Use and Distribution Notice

- Santa Clara County RACES authorization is granted to use and duplicate this material as-is, as long as this page and the copyright notices on each page are included, acknowledging Santa Clara County ARES/RACES as the holder of the copyright.
- Permission is granted to adapt this presentation to your needs as long as you acknowledge our copyright and include a note similar to "adapted with permission from Santa Clara County ARES/RACES."
- For additional information on training or any of our programs, send an email to: info@scc-ares-races.org

2013 End of Year Summary

Santa Clara County ARES®/RACES

Last Updated 10-Dec-2013

ARES and Amateur Radio Emergency Service are registered service marks of the American Radio Relay League Incorporated and are used by permission.

Learning Objective

By the end of this class, you will:

- Understand the changes to training classes and operations procedures that occurred during 2013
- Be aware of some additional changes that are coming soon

Agenda

- Enhancements to “Antenna Fundamentals” class
- Enhancements to packet network
- Enhancements to training program
- Message passing and logging

Antenna Fundamentals
End of Year Summary

Santa Clara County ARES®/RACES

Last Updated 12-02-2013

All You Need to Know about Antennas

$$\nabla \cdot \mathbf{D} = \rho$$

$$\nabla \cdot \mathbf{B} = 0$$

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$$

$$\nabla \times \mathbf{H} = \mathbf{J} + \frac{\partial \mathbf{D}}{\partial t}$$

Maxwell's Equations

What is a decibel?

- The **decibel** (**dB**) is a logarithmic unit that indicates the **ratio** of a physical quantity (usually power) to a specified reference level.

$$dB = 10 \ \ Log_{10} (P_{meas}/P_{ref})$$

1 dB = 26% change

3 dB = 2 times change

10 dB = 10 times change

20 dB = 100 times change

  - 1 dB is the smallest change in sound detectable by an average listener

Antenna Gain

Gain – ratio of power received (or transmitted) in a specific direction (azimuth and elevation) relative to a reference source

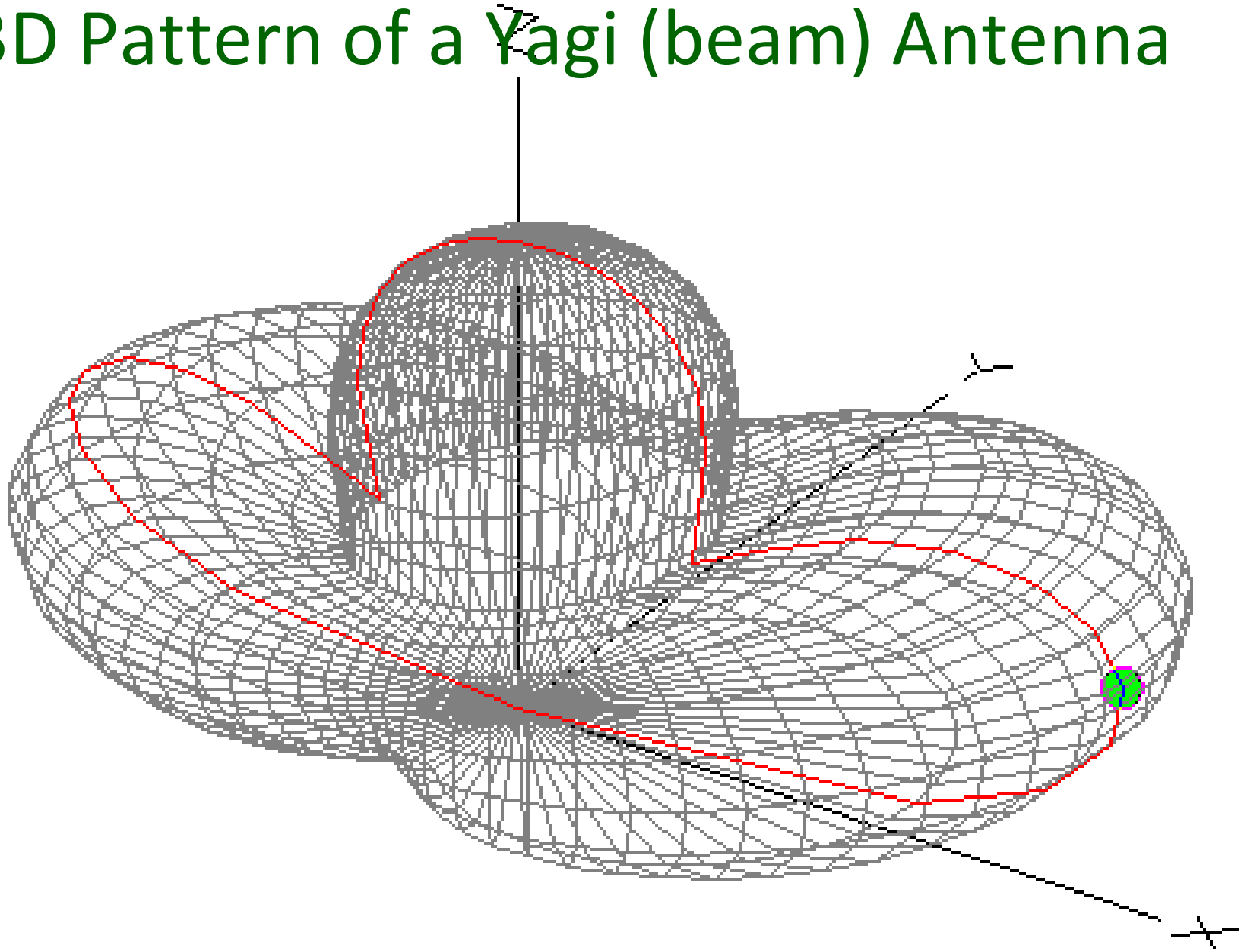
- Gain is quoted for the point of maximum gain
- May be for antenna in free space (typical)
- Or above the ground and includes ground effects

Antenna Pattern

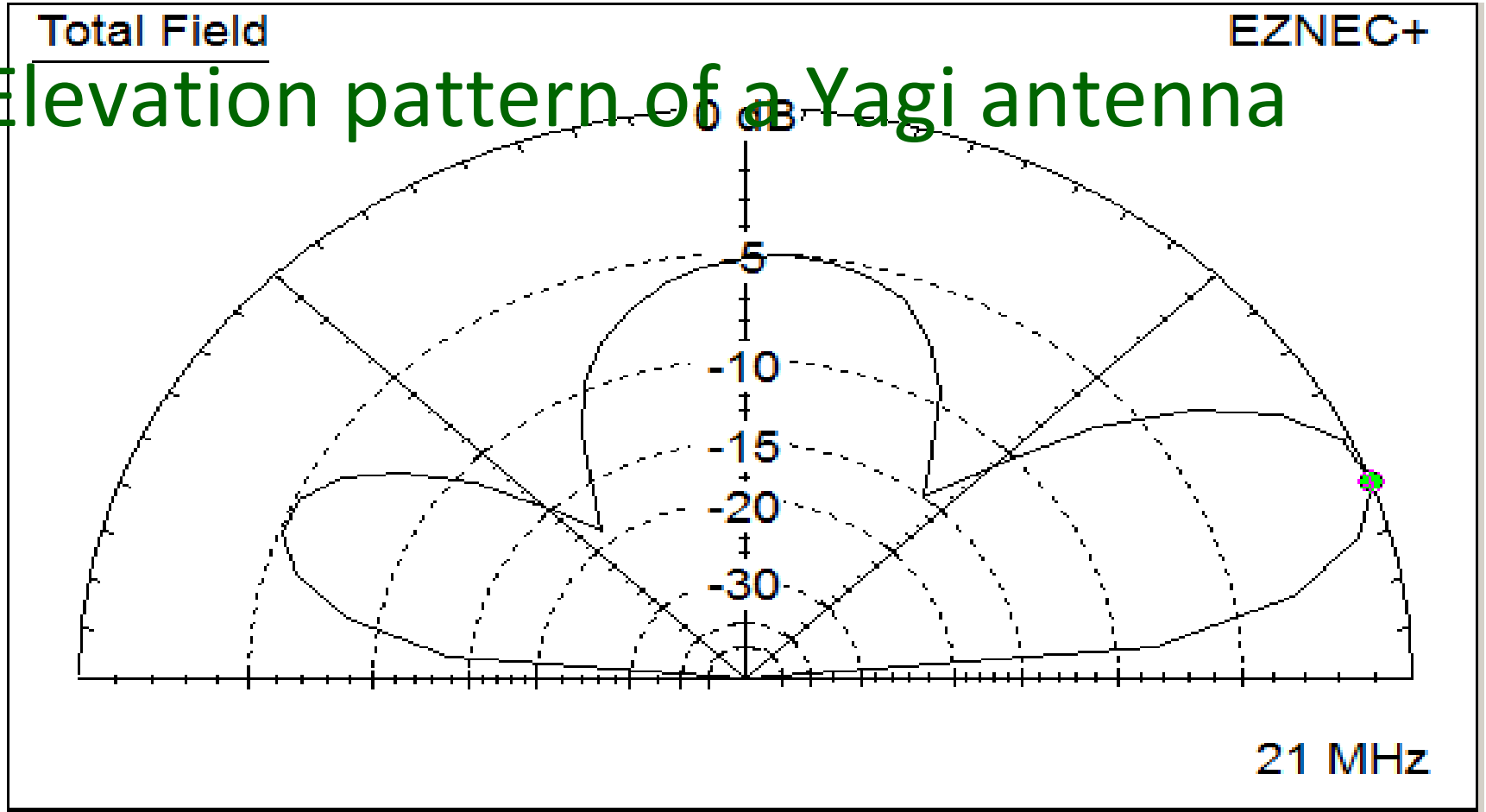
Pattern – a collection of gain measurements for a range of angles in azimuth and elevation

