Objectives:
You will be able to demonstrate or explain:

- Why we use a directed net
- Net Control Station’s Role
- Keeping an NCS log
- Starting the Net and Checking in
- Operating practices used by RACES
- Voice communications procedure
- Procedural words and phonetics
A DIRECTED NET …

- Means Net Control requires stations to get permission before using the net.
- Is recommended whenever more than 4 stations share the same frequency.
- Enables the NCS to prioritize and handle multiple stations with traffic.
- Every RACES operator should know how to call up and run a net!
The Goal of Net Control is to ... 

- **PREVENT CHAOS!**
  - So Plan Ahead.
  - Ensure that there is **ALWAYS** an alternate Net Control in case you must go off the air!
    - Battery goes dead
    - Thunderstorm activity
    - Any unforeseen or **dangerous** situation
NET CONTROL STATION’S JOB IS:

- **CONTROL** the net
- **MAINTAIN** net discipline
  - by setting the example
- **MOVE** traffic efficiently
- **TRACK** what’s going on…
- **RECORD** what happens…
- **REPORT** to Team Leader, Radio Officer, served agency contact.
**NCS Location and Operations**

- **NCS Should NOT operate from an EOC or Command Post**
  - Noisy / distracting - to you and agency officials
  - Get a safe, quiet place, with room to operate
  - Plan for antennas and power supplies

- **NCS Should ALWAYS make sure:**
  - Equipment & antennas are in good order
  - Batteries are charged, inspected regularly
  - To use minimum reliable power, so batteries last
  - To be on time, and at the correct frequency!
As NCS, You MUST write things down!

- Because you won’t remember everything when it gets busy!
- Nor can you brief your relief operator from memory...
- Or reconstruct what happened later...
- And make an accurate report.
Served agencies usually REQUIRE:

- **Formal logs** (ICS Form 309)
- **Status boards** (follow Agency SOP)
- These are used for:
  - Asset tracking
  - **Personnel Accountability Reports**  
    (sometimes called “PAR-checks”)
  - Part of the official incident record.
What goes into an NCS log? -1

- Date, time, frequency
- Who originated the traffic, who took it?
  - Who gets reply when it comes back?
  - Frequency / mode to be used for reply?
- What was the assignment or action?
- No. of pieces, destination, PRIORITY:
  - ICS = URGENT, IMMEDIATE, R (ROUTINE)
- Where? Local Vs. “Through”
What goes into an NCS log? -2

- **How?**
  - Band? Mode? (FM, digital, SSB, CW)
  - Routing? Which BBS, node, net?
  - Note use of relays or alternate frequencies

- **When?**
  - Sequence of, assignments, actions

- **Who?**
  - Actions taken, coordinating agency
  - If a reply is expected, who gets it?
Net Format – Getting Started

- NCS gives ID, asks if freq. is in use
- Identify the Net and NCS
  - Why it’s being called now
  - Who is NCS and Where located
    - For beam heading
      (important on VHF simplex)
- Avoid long call ups!
- “Script” for scheduled nets helps new ops
EMERGENCY NET PLANNING

- Match up ‘needs’ with ‘assets’
- **Who** has traffic / needs?
- **Which** traffic is most urgent?
- **Where** is the traffic going?
- **Who** can handle traffic or task?
- Assign the work as it comes.
Net Format

- Call for Emergency / Priority traffic first
  - Act on it immediately!
- Ask for relays, if needed
- Call liaisons from other nets
  - Don't wait until you need liaisons to call them!
- Identify key receive stations
  - EOCs, served agencies, EMAC agencies,
  - NGO liaisons,
- Then move Routine traffic.
HEALTH & WELFARE TRAFFIC

- Refer W traffic to NTS outlets
  - Exceptions are rare and only when specifically requested by local EM.

