

Using Internet-Independent Message Pickup Stations Digital Comms WorldWide When There Is NO Internet

Gordon Gibby KX4Z
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TASK 9	Using Message Pickup Stations to Create Digital Connections in spite of loss of the Internet
	RELATED: Using “LOCAL USERS” for county-level messaging after the loss of normal telecommunications.

DISCLAIMER: These are the best solutions and information that I, or anyone in Alachua ARES was able to come up with – *if you've got a better solution, let me know!!* docvacuumtubes@gmail.com

If there were massive damage to the Internet, many forms of taken-for-granted communication would be seriously degraded. Because the Internet routing programs are designed to be somewhat “self-healing,” isolated failures in the higher levels of the Internet can be handled after the passage of some time --- but massive failure can be brought about through many avenues, and huge efforts are continuously expended to try and prevent such failure because of the expected impact

Nevertheless, it is quite possible for the ENTIRE Internet to be taken down.

And as a result, the U.S. Government asked the WINLINK private volunteer developers to create an additional layer that would allow message passing not just from ships at sea to Internet-connected land stations and thence through the Internet to Central Message Servers and on to recipients, but to be able to function in the COMPLETE absence of the Internet. (In other words, when all else really HAS failed....)

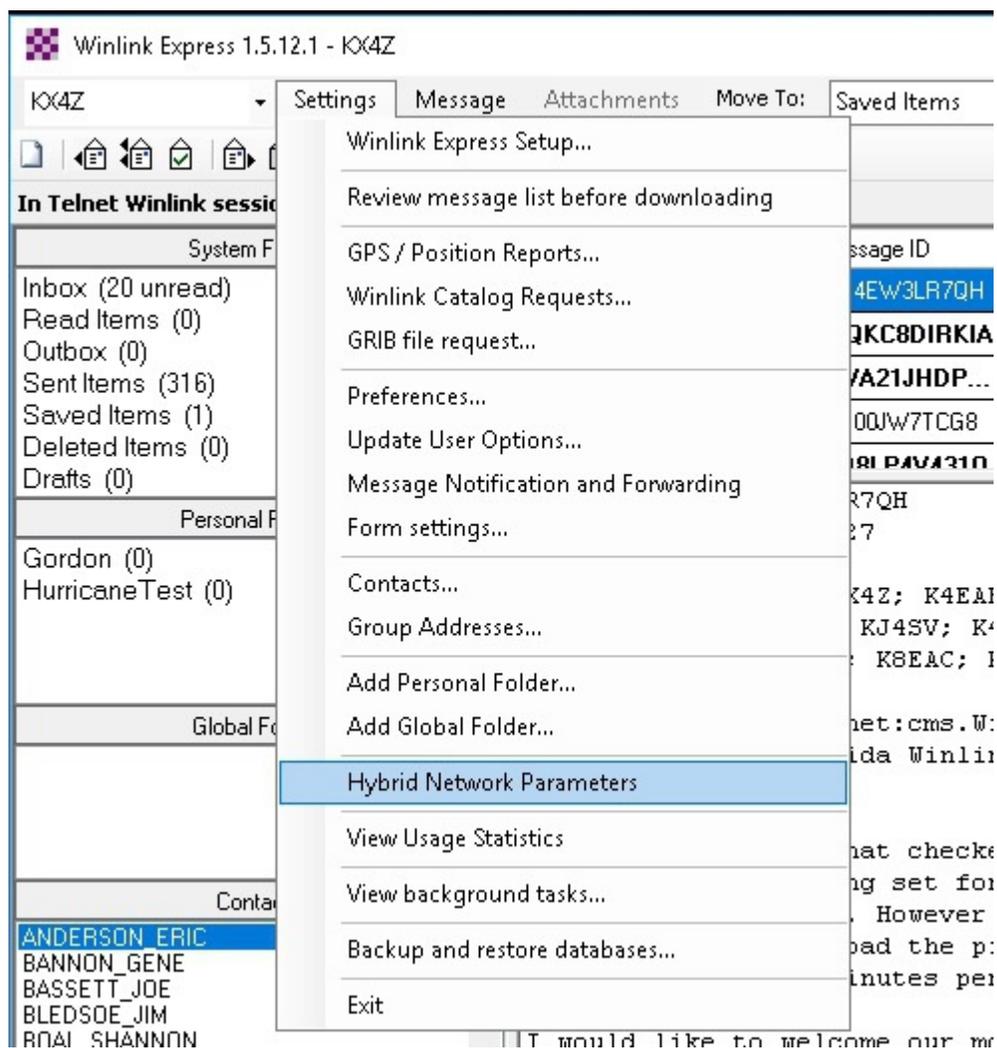
If there is no Internet, how do you pick up your email? Gmail won't work. Nor Yahoo....in fact ALL email systems except what we're describing here will be defunct. So, how do you pick up WINLINK email? You can no longer reach the Central Message Servers (CMS) through the Internet... so where are you going to find your replies? And how will your intended recipient pick up the email you sent them over this volunteer WINLINK amateur radio system?

