

MIRO Net Control Procedures

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I. Scope

- **Purpose:** to give MIRO members information useful for learning and training, and for reference during drills or actual emergencies to assure excellent performance.
- **Relevant situations**
 - monthly practice nets
 - drills, such as Simulated Emergency Tests (“SET”)
 - actual emergency incidents.
- **Traffic**
 - intra-island traffic directly, and to off-island locations and other nets via liaison stations
 - modes: voice using repeater and simplex, and digital using Winlink.

II. Net control responsibilities and qualifications

- **The Net Control Station** (“NCS”) is in charge of the net, and directs the flow of messages and general communications.
- **NCS specific responsibilities:**
 - **Open the net**, either by request from Emergency Management or by self-deployment.
 - **Control who participates** in the net.
 - **Track** ham resources for both equipment and skill capabilities, including checking people into and out of the net.
 - **Assign** hams to emergency response teams
 - **Direct traffic** according to priorities, assuring accurate and timely delivery of messages.
 - **Manage** use of our communications assets
 - **Log messages** and other status information
 - **Provide leadership** and discipline to the net, giving good example to net members (examples: concise language with good diction, use of phonetics)
 - **Facilitate** message handling to assure success of the message goal
 - **Transfer net control** from one station to another as needed.
 - **Close** the net
 - **Report** net performance to MI Emergency Management after the net is closed
- **Needed skills and capabilities**
 - **VHF transceiver** capable of working both our 2m and 70 cm repeaters. Hand held radios should be considered only as back up radios to the main NCS station equipment. Digital capability is not necessary.
 - **Power** -- reliable and long term power source for radios, other than commercial power.
 - **Simplex** capability capable of working most stations on the island – highly desired in case our repeater(s) go down.
 - **Strong personal communications skills**, including diction, clear speaking voice, ability to perform under stress, and resourcefulness.
 - **Message handling skills** – strong enough to help member stations with traffic handling.
- **Preparation before net deployment**
 - **Written materials** as listed in Appendix, enough copies of log forms.
 - **Standby power capability**
 - **Comfortable operating environment**, including food, water, and restroom.
 - **Status board** or some other way to easily keep up the status of team assignments

III. MIRO net operations

A. Overview

NCS Role

Think of the NCS as a "ringmaster" or "traffic cop." The NCS decides what happens in the net, and when. If the EOC has a Priority message for the Med team, and Community Center has an Emergency message for the EOC, it is the NCS's job to make sure that the Emergency message is sent first. He decides when stations will check in, with or without traffic, and whether messages will be passed on the net's frequency or a different one. The NCS needs to be aware of everything going on around him and handle the needs of the net, its members, and the Mercer Island government personnel as quickly and efficiently as possible. It can be a daunting task in a busy and challenging net.

We operate a "Directed Net," which means that stations only transmit under the control of the NCS, and follow prescribed etiquette.

The NCS can be located anywhere, but should be in a position to fully quiet both repeaters, and work most island stations on simplex if needed, thereby avoiding time consuming "relays." The NCS is better placed at a location such as a ham's home rather than the EOC or other busy place.

The NCS is in charge of our MIRO net, but not for entire Emcomm operation. That is the job of the Mercer Island Emergency Manager. It is not possible to be in command of all aspects of an emergency response, and still run a net effectively, since both jobs require 100% attention.

The NCS also needs to pass responsibility for the net to a replacement operator, typically at a different station. This handoff must be accurate and smooth, typically taking place at a lull in traffic.

Net Members

MIRO operators at various sites are responsible for messages going to and from their location. They must listen to everything that happens on the net, and maintain contact with the served agency's people at the site. They assist our served agency, Mercer Island, with the creation of messages, placing them into the appropriate format, and contacting the NCS when they are ready to be sent.

Whenever possible, two operators should be at each site. When the station is busy, one can handle logging, message origination, and work with the served agency's staff while the other monitors the net, sends messages, and copies incoming traffic. During slower periods, one member can be off-duty for rest, meals, or personal needs.

