



National Traffic System (NTS)

Modified for local
information:

Gregory Godsey, K5CVD

Originally by:

Jim Richards, AB8JR

Mark Shaw, K8ED

Modified from a presentation by Grant Hays, WB6OTS



National Traffic System (NTS) Messaging Basics

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- What is the National Traffic System?
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What is the National Traffic System (NTS)?

- The “RELAY” in American Radio Relay League (ARRL)
- Started in 1915 as the formal ARRL system to relay messages around the country
- Transmit & Receive Modes: Voice, CW, Digital
- NTS and Amateur Radio Emergency Services (ARES)
- Requirements to join: Any level Ham license & interest
- ARRL Field Organization Appointments: Official Relay Station (ORS) & Section Traffic Manager (STM).



Why NTS Messaging

- **Emergency Operations**
- **Use a little HT or a big base station**
- **Standard Format**
- **Accountability**
- **NTS Nets meet daily**
- **Fun, good practice & helpful!**





The American Radio Relay League
RADIOGRAM
Via Amateur Radio

Number	Precedence	HX	Station of Origin	Check	Place of Origin	Time Filed	Date
704	R	C	KG6ILA	14	MTN VIEW CA		JUL 2

To:

SUPER STUDENT KG6AAA
1234 SECOND ST
ANYTOWN CA 94000

This Radio Message was received at:

Amateur Station _____ Date _____
Name _____
Street Address _____
City, State, Zip _____

Telephone Number: 650-123-4567

PINK FOSTER KG6ILA

REC'D	From	Date	Time	SENT	To	Date	Time
					Austin AK2US	7/2/03	2112 PDT


A licensed Amateur Radio Operator, whose address is shown above, handled this message free of charge. As such messages are handled solely for the pleasure of operating, a "Ham" Operator can accept no compensation. A return message may be filed with the "Ham" delivering this message to you. Further information on Amateur Radio may be obtained from ARRL Headquarters, 225, Main Street, Newington, CT 06111.

The American Radio Relay League, Inc. is the National Membership Society of licensed radio amateurs and the publisher of QST Magazine. One of its functions is promotion of public service communication among Amateur Operators. To that end, The League has organized the National Traffic System for daily nationwide message handling.



ARRL Radiogram Form

- **Preamble:** Message number, precedence, HX (optional handling code), station of origin, check (text word count), place of origin, time filed (optional), and date.
- **Addressee:** Name, call sign (if a ham), full street address, city, 2-letter state abbreviation, zip code (very important) & telephone (be sure to include area code).
- **This Radio Message was received at:** Station identification and location.
- **Text:** 25 words maximum, 5 per line; Use the word “xray” for a period (.) and “query” for a question mark (?). Last word is salutation (i.e., “73”, “Love”, etc.)
- **Signature:** (Write-in above REC'D block) Name & call sign of person who wrote the message – include full phone number if not a Ham or if new to NTS.

 The American Radio Relay League RADIOGRAM Via Amateur Radio							
Number	Precedence	HX	Station of Origin	Check	Place of Origin	Time Filed	Date
704	R	C	KG6ILA	14	MTN VIEW CA		JUL 2

To:

SUPER STUDENT KG6AAA
1234 SECOND ST
ANYTOWN CA 94000

Telephone Number: **650-123-4567**

THIS	IS	THE	ARRL	RADIOGRAM
FORM	XRAY	DETAIL	TO	FOLLOW
XRAY	HAVE	FUN	73	

PINK FOSTER KG6ILA

REC'D	From	Date	Time	SEN	To	Date	Time
					Austin AK2US	7/2/03	2112 PDT


A licensed Amateur Radio Operator, whose address is shown above, handled this message free of charge. As such messages are handled solely for the pleasure or operating, a "Ham" operator can accept no compensation. A return message may be filed with the "Ham" delivering this message to you. Further information on Amateur Radio may be obtained from ARRL Headquarters, 225, Main Street, Newington, CT 06111.

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- **REC'D & SENT:** Record the names and call sign of the person you rec'd the message from and/or sent/forwarded the message to, along with the date & time (PST/PDT or Z).