- National Traffic System precedence:
  - Emergency (spelled out)
  - Priority - P
  - Welfare - W
  - Routine – R
If the net has a high traffic load, NCS should:

- Direct stations with traffic off the net frequency
- To pass their traffic while net proceeds
- Then return and report to NCS that the exchange was completed
- Continue listening.
TACTICAL CALL SIGNS

- Enable running a net without regard to WHO is operating at that location.
- Tactical Calls identify location or function,
- So that the net moves more EFFICIENTLY.
- Provide continuity when operators change.
- Use YOUR tactical call to identify
- Contact others by THEIRS
- Listen for YOURS
Comply with Part 97 FCC Rules

- Add your call sign (FCC identifier) to the LAST transmission in a series
- Excessive ID wastes time
- NCS IDs every 10 minutes
Responsibilities of Net Participants

- Know **how** the net runs:
  - Learn net **procedures** by training exercises
- Respond ONLY to NCS
  - Listen continuously, answer immediately
- Request NCS ok to take a break or leave.
- NEVER leave a net without checking out!
- Arrive **before your shift** at the operating position, set up, briefed, ready to go!
PLAN TO BRIEF YOUR RELIEF OPERATOR

- Write down all oral instructions.
- Update them as needed.
- Tell relief operator EVERYTHING... that he / she needs to know.
- Use OPBRIEF job aid
- Pass OPBRIEF + Communications Log ICS 309 to relief operator.
Refer to *OPBRIEF* job aid:

- What is our assignment?
- Who is the served agency Official in Command?
- How are agency staff recognized?
- Nearest telephone, location and number
- Location of toilet, water, food, first aid, and other supplies.
### BRIEFING YOUR RELIEF OPERATOR - 2

- What is my tactical call?
- With whom do I keep regular contact?
- What are their tactical call signs?
- Where are the net stations located?
- What type of activity is pending?
- What frequencies should I use for what function?
- Radio, power supply, antenna info.
“ACCURACY + BREVITY = CLARITY!”

- Establish initial contact by stating your **call sign** only:
- “This is (pause) Whiskey Three Alpha Bravo Charlie”
- Wait for NCS to **recognize you** before transmitting further
Think before you speak & transmit.
WAIT 2-3 seconds before keying, and between transmissions, to allow other stations to call NCS.
Interrupt, IF you have important traffic.
When necessary, ID and SAY WHY:
   "WC4VAC, with info."
| RACES OPERATING PRACTICES -3 |

- Don’t call endlessly, unless it is truly urgent.
- Answer questions directly & briefly. (Let NCS ask if more detail needed.)
- Use PLAIN LANGUAGE ONLY
- **DO USE** short simple phrases.
- No Q-signals on phone nets.
- WAIT for acknowledgement
  - Before proceeding further
- ACKNOWLEDGE
  - Transmissions to you
- ASK who a message is for if you don't know
- Let third parties speak directly to each other
  - Legal, expedient and necessary
WRITE down names of served agency officials for whom you send traffic

Enter each Subject or Task as a Line item entry on ICS309 Communications Log

- Necessary in case they wander off before you get a reply or need more information
- Helps eliminate duplicate requests

“Record” communications should always be signed with the name and title of the originator (to authenticate)
<table>
<thead>
<tr>
<th>TIME</th>
<th>STATION I.D.</th>
<th>TO</th>
<th>SUBJECT OR TASK</th>
<th>ASSIGNED TO</th>
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</thead>
<tbody>
<tr>
<td>1645</td>
<td>WA3GIN</td>
<td>KI4FON</td>
<td>ACFD ADVISES HAZMAT RELEASE I66 EXIT 71E</td>
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<td>1646</td>
<td>KI4FON</td>
<td></td>
<td>KI4FON ACTIVATE RACES ASSIST CERT IN EVAC.</td>
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<tr>
<td>1647</td>
<td></td>
<td></td>
<td>GROUP PAGE SENT OUT VIA ARLINGTON ALERT</td>
<td></td>
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<tr>
<td>1648</td>
<td></td>
<td></td>
<td>PD ON SCENE CANVASSING DOOR-TO-DOOR TO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EVACUATE RESIDENTS SO OF I66 AND NO OF FAIRFAX DR BETWEEN VERNON ST AND QUINCY TO W&amp;L HS PENDING ARRIVAL ARC TO OPEN SHELTER. SCH STAFF NOTIFIED.</td>
<td></td>
</tr>
</tbody>
</table>
Don’t pass names over the radio
  – Only names of agency officials to authenticate messages

NCS approves any exceptions
  – If doing so is operationally necessary
- Don’t say frequencies over the air
- Use Comm Plan “Channel ID” designators
- Refer to Arlington ICS 205 CERT – RACES Communications Plan
- Reduces malicious interference.
4. Amateur (ARS) and General Mobile Radio Service (GMRS) Channel Utilization

