

Overview of Amateur Radio Response to Disasters

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The Mission-Ready Radio Amateur



Purpose of Amateur Radio

*...in the United States, as defined in Title
47 of the Code of Federal Regulations
(that's the FCC)*

1. Volunteer noncommercial service to the public “emergency communications”
2. Advancement of radio art
3. Improvement of the service (procedures and technology)
4. Expand reservoir of trained operators, technicians ...
5. International goodwill



Not a hobby!

...in the ... defined in 7
47 of ... Code of Federal Regulation
(that's the FCC)

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Effective Response is Organized



“When all else fails...” ... *do ... what?*

Stand up the nets!

Alert the roster!

Call the SEC!

Listen to NOAA Weather Radio!

Load the go-box!

Did we spring to action?

Activity is not productivity.

Amateur Radio is not an emergency management service.

Amateur Radio is not a reaction force.



“When all else fails...” ... do ... what?

People respond to disasters.

Self, household, neighbors

Nongovernment organizations

Government agencies

The Amateur Radio Service is a defined set of standards for use of radio frequency technology for communication.

Radio amateurs can help people respond to disaster effectively.



Common Terms and Quick Explanations: Organizations

ARRL	American Radio Relay League Organizes many programs and services advocating amateur radio
RRI	Radio Relay International Supports operation of amateur radio message relay service
REACT International	“Public Service Through Communications” Association of teams of skilled communications volunteers
ARC	American Red Cross Disaster relief, includes volunteer communicators
Salvation Army	Disaster relief, includes volunteer communicators
EMA	Emergency Management Agency: County, Multi-County (“District”), State, and Federal (FEMA), includes volunteer communicators



Common Terms and Quick Explanations: Programs

ARES	Amateur Radio Emergency Service Program of ARRL, organized through Section's Field Organization
NTS	National Traffic System Program of ARRL, organized through Section's Field Organization Further supported by Radio Relay International and independent nets
AUXCOMM	Auxiliary Communications Government agency, e.g., EMA, team of qualified volunteers
SKYWARN	National Weather Service Storm Spotter Coordinated volunteers taking reports from storm spotters for NWS
CERT	Community Emergency Response Team Organized usually by local EMAs, teams of qualified volunteers



Common Terms and Quick Explanations: Services

Amateur Radio	Individually-licensed service for noncommercial communications by volunteers Defined in the U.S. by 47 CFR 97
RACES	Radio Amateur Civil Emergency Service - Amateur Radio subset (47 CFR 97.407)
GMRS, FRS, MURS, CB	Various personal radio services managed by FCC Licensed to individual (GMRS) or by rule (FRS, MURS, CB)
Commercial and Public Safety	Various services managed by FCC Licensed to organization
SHARES	SHARed RESources, managed by CISA (DHS), coordinated by NTIA HF radio program for critical infrastructure, e.g., EMA
MARS	Military Auxiliary Radio System, managed by DOD, coordinated by NTIA System of military auxiliary stations



Train to Mission.
Measure Performance.

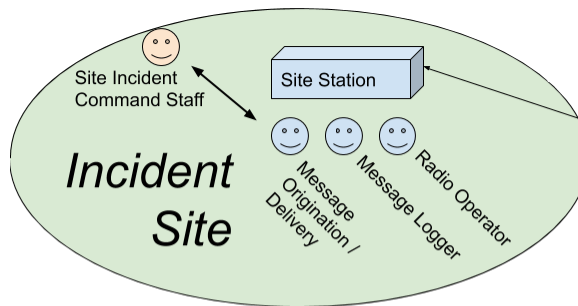
Assume nothing.



Is This How You Train?

When we understand our places, we create a network for communication to support response:

- By individuals
- By NGOs
- By agencies



Good! Emergencies start local and end local.

But do you know how they fit together?

Is This How You Train?

