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## Message Passing



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Revised: 18-June-2024

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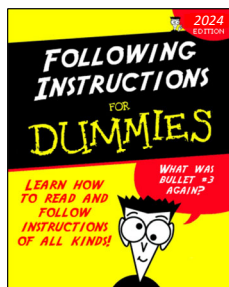
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### Housekeeping

- Introductions
- Pen/pencil & paper
- Cell phones on mute
- Side conversations
- Questions
- Breaks
- Restrooms
- Do not wander within building
- In case of emergency



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## Agenda



- Being a Great Message Handler/Shared Procedure
- Practice (prowords, message passing techniques)
- Message Types
  - Operator-to-operator vs. 3<sup>rd</sup> party (spoken and written)
- Radio Routing Information
- Common Procedures
  - Announcing, Sending, Logging
- Form-specific Exercises
- Relaying Messages
- Problem Solving
- Exercises throughout ...

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## Learning Objectives

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

- Properly send, receive and log 3<sup>rd</sup> party written messages, including messages using formats that you haven't seen before

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## Fictitious Call Signs

Examples used in this class make use of fictitious call signs:

- W6XRL4: Herman Munster
  - Character in a 1960 TV show
  - We will treat it like a real FCC call sign, even though it doesn't have the correct format
- XNDEOC: City of Xanadu Emergency Operations Center (EOC)
  - We will treat it like a real tactical call signXND ECO



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### What does it take to be a great Message Handler?

- You need to be a great communicator,
  - com-mu-ni-cate: to transmit information, thought, or feeling so that it is satisfactorily received and understood
- For 3<sup>rd</sup> party messages, we don't decide what is "satisfactory"
- We need to deliver the message precisely
  - pre-cise-ly: 1. in a precise manner 2. exactly
- How is that possible?
  - Following shared, standard, procedures that EVERYONE is trained to use!

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### Shared Procedures

- If everyone uses the same shared procedures things run efficiently and accurately.
- If people use different procedures things are slowed down, we become less efficient, and errors occur.
- We use shared procedures that everyone utilizes every time.

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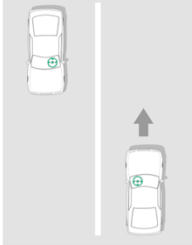
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### Which is Correct?

#### RIGHT-HAND TRAFFIC

- \* CARS DRIVE ON **RIGHT** SIDE OF ROAD
- \* STEERING WHEEL ON **LEFT** SIDE OF CAR



#### LEFT-HAND TRAFFIC

- \* CARS DRIVE ON **LEFT** SIDE OF ROAD
- \* STEERING WHEEL ON **RIGHT** SIDE OF CAR



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### HOMEWORK

- Print and read [SCCo ARES/RACES Message Handling Procedures \(PDF\)](#) [updated 06/28/2024]
- Learn the prowords and techniques. Practice until you know them well. It's not hard but it does take time and must be done before class.
- We will not be teaching what is in that document, just reviewing it during class.
- We will have a practice session using material from this document during class.

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Take every opportunity to practice at Drills, Public Service Events, Weekly Nets, and the Quarterly Training Net.



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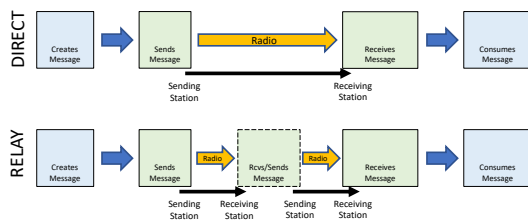
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### Message Handling Roles - Graphical



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## Message Types

Operator-to-Operator vs. 3<sup>rd</sup> Party

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## Operator-to-Operator Messages

- Sent by and to other amateur radio operators
  - Message Author is the Origin Station
  - Destination Station is the Message Recipient
- Examples:
  - Check-In/Out, Health & Welfare, Status Updates, Damage Assessments
- Note: The info may be summarized and sent to a 3<sup>rd</sup> party
  - Crowd counts totaled and sent to event organizer
  - Mike-Mike report summaries delivered to EOC staff.
- But radio operators define their own format and content
- Always use proper prowords, prioritization
- Log all Operator-to-Operator messages on an ICS-309

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## 3<sup>rd</sup> Party Messages

- 3<sup>rd</sup> Party messages are handled by amateur radio operators on behalf of our served agencies
- 3<sup>rd</sup> Party Message
  - Format is usually some type of form used by that agency
  - Content may include unfamiliar terms
  - To and From is typically an ICS position and location
  - Handling order is how quickly they need it sent
- Key: Radio operators must conform to 3<sup>rd</sup> party workflow
- Always use proper prowords, prioritization
- Also follow a common set of procedures

The ability to handle 3<sup>rd</sup> party traffic is a key difference between a Type IV and a Type III Credential.

