

# PUBLIC SERVICE COMMUNICATIONS

## Resource Typing for Public Service Amateur Radio Communications



Communicator Resource Typing  
and Equipment Requirements

**Amateur Radio is a National Resource**

## How we started

- ◆ Since 1996 we have been trying to make it easier for event coordinators to assign amateur operators to event positions. Early on we identified a couple of categories and began with the concept of Comm Modes. Using the three most common function amateurs perform at events we identified Mode S, Mode B, and Mode M. With NIMS becoming ingrained in amateur radio we evolved to Public Service Resource Types. Now we explore the NIMS world.

# What is Resource Typing?

Resource typing is the categorization and description of response resources that are commonly exchanged in disasters through mutual aid agreements. The Resource Typing Definitions provide emergency responders with the information and terminology they need to request and receive the appropriate resources during an emergency or disaster. They are intended to help make the resource request and dispatch process more accurate and efficient. Resources are classified by 'Category' which refers to function and 'Kind,' to include teams, personnel, equipment, and supplies. Level of capability is referred to as 'Type,' which is a measure of minimum capabilities to perform the function.

# Why Resource Typing?

- ◆ Resource typing definitions provide emergency managers, staging managers, and event coordinators with the information they need to request and receive the resources they need during an emergency, disaster or event.
- ◆ To identify and match communications tasks amateur radio operators typically perform at events and incidents.
- ◆ A means to expedite and match the amateur radio communicator's capability and equipment to a communications assignment.
- ◆ By knowing your resource type when signing-up for an event, things go a lot easier for the coordinator, staging manager, or emergency manager in making assignments .
- ◆ To create a standard across all amateur radio groups.

### 3 Most Common Functions (Types)

- ◆ An Amateur Radio Communicator shadowing an event or incident official – Resource Type S
- ◆ An Amateur Radio Communicator operating from a mobile vehicle – Resource Type M
- ◆ An Amateur Radio Communicator operating from a fixed base or stationary location – Resource Type B
- ◆ These can be considered **Urban Tactical** communications functions.
- ◆ These tasks require a Technician Class license

# Resource Type S - (Shadow Operations)

This resource type defines basic equipment for operation of an amateur radio station as a foot mobile station shadowing an event or incident official.

## Equipment:

- Hand-held, 2 Meter (2M/440 preferred) FM synthesized transceiver with a minimum of 2.5 watts of output power with programmable CTCSS encoder (Preferred) - Type S1 if less than 2.5 watts
- Earphone or Headset attachment (VOX disabled)
- Cigarette lighter power cord and clip lead adapter power cables
- Adapter cable/bracket or "mini-mag" mount antenna for temporary vehicle duty while shadowing.

# Resource Type B - (Base/Rest Stop/Shelter/ Net Control)

This resource type defines basic equipment for portable operation of an amateur radio station as a base or fixed location.

## Equipment:

- 2 Meter (2M/440 preferred) Transceiver capable of at least 25 watts into the antenna ( HT / amplifier combination is a viable alternative)
- Gain antenna (dual band preferred) with mast and support, coax with PL259s at each end, (25' minimum) and PL258 coupler
- Extra coax cables with connectors (RG8X or better preferred)
- External speaker with 1/8" phone plug and/or earphones or headset attachment with VOX disabled
- Duct tape, miscellaneous adapters and comfort items (portable chair and table beneficial)

# Resource Type M - (Mobile/SAG)

This resource type defines basic equipment for portable operation of an amateur radio station in a moving vehicle such as a car, truck, van, or bus.