The answer is that prepared users must have pre-chosen certain WINLINK radio gateway stations as their registered “MESSAGE PICKUP STATION” (MPS) --- and all your mail will be mirrored at the MPS's that you've chosen, waiting for you to connect (by any protocol) and pick them up. To avoid overwhelming the WINLINK volunteer system, it is suggested that you pick at most 2 message pickup stations.

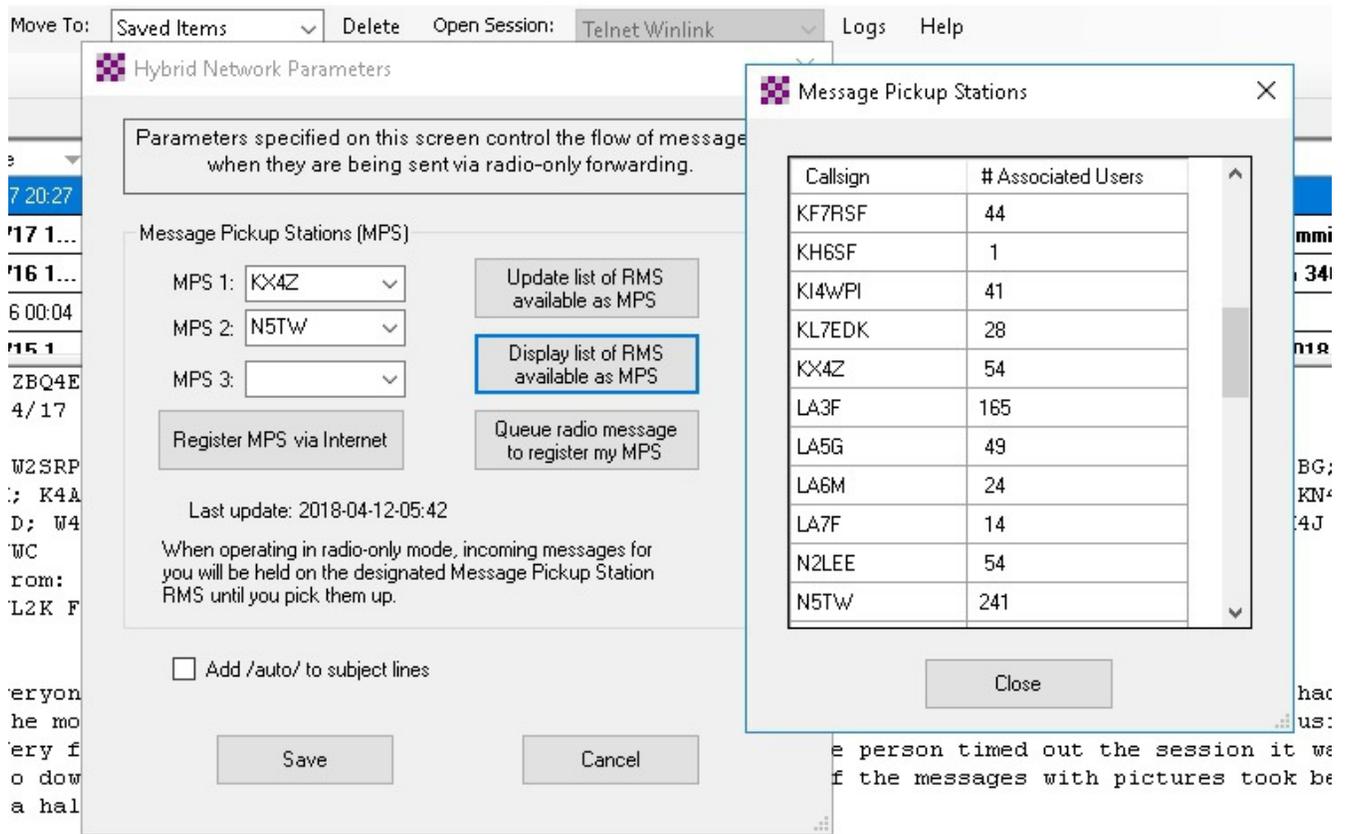
How do you choose and register one or more MPS?

