

# Introduction to ECom

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## Overview

If we look closely at the Federal Communications Commission (FCC) regulations that govern Amateur Radio we find that there is no mention of having fun nor seeing who can talk the furthest. However there is very specific mention of Amateur Radio providing a trained pool of radio operators available in times of need. In other words our ability to communicate when the normal communications infrastructure is overloaded or unable to function is a reason we are able to get a license. That being the case, how do we prepare? By joining one or preferably both of the organizations that have recognized training programs.

Emergency Service within Amateur Radio (ECom) and Radio Amateur Civil Emergency Service (RACES) are two separate organizations that perform a very similar service. Both provide supplemental communication for our served agencies when agency communications are overloaded or insufficient for the task at hand. Both use the same operating techniques and bands. In many cases the people in ECom and RACES are the same people using their own equipment. In some areas these are the same organization.

ECom and RACES differ in just a few specific areas.

- RACES can be called out only by the local, state or federal civil defense authority (now commonly called Office of Emergency Management [OEM] or Office of Emergency Preparedness [OEP]) and may communicate **ONLY** with other RACES operators (changed with FCC 06-149 - 10/10/06).
- ECom can be called out by any organization that ECom has a Memorandum of Understanding (MOU) with and may communicate with any licensed / authorized operator.
- RACES has set limits on the amount of time per year they may practice per 97.407 (e)(4) and can operate on any frequency available to Amateur Radio. The RACES frequencies during times of Presidential War Powers were abolished by FCC 06-149, 10/10/06.
- ECom may practice as often as they like and for as long as they like on any frequency available to Amateur Radio. If the President invokes the War Powers Act, all Amateur operations must stand down with the exception of RACES operations.

As you can see, there are advantages to being a member of both organizations. Also, during a major incident where the federal government gets involved (FEMA for example), only those with a state issued identification will be allowed to continue to support the incident. RACES may be that interface. The second reason is that in some areas RACES is the only active organization, but that may change shortly because of FCC 06-149.

We strongly recommend that each Radio Amateur, interested in public service communications, become a member of both organizations. This then allows us to work in what ever capacity we are needed (wear the hat we need to) and be a viable resource for -- all -- of our served agencies.

You may have to UN-learn some things you thought you knew. There are many false concepts on emergency communications due to impressions that are not based on actual field experience. Some of the most important emergency communications operating principles differ significantly from traditional daily Amateur Radio practices. **These because emergency communication requires a network of message relay stations to be built from scratch and operating within minutes of an activation.** Building a communication network is not done routinely by amateur operators in the normal course of enjoying the pastime. It is important to seek out educational material that is based on sound practices refined with actual field experience. Be open to learning new material, and the rationale of why it works.

The people you will be serving - remember that word - are professionals that have seen far too many people more interested in impressing someone or being "where the action is" than in getting the job done. You will actually impress them far more by being as quiet as you can and doing well at your communications job. Results, without interference of served agency people or function will cement relations with your served agency. Our served agencies also respond well when we take a positive attitude and relate what we can do rather than what we can not do.

Hams are patriotic, independent people and they are volunteers. The attitude among a few hams is that 'Volunteers don't have to take orders.' That's absolutely correct. We don't have to take orders, but if you are not ready to follow instructions, **you may want to do something outside of ECom.**

## Terms and Definitions

- **ECom - Emergency Communication**  
Supplemental Communication provided to our served agencies by ECom operators when served agency communications are overloaded or insufficient to handle the needs of the event or incident.
- **ECom Operators**  
A group of Hams that have volunteered to train in communication for use by local Public Service (CSP, OEM, SO, PD, Fire, etc.) during times of emergency.
- **RACES - Radio Amateur Civil Emergency Service**  
Licensed Amateurs that have met the qualifications, been approved, and then registered with a local or state Civil Defense organization (now typically called The Office of Emergency Management [OEM]). RACES operators are activated ONLY by an OEM type organization and **may ONLY communicate with other RACES operators on the air.**
- **Incident**  
Any planned or unplanned occurrence, regardless of cause, which requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources, i.e. not training.
- **Event**  
Any planned activity that is non emergency in nature where ECom communicators are used to assist charitable organizations or public service groups with communications, or ECom training exercises. This includes such occurrences as the annual S.E.T. and other more specific training.  
Note: Events run under ICS will often have "incident" names but will be referred to as "events" in this document because they are scheduled.
- **NET:**  
Short for Communications Network - established to handle information for an event or incident.
- **CONTROLLED NET: a.k.a. Directed Net:**  
A means of ensuring orderly use of limited frequency resources to conduct communications for a scheduled event or during an emergency. All traffic is authorized by the Net Control Station and nonevent conversations are discouraged.
- **NET CONTROL STATION (NCS):**  
The person charged with control of information flow on the frequency used by a controlled net.

