

Operator Basic Course Unit 3

Directed Net Fundamentals



“Operating in a Tactical Radio Net”

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



Objectives:

After completing this unit you will be able to demonstrate or explain:

- **What a directed net is, why one is necessary**
- **How to keep a Net Control log**
- **Operational considerations and format**
- **Operating practices to be used by RACES**
- **Correct voice communications procedure**
- **ABC's - ACCURACY, BREVITY, CLARITY!**
- **Procedural words and phonetics**



Emergency Radio

Communications (EmCom)

- Use formal nets
- Most ham operation doesn't
- So, what is a directed net?
- Why is one necessary?



EmCom

(continued)

- When Net Control requires stations to get permission before using the net:
 - THIS is a DIRECTED NET!
- Directed nets are recommended whenever more than four stations share the same working frequency.



EmCom

(continued)

- **Why?**
 - **Because it enables the NCS to prioritize and handle quickly multiple stations that have traffic to handle**
 - **Every RACES operator should know how to call up and run a net !**



NET CONTROL'S JOB IS TO:

- **CONTROL** the net
- **MAINTAIN** net discipline
 - by setting the example
- **MOVE** traffic efficiently
- **TRACK** what's going on...
- **RECORD** what happens...
- **REPORT** to the served agency,
Radio Officer / Net Manager



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...



NCS Log

(continued)

Served agencies usually REQUIRE:

- **Formal logs (ICS 309)**
- **Status boards (STATUS.pdf)**
- **These are used for:**
 - **Asset tracking**
 - **Personnel Accountability Reports
(sometimes called “*PAR-checks*”)**
 - **Part of official incident record.**



What goes into an NCS log?

- Date, time, frequency
- Who originated the traffic, who took it?
 - Who gets reply when it comes back?
 - Who are 'through traffic' liaisons?
- What was the assignment or action?
- No. of pieces, destination, PRIORITY:
 - NTS = EMERGENCY P, HW, R
 - ❖ ICS = URGENT, IMMEDIATE, R
- Where? Local Vs. "Through"



What goes into an NCS log

(continued)

■ How?

- Which mode? FM voice, packet, HF, CW?
- Routing? By which liaison, to which net?
 - (note use of relays or alternate frequencies)

■ When?

- Sequence of, assignments, actions

■ Who?

- Actions taken, action agency, if a reply expected, who gets it?



The purpose of all of this is to . . .

- **PREVENT CHAOS *~%^@# !**
- 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**



CONSISTENCY!

- All Virginia Emergency Nets follow the SAME operating practices and procedures
- On VHF repeater and simplex nets use and teach these techniques
- So operators will develop the ability to provide effective local coverage without depending upon repeaters



Operational Considerations

- NCS Should **NOT** operate from an EOC
 - Noisy / distracting - to you and agency officials
- NCS Should **ALWAYS** make sure:
 - Equipment / antennas are in good order
 - Batteries charged, inspected regularly
 - Minimum reliable power, so batteries last longer
 - Be on time, and at the correct frequency!



Most Nets Follow A Similar Format

- **NCS identifies, ask if frequency is in use**
- **Moving net to alternate freq should be last resort**
- **Identify the Net and NCS**
 - **Why being called now**
 - **Who is NCS and Where located**
 - For beam heading – important on VHF simplex
- **What outlets for traffic are needed**
- **Avoid long call ups!**



Net Format *(continued)*

- **Call for emergency / priority traffic first**
 - **Act on it immediately!**
- **Call liaisons from other nets**
 - **Don't wait until you need liaisons to call them!**
- **Identify key receive stations**
 - **EOCs, served agencies, ME's Office**
 - **Those in affected areas**
 - **Net liaisons, District Emergency Stations**



Net Format (continued)

- Call for stations with traffic.
- Prioritize - ICS doesn't use NTS precedence:
 - **EMERGENCY = URGENT**
 - Priority = **IMMEDIATE**
 - Welfare = (*Not on OPNETs*)
 - Routine = **No precedence indicated**
- Ask for relays , if needed



Emergency nets don't take check ins just to build a roster !

- **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.**



As soon as traffic can be handled, call for outlets and get things moving!