Note: This information is covered in the WINLINK HELP contents under Setup | Winlink Hybrid (Radio Only Network). Another source of helpful instructions / information is here: http://www.philsherrod.com/Winlink/Radio_Only_Winlink.pdf

1. Run WINLINK EXPRESS on your computer.
2. Select SETTINGS | HYBRID NETWORK PARAMETERS in the drop down menu.



3. This will bring up the following dialog box:



to welcome our most recent addition to the Florida Winlink Net. My Winlink mentor Earl Leach.

First: if you still have Internet, click the button to “UPDATE LIST OF RMS AVAILABLE AS MPS” – so that you have the latest options available.

Second: Click the button to “DISPLAY LIST OF RMS AVAILABLE AS MPS” (which was done in the figure above) and look for stations that you know you can often reach easily. Also consider how RELIABLE those stations are. The figure shows a portion of the available RMS stations and how many clients they already have --- my station KX4Z has 54 people hoping to retrieve messages in a total world-wide disaster **from me!!** Good luck on that! There are stations with over 150 signed up for them --- often these are very isolated stations in very distant nations where there just aren't many other alternatives. *But Ray's station, WD4SEN is every bit as good as mine and he has far fewer signed up --- so pick HIM.* In actual exercises, stations have been trapped “circling” trying to connect to a badly oversubscribed station, unable to make contact because the LINE of people waiting.

Finally: REGISTER your selections either by the Internet or by RADIO using the button “QUEUE RADIO MESSAGE TO REGISTER” if you're having to do this in a complete blackout.... because otherwise, there simply is no way for you to retrieve replies....

