



Building a Mutual Aid Communicator Program

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With examples from the Santa Clara County
ARES/RACES Mutual Aid Communicator Program

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Getting Started

The Starting Point

Question:

O.K. We identified some folks who are willing to help out beyond their city limits. Now what?

Answer:

It depends ...

... mostly on the served agency ...

... but there are many things you can do up front so you're prepared to meet most agency needs.

Anticipating Served Agency Needs

- What administrative requirements do they have?
 - Age, identification, registration, background check, ...
- What training requirements do they have?
 - Agency procedures, certifications, ICS, equipment ops, ...
- What communications needs do they have?
 - Voice, data, video, type of duty (field, net control, etc.)
distances, locations, environment, ...
- What skill sets are required?
 - VHF/UHF FM, packet, HF, ...
- What equipment is needed?

Building the Initial Program

- Establish entrance requirements & process
 - Baseline set of capabilities that every responder will have
 - Includes skills, experience, training, equipment, ...
- Establish management and workflow procedures
 - How agencies will request resources
 - How to alert people that they are needed
 - How to activate, dispatch, track, manage responders
- Establish training program
 - Responders must not only be skilled at radio operations, but also skilled at mutual aid procedures

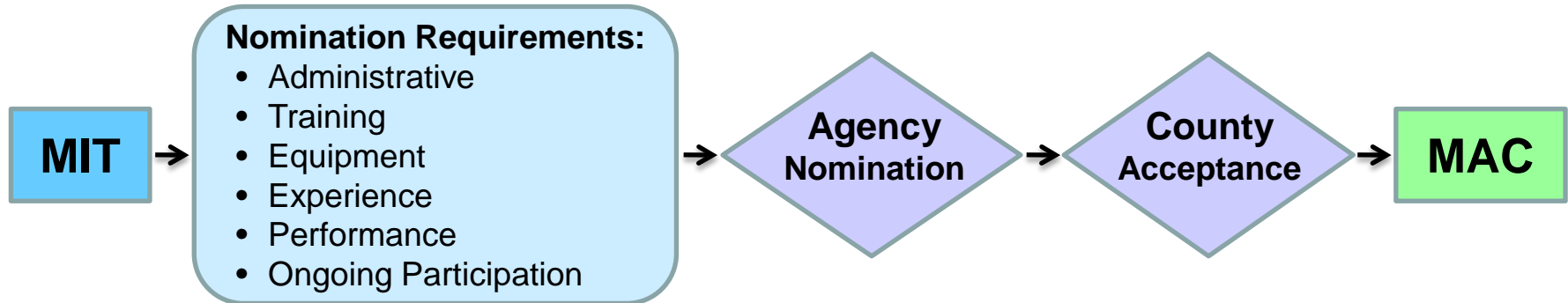
Example:
The Santa Clara County
ARES/RACES MAC Program

Entrance Process

What is an Santa Clara County ARES/RACES Mutual Aid Communicator?

- Amateur radio operator (any license class)
- Willing to be deployed outside his/her own city
 - Typical shift is 8 hrs; be prepared for 12 hrs
- Meets basic/minimum requirements
 - Administrative
 - Training
 - Equipment
 - Experience
 - Performance
 - Ongoing Participation
- Nominated by city Chief Radio Officer, approved by county CRO
- Typically deployed as one of several standardized functions

MAC Program Entrance Requirements & Process



- Candidate is designated “MAC in Training” (MIT) by EC
- Candidate completes nomination requirements
- Emergency Coordinator nominates candidate when ready
- County RACES Chief Radio Officer can accept or decline
- Once accepted, the individual becomes a MAC

Details in the MAC Program Handbook
<http://www.scc-ares-races.org/mac>

Administrative Requirements

- Must be 18 years of age or older
- Valid Technician class or higher Amateur Radio license
- Valid California Driver's license or California State-issued ID card
- Reliable transportation
- Read "SCCo ARES/RACES MAC Program Handbook"
- Read "SCCo ARES/RACES Performance Stds and Best Practices"
- Registered with Santa Clara County as a Disaster Service Worker
- Completed/agree to complete Livescan and background check

