Part B	Oberhofer
Sat.	November 4	Packet Type II	Oberhofer
Sat.	December 9	Year End Summary	Cnty. Staff

2017 Training Schedule

Day	Date	Course / Location	Instructor
Wed.	February 8	Intro to EmComm - (Mtn. View)	Clark
Wed.	March 1	Fund. of EmComm - (Mtn. View)	Clark
Wed.	June 14	Intro to EmComm - (Sunnyvale)	Howard
Wed.	July 12	Fund. of EmComm - (Sunnyvale)	Howard
Tue.	October 10	Intro to EmComm - (Morgan Hill)	Zintsmaster
Tue.	November 14	Fund. of EmComm - (Morgan Hill)	Zintsmaster

Field Operations

2016 Year End Review, Updates and 2017 Preview

Santa Clara County ARES®/RACES

Revised: 28-Nov-2016

Before You Volunteer For Assignment

- Verify that you, your family and your home are safe
  - Your personal safety comes first
  - You can't perform an assignment safely (or effectively) if you are distracted by other concerns
- Pack your car
  - SCCo ARES/RACES standard go-kit
    - www.scc-ares-races.org/operations.html
  - Radio(s), Tripod/Mast & Antenna(s), coax, power, …
  - Shelter: Pop up, Table, Chair
  - Personal Needs: Clothing, Food & Snacks, Water, Medicine

When You Are Ready To Go

- Check in to the Resource Net. Be Patient!
- Get
  - Assignment information, activation number, travel info and hazards
- Provide
  - Starting location and odometer
- Start your ICS 214
- Follow Resource Net procedures to destination
  - Pay attention and listen for net control to call you

SCCo County Resource Net

- Used for coordination and tracking of county resources (people who are registered as a county Disaster Service Worker and have been activated by the county)
- Pay Attention; Respond promptly when called by Net Control
  - Net Control will conduct health & welfare checks every ~20 min.
  - Health & Welfare response:
    - <Street location>, <odometer (last three digits)>, <call sign>
    - Ex: Highway 101 at Lawrence Expressway, Odometer 123, W6XRL4
  - If Net Control doesn't call you, let him/her know
- Switch repeaters as needed, depending on location
- Never leave the net without informing net control

When You Get to the Staging Site

- While in vehicle
  - Check out of Resource Net
  - Check in to Staging Net (or tactical net) as instructed by net control
  - If no Staging or Tactical Net, stay on Resource Net until you check in with Site Supervisor/Staff
- Proceed to Staging (or designated location) and Sign In
- Expect to see/receive
  - ICS 211 Sign-in
  - Assignment & Safety Briefing
  - ICS 205 Communications Plan
  - T-Card
  - Tactical call
- Proceed to Assignment location

Voice Check-in / Check-out

- When checking in as yourself:
  - "Net control, W6XRL4 checking in"
- When checking in as a tactical call sign:
  - "Net control, Rover 4 checking in, W6XRL4"
- Speak call signs slowly and clearly
  - If conditions require, use phonetics
- Tactical Call is used for identification during message exchange
- Remember to use your FCC Call at end of last transmission or every 10 minutes
  - "Net control, Rover 4 acknowledges, W6XRL4"

When You Get To Your Assignment Site

- Check out of Staging Net
- Check in to Tactical Net
- Face-to-face introduction with Site Staff
  - Shelter Manager
  - Incident Command Post Personnel
  - Get information about your assignment and any special procedures for the site
- Set up your equipment
- Get shift change briefing from previous operator
- Inform net control that you are ready
- Do the job you were trained to do – assures DSW coverage

While on Site

- Be aware of what is happening around you
  - Watch out for your own safety
- Remain in touch with site personnel if you leave your position
- Respond to Health and Welfare checks
- Remember to eat and stay hydrated
- Adhere to the Performance Standards
- Document, document, document
  - ICS 214 Unit Log
  - ICS 309 Communications Log
  - Other forms as required (Logistics Request, hospital forms, …)
  - Form 1 (plain paper)

ICS-309 For Everyone (except Shadows)

- The ICS-309 Communications Log is for use by everyone except shadows
  - This includes net controls and field operators
  - This also includes packet (Outpost can generate if for you)
  - What to log:
    - Check-ins, check-outs, formal message traffic, other significant traffic
- Shadows have a different situation
  - Very little of their communication would normally be logged
    - No formal message traffic
    - All short, informal: "Where is Betty?" … "Over by staging"
    - Portable, hands are full: alt radio, cell phone, papers & more
    - Can't set own pace, have to be responsive to their principal first
  - Use ICS-309 if possible, but OK to use the ICS-214 logging

Message Announcement Procedure

- Step 1: Announce quantity and handling order as usual
  - Sender calls receiver
    - "Los Altos, I have 2 Priority messages for you"
    - "Santa Clara, I have 1 Emergency and 1 Routine message for you"
  - Receiver priorities by handling order, then: "go ahead" or "ready to copy"
- (New) Step 2: Announce message type before sending
  - Let the receiver know what's coming so they can prepare the right form
    - "Message type is ICS-213"
    - "Message type is Logistics Request Form"
    - "Message type is informal" (ex. unstructured, non-form-type messages)
  - Receiver readies the right form, then: "go ahead" or "ready to copy"
- Step 3: Send the message as usual
  - "Message number …"

Message Announcement Example

- Suppose Drill City EOC has already told Net Control that is has a Priority message to send. Then …

Who	Said …
Xanadu	Net Control, Xanadu EOC with 1 emergency and 1 routine message
Net Control	Xanadu, go ahead with your emergency message
Xanadu	Message type is ICS-213
Net Control	(retrieves proper form … then) Go
Xanadu	Message number …

- After Xanadu's message is received, Net Control would:
  - Receive the priority message from Drill City
  - Receive the routine message from Xanadu

When Your Assignment Is Complete

- Brief your replacement operator
- Turn in or leave behind all paperwork except your ICS 214
  - Drills – take paperwork to Staging
- Pack up your equipment
- Check out with the site personnel
- Check out of Tactical Net
- Check in to the Staging Net
- Return to Staging

When You Are Ready To Go Home

- At Staging turn in any remaining paperwork
- Complete debrief paperwork
- Sign out of ICS-211
- Check out of Staging Net upon reaching your vehicle
- Check in to Resource Net
- Return home following Resource Net procedures. Options:
  - Stay on the resource net all of the way home
    - Recommended for real deployments, adverse conditions
  - Check-in/check-out in one step if you don't want to be tracked at all
    - Ex: You're leaving the event and don't need/want tracking
  - Check-out along the way when you no longer need to be tracked
    - Ex: You decide to stop off at store on the way home

Remember…

- Adhere to the Performance Standards
- Stay in communication with Nets or personnel
  - Let people know if you are leaving a net or operating position
- Your own safety comes first
- Do what you were trained to do

Radio Direction Finding

2016 Year End Review, Updates and 2017 Preview

Santa Clara County ARES®/RACES

Revised: 24-Nov-2016

RADIO DIRECTION FINDING BASICS

- Why we train to locate:
  - Faster “stuck microphone” resolution at events
  - Search and Locate assistance
  - Interference sources
  - Intentional jammers
  - For fun! – e.g. Fox hunts (T-hunts)
- For “on foot” RDF with an HT or receiver and
  - “Body shielding”, with and without radio “shield” or tube, or
  - Time Of Arrival “box”, e.g. “HANDI-Finder®[1]” hand held.
- Hand-held Yagi antenna with and without an attenuator
  - Yagi + “VK3YNG VHF Foxhunt Sniffer Mk 4” is the *best* combo. Pricey, but performance is most excellent. See: http://www.foxhunt.com.au/

[1] See http://www.handi-finder.com/

What do you prepare for RDF?