We normally use tactical calls during exercises and actual incidents, usually not during monthly check in nets. An example is MIEOC or EOC, rather than using the call sign of the station (W7MIR) or the actual operator's call sign (WA0TTN).

Liaison Stations

Liaison stations pass messages between two different nets.

Relay Stations

While not a regular net position, a relay station is one that passes messages between two stations in the net that cannot hear each other. Relay stations are generally designated by the NCS on an as needed basis. If you can hear a station or stations that the NCS cannot, it is OK to volunteer to act as a relay station.

Practical tips

No operator should try to work excessively long hours. When you become tired, your efficiency and effectiveness decline. NCS operators should work with the Emergency Manager to ensure that all net members get some rest on a regular basis.

B. Opening the net

Startup

The net can be opened by order of the MI Emergency Manager, or be self-deployed by MIRO members. Self-deployment typically occurs when an emergency situation occurs, and hams check into our 2 meter repeater, carry on conversations, and notice that traffic is developing. When the traffic gets beyond that which can be managed in an open net, operators can decide to switch to the directed net mode. Decide among the early participants who is the best station to open the directed net, typically based on experience and availability.

Opening script (in the case of an ordered net opening). Include the information in closed brackets [] in case of a drill.

SCRIPT FOR OPENING THE NET

THIS IS (name, call), NET CONTROL FOR THE MERCER ISLAND EMERGENCY NET. THIS NET IS BEING ACTIVATED AT THE REQUEST OF THE MERCER ISLAND EMERGENCY MANAGER.

THIS NET IS AN ARES/RACES NET, AND IS FOR THE HANDLING OF EMERGENCY, PRIORITY, ROUTINE, WELFARE TRAFFIC DURING THIS [SIMULATED] EMERGENCY.

DOES ANY STATION HAVE EMERGENCY OR PRIORITY TRAFFIC? IF SO, COME NOW.

If any, process this immediately, then proceed..., or otherwise NONE HEARD.

IF ANY STATIONS HAVE EMERGENCY OR PRIORITY TRAFFIC, BREAK INTO THE NET AT ANY TIME.

THE PRIMARY NET CONTROL REPEATER FREQUENCY IS 147.160. WE ALSO HAVE A 70CM REPEATER AT 440.150, AND SIMPLEX FREQUENCY OF 147.440 MAY BE USED WHEN NEEDED.

I WANT TO THANK ALL OPERATORS FOR ALLOWING US THE USE OF THESE FREQUENCIES DURING THIS [SIMULATED] EMERGENCY.

[STATIONS ARE REMINDED TO PROCEED ANY MESSAGE WITH “THIS IS A DRILL”]

THE MERCER ISLAND RADIO OPERATIONS EMERGENCY NET IS NOW OPEN FOR STATION CHECK IN.

STATIONS CHECKING IN PLEASE DO SO WITH TACTICAL CALL IF ANY, AND PERSONAL CALL CAPABILITIES, SUCH AS 2M REPEATER, 70CM REPEATER, BATTERY POWER AND ADVISE IF YOU HAVE ANY TRAFFIC FOR THE NET.

[THIS IS A DRILL]

WE WILL NOW PROCEED TO CHECK STATIONS IN BY REGION:

REGION 1 COMMUNITY CENTER *(check stations in. Take down as many calls as you can distinctly hear before acknowledging anyone.)*

REGION 2 etc.

ARE THERE ANY OTHER STATIONS OR MISSED STATIONS WANTING TO CHECK IN
Then proceed to pass traffic (see below).

After opening net

The general flow after opening the net is as follows:

1. Process Emergency and Priority traffic immediately.
2. Process other traffic in priority order.
3. Ask for any more traffic.
4. Use quiet time for
 - instructional messages to members (see example below)
 - to give FCC callsign of NCS
 - to issue reminder that this is a drill
 - to perform rollcall check of stations

INSTRUCTIONAL MESSAGES

REMINDER TO LEAVE BREAKS IN TRANSMISSION TO ALLOW THE REPEATER TIMEOUT TO RESET, AND TO ALLOW EMERGENCY BREAK-INS.

