

# Amateur Radio Emergency Communications



## **A R E S**

**Amateur Radio Emergency Service**

## **IMS For Amateur Radio**

# **IMS Resource Management**

# Resource Management Overview

- Emergency management and incident response activities require carefully managed resources (personnel, teams, facilities, equipment, and/or supplies) to meet incident needs.
- Utilization of the standardized resource management concepts such as typing, inventorying, organizing, and tracking will facilitate the dispatch, deployment, and recovery of resources before, during, and after an incident.
- Resource management should be flexible and scalable in order to support any incident and be adaptable to changes. Efficient and effective deployment of resources requires that resource management concepts and principles be used in all phases of emergency management and incident response.
- <http://www.fema.gov/emergency/nims/ResourceMngmnt.shtm#item1>

# Resource Management

## Overview **continued**

- The resource management process can be separated into two parts: resource management as an element of preparedness and resource management during an incident.
- The preparedness activities (resource typing, credentialing, and inventorying) are conducted on a continual basis to help ensure that resources are ready to be mobilized when called to an incident.
- <http://www.fema.gov/emergency/nims/ResourceMngmnt.shtm#item1>

# Resource Management Cycle



Resource management during an incident is a finite process, with a distinct beginning and ending specific to the needs of the particular incident.

<http://www.fema.gov/emergency/nims/ResourceMngmnt.shtm#item1>

# Amateur Resources

There are 4 classifications of amateur radio resources that are required and must be managed for an emergency;

1. **Radio Operators** - Local group members, Mutual Aid, local and out of town volunteers
2. **Equipment** - Portable, mobile and base station radios, computers, batteries, power supplies, ...
3. **Infrastructure** – Local, portable and cross band repeaters, packet data networks, permanent & portable Winlink nodes
4. **Transportation** – Neighbourhood patrols, moving equipment and people. Client provided or amateur provided.

# People

## The Most Important Resource

- Contrary to most Amateurs claims, Radio Amateurs are no different than the regular population. Only a **small** percentage of licensed Amateurs have an interest in community events or emergencies.
- Within the Amateurs interested in community service, there is a smaller sub set that are committed and willing to take on personal responsibility to be prepared and to help the group be prepared.
- With a limited number of Amateurs available in an Emergency, there must be a plan to ensure efficient use of this limited resource.
- **The biggest challenge is getting enough radio operators.** Radios are not the challenge, since there will be permanent radios at some sites and Amateurs who are willing to lend their radios.
- IMS is an excellent tool to efficiently manage resources.

# Lots Of People Required

- It takes a lot of Amateurs to support a modest deployment.
- If each site has 2 people x 2 shifts, that is 4 people per day. Add on the Director and Command/General staff and there may be another 3 to 4 amateurs per shift.
- Possible sites for a small incident include; EOC, NCS, Red Cross, ESS, Salvation Army, Shelter A, Shelter B, Shelter C, for a total of 8 sites.
- For 8 sites, with 3 amateurs managing and 2 amateurs per site, for 2 shifts, requires 38 people per day. Now add in Hospitals, distribution sites, more shelters, communications with neighbouring Municipalities. The number of amateurs required quickly exceeds the number available. Time for the District Mutual Aid Plan (DMAP).

# Resource Management

- The next slide shows a high level view of available resources and how these are brought together with client requests, to provide solutions to clients through a managed service delivery process.
- Once the service is in place, there is ongoing assessment and feedback, so the solutions can change to meet changing requirements during the incident.
- Resources need to be tracked at different stages of an operation, for different reasons;
  - identify the resources that are available
  - track resources that are assigned, including where they are assigned
  - ensure all resources are released and returned during demobilization
- Resource management and tracking is part of IMS.



# Amateur Radio As A Managed Service

## Resources Available

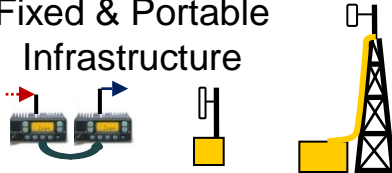
Group Members,  
Local Amateurs &  
Mutual Aid Partners




Group & Volunteer  
Owned Radios



Fixed & Portable  
Infrastructure



Transportation



- Resources available varies depending on the incident, time of day, week and year.
- Clients express their problems in terms of “need to communicate from Site A to Site B”. They do not understand Simplex, Repeaters, HF, etc.
- Radio operators will be the limiting factor in how much communication can be provided.

