Alternate 9-1-1 Update – Field-based Call Taking System

November 3, 2022
Jim Oberhofer KN6PE

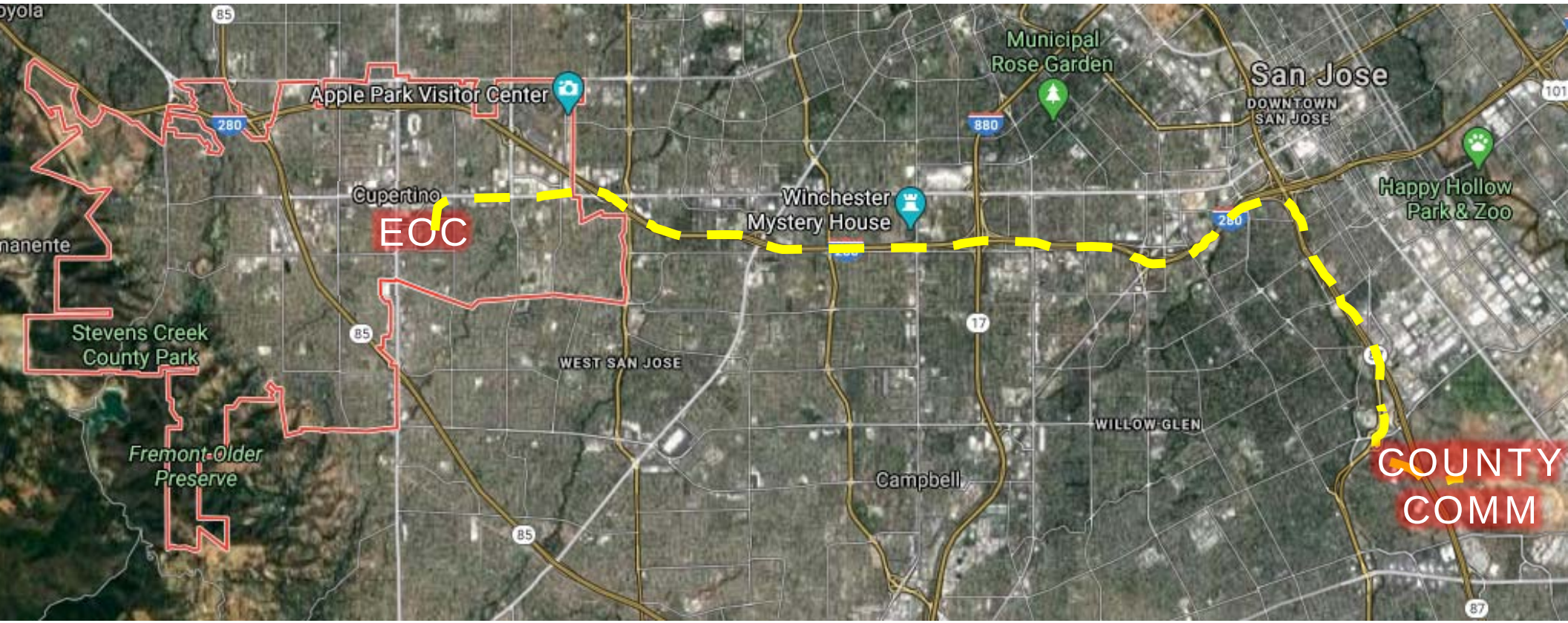
The Situation

- Wide-area and extended power outage (natural disaster, cyberattack, or PSPS), or massive coordinated cable cut (terrorist) leads to loss of communications and impede our ability to call for help.
- West side of Cupertino lost power during the OCT08 PSPS event for ~14 hours; local telephone service was out for about 6 hours.
- In most cities, ARES/RACES can deploy to (i) keep the EOC informed as to what's happening in the community, and (ii) collect requests for help and passes it to their local Dispatch centers.

The Situation

- During the 2009 Morgan Hill cable cut, RACES responders staffed key city locations and their city's Dispatch Center to pass 9-1-1 assistance requests.
- Cupertino, Saratoga, and Los Altos Hills contract with Santa Clara County for all Sheriff, Fire, EMS, and other local dispatch services (after-hours Public Works).
- We cannot easily relay 9-1-1 message traffic because our Dispatch Center is located 12 miles to the east in San Jose.

The Situation



The Situation

Objective

For a resident looking for help, CARES can…

1. ask the right questions,
2. collect enough information, and
3. pass a sufficiently dispatchable event to County Comm

What is a PSAP?

definition: Public-Safety Answering Point (PSAP)

- A call center responsible for answering calls made to an emergency telephone number for police, firefighting, and ambulance services.
- Then, responsible for dispatching these emergency services.

Santa Clara County Comm

1. Santa Clara County operates it's PSAP (County Comm) in San Jose off of Rt 87.
2. Receives 9-1-1 calls and manages them with a Computer Aided Dispatch system.
3. Dispatches all calls for County Fire, Sheriff, and EMS.
4. Requests mutual aid from surrounding jurisdictions as necessary.
5. Dispatches County emergency services in support of mutual aid.
6. 24/7 Operation.

County Comm Operations

- Their operations are divided into 3 "*communities*"
  - Law – Sheriff's Office
  - Fire – County Fire
  - EMS – County Ambulance
- Each *community* can receive calls and dispatch any emergency services.
- Each *community* consists of at least one call-taker and one dispatcher.

County Comm Tools

1. Computer Aided Dispatch
2. Medical Priority Dispatch System
3. Manual dispatch processes

County Comm Tools – CAD

1. Computer Aided Dispatch

- Computer-aided dispatch (CAD) is a method of dispatching taxicabs, couriers, field service technicians, mass transit vehicles and ***emergency services*** assisted by computer.
- System services are typically:
  - Call taking
  - Call dispatching
  - Call status and updating
  - Event notes
  - Field unit status and tracking, and
  - Call resolution and disposition

County Comm Tools – MPDS

2. Medical Priority Dispatch System

- An system to dispatch the appropriate aid to medical emergencies; includes caller questioning and pre-arrival instructions.
- MPDS starts with the dispatcher asking the caller some key questions that allow the dispatchers to categorize the call by chief complaint, and then defines a call identifier including:
  (i) complaint
  (ii) response type, and
  (iii) urgency
- Software and manual modes of operation.

