Amateur Radio Emergency Communications

A R E S

Amateur Radio Emergency Service

IMS For Amateur Radio

Why Not Use ARCT

Amateur Radio Communications Team

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What Is ARCT

- ARCT (Amateur Radio Communications Team) is a proposed system for classifying the capabilities of teams of volunteer amateur radio operators based on a set of four ICS-IMS resource types.
- The ARCT solution was developed by US Amateurs as a proposal for the Department of Homeland Security (DHS), in response to Amateurs interpretation of the DHS National Incident Management System (NIMS) requirements. The two key requirements focused on are;
  1. All resources must be catalogued by type, so a manager can pick resources from the catalogue.
  2. All volunteers must have as much NIMS training as possible.
- There are several versions of ARCT documented on the Internet, with minor variances in the proposal.

Purpose of Resource Typing

From the FEMA Website;

- **Q: What is the purpose of resource typing?**
- **A:** Resource typing enhances emergency readiness and response at all levels of government through a system that allows an already overwhelmed jurisdiction to augment its response resources during an incident. Standard resource typing definitions help responders request and deploy the resources they need through the use of common terminology. They allow emergency management personnel to identify, locate, request, order, and track outside resources quickly and effectively and facilitate the movement of these resources to the jurisdiction that needs them.
- "…help responders request and deploy the resources they need."

FEMA Definitions

Kinds of Resources

- Describe what the resource is (e.g., medic, firefighter, Planning Section Chief, helicopters, ambulances, combustible gas indicators, bulldozers).

Type

- A classification of resources in the ICS that refers to capability. Type 1 is generally considered to be more capable than Types 2, 3, or 4, respectively, because of size, power, capacity, or, in the case of Incident Management Teams, experience and qualifications.

Example Resource List

PRIMARY MOBILE SUPPRESSION RESOURCES

(Minimum ICS Standards)

RESOURCE	RADIO CALL	COMPONENTS	TYPES			
			1	2	3	4
Engine Company	Engine Telesquirt*	Pump Water Tank Hose 2 1/2" Hose 1 1/2" Hose 1" Ladder Master Stream Personnel	1,000 GPM 400 Gal. 1,200 Ft. 400 Ft. 200 Ft. 20 Ft. Ext. 500 GPM 4	500 GPM 400 Gal. 1,000 Ft. 500 Ft. 300 Ft. 20 Ft. Ext. - 3	120 GPM 300 Gal. - 1,000 Ft. 800 Ft. - - 3	50 GPM 200 Gal. - 300 Ft. 800 Ft. - - 3
* Engine with elevated stream capability, specify when requested.						
Truck Company	Truck	Aerial (Specify platform or ladder), Elevated Stream, Ground Ladders, Personnel	75 Ft. 500 GPM 115 Ft. 4	50 Ft. 500 GPM 115 Ft. 4		
Water Tender	Water Tender	Pump Water Tank	300 GPM 2,000 Gal.	120 GPM 1,000 Gal.	50 GPM 1,000 Gal.	

Other Kinds Of Resources

SUPPORT RESOURCES

RESOURCE	RADIO CALL	COMPONENTS	TYPES		
			1	2	3
Illumination Unit	Light	Lighting Units (500 watts each) Extension Cord Specify: Mounted or Portable	6 1,000 Ft.	3 500 Ft.	
Mobile Communi-cations	Comm	• Consoles/ Workstations • Frequency Capability • Power Source • Telephone Systems • Personnel	2 Multi Range*, Programmable Internal 6 Trunk/16 Extension Lines 2	2 Multi Range*, Programmable Internal 2	1 Single Range**, Programmable External 1
* Multi Range: 150-174 MHz, 450-470 MHz, 800 MHz (Simplex and Repeated) ** Single Range: 150-174 MHz only					
Portable Pump	N/A	Pumping Capacity	500 GPM	250 GPM	50 GPM
Portable Repeater	N/A	Frequency Capability*			
* When requesting resource, need to specify frequency requirements.					
Power Generator	N/A	Wattage Capacity Specify: Mounted or Portable	10,000 watts	3,000 watts	

ARCT Resource Types

ARCT is based on a set of four ICS-IMS resource types;

TYPE FOUR: The foundation, a federally licensed amateur radio operator and a vehicle with a vehicle-mounted, or a handheld transceiver, almost always on VHF or UHF frequencies.