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## 3rd Party Written Messages



- 3rd Party written messages always use an appropriate form
  - General messages on ICS-213; resource requests on EOC-213RR; etc.
- If the message is not on the appropriate form:
  - Best: Ask the author to use the correct form
    - If they don't have one, provide it to them
  - Else: Transcribe the message to the form, asking the author to clarify as you go
    - Clarify spelling, other details
  - Last Resort: Staple to an appropriate form only if necessary
    - Papers can become detached, separated
    - Staples, paper clips, and odd paper sizes can cause problems when scanning/copying
    - Add Message Number and Form Type on top right of attached paper
- Log all 3rd Party written messages on an ICS-309 Comm Log

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## 3rd Party Spoken Messages



- For simple messages, handle as spoken
  - Example: Most messages between shadows are simple, spoken messages
    - "Ask Steven to call Jenny at 867-5309"
- Use your judgement
  - IF message is longer or more complicated
    - Such as: a complicated message that needs to be delivered exactly
  - OR if it needs routing information for delivery outside the radio room
    - Such as: a message to be delivered to an ICS position in an EOC
  - OR if the message should be tracked
    - Such as: the 3rd parties may need to refer to it again
  - THEN write it down on the appropriate form; handle as a written message
- Log all 3rd party spoken messages on an ICS-309 Comm Log
  - (Shadows can log on their ICS-214)

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## Radio Routing Information

The "Envelope" for 3<sup>rd</sup> Party Messages

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### Envelope Information



- “Envelope” information is needed for all 3<sup>rd</sup> party comms
  - Postal carriers: envelope
  - Package carriers: waybill
  - Fax machines: cover sheet
- Information needed
  - Who and where it’s going to
  - Who and where it came from
  - How fast it should be sent
  - Tracking info
- The same is true for messages sent via radio

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### Message Numbers

- Generally assigned by the served agency
- Format is XXX-NNN
  - where XXX is the agency code or assigned identifier
  - where NNN is a sequential number
- Examples:
  - XND-123 Xanadu EOC
  - SH5-904 Shelter 5
  - CP2-586 Checkpoint 2
- For today’s exercises use your initials and a sequential number, i.e., ABC-100, ABC-101, ABC-102, ...

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### Radio Routing Information

Example: ICS-213

- Written messages must have routing information that a radio operator needs to send, deliver, and track a message
  - Message Numbers
  - Date, Time
  - Handling Order
  - To/From
  - Radio Operator Info
- Some forms contain these fields

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### Message Sending Procedure

No Routing Slip Needed	Routing Slip Needed
"Message Number" ... (on form)	"Message Number" ... (on routing slip and form)
Other header fields (on form)	Other header fields (on routing slip)
<ul style="list-style-type: none"> <li>Date, Time, Handling, etc. (varies by form)</li> <li>To (position, location, ...)</li> <li>From (position, location, ...)</li> </ul>	<ul style="list-style-type: none"> <li>Date, Time, Handling</li> <li>To (position, location, ...)</li> <li>From (position, location, ...)</li> </ul>
<ul style="list-style-type: none"> <li>Subject, Report Type, etc. (varies by form)</li> </ul>	<ul style="list-style-type: none"> <li>Form Type, Topic (on routing slip)</li> </ul>
Form fields	"Form Contents" (receiver moves to the form)
<ul style="list-style-type: none"> <li>Say section names (if applicable) at start of each section</li> <li>Say field name (or number), then field value</li> <li>Keep to 5 groups/fields at a time</li> </ul>	<ul style="list-style-type: none"> <li>Form fields</li> <li>Say section names (if applicable) at start of section</li> <li>Say field name (or number), then value</li> <li>Keep to 5 groups/fields at a time</li> </ul>
"End of Message"	"End of Message"
Capture receiving station's message number	Capture receiving station's message number
Log the message	Log the message