Radiogram Form Detail (1 of 6)



The American Radio Relay League
RADIOGRAM
Via Amateur Radio

Number	Precedence	HX	Station of Origin	Check	Place of Origin	Time Filed	Date
704	R	C	KG6ILA	14	MTN VIEW CA		JUL 2

To:

Number

- Assigned by the message originator
- No standard way of numbering messages
- Consecutive (1, 2, 3..., starting over at the new year or monthly)
- Order by month & number (507 = 7th you originated in May;
11244 = 244th message you originated in November)

Precedence (E, P, W, or R)

- E = Emergency (life or death urgency in a declared emergency)
- P = Priority (official traffic in a declared emergency)
- W = Health & Welfare (used only in a declared emergency)
- R = Routine (everything else - most frequently used)



Radiogram Form Detail (2 of 6)



The American Radio Relay League RADIOGRAM Via Amateur Radio

Number	Precedence	HX	Station of Origin	Check	Place of Origin	Time Filed	Date
704	R	C	KG6ILA	14	MTN VIEW CA		JUL 2


To:

3. (Optional) HX or Handling Code – A, B, C, D, E, F or G

- A. Collect landline delivery authorized within ____ miles of addressee or unlimited if blank
(A150 = collect call authorized w/in 150 miles; A = collect call authorized regardless of miles)
- B. Cancel message if not delivered within ____ hours of filing time & service originating station
(B72 = cancel if not delivered within 72 hrs and send message to originator to notify them)
- C. Confirmation of delivery requested by originating station (“TOD YOUR 1014 JULY 4 1330 PST XRAY 73” or if issues “ARL SIXTY SEVEN 1014 PHONE 650 555 1212 INCORRECT NO REPLACEMENT FOUND SENT RADIOGRAM INSTEAD XRAY 73”
- D. Report your identity & time/date rec’d message plus time/date delivered or sent to another
- E. Delivering station to get reply from addressee and send to originator as a new message



Radiogram Form Detail (3 of 6)

 The American Radio Relay League RADIOGRAM Via Amateur Radio							
Number	Precedence	HX	Station of Origin	Check	Place of Origin	Time Filed	Date
704	R	C	KG6ILA	14	MTN VIEW CA		JUL 2
To:							

- Station of Origin:** Call sign of station who put the message into NTS format; If KG6ILA prepares message 1207 for a fellow ham, then puts it onto an NTS packet BBS for relay to Vermont, the originator is... KG6ILA. If WB6W prepares message 23 for his non-ham neighbor then gives it to KG6ILA to relay to any NTS net, the originator is... WB6W.
- Check:** The word count in body text only (do not count the address or signature); precede with "ARL" if any of the ARL numbered texts are used (i.e., ARL7).
- Place of Origin:** The city & state where the message was written.
- (Optional) Time Filed:** This is not used much... 24-hr format & time zone
- Date:** Month (non-numeric – abbreviated) & day number message was created (i.e. Sep 21).



Radiogram Form Detail (4 of 6)

To:							
SUPER STUDENT KG6AAA 1234 SECOND ST ANYTOWN CA 94000							
Telephone Number: 650-123-4567							
<div>This Radio Message was received at: Amateur Station _____ Date _____ Name _____ Street Address _____ City, State, Zip _____</div>							

To:

Name, call sign (if going to a ham), street address or P.O. Box, city, state (abbreviated) & zip code. Note: Digital and packet NTS messages are routed via zip code.

Telephone Number:

Be sure to include the area code and double-check the number!!!

This Radio Message was received at:

Your station identification, date received, and your location. More received-from detail will go in the "REC'D" block after body text and signature.



Radiogram Form Detail (5 of 6)

THIS	IS	THE	ARRL	RADIOGRAM
FORM	XRAY	DETAIL	TO	FOLLOW
XRAY	HAVE	FUN	73	
PINK FOSTER KG6ILA				
From	Date	Time	To	Date
				Time

Text: 25 words maximum, 5 per line; Use “xray” for a period (.) and “query” for a question mark (?).

Signature: There is no “Signature” field, just write-in below text; Name & call sign of author – include phone number if not a ham or if not known on an NTS net.



Radiogram Form Detail (6 of 6)

From	Date	Time	To	Date	Time
REC'D			SENT Austin AK2US	7/2/03	2112 PDT
A licensed Amateur Radio Operator, whose address is shown above, handled this message free of charge. As such messages are handled solely for the pleasure of operating, a "Ham" Operator can accept no compensation. A return message may be filed with the "Ham" delivering this message to you. Further information on Amateur Radio may be obtained from ARRL Headquarters, 225, Main Street, Newington, CT 06111.			The American Radio Relay League, Inc. is the National Membership Society of licensed radio amateurs and the publisher of QST Magazine. One of its functions is promotion of public service communication among Amateur Operators. To that end, The League has organized the National Traffic System for daily nationwide message handling.		