Standard Equipment

Santa Clara County ARES®/RACES Go Kit Checklists	Rev: 2009-Oct-17
<p>Legend: X = Required (must have in kit at all times) R = Recommended (likely needed on most assignments) O = Optional (useful on some assignments)</p>	<p>R Extension cord, 3-wire, 3-6 ft., multi-outlet O Extension cord, 3-wire, 50-100 ft. O Power Inverter</p>
<p>2-Hour Carry Kit Purpose: To be kept nearby at all times for immediate (within minutes) communication of damage reports during Resource Net Level 1 ops. Also used to remain in contact with Resource Net Level 2 while returning home to retrieve 12-hour Go-Kit.</p>	<p>Antennas: R 2m/70cm high gain HT antenna X 2m/70cm dual-band magnetic mount antenna R 2m/70cm dual-band portable base antenna (e.g. roll-up J-pole or other) R Portable mast (elevates antenna min. 10 ft.) R Tripod or self-supporting base for mast R Window clip antenna mount X Coax adapters to connect HT to existing antennas: <ul style="list-style-type: none"> • BNC plug (male) & BNC socket (female) • UHF plug (PL-259) & UHF socket (SO-239) • N-type plug (male) and N-type socket (female) </p>
<p>Items: X 2m/70cm dual-band radio <ul style="list-style-type: none"> • HT recommended (min. 5W on 12V/2.5W on batt) • Mobile 25W optional (if vehicle will not be far away) • Programmed with Resource Net frequencies X Charged batteries for 2-3 hours operation X Mobile antenna (mag mount or existing mobile antenna) X Modified Mercalli (Mike-Mike) scale X Notepad / pens R Cigarette lighter adapter R Emergency county and city telephone contact list R Cell phone R Water (16 oz.)</p>	<p>Other Communications Gear: R Cell phone & charger and/or cigarette lighter adapt. O FRS/GMRS Radio O Satellite phone</p>
<p>12-Hour Go Kit Purpose: For fully independent operation; unknown environment (heat, cold, wind, rain); unknown time (day, night, up to 12 hours). Return home to retrieve.</p>	<p>Tools: R Duct tape R Electrical tape R Nylon Tie-Wraps/wire ties R Utility knife R Small multi-tool or tool kit O Volt-Ohm meter O SWR/Power meter</p>
<p>Equipment Portable Radio: X 2m/70cm dual-band handie-talkie (HT) <ul style="list-style-type: none"> • minimum 5W on 12V/2.5W on batteries [Note 1] • dual-receive recommended X Radio user manual or cheat sheet X Earbud or headphones minimum; headset, earbud/mic, or speaker/mic/earbud, or similar recommended R Small backpack, vest, chest harness or other similar method for carrying HT while operating portable</p>	<p>Operating Position: X Sign(s) for operating position R Lighting for operating position R Rope or Dacron cord (50') R Folding chair O Magnetic sign for car O Folding table O Pop-up Canopy O Tarp (8' by 8' or larger) O Folding cart O Safety strobes or flares O Caution/flagging tape (for marking cables, antennas, ...)</p>
<p>Power Source: X Charged batteries for 12 hours (min. 3000 mAh) [Note 2] X Power cord adapters – connect to various power sources: <ul style="list-style-type: none"> • Powerpoles • Cigarette lighter socket • Vehicle battery terminals X Spare fuses R Powerpole splitter or fused distribution panel</p>	<p>Documentation Identification: X CA Driver's license or CA-issued ID card X Amateur Radio license X County DSW card X SCCo-issued ID badge; other city badges</p>
<p>Maps: X Thomas Guide for Santa Clara County X Compass or GPS R Maps of antenna locations (if available)</p>	
Santa Clara County ARES®/RACES	Page 1 of 4

