



Communication Readiness Series

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Communications Readiness Series: Overview

In my role as the ARES Emergency Coordinator for Tulsa County I often think about being prepared. In this new series I am going to discuss ONE aspect of my preparedness. Are you ready to operate in the field with all the options you need to deal with communications emergencies? My bag is pretty close...it has a lot of what I would need and it's by the door of my office next to my backpack ready to go.

The intent is to provoke discussion and encourage everyone to be prepared. Plus, I learned a long time ago I don't have the corner on good ideas. I believe the readers of this series may have some ideas that I have not considered or included. Additionally, the contents represent only my personal opinion of what I regard as important to have in a "go bag". It is not meant to be an endorsement of one particular brand over another.

Storm season is approaching and I do want to maintain the highest level of preparedness. One aspect of our preparedness is what I call the "comms bag". I have included a picture of my comms bag that I keep ready to go. It can accommodate any combination of portables depending upon the mission and what comms I will need to take with me.





In this overview I want to emphasize the bag itself. I purchased this bag from LA Police gear. Our county EM uses one very similar to this as his comms bag. It is called the Tactical Bail-out Gear Bag and is very affordable at about \$22 the last time I checked on it and it is often on sale. Here is a link to it.

<http://www.lapolicegear.com/tabagoutbag.html>

To give a sense of scale I included the collection of the HT's next to the bag. The side pockets will hold one, sometimes two, HT's. You really don't want to clog this up...it makes getting to the radio quickly a hassle. The side pocket also can accommodate a water bottle (which is a good idea to have with you as well). The side pocket has Velcro straps that will secure the radio so you don't have to worry about it falling out while you are moving about.

In my case I carry all of the comms gear I think I will need in the field. The bag weighs about 15 lbs. as configured. Yes, that's a lot of stuff...and in this series I will delve into all of the aspects of my bag, including; proper Identification, power & extra batteries, antennas, cables and connectors, writing instruments for all occasions, manuals, ARES lists, other documentation, etc, etc, etc.

I look forward to your comments and questions. How do you prepare in a similar way? What do you use to carry the gear? What have you included in your comms bag?



I also want to encourage you to get your own "comms bag" and prepare to be very effective at emergency communications in the field. It doesn't have to be this bag...back packs can work very well for this purpose.

Handheld Communications

In a Facebook post I had the question "why so many HT's?" I thought I would provide a quick listing of the radios / HT's I use and their role.

On the left side of the bag:

- **Motorola GTX** programmed for 900 MHz repeaters in Tulsa, OKC, and Dallas. I also have an external mic that also works great with my Connect Systems DMR HT.

- **A Radio Shack analog scanner**. It is a pretty old unit...but a great grab-n-go radio for a backup to monitor local analog amateur radio repeaters and analog public service frequencies.

- **Uniden BCD-396XT Trunk Tracker IV**. I have it programmed for local and state public service frequencies and can monitor analog and digital frequencies up to and including APCO P25 Phase 1. This series is not about programming scanners. However, I use the Radio Reference tool (a paid subscription) to obtain the most up to date changes with local systems. That data is fed into FreeScan to program the scanner.

- **Uniden SDS100. (not pictured) (2021 update)** I now use a Uniden SDS100 as my primary scanner. It handles the complexities of simulcast digital communications that the 396XT cannot. The 396XT is still great for analog communications.

Scanner Training tip. There is a new audio podcast series that is centered on scanners. The series is published by an Amateur Radio operator and begins with scanner fundamentals but will expand into trunked and digital systems. You can find it at www.scannerschool.com

On the right side of the bag:

-**Connect Systems CS750 (Digital Mobile Radio)**. This is primarily configured for DMR use but is also UHF only. It is programmed for OK digital repeaters along with some analog repeaters. This is my primary HT radio when I am only going to carry one radio. The DMR systems in Oklahoma provide excellent coverage in Tulsa and the suburbs. The Motorola external mic works on the CS750 as well as the 900mhz radio.