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### Multi-Recipient Sending Procedure

- Announce quantity and priority of message for ...
  - "All stations, all stations, stand by for one priority message"
  - "All shelters, all shelters, stand by for one routine message"
- [Optional] Poll for readiness of all stations
  - Depends on experience/discipline/professionalism of other operators, previous activity on the net, urgency of message, ...
- Pick a pacing station and confirm with them
  - "<city/agency name>, will you be my pacing station?"
- Send message to pacing station as usual, all other stations copy message
  - Get message number from pacing station
- Poll other stations for their message number
  - "I will now poll all stations for fills and message numbers"
  - Other stations ask for fills (if needed), then provide their message number
- Usually, put stations that missed most/all of the message at the end; don't make everyone else wait!

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### Logging Messages

- Log all communications traffic on ICS-309 Comm Log
- Include
  - Time message was handled
    - 24-hour local time, as usual
  - "From" and "To" call signs and message numbers
    - Optional: leave your call sign slot empty
  - A summary of the message
    - Form Type: Main Topic/Subject (should match Routing Slip if used)

5. COMMUNICATIONS LOG					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
1935	XNDCPS	CPS-123	XNDEOC	XND-511	ICS213: Active Flooding

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### Unfamiliar Form – what do you do?

- First, check if the receiving party has a copy of the form
  - If they do, it simplifies your sending process
  - Send them a copy/photo via fax or email or packet if possible?
- If they do ...
  - Send it as usual: top to bottom, left to right, section at a time, field name (or field number) and value
  - Skip empty sections/fields
  - Shoot for 5 items (fields/groups) at a time
- But what if they don't have the form?
  - Come up with a process!

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### Unfamiliar Form – What Do You Do?

1. Define a process that works for you
2. Follow the process

Example: A Donut Ordering form

- How does the recipient know what you're saying is the name of a field, or data you are transmitting?
- Set the expectation: "I will say the word 'Field' followed by the field name, then the word 'Value' followed by the data in the field"
- If a form will be used more than once, assign field numbers and pass the form layout, first: "I will say 'Field' followed by the number, then 'Name' followed by the name."
- Subsequently, use the field numbers: "I'll send the message as 'field', followed by the number, pause, then say the field value"
- Use common procedures: 5 items (fields/groups) at a time, ...

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### Example of an unfamiliar form: Donut Ordering Form

Date:	06-25-22
Time:	1430 hours
Person Ordering:	Herman
Glazed:	1 dozen
Jelly:	1 Raspberry
Plain:	24 mixed
Bear Claws:	de-clawed

**What's missing?**  
**Radio routing information!**  
**Use a Radio Routing Slip!**

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# Message Passing - Tabletop

## Example of Form with Numbered Fields

**Building Status Report Form**  
Facilities Department Form 23

1. Facility Name      2. Date      3. Title  
4. Contact Name      5. Phone      6. Fax  
7. Other Phone, Fax, Cell Phone, Radio

Building Operational Status	Check One	Personnel Status	Total
8. Inert	<input type="checkbox"/>	28. Inactive/Not Managers	
9. Partially Functional	<input type="checkbox"/>	29. Minimal Managers	
10. Fully Functional	<input type="checkbox"/>	30. Administrative Assistants	
<b>Storage Assessment</b>			
11. Storage Container	Yes <input type="checkbox"/> No <input type="checkbox"/>	31. Facilities Engineers	
12. Partial Collapse	<input type="checkbox"/>	32. IT Engineers	
13. Total Collapse	<input type="checkbox"/>	33. Safety Engineers	
14. Lower of Hazard Code	<input type="checkbox"/>	34. Nuclear Personnel	
15. Loss of Electricity	<input type="checkbox"/>	35. Bakers	
16. Loss of Water and/or Sewer	<input type="checkbox"/>	36. Commercial Motors	
17. Loss of Refrigeration	<input type="checkbox"/>	37. Other	
<b>Personnel Building</b>			
18. Evac. Transportation Needed	<input type="checkbox"/>	38. Equipment/Services	Check Available
19. Evac. Transportation Needed	<input type="checkbox"/>	39. Caltrans	
20. Evacuation	<input type="checkbox"/>	40. Beaumont	
21. Employee & Visitor Status	Total	41. Computer Room	
22. Confined	<input type="checkbox"/>	42. Audiotape	
23. Normal and unobstructed	<input type="checkbox"/>	43. Training Module	
24. Normal, needs assistance	<input type="checkbox"/>	44. Air Conditioning	
25. Other	<input type="checkbox"/>	45. Phones	
		46. Laboratory	