- **Handle ‘through’ traffic (via HF) first**
- **Handle in Priority Order**
- **Don’t take HW, refer to NTS outlets**
 - **Exceptions only when specifically requested by the local EM.**



In high traffic loads

- **Direct stations with traffic off-frequency**
 - **Pass their traffic while net proceeds**
 - **Then go back and continue listing!**
- **Proper use of “side frequencies”**
 - **Very important in high traffic loads.**



Tactical Call signs

Enable running a net without regard to WHO is operating in any particular location

- Tactical Calls identify location or function
 - Refer to SOG06 for specifics
- So that the net moves more
- Provides continuity *when operators change*
- Use YOUR tactical call *to identify*
- *Contact others* by THEIRS
- Listen for *YOURS*



Comply with Part 97

- **Add your FCC identifier to 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**
 - Answer promptly
 - Listen continuously, answer immediately
- **NEVER leave a net without checking out!**

Net Participant Responsibilities

(continued)

■ **BE RELIABLE!**

- Arrive before your shift at operating, position to set up, briefed, ready to go!
- We may be volunteers, but we owe it to those we serve to be responsible!



Brief your relief operator

Use OPBRIEF.doc and ICS 309 Log

- **Write down all oral instructions**
- **Update them as needed**
- **Tell relief operator EVERYTHING... that he / she needs to know to do the job**
- **Refer to prompts on OPBRIEF form**
- **Pass OPBRIEF + ICS 309 to relief operator**



Brief your relief operator

(Refer to OPBRIEF form)

- **What is our assignment?**
- **What is my tactical call?**
- **Who is the served agency Official in Command?**
- **How agency staff are recognized?**
- **With whom do I maintain regular contact?**
- **What are their tactical call signs?**
- **Where are the various net stations located?**
- **What type of current activity is pending?**
- **What frequencies should I use for what function?**
- **Radio, power, antenna info**
- **Nearest telephone, location and number**
- **Location of toilet, water, food, first aid, supplies.**



RACES OPERATING PRACTICES

“ ACCURACY+ BREVITY= CLARITY!”

- **No idle chatter in a directed net!**
- **Establish initial contact by stating your call sign only**
- **Wait for NCS to recognize you before transmitting further**



RACES

OPERATING PRACTICES

(continued)

- **THINK before you speak**



Transmitting if you stop talking

- **DON'T call endlessly**

- **If truly urgent, disregard**



RACES

OPERATING PRACTICES

(continued)

- **WAIT 2-3 seconds before keying**
- **And between transmissions**
- **Interrupt, IF you have important traffic**
- **When necessary to do so, ID and SAY WHY:**
 - **”NB30, with info.”**



RACES

OPERATING PRACTICES

(continued)

- **No Q-signals on phone nets!**
- **Use PLAIN LANGUAGE ONLY**
- **DO USE short simple phrases**



RACES OPERATING PRACTICES

(continued)

- **WAIT for acknowledgement**
 - **Before proceeding further**
- **ACKNOWLEDGE**
 - **Transmissions to you**



RACES

OPERATING PRACTICES

(continued)

- **Answer questions directly; do not explain**
 - **Let NCS ask for more detail**
 - **Be Brief**
- **ASK who a message is for if you don't know**
- **Let third parties speak directly to each other**
 - **Legal, expedient and necessary**



RACES OPERATING PRACTICES

(Refer to ICS Form 309)

- **WRITE down names of served agency officials for whom you send traffic**
- **Line item entry on ICS309 station log**
 - **Necessary in case they wander off before you get a reply or need more information**
 - **Helps eliminate duplicate requests for the same resources or information**



RACES

OPERATING PRACTICES

(continued)

- **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**



RACES OPERATING PRACTICES

*(Refer to OPBRIEF.doc
and ICS Form 205 Communications Plan)*

- **Don't say frequencies over the air**
- **Refer to OPBRIEF designators**
- **Radio Officers and team leaders may use modified ICS Form 205**
- **Reduces malicious interference.**



RACES

OPERATING PRACTICES

(continued)

- **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**



RACES

OPERATING PRACTICES

(continued)

- **“Record” communications should always be signed with the name and title of the originator (necessary to authenticate)**
 - **Use judgment with tactical traffic**
 - **Greater detail in further Unit 4**