- Practice, practice, practice
  - Get to know your RDF equipment
  - T-hunts (use your favorite search engine “sf bay area t-hunt”
    - Organize your own
  - SCC Mini-Drill and training opportunities
- Optional things to bring with you
  - Map, compass, straight-edge, pencil
  - Smart phone apps: e.g. FoxHunt on iOS.
- Download the RDF training class presentation read the “LINKS” page at the end for more information

Remember

- Above all else, your safety is number one!
- Obey all laws
- Often we are searching through public areas
  - RDF work will attract attention and questions
  - Be friendly, build public understanding and appreciation
  - If at an event, refer them to the PIO / IC for more information
- RDF work is secondary to the public's right to be there
  - Proactively give way, maintain safe distances, etc.
  - Respect their privacy!
  - Avoid poking them with antennas!

9 July 2016 – RDF Mini Drill Recap

- Single focus: direction finding practical
- MAC credit and N3, F3, S3 evaluations were available
- 3 fox transmitters, +1 for extra credit
- 5 teams assembled, all found at least 1 fox
- 3 teams found all three, 1 team found all four
- Overall successful
- Learning was good, expect lessons learned in 2017
  - All forms need to be filled out properly
  - We want everyone wearing a vest
  - We'll put out direction finding instructions and information early
  - We continue to have people arrive late and miss start of IC briefing – **plan your arrival to any event so that you meet time schedules**

Mesh Networking

2016 Year End Review, Updates and 2017 Preview

Santa Clara County ARES®/RACES

Revised: 24-Nov-2016

JOINT CERT / RACES Drill 29 October 2016

- County-deployed mesh radio network
  - Proof of concept for “kit based” deployment
- 5 CERT drill locations with VoIP phones and conference call capability
- Objectives:
  - Plug-and-play 5-node mesh network
    - Node kit for each location
    - Consistent easy setup and tear down
  - Operate on batteries during entirety of drill operational period
  - Be flexible with placement – unknown site propagation characteristics
  - Provide instructions for participants
  - Optional: local WiFi for VoIP client on smart phone

JOINT CERT / RACES Drill 29 October 2016

- Equipment:
  - Amateur Radio Emergency Data Network OS (AREDN) on commercial radios: Ubquiti Bullet M2
  - Commercial 2.4 GHz omni antennas with high gain
    - L-com HG2415U-PRO 2.4GHz 15dBi
  - MFJ tripod and 18-foot fiberglass mast
  - Node kit for each location:
    - Node kit box (details on next page)
    - 35 Ah SLA battery
  - Zultys Zip2 phone
  - TP-Link TL-WR741ND WiFi router (FCC Part 15)
  - Lots of color-coded CAT5 cables
  - Lots of Bongo ties
  - Laminated instruction sheet for each phone

JOINT CERT / RACES Drill 29 October 2016

- Node kit:
  - 4-port Ethernet switch
  - 4-port POE injector
  - Charge controller
    - Battery
    - Optional solar panel
  - Main (node 1) had
    - 8-port Ethernet switch
    - RigRunner with USB power
    - Asterisk SIP server running on a Raspberry PI
  - 35 Ah SLA battery
    - Battery box from Quicksilver Radio
  - Carrying case:
    - Harbor Freight
    - Misc. parts from OSH

TAKEAWAYS

- System worked and provided 100% up time for Zulty phones
  - CERT very much liked it
  - We'll work earlier in the future with pre-planning and instructions now that we know we can provide such VoIP services
- All radios fully meshed through old military barracks with poured reinforced concrete
- TP-Link WR741ND routers aren't up to the task of site-wide WiFi
  - Looking at Ubiquiti commercial WiFi AP and antenna for next opportunity
- Need to tweak Asterisk logging issue and Raspberry PI ToD
- Additionally from Saturday, 5 November Cupertino public service event experience, brought 2 of these nodes for the "backbone"
  - Ubiquiti Bullet M2 + 15dBi omni have excellent range
  - Also found Ubiquiti AirGrid M2 to have excellent range
  - Mixed AREDN and Broadband Hamnet platform interoperability

NEXT FOR MESH

- Update what's needed on SCCo mesh materials
  - Including simple Asterisk service configuration
- Look for more opportunities in 2017 to exercise mesh
  - Voice, video (IP cams), local LAN, etc.
- Encourage interested hams to build up and test their mesh nodes. Right now two platform choices:
  1. Broadband Hamnet:
     - http://www.broadband-hamnet.org/
     - Most (but not all) Linksys WRT54G/GS/GL and some Ubiquiti
  2. Amateur Radio Emergency Data Network
     - http://aredn.org
     - Many Ubiquiti radio products and TP-Link CPE210
     - Note: XM hardware works, XW hardware support pending

  NOTE: as of this time both platforms continue to interoperate

Packet Operations

2016 Year End Review, Updates and 2017 Preview

Santa Clara County ARES®/RACES

Revised: 02-Dec-2016

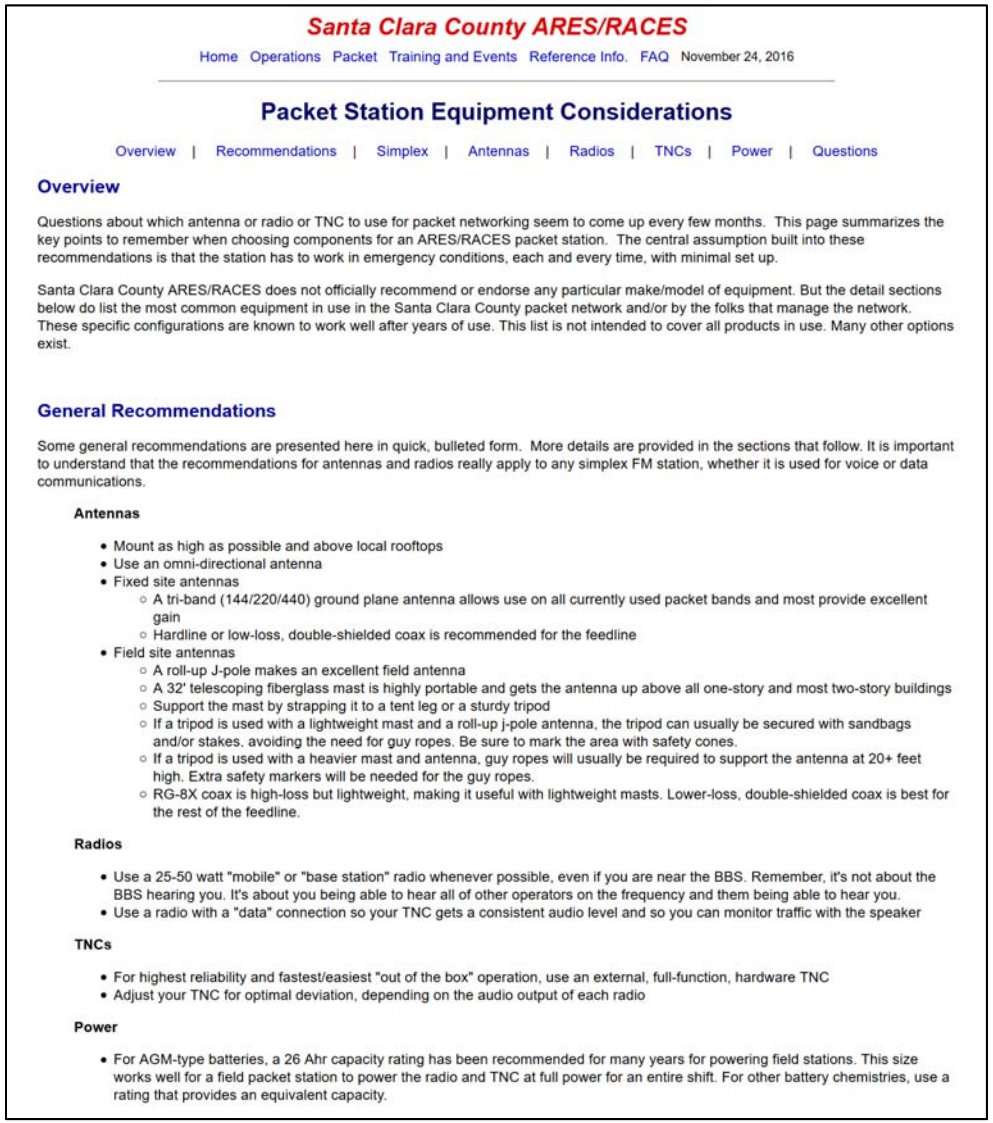
2016 ACTIVITY SUMMARY

Backbone Site Enhancements

- UPS upgrades at W1XSC, W2XSC, W4XSC
  - W1XSC = 100 Ahr; W2XSC = 400 Ahr; W4XSC = 220 Ahr
  - W2XSC, W4XSC: No single battery (or charger) can will cause outage
  - W3XSC already had 175 Ahr
- Sensor upgrades at W1XSC, W2XSC, W3XSC, W4XSC
  - All: Temperature, Humidity, IP device monitoring
  - W1XSC, W2XSC, W4XSC: Voltage & current /battery, other key points
  - W3XSC will be upgraded when it is moved to new home
- Numerous enhancements to JNOS BBS software
- Enhancements to e-mail gateway SPAM and attack filtering
- Search for and negotiation with new home for W3XSC