May be a table or graphical view

3D Pattern of a Yagi (beam) Antenna

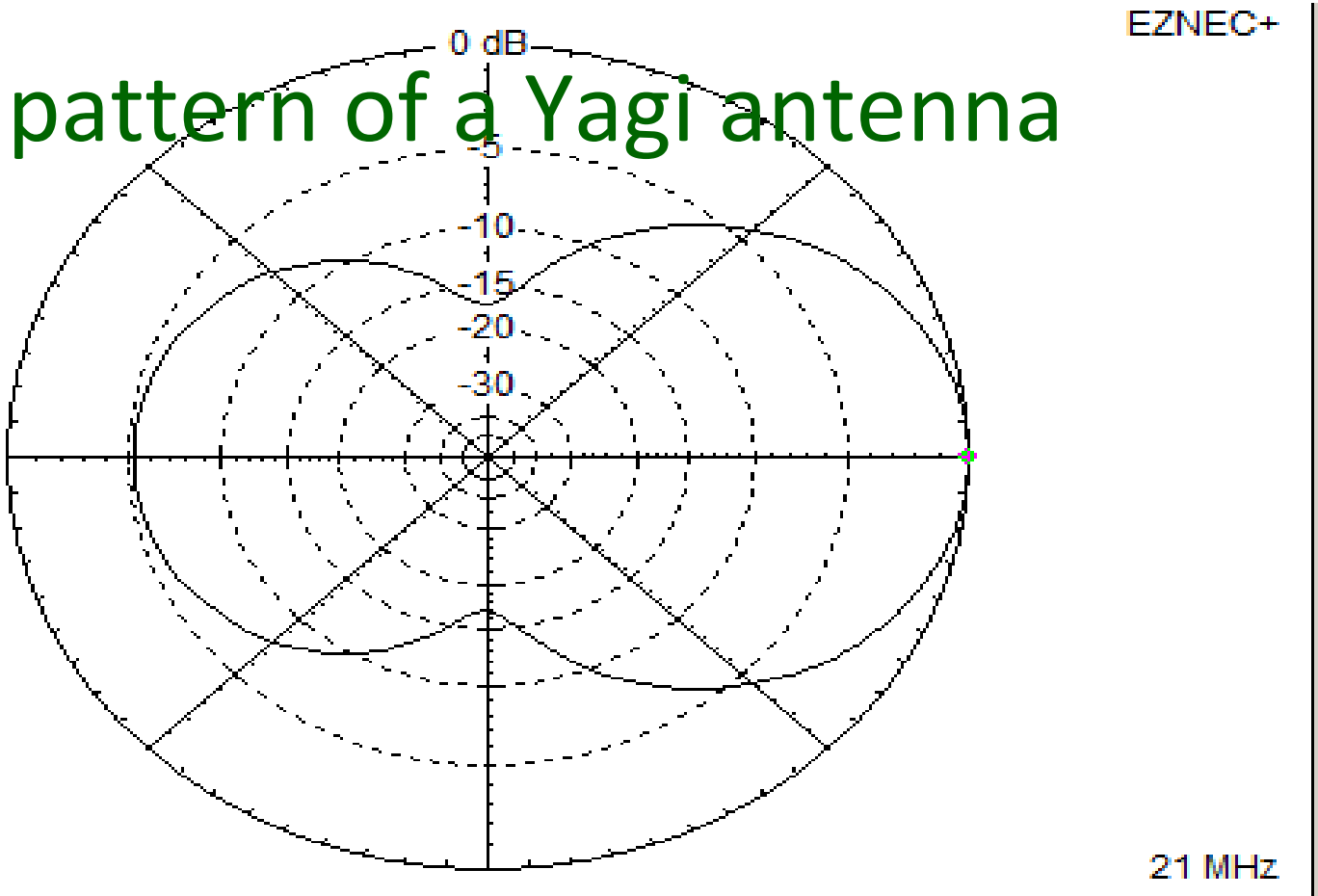


Elevation pattern of a Yagi antenna



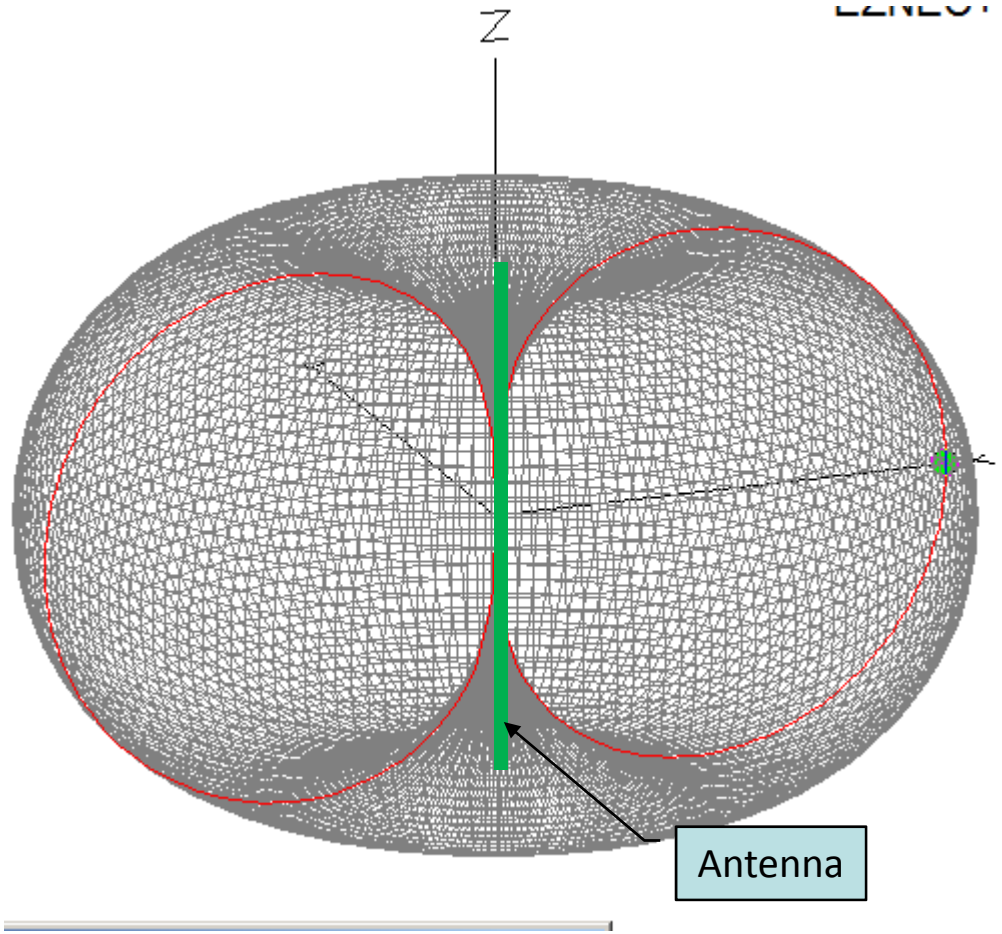
Elevation Plot		Cursor Elev	20.0 deg.
Azimuth Angle	0.0 deg.	Gain	8.46 dBi
Outer Ring	8.46 dBi		0.0 dBmax
			0.0 dBmax3D
3D Max Gain	8.46 dBi		
Slice Max Gain	8.46 dBi @ Elev Angle = 20.0 deg.		
Beamwidth	23.8 deg.; -3dB @ 10.3, 34.1 deg.		
Sidelobe Gain	3.34 dBi @ Elev Angle = 85.0 deg.		
Front/Sidelobe	5.12 dB		

Azimuth pattern of a Yagi antenna

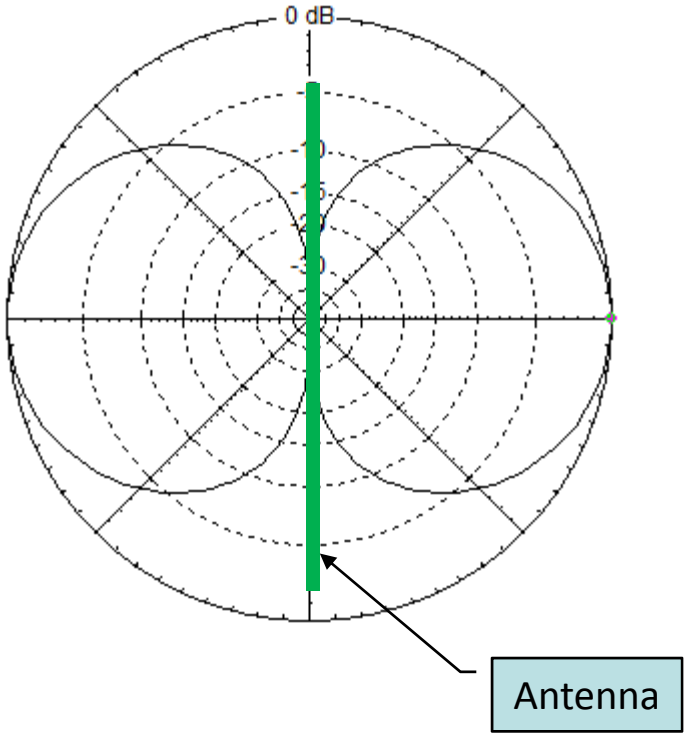


Azimuth Plot		Cursor Az	0.0 deg.
Elevation Angle	20.0 deg.	Gain	8.46 dBi
Outer Ring	8.46 dBi		0.0 dBmax
			0.0 dBmax3D
3D Max Gain	8.46 dBi		
Slice Max Gain	8.46 dBi @ Az Angle = 0.0 deg.		
Front/Back	5.2 dB		
Beamwidth	75.9 deg.; -3dB @ 322.0, 37.9 deg.		
Sidelobe Gain	3.26 dBi @ Az Angle = 180.0 deg.		
Front/Sidelobe	5.2 dB		

½ Wave Vertical Dipole in Free Space

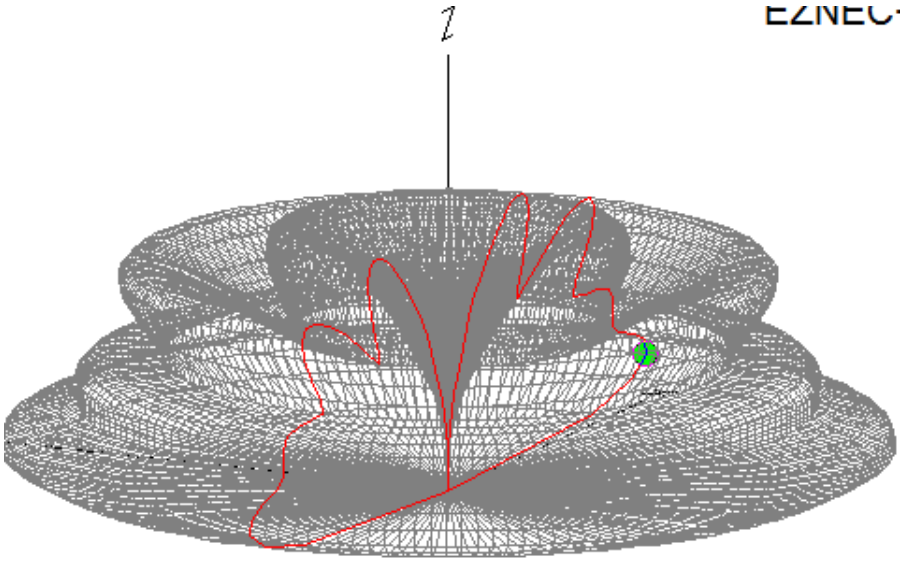


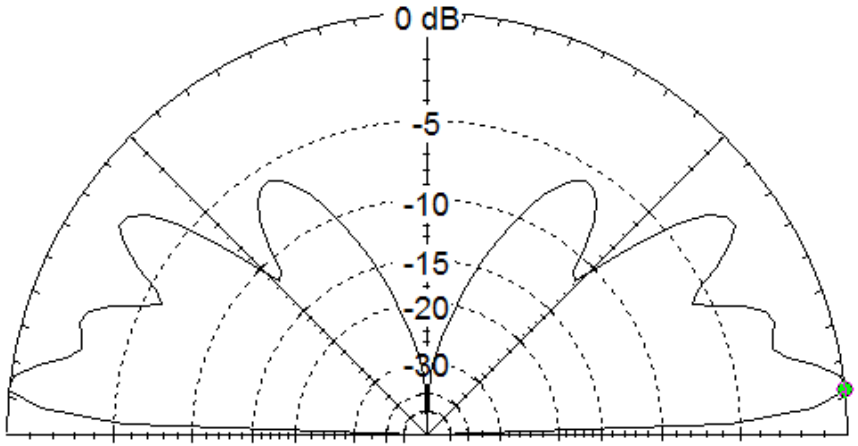
3 D view



Elevation Pattern

½ Wave Vertical Dipole 10 ft high





3D View

Elevation Pattern

- Note the null directly above the antenna

Typical Antenna Gain Specifications

- dBi – dB referenced to an isotropic antenna
  - Isotropic antenna radiates equally in all directions
- dBd – dB referenced to a dipole antenna

  0 dBd = 2.15 dBi

Typical gains

¼ wave ground plane	0 dBd	2.15 dBi
½ wave dipole	0 dBd	2.15 dBi
J-pole (end fed ½ wave)	0 dBd	2.15 dBi

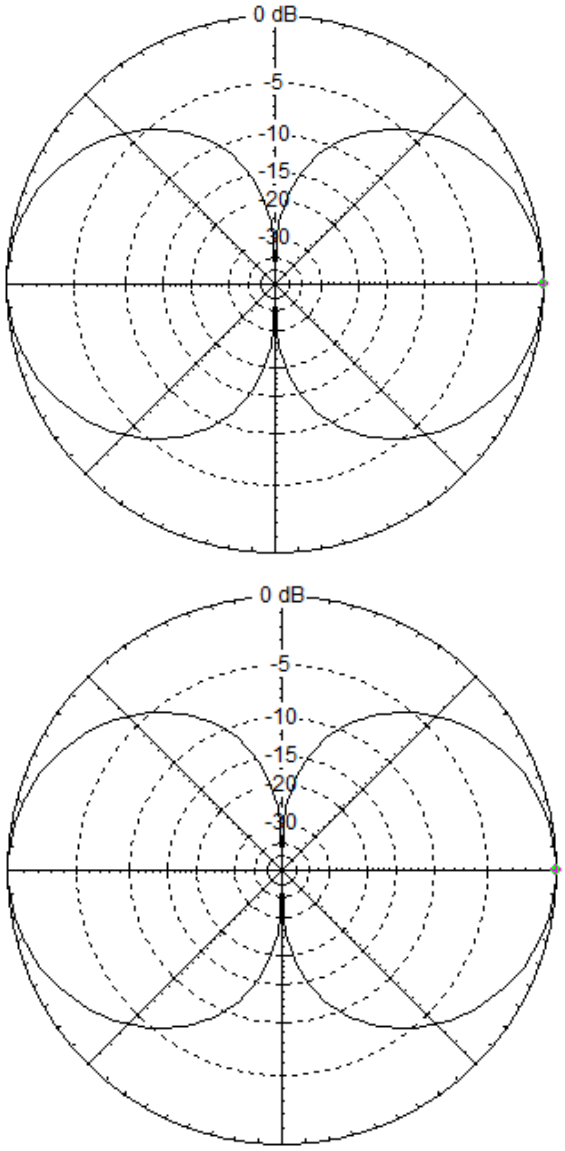
- For antennas likely to be used for ARES/RACES other factors will be important
  - Portability, mounting, weight, supporting structure, etc.

Antenna Placement

- Perform a site survey and assess
  - Overhead wires and other hazards
  - Traffic patterns, non-intrusive to others
  - Location relative to operating position
  - **Where will the cables go?**
- Clear path to intended users
  - Height
  - Building blockages
- Tradeoffs
  - Minimize trip/fall hazards
  - High enough for needed coverage, low enough to be safe
    - Wind
    - Stability of supporting structures, tripods, etc.