- 2 hr Carry Kit
 - Nearby at all times
 - In car is o.k. if nearby
 - Resource Net Level 1 Ops
 - Damage reports
 - Resource Net Level 2 Ops
 - City net check-ins

- 12 hr Go Kit
 - Fully independent ops for 12 hrs
 - Return home to retrieve

- Extended Kit (optional)

- Recommended for everyone
 - Required for MACs: 2hr & 12hr

Standards of Performance



Santa Clara County ARES®/RACES

Performance Standards and Best Practices

Version 1.0.2 -- Last Revised: 2009-Dec-18

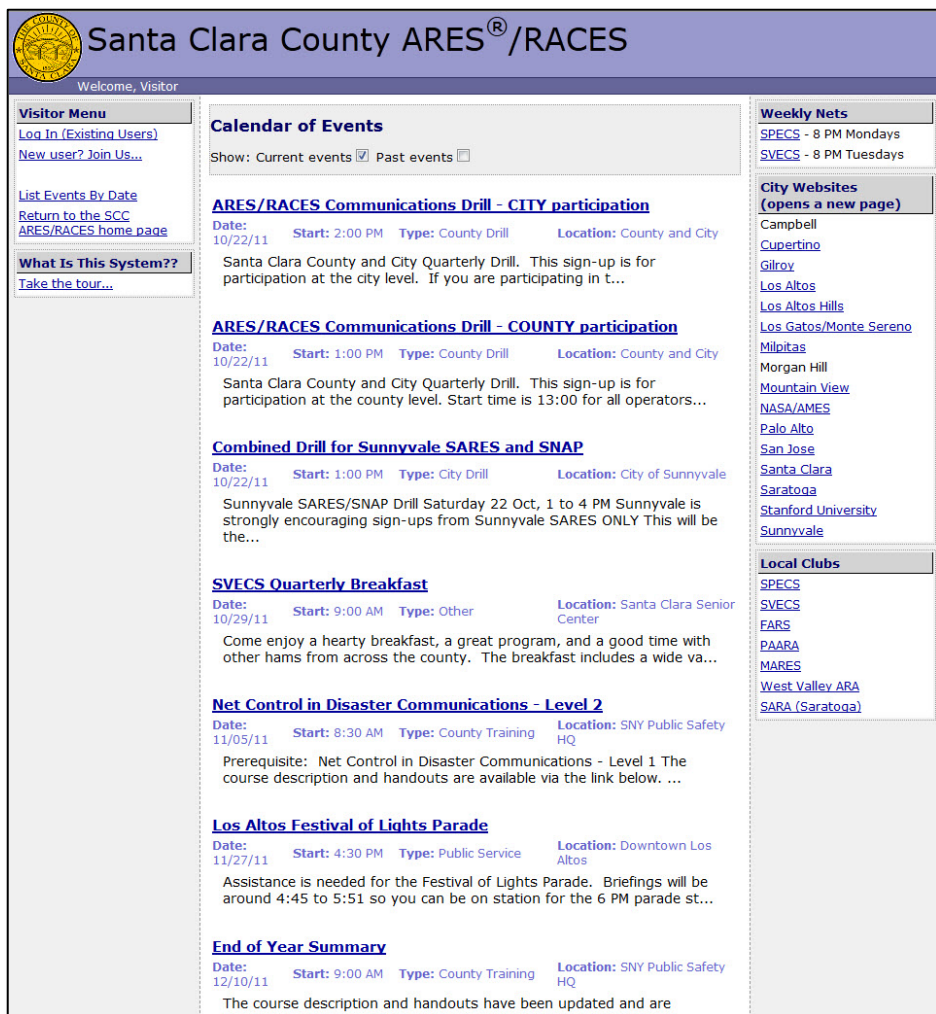
- What are they?
 - An objective set of performance standards for emergency communicators
- Where did they come from?
 - Distilled from county training courses and best practices
- How are they used?
 - Recommended for all
 - Required min. standard for MACs
 - Objective standard for MAC evals

