Amateur Radio Emergency Communications

A R E S

Amateur Radio Emergency Service

IMS For Amateur Radio

Why Not Use ARCT

Amateur Radio Communications Team

Prepared By: Peter Gamble – VE3BQP   Last Change: 2012-01-22   Version: 0.2

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, as well as an Ontario version, with minor variances in the proposal.

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

 or

Type 3

1 or 2 Cars

or

HF = Maybe

Type 2

1 or 2 Cars

or
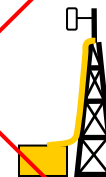
HF Voice & Data

May have more than 4

(G) Generator

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.

Fixed & Portable Infrastructure

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 and addresses only one component of IMS.

- ARCT is based on a single resource **Kind**, the Amateur Radio Communications Team, with 4 resource **Types** (Type 1 to 4).

- There are additional Kinds of resources that are required in an emergency, including individual Amateurs, repeaters, base stations, portables, cross band repeaters, battery backup, or data communications stations. For each Kind of resource, there will be different Types, which define the capabilities for that Kind of resource. Example:
    - Resource Kind: Individual Amateur,
    - Resource Types: Type 1 fully mobile, Type 2 limited walking, Type 3 handicap access required.

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.

   o Clients typically do not understand the differences in radio bands, and infrastructure, as it relates to solving their current problems.

   o 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).

   o Direct communications has limited distance for local use and may not meet client needs. Portable infrastructure may be required.

ARCT Deficiencies

1. Vague on how resources are assigned across multiple agencies at different levels, such as National, Provincial, Municipal, NGO, and how shift changes are managed.

   o Typical descriptions address the highest level of Gov assigning resources for their needs, then no description of what other agencies or NGOs do.

2. Assumes Amateurs have specific training, skill sets and physical capabilities, so they can be deployed interchangeably.

   o Amateurs are volunteers and come in all age groups, with varying levels of commitment, equipment and physical capability.

3. Does not address radio equipment.

   o Equipment varies across amateurs from one old portable, to multiple multiband portables, vehicle radios, and vehicle repeater capability.

   o Some Amateurs will leave their equipment in a site when they change shift. Others expect to remove their equipment when they leave.

ARCT Deficiencies continued

4. Promotes the importance of understanding ICS-IMS to fit into the clients command structure and use their forms, rather than understanding how to use ICS-IMS.

   o Typically assumes Amateur radio under Logistics Section

5. ARCT Resource types contain options in their description which allow for wide variation in capability. For example;

   o 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.

   o ARCT Type 3 lists "High frequency, shortwave and longwave capabilities are desirable", so a Type 3 may or may not have these capabilities.

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.

  o If the objective is to activate permanent stations at the EOC and Red Cross, then the only resource required is radio operators.

  o If communications is required within a small area, radio operators with portable radios may be all that is required.

  o If it is a rural area and house to house checks are being supported, then radio operators with mobiles may be required.

  o 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 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.

Meeting Client Objectives

- 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 that meets client objectives.

Summary

- The ARCT concept places all the responsibility on the client to use Amateur Radio effectively to achieve their goals. Amateur radio simply provides people, radios and licensed frequencies.

  o Amateur Radio must take accountability for service delivery, and by using IMS, can provide significant value to clients and the community.

- Resources should be catalogued by kind and type, but assignment of resources requires someone with expertise in Amateur radio communications solutions, which is typically not the client.

- Taking responsibility and delivering effective communications services is what leads to respect, recognition and acceptance of Amateur Radio within the emergency management community.

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