Antenna Placement

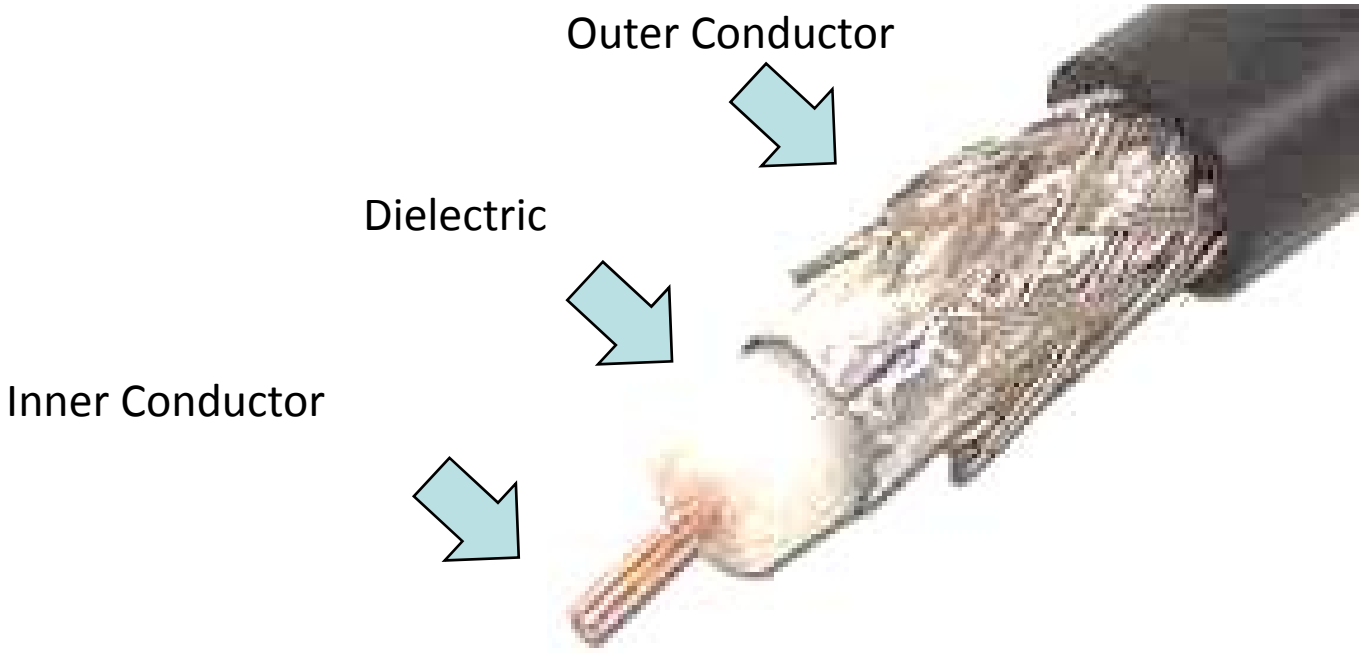
- For multiple radios, exploit the pattern nulls
  - Use vertical separation
  - Horizontal separation may help, as well



Coax Cable

Connecting the radio to the antenna

Anatomy of Coax Cable



- Impedance depends on ratio of diameters of Inner and Outer conductors and type of dielectric
- Power handling and loss depends of insulating qualities of the dielectric

Common Types of Coax Cable

- Table of common cable types and approximate losses at VHF/UHF

		Loss per 100 ft.		
	Dia	144 MHz	440 MHz	Cost/ft
RG-58	0.195”	7.6	13.0	$ 0.59
RG-8X	0.242”	4.8	8.4	$ 0.59
LMR 240	0.240”	3.4	5.2	$ 0.79
RG-8U	0.405”	2.6	4.4	$ 1.59
RG-213	0.405”	3.0	5.0	$ 1.69
9913	0.405”	1.8	2.9	$ 1.49
LMR 400	0.400”	1.7	2.7	$ 0.99

What is SWR?

- Standing Wave Ratio (SWR)
  - Measure of the amount of power that goes into the antenna compared to the power reflected back to the radio
  - 1.0 No reflected power, perfect match
  - 1.5 20% reflected power
  - 2.0 33% reflected power

    For VHF/UHF, you should keep SWR below 2.0

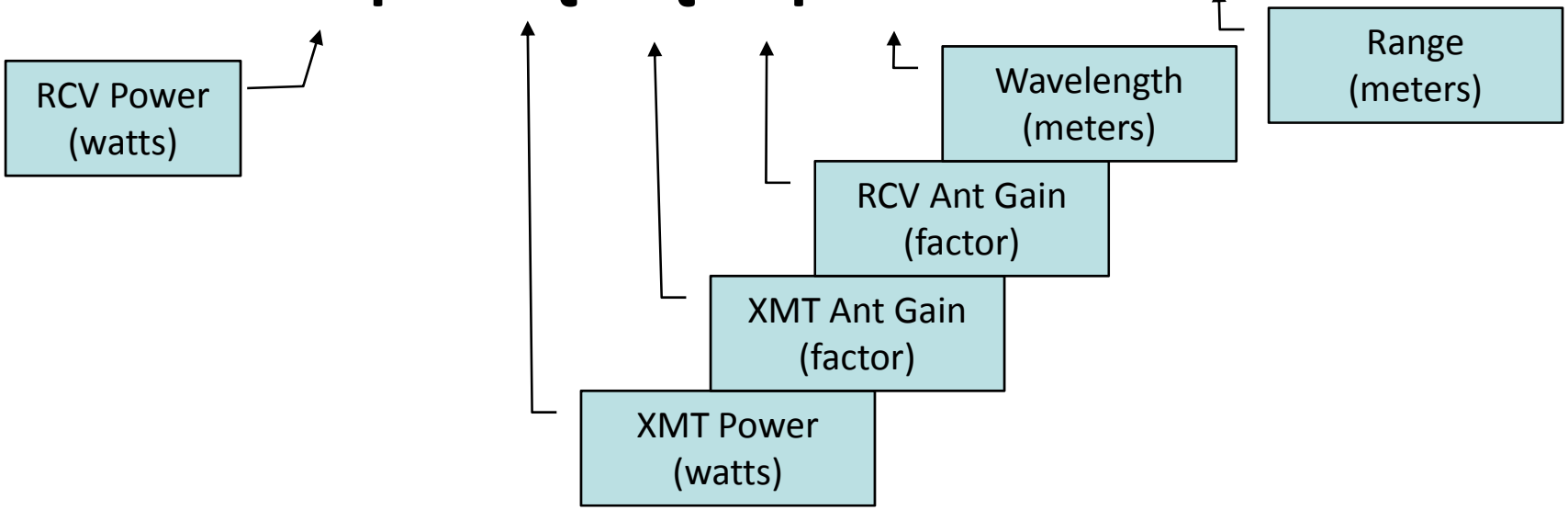
- Most commercial antennas will be below 2.0 SWR "out of the box"
- Can be checked with an SWR meter or Antenna Analyzer

"On a clear day, you can talk forever"

All you need to know….

(in real numbers, not dB)

$$P_r = P_t G_t G_r \lambda^2/(4 \pi r)^2$$



In Decibel form…

$$P_{r(dBw)} = P_{t(dBw)} + G_{t(dBi)} + G_{r\,(dBi)} - \alpha$$

Path loss $\alpha = 20 \log(Rf) + 37.8$

R = range in NM, f = freq in MHz

- How far can you talk with a 5 w HT on 2m with dipole antennas? ARRL says -117dBm is a good FM signal

$$-117_{\,dBm} = 37_{dBm} + 2.1_{dBi} + 2.1_{dBi} - \alpha_{dB}$$

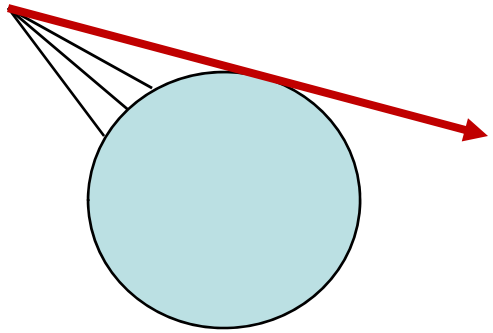
$$\alpha = 117 + 37 + 2.1 + 2.1 = 158.2$$

$$158.2 = 20 \log (R * 146) + 37.8$$

$$R = 7{,}172 \text{ NM}$$

Limitations to Line of Sight

- Obstacles
  - Buildings, hills, mountains, canyons, etc.

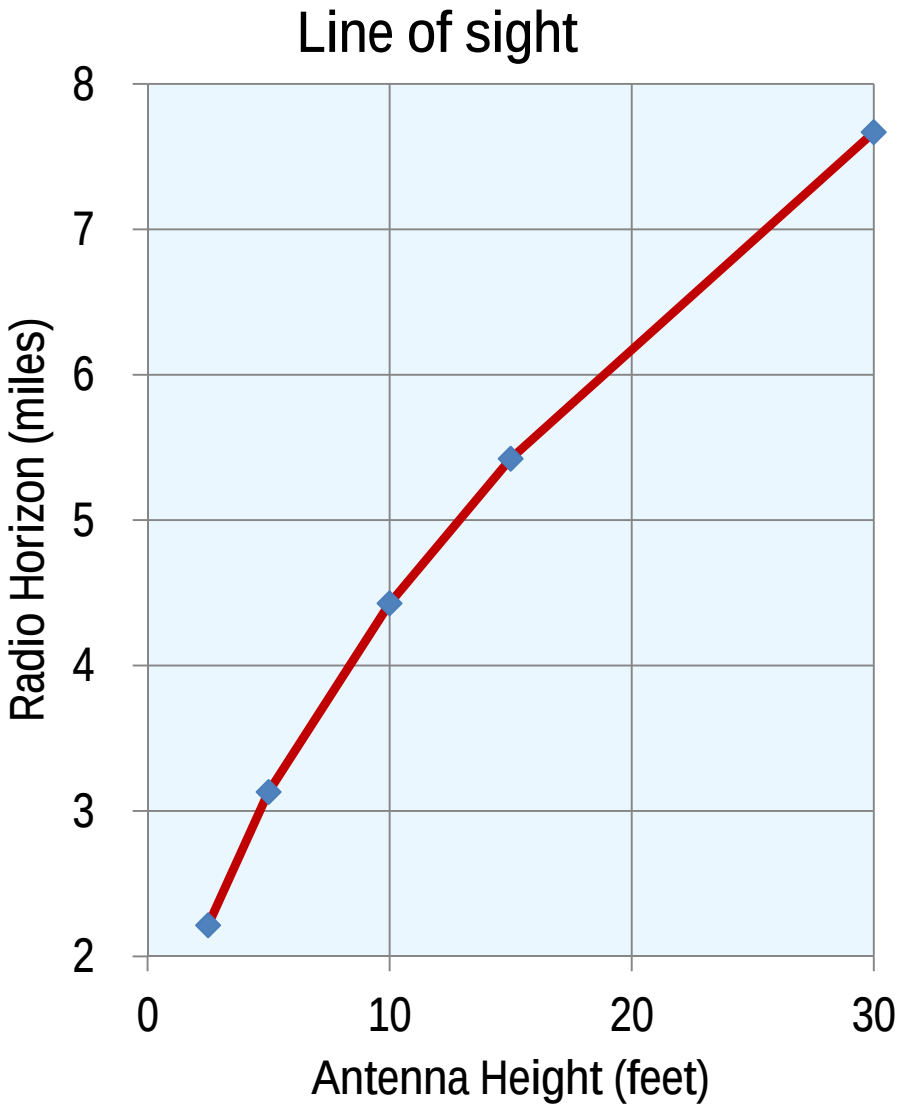


- Curvature of the earth –
  - Signal travels in a straight line
  - When it hits the horizon it goes straight into space

- Farthest you can on Earth is when both parties share a common horizon
- Radio Horizon = $1.4 * \sqrt{H(ft)}$ miles

Radio Horizon at 146 MHz

Height (ft)	Radio Horizon (miles)	
2.5	2	Table Top
5	3	HT near your mouth
10	4	Tripod with mast
15	5	Small push up mast
30	8	Long push up mast



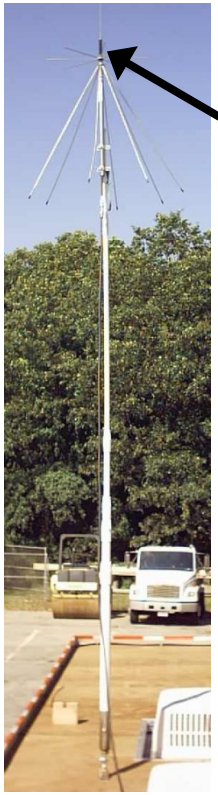
RF Safety Evaluation

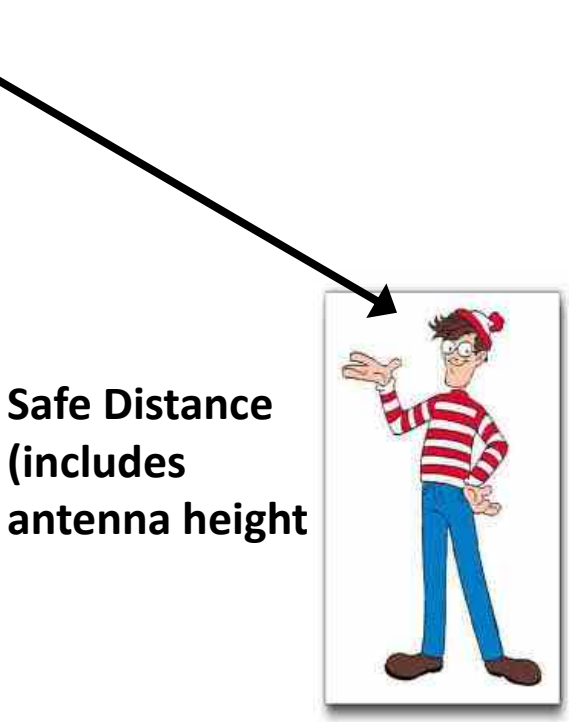
- License requires evaluation
- FCC Bulletin OET 65 Appendix B is written specifically for hams
- Keep human exposure below specified levels
- Table shows when evaluation is required
- Power level includes both transmitter power and isotropic gain of antenna
  - Dipole => 2.15dBi

Band	Power	Band	Power
160m	500 W	6m	50 W
80	500	**2**	**50**
40	500	**1.25**	**50**
30	425	**70**	**70**
20	225	33	150
17	125	23	200
15	100	13	250
12	75		
10	50		

From OET Bulletin 65 Appendix B…

- VHF/UHF - Less than 50 watts radiated, no evaluation needed
- Safe exposure distance from the antenna for 50 watt transmitter and antenna from Bulletin 65 (worst case)





Safe Distance (includes antenna height

	(dBi)	(feet)
144(2m)	3	10.6
	6	14.9
222(1.25m)	3	10.6
	6	14.9
450 (70 cm)	3	8.6
	6	12.2