RACES

OPERATING PRACTICES

(continued)

- **Address traffic to specific stations**
- **Ask requestor who should handle**
 - **The requestor usually knows better than Net Control 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**

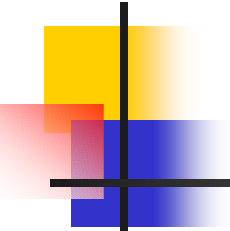


RACES

OPERATING PRACTICES

(continued)

- **Wait briefly after keying, before speaking**
- **Avoids clipping the first syllable**
 - **Transceiver delay changing from Rx to Tx**
 - **Equipment delay from repeater links**



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:

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- **LISTEN!** before transmitting
 - Don't interfere with contact in progress
- After NCS gives permission to make contact, say the call-sign of the station you want to call
 - Then say **'THIS IS'** . . .
 - Followed by **YOUR** call-sign



If you **MUST** interrupt:

- **“IDENTIFY! and SAY WHY”**

“NB30 - INFO”

“KE4SKY- URGENT! ”



Acknowledge Calls Correctly:

When you hear a call to you reply:

- **“THIS IS”** followed by your call-sign

Then tell the station calling that it is OK to proceed by saying: ‘GO AHEAD, Over’



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”**



The “Basic Four”

Every RACES member should know and use these as a matter of routine

- **“THIS IS”** - ALWAYS use to indentify
- **“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”** - Leaves no doubt whose turn it is..
- **“OUT”** - Tells everyone contact has ended.

OK... what about "CLEAR" ?

- **“Clear”** is used in a “free” net to release the frequency
- Its use is *unnecessary in a directed net, WHY?*
 - Directed net participants may not contact another station or leave the net without permission
- End transmissions on directed nets with **‘OUT’**



More Prowords...

- **"ROGER"** meaning **"Received and understood"**
 - NOT used for 'yes' or 'affirmative'
- **"CONFIRM"** *abbreviated* **"CHARLIE"**
 - Acknowledges a fill or traffic sent



More Prowords...

- **"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'
- **"I SAY AGAIN"** - Use to provide a 'fill'



More Prowords...)

- **“Word After, Word Before, All After, All Before”** - Use to request a ‘fill’.
 - “Say Again Word After “Retainer” ”

- **“I SPELL”** - Copy as I spell phonetically
 - **Speak SLOWLY and DISTINCTLY!**
 - **Say the word, spell it, then say it again**
 - **“I say again Word after Retainer, Bolt, I spell, Bravo, Oscar, Lima, Tango, Bolt, Over.**
 - **No ‘Common Spelling’ on emergency nets**
 - **Do not improvise phonetics!**



More Prowords...)

- **“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)*



More Prowords ...)

- **“WAIT”** – I will cease transmission for a short interval (several seconds to look something up etc.)
- **“WAIT, OUT”** – I will cease transmission for an extended interval (a few minutes to find someone or brief a relief operator)



More Prowords ...)

- **“FIGURES”**
 - **Next group following is numbers**
- **“INITIAL(S)”**
 - **Single letter or letter group follows**



Mixed Letter and Figure Groups...

- **Mixed Groups are identified by the first member of the group:**
 - **14th Street = “Figures One Four Tango Hotel, Street.”**
 - **WGY123 = “Initials Whiskey Golf Yankee One Two Three”**



Yes, still more Prowords...

But, thank goodness we are almost done!

- **“WORDS TWICE”**

- **In really bad conditions say each word twice**



Always use Standard ITU Phonetics

A - Alpha

B - Bravo

C - Charlie

D - Delta

E - Echo

F - Foxtrot

G - Golf

H - Hotel

I - India

J - Juliet

K - Kilo

L - Lima

M - Mike

N - November

O - Oscar

P - Papa

Q - Quebec

R - Romeo

S - Sierra

T - Tango

U - Uniform

V - Victor

W - Whiskey

X - Xray

Y - Yankee

Z - Zulu



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

1="Wun"

2="Too"

3="Tree"

4="Fower"

5="Fife"

6="Siks"

7="Sevven"

8="Ate"

9="Niner"

0 = "Zearow"

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

End Unit 3



Sharpen your pencils, get out your forms packet and prepare to copy traffic in the next unit!