Building Status Report Form  
Facilities Department Form 23  
Revised 02/2016

**What's missing?**  
**Radio routing information!**  
**Use a Radio Routing Slip!**

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## Exercise: Unknown Form

At receiving station: Xanadu EOC

**Santa Clara County ARES - Radio Routing Slip**

Radio Routing Slip: **WCP-207**

**Message to be relayed by Message Author/Creator:**

1. Complete another station, recommended by NCS for best instructions on how to  
2. Use an appropriate form  
3. Attach the Routing Slip to be sent via radio  
4. Submit to radio operator for transmission

**Radio Operator Call:**  
Radio:  Event:  Scan:   
From:  Call Sign:  Date:  Time:

Time	FROM	TO	Message			
Call Sign/ID	Msg #	Call Sign/ID	Msg #			
HHMM	West CP	WCP-207	XNDEOC	1	<Dest. #>	Morning Donut Order

SCS ARES/RACES Radio Routing Slip Page 1 of 2

**Morning Donut Order**

- Date: <today>
- Time: 11:35
- Department: RACES
- Glazed: 6
- Jelly: 2
- Assorted: 1 dozen

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## Relaying Messages

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## The Need for Relaying Messages

- We usually send messages directly (one hop)
  - We use the To and From Locations without thinking
  - Origin Station calls Destination Station listed in "To Location"
  - Destination Station sends back confirmation (Destination Msg Nbr) to the Origin Station ("From Location") during the same conversation
- But sometimes the Origin Station can't reach the Destination Station directly
  - No repeater (down or limited coverage)
  - Simplex distance or terrain issues

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## Relaying Messages

- We can use one or more "Relay Stations" when the Origin Station is unable to talk to the Destination Station directly
  - Origin station needs to find a path (one or more Relay Stations) to the "To Location" for sending the message
  - Destination station needs to find a path (one or more Relay Stations) to the "From Location" for sending their message number (confirmation)
    - This may be the same path used to send the message
    - It might be a different path (if one or more Relay Stations are now gone)
  - Finding the path may occur on the same or different net
    - Example: Command Net might be used to keep Message Net moving

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## Relaying Messages

- Assumptions:
  - Stations know when a relay is required and arrange a path
  - When the message is being passed, stations know the "next hop" needed to reach the Destination Station
  - When the receipt is being returned, stations know the "next hop" needed to reach the Origin Station
  - The path taken by the receipt may be different than the original message.
  - Return receipt is sent as normal, operator-to-operator traffic with "Routine" handling.
  - Return of the receipt is done on a "best effort" basis.

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### Message Hop 2: Relay Station To Destination Station

- Transfer message as usual
  - Relay Station uses same paperwork that was created in previous hop
- “Radio Operator Only” section:
  - Relay Station records Dest Station’s call sign in “Relay: Sent”
  - Dest Station records Relay Station’s call sign in “Relay: Rcvd”
  - Remainder completed as normal
- Both log the traffic on their ICS-309
- Relay station should update previous log entry
  - Add Destination Msg Nbr to 1<sup>st</sup> hop message

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### Relay Example: Message Hop 2



#### Relay

Form: Radio Operator Only: 1 Origin Msg #: *XND-321* Destination Msg #: *S01-104*

Radio Operator Only:

Relay: Rcvd: *EOC* Sent: *Shelter 1*

ICS-309:

Time (UTC)	FROM Call SignID	Msg #	TO Call SignID	Msg #	Message
1100	<i>EOC</i>	<i>XND-321</i>	<i>Fire 4</i>	<i>S01-104</i>	<i>ICS-213: Water / Relay from EOC</i>
1100	<i>Fire 4</i>	<i>XND-321</i>	<i>Shelter 1</i>	<i>S01-104</i>	<i>ICS-213: Water / Relay to Shelter 1</i>

#### Destination

Form: Radio Operator Only: 1 Origin Msg #: *XND-321* Destination Msg #: *S01-104*