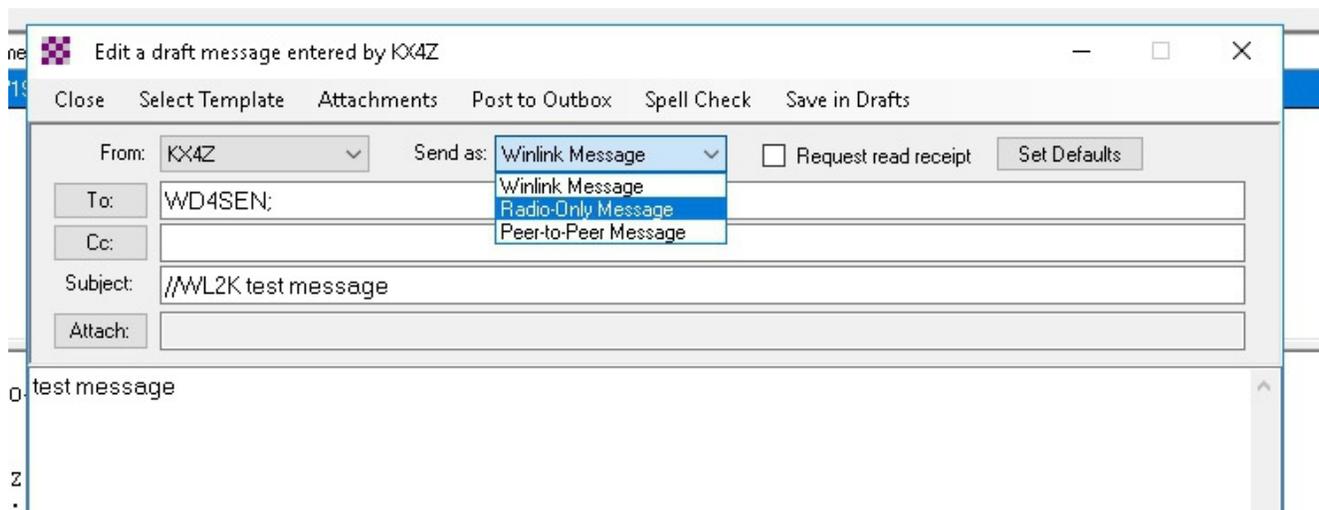
DOOMSDAY SYSTEM

Hopefully this incredible layer will never be needed. Messages originated by sending to an RMS within the system using one of the RADIO-ONLY Session types, proceed without ever entering the Internet- being forward by radio alone, from one RMS to another, sometimes automatically, sometimes requiring the RMS owner to OK the forwarding (this is more rare) – and finally reach each of your selected MESSAGE PICKUP STATIONS (MPS). As you might imagine, in a time of light traffic this could take hours, and in a true emergency it might take DAYS. So in a true emergency, please don't **overload** this very lightly-equipped last-ditch emergency system! Nevertheless the SHARES system is set for this to be a PRIME means of handling authorities' messages.

All stations who seriously consider themselves part of true Emergency Communications should have registered at least 1, and possibly 2 Message Pickup Stations.