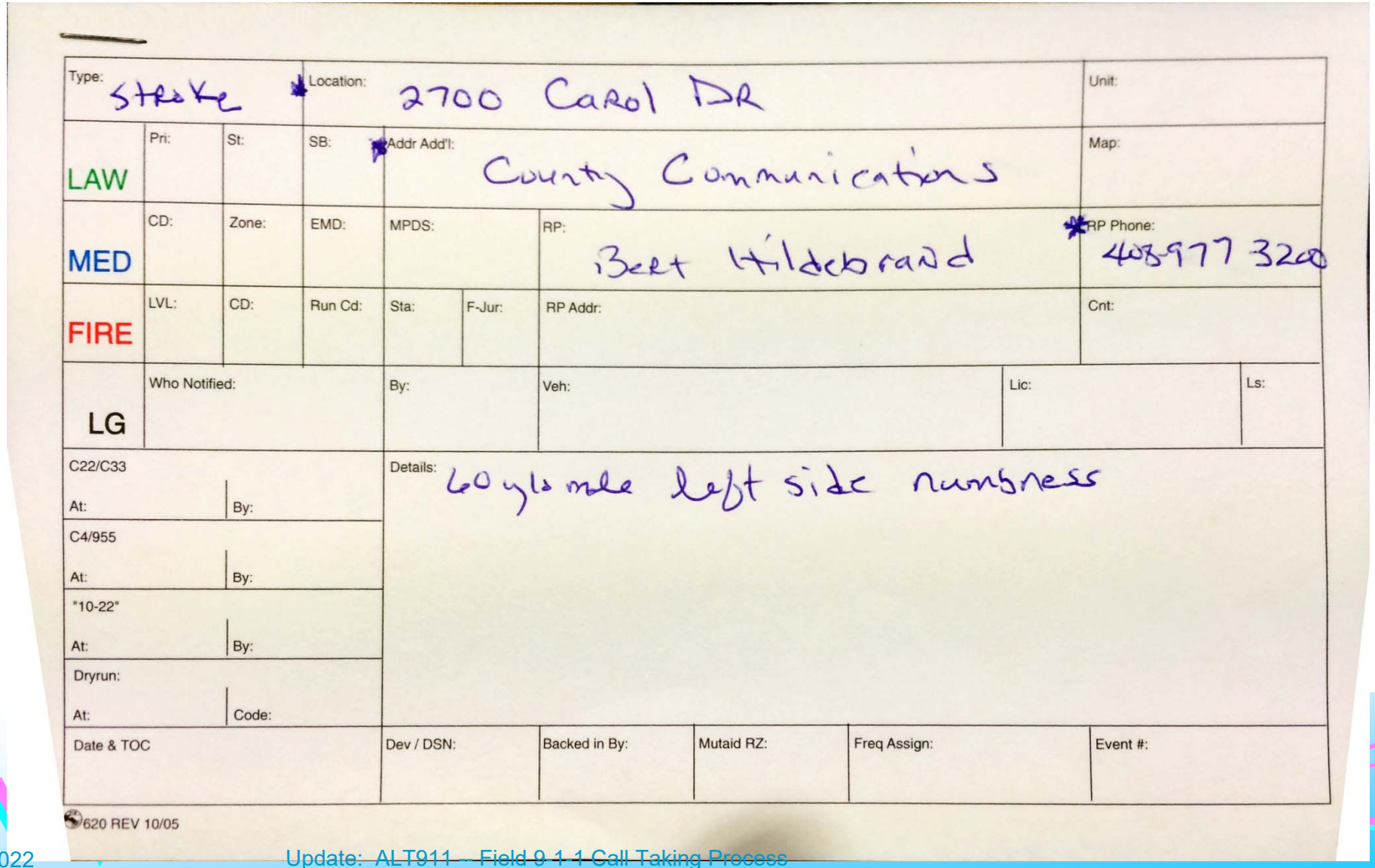
County Comm Tools – Manual

3. Manual Dispatch Process

- County Comm has a backup paper-based process for recording and dispatching calls in the event of a system failure (loss of power or computer problem).
- Although done on paper, the process is essentially the same:
  - Call taking
  - Call dispatching
  - Call status and updating
  - Event notes
  - Field unit status and tracking, and
  - Call resolution and disposition

County Comm Tools

2. Manual Dispatch Process



Type: Stroke			Location: 2700 Carol DR					Unit:
LAW	Pri:	St:	SB:	Addr Add'l: County Communications				Map:
MED	CD:	Zone:	EMD:	MPDS:	RP: Bert Hildebrand			RP Phone: 408-977-3200
FIRE	LVL:	CD:	Run Cd:	Sta:	F-Jur:	RP Addr:		Cnt:
LG	Who Notified:			By:	Veh:		Lic:	Ls:
C22/C33 At:	By:	Details: 60 y/o male left side numbness						
C4/955 At:	By:							
"10-22" At:	By:							
Dryrun: At:	Code:							
Date & TOC		Dev / DSN:	Backed in By:	Mutaid RZ:	Freq Assign:		Event #:	

620 REV 10/05

Where do 9-1-1 requests come from?

- **Landline telephone** – individuals dial 9-1-1 that is routed to their assigned PSAP.
- **Cell phone** – cell towers are linked to specific PSAPs. However, some cell towers may overlap jurisdictions requiring calls to be transferred to the correct PSAP.
- **Other PSAPs** – different levels of automated information handoff exists between neighboring PSAPs to pass a call that belongs to another jurisdiction.
- **Deployed public safety responders** – Fire, Sheriff, and EMS responders can initiate calls from what they observe while deployed.
- **Ham Radio responders** – during catastrophic communications loss, CERT and ham radio volunteers will deploy to field locations and local PSAPs to relay calls from residents needing assistance.

What County Comm needs to know

WHERE?	**Where are you? Where is the incident?**
WHAT?	**What happened?**
WHO?	**Who's involved? Is anyone hurt?**
WHEN?	**When did it happen? Is it going on right now?**
WHY?	**Follow-up questions…**

Ref: https://www.sccgov.org/sites/911/Pages/The-Five-Ws.aspx

What County Comm needs to know

PEOPLE

- How many people involved?
- Who is involved?
- What do they look like?
- What are they wearing?
- What are they carrying?