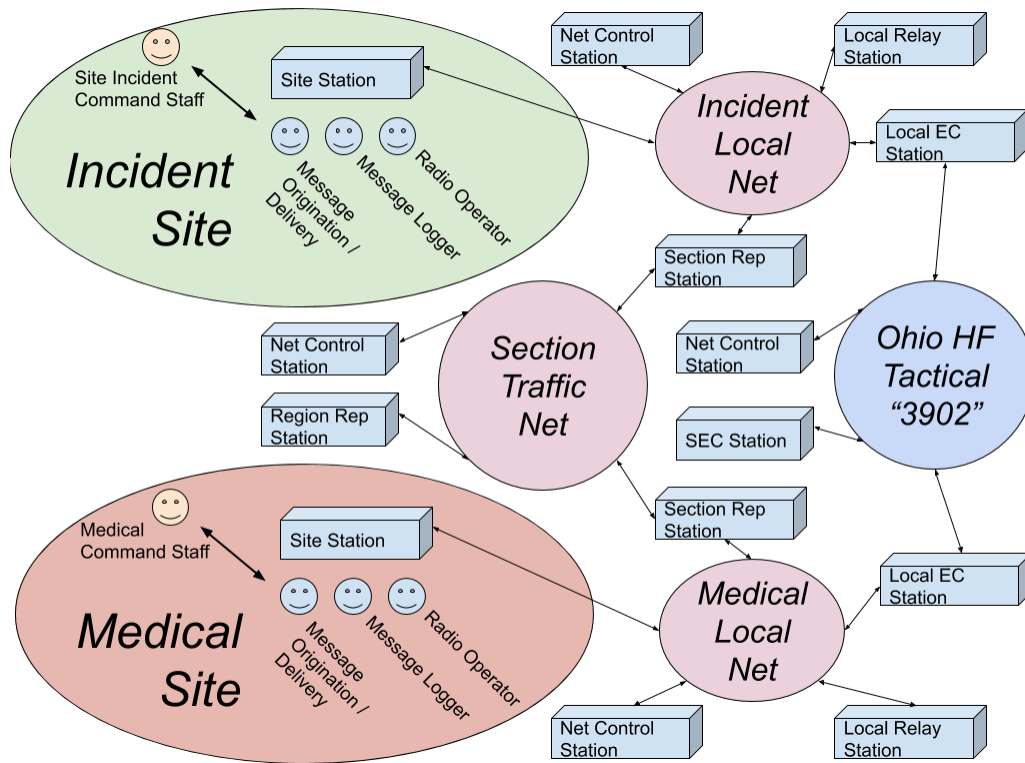
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Networks should interconnect.

Networks allow two-way communication.