-**Wouxun KG-UV899 (dual band HT for 220/440)**. Currently configured as a backup radio for popular UHF frequencies and the growing 220mhz linked repeaters in NE Oklahoma.

-**Yaesu VX6R (2 meter VHF, 220, 440 UHF)**. This radio also has capabilities to monitor many other frequencies and is water resistant / rugged. This is programmed with all the local and statewide repeaters. This is my favorite radio to use during public service events since it has all the frequencies



used for events. In the bag I have an external mic (altered for improved audio). I will also carry the DMR as a backup in the truck for those times when I am way out of VHF or UHF analog repeater range.

-**Yeasu FT2D (not pictured) (2021 update)** is a dual band analog and Fusion digital capable handheld. This radio is on all deployments and has APRS reporting capabilities....great for use on bicycle race support to report my position to race command.

-**TYT TH-UV8000D (10w dual band VHF/UHF)** configured as a part of a dedicated go box for digital text and email communications using RMS express. The go box for digital communications has the radio, small Windows 10 tablet, TNC and cables.

I am certain my HT collection will only grow over time. The pockets on either side of the bag will hold any of these radios so no matter what I am heading out the door for I can easily carry the radios I need.

What HT's do you have configured and ready to go for emergency communications?

Proper ARES Identification

Proper and clear identification is a must for our ARES operators. The purpose of this section is to inform and motivate all ARES volunteers of the need to be prepared to identify themselves at emergency communication events. In this section I want to focus on the importance of proper identification and the ways to achieve it.

I have included a high level picture of my communications bag contents. Yes...there is a lot in it. In the various sections I will describe what I carry and why. The second picture is a bit closer on the "ID contents" in my bag.







Proper Identification is crucial during an emergency comms event.

ID Badge:

Every ARES operator should be prepared with the proper level of ID. If you are an ARES officer you can get the ARRL badge like the one I use. Please also include the proper "rank tab" that hangs below and that aligns to your ARES role. The rank tab will allow LEO, Emergency Managers, and other Public Service personnel to instantly identify your role and relationship to other ARES resources perhaps at an EOC or other locations where emergency communications occurs (Red Cross shelters, National Weather Service, Salvation Army, and the Tulsa Health Department).

If you are an active ARES volunteer you can have a badge made that includes an ARES logo, your name, and call sign. If you are looking for more information or want to order a badge contact the Sign Man of Baton Rouge www.thesignman.com . You can also have one made at the Green Country Hamfest in Claremore.



Other badges:

It is possible you will have other ID badges. In my case, I also have on the lanyard my Oklahoma Medical Reserve Corps badge. It is a FEMA approved style badge, has my picture on it, along with other information. This badge is recognized by most law enforcement and public service operators. I also have other badges (TAEMA, Disaster Relief, etc) on the lanyard should I need to have them handy.

Badge display

The appropriate badge for the function you are involved in should be clearly displayed and visible. If you are wearing your ARES vest you can clip it to one of the mic-tabs on your right shoulder. This is a clean and respectable way to display your badge. A lanyard is also allowed and useful in other situations where you may not have a mic-tab on your garment.

ARES Vest

I carry the ARRL approved yellow ARES Vest. The vest has the reflective tape along with a number of pockets that I need. This is a must and is required wear at any ARES event. It is also one that you should wear at night where personal safety is paramount. The one I have also has a mic-tab on each shoulder. The vest carries the ARES logo on the front and the words "Amateur Radio Emergency Communications" on the back.

ARES Shirt

I also carry the light blue t-shirt with the ARES logo on the front in white. This is useful at non-emergency situations where we provide communications (bike rides, runs, etc). The short sleeve shirt is great for work in the heat of summer.

ARES business card

I had some ARES business cards printed up and I carry them in the bag. They are a very good way to give someone your phone number, name, ARES role, and call sign in a hurry. They are great leave behinds as well.

That is just an overview and summary of proper identification for your person. There are other forms of identification. For instance your vehicle. I have two ARES magnetic signs that can be used to identify a vehicle if needed. I did not go into all the forms of other communications because I wanted to focus on proper *personal* ARES identification.