Packet Networking
2013 End of Year Summary

Santa Clara County ARES®/RACES

Last Updated 10-Dec-2013

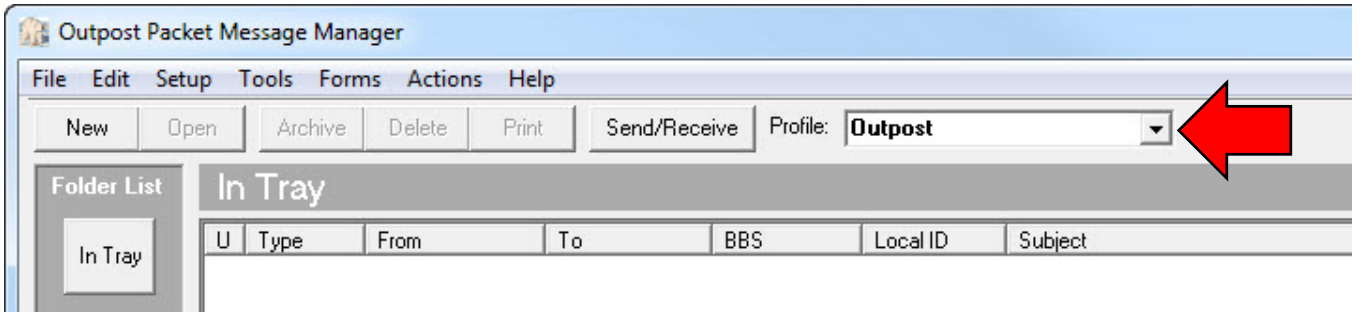
Agenda

- Outpost Enhancements
- PacFORMS Enhancements
- Network Enhancements
- Preview of Upcoming Enhancements

Outpost Enhancements

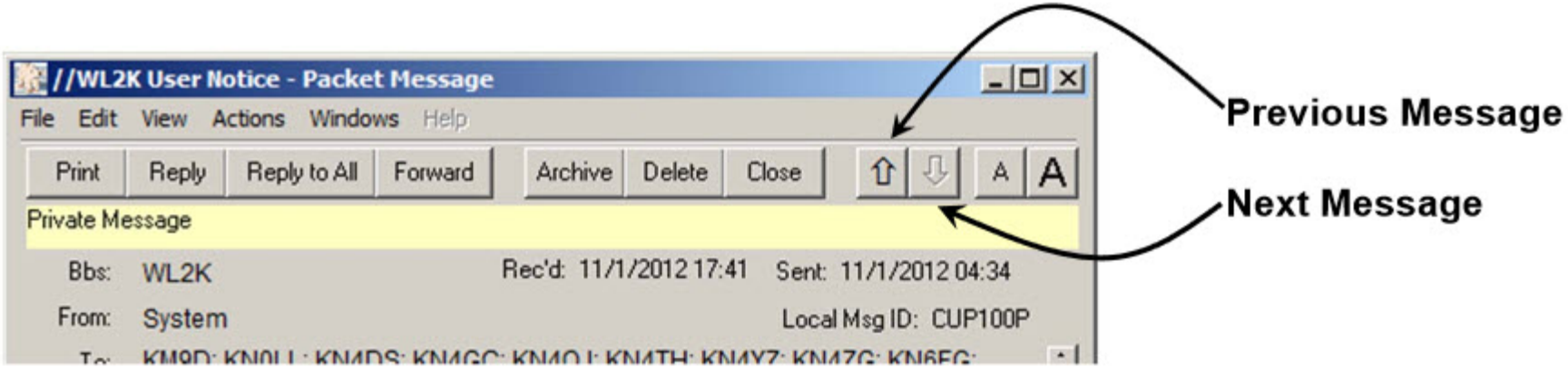
Profiles

- Allows different combinations of Outpost settings to be stored under a single profile name
  - Example: Primary and backup BBS, TNC selection
- Switch between profiles without restarting Outpost
- “Outpost” profile is set with the default Santa Clara County Settings



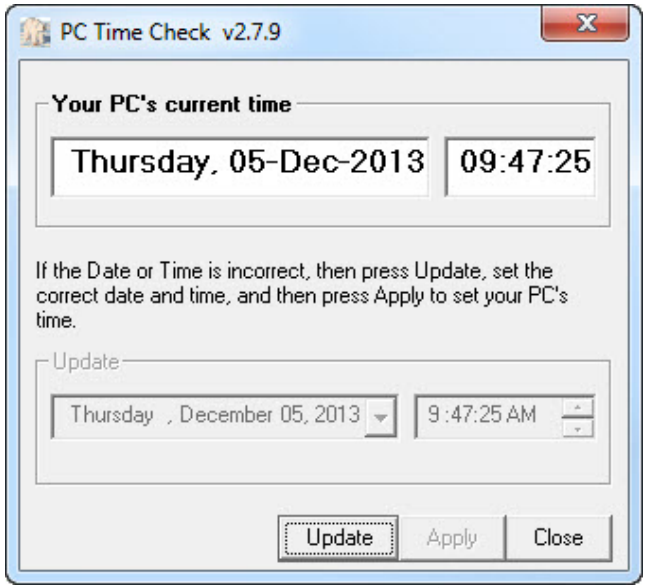
Message Navigation

- Up and Down arrows on message forms allow easy movement to previous or next message
- No need to close message, then open next message



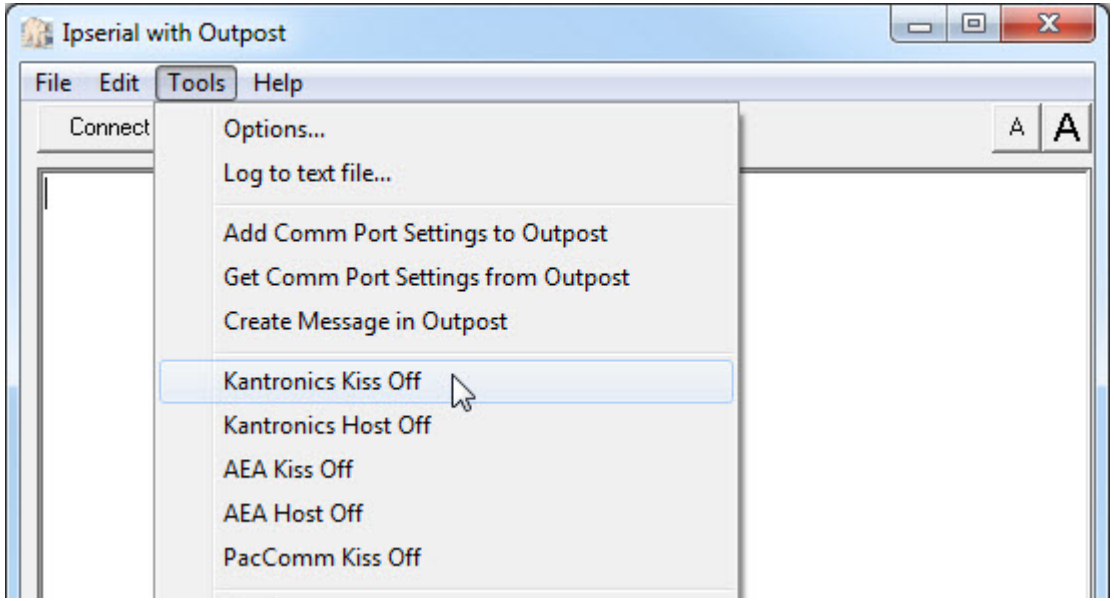
PC Time Check

- Old and/or seldom-used PCs are usually not set to the correct time
- Outpost and PacFORMS use PC time
- Causes incorrect and confusing information
- On startup, Outpost now displays current time and offers chance to update it



Ipserial: Turn off KISS and HOST modes

- Some other packet applications may not properly exit KISS or HOST mode
- Return to command mode requires sending obscure control characters to the TNC (or else full reset!)
- New Ipserial menu options do this for you!



New Serial Comm Library

- Previous
  - Worked great with hardware comm ports
  - Struggled with USB-to-Serial adaptors on Windows7 64 bit machines.
- This new library offers several improvements
  - Better USB-to-serial adaptor tolerance
  - Outpost now recognizes comm ports up to COM99
  - Better Linux/Wine operability. While Outpost still does not run native on Linux and it has not been fully tested, it now works with both hardware serial ports and USB-to-Serial adaptors on Linux.
    !!! *Until fully tested, Outpost on Linux should be considered a Pilot.*

USB-to-Serial Adapter Testing

- 13 of the most common USB-to-Serial adapters were tested with Outpost
- Information on selecting adapters posted to web site
  - http://www.scc-ares-races.org/packet/usb-serial-adapters.html
- Adapter test results summarized and posted to scc-packet
  - http://groups.yahoo.com/group/scc-packet

Adapter Type		Adapter Features							
Manufacturer	Model	Chipset	Length	Ferrite Bead	LEDS	Connector	Consistent COM Port	Unique ID	Manufacturer URL
IOGear	GUC232A	ATEN	1 ft	No	1: TX	Male DB-9; Female Binding Posts	No	No	www.iogear.com
CSI/Generic	MT609-2	FTDI	8"	No	None	Male DB-9; Female Binding Posts	No	Yes	generic
GearMo	USA-FTDI-A12	FTDI	1 ft	Yes	3: Connected, TX, RX	Male DB-9; Female Binding Posts	Yes	Yes	www.gearmo.com
GearMo	USA-FTDI-A36	FTDI	3 ft	Yes	3: Connected, TX, RX	Male DB-9; Female Binding Posts	Yes	Yes	www.gearmo.com
MFJ	MFJ 5429	FTDI	42"	No	3: Connected, TX, RX	Male DB-9; Female Binding Posts	Yes	Yes	www.mfjenterprises.com
RT Systems	RTS-03	FTDI	8"	No	None	Male DB-9; Female Binding Posts	No	Yes	www.rtsystemsinc.com
Sabrent	SBT-FTDI	FTDI	6 ft	No	None	Male DB-9; Female Binding Posts	Yes	Yes	www.sabrent.com
StarTech	ICUSB2321F	FTDI	6 ft	No	None	Male DB-9; Female Binding Posts	Yes	Yes	www.startech.com
US Converters	XS880 ("Ultimate")	FTDI	5 ft	Yes	3: Connected, TX, RX	Male DB-9; Female Binding Posts	Yes	Yes	www.usconverters.com
Tripp Lite/Keyspan	USA-19HS	Keyspan	3 ft	No	1: Connected & TX	Male DB-9; Female Binding Posts	Yes	Yes	www.tripplite.com
Belkin	F5U409	NXP	14"	No	3: Connected, TX, RX	Male DB-9; Female Binding Posts	Yes	Unknown	www.belkin.com
Airlink	ACUSBS	Prolific	27"	No	None	Male DB-9; Female Binding Posts	No	No	www.airlink101.com
Unknown	Unknown	Prolific	6 ft	No	None	PG-5G for Kenwood TM-D710 Head	No	No	stores.ebay.com/affordable-radio
		Notes:							
		Consistent COM Port: "Yes" means the adapter maintains the same Windows COM port number each time it is plugged in, even if moved to a different USB port							
		Unique ID: "Yes" means the device has a unique identifier that can be used in a Linux udev rule to assign a consistent device name to a given adapter							

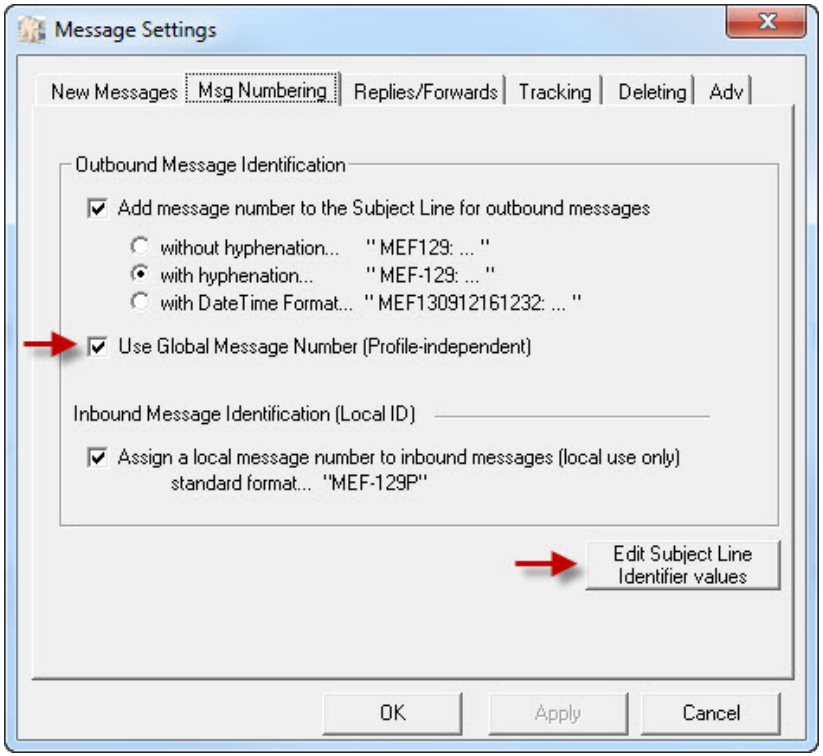
Global Message Numbering

- What Is It?
  - Outpost automatically generates the next message number when you send a new message
  - Profiles were added in the last version, but message numbering was on a per-profile basis
  - If you don't pay attention to how you set up the profiles, you could cause duplicate message numbers
  - Example:
    - Create Profile 1, next message number = 100
    - Create Profile 2, next message number = 100
    - Send a message using Profile 1; assigned msg # is 100
    - Switch to Profile 2
    - Send a message using Profile 2: assigned msg # is 100; **Duplicate!**