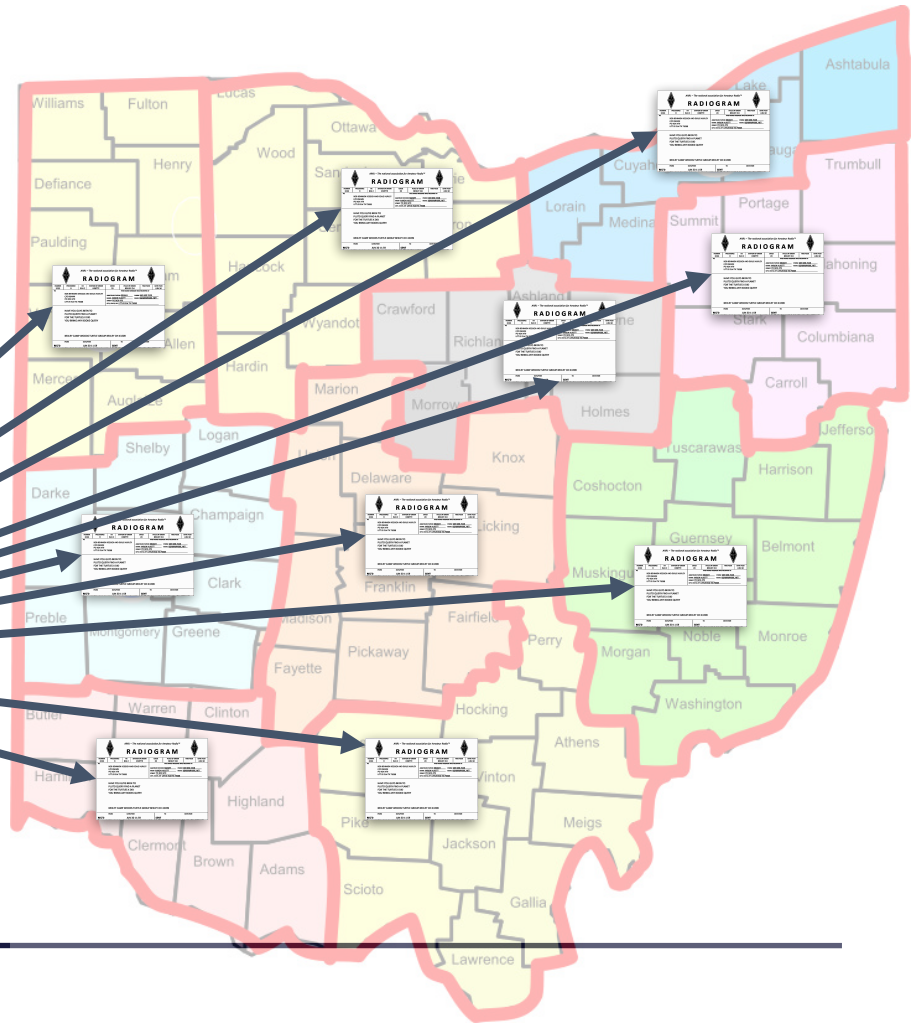
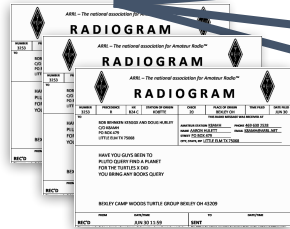
- Individuals—Consider shelters
- NGOs—Consider hospitals
- Agencies—Consider EMAs



Concept: Section Net

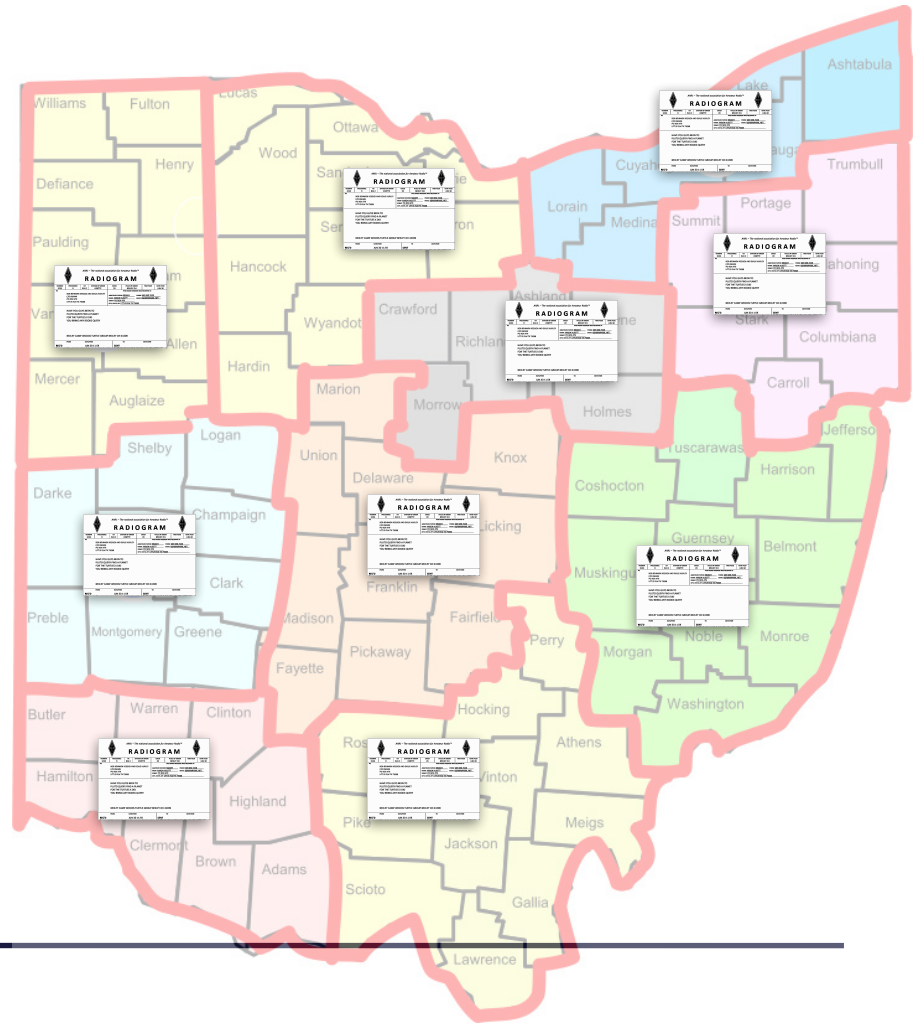
1. Section sends message to each District via a Section Net, where each District has a representative.