PLEASE CONTACT NET CONTROL IF YOU HAVE A NEED TO LEAVE THE NET FOR MORE THAN A BRIEF TIME, SUCH AS ONE MINUTE.

YOUR FIRST PRIORITY IS TO YOUR OWN SAFETY AND THAT OF YOUR FAMILY.

IF YOU HAVE A TACTICAL CALL SIGN, PLEASE USE IT. YOU ONLY NEED TO USE YOUR FCC CALL EVERY 10 MINUTES OR AT THE END OF A SERIES OF TRANSMISSIONS.

THIS IS AN EXERCISE OF THE AMATEUR RADIO EMERGENCY RADIO SERVICE.

C. Managing member participation

Checking members onto and off of the net

The opening instructional messages ask members to advise NCS when they are leaving the net, either more than for a minute or so, or for longer, or are leaving the net service completely. This conversation takes the form of request and permission. Example:

STATION LEAVING NET

Station	Dialog
WA0TTN serving as MICC	NET CONTROL FROM MICC
NCS	MICC GO AHEAD
WA0TTN	REQUEST TO BE EXCUSED FOR <i>[brief break, permanently, etc. and any comments on who is taking over if any]</i>
NCS	WA0TTN, YOU ARE EXCUSED, THANK YOU.
WA0TTN	[MICC OUT, <i>if the tactical station will not be manned</i>] WA0TTN OUT <i>to fulfill FCC ID rule</i>

Upon return to the net, the station would wait for an invitation to check in, or call NCS during an apparent lull in traffic, or break in anytime if it has **emergency traffic**.

Assignments to stations and Emergency Response Teams

Hams will typically be assigned to stations (such as the Community Center), or Emergency Response Teams. These assignments are determined based on the needs of our served agency, Mercer Island, and the capability and willingness of the volunteers. This assignment may be made by the Emergency Manager using information gathered by the NCS, or may be made by the NCS itself if needed.

To prepare for these assignments, ask each ham for his interest and availability to participate. Log these capabilities. Ask MIRO members to update that information if it changes, and keep the status log current.

When time comes to make such assignments, pass this information to Emergency Management, if asked. If the situation requires it, match the available hams to assignments as closely as possible. See the **Appendix** for the Emergency Response Team composition and skill requirements.

D. Managing traffic

1. Types of Messages

In general, there are 3 types of messages transmitted on our nets:

- **Informal verbal messages = “words”** -- Some emergency messages are best sent informally in the interest of saving precious seconds. If you need an ambulance for a severely bleeding victim, you do not have time to compose and send a formal message. The resulting delay could cause the patient's death. Other messages do not require a formal written message because they have little value beyond the moment. Letting the net control station know where you are or when you will arrive need not be formal. The message is going directly to its recipient, is simple and clear, and has little detail.
- **Formal written messages = “traffic”** – These standard ARRL "Radiograms" that we practice is a standard format so that everyone knows what to expect, thereby increasing the speed and accuracy.
- **“Bulletin” messages** – sent to all members of a net, by net control or another station. Examples include asking for volunteers, providing status information about the incident, or giving operating information such as the “Instructional Messages” above.

Operators should specify to NCS which type of messages they have: WORDS, TRAFFIC, or BULLETIN.

2. Priority or Precedence of Messages

In addition, there are 4 levels of priority or “Precedence”, listed below in decreasing order of priority. Process traffic in decreasing priority.