Equipment Recommendations Posted

- Technical information and equipment selection recommendations for each area
  - Simplex operations
  - Antennas
  - Radios
  - TNCs
  - Power



Santa Clara County ARES/RACES

Home Operations Packet Training and Events Reference Info. FAQ November 24, 2016

Packet Station Equipment Considerations

Overview | Recommendations | Simplex | Antennas | Radios | TNCs | Power | Questions

Overview

Questions about which antenna or radio or TNC to use for packet networking seem to come up every few months. This page summarizes the key points to remember when choosing components for an ARES/RACES packet station. The central assumption built into these recommendations is that the station has to work in emergency conditions, each and every time, with minimal set up.

Santa Clara County ARES/RACES does not officially recommend or endorse any particular make/model of equipment. But the detail sections below do list the most common equipment in use in the Santa Clara County packet network and/or by the folks that manage the network. These specific configurations are known to work well after years of use. This list is not intended to cover all products in use. Many other options exist.

General Recommendations

Some general recommendations are presented here in quick, bulleted form. More details are provided in the sections that follow. It is important to understand that the recommendations for antennas and radios really apply to any simplex FM station, whether it is used for voice or data communications.

Antennas

- Mount as high as possible and above local rooftops
- Use an omni-directional antenna
- Fixed site antennas
  - A tri-band (144/220/440) ground plane antenna allows use on all currently used packet bands and most provide excellent gain
  - Hardline or low-loss, double-shielded coax is recommended for the feedline
- Field site antennas
  - A roll-up J-pole makes an excellent field antenna
  - A 32' telescoping fiberglass mast is highly portable and gets the antenna up above all one-story and most two-story buildings
  - Support the mast by strapping it to a tent leg or a sturdy tripod
  - If a tripod is used with a lightweight mast and a roll-up j-pole antenna, the tripod can usually be secured with sandbags and/or stakes. avoiding the need for guy ropes. Be sure to mark the area with safety cones.
  - If a tripod is used with a heavier mast and antenna, guy ropes will usually be required to support the antenna at 20+ feet high. Extra safety markers will be needed for the guy ropes.
  - RG-8X coax is high-loss but lightweight, making it useful with lightweight masts. Lower-loss, double-shielded coax is best for the rest of the feedline.

Radios

- Use a 25-50 watt "mobile" or "base station" radio whenever possible, even if you are near the BBS. Remember, it's not about the BBS hearing you. It's about you being able to hear all of other operators on the frequency and them being able to hear you.
- Use a radio with a "data" connection so your TNC gets a consistent audio level and so you can monitor traffic with the speaker

TNCs

- For highest reliability and fastest/easiest "out of the box" operation, use an external, full-function, hardware TNC
- Adjust your TNC for optimal deviation, depending on the audio output of each radio

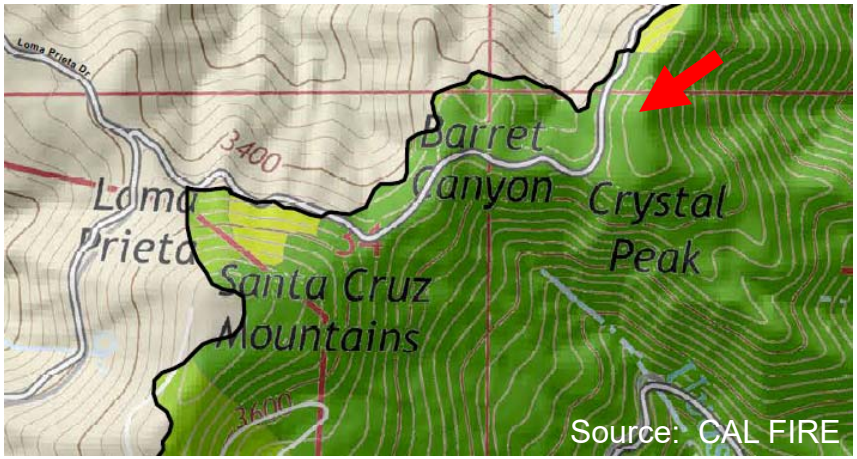
Power

- For AGM-type batteries, a 26 Ahr capacity rating has been recommended for many years for powering field stations. This size works well for a field packet station to power the radio and TNC at full power for an entire shift. For other battery chemistries, use a rating that provides an equivalent capacity.

Fire!
"Loma Incident", started Monday, Sept 26, 2016

- 6 years with no service outage; this situation was no different
  - One of the last remaining systems that was alive on the hill
  - Extended battery run-time (17 hours) worked when all else failed
  - Able to feed temp, humidity, smoke sensor data to site owner, other tenants
- Everything worked as planned, practiced
  - Able to predict battery depletion time and later, full restoration time
  - Able to smoothly transition to/from back-up sites; <u>well done to all</u>!
  - Packet used by some for Internet e-mail when ISP on Loma Prieta failed

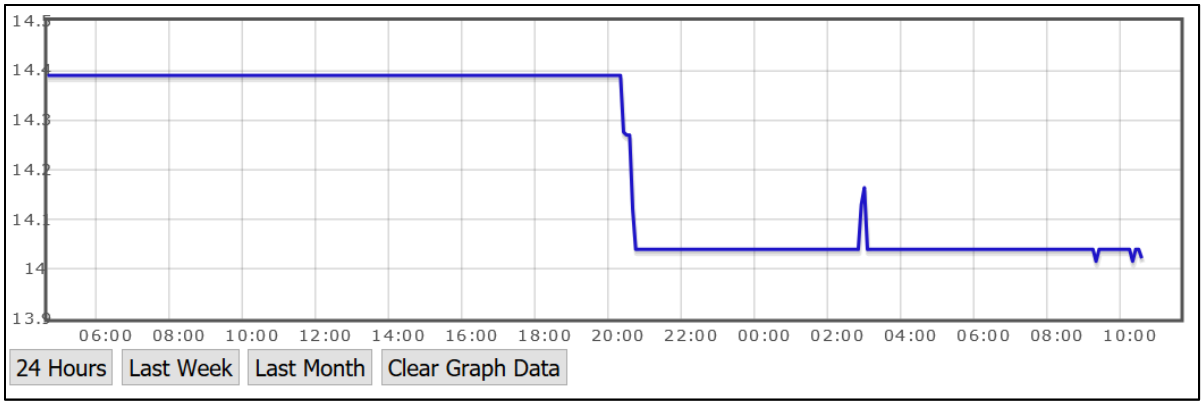

Source: NBC



Source: CAL FIRE

Recent Sensor Example (Friday, 12/2)

- Started receiving alarms that one power supply at Frazier Peak was occasionally dipping under 14.0 V.
- Logged in and looked at history graph:



- Conclusion: Voltage adjustment pot must have slipped
- Remedy: Schedule trip to site to verify, re-adjust
- Prevent: Incomplete battery charging; urgent site visit

PACKET PROCEDURES

When to Use Packet vs. Voice

- Voice
  - Emergency traffic
  - Otherwise, whenever you don't have packet!
- Packet
  - Everything else
  - 7-15 times faster than voice
  - Much more accurate, legible, loggable, copyable, automated, …

Message Numbers

- Each message should have a unique number
  - Some are sending multiple weekly check-ins (great!), but all with the same message number (bad!); this happens at drills, too (really bad!)
- Message number format is standard: XXX-###[#...][P]
  - XXX = prefix (your initials, call sign suffix, or assigned tactical prefix)
  - "-" = don't remove the dash; it makes the number easier to read
  - ###[#...] = three or more digits – unique per message
  - Outpost adds a "P" at the end if it generates the number for you
    - This is to avoid duplication of a message number that may exist on a pre-printed form.
- Usually, let Outpost generate the message number for you
  - Exception: If you are handed a message that is already numbered, replace the Outpost-generated number with the actual number.