So the net is small and can move messages.



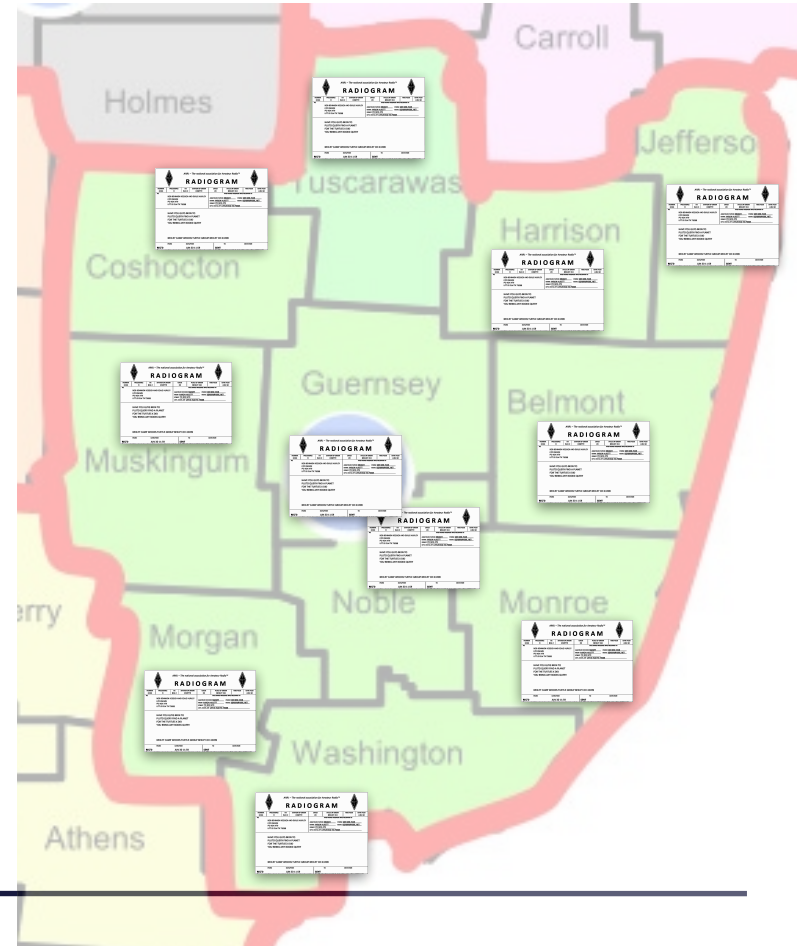
Concept: Section Net

1. Section sends message to each District.
Now each District has it.



Concept: District Net

1. Section sends message to each District.
Now each District has it.
2. Each District sends a message to each County
Now each County has it.