WEAPON

Any object can be a weapon if it is used in a threatening manner, or causes death or serious bodily injury.

- Name the specific weapon?
- Who has the weapon?
- Where is the weapon?

WHERE DID THEY GO?

- Point of reference.
- Directional guide.

What are we specifically going to do?

Our focus

- **Call taking**
- Call dispatching
- Call status and updating
- Event notes
- Field unit status and tracking, and
- Call resolution and disposition

** ***We will essentially be taking and relaying the call*** **

Background

The Approach

1. Define the minimum information needed by County Comm for dispatch.
2. Automate the data collection process to speed the call taking process, reduce transcription errors, leverage the existing (packet) infrastructure, and deliver a 9-1-1 request to County Comm in a local format.

We recognize…

1. The County Comm 9-1-1 operators go through a 2 year training program before they can function independently.
2. We are not formally trained as 9-1-1 call takers.
3. We will not have the luxury of any interactive follow-up with dispatch once we transmit a request.
4. We do have a tool that can deliver what County Comm needs to dispatch a call.

Our call taking process

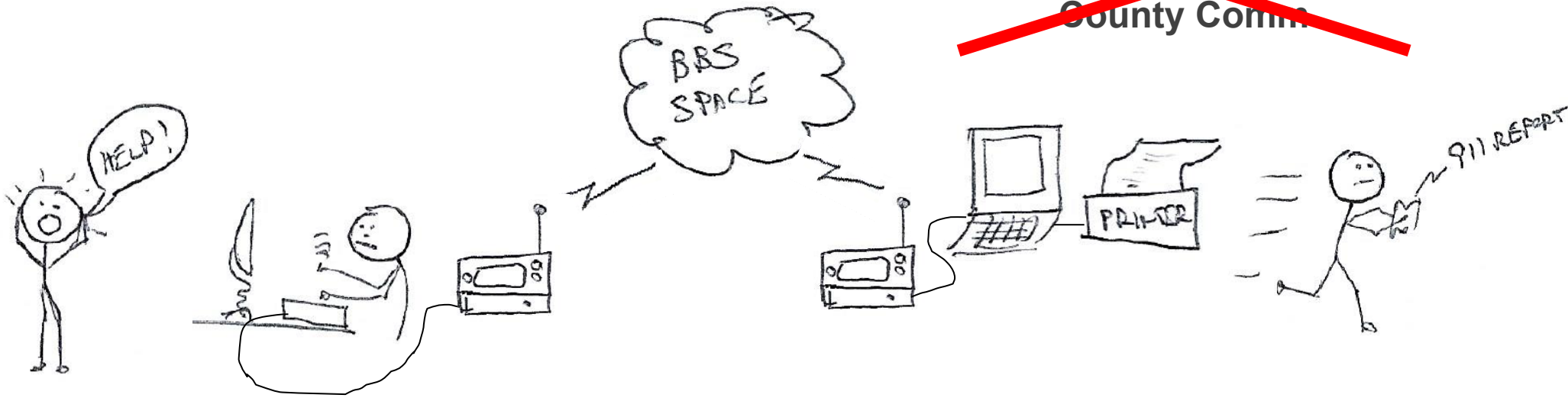
Plan A… Original Plan

Process Steps	WHO	WHERE	HOW
1. A resident arrives with a problem	Resident	Field	
2. We ask the right questions	CARES/CERT	Field	Paper Form
3. We create the message	CARES/CERT	Field	Paper Form/ALT911
4. Hand it off to the Packet Station	CARES	Field	ALT911
5. Address the message to XSC911	CARES	Field	Outpost
6. Transmit the message	CARES	Field	Outpost
7. Receive and print the message	CARES/RACES	PSAP	Outpost
8. Hand off message	CARES /RACES	PSAP	Sneaker-net
9. Creates a dispatchable event	County Comm	PSAP	Dispatch System

The end to end message flow

Plan A… Original Plan

Resident **RACES** ~~**RACES at County Comm**~~



Alt911cts
Opdirect
Outpost

Outpost
Alt911rpt

Where do 9-1-1 requests come from?

Cupertino leveraging existing resources

- **Landline telephone** – individuals dial 9-1-1 that is routed to their assigned PSAP.
- **Cell phone** – cell towers are linked to specific PSAPs. However, some cell towers may overlap jurisdictions requiring calls to be transferred to the correct PSAP.
- **Other PSAPs** – different levels of automated information handoff exists between neighboring PSAPs to pass a call that belongs to another jurisdiction.
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- **Ham Radio responders** – during catastrophic communications loss, CERT and ham radio volunteers will deploy to field locations and local **EOC** to relay calls from residents needing assistance.