Precedence level	Abbreviated	Definition
EMERGENCY	none, spell it out	Any message having life or death urgency. This includes official messages from agencies requesting critical supplies or assistance during emergencies, or other official instructions to provide aid or relief in a disaster area. The use of this precedence should generally be limited to traffic originated and signed by authorized agency officials. <i>Due to the lack of privacy on radio, EMERGENCY messages should only be sent via Amateur Radio when regular communication facilities are unavailable.</i>
Priority	P	For important messages with a time limit; any official or emergency-related messages not covered by the EMERGENCY precedence or a

		notification of death or injury in a disaster area. This precedence is usually only associated with official traffic to, from, or related to a disaster area.
Welfare	W	Used for an inquiry as to the health and welfare of an individual in a disaster area, or a message from a disaster victim to friends or family.
Routine	R	Most day-to-day Amateur traffic is handled using this precedence - it is for all traffic that does not meet the requirements for a higher precedence. In a disaster situation, routine messages are seldom sent.

Suspend all other business to allow full net resources to be applied to EMERGENCY and PRIORITY messages. Use the main Net Control frequency for this to maximize transfer. For example

NCS instructs the receiving station to call the transmitting station:

INFORMAL EMERGENCY TRAFFIC

Station	Dialog
SOUTH FIRE	NET CONTROL THIS IS SOUTH FIRE WITH EMERGENCY TRAFFIC FOR EOC
NCS	STATIONS STAND BY -- EOC CALL SOUTH FIRE FOR YOUR EMERGENCY TRAFFIC
EOC	SOUTH FIRE THIS IS EOC -- READY TO COPY
SOUTH FIRE	THIS IS SOUTH FIRE -- BREAK -- NEED AMBULANCE AT SOUTH FIRE FOR 40 YEAR OLD MALE WITH BROKEN ARM SUBJECT CONSCIOUS AND BREATHING SIMPLE FRACTURE -- BREAK -- MED OFFICER JONES END NO MORE OVER
EOC	COPY SOUTH FIRE -- BREAK -- WE WILL RESPOND SHORTLY -- KF7PB AT EOC
SOUTH FIRE	THANK YOU EOC -- W7IAG AT SOUTH FIRE
NCS	THIS IS NET CONTROL NOW RETURNING TO PRIOR TRAFFIC PROCESSING

Routine traffic

Most traffic is routine. Here's an example using the Radiogram message:

ROUTINE TRAFFIC

Station	Dialog
MICC	NET CONTROL MICC WITH ROUTINE TRAFFIC
NCS	MICC STATE YOUR TRAFFIC
MICC	ONE ROUTINE FOR EOC
NCS	EOC CALL MICC FOR YOUR TRAFFIC
EOC	ROGER – THIS IS EOC READY TO COPY
MICC	<i>Sends message (see Message Handling), afterwards...</i>
EOC	COPIED -- BACK TO NET CONTROL NS7A AT EOC
NCS	ANY STATIONS WITH NEW TRAFFIC?
NCS	NONE HEARD.

3. Channel utilization

Net Control chooses what channel to use for traffic.

- **Main 2 meter repeater** – Use this for Emergency and Priority traffic, to make sure no time is lost in moving to another frequency. Traffic can be passed here there is minimal traffic.
- **70 cm repeater** – use this to process traffic when it is known that both stations have this capability, thereby freeing up the main 2 meter repeater for more traffic.
- **Simplex frequency** – can also be used for off net frequency traffic handling. In this case it is important to determine that both stations can communicate with each other.

Processing off net frequency traffic requires checking back that the traffic has been successfully transmitted, or not:

OFF NET FREQUENCY TRAFFIC HANDLING

Station	Channel	Dialog
MICC	2M	NCS ONE ROUTINE TRAFFIC NUMBERED CC06 FOR EOC
NCS	2M	MICC PLEASE USE 440 REPEATER FOR THIS TRAFFIC
MICC	2M	ROGER -- KE7EMU AT MICC
NCS	2M	EOC CALL MICC ON 440 REPEATER FOR YOUR TRAFFIC AND REPORT BACK AFTERWARDS
EOC	2M	ROGER – W7IAG AT EOC
EOC	440	<i>W7IAG checks frequency is clear, then...</i> MICC THIS IS EOC STANDING BY FOR TRAFFIC
MICC	440	<i>(delivers traffic)</i>
EOC	440	ROGER -- GOING TO REPORT BACK ON 2 METERS W7IAG AT EOC
MICC	440	ROGER – KE7EMU OUT
EOC	2M	NCS THIS IS EOC
NCS	2M	EOC GO AHEAD
EOC	2M	MESSAGE CC06 RECEIVED NO REPLY EXPECTED
NCS	2M	THANK YOU EOC
EOC	2M	EOC STANDING BY -- W7IAG