<http://www.scc-ares-races.org/operations.html>

Performance Standards Summary

- **Professionalism**
 - Assignment, team member, served agency, independence, training
- **Communications Technique**
 - Verbal comms, radio technique, written comms, call signs,
- **Safety**
 - Personal safety, fatigue, stress, cold, heat, lightning, floods, land/mudslides, earthquakes, fire
- **Methods and Procedures**
 - County nets, resource net, message passing, maintaining contact, logging and record keeping, served agency protocols, relieve briefings
- **Equipment**
 - Go kit, maintaining control over radio, HT equipment, mobile equipment, packet equipment, HF equipment
- **Documentation**
 - Personal documentation, operations documentation; forms

Training and Experience



The screenshot shows the website for Santa Clara County ARES/RACES. The header includes the county seal and the text "Santa Clara County ARES®/RACES" and "Welcome, Visitor". The main content area is titled "Calendar of Events" and lists several upcoming activities:

- ARES/RACES Communications Drill - CITY participation**
Date: 10/22/11 Start: 2:00 PM Type: County Drill Location: County and City
Santa Clara County and City Quarterly Drill. This sign-up is for participation at the city level. If you are participating in t...
- ARES/RACES Communications Drill - COUNTY participation**
Date: 10/22/11 Start: 1:00 PM Type: County Drill Location: County and City
Santa Clara County and City Quarterly Drill. This sign-up is for participation at the county level. Start time is 13:00 for all operators...
- Combined Drill for Sunnyvale SARES and SNAP**
Date: 10/22/11 Start: 1:00 PM Type: City Drill Location: City of Sunnyvale
Sunnyvale SARES/SNAP Drill Saturday 22 Oct, 1 to 4 PM Sunnyvale is strongly encouraging sign-ups from Sunnyvale SARES ONLY This will be the...
- SVECS Quarterly Breakfast**
Date: 10/29/11 Start: 9:00 AM Type: Other Location: Santa Clara Senior Center
Come enjoy a hearty breakfast, a great program, and a good time with other hams from across the county. The breakfast includes a wide va...
- Net Control in Disaster Communications - Level 2**
Date: 11/05/11 Start: 8:30 AM Type: County Training Location: SNY Public Safety HQ
Prerequisite: Net Control in Disaster Communications - Level 1 The course description and handouts are available via the link below. ...
- Los Altos Festival of Lights Parade**
Date: 11/27/11 Start: 4:30 PM Type: Public Service Location: Downtown Los Altos
Assistance is needed for the Festival of Lights Parade. Briefings will be around 4:45 to 5:51 so you can be on station for the 6 PM parade st...
- End of Year Summary**
Date: 12/10/11 Start: 9:00 AM Type: County Training Location: SNY Public Safety HQ
The course description and handouts have been updated and are

On the right side, there are sections for "Weekly Nets" (SPECS - 8 PM Mondays, SVECS - 8 PM Tuesdays), "City Websites" (links to various cities like Campbell, Cupertino, Gilroy, etc.), and "Local Clubs" (links to SVECS, FARS, PAARA, MARES, etc.).

- Minimum training for MAC entry
 - ICS 100, 200, 700
 - Introduction to Emergency Comms
 - Fundamentals of Emergency Comms
 - ... or equivalent training/experience
- Other training courses
 - Ham crams
 - Advanced classes
- Drills
 - Quarterly (city and county)
 - Advanced
- Public service events
 - Parades, races, festivals, 4th of July, etc.
- Available to EVERYONE!
 - Required min. participation for MACs