## What We Do

The first major item for everyone in ECom is to remember that **we fit nowhere in community service until asked!** There is NO place in ECom for "walk-on" operators (those that just show up and say "I'm here, what do you want me to do?") We operate at the pleasure of our served agency(ies) and it is imperative that every ECom operator understand this. We must maintain a level of operational efficiency and conduct that strongly implies professional. The only thing amateur is in our name. The first thing we do - once called - is to establish a communications network, known as a Net. From that we handle:

1. Staffing - acquiring and assignment of resources

2. Track the coming and going of people operating in support of the event or incident
3. Operation - conducting the "business" of the Net (messages)
4. On completion we collect notes on what went right and what didn't and post After Action reports to learn more from.

## What YOU do

The one word answer is PREPARE.

Preparation has many phases and we will only touch on those most important to your efficiency as an ECom operator. They include, but are not limited to:

1. **Make a commitment.** Amateur Radio is a hobby, Emergency Communication is a commitment. Your commitment will be the single most important item to you and the organization. It is only if you are willing to make a firm commitment to the organization that you become a contributing member. Please keep in mind that every one of us has home, family and job responsibilities that must come before any ECom commitment. With that said, if you are only able to commit to ECom as number ten or fifteen on your priority list then you will likely not be called very often. If ECom is higher than number four or five then most will think you a fanatic.
2. **Learn how to operate your equipment.** The person that has only an HT and doesn't know how to use it will detract from any operation he/she is in. NO you do not need every piece of equipment possible to be useful in ECom but at least an HT, a mobile rig and portable antennas will help significantly. Make sure you know how to operate them! Someone that has to be shown how to enter a frequency, change an offset or add a PL tone slows everyone down. It is a good idea to carry a radio operations reference card such as those available at [www.niftyaccessories.com](http://www.niftyaccessories.com) or one your create.
3. **Learn how to operate both voice and digital modes.** There is far more to operating voice than just talking. You must learn to convey information as efficiently as possible, using the fewest words that completely describes the message. More and more of our served agencies want advanced digital support such as Winlink and just being able to get a packet station to work may not be enough.
4. **Take either the Colorado ECom Basic or ARRL's ARECC Level-I** course. The ECom course can be done - the first time - in less than four hours and the Level-I ARECC will take eight to twelve hours. We say "the first time" for ECom Basic because most learn as much the second time through the material as they did the first time.
5. **Practice.** There are a few people that can learn almost anything simply by reading a book. Most of us do far better by reading the material and then using it. There are weekly opportunities to participate in nets, handle message traffic, operate in digital modes and virtually everything else that you want, to help your learning. Use as many of these as you have time for. Some of the best practice is available in public service events such as bike-a-thons and walk-a-thons operated by charitable organizations.
6. **Learn the ITU phonetics.** A full copy is available in the ECom Basic material under "Communication Guidelines" or from the ARRL.
7. **Learn to teach ECom material.** People who do teach have found that they learn the most about a subject as they prepare to teach it. Once prepared you need to teach it three or four times to really have a firm grasp of the material. By that point you no longer need to think about what you need to do. The tasks have become a friend.
8. **Build yourself a "go-bag" of the equipment you will need** to support an activation. A good list of suggested items is in the ECom Basic material under "Personal Equipment". Also look closely at the recommendation for power connectors (Anderson PowerPole 30 Amp).
9. The item that many overlook is the physical conditioning that we really need, to be able to handle the stress of emergency operations. Does that mean or imply that each of us must be ready to run a marathon? Hardly. There are a few simple guidelines we need to follow to be better prepared to physically support ECom operation.
  1. Eat properly - this means eat the foods that will help keep us healthy.
    - Minimum "junk" food. The "Mickey D" three basic food groups of sugar, salt and grease do not help our health.
    - Appropriate amounts of protein, vegetables and complex carbohydrates, which vary with the individual.
    - Drink a LOT of water. Most of us forget that the recommended minimum amount of water is 6oz. every hour (not coffee, not soda pop, etc). Very few people consume that much water.
    - Moderate amount of alcohol or none, if you prefer and absolutely none if you are about to work.
  2. Get enough rest, Regularly! - Some people think that four hours of sleep will suffice. Most of us do better with six minimum and the really intelligent understand that seven and one half to eight is better yet. The second half of that equation is regularly . That means virtually every night. The occasional night with minimum sleep is not a problem, as long as it is occasional.
  3. Exercise - Get regular exercise, appropriate in duration and type. Appropriate for someone twenty-five is probably not correct for some one sixty. A good source of reasonable exercise for all of us is to walk for at least thirty minutes (or

about 1.5 miles) each day.