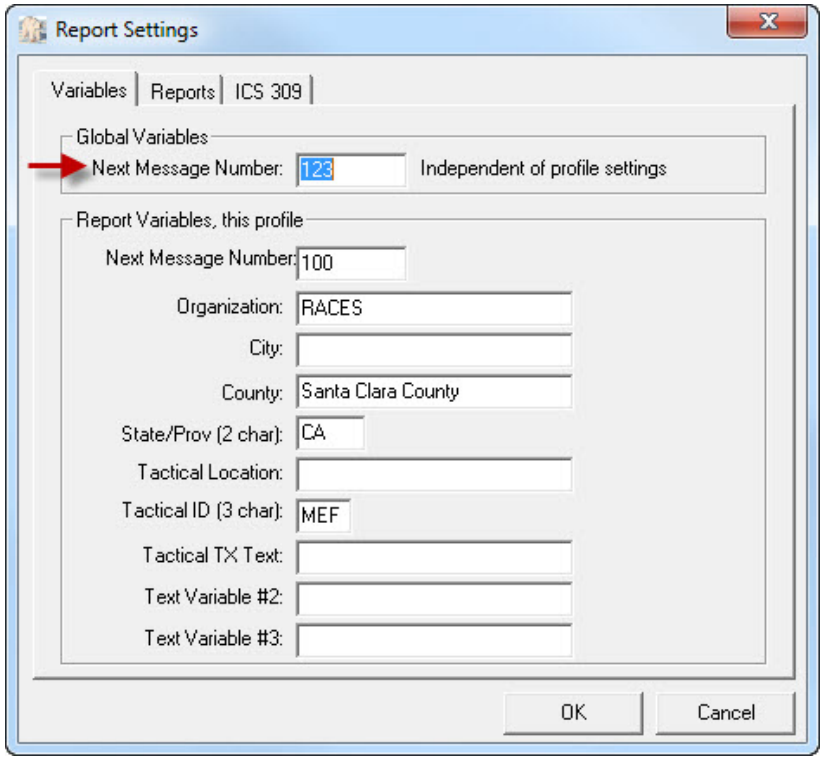
Global Message Numbering

- How to Use It
- Global message numbering is now the default
- To update old profiles …

Tools > Message Settings

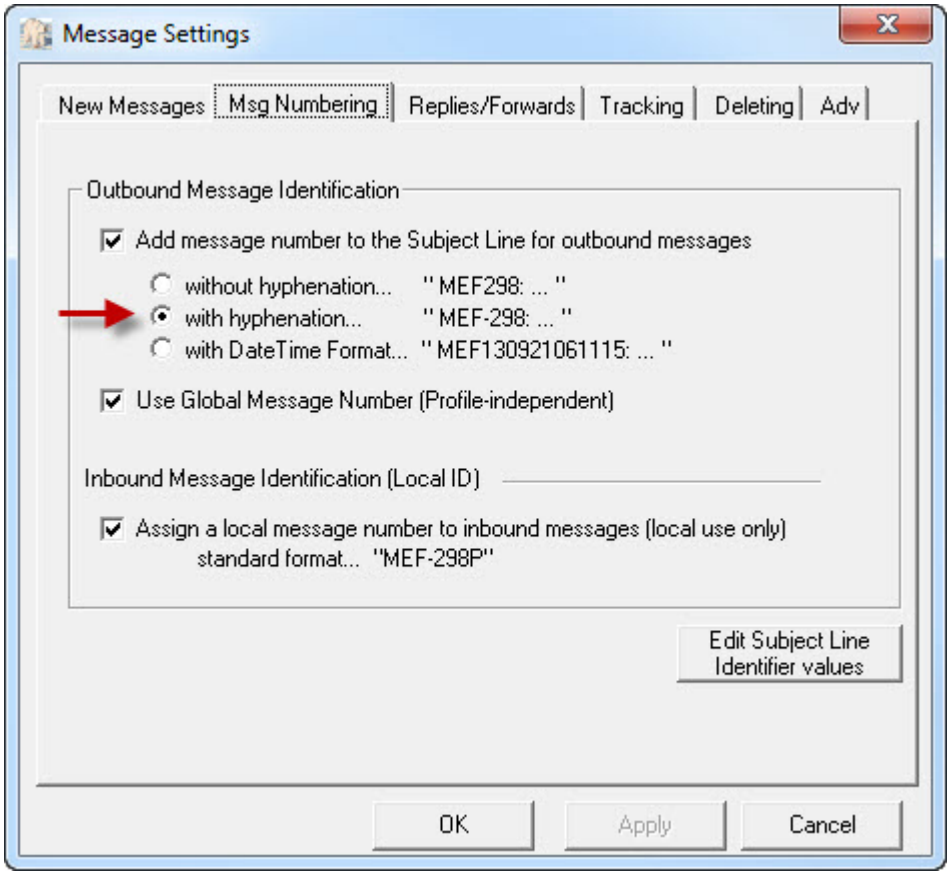


Tools > Report Settings



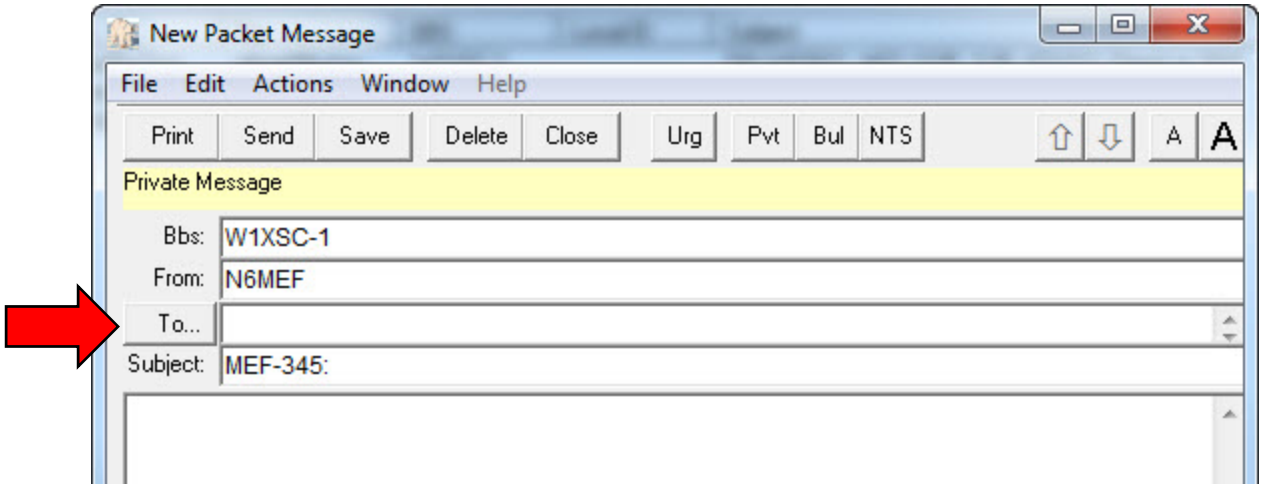
New Default Message Number Format

- Improves readability
  - FS1234 vs. FS1-234
- Update your old profiles
  - Tools > Message Settings



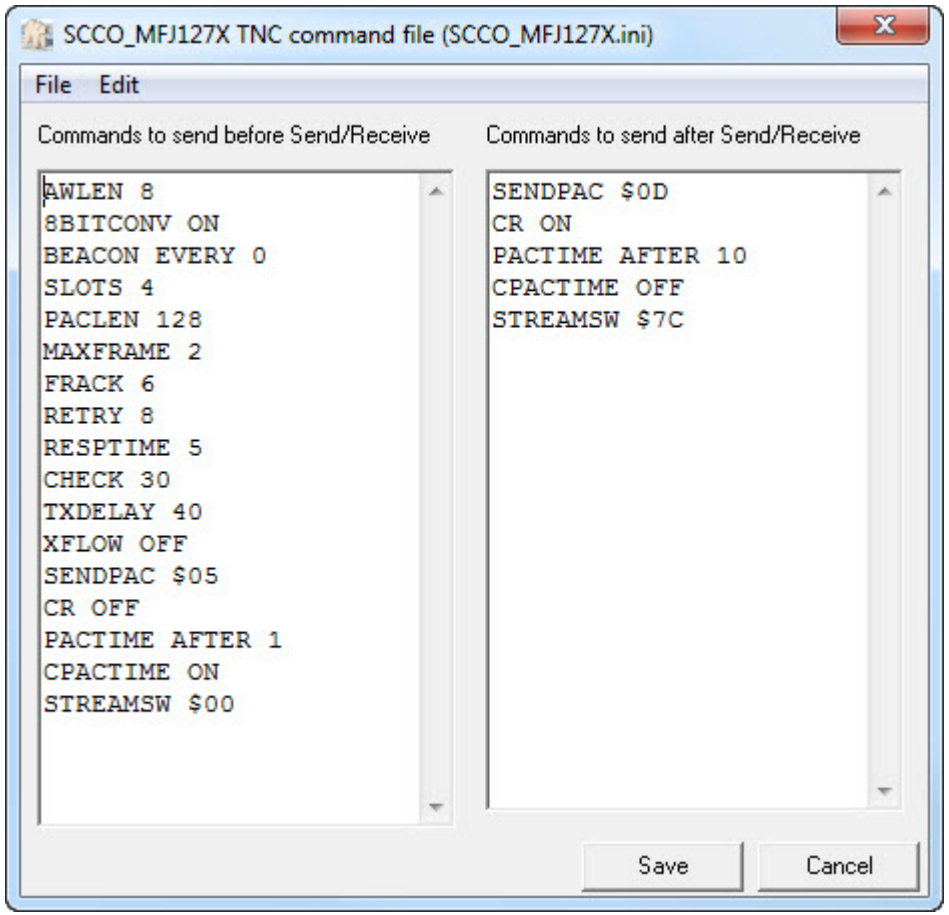
Improved Address Handling

- BBS-style
  - Allows use of “#” character (ex: kn6pe@w1xsc.**#**nca.ca.usa.noam)
- SMTP-style
  - Now supports standard address formats (with/without “< >”)
  - Allows use of 2-char top-level-domains (ex: user@host.domain.**eu**)
  - No longer sends delivery receipts to “mailer-daemon”
    - Considered bad practice to respond to mailer system messages



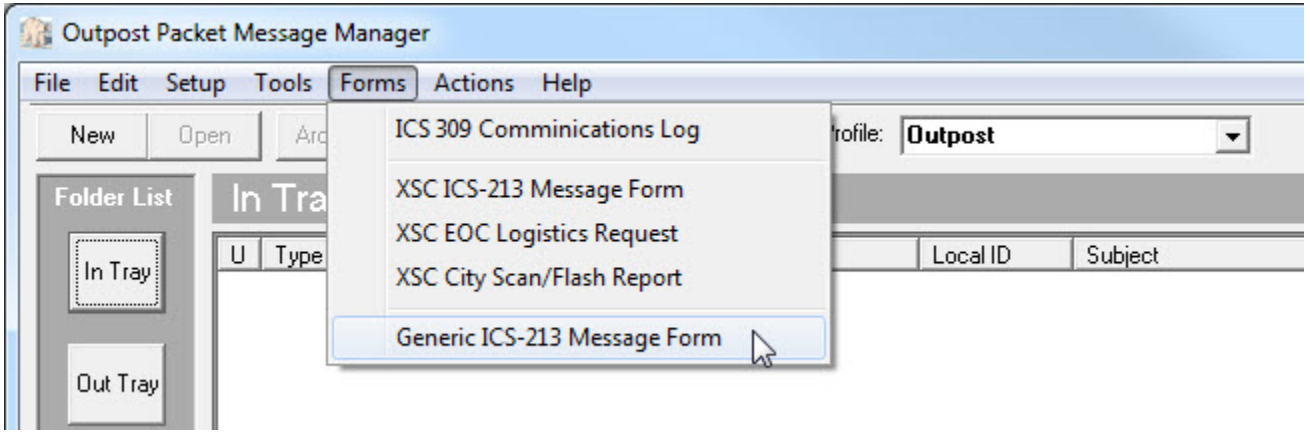
New TNC Command Files

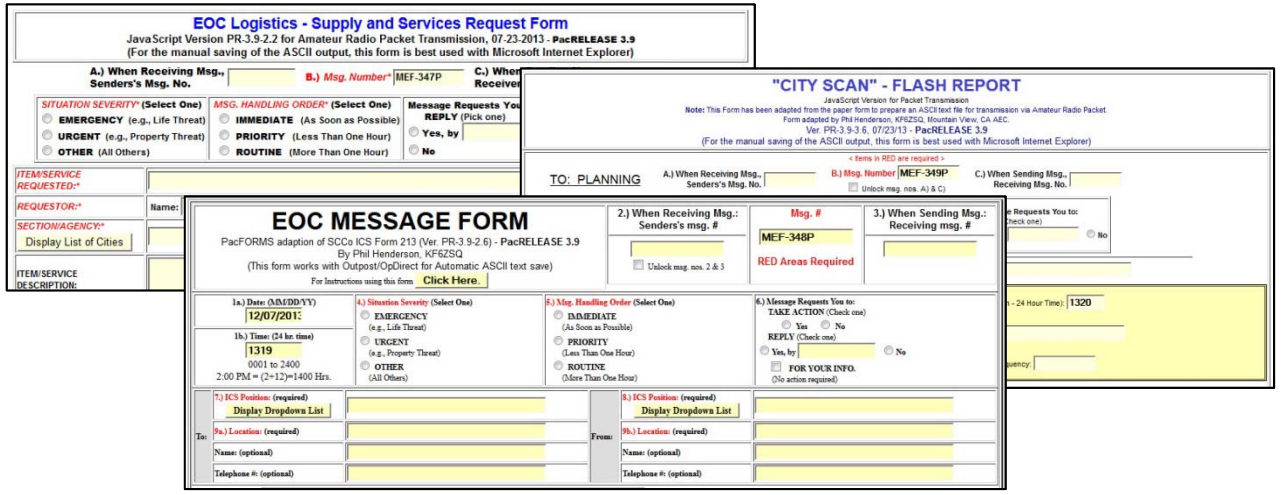
- Optimizes channel utilization for two additional TNCs:
  - MFJ 127X
  - TAPR TNC2