<http://www.scc-ares-races.org/activities>

Tracking & Completing the Entrance Process

MAC Candidate Record			MAC Program Entrance Requirements
Name: _____			Call Sign: _____
For specifics of each of these requirements, consult the MAC Program Handbook.			
EC / AEC			Entrance Requirements
Date	Call Sign	Initials	
			Administrative
			18 years of age or older
			Valid Technician class or higher Amateur Radio licence
			Valid California driver's license or State-issued ID card
			Reliable transportation
			Has read "SCCo ARES/RACES MAC Program Handbook"
			Has read "SCCo ARES/RACES Perf. Stds. & Best Practices"
			Registered with Santa Clara County as Disaster Service Worker
			Completed/agree to complete Livescan and background check
			Training
			Santa Clara County Training
			Intro to Emergency Communications (or equivalent)
			Fundamentals of Emergency Comms (or equivalent)
			FEMA Training
			ICS-100 / IS-100 (or city-approved equivalent)
			ICS-200 / IS-200 (or city-approved equivalent)
			ICS-700 / IS-700 (or city-approved equivalent)
			Equipment
			2-hour Carry Kit
			12-hour Go Kit
			Demonstrate personal radio familiarity per MAC handbook
			Experience (recommended)
			Regular weekly SPECS or SVECS and city net check-ins
			At least three quarterly drills
			At least two public service events
			Performance
			Maturity and experience to perform according to "SCCo ARES/RACES Performance Standards and Best Practices"
			Ongoing Participation
			Agree to minimum training and participation requirements

Usage:

- It is the candidate's responsibility to maintain this record
- This document functions as a confirmation of completion of the entrance requirements
- Bring this document with you when you meet with your EC or designated AEC
- Have your EC or designated AEC sign-off on each line item completed
- Retain this document as your personal record in case of error or loss of county records

Santa Clara County ARES®/RACES Rev. 100325

- Candidate
 - Formulates plan with help of EC
- City Chief Radio Officer
 - Designates candidate as MIT
 - Coaches and facilitates
- Candidate
 - Manages own progress
 - Completes "MAC Candidate Record"
 - Submits form to CRO
- City Chief Radio Officer
 - Nominates candidate to CRO
- County Chief Radio Officer
 - Reviews nomination with staff
 - Notifies candidate of acceptance

The Resource Net



- A net dedicated to the management of mutual aid resources
- MACs check into resource net after being released by their city/agency
- The resource net tracks resource availability, makes job assignments, activates and tracks resources as they travel to their assignments

The Result



- A core group of operators, all of whom meet a consistent set of requirements for:
 - Operating skills
 - Experience
 - Performance
 - Equipment
 - Procedural knowledge
- A methodology for assigning and tracking resources

Next Step: Add Resource Typing

Resource Assignment Challenge



- Requesting resources
 - What types of resources are available to request?
 - How to request a specific type of resource?
 - When a resource arrives, what capabilities does he/she have?
- Assigning resources
 - How many resources of type X do we have?
 - How do we identify which resources have which capabilities?
- Using individual knowledge doesn't scale
 - No one person can know everyone's skill level

What is “Resource Typing”?

- From www.fema.gov:
 - Resource typing is categorizing, by capability, the resources requested, deployed, and used in incidents
- Why bother?
 - For ease of ordering and tracking
 - Emergency manager is able to effectively and efficiently request and receive resources through mutual aid

Source: http://www.fema.gov/pdf/emergency/nims/fire_haz_mat.pdf

Resource Typing Applies to Apparatus

Fire Engine (Pumper)

Metric	Type I	Type II	Type III	Type IV
Pump Capacity	1,000 GPM	500 GPM	120 GPM	70 GPM
Tank Capacity	400 Gal.	400 Gal.	500 Gal.	750 Gal.
Hose, 2.5 in.	1,200 ft.	1,000 ft.		
Hose, 1.5 in.	400 ft.	500 ft.	1,000 ft.	300 ft.
Hose, 1 in.	200 ft.	300 ft.	800 ft.	300 ft.
Personnel	4	3	3	2

Fire Truck – Aerial (Ladder or Platform)

Metric	Type I	Type II	Type III	Type IV
Aerial	75 ft.	50 ft.		
Elevated Stream	500 GPM	same		
Ground Ladders	115 ft.	same		
Personnel	4	same		