Off frequency the receiving station checks the frequency is clear, calls the sending station, and, after the traffic is passed, both stations sign their full amateur call signs before returning to net.

4. Relaying messages

Sometimes the 2 stations handling traffic cannot directly communicate, because our repeaters are down, for example. Then a 3rd station which can hear both stations can be used to relay the message.

1. Ask which stations can hear both stations sending traffic.
2. Choose one to be the relay station based on ease of copy.
3. Ask the relay station to call the sending station and pass the message.
4. Then ask the destination station to call the relay station and pass the message.

5. Messages to/from outside net

Liaison stations pass messages between two different nets. These stations are usually assigned by the NCS. Messages may be passed as needed, or on a pre-set schedule. In some cases, a liaison station will monitor one net full time. When a message must be passed to another net, they leave the net temporarily to pass it, and then return. The other net has a liaison station who does exactly the same thing, but in reverse.

In other situations, a single liaison station may need to handle messages going both ways between two nets. There are two ways to do this. You can use two radios to monitor both nets at the same time – a difficult task if either or both nets are busy. Or, one radio is used, and the liaison station switches between the two nets on a regular schedule.

6. Digital traffic

MIRO has a Winlink system which allows E-mail messages to be transmitted by radio, and Internet if functioning. Winlink stations exist at EOC and CCMV, and at some MIRO member stations. David WA6PXX operates the “Radio Message Server” (or “RMS”) central server.

Digital messages are very useful for detailed and precise messages, and messages wanting better security is desired than voice, and where speed of message transmission is important. Messages can be sent in a matter of a minute or less. To be received rapidly, however, the receiving station should issue press the “connect” button in Paclink to assure that the receiving station requests incoming traffic. Otherwise, the message will not be received until the next polling cycle.

Polling cycles should be set to 15 minutes during an incident, and reset to a longer period (e.g. 1 hour) afterwards.

NCS operators do not need to get involved with managing the actual digital traffic. However, digital messages should be accompanied by voice messages alerting the receiving station to the incoming digital message.

7. Practical hints

- Remember that although you are in control of the net, you’ll get the best results by treating members with respect. Also, accept suggestions graciously from other experienced members.

- If you are taking over an existing net, try to run it much as the previous NCS did.
- Always follow a script if one is provided. Write your own if necessary, but keep it short and to the point.
- Speak clearly and in a normal tone of voice. Use good mic technique.
- Make all instructions clear and concise, using as few words as possible.
- Keep notes as you go along. Do not let your log fall behind.
- Write down which operators are at which locations. When one leaves or is replaced, update your notes.
- Ask stations to pass messages off the main net frequency whenever possible.

The best way to enlist the cooperation of the net is to explain what you are doing in a calm and straight forward manner or a small dose of real time training. As an example, a station constantly uses his call rather than the tactical call you assigned to his location. This is a problem of net discipline and a lack of training. The best way to deal with this problem is to ask the station to use his/her tactical call instead of his/her own call. If he/she continues to use his/her own call then the best thing you can do is to address him/her by his/her tactical call sign exclusively. Eventually he/she will catch on by your example.

Never dress down someone on the air. To do so can be counterproductive and will drive down the morale of the entire net. It is better to lead by example. Control the tone of your voice. Keep as calm as possible. A sudden higher pitch in your voice can be detected by others, causing them to raise there voices also.