## Initial Client Assessments

“What would you like to accomplish with radio communications?”

## MANAGED COMMUNICATIONS SERVICE - IMS

Action Plans,  
Operations, Planning,  
Logistics

**Emergency Management  
Priorities & Support**

Client Feedback

ESS  
Red Cross  
Salvation Army  
Hospitals  
Mutual Aid

**Communications Solutions For Clients**

# Resource Forms

- In order to identify, deploy and manage resources, there is a requirement to document information on forms. IMS has many forms related to resources, which may be of use.
- There may be a requirement to create some forms dedicated to Amateur Radio resources, in order to simplify resource management to a minimum number of forms.
- There is a requirement to show an availability component for all resources. How long are they needed, in reverse, how long are they available? (See sample next page)

# People Form

Most Amateurs will have little or no training, so forms must be easily understood. This is not the military where everyone has drilled many times to develop the required skills.

There are many variables in volunteer based organizations. Volunteers are not all equal in their skills, dedication and available time.

The Amateur Radio Resource form is an idea for a simple way to collect information for each individual, regarding their availability, capability and limitations.

Amateur Radio Resources

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This form is used to record information about a volunteer, or to identify the requirements for a position that requires a volunteer.

Name / Location: \_\_\_\_\_ Call Sign: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Contact Info: Phone: \_\_\_\_\_ Cell: \_\_\_\_\_

Emergency Contact: Name \_\_\_\_\_ Phone \_\_\_\_\_

**Positions Willing & Able / Required To Fill:**

Command Staff: Director \_\_\_ Safety \_\_\_ Liaison \_\_\_

General Staff: Operations \_\_\_ Planning \_\_\_ Logistics \_\_\_ Admin Finance \_\_\_

NCS \_\_\_ Radio Operator \_\_\_ Resource Leader \_\_\_ Staging \_\_\_

Logger \_\_\_ Assistant \_\_\_ Other \_\_\_\_\_

**Skills / Requirements Details:**

- Licensed: HF \_\_\_ Basic \_\_\_ No \_\_\_
- Limitations: None \_\_\_ Limited Walking or Stairs \_\_\_  
Handicapped Access \_\_\_\_\_ Operate From Home \_\_\_\_\_  
(If the limitations for a location are not known, assume a resource with no "None" limitations is required)
- Availability: Immediate Y \_\_\_ N \_\_\_ At \_\_\_:\_\_\_ (24 hour) Date \_\_\_\_\_
- Duration: \_\_\_ hours \_\_\_ days  
(How long can you stay/How Long is someone required)
- Transportation: Personal Vehicle Y \_\_\_ N \_\_\_ License Plate \_\_\_\_\_
- Logging (writing): Y \_\_\_ N \_\_\_ Typing: Y \_\_\_ N \_\_\_
- Language: English \_\_\_ French \_\_\_ Other \_\_\_\_\_  
(Must speak the language, writing an asset)

**NOTES:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_ Completed By: \_\_\_\_\_

# Equipment List

- In the same way that information is collected about a volunteer, information must be collected about the equipment available, and required.
- Rather than list everything an Amateur has available, or listing everything a group needing help will require, the equipment can be referenced by Kind and Type.
- For example, an ARES group has requested Mutual Aid and they need a radio station set up at a shelter. Rather than ask for a list of items including radio, power supply, coax, antenna, etc, they can just request a Type 2 VHF Base Station. The requester knows what minimum capability will be provided and the person offering to provide the equipment knows what is expected.

# Equipment Availability

Like the availability of the volunteer, equipment availability will vary.

- Some equipment is permanently installed in sites such as the EOC.
- Some groups have equipment packaged for emergency use.
- Some people will only allow their equipment to be used while they are onsite, and expect to pack it up when they leave.
- Some people are willing to leave their equipment in place for subsequent shifts, and retrieve it later.
- Some people are willing to hand their equipment off to the group, or an individual, no strings attached.