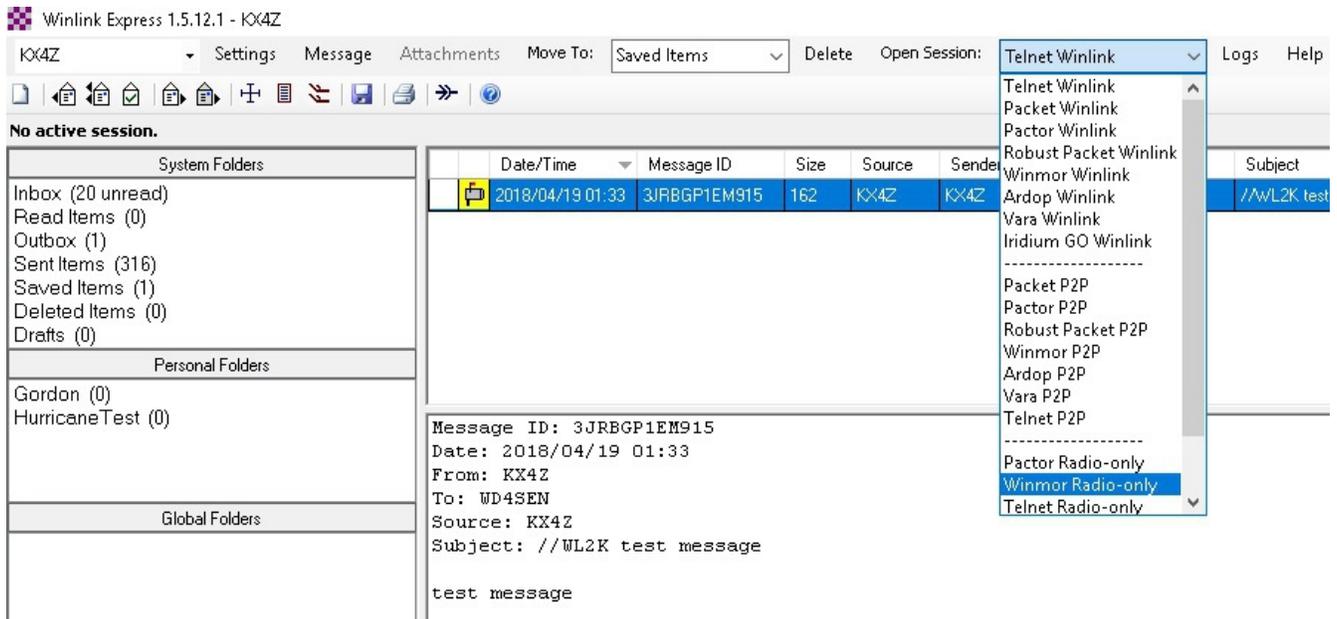
PRACTICE

You can (and should) actually TEST this system. All you have to do is originate a “radio-only” message first selecting that “type” when creating the email within WINLINK:



Note that you cannot originate this message into the system using normal Internet-based TELNET (unless you are physically connected to a RMS by direct internet) --- **it is a radio-only message and you must originate it using PACTOR or WINMOR**, so select either of those modes, RADIO-ONLY when selecting a session type to begin:

The screen capture below illustrates selecting to begin a RADIO-ONLY WINMOR type session and then will proceed to make a radio connect as usual to an RMS station.



When choosing an RMS to connect to, you should choose those that are equipped with Radio-Only capabilities, by so selecting the drop-down menu in the channel selector. This selection may be made automatically by the software for you, when in a Radio Only type session.

HF Channel Selector

Exit Select Update Table Via Internet Update Table Via Radio Forecast SF Radio-only capable RMS

Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
KX4Z	3595.500	1600	EL89RQ	00-14	PUBLIC	0	000	99	99
KX4Z	7103.500	1600	EL89RQ	00-23	PUBLIC	0	000	96	96
KX4Z	10141.500	1600	EL89RQ	00-23	PUBLIC	0	000	94	94
KX4Z	14098.000	1600	EL89RQ	10-23	PUBLIC	0	000	92	92
KX4Z	18106.500	1600	EL89RQ	16-21	PUBLIC	0	000	89	89
WD4SEN	3587.500	1600	EM90CC	00-23	PUBLIC	85	058	86	52
KI4WPI	7103.200	1600	EL96UF	00-23	PUBLIC	443	150	81	50
KI4WPI	3598.500	1600	EL96UF	00-23	PUBLIC	443	150	77	48
XE3N	10141.500	1600	EL60LP	00-23	PUBLIC	1101	205	73	46
W4EDW	7106.500	500	FM14MW	00-23	PUBLIC	784	040	72	47
XE1VP	18098.500	1600	EK09UJ	00-23	PUBLIC	2035	239	71	46
XE1CRG	18107.000	1600	DL90HQ	00-23	PUBLIC	2137	246	68	45
K85MAC	7103.300	1600	EM20FA	00-23	PUBLIC	1252	275	65	44
W0MAC	7066.000	500	EM20GA	00-23	PUBLIC	1245	275	65	44
W0MAC	7101.600	1600	EM20GA	00-23	PUBLIC	1245	275	65	44
K85MAC	7082.500	500	EM20FA	00-23	PUBLIC	1252	275	65	44
N2LEE	10144.000	1600	FM18HX	12-23	PUBLIC	1135	023	64	45

RETRIEVING MESSAGES FROM THE WINLINK RADIO-ONLY SYSTEM WHEN INTERNET IS COMPLETELY NON FUNCTIONAL.