Return of Generic ICS-213 Form

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

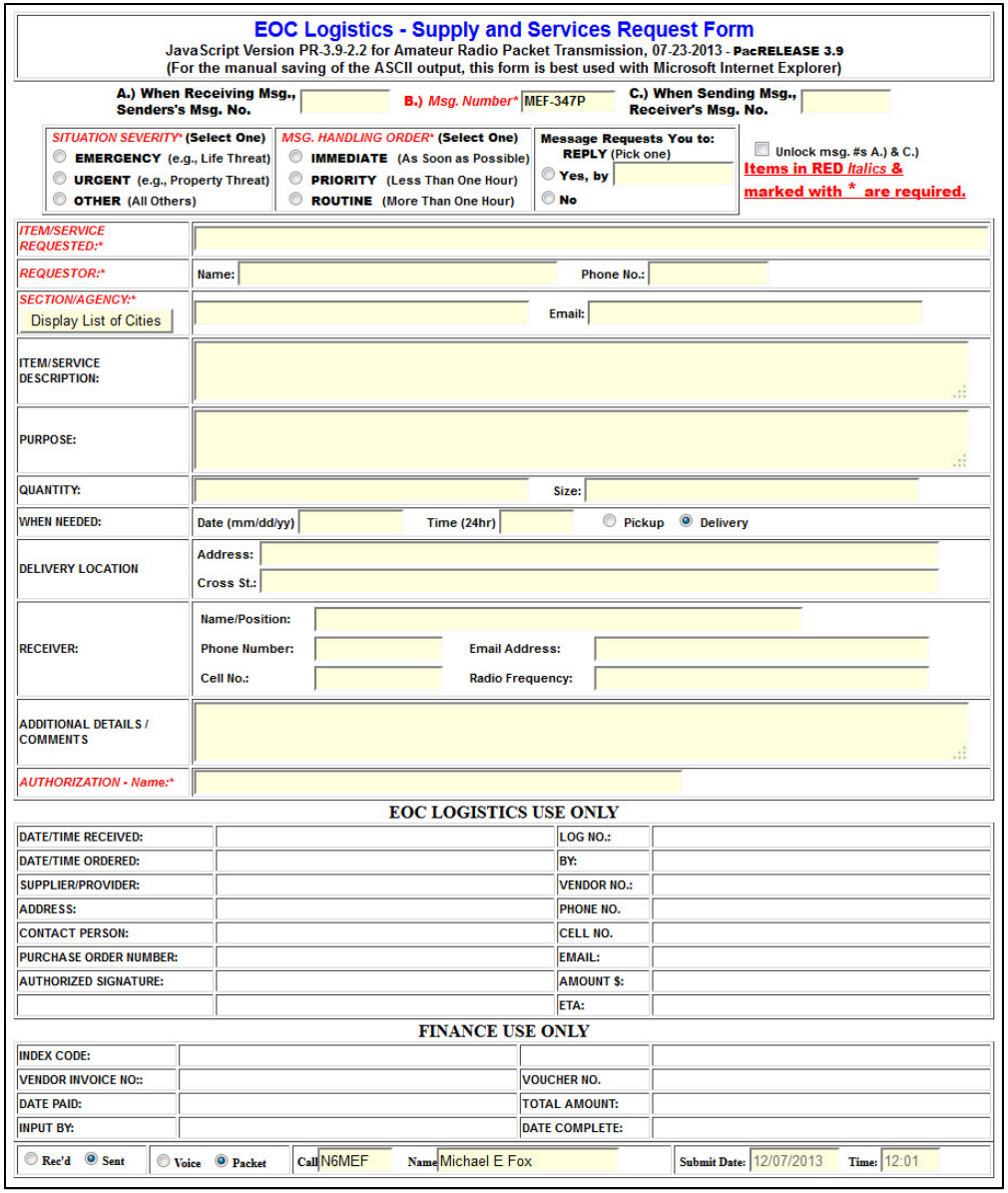




PacFORMS Enhancements

New Logistics Form

- Matches updated form in county EOC



EOC Logistics - Supply and Services Request Form

JavaScript Version PR-3.9-2.2 for Amateur Radio Packet Transmission, 07-23-2013 - **PacRELEASE 3.9**
(For the manual saving of the ASCII output, this form is best used with Microsoft Internet Explorer)

A.) When Receiving Msg., Senders's Msg. No. | B.) *Msg. Number** MEF-347P | C.) When Sending Msg., Receiver's Msg. No.

*SITUATION SEVERITY** (Select One): EMERGENCY (e.g., Life Threat); URGENT (e.g., Property Threat); OTHER (All Others)

*MSG. HANDLING ORDER** (Select One): IMMEDIATE (As Soon as Possible); PRIORITY (Less Than One Hour); ROUTINE (More Than One Hour)

Message Requests You to: REPLY (Pick one): Yes, by; No

Unlock msg. #s A.) & C.)

Items in RED *Italics &* marked with * are required.

*ITEM/SERVICE REQUESTED:**	
*REQUESTOR:**	Name: Phone No.:
*SECTION/AGENCY:** Display List of Cities	Email:
ITEM/SERVICE DESCRIPTION:	
PURPOSE:	
QUANTITY:	Size:
WHEN NEEDED:	Date (mm/dd/yy) Time (24hr) Pickup Delivery
DELIVERY LOCATION	Address: Cross St.:
RECEIVER:	Name/Position: Phone Number: Email Address: Cell No.: Radio Frequency:
ADDITIONAL DETAILS / COMMENTS	
*AUTHORIZATION - Name:**	

EOC LOGISTICS USE ONLY

DATE/TIME RECEIVED:		LOG NO.:	
DATE/TIME ORDERED:		BY:	
SUPPLIER/PROVIDER:		VENDOR NO.:	
ADDRESS:		PHONE NO.	
CONTACT PERSON:		CELL NO.	
PURCHASE ORDER NUMBER:		EMAIL:	
AUTHORIZED SIGNATURE:		AMOUNT $:	
		ETA:	

FINANCE USE ONLY

INDEX CODE:			
VENDOR INVOICE NO::		VOUCHER NO.	
DATE PAID:		TOTAL AMOUNT:	
INPUT BY:		DATE COMPLETE:	

Rec'd Sent | Voice Packet | Call N6MEF Name Michael E Fox | Submit Date: 12/07/2013 Time: 12:01

7-bit Compatibility

- Previously, PacFORMS used some 8-bit ASCII characters (¿¥€) for internal formatting purposes
- These were normally stripped out when the PacFORM was received and displayed in the browser
- But if a 7-bit system was in the transmission path, these characters would be corrupted, resulting in lost formatting and extra “?” symbols in messages
  - Examples: e-mail systems; some really old TNCs
- PacFORMS now uses only 7-bit ASCII characters

Network Enhancements

Bulletin Area Name Change

Name	Purpose & Usage
xscperm	• Official operating info needed by all network users every day • Examples: tactical call list, primary and alternate BBS assignments, frequency list • Replaced previous “perm” area • Does not expire; requires sysop to remove bulletins
xscevent	• Official operating info related to emergency incidents, public service events, drills or other types of activations • Information changes over time • Examples: official instructions, plans or informational updates specific to the current activation, current operational period • Expires after one day
xsctest	• Unofficial. For testing purposes only. • Users can send test bulletins here to avoid using official bulletin areas • Expires after one day
allxsc	• Multi-purpose bulletin area for future use

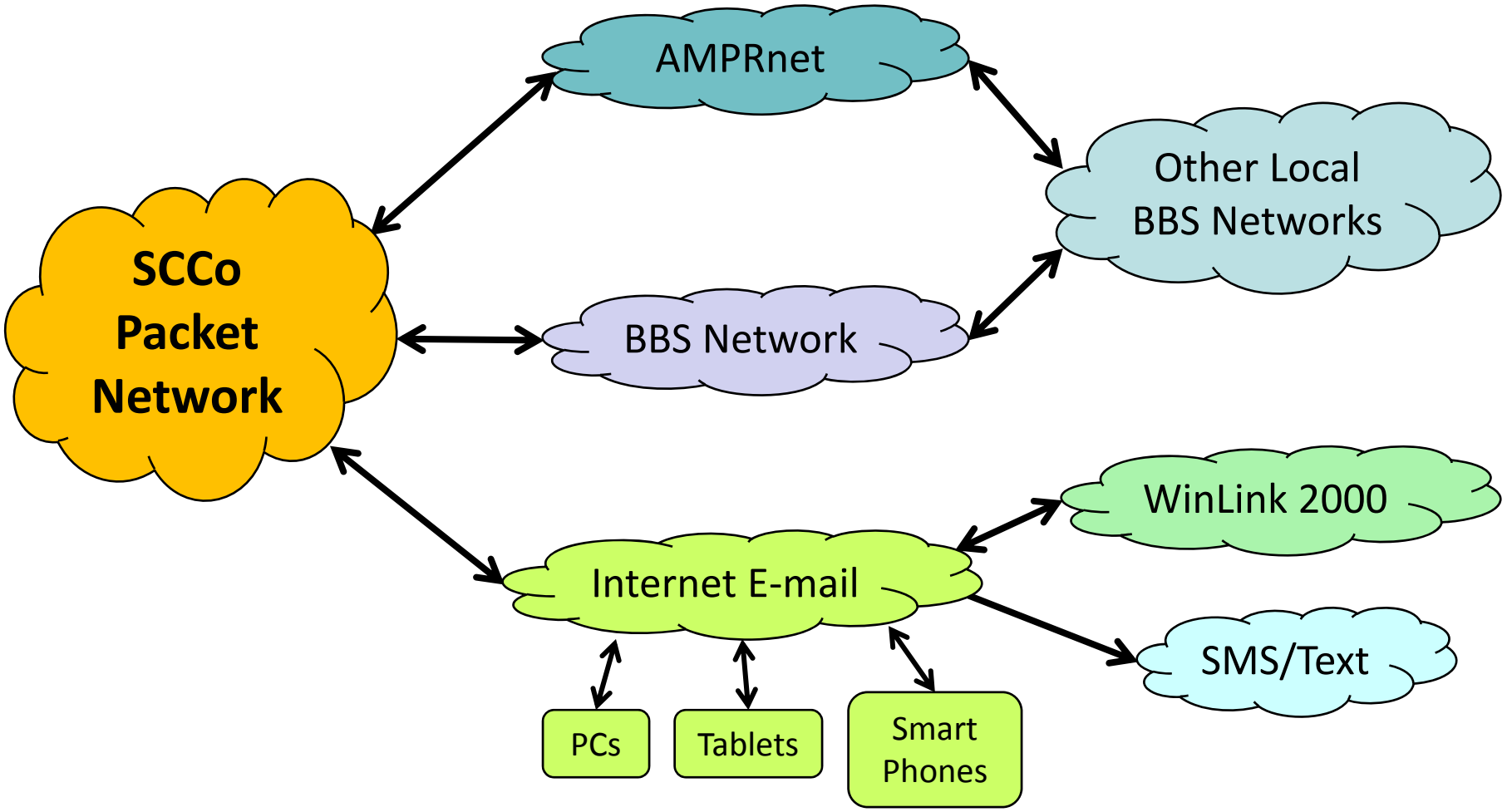
W1XSC Frequency Change

- 2m access frequency on W1XSC changed
  - Previous: 144.990 MHz
  - **Current: 145.750 MHz**
- New frequency is in repeater-prohibited portion of the band