Source: http://www.fema.gov/pdf/emergency/nims/fire_haz_mat.pdf

Resource Typing Also Applies to Personnel

Example: EOC Operations Section Chief

Metric	Type I	Type II	Type III
Experience, Training, Comprehension	<ul style="list-style-type: none"> • Supervisory role in Ops Section in 3 or more federally declared disaster situations in 3 different states • Organized & supervised subunits in fed or non-Fed declared disaster • Extensive experience and training in ICS 	<ul style="list-style-type: none"> • Supervisory role in Ops in 1 federally declared disaster situation • Org & supervise subunits – non-Fed declared disaster • Experience and training in ICS 	<ul style="list-style-type: none"> • Training and/or experience in Ops for non-federally declared disaster situations • Training in ICS
Equipment	Laptop w/ wireless internet; satellite/cell phone; standardize forms	Laptop w/ internet; satellite/cell phone; standardized forms	Equipment provided by requesting State: laptop, comms, standardized forms

Source: http://www.fema.gov/pdf/emergency/nims/incident_mgmt.pdf

Example:

The Santa Clara County ARES/RACES MAC Program

Resource Typing

Santa Clara County ARES/RACES

MAC Resource Types – Generalized Capabilities

MAC Type	Description of Capabilities
Type I (Specialist)	<ul style="list-style-type: none">• All Type II capabilities, plus• Any type of assignment – most critical, highest traffic• Lead operator for large, complex assignments• Plan, design, set-up and operate multi-freq, multi-operator• Primary resource and liaison for planning of information flow
Type II (Advanced)	<ul style="list-style-type: none">• All Type III capabilities, plus• More advanced/complicated/higher traffic assignments• Lead operator role for small to medium• Higher power, better antenna(s), additional equipment
Type III (Independent)	<ul style="list-style-type: none">• All Type IV capabilities, plus• Dispatched/assigned as individual resource• Capable of fully independent operation anywhere in county
Type IV (Baseline)	<ul style="list-style-type: none">• Mutual Aid Communicator• Baseline training, experience, equipment, skill set
Type V	Licensed Amateur Radio Operator

Santa Clara County ARES/RACES MAC Qualifications at a Glance

Resource	Field Comms	Net Control	Packet	Shadow	HF (future)
Type I	Field Comm I	Net Control I	Packet I	Shadow I	HF I
Type II	Field Comm II	Net Control II	Packet II	Shadow II	HF II
Type III	Field Comm III	Net Control III	Packet III	Shadow III	HF III
Type IV	Mutual Aid Communicator				
Type V	Licensed Amateur Radio Operator				

Requirements by Type

Example: Field Communications

Metric	Type I	Type II	Type III
Prerequisites	<ul style="list-style-type: none"> All Type II req's 	<ul style="list-style-type: none"> All Type III req's 	<ul style="list-style-type: none"> All MAC req's
Training	<ul style="list-style-type: none"> ICS 300 Cross-band Repeating Comms planning (TBD) 	<ul style="list-style-type: none"> Field Ops Level 2 	<ul style="list-style-type: none"> ICS 100, 200, 700 Field Ops Level 1
Experience	<ul style="list-style-type: none"> 8 SPECS/SVECS 8 city nets 1 county drill 1 public service 	<ul style="list-style-type: none"> 8 SPECS/SVECS 8 city nets 1 county drill 1 public service 	<ul style="list-style-type: none"> 8 SPECS/SVECS 8 city nets 1 county drill 1 public service
Equipment	<ul style="list-style-type: none"> Mobile dual-band w/ cross-band repeat DC supply; charger Extended power (>12 hrs) 	<ul style="list-style-type: none"> Mobile dual-band (min. 25w) radio 12 hrs battery power Base antenna, mast, coax, etc. 	<ul style="list-style-type: none"> 2-hr carry kit 12-hr go kit Performance Standards
Knowledge	<ul style="list-style-type: none"> Cross-band repeat setup Managing problems 	<ul style="list-style-type: none"> Radio operations Managing problems 	<ul style="list-style-type: none"> Radio operations Net usage Mike-Mike scale Managing problems