The radio-only system is almost like a completely different WINLINK. Just normal PACTOR or WINMOR, or ARDOP, PACKET or VARA check-ins to one of your MPS (message pickup stations) will NOT retrieve email that has been sent to you via the RADIO-ONLY system!

That's problematic, it seems: unless you KNOW to make a special type of check-in, you wouldn't even be aware of email waiting for you!

In order to retrieve WINLINK RADIO-ONLY email, you must specifically choose one of those RADIO-ONLY session types:

Pactor Radio-only

Winmor Radio-only

Telnet Radio-only (if you have your own connection to your own MPS)

When you utilize one of these choices, there is a special character SSID appended to your call sign and this seems to signal the system that you want to retrieve RADIO-ONLY email.

There is no VHF Packet method for retrieving Radio Only Email --- you simply can't do it over a VHF packet system....

If you have two MPS stations, you'll find that your email has been mirrored and is residing on BOTH your MPS's.

You might want to choose MPS stations that

- are not already oversubscribed
- have good backup power systems
- are at varying distances and directions from you to account for different propagation during day/night.

You might want to train your local team on this system and test it in your next exercise!

APPENDIX: UTILIZING “LOCAL USERS”

Closely related to the “message pickup stations” capabilities of the WINLINK design, is the “local users” option that is built into the server side of the WINLINK system. Since it operates somewhat like a community-based “message pickup station,” it is worthwhile to explain it as an Appendix to the Message Pickup tutorial.

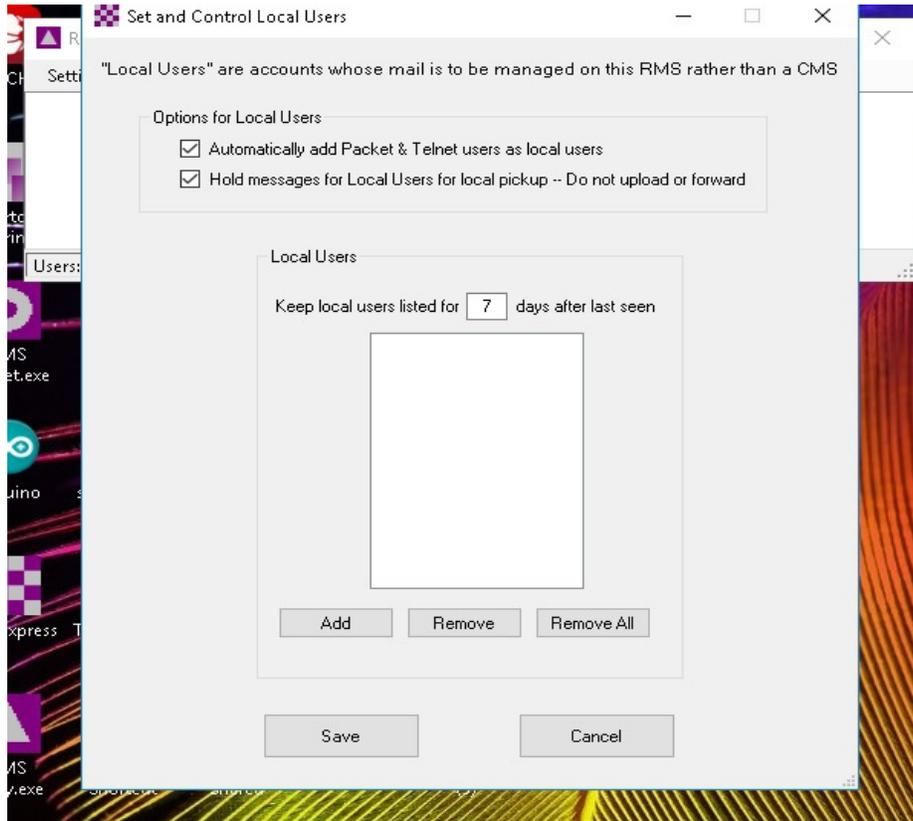
The Winlink volunteer Development Team have built a vast array of facets into their system. Initial users often think that after they have learned how to make an email contact, they are “trained” on WINLINK --- but the system is far, far more nuanced than just that.