Two-way E-mail Gateways

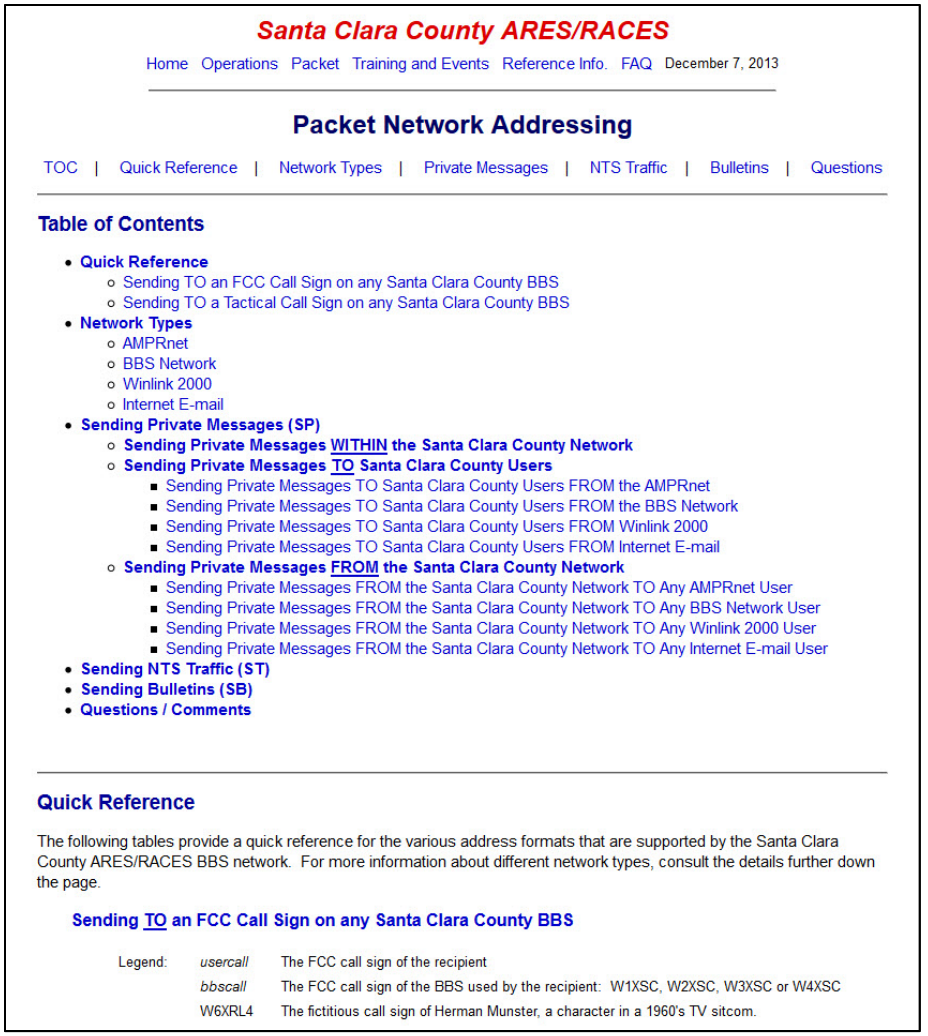
- Outbound:
  - Address just like any e-mail application:
    - Example: fat.joey@donutsaremylife.com
- Inbound:
  - <callsign>@<bbscall>.ampr.org
  - FCC Call signs: w6xrl4@w2xsc.ampr.org
  - Tactical Call Signs: xndeoc@w4xsc.ampr.org
- Be sure to set e-mail client to plain text mode
  - Otherwise message may be 10x (or more) larger!
- Redundancy
  - Currently using 3 different ISPs in three different parts of the county

We Are Well Connected!



Packet Network Addressing Web Page

- Our network connects to several other networks, each with different address formats
- New web page provides a “cheat sheet” for how to address message to or from any other network type
- Useful in your packet go kit



Santa Clara County ARES/RACES

Home Operations Packet Training and Events Reference Info. FAQ December 7, 2013

Packet Network Addressing

TOC | Quick Reference | Network Types | Private Messages | NTS Traffic | Bulletins | Questions

Table of Contents

- **Quick Reference**
  - Sending TO an FCC Call Sign on any Santa Clara County BBS
  - Sending TO a Tactical Call Sign on any Santa Clara County BBS
- **Network Types**
  - AMPRnet
  - BBS Network
  - Winlink 2000
  - Internet E-mail
- **Sending Private Messages (SP)**
  - **Sending Private Messages WITHIN the Santa Clara County Network**
  - **Sending Private Messages TO Santa Clara County Users**
    - Sending Private Messages TO Santa Clara County Users FROM the AMPRnet
    - Sending Private Messages TO Santa Clara County Users FROM the BBS Network
    - Sending Private Messages TO Santa Clara County Users FROM Winlink 2000
    - Sending Private Messages TO Santa Clara County Users FROM Internet E-mail
  - **Sending Private Messages FROM the Santa Clara County Network**
    - Sending Private Messages FROM the Santa Clara County Network TO Any AMPRnet User
    - Sending Private Messages FROM the Santa Clara County Network TO Any BBS Network User
    - Sending Private Messages FROM the Santa Clara County Network TO Any Winlink 2000 User
    - Sending Private Messages FROM the Santa Clara County Network TO Any Internet E-mail User
- **Sending NTS Traffic (ST)**
- **Sending Bulletins (SB)**
- **Questions / Comments**

Quick Reference

The following tables provide a quick reference for the various address formats that are supported by the Santa Clara County ARES/RACES BBS network. For more information about different network types, consult the details further down the page.

Sending TO an FCC Call Sign on any Santa Clara County BBS

Legend:	*usercall*	The FCC call sign of the recipient
	bbscall	The FCC call sign of the BBS used by the recipient: W1XSC, W2XSC, W3XSC or W4XSC
	W6XRL4	The fictitious call sign of Herman Munster, a character in a 1960's TV sitcom.

Other Documentation Updates

- PDFs (http://www.scc-ares-races.org/packet.html)
  - Standard Outpost Configuration Instructions
  - Standard TNC Parameter Settings
  - Standard Format for Packet Message Subject Line
  - How to Send a Message with Outpost
- Web page updates:
  - http://www.scc-ares-races.org/freqs/packet-freqs.html
  - http://www.scc-ares-races.org/packet.html
  - http://www.scc-ares-races.org/packet/packet-addressing.html

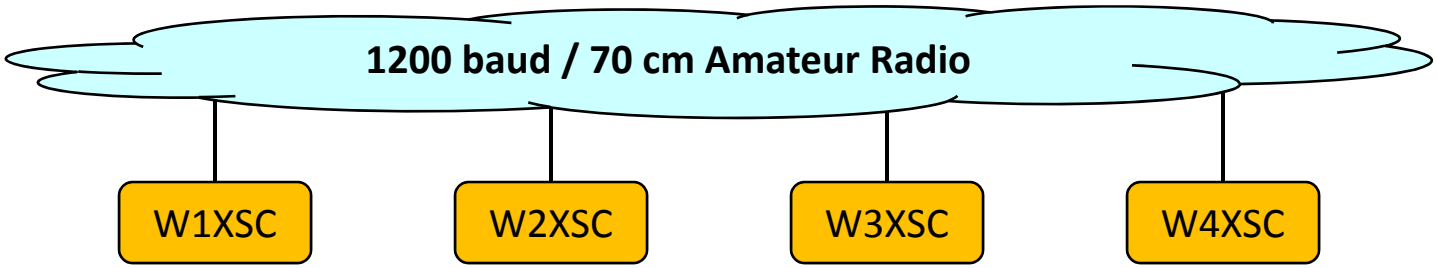
Preview of Upcoming Data Networking Enhancements

Section-wide BBS Forwarding via RF

- All surrounding counties can reach at least one of our BBSs by radio from their EOC
  - Monterey, San Benito, San Mateo, Santa Cruz
- But some use non-SCCo BBSs for their primary BBS
  - Santa Cruz uses N0ARY on Mt. Umunhum
  - San Mateo uses N6ZX on Skyline Drive above Woodside
- Forwarding to these other BBSs is currently done via Internet
- Working on forwarding via 1.25m band
- Will require swapping 220 frequencies between W2XSC (Crystal Peak) and W4XSC (Frazier Peak)
- Anticipate completion by January

Enhanced Backbone Connectivity

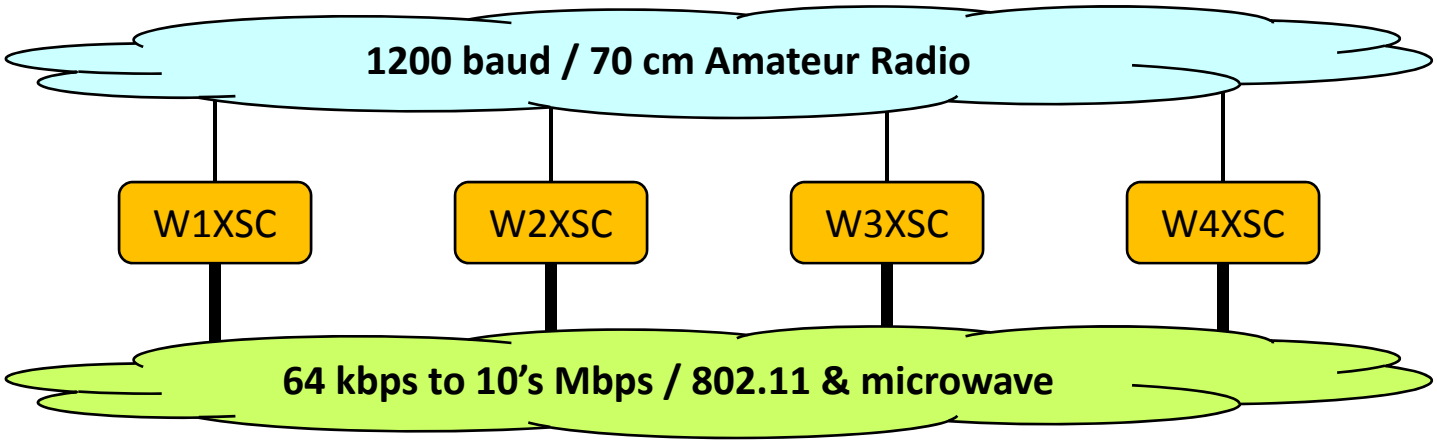
- XSC BBSs currently connected via 1200 baud RF on 70 cm band



- Advantages
  - Reliable (1200 baud is VERY forgiving)
  - Easy to maintain (deviation can be set by ear, if necessary)
  - Has handled even the heaviest drill traffic without any problem
- Disadvantage
  - 440 radio/TNC failure can isolate an individual BBS
  - It does limit us if we want to move toward higher bandwidth services in the future, including large/binary attachments

Enhanced Backbone Connectivity

- In 1Q2014, all sites will have higher speed, alternate connectivity of at least 64 kbps; 440 RF as backup

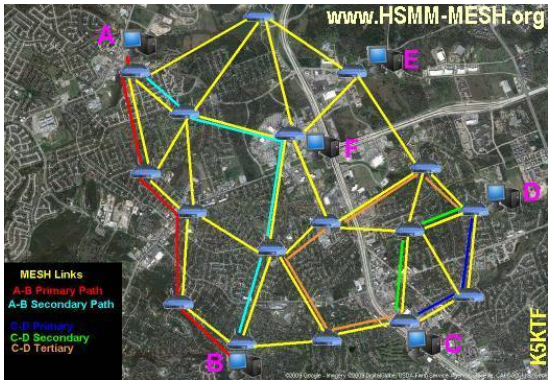


- Equipment in currently on order and will take some time to install (especially given winter weather)

Mesh Networking

- Currently, user access speed is limited to 1200 baud on 2m or 1.25m bands
  - Advantages:
    - Deployable: *FROM ANYWHERE* in the county, *TO ANYWHERE* in the county, without the Internet or *ANY* additional infrastructure
    - Survivable: Access 2+ backbone sites from anywhere, no Internet required
    - Fast/Functional: Send small text messages about as fast as with Internet e-mail (< 30 sec to send a form or text message)
  - Disadvantages:
    - Limits *reasonable* message size to approx. 10k bytes (+/-)
    - Limits traffic to text messages (no audio, video, or large binary file attachments)

Mesh Networking



- Mesh networking may be a good option
  - Automatic configuration, operation
    - User doesn't need to know routing protocols
    - Cover as much or as little as local hams desire
  - Operates at multiple Mbps
    - Multiple traffic types: voice, video, large binary files
  - Low cost hardware is available on eBay; easy to update
  - Uses ham portions of 802.11 bands
    - We can use much better antennas, higher power (with no encryption)
- But … very, *VERY* line-of-site limited
  - Even trees are a problem at 2.4 GHz
  - It takes many, many nodes to reach the same distance as existing methods
- Still … we're going to give it a try …

Mesh Networking

- Some initial “tinkering” underway; more in 2014
- For more information
  - http://www.broadband-hamnet.org/
    - Custom software and instructions
    - Read thoroughly before you buy anything!
- Come join the fun
  - http://groups.yahoo.com/group/scc-mesh
    - New Yahoo group set up to discuss mesh networking in Santa Clara County
  - SVECS Breakfast, January 25, 2014
    - http://www.svecs.net
    - Program: “Toward an Integrated Electronic Messaging System”
    - Covers enhancements to our data networking capabilities made over the last three years, plus a preview of what’s coming next

Training Program Changes

Santa Clara County ARES®/RACES

Last Updated 10-Dec-2013

New Event Planning Class (Part 1 of 2)

- Intended audience
  - ECs and AECs
  - MAC Type 1 candidates
  - Any others who will be planning events
- Prerequisite
  - Any type 2 class (Field Ops, Net Control, Packet)
- Agenda
  - Type of planning situations
  - The planning process
  - Planning an event
  - Problems and pitfalls

Night Classes

- Saturday morning classes not possible for some
  - Work or family obligations
- We will experiment with night classes in 2014
- Field Operations classes will be the first such trial
- Attendance and feedback will determine what happens after that
- Check the event schedule for details

Messaging Passing and Logging

Santa Clara County ARES®/RACES

Last Updated 10-Dec-2013

A few reminders …

… based on experience from recent events

Prowords

- Introductory Words for Groups
  - Said BEFORE the object to which they refer
  - Examples: “figures”, “telephone figures”, “initial”, “initials”, “mixed group”, “mixed group figures”, “amateur call”, “email address”, “packet address”, “internet address”, …

- Prowords, operational words
  - Said AFTER the object to which they refer
  - Examples: “I spell”, “I say again”, …

Exercise: Prowords and Introductory Words

Use the proper prowords and introductory words to make sure the following information is properly conveyed:

- 123
- A123
- 123B
- 123 Apartment B
- 123 Apt B
- K Street
- Kay Street
- 1st Street
- 123 Apt B, K Street
- 456 Apt 4B, Kay Street
- 789 Ste B1, 1st Street

- N6MEF
- N6MEF/P
- (214) 867-5309
- w6xrl4@w2xsc.ampr.org
- w6xrl4@w2xsc.#nca.ca.usa.noam
- http://www.scc-ares-races.org
- Supercalifragilisticexpialidocious
- Sesquipedalianism
- Get me a jelly donut!