<table>
<thead>
<tr>
<th>Type/Cache</th>
<th>Channel ID</th>
<th>Function</th>
<th>Frequency/Tone</th>
<th>FYI Info.</th>
<th>Tactical Calls of NCS, Agencies and Liaisons</th>
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<tbody>
<tr>
<td>HF-2m</td>
<td>Alpha 1</td>
<td>OPNET PRIMARY SIMP</td>
<td>146.430</td>
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<td>HF-2m</td>
<td>Alpha 2</td>
<td>OPNET ALT. SIMPLEX</td>
<td>146.580</td>
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<td>HF-2m</td>
<td>Alpha 3</td>
<td>OPNET BACKUP RPTR</td>
<td>145.150-</td>
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<tr>
<td>HF-2m</td>
<td>Bravo 1</td>
<td>LOGNET PRIMARY RPTR</td>
<td>146.625-</td>
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<tr>
<td>HF-2m</td>
<td>Bravo 2</td>
<td>LOGNET ALT SIMPLEX</td>
<td>146.415</td>
<td></td>
<td>Mutual Aid, Training</td>
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<td>IF-70cm</td>
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<td>LOGNET ALT SIMPLEX</td>
<td>445.950</td>
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<td>IF-GMRS</td>
<td>Charlie 1</td>
<td>ADMIN PRIMARY RPT</td>
<td>GMRS Pair</td>
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<td></td>
<td>TBD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IF-GMRS</td>
<td>Charlie 2</td>
<td>ADMIN BACKUP RPTR</td>
<td>462.675+</td>
<td>REACT</td>
<td>Requires GMRS Lic.</td>
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<td>IF-SSB</td>
<td>Charlie 3</td>
<td>RACES REG. COORD</td>
<td>144.250USB</td>
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<td>HF-2m</td>
<td>Delta 1</td>
<td>DIGITAL OPS</td>
<td>145.73</td>
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<td>IF-75m</td>
<td>Echo 1</td>
<td>HF EVENING PRIMARY</td>
<td>3947 LSB</td>
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<td>IF-60m</td>
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<td>HF EVENING ALT</td>
<td>5330.5 USB</td>
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<td>IF-40m</td>
<td>Foxtrot 1</td>
<td>HF DAY PRIMARY</td>
<td>7243 LSB</td>
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<td>IF-40m</td>
<td>Foxtrot 2</td>
<td>HF DAY ALTERNATE</td>
<td>7255 LSB</td>
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<td>IF-10m</td>
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<tr>
<td>IF-GMRS</td>
<td>Golf 1</td>
<td>Neigh. Watch Guard Freq</td>
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<td>Max 5w w/GMRS Lic.</td>
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<tr>
<td>IF-GMRS</td>
<td>Golf 2</td>
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<td>No GMRS</td>
<td>FRS only 500mw</td>
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<td>CERT Ops</td>
<td>467.6125</td>
<td>No GMRS</td>
<td>FRS only 500mw</td>
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<td>Golf 11</td>
<td>CERT Ops</td>
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<td>Golf 12</td>
<td>CERT Ops</td>
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<td>No GMRS</td>
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<td>IF-FRS</td>
<td>Golf 13</td>
<td>CERT Safety-EMERGENCY</td>
<td>467.6875</td>
<td>R I T</td>
<td>FRS only 500mw</td>
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<tr>
<td>IF-FRS</td>
<td>Golf 14</td>
<td>CERT Admin.</td>
<td>467.7125</td>
<td>No GMRS</td>
<td>FRS only 500mw</td>
</tr>
</tbody>
</table>

5. Prepared by (Radio Officer or Field Team Leader)

Name ___________________________________________ FCC Call sign ____________
TO AVOID HUMAN ERROR:

- Get fully-worded, written & signed messages and enter on ICS Form 213
- Paraphrasing introduces errors
- If given a message orally, write it down, then read it back verbatim for approval by the originating official
- Pass the message exactly as you read it back to the originator who approved it.
- Address traffic to specific stations
- Ask requestor who should handle
  - The requestor usually knows better than NCS who should get the message
- Send traffic directly to that party
  - If NCS isn't the one who to handle it, not being specific wastes time asking or explaining it again to someone else
Pause after keying, before speaking, to avoid clipping the first syllable.

*Don't speak louder in a noisy environment.*

If you speak louder than needed for full modulation, voice audio is clipped, which reduces intelligibility.