TYPE THREE: Two licensed operators, with one or two vehicles. High frequency, shortwave and longwave capabilities are desirable.

TYPE TWO: Field or base station with both short range (VHF/UHF) and long range (HF, shortwave and longwave) voice and digital communications It has its own generator, so it is not dependent on outside power or infrastructure. requires four (or more) licensed operators with one or two vehicles.

TYPE ONE: Full field station (Type Two) with four of the Type Four mobile/portable stations. It is intended to serve one or more agencies, and requires 12 persons including one supervisor and one assistant supervisor. As with the Type Two unit, it is self-sufficient, without requiring outside power or other support.

Pictorial View of ARCT Resource Types

Type 4

Type 3

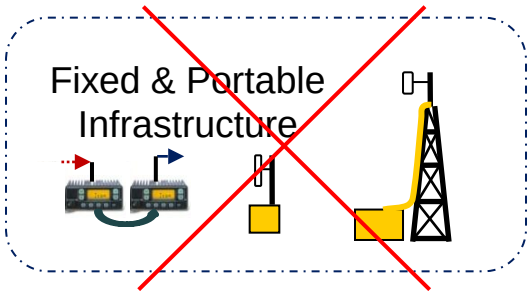
Type 2

Type 1

1 Type 2 + 4 Type 4 +
1 Supervisor + 1 Assistant
Total of 12 People

"Officials" Select From List of 4 Resource Types.

- There is no resource type for a single radio operator without equipment.
- There is no resource type for infrastructure equipment such as a portable repeater.



ARCT Is Incomplete

- The ARCT concept is not a solution to the challenge of managing Amateur radio response to an emergency. **ARCT is not wrong, it is incomplete.**
- ARCT is defined as 4 resource types, which is an incomplete list of the Amateur radio resource Kinds required, which is only part of one piece of ICS/IMS, resource management.
- The 4 ARCT Resource Types describes only one kind of resource, Amateur Teams. There are additional Kinds of resources, including individual Amateurs, repeaters, base stations, portables, cross band repeaters, battery backup, data communications stations, etc.
  - For each Kind of resource, there will be different Types, which define the capabilities for that Kind of resource.

ARCT Assumptions

The ARCT proposal is based on a large set of assumptions on skills, equipment, availability and physical health, with gaps in how long term service delivery is maintained.

1. Assumes radio operators, using Amateur radio equipment and regulations, can be assigned by clients to meet their needs.
   - ❖ Clients typically do not understand the differences in radio bands, and infrastructure, as it relates to solving their current problems.
   - ❖ Assumes a National structure with training and operations standards and a near endless supply of teams.

2. Assumes there is no infrastructure so communications is all simplex (direct station to station).
   - ❖ Direct communications has limited distance for local use and may not meet client needs. Portable infrastructure may be required.

ARCT Deficiencies

3. Vague on how resources are assigned across multiple agencies at different levels, such as National, Provincial, Municipal, NGO, and how shift changes are managed.
   - ❖ Typical descriptions address the highest level of Gov assigning resources for their needs, then no description of what other agencies or NGOs do.

4. Assumes Amateurs have specific training, skill sets and physical capabilities, so they can be deployed interchangeably.
   - ❖ Amateurs are volunteers and come in all age groups, with varying levels of commitment, equipment and physical capability.

5. Does not address radio equipment.
   - ❖ Equipment varies across amateurs from one old portable, to multiple multiband portables, vehicle radios, and vehicle repeater capability.
   - ❖ Some Amateurs will leave their equipment in a site when they change shift. Others expect to remove their equipment when they leave.

ARCT Differences

- Promotes the importance of understanding ICS-IMS to fit into the clients command structure and use their forms. Typically assumes Amateur radio under Logistics Section.
  - ICS-IMS structure easily maps to Amateur radio as a managed service and comes complete with the forms Amateur radio requires, such as communications logs, resource sign in and planning forms. The value of ICS-IMS for Amateur radio is in using it.
- ARCT Resource types contain options in their description which allow for wide variation in capability. For example;
  - ARCT Type 4 allows “vehicle-mounted, or a handheld transceiver”. The capabilities are significantly different with much greater distance for the vehicle radio, but the portable radio is easier to carry, especially inside a building.
  - ARCT Type 3 lists “High frequency, shortwave and longwave capabilities are desirable”, so a Type 3 may or may not have these capabilities.