If you are an ARES volunteer the expectation is that you will be able to produce proper ARES identification at an event. What I have described here is very professional in appearance and reflects the role and responsibility we carry from the FCC mandate.

How prepared are you to produce your identification?



Power and backup power

How long can you conduct emergency communications when standard power is not available?

Running out of power while involved in emcomm is a bad thing. We should all plan to be ready for power outages and the ability to conduct emcomm over an extended period. That means you should think about a primary and a secondary level of power for your communications.

In the first picture you can see the following items I carry:



Battery charger

This is a "smart charger" that will handle not only different sizes of batteries, but different chemistries as well. I keep the charger in a small bag of its own with two cables. One that will charge from 110v AC and one that will charge from 12v DC. So, practically speaking I can recharge the batteries I carry just about anywhere.



A range of rechargeable batteries

I carry batteries for my flashlights, scanner, and other devices. The battery types range from AAA to the 18650 larger NiMh batteries. I also carry a few non-rechargeable alkaline "just in case" I can't charge the others. NOTE: for the lithium batteries it is very important to carry them in a device designed to carry batteries safely. This way the contacts of the battery will not come in contact with any metal that could cause a short and a fire. I have added a battery carrier for the 18650's since this picture was taken.

Goal Zero recharger

I also carry in my bag the Goal Zero solar recharger. It contains two small solar panels that provide about 7 watts total. It will recharge my cell phone and a small AA battery charger that I also carry. If I somehow get stranded I can still have light and backup power.



HT batteries

In the pictures you can see a spare battery for the Yaesu VX6R. I also carry extra batteries for other radios as well. If I know I will be deployed for a longer period of time I will take the 110v chargers with me in a separate bag, probably a backpack that would go with me. In those situations it is likely 110v is available and would allow me to recharge overnight.



Final thought...check the status of your backup power frequently. It doesn't hurt to rotate the batteries out of the "back up status" in your bag to operational status in your radio. **Rotation is good.**

It may look like it's a lot of batteries and charging devices...but I don't want to find myself in a situation where I am not able to communicate or see what I am doing if it is dark.

What is your plan for backup power? What do you carry with you so that you can conduct emcomm over extended periods?

Let there be light!

Quite frequently we are called to provide communications after severe weather or during public service events...both of which occur at times during the night time.

How prepared are you to conduct emergency communications in the dark?



This series is about my communications go-bag. It's chocked full of the items I believe I would need to conduct emergency communications. In this section I am reviewing the items in my go-bag related to providing light.



Flashlights

I carry an assortment of flashlights with me. Like most hams I don't believe you can have enough flashlights. In my bag are several lights that have specific purposes. First is my high powered Nitecore MT-40. It is 900+ lumens and will light up items at a distance. It has multiple power levels and is the most powerful light in the bag. It runs off of two 18650 NiMh batteries. I also carry a smaller light that is ~100 lumens that is in a quick access pocket for close-in work. I also carry several lights that are a part of my every day carry (EDC). Those lights are based upon various kinds of rechargeable batteries. Some of them are AA, AAA, and smaller sized NiMh batteries.

USB LED lights

I carry two kinds of LED lights that plug into any USB port. They are great for use in the car or as a task light where you are working. It could be navigating on a map, working on a computer, or just low light in the truck that doesn't blind the driver. They also work great for the cellphone power banks and can provide some light in a small area. They work great when the power is out after a storm. One of them is in the picture that is about a foot long and is flexible. It's from Power Zero and is one of my favorites. I have another one that is shorter and can plug into a smaller cigarette lighter outlet in the truck for light in the truck while driving.

LED Road Flare

I also carry one of the battery operated RED LED road flares. It is pretty bright and has multiple flash patterns. It can tell others where you are or identify you on the side of the road. The unit has a magnet on the bottom of it for quick attachment. It also runs on small NiMh batteries.

Every day carry (EDC)

It's not part of the picture and the go-bag but IS a part of walking out the door every day. I carry a small size pen light as a part of my every day carry. I use it all the time and comes in really handy when the lights go out.