Try to emulate the professionals, such as 911 emergency dispatchers and air traffic control operators. If you are calm, other members of the net will be calm also. Take frequent breaks (provided you have a back-up operator). As the frustration level begins to build, it can be detected in your voice causing other net members to lose their ability to operate in a calm manner. In high volume traffic incidents, a NCS should not work more than two hours without a break if possible.

E. Logging

Net Control operators will complete and retain all the appropriate MIRO forms and logs after event/mission. This included the NCS station log, the NCS Listing/Dispatch log, and the “White Board”

Logging and Record Keeping

An accurate record of formal messages handled and various aspects of your station's operation can be very useful, and is required by law in some cases. Lost or misdirected messages can be tracked down later on, and a critique of the operation afterward can be more accurate. All logs should include enough detail to be meaningful later on, especially the date and an accurate time. With some agencies, your log becomes a legal document and may be needed at some later time should an investigation occur. In this case, logs should be completed and turned in to the appropriate person for safekeeping and review.

Log all incoming and outgoing messages. Record the name of the sender, addressee, the station that passed the message to you, the station to whom the message was sent, the message number, and the times in and out. Keep the written copy of each message in numerical order for future reference.

Also, log which operators are on duty for any given period, and record any significant events at your station. These might include changes in conditions, power failures, meals, new arrivals and departures, equipment failures, and so on.

In addition to the log, copies of all messages should be kept and catalogued for easy retrieval if needed later for clarification or message tracking. Many operators make notes about when the message was received and sent, and to and from whom, directly on the message form itself. This helps speed up tracking later on. Never rely on your memory.

Should informal messages be logged? This is usually up to the stations involved, and depends on the circumstances. Even informal messages can contain important details that may be needed later. Emergency or Priority messages of any kind, even unwritten messages, should always be logged. Some net control operators like to log every message or exchange, no matter how inconsequential. Others like to log only those with potentially important details.

At a station with little traffic, all information can be included in one chronological log. However, if a large number of messages are being handled and you have a second person to handle logging, separate logs can make it faster and easier to locate information if it is needed later. You might keep one log for incoming messages, one for outgoing messages, and a third for station activities. The NCS will also need to keep a log of which operators are assigned to each station, and the times they go on and off duty.

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F. Transferring the net

On the transfer of NCS duties to another station the following information should be transferred:

- 1) Net assets (“White Board”)
- 2) Message listings.
- 3) Status of Net i.e. who is off frequency with traffic.
- 4) Any tactical information necessary to bring the new NCS up to speed.

It is a good practice for any outgoing NCS station to monitor the net for at least fifteen minutes, and be available to supply clarification. This assures continuity in the net's operation.

The Backup NCS

A backup NCS is helpful in case of an equipment failure at the primary NCS location, or if the primary NCS operator needs to take a break. There are two types of backup NCS: (1) in the same facility as the primary NCS, and hence can take over the station and logs as needed; and (2) a station at a different location that maintains a duplicate log of everything happening during the net.

G. Closing the net

SCRIPT FOR CLOSING THE NET

THIS IS (call sign), NET CONTROL OPERATOR, CLOSING THE MERCER ISLAND RADIO OPERATORS EMERGENCY NET. WE WISH TO THANK ALL HAMS FOR THE USE OF THESE FREQUENCIES, AND THANK ALL HAMS THAT PARTICIPATED.

[REMINDER THAT THIS HAS BEEN A SIMULATED EMERGENCY.]

H. Reporting

NCS stations and member stations are expected to keep their logs, and to provide them to the Emergency Communications Manager after the incident or drill.

IV. Revision History

4/23/09	Draft published
4/15/10	Updated

Appendix: MIRO Message Handling

A. Net Etiquette

Checking in

Stations check into the net, listen closely for Net Control instructions, and check out only with permission from Net Control. If a station can not listen carefully to the net for a period of time, it should check out and check back in when it is again able.

Net control maintains a log of all stations checked into the net and keeps track of stations sent off frequency for passing traffic or for conversation.

Stations should not interrupt net traffic exchanges between other stations and/or Net Control until those traffic has completed -- except in an emergency.