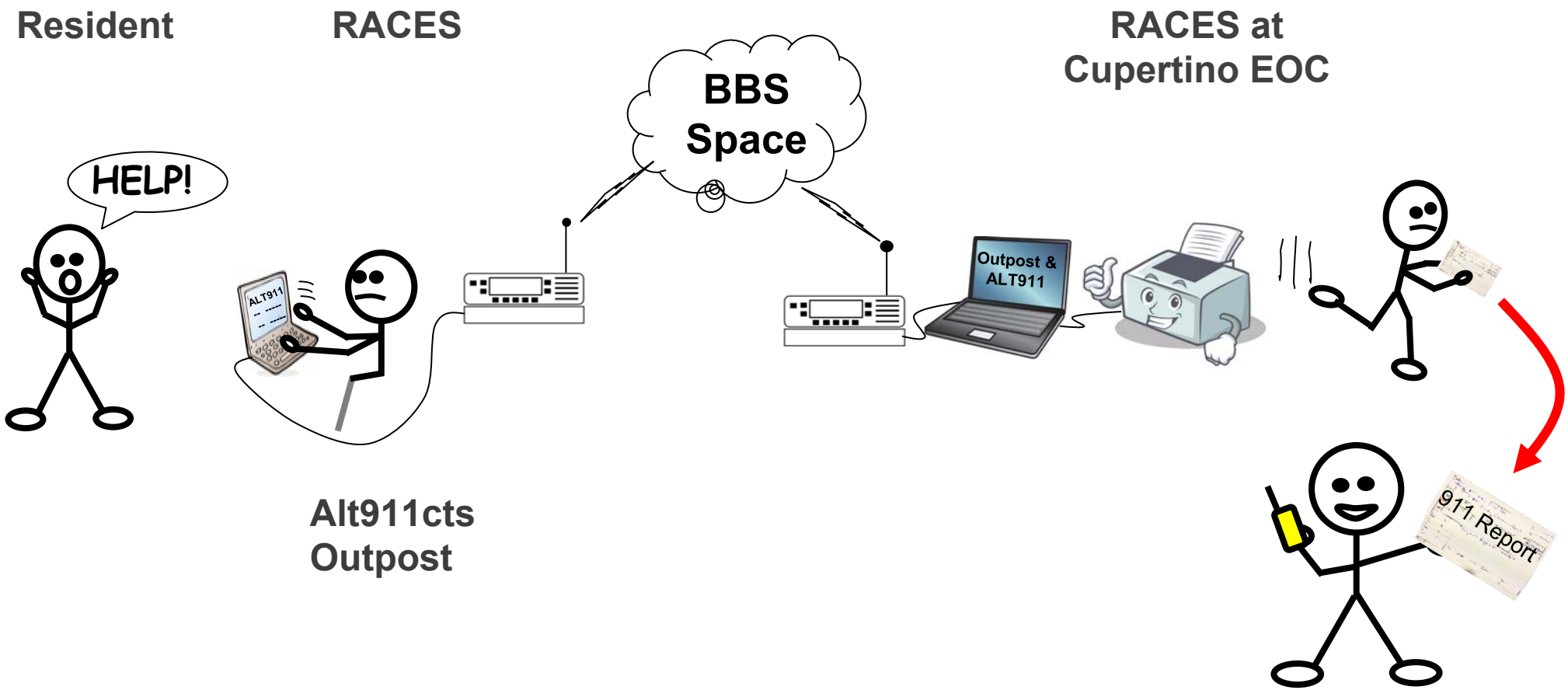
Our call taking process

Plan B… Current Plan

Process Steps	WHO	WHERE	HOW
1. A resident arrives with a problem	Resident	Field	
2. We ask the right questions	CARES/CERT	Field	Paper Form
3. We create the message	CARES/CERT	Field	Paper Form/ALT911
4. Hand it off to the Packet Station	CARES/CERT	Field	ALT911
5. Address the message to **CUP911**	CARES	Field	Outpost
6. Transmit the message	CARES	Field	Outpost
7. Receive and print the message	CARES	CUP EOC	Outpost
8. Hand off message to EOC	CARES	CUP EOC	Sneaker-net
9. Transmit ALT911 to County Comm	Public Safety	CUP EOC	Pub Safety Radio
10. Creates a dispatchable event	County Comm	PSAP	Dispatch system