1st Responder Resource Use

- When we call the fire department, we explain our situation and they send the resources appropriate (heavy rescue, water rescue, pump, tanker, ladder), based on our explanation.
  - ❑ We do not specify the quantity, kind and type of resources required. They are the experts.
- The highest ranking firefighter that is first on scene assumes command and begins an assessment of the situation.
  - ❑ What is the situation? What needs to be done first? Are the resources (equipment and people) en-route sufficient?
  - ❑ Are services from other agencies such as Police and Paramedics required?

1st Responder Resource Use

continued

- From this point, the fire department will ramp up their response. Additional resources may be brought in, either to bring specialized equipment, teams, or more people.
  - ❑ Within the fire department, they do specify the kind and type of resources required.
  - ❑ If Paramedics are required, command requests their services and provides a summary of the situation including an estimated number of people needing help.
- Paramedic services deploys resources to the scene, and does an assessment from their point of view.
  - ❑ What is the situation? What needs to be done first? Are the resources (equipment and people) en-route sufficient?
  - ❑ Within the Paramedic service, they do specify the kind and type of resources required.

Amateur Resource Use

- An incident will be managed by a single Incident Commander and all the agencies are working as a single large team, however, within that large team, are smaller teams which are managed using the expertise of each agency.
- Amateur radio, when requested, would also assess the situation from an Amateur radio communications point of view. Based on that assessment, resources would be requested.
  - If the objective is to activate permanent stations at the EOC and Red Cross, then the only resource required is radio operators.
  - If communications is required within a small area, radio operators with portable radios may be all that is required.
  - If it is a rural area and house to house checks are being supported, then radio operators with mobiles may be required.
  - If it is a large incident, all of the above may be required, along with the use of multiple repeaters, cross band repeaters and many amateurs.

Resource Kind & Type Is Important

- Standardizing resources by Kind and Type is an important step in IMS and the US NIMS to provide standardization of resources.
  - Everyone agrees on the size and voltage of an AA battery, so batteries from different sources can be used interchangeably = Standardization
- Resources are compiled into a common list, so anyone can identify all possible resources, to ensure they can deliver or receive these resource Kinds and Types.
- **Using resources effectively still requires someone with detailed knowledge to use those resources.** Determining which resources to request, comes from the experts in each agency or organization that is part of the Incident Management team.
  - Paramedics typically do not call up Fire or Police kinds and types from a list, because they lack the expertise in these areas. Likewise, Fire and Police would not call up EMS resources.

Summary

- Clients will provide objectives to Amateur Radio, such as “we need to speak from shelter A to the Red Cross office”.
- The client objectives will most likely come from someone within the clients organization who is responsible for support services, not from the Incident Commander, or an EOC director.
- Clients will not provide the strategy for Amateur Radio communications, such as “use VHF repeater ABC for wide area shelter net”.
- Clients will not provide tactical deployment plans, such as “send 2 people to shelter A with a UHF to VHF cross band repeater and 3 UHF portables”.
- Amateur radio IMS must take the objectives and develop a strategy and deployment plan.

Summary continued

- Amateur Radio is no different than other organizations. Resources can be catalogued by kind and type, but **assignment of resources requires someone with expertise in Amateur radio communications** solutions.
- ARCT has become the holy grail for reaching acceptance of Amateur radio. There is a misdirected belief that being documented in a ICS/IMS/NIMS list of resource Types and Kinds, will ensure that Amateur radio is called on for assistance. Much like some believe being written into an emergency plan will “force officials” to call.
- It is ongoing relationships with end users of Amateur radio services that leads to acceptance, and use of Amateur radio in an emergency. These relationships are developed over time, nurtured and maintained, along with working operations plans, on both sides that identify the use of Amateur radio.

Review

- To be added

Answers

- To be added

www.emrg.ca

The EMRG web site provides links to all the IMS documentation and training at;

http://www.emrg.ca/ims.htm

Information: ims@emrg.ca