Concept: County Net

1. Section sends message to each District.
Now each District has it.
2. Each District sends a message to each County
Now each County has it.
3. Each County sends a message to the Section.
 - a. Might require ARES to work,
 - b. Organize or act on the county net,
 - c. **EC creates message to Section** because that was the instruction in message from DEC to EC. Could in other cases be to neighboring county EC, etc.



How do we get the response back, for any message going out of county, where the addressee isn't on this net?

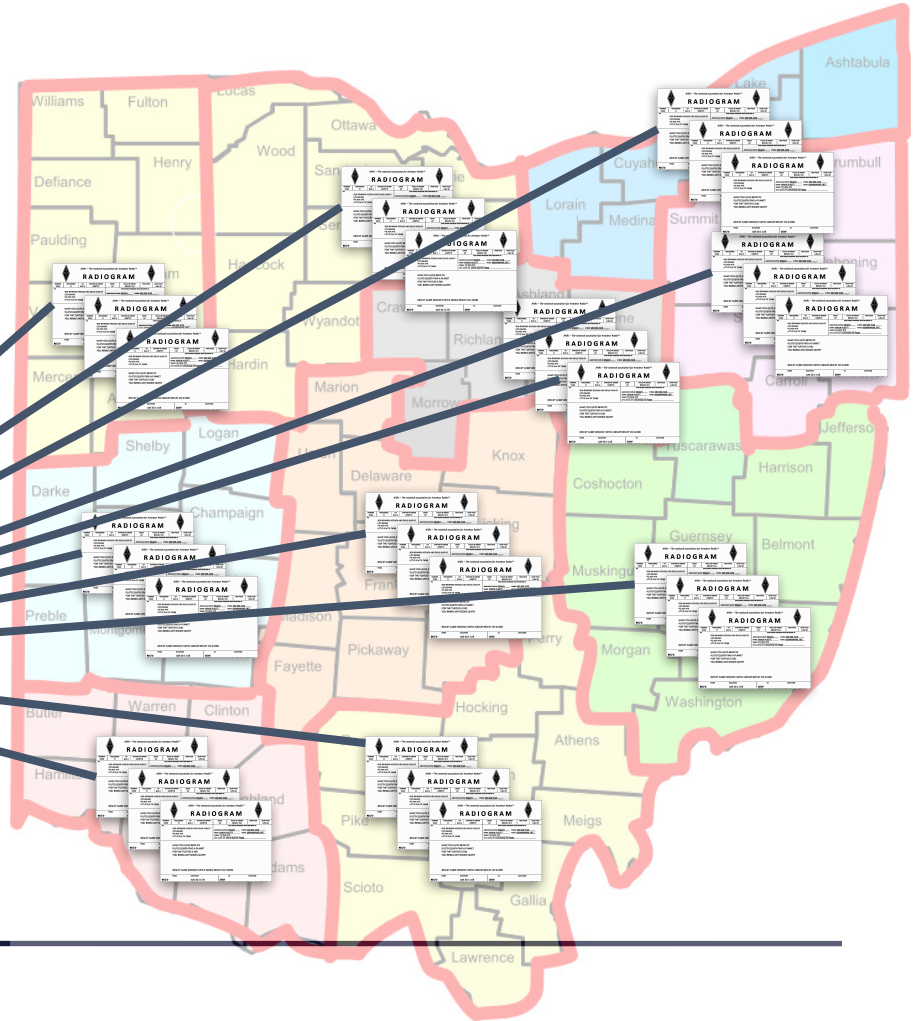
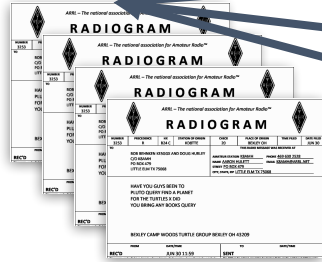


Concept: Back to the Section Net!