Radio Operator Only:

Relay: Rcvd: *Fire 4* Sent:

ICS-309:

Time (UTC)	FROM Call SignID	Msg #	TO Call SignID	Msg #	Message
1100	<i>Fire 4</i>	<i>XND-321</i>	<i>Shelter 1</i>	<i>S01-104</i>	<i>ICS-213: Water / Relay From EOC</i>

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### Receipt Hop 1: Relay To Origin Station

- Relay Station contacts Origin Station with operator-to-operator traffic
  - “<Origin Station>, this is <Relay Station> with a destination message number”
  - “Go ahead”
- Relay Station passes the message number
  - “For your Origin Msg Nbr XND-321, Dest MSg Nbr is: S01-104”
  - “Copy”
- Both log the traffic on their ICS-309
- Origin Station should update previous log entries
  - Add Destination Message Number to:
    - The original, outgoing message form
    - The original ICS-309 log entry

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### Relay Example: Receipt Hop 1

**Relay**

Form: Radio Operator Only: \* Origin Msg #: **XND-321** Destination Msg #: **S01-104**

Radio Operator Only:

Relay: Rcvd: **EOC** Sent: **Shelter 1**

ICS-309:

Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
1100	EOC	XND-321	Fire 4	S01-104	ICS-213: Water / Relay from EOC
1100	Fire 4	XND-321	Shelter 1	S01-104	ICS-213: Water / Relay to Shelter 1
1100	Fire 4		EOC		Origin # XND-321 = Dest # S01-104

**Origin**

Form: Radio Operator Only: \* Origin Msg #: **XND-321** Destination Msg #: **S01-204**

Radio Operator Only:

Relay: Rcvd: Sent: **Fire 4**

ICS-309:

Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
1100	EOC	XND-321	Fire 4	S01-104	ICS-213: Water / Relay to Shelter 1
1100	Fire 4		EOC		Orig # XND-321 = Dest # S01-104

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### More Complex Relay Situations

- Time Lag
  - It may be 30 minutes to an hour before you get the destination message number back; longer with two relays
- Two relays
  - The same procedure is easily extended to more than one relay
  - This would be extremely rare in our county, much less for a city
  - See Appendix at the end for a diagram
- Different path for return of Destination Message Nbr
  - By the time the Destination Message Number is on its way back to the Origin Station, one or more of the relays may be gone
  - So the "receipt" may take a different path back
  - See Appendix at the end for a diagram

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### Problem Solving

How to handle the problems that will inevitably happen

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### Proword Is Part of the Message

- What if a proword like “figures” is part of the message?
- Answer: Use “I spell”
- Examples:
  - Written: “The latest figures are encouraging.”
  - Spoken: “The latest figures / SPELL foxtrot india golf uniform romeo echo sierra <pause> are encouraging.”
  
  - Written: “Itemize 4 figures each.”
  - Spoken: “Itemize FIGURE four <pause> figures / SPELL foxtrot india golf uniform romeo echo sierra <pause> each.”

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### Message Is Too Long for the Form

- When you run out of room on the form when receiving a message:
  - Make it *abundantly* clear on page 1 that there is more than one page (“Page 1 of X”)
  - Use plain paper (Form 1) for subsequent page(s)
  - Add Origin Message Number and “Page X of Y” to each page
  - Use only front of paper
    - Copying and/or scanning often misses the back of pages
  - Immediately staple or otherwise affix all pages together

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### Untrained Operator; Known Form

- What if an Operator is sending a known form poorly?
  - Suggest a process
    - “Send fields top to bottom, left to right, 5 fields at a time. For long fields, send 5 words at a time”
  - If that doesn’t work, switch to a more directive approach
    - Ask for individual fields: Origin Message Number?, Date?, Time?, Handling? ...
- If the problem continues with the next message, it might be time to suggest another operator through discreet channels such as Command Net, Telephone, etc.

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### Untrained Operator; Unknown Form

- If an Operator is sending a message poorly (using an unfamiliar form you haven't seen) – what do you do?
  - Suggest a process:
    - “First, tell me each of the field numbers and field names on the form, top to bottom, left to right. Pause after each one (or five) and wait for an acknowledgment by me.”
    - Now, tell me the field number (or name) followed by the value.