The end to end message flow

Plan B… Current Plan



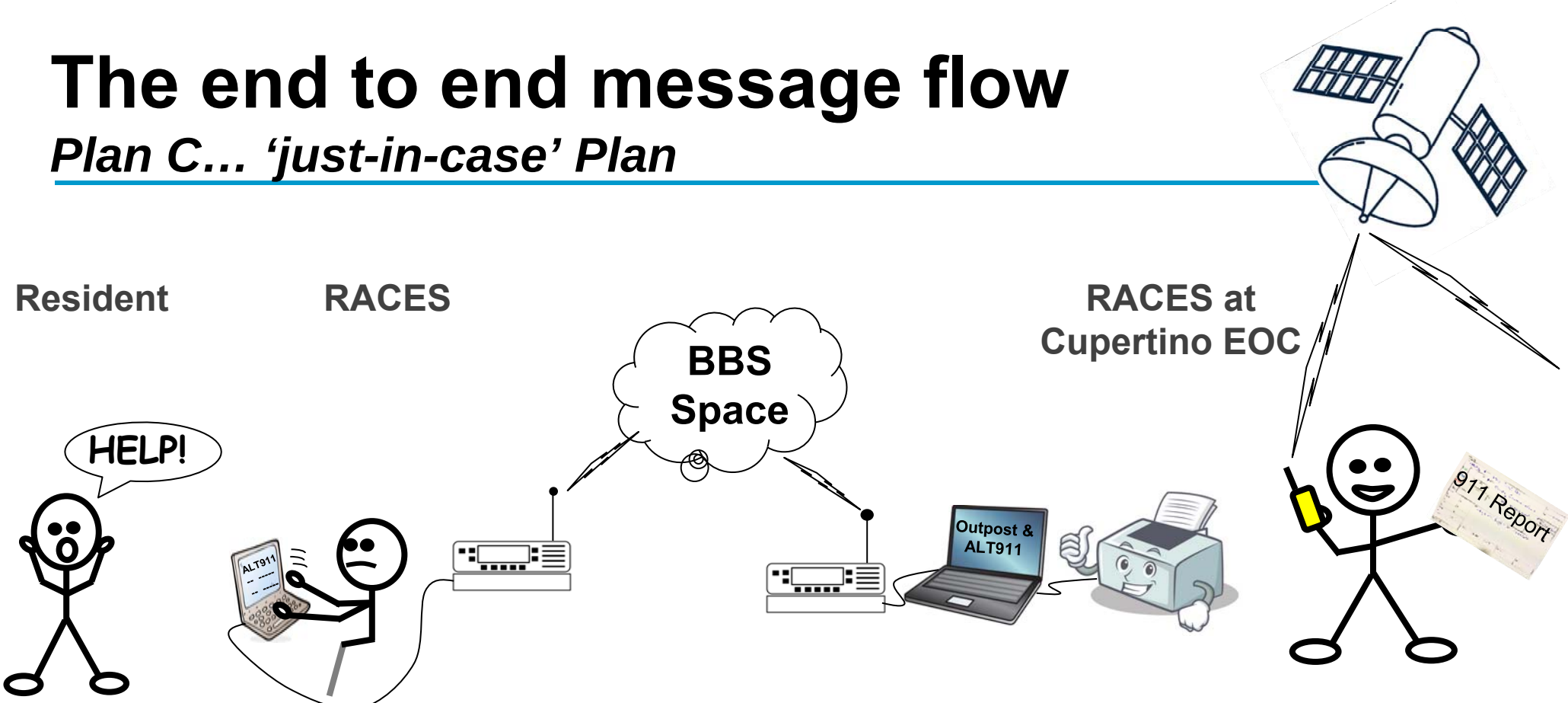
Our call taking process

Plan C… 'just-in-case' Plan

Process Steps	WHO	WHERE	HOW
1. A resident arrives with a problem	Resident	Field	
2. We ask the right questions	CARES/CERT	Field	Paper Form
3. We create the message	CARES/CERT	Field	Paper Form/ALT911
4. Hand it off to the Packet Station	CARES/CERT	Field	ALT911
5. Address the message to **CUP911**	CARES	Field	Outpost
6. Transmit the message	CARES	Field	Outpost
7. Receive and print the message	CARES	CUP EOC	Outpost
8. Hand off ALT911 message to EOC	CARES	CUP EOC	Sneaker-net
9. Transmit ALT911 to County Comm	EOC or CARES	CUP EOC	Satellite Phone
10. Creates a dispatchable event	County Comm	PSAP	Dispatch system