Packet Message Subject Line

- Subject line format is standard
  - Download from xscperm shared mailbox; save in Outpost Archive
- <MessageNumber>_<Severity>/<HandlingOrder>_Subject
  - MessageNumber = XXX-###[#...][P]
  - Underscores "_" provide important visual separation
  - Severity = E (emergency), U (urgent), O (other)
  - "/" = separator
  - HandlingOrder = I (immediate), P (priority), R (routine)
- Applies to ALL messages
  - Check-in messages
  - PacFORMS
  - Plain text messages
  - Check-out messages
  - …

Packet Check-in / Check-out

- Checking in as yourself:
  - Subject: XRL-001_O/R_Check-in W6XRL4, Herman Munster
  - Body: “Check-in W6XRL4, Herman Munster”
- Checking in as a tactical call sign:
  - Subject: SH1-001_O/R_Check-in XNDSH1, Xanadu Shelter 1
  - Body: “Check-in XNDSH1, Xanadu Shelter 1, Herman Munster, W6XRL4” (include others, if present)
- Notes:
  - Use the proper message number prefix, call sign, name
  - For tactical check-ins, include FCC call sign and name in body

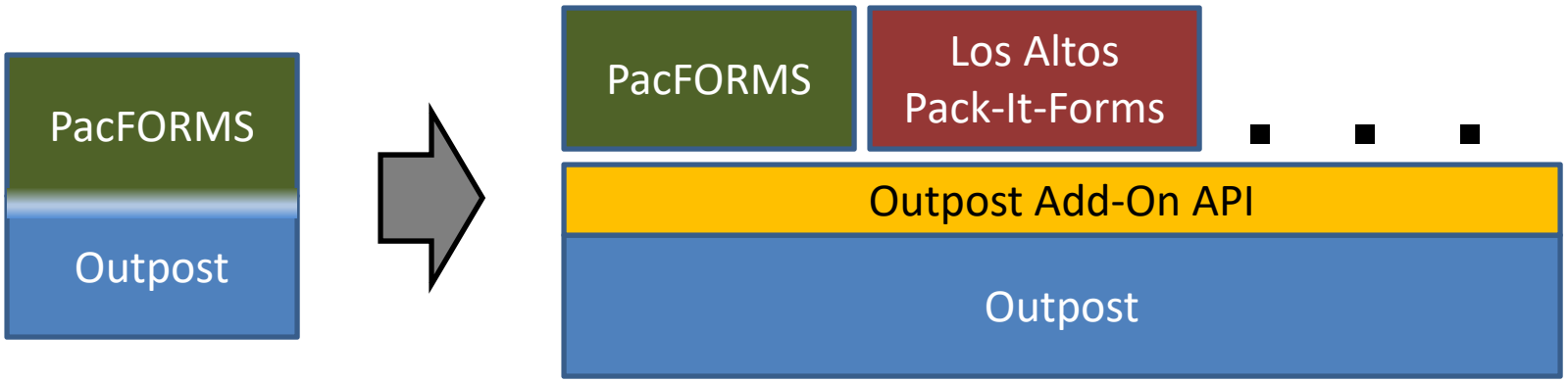
Reminder: Packet Tactical Call Signs

- Each agency can request its own tactical call signs
- Typical use: fire stations, shelters, schools, libraries, parks, CERT locations, … (anywhere you might set up a station)
- The following agencies have their own tactical call signs:
  - Red Cross, Cal Fire, Campbell, Cupertino, Gilroy, Hospitals, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Mountain View, Palo Alto, San Jose, Santa Clara, Sunnyvale, Santa Clara County
- Instructions for requesting or updating tactical call signs can be found on the packet page of our web site
  - http://www.scc-ares-races.org/packet.html

PREVIEW: UPCOMING OUTPOST & PACFORMS ENHANCEMENTS

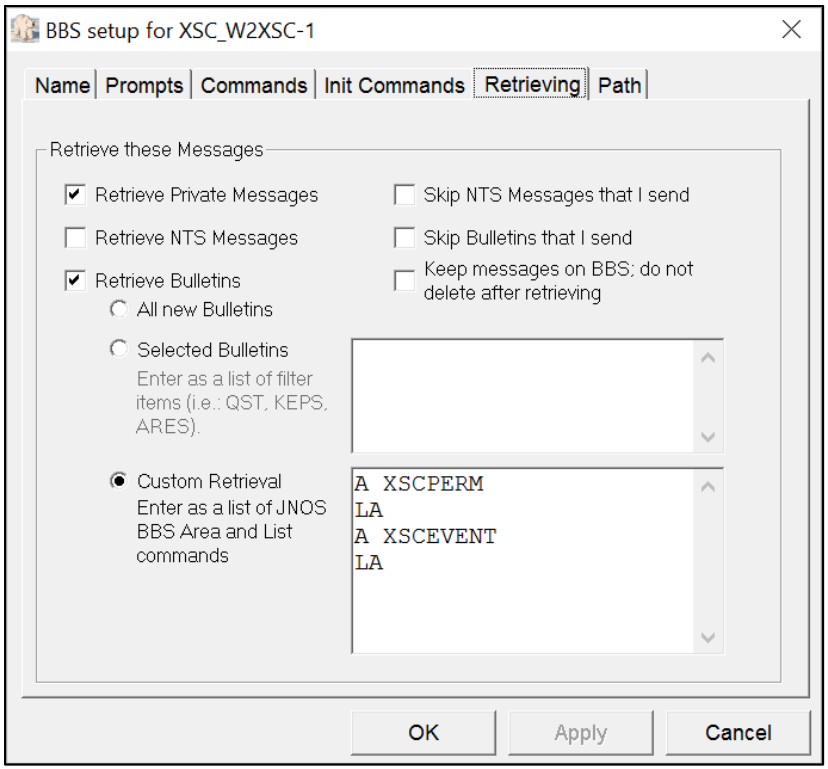
New: Add-on API

- The Outpost/PacFORMS integration has been very useful
- But much of the interaction is hard-coded in Outpost
- New API provides standard way to connect apps to Outpost
- Enables more automation and integration with workflow
- PacFORMS can eventually migrate to API as well