## Safety!

The number one priority of EVERY operator is safety. Your priorities in every event or incident (in this order) are:

1. You - - If you do not look out for number one, no one else will.
2. Your Team - - Once you are safe, the safety of your team is your priority.
3. Your mission - - Only when you and your team are safe does your mission become a priority.

The standing rule in fires is to always have two exits and should one of them become unavailable, use the one you have - IMMEDIATELY. If necessary, leave your equipment. Equipment can be replaced, people can't.

Remember, an incident scene is not about radios and being a Ham, it's about the incident and YOU will either be part of the solution or you will become part of the problem. Keep your eyes open and do your best to anticipate unsafe conditions before they happen.

## Plans

Each group or organization will have some type of written plan that describes what they do, how they plan on doing that and how they plan on interacting with adjacent groups. Take some time to familiarize yourself with that information.

For example the Colorado Emergency Radio Plan (COPLAN) is a document that covers how ECom groups interact and now also includes many RACES groups. This information is available at the ColoradoARES web site.

## What you do as ECom

Once you are prepared, you will participate in events and incidents as regularly as you can. This reinforces your training and allows you to teach those that are getting started. The primary teaching/learning situation is the Net.

Some of the more important net participant guidelines are:

1. **Be on time.**
2. **Bring the supplies,** equipment AND FOOD/SHELTER you need for the assignment. Unless you are explicitly told there will be food and shelter, plan on bringing your own. This is VERY important if you have special food or medication requirements.
3. **Listen.** That seems so easy but many forget to.
4. **Follow instructions.** The Net Control Station (NCS) will call for or ask for what they want/need. If you are listening you will know when you should answer.
5. **Tactical in, call sign out.** This must be your mantra during directed nets. You use your tactical call to gain access to the net and once you have completed your transaction, use your FCC issued call. Finishing with your call tells NCS you believe you are done and does so without using unnecessary words nor time and also fulfills all FCC identification requirements. If you have not had a tactical call assigned by NCS or the mission coordinator, use the suffix of your call (the letters to the right of the number) as your tactical. If you have a 2 by 1 call, use the number and the ITU phonetic for that suffix letter as your tactical call. For example: WZ0A would say "zero Alpha" for the default tactical call.
6. **Don't over identify.** There is normally nothing that will expend more time, needlessly, than over identification.
7. **Do NOT editorialize.** Your opinion on the incident/event or your thoughts on any other subject are not only unnecessary but clog up the net and waste time. An opinion given during a tactical net is a waste of time unless it was requested.
8. **Do not rationalize your answer.** Unless you were specifically asked, do NOT rationalize your answer/reply. Your reasoning for an action will not help anyone else so keep it to yourself - unless you were specifically asked.
9. **Summarize your thoughts** BEFORE you key the mic. If necessary write them down in your log. This keeps track of what you did and keeps your comments short.
10. **SLOW DOWN!** Far to many people think they can speed the information flow during a net simply by talking faster and getting

on the microphone button faster than anyone else. The opposite is actually true. When you allow three to four seconds between transmissions and speak at a calm measured pace, more information will actually be passed in much less time. Slower on the mic. button also allows stations with priority or emergency traffic to gain access to the net without needing the largest signal on the net.

11. **Use Plain Language and ITU phonetics.** Refrain from using technical slang (jargon) in your messages. Not everyone understands those terms and it could easily cause misunderstanding. Remember, "Q" signals are for CW and "10 Codes" are for 11 meters. The reasoning for no codes or signals is to comply with the Incident Command System's "Use plain language". For example: Use "copy" rather than QSL or 10-4 and "my location" rather than QTH or 10-20.
12. **Do not leave a net without checking out.** There are a few exceptions to this but they are VERY rare. Check out of the net if you are leaving or will be unavailable for more than a few seconds.
13. Make sure you have all required information before initiating a call! Things like who, what, where, when and occasionally why, need to be answered before you key the microphone! If you are relaying a question for the served agency, make sure you know ALL of the information they need.
14. We **DO NOT** run the event! We are there to provide supplemental communication, not run the event. Your opinion on how to run an event is appropriate ONLY if requested by the served agency.
15. We are NOT a rapid response team! If you are on scene as the sirens are quieting, get out of the way! Fire and Law Enforcement agencies handle emergency response. We handle communications once they know what help (if any) they need.
16. DO NOT talk about ANY details of an incident with the media unless explicitly directed to by the served agency! The served agency Public Information Officer (PIO) handles ALL of that interface. If a media person becomes too persistent, ask for assistance from any Police or Sheriff's Officer in your area. We communicate, but not to the media. While we are on the subject of the media, do not repeat media reports on our nets unless instructed to by the served agency.
17. If an on-scene authority requests that you shut your radio off, or that you not transmit, do what they ask immediately and without question. This is one circumstance where you do not notify the NCS of a change in your status.
18. Refrain from using third party traffic if at all possible. That is to say do not have a non licensed person talking on Ham frequencies if at all possible. Exceptions would be Law Enforcement or doctors with complex information to be sent.