Stations use their full call sign when first checking into the net. Tactical call signs may be used thereafter providing that full call signs are given by net stations at the end of transactions.

To become part of a directed net, listen for Net Control to ask for "check-ins" and listen to any specific instructions, such as "check-ins with emergency traffic only." At the appropriate time, give only your call sign. If you have a message to pass, you can add, "with traffic." If it is an emergency message, say "with emergency traffic." The same is true for stations with priority traffic. Wait for a response before offering more information. Checking into a directed net when Net Control has not asked for check-ins is usually considered a bad practice. However, if a long period passes with no request, you might wait for a pause in the net's activity and briefly call Net Control like this: "Net control, KF7PB, with traffic."

Procedural words

The proword "over" is not required at the end of Net Control calls or the "no traffic" check-in type transmissions. They are considered self completing. "Over" is generally used for transmissions of uncertain length, such as traffic lists, comments and explanations, or when repeater delay lines remove squelch tails which obscures releases of the PTT switch.

The use of "this is... (pause with PTT release)... (call sign)..." by calling net stations may be used to avoid "doubling" with other stations.

"Breaking" the Net

If the net is in progress, and you have emergency traffic to send, you may need to "break" into the net. Wait for a pause between transmissions and simply say, "Break, WA1ZCN." Net Control will say "Go ahead WA1ZCN," and you respond, "WA1ZCN with emergency traffic."

Checking Out of an Emergency Net

Always let Net Control know when you are leaving the net, even if it is only for a few minutes. If Net Control believes you are still in the net, they may become concerned about your unexplained absence. This could result in someone being unnecessarily dispatched to check on your well-being.

There are three reasons for checking out of (leaving) a net:

- The tactical location is closing. -- If Net Control has given you directions to close the location, simply acknowledge the request, and sign with your tactical call sign, if you are using one, and your FCC call sign. If the order to close has come from a local official, state that your location has been closed, along with the name and title of the official who ordered it, and sign off as above.
- You need a break and there is no relief operator. -- Tell Net Control that you will be away from the radio for a certain length of time, the reason, and sign with your tactical call sign, if you are using one, and your FCC call sign.
- You have turned the location over to another operator -- Tell Net Control that you have turned the station over to (give the new operator's name and FCC callsign), and that you are leaving. Sign with your tactical call sign, if you are using one, and your FCC call sign

Logging and Record Keeping

An accurate record of formal messages handled and various aspects of your station's operation can be very useful, and is required by law in some cases. Lost or misdirected messages can be tracked down later on, and a critique of the operation afterward can be more accurate. All logs should include enough detail to be meaningful later on, especially the date and an accurate time. Your log may be needed at some later time should an investigation occur.

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logs can make it faster and easier to locate information if it is needed later. You might keep one log for incoming messages, one for outgoing messages, and a third for station activities

B. Message authoring

Operators should work with a message's author to create text that is short, to the point, and uses the minimum number of words necessary. If the author tells you to "just take care of the wording for me," get their final approval and signature before sending the message.

Other messages that can and should be generated by all emcomm operators are those that deal solely with communication. Examples would be messages about net operations and frequencies, and requests for relief operators, radio equipment, supplies, food, and water for emcomm personnel.

Preamble

Message number – Number assigned by the station that first puts the message into the ARRL format. It is normally constructed with an alpha code indicating its source, followed by a number, e.g. EOC01, CCMV01 etc.

Handling Instructions

HXE = reply expected
blank = no reply expected

Station of Origin – This is the call sign of the first station to put the message in the radiogram format.

Check – The check is the number of words in the message itself (not preamble, address, etc.) including "X" if it exists. The purpose of the check is to make certain that the received message has exactly the same number of words as the sent message. If not, the receiving station will ask the sending station to repeat the message to insure that it is correct.