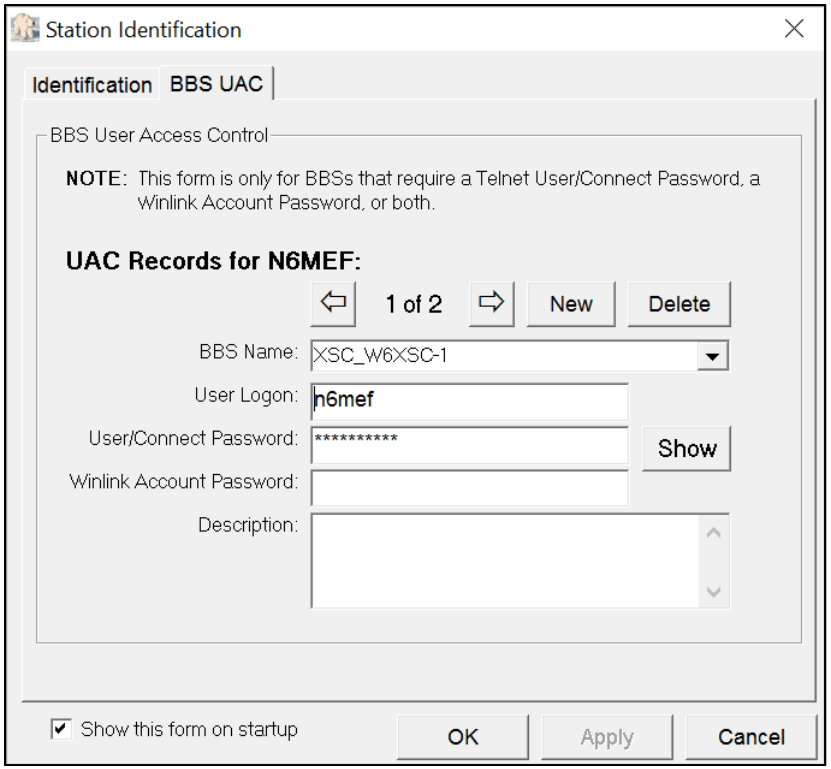
Update: Bulletin Retrieval Controls

- Outpost now performs bulletin retrieval correctly on JNOS
  - Use a command list to retrieve all or filtered from multiple areas
- Will help when sharing information with users on other BBSs
  - such as neighboring counties
- Configuration moved to BBS setup
  - Allows per-BBS customization



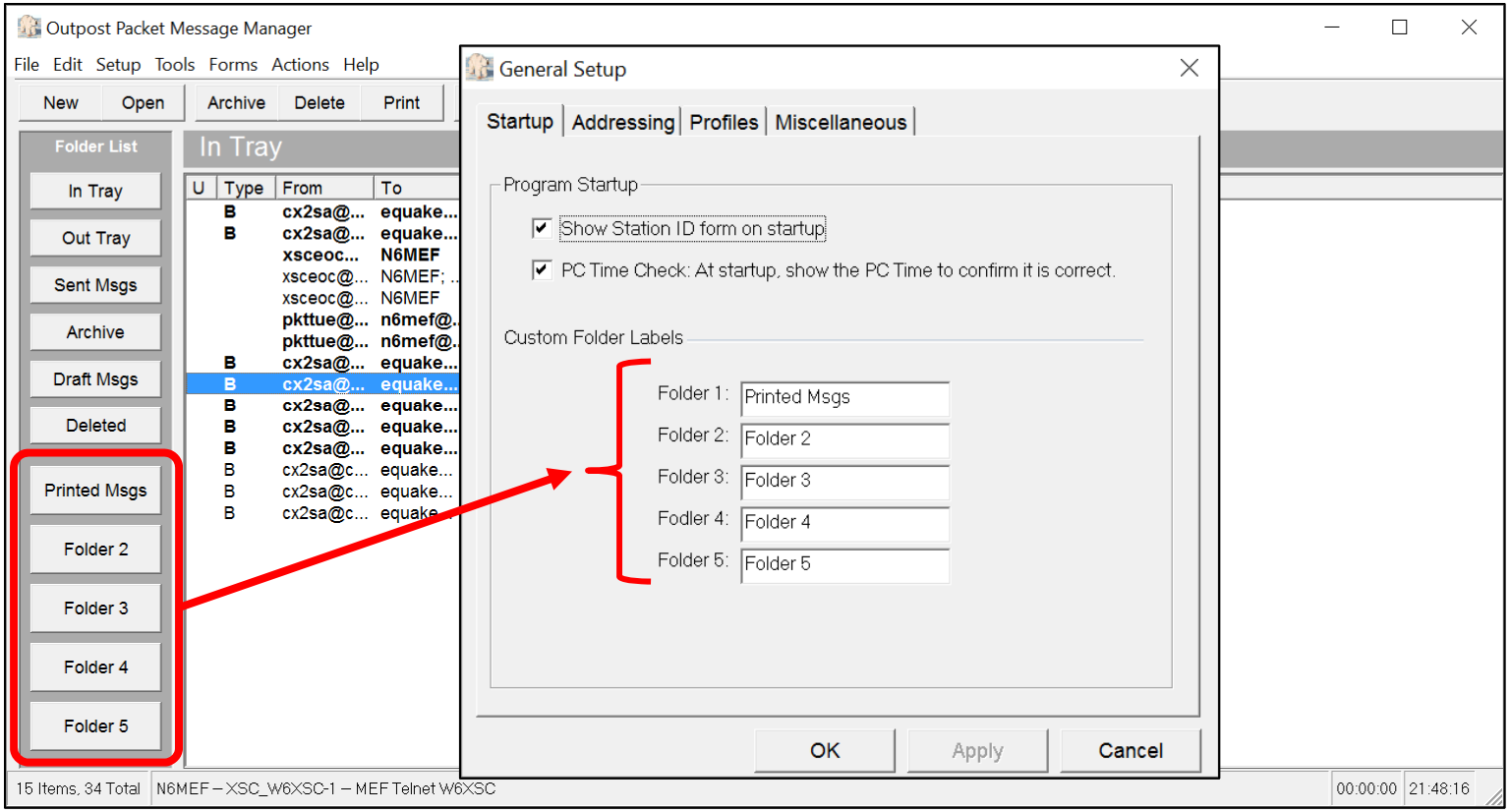
Update: User Access Control

- This feature was part of an earlier release of Outpost which occurred after our SCCo installer
- Moves Telnet and Winlink password configuration from TNC Setup to Identification Setup
- Will be useful with upgrade to SCCo network backbone
  - More on this later



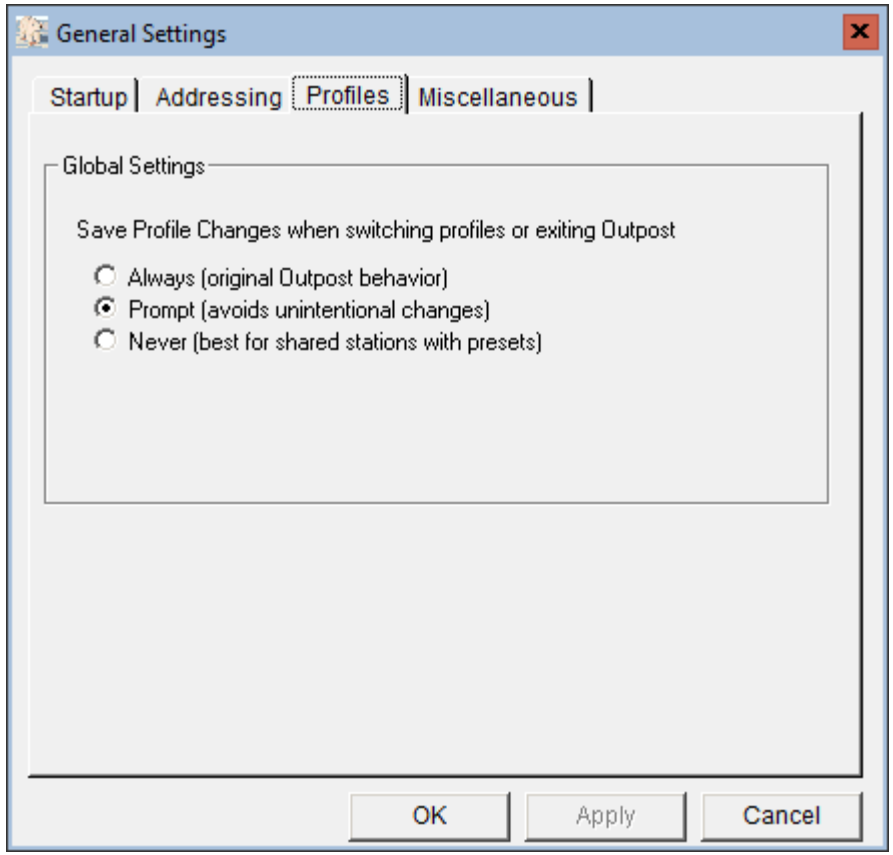
New: User-Configurable Folders

- Five additional folders help with managing workflow
  - Ex: Move messages to “Printed Msgs” folder after printing