Verifying Performance

- What we know from experience
 - Training attendance is a poor predictor of performance
 - Event participation is a poor predictor of performance
- So, how do the professionals verify performance?
 - Performance reviews
 - Peer reviews
 - Objective standards and documentation

SCCo ARES/RACES MAC Performance Evaluation

Example: Field Communications

Metric	Type I	Type II	Type III
Quality	County Performance Standards & Best Practices	County Performance Standards & Best Practices	County Performance Standards & Best Practices
Activity	Plan, design and set-up field information flow and communications support for an approved country drill, event or incident	<ul style="list-style-type: none"> • Traffic Rate <ul style="list-style-type: none"> • Medium to high • Traffic Types <ul style="list-style-type: none"> • Multiple ICS-213 • Multiple informal • Multi-frequency <ul style="list-style-type: none"> • F1 – full ops • F2 – light duty 	<ul style="list-style-type: none"> • Traffic Rate <ul style="list-style-type: none"> • Low to medium • Traffic Types <ul style="list-style-type: none"> • Min 2 ICS-213 • Min 2 informal
Logs and Records	<ul style="list-style-type: none"> • ICS 201 Incident Briefing • ICS 202 Incident Obj's • ICS 205, 211, 214, 309 	<ul style="list-style-type: none"> • ICS-205 Comm Plan • ICS-211, 214, 309 	<ul style="list-style-type: none"> • ICS-211 Sign-In/Out • ICS-214 Activity Log • ICS-309 Comm Log

- Performance evaluations are held during regularly scheduled events
- In other words, we practice like we would perform at an incident

Peer Review Performed by MAC Evaluators

- Patterned after Amateur Radio “VE” process
- MAC Evaluator requirements
 - Eligibility
 - Amateur Radio operator license; never suspended or revoked
 - Active status MAC; never suspended or revoked
 - Hold at least one Type II qualification
 - Detailed MAC Program Knowledge
 - Performance Standards, MAC Handbook, Evaluator Handbook
 - Evaluator Training
 - Mentored Evaluation
 - Approval
- Evaluator numbers scale up with program size

View and Track Status, Print Credentials

- View color coded qualification status summary
- Drill down to individual details in each qualification
- Print qualification credentials
- City/agency:
 - Simplified reports
 - Rosters include qualifications
 - List of MACs by Qual Area
- County:
 - DSW/Qual dispatch report
 - List of MACs by Qual Area

Santa Clara County ARES®/RACES

Welcome, Michael (N6MEF) (This isn't you? Then [log in...](#))

My MAC Qualification Status

Click on a qualification level in the table below for more information

	F3	H3	N3	P3	S3
E2	F2	H2	N2	P2	S2
E1	F1	H1	N1	P1	S1

Mutual Aid Communicator (MAC)

MAC Evaluator	Field Communicator	HF Operator	Net Control Operator	Packet Operator	Shadow Communicator

[Print Qualification Wallet Card](#) (opens new window)

Color Key:
 Green: Completed
 Blue: Partially Completed
 Yellow: Portions about to expire
 Gray: Not Started

N6MEF
Michael Fox

E1 SEP 2011	F2 SEP 2011	N2 SEP 2011	P2 SEP 2011	S2 SEP 2011
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MUTUAL AID COMMUNICATOR

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<http://www.scc-ares-races.org/activities>

More Info in the MAC Program Handbook

Table of Contents:

- Performance Standards
- How to Become a MAC
- Roles and Responsibilities
- Resource Assignment & Typing
- Advanced Qualifications
- Evaluations
- Recognition
- Advanced Qualification Definitions
- MAC Response Teams
- ICS and NIMS
- Records Management
- Program Management



Santa Clara County ARES®/RACES

Mutual Aid Communicator Program Handbook

Version 1.0.2 -- Last Revised: 2009-Oct-20

<http://www.scc-ares-races.org/mac>

Thanks for your interest today

Michael E. Fox – N6MEF

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MAC Program Info: <http://www.scc-ares-races.org/mac>