The end to end message flow

Plan C… 'just-in-case' Plan

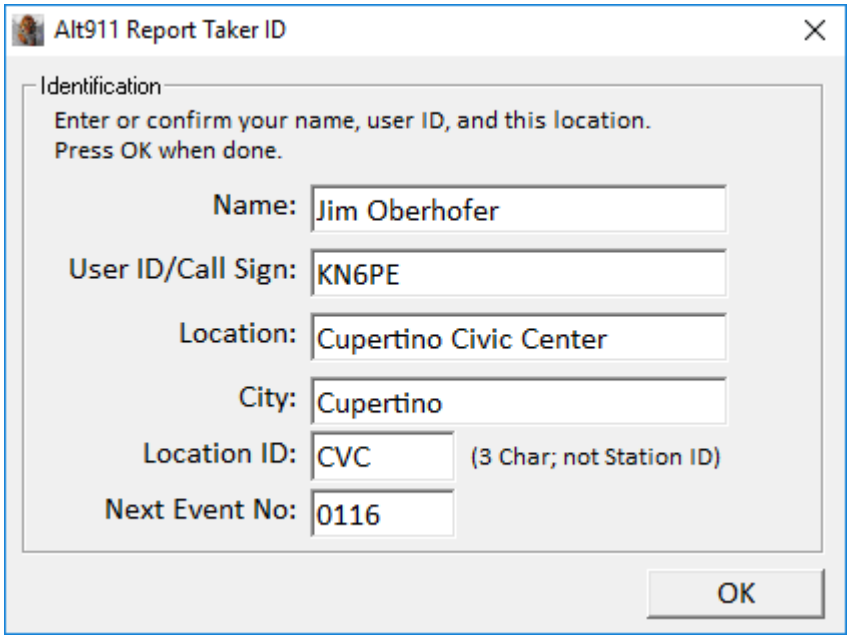


Alt911cts
Outpost

OEM/CARES passes
Alt911 to County Comm
by Sat Phone

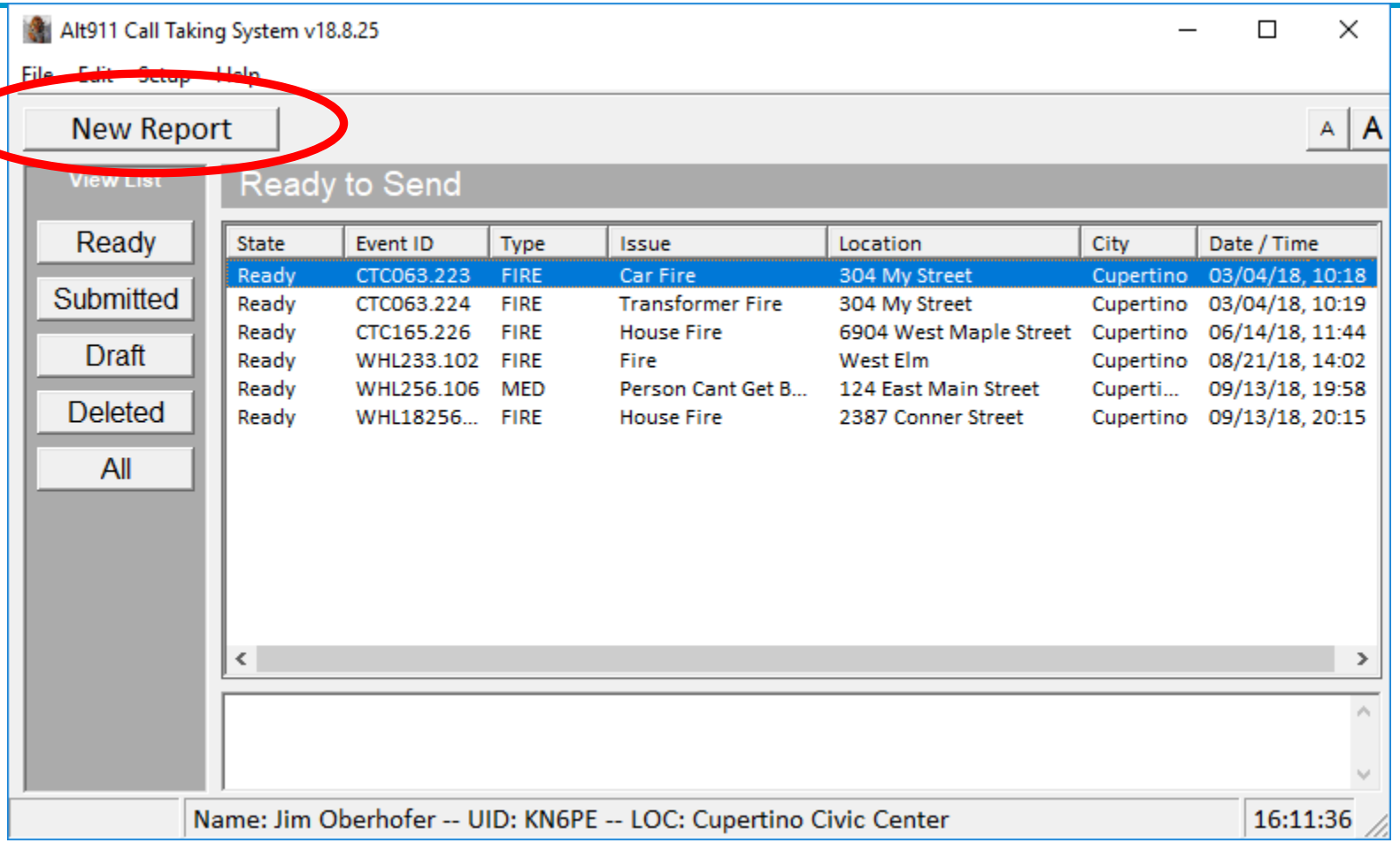
1. Run Alt911cts

1. Run the program
   - Find and click on the desktop icon, or
   - from Outpost: Forms > ALT911
2. Check and update the Identification screen; this describes who you are and where you are.
3. Press OK.



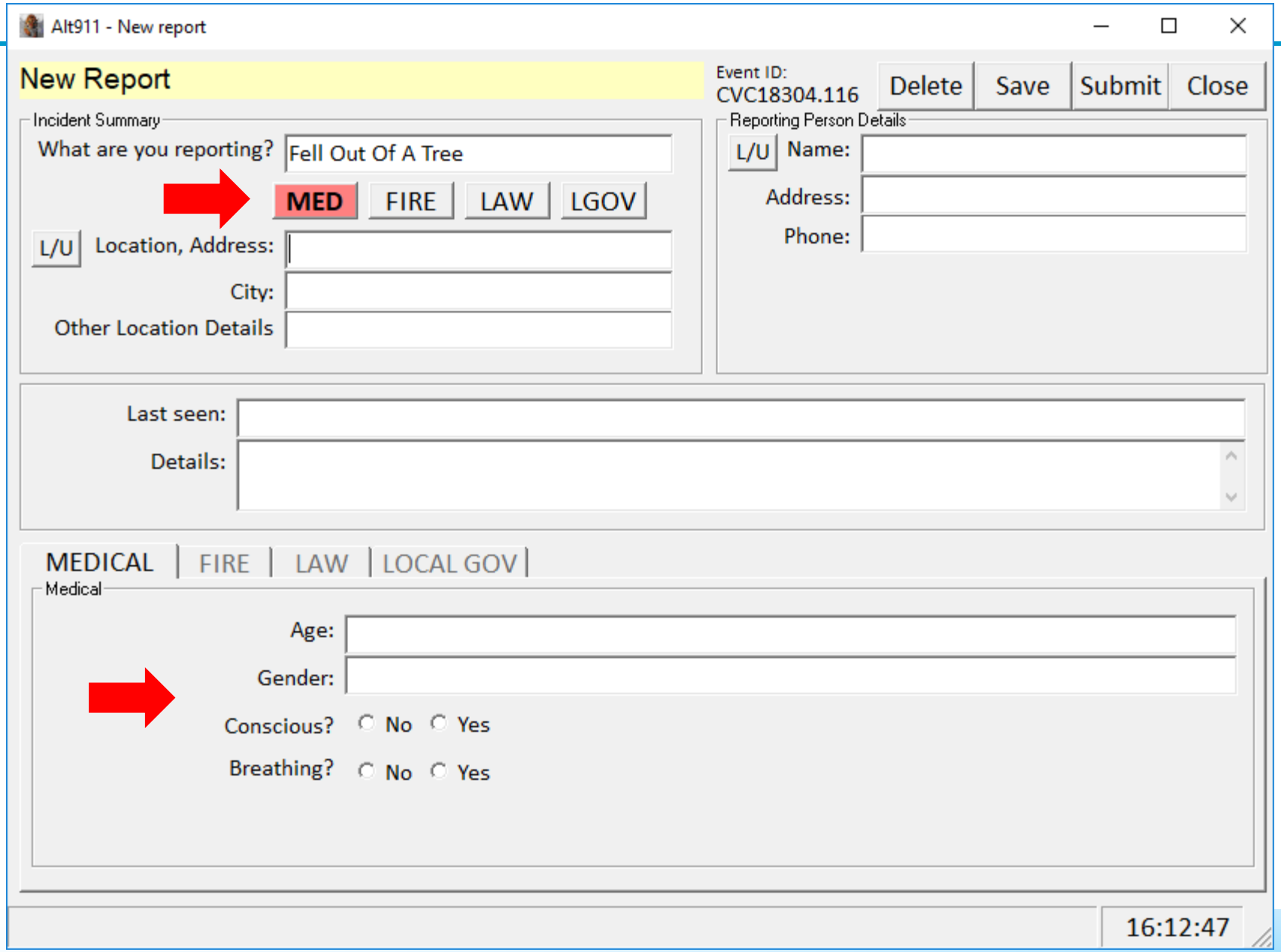
Alt911cts ⇨ Opdirect ⇨ Outpost ⇨ Outpost ⇨ Alt911rpt