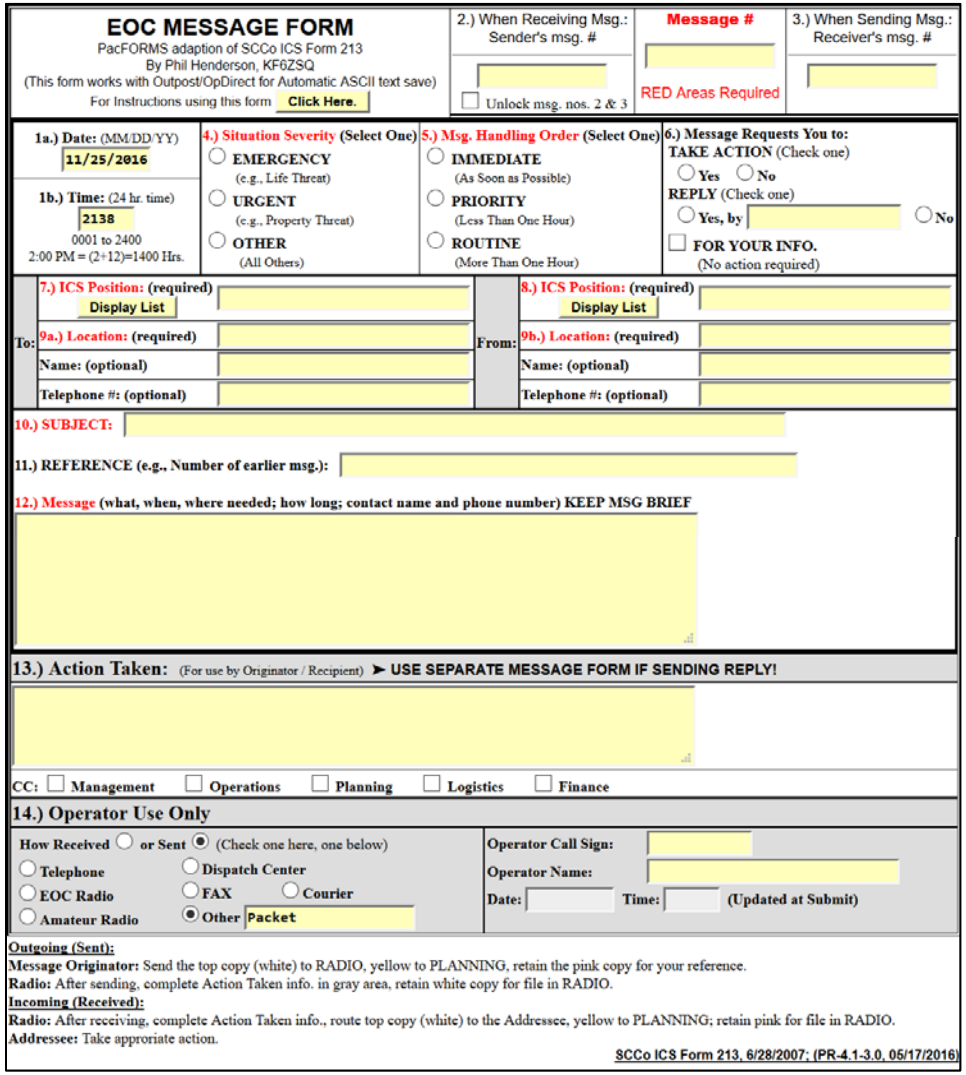
New: Configurable Profile Saving

- New setting to control whether configuration changes are saved to the active profile when switching profiles or existing Outpost
- “Always” is original behavior
- “Prompt” avoids unintentional changes
- “Never” is best for EOCs



Update: PacFORMS

- General clean-up of HTML to ensure
  - Better page fitting
  - Better text to field fitting
  - More consistent font usage
  - Background colors of printed form to match original paper form
  - Better compatibility with Advanced Packet Logger
    - Used in county EOC
- No significant functional changes



EOC MESSAGE FORM
PacFORMS adaption of SCCo ICS Form 213
By Phil Henderson, KF6ZSQ
(This form works with Outpost/OpDirect for Automatic ASCII text save)
For Instructions using this form **Click Here.**

2.) When Receiving Msg.: Sender's msg. #
Unlock msg. nos. 2 & 3
Message #
RED Areas Required
3.) When Sending Msg.: Receiver's msg. #

1a.) Date: (MM/DD/YY) 11/25/2016
1b.) Time: (24 hr. time) 2138
0001 to 2400
2:00 PM = (2+12)=1400 Hrs.

4.) Situation Severity (Select One)
EMERGENCY (e.g., Life Threat)
URGENT (e.g., Property Threat)
OTHER (All Others)

5.) Msg. Handling Order (Select One)
IMMEDIATE (As Soon as Possible)
PRIORITY (Less Than One Hour)
ROUTINE (More Than One Hour)

6.) Message Requests You to:
TAKE ACTION (Check one) Yes No
REPLY (Check one) Yes, by No
FOR YOUR INFO. (No action required)

To: 7.) ICS Position: (required) Display List
9a.) Location: (required)
Name: (optional)
Telephone #: (optional)

From: 8.) ICS Position: (required) Display List
9b.) Location: (required)
Name: (optional)
Telephone #: (optional)

10.) SUBJECT:
11.) REFERENCE (e.g., Number of earlier msg.):
12.) Message (what, when, where needed; how long; contact name and phone number) KEEP MSG BRIEF

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

CC: Management Operations Planning Logistics Finance

14.) Operator Use Only
How Received or Sent (Check one here, one below)
Telephone Dispatch Center
EOC Radio FAX Courier
Amateur Radio Other Packet

Operator Call Sign:
Operator Name:
Date: Time: (Updated at Submit)

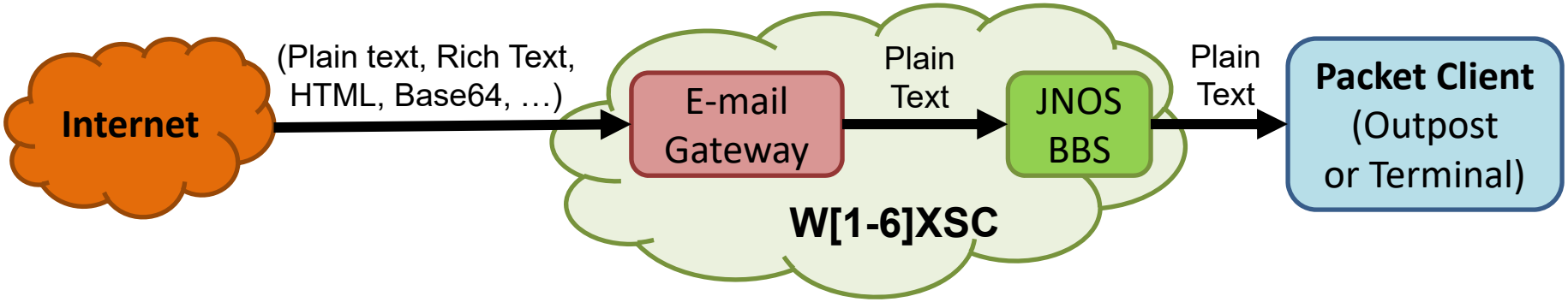
Outgoing (Sent):
Message Originator: Send the top copy (white) to RADIO, yellow to PLANNING, retain the pink copy for your reference.
Radio: After sending, complete Action Taken info. in gray area, retain white copy for file in RADIO.
Incoming (Received):
Radio: After receiving, complete Action Taken info., route top copy (white) to the Addressee, yellow to PLANNING; retain pink for file in RADIO.
Addressee: Take approriate action.