## Equipment:

- 2 Meter (2M/440 preferred) Transceiver capable of at least 25 watts into the antenna ( HT / amplifier combination is a viable alternative)
- Gain antenna (dual band preferred) with magnetic base and 15' of coax with PL259 connector
- External speaker with 1/8" phone plug and/or earphones or headset attachment with VOX disabled
- Cigarette lighter adapter and clip lead adapter power cables
- Duct tape along with miscellaneous adapters and comfort items



## Specialized Functions (Types)

- ◆ The following are applications of amateur radio not typically used for public service events, but can be used as needed
- ◆ These functions are more useful and needed during an emergency or incident
- ◆ These functions generally require more equipment, somewhat specialized, and user training
- ◆ Some of these functions require advanced amateur radio licenses.
- ◆ The first four digital resource types are typically used on VHF/UHF frequencies

# Resource Type H\_ - (HF) (Strategic Communications)

This resource type defines basic equipment for portable operation of an amateur radio station for long and intermediate range communications. (Non-line of sight)

## Equipment:

- All mode HF SSB D.C. powered Transceiver with tuner capable for portable operation including antenna(s) and associated accessories.
- Preferred bands are 20, 40, 80, and 160 meters
- May need to be NITA compatible
- NVIS capability beneficial
- Must hold General Class license or higher

# Resource Type DA - (Digital APRS)

This resource type defines basic equipment for operation of an amateur radio station as an Automatic Positioning Reporting Station providing the event or incident official(s) with a "view" of resources in real time and includes short messaging.

## Equipment:

- Resource Type B equipment complement
- Computer (laptop or other) with monitor capable of running current amateur radio programs suitable for portable operations (Printer optional)
- APRS software
- Terminal Node Controller (TNC) and necessary cables, accessories, and documentation

# Resource Type DM - (Digital Messaging)

This resource type is similar to Type DA, but intended for digital messaging providing the event or incident officials with traceable messaging and "radio Email" capability. Sub Types for this Type include DMw, capable of Winlink operations and Dmp capable of packet operations.

## Equipment:

- Resource Type B equipment complement
- Computer (laptop or other) with monitor capable of running current amateur radio programs suitable for portable operations (Printer highly recommended)
- Software for digital messaging (i.e., Winlink, packet or other)

# Resource Type DT - (Digital Tracker)

This resource type is used for asset tracking of mobile units as directed by event or incident officials for display tracking on Resource Type DA equipment.

## **Equipment:**

- Self contained pre-packaged portable equipment unit containing 2M transceiver, antenna, Global Positioning Satellite (GPS) unit, APRS tracking encoder, power unit, and necessary external cabling

# Resource Type DN - (Digital Networking)

This resource type is a field deployable 802.11n/a resource used to provide wireless internet access to assist in event or incident communications.

## Equipment:

- Self contained "802.11 repeater" unit functioning as a Bridge/Router/Access Point including antenna
- Minimum of 50' Cat 5 cable and POE interface
- Wired/wireless access point unit.
- Associated support equipment (i.e., Mast, aiming device, extra CAT5 cable, jumpers, etc.)

# Common Items

General items common to all resource types to be included in equipment complement.

## Equipment:

- Writing material (pen, pencil, writing pad, and message forms)
- Short duration personal support gear (Rain Gear/comfortable footwear) (Optional for special events)
- Portable power source providing at least 12 hours of typical operating
- Copy of amateur license and Badge
- Transceiver operating instructions or summary guide
- All connectors RACES/ARES standardized

*This guide is for radio equipment and does not include general personal or 24/72 hour kit items.*

# PORTABILITY

With resource types the assumption is made that the need is for field expedient or portable operation.

If the resource type is not portable, such as a home station or one permanently installed in a vehicle, the modifier “/F” for fixed will be affixed to the type identifier. (i.e., Type M/F) This indicates the resource type is permanently installed in the operator’s vehicle.



# Using Resource Types

Dallas Area RACES

"BLMRS" card used at  
Staging Intake asks  
for Resource Type(s)

Resource Information

CALLSIGN	QUALIFIER	<b>BLMRS</b>
FIRST NAME	LAST NAME	CELL PHONE
LOCAL FREQUENCY	AVAILABLE UNTIL	PAGER
<b>ADDITIONAL INFO:</b>		
<b>VEHICLE:</b>	TAG	STATE
	MAKE	TYPE
		COLOR
<b>EMER:</b>	PHONE NUMBER	NAME
		RELATIONSHIP
aa5pk	March 19, 2003	

Additional Resource  
Information

# Using Resource Types

Collin County ARES

"T-Card" used for Staging Area intake ask for Resource Type(s)