REC'D: Call sign from whom you received the message and date & time of receipt. Time may be either your local time (PST/PDT) or Zulu time. Make sure date agrees with time (Zulu is 8 hours ahead of PST/PDT - can cause date to roll forward).

SENT: Call sign you sent or passed the message to, or to whom you delivered it, with date & time. Also good to note delivery method for your own reference (i.e., via phone or left on Tom's voicemail). Always leave your call back number if message was left on voicemail!



ARL Numbered Texts

Purpose & How Counted

- **ARL Numbered Texts replace common phrases in message body text (i.e., Happy Birthday, Greetings by amateur radio, etc.)**
- **Use of ARL texts reduce total message word count – faster and more consistent transmission of text**
- **Translated before delivery of message to addressee**
- **ARL text numbers are always spelled-out in words (i.e., ARL SEVEN or ARL FORTY SIX)**
- **Message word count (check) is written as “ARL#” (i.e., ARL4 or ARL15) to alert operators that message includes at least one ARL numbered text.**



ARL Numbered Texts (Examples)

- **ARL FORTY SIX = Greetings on your birthday and best wishes for many more to come.**
- **ARL FIFTY = Greetings by amateur radio.**
- **ARL FIFTY ONE = Greetings by amateur radio. This message is sent as a free public service by ham radio operators at _____. Am having a wonderful time.**
- **ARL SIXTY SEVEN = Your message number _____ undeliverable because of _____. Please advise.**



How to Deliver an NTS Message

- Preferred delivery is via telephone.
- Okay to leave on voicemail or answering machine IF you are comfortable you reached the right person.
- Radiogram postcard if cannot reach by phone.
- Service originating station to inform if cannot deliver or if they requested confirmation.



Record Keeping & Reporting (PSHR)

- Use a log sheet to keep track of your messages
- Use a PSHR log sheet to tally monthly points for Public Service Honor Roll
- Report message count (originated, sent, received & delivered) to STM monthly
- Report PSHR totals to STM and SM





National Traffic System (NTS)

Nets and Net Controls

Modified from a presentation by Ann-Marie Ruder K8AMR



Types of Nets

- **There are two major type of nets**
 - **Directed Nets**
 - **Undirected Nets**
- **Under Directed Nets there are multiple types of nets**
- **Everything else not included in Directed Nets are Undirected nets**



Directed Nets

- **Directed nets are formal in their structure**
- **Under Directed Nets there are multiple types of nets**
 - **Scheduled Nets**
 - ARES/RACES Nets
 - Club Nets
 - Traffic Nets
 - **Emergency Nets**
 - Skywarn Nets
 - RACES Nets
 - Resources Nets
 - Tactical Nets
 - Command Nets
 - Information Nets



Types of Nets

- **Everything else not included in Directed Nets are Undirected nets**
 - Undirected nets allows for conversations amongst amateurs without structure.
 - Most VHF/UHF nets fall into this category



Net Control Operator

- **DUTIES AND RESPONSIBILITIES**
 - The Net Control Station (NCS) runs the net. This person controls the flow of messages according to priority and keeps track of where messages come from and where they go.
 - The NCS also keeps a current list of which stations are where, their assignments and what capabilities they have.
 - In a busy situation, the NCS may have one or more assistants to help with record keeping



Net Control Operator

- **PREREQUISITES**

- A clear speaking voice – Speaks clearly and has a working knowledge of the net language.
- The ability to handle mental and physical stress for long periods.
- The ability to listen and comprehend in a noisy and chaotic environment.
- Good hearing.
- The ability to write legibly what you hear as you receive it.
- A competent NCS must be decisive and have the maturity to make good judgment calls.



Net Control Operator

- **CHARACTERISTICS**

- Good voice quality - with an air of authority, without sarcastic overtones or being overbearing
- Knowledge of band characteristics
- Knowledge of common equipment
- Ability to absorb new terminology quickly
- A strong team player and organizer
- Willingness to take and carry out direct orders
- Consistently demonstrates above average operating technique



Net Control Operator

- **PERSONALITY TYPE**
 - Be the boss but don't be bossy.
 - Be punctual.
 - Know your territory.
 - Take extra care to keep your antennas in good shape.
 - Establish the net frequency by moving to avoid interference.
 - Keep a log of every net session.
 - Don't hamstring the net by waiting to move the traffic.