## NTS Traffic

National Traffic System (NTS) NTS traffic handling is a skill that far too few have. Please refer to the excellent NTS overview written by KORM (then NOWPA) that is included in the ECom Basic material at <http://www.w0ipl.net/ECom/EComBas.pdf>.

## Hints to make it easier

Here are a few hints to make your task easier.

- **Keep a log** of what you do. This is particularly important for any messages that are more than just casual.
- **Use a headset!** It will save your hearing and make it easier on everyone around you.
- We are emergency communicators, not emergency rescue personnel!
- Keep your Civil Defense, ECom or RACES ID with you at all times.
- Do not impede the work of professional responders such as fire fighters, police and emergency medical personnel.
- Stay out of the "hot zone" unless instructed. You don't want to endanger yourself and add yourself to the casualty list.
- Follow the directions of your lead operator or the chain of command.
- You may be required to perform duties beyond just emergency communications. Remain flexible to respond to the needs of the situation. You as an ECom operator are free to do any work for the served agency that they request of you, as long as you are comfortable doing that work AND it does not hinder your ability to communicate. Do keep in mind that we are primarily there to communicate.
- Test your techniques before an exercise or an event. If you want to experiment with a new technique or method, test it before you have a major exercise or event. You don't need more frustration or embarrassment, so why compound that chance when the stakes are higher?
- When you go out on a real emergency there are several things you need to understand.
  1. Expect confusion. When we respond to a field assignment, our served agencies are getting their response organized and are often being pulled in a number of directions. Expect that some people won't know whom you're doing what for.
  2. Be flexible. Because of the confusion, we must always remain flexible and convey to those we are serving that we are here to help. Sometimes our function is clearly defined and understood, other times it isn't. Remain flexible.
  3. Know your audience. We contrast arriving to a field assignment as either Rambo or an attorney. Neither is good. Don't

overdress nor look sloppy, try to look the part that's required. Don't arrive looking like you crawled out from beneath a rock, always look clean and well kept.

4. Be aware of your first impressions. Some of us are shy, some are outgoing. If you are a shy and quiet individual, know that you might have to be bold to find the official or area you have been assigned to assist. If you are typically loud and outspoken, look around you, you might need to tone it down.

## Check List

The following instructions apply to all ECom operators!

**Everyone MUST ensure that all assignments, delegation and hand-overs are done with explicit statement of intent and explicit statement of acceptance.** The most likely problems will occur when duties are assigned/accepted implicitly. If ALL assignment, delegation, handovers, acceptance etc. are explicit, the potential misunderstandings are minimized or eliminated. A good technique to ensure understanding is to repeat what you understand the order or instruction to be. This will expose errors before they can become a problem.

## Your Check List

The following are YOUR responsibilities for every emergency and many exercise events. Remember that during an emergency you will either be part of the solution, or you will become part of the problem.

1. Before you leave your house, you should:
  - a. Review your assignment to ensure you understand what is expected of you for this specific assignment.
    - Incident type, name and designation
    - Incident check in location and Reporting time
    - Anticipated length of stay
    - Travel instructions
  - b. Update your "go-bag" with needed items not normally stored there
  - c. Prepare clothing and food, sufficient to handle the anticipated length of stay at your assignment!!
  - d. Review communication procedures as necessary
  - e. Ensure that your family knows how to contact you while you are at the assignment.
  - f. Review transportation requirements - to and from the assignment
2. On departure from your house, check in with the staffing net to let them know you are in route to your assignment.
3. On arrival:
  - a. Check in at the staging area so the served agency records reflect your help.
  - b. Determine where/when the event briefing will be (ASK!)
  - c. Notify the staffing net that you are going to the operations frequency.
  - d. Check in with operations NCS to let them know you are available.
4. Perform the duties assigned in a manner consistent with good safety procedures and good Ham techniques.

This will include:

  - Monitor work progress.
  - Provide your supervisor with appropriate status updates and notification of any problems that may arise.
  - Keep a good log of your station activities!
5. Once your assignment is complete AND prior to departing you need to:
  - Complete your work assignment
  - Brief your subordinates on demobilization
  - Complete event paper work
  - Brief your replacement as applicable
  - Follow incident check out procedures. This means:
    - Check out where you checked in (if at all possible)
  - Notify Operations NCS of your departure
  - Notify the Staffing Net you are checking out from your assignment and going home.
6. Upon arrival at your house, check out with the staffing net.

This ensures the event staff have full accounting of your safety and location while you work any incident.