License Class

Resource Type

Qualifiers to The resource type

Call:	Lic Class:	Type:	Qualifiers:
Last Name:	First Name:		
Cell No:	Pager No:		
Home Email:	Winlink Email: @winlink.org		
<b>Circle Your Resource Types (if you know)</b>			
S M B H DM DA DT DN			
<b>Circle All That Apply</b>			
Please check any eqpt you can lend or leave in place			
<b>Radio 1</b>	HF --- 2m --- 70cm --- 1.2 GHz	<input type="checkbox"/>	
	BASE --- MOBILE --- HT W2K --- APRS --- DSTAR		
<b>Radio 2</b>	HF --- 2m --- 70cm --- 1.2 GHz	<input type="checkbox"/>	
	BASE --- MOBILE --- HT W2K --- APRS --- DSTAR		
<b>Radio 3</b>	HF --- 2m --- 70cm --- 1.2 GHz	<input type="checkbox"/>	
	BASE --- MOBILE --- HT W2K --- APRS --- DSTAR		
<b>Antennas</b>	NVIS --- MAG MOUNT --- GAIN	<input type="checkbox"/>	
<b>Power</b>	GENERATOR --- SOLAR --- BATTs (A/Hrs _____)	<input type="checkbox"/>	
<b>Mast</b>	(Ft: _____)	<input type="checkbox"/>	
<b>Feed Line</b>	(Ft: _____)	<input type="checkbox"/>	

Resource Information

# The Future

- ◆ Evolve from a Public Service Communications Resource Typing solution into NIMS/ICS Resource Type structure
- ◆ Fitting into the Type I, II, ...IV structure
- ◆ Grouping into Type 'Personnel'
- ◆ If this happens the current terminology may be confusing for non NIMS use - possibly use "PSC Type" for public service use
- ◆ Adoption by RACES/ARES teams across the country as is or with slight modification

# Resource Typing Document (NIMS)

RESOURCE: AMATEUR RADIO EMERGENCY COMMUNICATIONS PERSONNEL (R.A.C.E.S./A.R.E.S.)						
CATEGORY:	Communications, Tactical – VHF/UHF, Emergency Management support	KIND:	Personnel			
MINIMUM CAPABILITIES:						
Component	Metric	TYPE I	TYPE II	TYPE III	TYPE IV	OTHER
Personnel	Staffing	Base Station Communicator	Shadow Communicator	Mobile Station Communicator	Digital Station Communicator	Team Leader
Personnel	Specialization	VHF/UHF FM Base / EOC / Shelter Communications	VHF/UHF FM Shadowing Communications	VHF/UHF FM Mobile Communications	VHF/UHF FM Base / EOC / Shelter Communications	
Personnel	Specialization	Portable operation of an amateur radio station as a base or fixed location.	Operation of an amateur radio station as a foot mobile station while shadowing an event or incident official.	Portable operation of an amateur radio station in a moving vehicle such as a car, truck, van, or bus.	Portable operation of an amateur radio station as a base or fixed location.	Team management and control.
Personnel	Training	Amateur Radio Emergency Communications trained to current RACES requirements.				
Personnel	Duration	NIMS Basic level Responder Certified.				
Personnel	Duration	8-hour Communications Operations. Self sufficient for first 72 Hours.				
Equipment	Communications	2 Meter (2M/440 preferred) Transceiver capable of at least 25 watts into the antenna (HT / amplifier combination is a viable alternative). Gain antenna (dual band preferred) with mast and support, coax with PL259s at each end. (25'	Hand-held; 2 Meter (2M/440 preferred) FM synthesized transceiver with a minimum of 2.5 watts of output power with programmable CTCSS encoder. Standardized cigarette lighter power cord and clip lead adapter power	2 Meter (2M/440 preferred) Transceiver capable of at least 25 watts into the antenna. (HT / amplifier combination is a viable alternative). Gain antenna (dual band preferred) with magnetic base and 15' of coax with PL259 connector.	2 Meter (2M/440 preferred) Transceiver capable of at least 25 watts into the antenna (HT / amplifier combination is a viable alternative). Gain antenna (dual band preferred) with mast and support, coax with PL259s at each end. (25'	Hand-held, 2M/440 FM synthesized transceiver with a minimum of 2.5 watts of output power

# Resource Ordering

Requesting officials are knowledgeable of the situation and the resources. They know exactly what they need and request resources from available lists.