Although this is volunteer-ham-built free software, I am quite frequently amazed at the forethought and planning of the Winlink Development Team – just when I think I understand their system pretty fully, I discover yet another circumstance that they have anticipated, and built a solution for. While their system is still volunteer-built and supported, it is truly “best in class” with more than 20 years' development work invested and service to tens of thousands of hams for two decades.

RMS (Radio Message Server) stations include the ability to recognize users coming in over VHF (packet) as being “local” --- and (if so configured) to handle their mail locally, much like the predecessor bulletin board systems. The impact of this is to give the local emergency community their own *local community-based email server*. Messages to and from, within the group of “local users” does not waste time and effort heading out to far facilities --- it is cached right on the local RMS server and can be easily picked up by VHF (packet) or HF for those recognized as “local”. But remember, this will NOT work to pick up Radio-only email.

Here is the RMS (“RMS_RELAY.EXE”) Screen that configures these options (it is only in the SERVER side, not in the client winlink express user software):

As you can see, “local users” can be allowed, and their mail can be held locally if desired. Choices include how many days their mail will be held locally since the last time they connect to the RMS server. One can also add, remove or remove all local users should the need arise. If you and your



emergency communications group are within VHF (or microwave telnet) range of an RMS Server station, it would be wise to communicate with the Sysop of that station to understand if these features are enabled on your local server.

BACKGROUND INFORMATION

At the 2018 Emergency Symposium hosted by Alachua ARES and the Santa Fe Amateur Radio Society, a short full scale exercise was held in which volunteer teams were challenged to complete a

number of tasks in (simulated) support of local Emergency Management. The setting of the Exercise was a confusing and poorly-understood emergency in which local broadcast as well as public service communications had been severely damaged. These tasks as listed in the Table below and touch on a wide variety of radio skills and assets.

Katrina, Puerto Rico and other disasters have shown that no one can wisely claim that they will always have communications. And if ham radio is going to claim “when all else fails, there's ham radio!” – then we better have a solution to a simple request from our local EM / EOC: “Send this message by ham radio to the State EOC....all our systems are not working right now.”

No.	Task	Usefulness
1	Establish and maintain a Command Net	Allows tactical communication between teams.
2	Monitor frequencies for reports from fire / police / utilities / hospitals	Scanning or other techniques to “pick up” volunteers and others desiring radio connections to local emergency efforts. Also – <i>always hunt for amateurs who are on some other frequency and haven't found your operation yet.</i>
3	Create broadcasting ability at bottom end of 160 m band, or top end of AM Broadcast band, for the EOC	Allows public safety officials to have a means of reaching the general population in the absence of working broadcasting stations.
4	Digital email to State EOC	Notification and connection to state emergency authorities who need situational awareness and may be able to give you the wider picture also.
5	Create a repeater for Interoperability Channel NC1	An example of assisting to create repeater facilities where requested for interoperability between different emergency services.
6	Survey/test all known amateur communication assets	Develop situational awareness of available assets which can be leveraged to serve the community.
7	Establish contact with any ARES or other amateur emergency net	Establish connections.
8	Creating broadcasting ability over local NWS (“weather radio”) frequencies for the EOC	Allows public safety officials to have a means of reaching the general population in the absence of working broadcasting stations.
9	Utilize Message Pick Up stations to create digital connections in the absence of Internet functionality	Allows digital email connections between WINLINK-enabled communicators even without regional, national, or even international Internet functionality.

10	Maintain Activity Log and Communications Log for all actions	Keep a record of actions for both practical and legal purposes.
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