5. District Net rep joins Section Net
Sends message to outlet for addressee

Works whether the addressee is on the session, or there's a rep instead.

Works any time; nets meet daily, and messages can relay when ready.



ID: AS-MD-d674af12-64ed-4e86-ad0b-cd90b4c6ab21b, Sender: fema.ipaws.lab@gmail.com, Sent: 2020-09-30T1700:, Status: Actual, msgType: Alert, Source: AlertSense, Scope: Public, Language: en-US, Event: Local Area Emergency Warning, Urgency: Immediate, Severity: Extreme, Certainty: Observed, Effective: 2020-09-30T1700, Expires: 2020-10-03T1700, SenderName: IPAWS Lab, Headline: TEST ONLY Black Swan IPAWS Message from FEMA Transmitted over High Frequency Radio TEST2,TEST2,TEST2, Description: Internet Brownouts Affecting Internet and Phone Service Quality, Heaviest Impact in Metropolitan Areas. Public Service Radio Reliability Degrading. Public Asked NOT to Attempt Internet Video Services, AreaDesc: Charles County



How Performance Relates to Preparation

Ohio ARES County Information Report Project 20 Dashboard

FINAL Status as of 121454 September 2020 FINAL

Project Concept of Operations: <https://docs.google.com/document/d/1IOOchjz052K1-dDb79Vxz1c0k>

	ARES District										NTS Level			
	1	2	3	4	5	6	7	8	9	10	Local	District	Section	
Objective 1 Capability Survey 3 July Due 12 July	40%	50%	25%	60%	50%	80%	60%	33%	100%	60%	60%	100%	100%	
Objective 2 Issued 9 July Due 15 July	30%	0%	0%	20%	0%	20%	30%	0%	100%	20%	80%	100%	75%	NTS Obj 2 Issued 12 July Due 15 July
Objective 3 Issued 16 July Due 23 July	50%	0%	0%	20%	0%	20%	40%	0%	100%	20%	20%	100%	50%	NTS Obj 3 Issued 18 July Due 23 July
Objective 4 Issued 23 July Due 30 July	50%	0%	0%	20%	0%	20%	50%	0%	100%	20%	40%	100%	75%	
Objective 5 Issued 30 July Due 6 Aug	70%	0%	0%	20%	17%	60%	40%	0%	100%	20%	80%	100%	75%	
Objective 6 Issued 6 Aug Due 13 Aug	70%	0%	0%	0%	33%	40%	50%	100%	100%	20%	80%	0%	50%	
Objective 7 Issued 13 Aug Due 20 Aug	80%	0%	0%	40%	0%	0%	40%	0%	100%	20%				No NTS Objective 7
Objective 8 Catch Up	56%	7%	4%	26%	14%	34%	44%	19%	100%	26%	60%	83%	71%	Reporting Average

Unique Messages Relayed By ARES District

D6	D9	D10	Total
1	5	4	6

Messages Relayed by ARES District

D6	D9	D10	Total
2	46	30	78

Performance Compared to Other Years, Places

IPAWS Messages Relayed to County Station, RF Only, by ARES District, 2020

D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
0	0	0	0	0	2	0	0	46	30

IPAWS Messages Relayed to County Station, RF Only, Ever Before

Ohio	Region 8	Eastern Area	Anywhere
0	0	0	0



Wherever We Are Is a Start

Understand where you are.

Do you work independently?

For individuals?

Do you work for NGO?

Do you work for agency?

Understand (or define!) your mission.

What does the organization do?

Do you communicate to support operation?

Is communication the operation?

Train to the mission.

Vague “out of the woodwork” and “we have a license” and “I already know this” just will not fly anymore.

Must demonstrate capability and reliability—viability!



“When all else fails”
is a promise.



Thank You!

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