They pick and choose the resources to carry out the mission as they see fit. Although they assign a resource team leader they remain responsible for the specific resource or mix of resources necessary to complete a task.

# Mission Tasking

Mission – An operation that is assigned to a group by an agency

Task – A set of actions which accomplish a job, problem or assignment usually with a time line

Thus...

**Mission Tasking** is specific task to be done by a specialized group within a defined time period

A Public Service Event is a Mission with tasks. i.e., provide logistics and safety communications for an 8 hour endurance run.

# Mission Tasking

Requesting officials may not know the specific resource or mix of resources necessary to complete a task.

This can be especially true with amateur radio communications. In such situations, it may be possible to **mission task**, rather than request specific tactical communications resources. In a mission task request, the mission is described in detail and given a time line.

The mix of resources and support to complete the mission is left to the discretion of the communications group leaders with which the order is placed.

# Mission Tasking

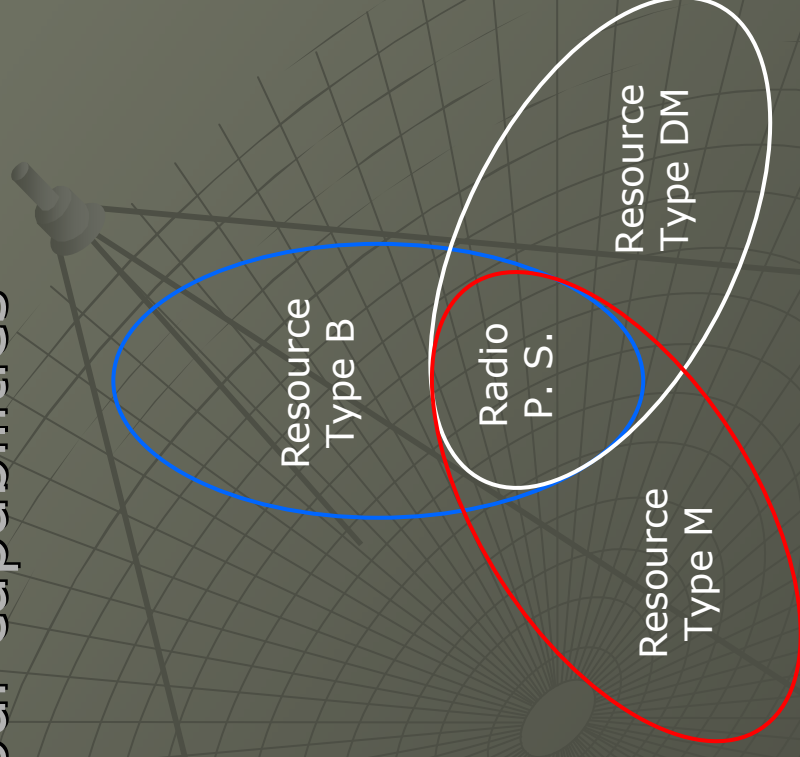
## An Example

For instance; The amateur radio emergency communications group may be asked to provide communications between a number of shelters, hospitals, and the EOC for the duration of an incident. Here we have a mission with tasks. The ARES/RACES leader knows best how to staff the request. They are more knowledgeable about communications resource types and which ones to use to achieve the requesting agencies desired results.



# Tips – Transceiver selection

Planning can minimize you equipment and maximize your capabilities



## References

- ◆ <http://garlandr.s412.sureserver.com/graces/resourcetdata.html>
- ◆ [www.garlandraces.net](http://www.garlandraces.net)
- ◆ IS-703 NIMS Resource Management
- ◆ [http://nimaonline.com/resource\\_typing\\_system/index.htm](http://nimaonline.com/resource_typing_system/index.htm)