What kind of lighting do you carry in your go-bag? We can all learn from each other.



Reference materials

In this section I will discuss the importance of carrying a variety of reference materials. How prepared are you to look up key information from an incident site or command post?



ARES Oklahoma volunteers

I carry a recent print out of the ARES statewide organization and volunteers in Tulsa County. Part of the lists are kept on a clipboard (off camera) but in the bag. As the ARES EC I may be called upon to provide resources for one of our served agencies. I don't know about you...but I simply cannot remember that many phone numbers and emails. Having the list with me is a crucial part of having the right information at hand when you need it. The real trick is updating a list with the most current information periodically.

ARES Members: update your contact information on www.aresok.org



Frequency listing

I carry with me a list of local and surrounding county repeater frequencies. This includes a frequency coordination plan for use during a large scale event where emergency communications is required on multiple repeaters simultaneously. This coordinated frequency plan would be able to handle active severe weather nets, ARES resource assignments, MERC hospital communications, American Red Cross, Tulsa County EOC, as well as regional coordination...all with assigned and coordinated primary and secondary frequencies.

Skywarn info

The Skywarn info I carry includes the weather spotter's guide and state county map so I am certain where the location of a particular storm or event is located. Some of the information comes from the annual Storm Spotter training that the National Weather Service conducts every year.

Operating manuals

I carry operating manuals for my radios including the Yaesu FT-8900 mobile (VHF, UHF), VX-6R (140, 220, 440) Connect Systems CS750 (UHF DMR), and Motorola GTX (900 MHz). I also carry a small fold up pocket version of the quick reference guide for my VX-6R. As I acquire new radio systems I will add a copy of those manuals into the go-bag. I put all of the manuals in a small, very affordable, zipper bag that I got at Home Depot. That makes finding the right manual very easy. To make it easy to spot the right manual in the bag I make a note of the radio on the spine which is very visible when unzipping the bag.

Field Operations Guide

Oklahoma Field Operations Guide (OKFOG) and the National Interoperability Field Operations Guide (NIFOG) which are both technical reference documents for emergency communications planning and disaster response. I also keep a "soft copy" of these on my iPad for reference.

FEMA ICS forms

I also carry a selection of ICS forms that would be useful during any ARES activation. A good working selection (updated from time to time):

- ICS 201 – Incident briefing
- ICS 202 – Incident objectives
- ICS 203 – Organization assignment list
- ICS 205 – Incident radio communications plan
- ICS 213 – General message log
- ICS 214 – Activity log



Antennas and such

This document is intended to educate, inform, inspire, and provoke discussion about an important topic. Are you ready to go out the door with the items you will need to support emergency communications in the field? In this section I want to highlight the spare antennas and other items I carry.



My "go bag" is packed with what I think I might need. I have written about the key points; a durable bag capable of easily carrying several radios, proper identification, reference information (ARES volunteer and call out lists, repeater frequencies, etc), lights to operate in dim or no-light situations, power options (batteries, recharging devices, etc), radio manuals, and (in this section) the antennas and miscellaneous connectors that make a difference.

I have been in the field working when I needed to change the antenna on my HT. I carry several 'special purpose' antennas in the bag. They range from extended length, to super skinny ultra flexible, to the very short. All have a different use case and design. I also have a good selection of antenna adapters to connect the antennas to the variety of HT's that I may have with me. We have all been caught by the need to connect and we don't have handy the adapter you need.





I also have a good assortment of reusable wire ties for coax loops, Swiss army knife, small tools, lock, memory sticks (pre-loaded with ARES info), and a camera. I keep the camera in the bag so that I can document situations, damage, or just something I want to remember.

So, that's it. My 'go-bag' will be different from yours and pretty much everyone. I would encourage everyone that volunteers in ARES or just wants to be prepared to create your own go-bag. Ask questions along the way. Know also it will change over time as you find things you need and others you don't.

If you want to contact me with questions about sources, feedback, or new ideas please send me an email at WB5ANX@arrl.net