SCCo ICS Form 213, 6/28/2007; (PR-4.1-3.0, 05/17/2016)

PREVIEW: UPCOMING NETWORK ENHANCEMENTS

E-mail to Packet: Plain Text Conversion

- It's getting harder and harder to configure e-mail clients to send only plain text
  - And the burden is on each user to figure it out for themselves
- Some service providers automatically encode; no choice!
  - Example: Text message > HTML > Base64 (ugh!)
- Investigating conversion to plain text at each gateway



- Preliminary: look promising; anticipate H1-2017

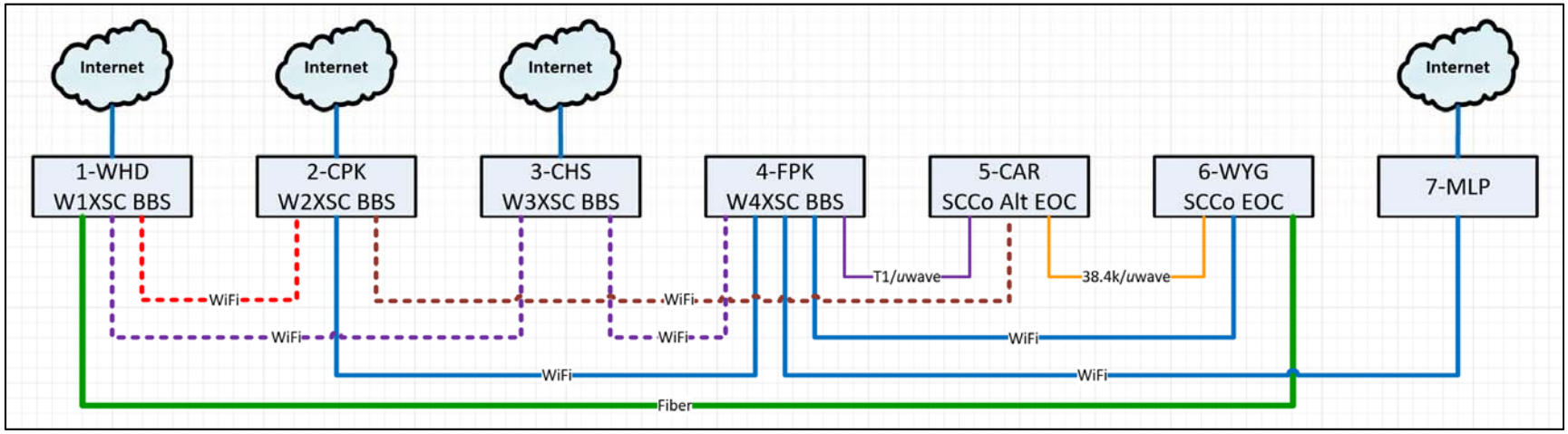
New Home for W3XSC

- The City of Mountain View has been a great host
  - Provided initial radios, antennas, space, power, etc.
  - But the site is too low for microwave line of sight
- New Home: Channing House, Palo Alto
  - 250 feet ASL (vs. 125' in Mountain View)
  - Clear line of sight to W1XSC, W4XSC (vs. none)
  - Multiple mounts for microwave dish/sector antennas (vs. none)
  - Generator, earthquake dampeners
  - Other backup site uses
- Schedule
  - Construction: current
  - Move target: H1-2017

Channing House: Looking SW toward San Jose

Completion of High Speed Backbone

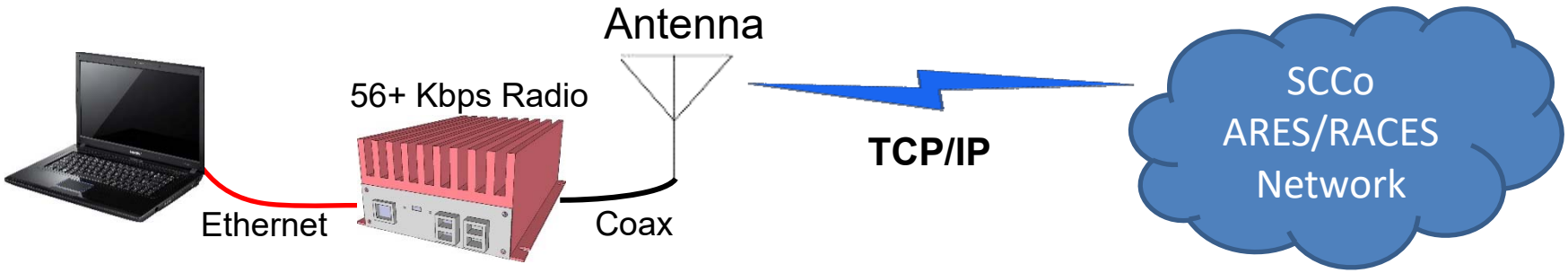
- New W3XSC site allows completion of high speed backbone
  - Redundant, multi-Mbps connections to each key site
  - No single link or site failure will cause service outage



- When completed: 440 MHz can be used for access channels at each BBS site
- So, why is 440 MHz access important?

56kbps TCP/IP Access on 440 MHz

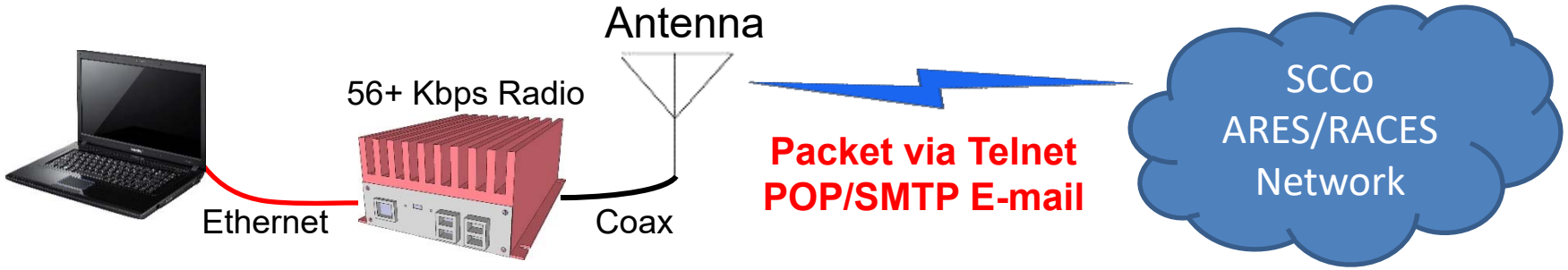
- New 56+ kbps 440 MHz radios available soon
  - NW Digital Radio UDRX-440 (http://nwdigitalradio.com)
  - Pilot build being tested; anticipate availability in H1-2017
- County-wide TCP/IP connectivity, no Internet required!
  - Existing antennas will get you 56 Kbps TCP/IP access to at least two SCCo backbone sites from most places in the county



- So, what can we do with faster TCP/IP access?