Net Control Operator

- **BASIC COMMUNICATION SKILLS**
 - **LISTENING** - Listening is at least 50% of communication.
 - **MICROPHONE TECHNIQUE**
 - **BREVITY AND CLARITY**
 - **PLAIN LANGUAGE** - All messages, transmissions and directions should be in plain language. Use of CB words, "Q" signal on phone, 10 codes or other jargon should be avoided. Pro signs (pro words) are acceptable.
 - **PHONETICS** – Use only the standard ITU Phonetic Alphabet.



Net Control Operator

- **BASIC TECHNIQUES**
 - When asking for reports or soliciting traffic, listen carefully.
 - Acknowledge all stations heard by call and then yield the frequency to any station reporting in with emergency traffic. Clear emergency traffic then priority messages and then routine messages.
 - Pair stations to pass traffic to another frequency whenever possible.
 - Be as concise as possible. Use the fewest words that will completely say what you mean.
 - Control your voice. Be as calm as possible. Remember to speak with confidence and authority.



Net Control Operator Hints

- If a net is a scheduled net, start on time!
- Use a script (preamble, net instructions) when possible.
- Be friendly, yet in control. Speak slowly and clearly with an even tone. Speak with confidence even if you are inwardly nervous.
- Ask specific questions -- give specific instructions.
- Have pencil/paper ready and write down all calls.
- Read your radio owner's manual and know your radio and how to use your microphone.



Net Control Operator Hints

- During check-ins recognize participants by name when possible to boost morale.
- Frequently identify the name and purpose of the net. Advise listeners of the subaudible tones required.
- Don't be afraid to ask for assistance if you need it.
- You will make mistakes. Acknowledging them will earn the respect and support of the net members.
- Don't think on the air. If you need a moment to consider what is needed next, say something like "standby" and un-key your microphone. This adds a professional touch.



Net Control Operator Hints

- **Keep transmissions as short as possible and transmit only facts.**
- **Use Standard ITU phonetics.**
- **For voice nets, use plain English. "Q" signals are for CW.**
- **When there is a double, listen to see if you can identify either station by call sign or text, then ask all stations to stand by while you solicit clarification or repeats from each station involved as needed.**



Habits to avoid

- Thinking aloud on the air: "Ahhh, let me see. Hmmm. Well, you know, if..."
- On air arguments or criticism
- Rambling commentaries
- Shouting into your microphone
- "Cute" phonetics
- Identifying every time you key or unkey the mic
- Using "10" codes, Q signals on phone
- Talking just to pass the time.



Preparation

- **Be prepared. Begin the net with the proper logs, forms, pens, pencils and operating aids (such as FSD-218) on hand.**
- **Ask a family member to answer telephone calls or if you are home alone, you may want to take the phone off the hook.**
- **Turn down the volume on scanners, other radios, and electronic equipment.**
- **Make sure your antenna system allows you to radiate the best signal you can.**
- **Accuracy transcends speed. If you find yourself making errors, please slow down. You must be understood in addition to being heard.**



Net Guidelines (Net Members)

- **Avoid unnecessary transmissions and phrases. Keep all transmissions short, succinct and to the point.**
- **Always determine that the net frequency is free before transmitting.**
- **Be prepared to move to alternate frequencies to clear traffic.**
- **Use the correct message forms and procedures.**
- **Comply immediately with the instructions of NCS.**
- **Use the correct ITU phonetic alphabet.**
- **Never leave the net without first notifying NCS.**
- **Do not transmit without the permission of NCS.**



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Additional Resources

- **ARRL Net Directory** – Excellent NTS reference with net listings by state (\$5 from ARRL). Online version is accessible free at the ARRL web site (www.arrl.org).
- **Public Service Communication Manual** – Detailed reference on NTS message handling (\$1 from ARRL), also available on ARRL web site.
- **“National Traffic System (NTS) Messaging Basics”** (this presentation) Latest version available online at: <http://www.qsl.net/kg6ila> or by writing kg6ila@arrl.net



Homework Assignment

***Tune into the South Carolina Single Sideband
Net!***

7:00 PM , 7 days/week

3.915 MHz



Homework Assignment

Tune into the Georgia Traffic Net!

7:15 PM , 7 days/week

3.9825 MHz