Say Again …

- … word after ____
- … word before ____
- … all after ____
- … all before ____
- … between ____ and ____

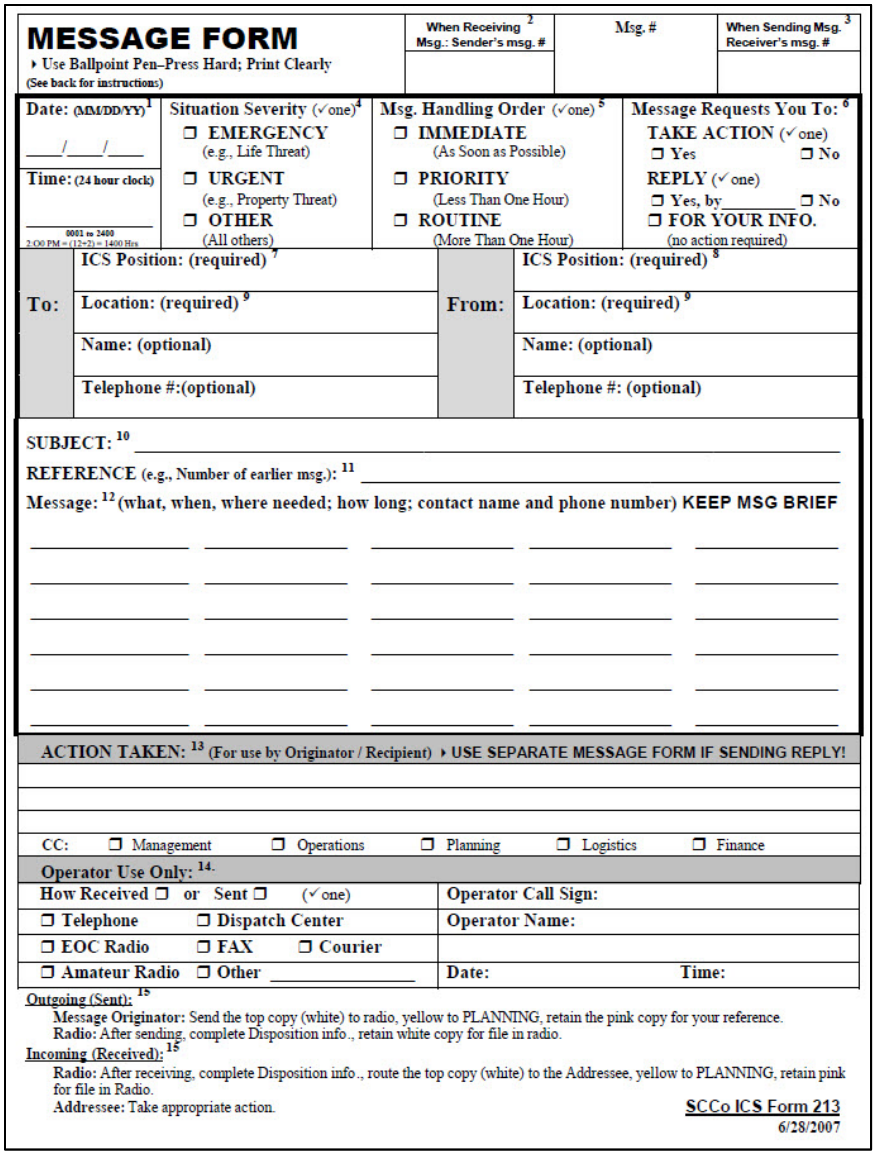
Exercise: Say Again

Use the proper “say again …” phrase to request the missing information

- Michael is a ____ instructor.
- ____ ____ is a better instructor.
- This class is ____ ____.
- On Saturday mornings, I prefer to be ____.

ICS-213 Transmission Process

- Sender (wait for ACK after each step)
  - Message #, Date, Time
  - Severity, Handling, Requests
  - To, From
  - Subject
  - Reference (if any)
  - Message - 5 words at a time
  - “End of message”
- Receiver
  - ACK each section or request fill
  - ACK end of message followed by …
  - “My message number is <#>. This is <call sign>.”
  - Fill in Operator Info
- Sender
  - ACK Msg # / Fill in receiver’s message #
  - “This is <call sign>”
  - Fill in Operator Info



MESSAGE FORM

▸ Use Ballpoint Pen–Press Hard; Print Clearly
(See back for instructions)

When Receiving [2] Msg.: Sender's msg. # | Msg. # | When Sending Msg. [3] Receiver's msg. #

Date: (MM/DD/YY) [1] ____/____/____
Time: (24 hour clock) ____ 0001 to 2400 2:00 PM = (12+2) = 1400 Hrs

Situation Severity (✓one) [4]
❒ EMERGENCY (e.g., Life Threat)
❒ URGENT (e.g., Property Threat)
❒ OTHER (All others)

Msg. Handling Order (✓one) [5]
❒ IMMEDIATE (As Soon as Possible)
❒ PRIORITY (Less Than One Hour)
❒ ROUTINE (More Than One Hour)

Message Requests You To: [6]
TAKE ACTION (✓one) ❒ Yes ❒ No
REPLY (✓one) ❒ Yes, by_____ ❒ No
❒ FOR YOUR INFO. (no action required)

To:	From:
ICS Position: (required) [7]	ICS Position: (required) [8]
Location: (required) [9]	Location: (required) [9]
Name: (optional)	Name: (optional)
Telephone #:(optional)	Telephone #: (optional)

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

ACTION TAKEN: [13] (For use by Originator / Recipient) ▸ USE SEPARATE MESSAGE FORM IF SENDING REPLY!

CC: ❒ Management ❒ Operations ❒ Planning ❒ Logistics ❒ Finance

Operator Use Only: [14]

How Received ❒ or Sent ❒ (✓one)	Operator Call Sign:
❒ Telephone ❒ Dispatch Center	Operator Name:
❒ EOC Radio ❒ FAX ❒ Courier	
❒ Amateur Radio ❒ Other _____	Date: Time:

Outgoing (Sent): [15]
Message Originator: Send the top copy (white) to radio, yellow to PLANNING, retain the pink copy for your reference.
Radio: After sending, complete Disposition info., retain white copy for file in radio.
Incoming (Received): [15]
Radio: After receiving, complete Disposition info., route the top copy (white) to the Addressee, yellow to PLANNING, retain pink for file in Radio.
Addressee: Take appropriate action.

SCCo ICS Form 213
6/28/2007

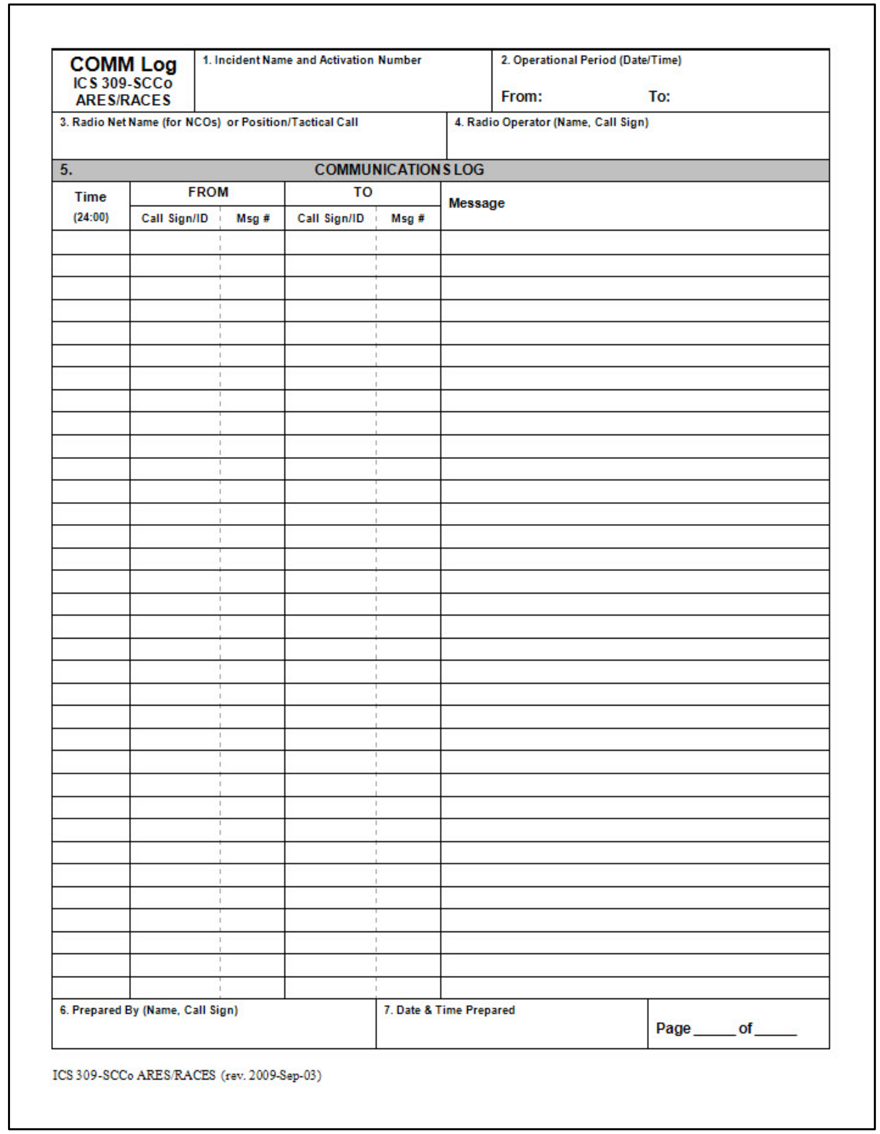
http://www.scc-ares-races.org/operations.html

Say Again … for Multi-Station Message

- If you are the pacing station, you can use “say again …” each time the sender pauses during transmission
- Otherwise, you have to wait until after the entire message is transmitted
- Use field name to quickly isolate the desired word(s):
- Say again <field name> …
  - Say again message number
  - Say again situation severity
  - Say again to location
  - Say again subject
  - Say again message (ouch!)
  - Say again message, word after …
  - Say again message, between ... and …
- Use more than one word to describe location, if needed
  - Say again message, word after “Pinky and the”

ICS 309 – Communications Log

- Our version: ICS 309-SCCo
- Net Control Operators and stations with high message traffic
- Columns help organize key message tracking info
- Does not replace 214
  - EVERYONE fills out a 214
- Turn in to supervisor at end of shift
- Instructions on back



COMM Log ICS 309-SCCo ARES/RACES	1. Incident Name and Activation Number	2. Operational Period (Date/Time) From: To:

3. Radio Net Name (for NCOs) or Position/Tactical Call	4. Radio Operator (Name, Call Sign)

5. COMMUNICATIONS LOG

Time (24:00)	FROM Call Sign/ID	FROM Msg #	TO Call Sign/ID	TO Msg #	Message

6. Prepared By (Name, Call Sign)	7. Date & Time Prepared	Page ____ of ____

ICS 309-SCCo ARES/RACES (rev. 2009-Sep-03)

http://www.scc-ares-races.org/operations.html

ICS 309: Header and Footer

- When you start a new page, fill in the header

COMM Log ICS 309-SCCo ARES/RACES	1. Incident Name and Activation Number Transylvania Mummy Race TSV-13-13	2. Operational Period (Date/Time) Oct 31, 2013 Oct 31, 2013 From: 2000 To: 2359
3. Radio Net Name (for NCOs) or Position/Tactical Call Resource Net		4. Radio Operator (Name, Call Sign) Herman Munster, W6XRL4

5. COMMUNICATIONS LOG					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	

- When you complete a page (or the net) fill in footer

6. Prepared By (Name, Call Sign) Wolf Man, K6WOOF	7. Date & Time Prepared Oct 31, 2013, 2359	Page 1 of 1

ICS 309-SCCo ARES/RACES (rev. 2009-Sep-03)

ICS 309: Shift Change

- Record outgoing and incoming Net Control/Scribe
- Make it clear, obvious what happened

5. COMMUNICATIONS LOG					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
[End of shift H&W Check entries]					
1300	----------		----------		---- SHIFT CHANGE ----
------	----------		----------		Outgoing NCO=<call sign>; Scribe=<call sign>
------	----------		----------		Incoming NCO=<call sign>; Scribe=<call sign>
[Log continues]					

ICS 309: Activity on Another Form

Be sure to record all activity, even if using another form

- ICS 213 Message Form

5. COMMUNICATIONS LOG					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
1327	XNDEOC	XND-107			Inventory Status

- Crowd Count (Los Altos Festival of Lights)

5. COMMUNICATIONS LOG					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
1745	----------		----------		Conducted 1st crowd count; see crowd count form

And Finally: Staying Current

- Today's purpose was …
  - To review *changes* to training and operational procedures that occurred over the past year (and a few that are coming soon)
- Obviously …
  - This is only effective for those who are already familiar with the training and operations procedures in place the year before
- So …
  - If you haven't taken the base classes in the last two years and/or you haven't practiced at least a few times by attending a few drills/events per year, you won't have the whole story
- Therefore …
  - To keep current and maintain top skill levels, you need to attend full training classes at least every two years and attend a few drills/events each year.

The End … For Now

Thanks

See you next year!