**Preventive Steps:**
- Use an earphone or headset
- Shield your microphone
- Speak ACROSS the microphone
- Use a normal speaking voice
Call Correctly:

- LISTEN! before transmitting
  - Don’t interfere with contact in progress
- Say the “tactical call” of the station you want to contact, i.e. “Net control” (or more simply “NET”)
- Followed by the pro word ‘THIS IS’ . .
- Followed by “your tactical call”

"VOICECOM" handout © 1991 by Art Feller, W4ART, used by permission
When you hear a call to you, reply:

- “THIS IS”
  followed by your tactical call-sign
  Then tell the station calling that it is OK to proceed by saying:
- ‘GO AHEAD’
Use Procedural Words Correctly

- Prowords expedite traffic with minimal errors, but are effective ONLY if everyone understands and uses them correctly
- Teach New Operators “The Basic Four”
Every RACES member should know and use these:

- "THIS IS" - ALWAYS use to identify
- "OVER" - I have finished transmitting and I am waiting for and expect your reply.
- "GO AHEAD" - Proceed with traffic
- "OUT" - End of Contact - I have finished and expect no reply.
OVER or OUT?
Please GET IT RIGHT:

- “OVER” - I have stopped, it’s your turn to transmit.
- “OUT” - Tells everyone that the contact has ended.

OK… what about "CLEAR"?

- “Clear” is used in a “free” net to release the frequency
• "ROGER" means the same as “OK”
  – “Received and understood”
  – NOT used for ‘yes’ or ‘affirmative’

• “CONFIRM” may abbreviate “CHARLIE”
  – Acknowledges a fill or traffic sent
More Prowords - 2

"AFFIRMATIVE“ or "NEGATIVE"
- Use instead of "yes" or "no"
- Because it sounds distinctive and has clearer meaning under marginal voice conditions.

“SAY AGAIN” - Use to request a ‘fill’
- Example: ‘SAY AGAIN ALL AFTER…<known word>’
“CORRECTION” - I made an error and am transmitting again from after the last correct word

“CORRECT” - You are correct

“BREAK” - Use ONLY to separate message text from headers or signature blocks in messages
  - NEVER use ‘BREAK’ to interrupt a contact
    (In an EMERGENCY, use plain language)
If you MUST interrupt:

“IDENTIFY!
and SAY WHY”

“WC4VAC - INFO”

“WA3GIN- URGENT!”
"COPY" Means - I have heard and understand the traffic sent
  – Don’t use Q-signals - “QSL”
  – Don’t use jargon - “direct”

“WAIT” Means cease transmission until told “Go Ahead” by the NCS
  – Example: “KI4FON acknowledged, WAIT… WA3GIN call your station.”
More Prowords - 5

- “FIGURE GROUP”
  - Next group following is numbers
- “INITIAL”
  - Single letter follows
- “LETTER GROUP”
  - Next group following is letters
Yes, still more Prowords - 6

- “MIXED GROUP”
  - Next group contains both letters and figures
- “WORDS TWICE”
  - In *really bad* conditions say each word twice
- “I SPELL” - Copy as I spell phonetically
  - Don’t say ‘Common Spelling’
  - Do not improvise phonetics!
  - Speak SLOWLY and DISTINCTLY!
Always use
Standard ITU Phonetics

<table>
<thead>
<tr>
<th>Letter</th>
<th>Phonetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Alpha</td>
</tr>
<tr>
<td>B</td>
<td>Bravo</td>
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<td>C</td>
<td>Charlie</td>
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<td>Delta</td>
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<td>Y</td>
<td>Yankee</td>
</tr>
<tr>
<td>Z</td>
<td>Zulu</td>
</tr>
</tbody>
</table>
FIGURE GROUP:

When conditions are poor numbers must be exaggerated to be understandable.

1="Wun"  
4="Fower"  
7="Sevven"  
0 ="Zearow"

2="Too"  
5="Fife"  
8="Ate"

3="Tree"  
6="Siks"  
9="Niner"

- Never say the letter "OH" as in OSCAR when you mean figure "ZERO"
Acknowledgements:

Arlington County RACES is extremely grateful to the following Individuals and organizations who have provided materials used in the production of this training:

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Pat Lambert, WØIPL

Adapted from the State of California ACS / RACES Operations Guide, by Bill Pennington, WA6SLA; with original material from the SVECS Handbook by ©Dick Rawson, N6CMJ, and VOICECOM handout ©1991 by Art Feller, W4ART, all used by permission.