New Services: E-mail, Telnet to Packet

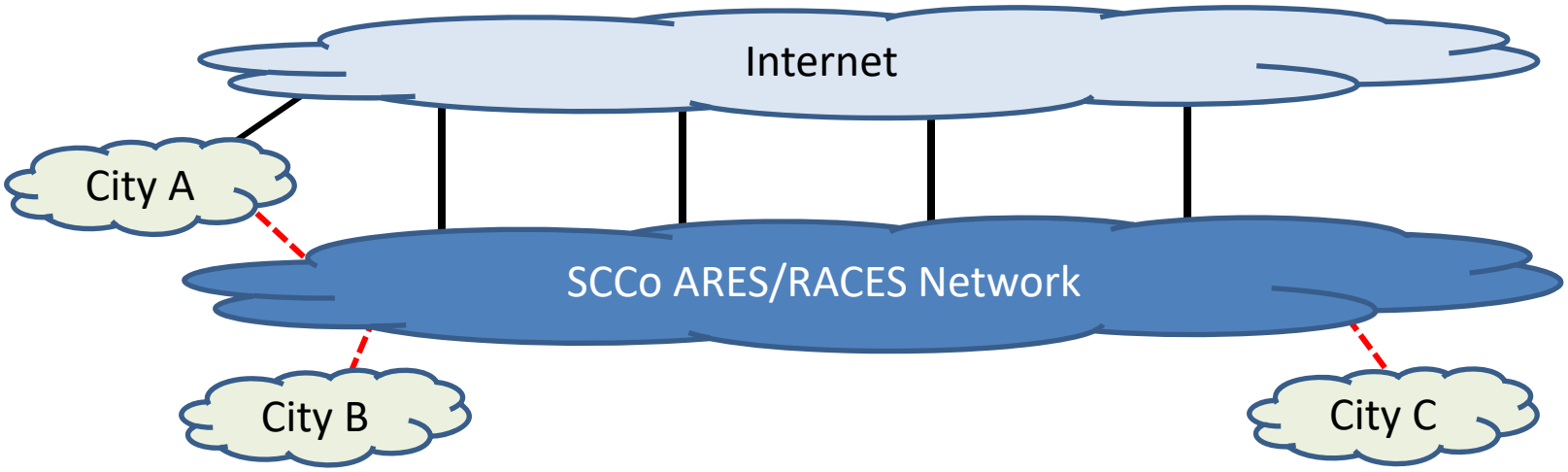
- 56+ Kbps access enables services that need higher bandwidth
  - Faster access to packet via telnet
  - Standard Internet e-mail, including: attachments, HTML formatting; …
    - Great for external vendor comms, H&W traffic to first responder families
    - Five independent mail servers co-located with the five BBSs (plus 2 test/dev)
    - Full e-mail services already running in our test environment



- But: Standard e-mail currently has many drawbacks for EmComm use:
  - We give up: integration with PacFORMS; automatic message numbering, tracking, printing, logging; and more …
  - Need to develop useful workflows; scripting via API may be possible

Even Higher Speed Access

- Some cities/agencies building their own WiFi/Mesh networks
  - May be Part 97, Part 15, or other; may have Internet access or not, may be permanent or ad hoc, …
- Future: interconnect city networks with county network
  - Focus on EmComm service offerings; not commercial competition
  - Lots of details to work out (services, security, workflow, …)



MAC Program

(Mutual Aid Communicator)

2016 Year End Review, Updates
and 2017 Preview

Santa Clara County ARES®/RACES

Revised: 26-Nov-2016

UPCOMING CHANGES

Two Year Time Limit for MITs

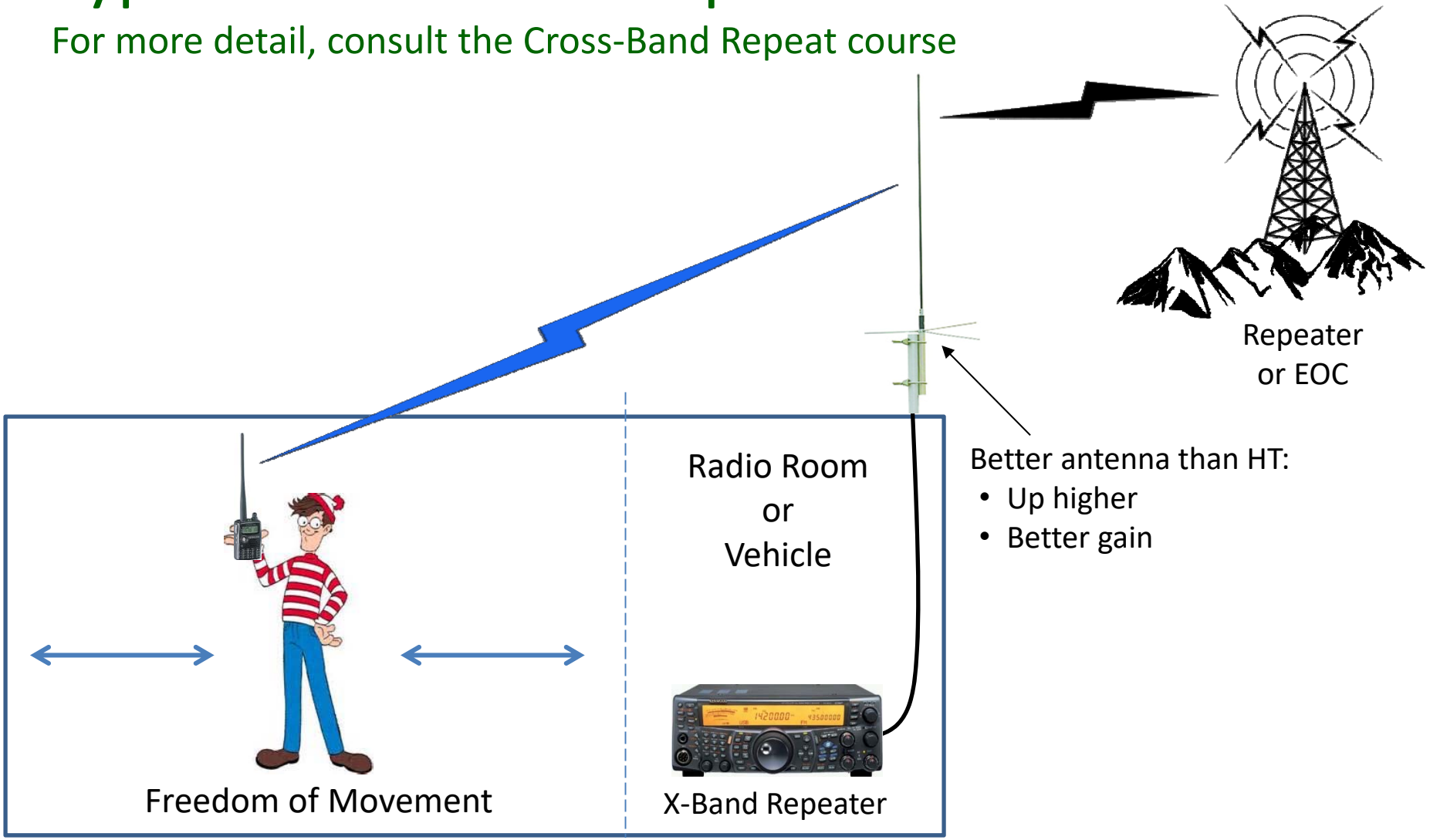
- The MAC In Training (MIT) status is given to an individual who has identified a desire to enter the MAC program
- Upon completion of the minimum requirements for the MAC program, the individual is promoted to full MAC status
- New:
  - If the individual does not complete the minimum requirements within two years of becoming an MIT, the MIT status will be removed and the individual will need to start again.

Cross-band Repeat for F2, N2, S2

- Previously, cross-band repeat capability was a requirement for the Field Operations Type I (F1), Net Control Type I (N1), and Shadow Communicator Type I (S1) qualifications
- New:
  - The following requirements will be added to the F2, N2 and S2 qualifications:
    - Attendance of the Cross-band Repeat training class
    - Cross-band repeat-cable mobile radio (25W or greater)
    - Demonstrate ability to configure cross-band repeater configuration

Typical Cross-Band Repeat Scenario

For more detail, consult the Cross-Band Repeat course



Re-instatement Process

- If minimum participation requirement (over two years) is not met, individual is dropped from the MAC program
- New:
  - Within two years of being dropped from the program, an individual may be re-instated if they:
    - Satisfy all MAC program administrative requirements
    - Satisfy the minimum participation requirement
    - Pass an equipment check, to including any additional equipment required for any advanced qualifications that they used to hold
    - Pass a knowledge test, including any additional topics required for any advanced qualifications that they used to hold
  - Re-instatement includes all prior advanced qualifications
  - More than two years after losing MAC status (four years of inactivity), the individual will need to start over again

And Now…

A little quiz …

Thank You!

We look forward to seeing you again next year:

Classes, drills, events, …