### Use MP Techniques with Net Scripts

- Use with caution on Net Scripts (Open/Close Net, H&W, etc)
  - Prowords are helpful when sending things that might be misunderstood but do not overuse them when reading net scripts.

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### Unusual Information to Communicate

- Just about anything can be sent with our existing rules
  - Avoid making up new prowords
- Still, you may come across something that isn't covered yet
  - That's why we added to the ARRL message handling procedures
- If you're really sure that you must create a new proword
  - Use the existing prowords as a guide for how it should work
  - Set the expectation for the receiving station up front
    - “I will use the introductory proword WIDGET” before speaking a group of type widget phonetically
  - Use it consistently
  - Report it on our discussion groups
  - If appropriate, we'll adopt it into our standards

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### Whatever the Problem, Remember ...

## Semper Gumby

(In case you don't know Latin, that means "Always Flexible")



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### Summary

You should now be able to:

- Properly send, receive and log 3<sup>rd</sup> party written messages, including messages using formats that you haven't seen before
- And you should be able to do it precisely!

This was the classroom portion of your training  
Practice is the only way to become and remain proficient!

- Quarterly On-air training nets
- Exercises, drills, and public service events
- Repeat this class until it's automatic

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### Final Assignment

Please complete the Class Evaluation within one week.

To get course credit you need to:

- a) Attend at least 90% of the class
- b) Participate in class
- b) Complete the class evaluation

If you do these, you will get credit for the course.

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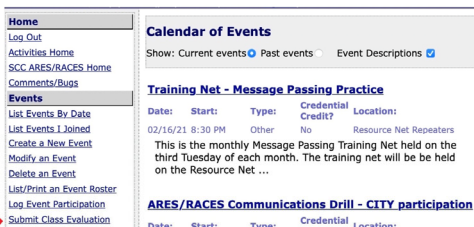
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### Online Class Evaluation

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



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### Thank You!

- If you have questions or feedback about this or other training activities, join our Training discussion group. This is a moderated group:
  - <https://www.scc-ares-races.org/discuss-groups>

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### Message Relay Exercise

- We are only to send the message number, priority, and subject. We will not send the rest of the message content for this exercise.
- Xanadu EOC Sends ICS-213 to Shelter 1 via Fire Station 4
  - o [Slide 74](#)
- Fire Station 4 relays to Shelter 1 and receives Destination Message Number from Shelter 1
  - o [Slide 76](#)
- Fire Station 4 relays Destination Message # to Xanadu EOC
  - o [Slide 78](#)

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### Appendix

Example, Relaying with 2 relay hops

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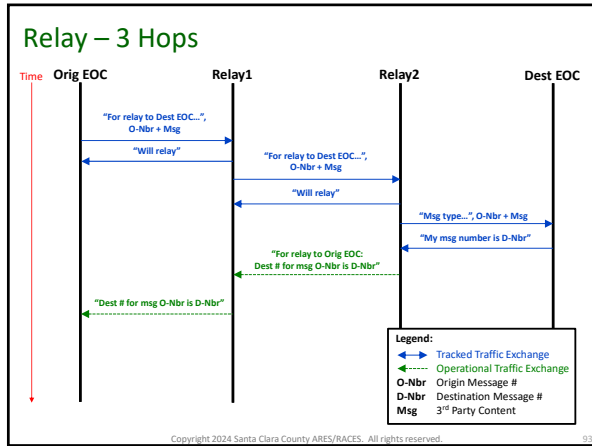
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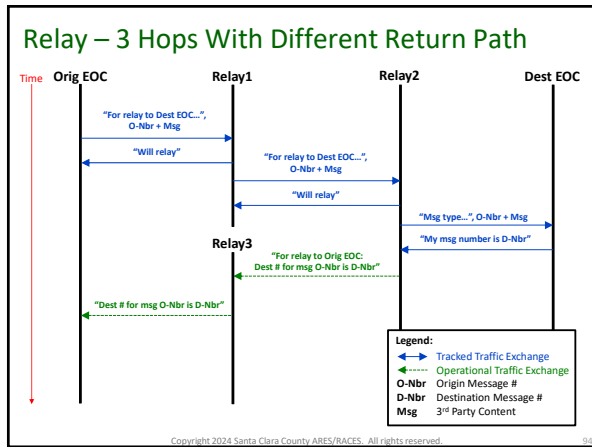
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