2. Alt911 main form



Alt911cts ⇨ Opdirect ⇨ Outpost ⇨ Outpost ⇨ Alt911rpt

3. Taking a MED report (dispatches EMS)



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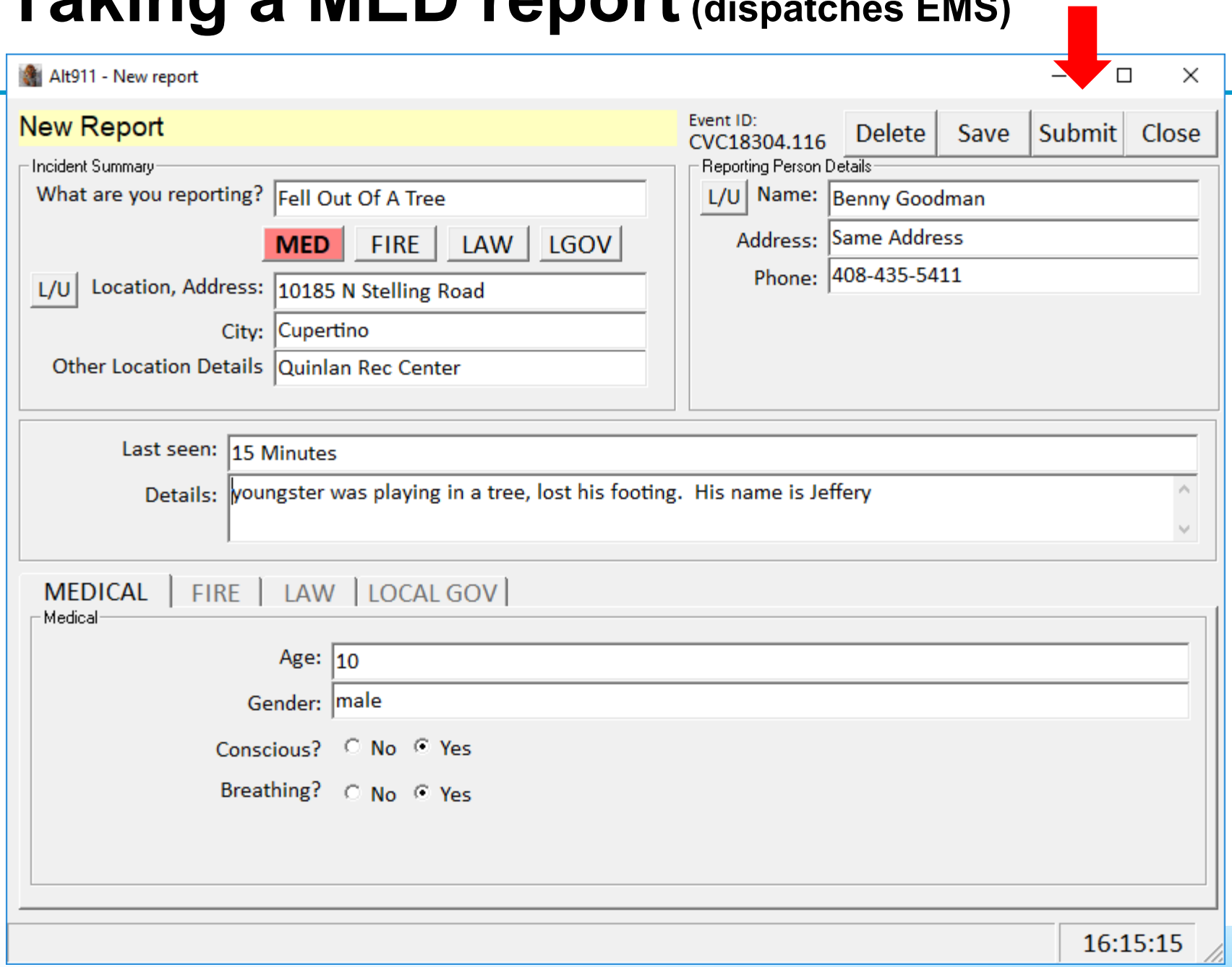
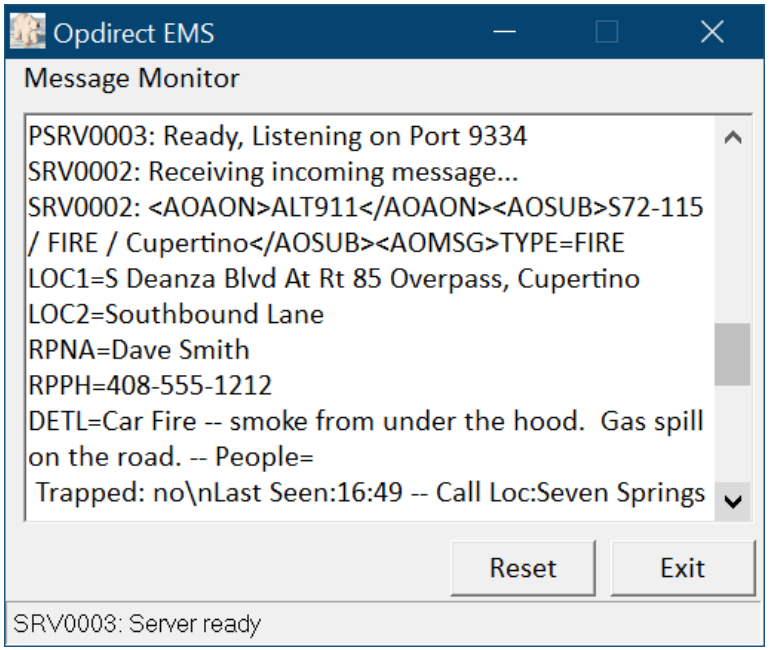
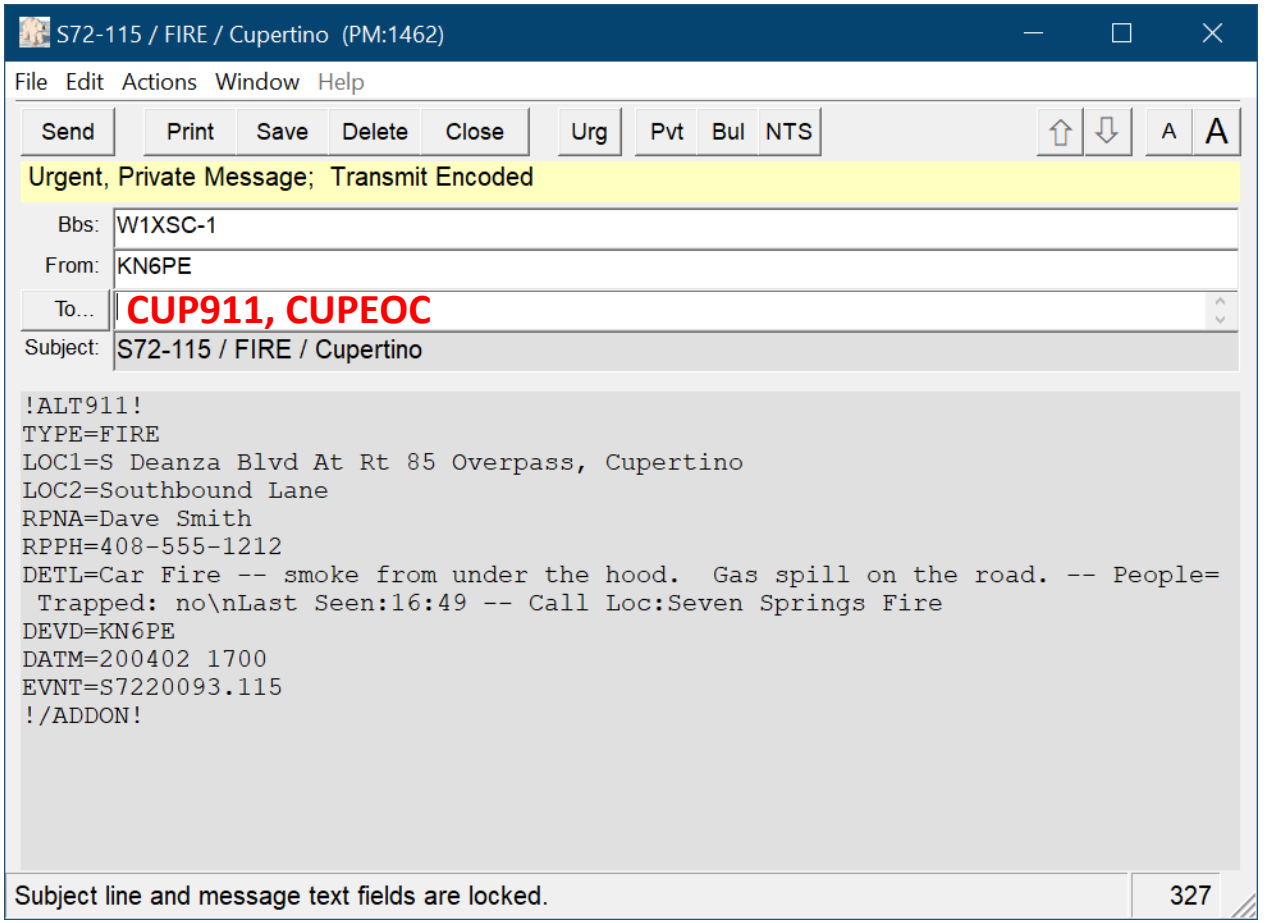