Use of punctuation and its word count

Item	Written as	Said as	Adds to word count
Period	X (but not at end)	Xray	1
Numbers	123	Figures 123	1
Question mark	?	Query	1

Place of Origin – This is the name of the community, building or agency where the originator of the message is located, whether or not this person is a ham. This is not the location of the station that first handled the message. Example—If a runner brought the message from the high school to the CCMV for message transmission the place of origin is the high school.

Transmitting the header – Because the receiving station and the transmitting station both understand message handling, avoid reading the headings unless needed to avoid confusion.

C. Transmitting the message

Read slowly, as if you are writing it out yourself.

Make a “break” every 30 seconds or less. Wait for the repeater carrier to drop off. The word “break” is not counted recorded by the receiving station, nor counted as a message word, of course. Avoid creating a break when the word “break” might be misconstrued as a message word.

Note the use of the word “figures”. This means that the next words will represent numbers on the same line. The words “letter group” means the next letters are on the same line. There is also words “mixed group” meaning letters and words on the same line. Example: 12BA6 would be read “mixed group” one two bravo alpha six.

The Check is the word count including “X-ray” (X) used to indicate period, or “Query” (?).

The phrase “This is a test message” or equivalent must be included in the “To” block of any drill message. It is not part of the message body and is not included in the Check count.

Digital messages may use any format but must include all the elements of the NTS message format.

Example:


THE AMERICAN RADIO RELAY LEAGUE
RADIOGRAM
 VIA AMATEUR RADIO
 

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
MS6	R	E	WA0TTN	16	Middle School	1930	April 16

TO Transportation team leader
Mercer Island EOC

TELEPHONE NUMBER

Please	arrange	transportation	for	23
children	from	middle	school	to
CCMV	shelter	as	soon	as
possible				

FROM	Kim Smith Principal	DATE	TIME	TO	DATE	TIME
REC'D				SENT		

THIS MESSAGE WAS HANDLED FREE OF CHARGE BY A LICENSED AMATEUR RADIO OPERATOR, WHOSE ADDRESS IS SHOWN IN THE BOX AT RIGHT ABOVE, AS SUCH MESSAGES ARE HANDLED SOLELY FOR THE PLEASURE OF OPERATING. NO COMPENSATION CAN BE ACCEPTED BY A "HAM" OPERATOR. 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, 325 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.

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Number MS6, Routine, HX Echo, whisky seven mike India romeo, one six, middle school, one nine three zero, April one six. Transportation team leader, Mercer Island EOC [This is a drill]

Break

Please arrange transportation for figures two three children from middle school to letter group CCMV shelter as soon as possible Break

Kim Smith principal

D. Correcting and acknowledging

The receiving station checks the word count and for accurate recording. If the message appears to be received correctly, the receiving station responds with COPY, BACK TO NET CONTROL (call sign) AT (tactical location). Example:

COPY – BACK TO NET CONTROL WA0TTN AT SOUTH FIRE

If there are errors in the message, then the receiving station asks for clarification, such as repeating all after a given word.

A common problem is word count discrepancies despite having apparently copied all words correctly. Both sending and receiving stations should then check the word count, and correct it at the sending or receiving side.

Appendix: Phonetic Alphabet

A - alfa (AL-fa)	B - bravo (BRAH-voh)
C - charlie (CHAR-lee)	D - delta (DELL-tah)
E - echo (ECK-oh)	F - foxtrot (FOKS-trot)
G - golf (GOLF)	H - hotel (HOH-tell)
I - india (IN-dee-ah)	J - juliet (JU-lee-ett)
K - kilo (KEY-loh)	L - lima (LEE-mah)
M - mike (MIKE)	N - november (no-VEM-ber)
O - oscar (OSS-cah)	P - papa (PAH-PAH)
Q - quebec (kay-BECK)	R - romeo (ROW-me-oh)
S - sierra (SEE-air-rah)	T - tango (TANG-go)
U - uniform (YOU-ni-form)	V - victor (VIK-tor)
W - whiskey (WISS-key)	X - x-ray (ECKS-ray)
Y - yankee (YANG-key)	Z - zulu (ZOO-loo)