# Resource Kind & Type

- Listing resources by Kind and Type is an important step in IMS, in order to provide effective management of resources.
- Standard resource definitions must be developed first, which are then compiled into a common list of resource Kinds and Types, so anyone can identify all resources in a common way.
- Resource Kind and Type define the minimum that will be provided.
  - For example, a base station could be defined as a 25 watt radio, 6 amp continuous duty power supply, 15 feet of mast,  $\frac{1}{4}$  wave antenna and 100 feet of RG8 coax.
  - Anyone who requests a base station, for example through mutual aid, can expect to meet the minimum capabilities.
  - The actual capability delivered may exceed the capabilities defined for that Kind and Type.

# **NIMS Resource Management**

## **From IS703.A - August 2010**

- The development of typed resources supports the establishment of:
  - Comprehensive, national mutual aid and assistance agreements.
  - Resource management and tracking systems.
- To ensure that responders get the right personnel and equipment, ICS resources are categorized by:
  - Kind: Describe what the resource is (e.g., medic, firefighter, Planning Section Chief, helicopter, ambulance, combustible gas indicator, bulldozer).
  - Type: Describe the size, capability, and staffing qualifications of a specific kind of resource. For instance, a 50 kW (for a generator) or a 3-ton (for a truck).

# Example Resource List

## PRIMARY MOBILE SUPPRESSION RESOURCES (Minimum ICS Standards)

RESOURCE	RADIO CALL	COMPONENTS	TYPES			
			1	2	3	4
Engine Company	Engine Telesquirt*	Pump	1,000 GPM	500 GPM	120 GPM	50 GPM
		Water Tank	400 Gal.	400 Gal.	300 Gal.	200 Gal.
		Hose 2 1/2"	1,200 Ft.	1,000 Ft.	-	-
		Hose 1 1/2"	400 Ft.	500 Ft.	1,000 Ft.	300 Ft.
		Hose 1"	200 Ft.	300 Ft.	800 Ft.	800 Ft.
		Ladder	20 Ft. Ext.	20 Ft. Ext.	-	-
		Master Stream	500 GPM	-	-	-
		Personnel	4	3	3	3

\* Engine with elevated stream capability, specify when requested.

- The Resource Kind is Engine Company.
- There are 4 Types of Engine Company and for each Type, there are very specific minimum requirements for components, such as Pump rate, tank capacity and the lengths of each size of hose.



# Kind & Type Needs Skilled Users

- Using resources effectively requires someone with detailed knowledge to determine which resources to request. This comes from the experts in each agency or organization that are part of the Incident Management team.
- In other words, assignment of resources based on Kind and Type must be done by a competent person. From the Occupational Health and Safety Act for Ontario;
  - “competent person: means a person who,
    - (a) is qualified because of knowledge, training and experience to organize the work and its performance,
    - (b) is familiar with the Act and the regulations that apply to the work, and
    - (c) has knowledge of any potential or actual danger to health or safety in the workplace

# Kind & Type – Amateur Radio

- 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, including equipment, band and license capabilities.
- Clients will not have the knowledge and understanding to define which resources to request. Clients will define objectives, which Amateur radio will use to develop a strategy and tactical deployment plan.
- The use of resource Kind and Type is critical for Amateur radio to implement a tactical plan and to request and deploy resources.
- Mutual Aid requests should be based on resource type and kind, so the requester and the supplier are referring to the same thing.

# Type 2 VHF Base Station

This is an example of a definition for a Type 2 (low duty cycle) base station for VHF that would be used as a temporary station at a shelter.

If an amateur is putting together equipment for a go kit, they would make sure they had these items. If you have less than this, it is not a Type 2 VHF base station.

## Type 2 VHF Base Station

- VHF FM radio, minimum 25 watts
- 12 Volt DC Power supply (minimum 6 Amps 50% duty cycle)
- Coax cable 1 (minimum 30 metres, RG8, or equivalent)
- Coax cable 2 (minimum 10 metres, RG58 or RG8X, or equivalent)
- VHF omni directional Antenna (minimum  $\frac{1}{4}$  wave, 0db gain)
- Antenna mast (minimum 5 metres)
- Antenna Hardware (assorted hardware to install antenna and mast)

# 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](mailto:ims@emrg.ca)