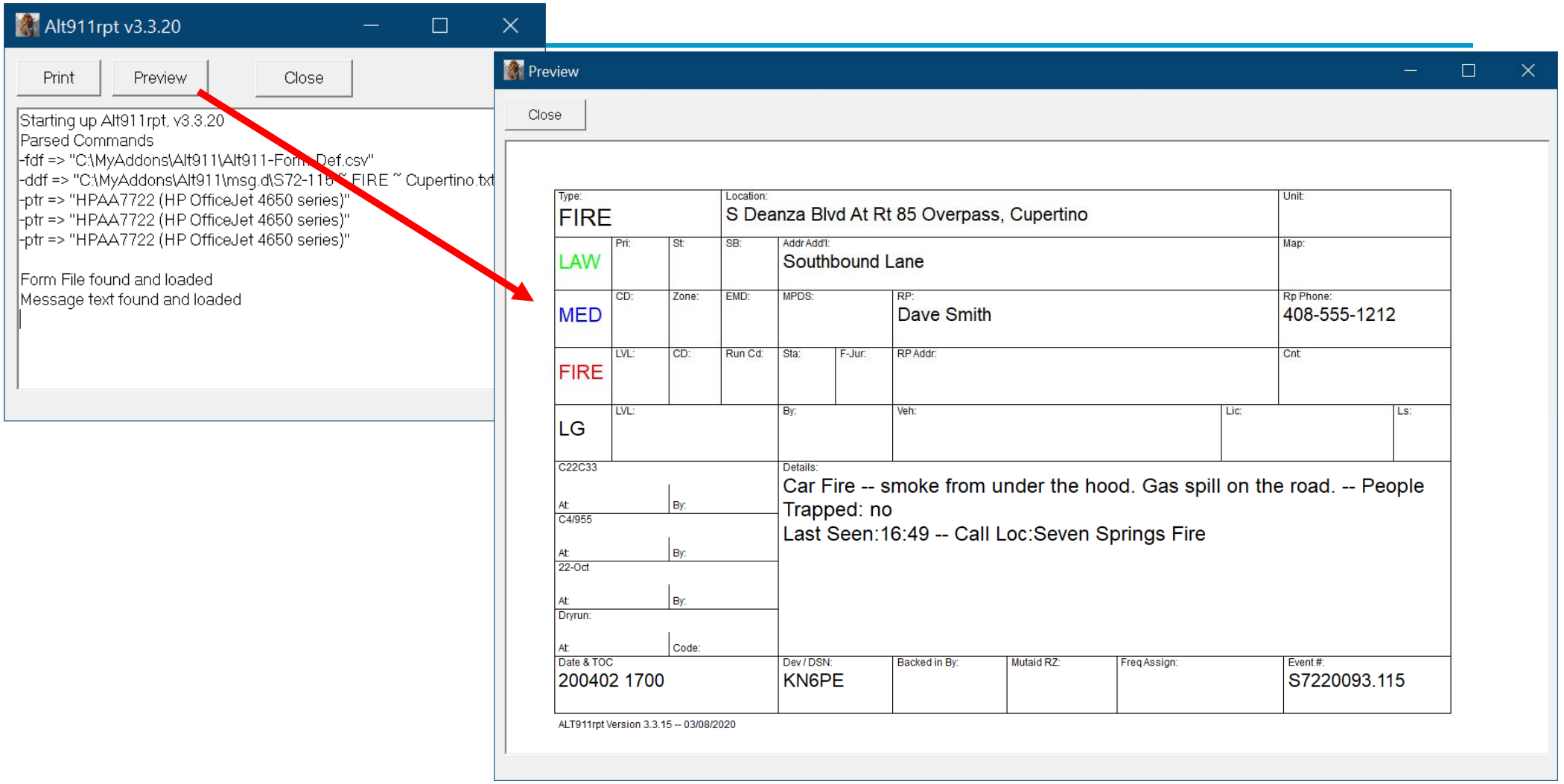
4. Sending it to the Packet station





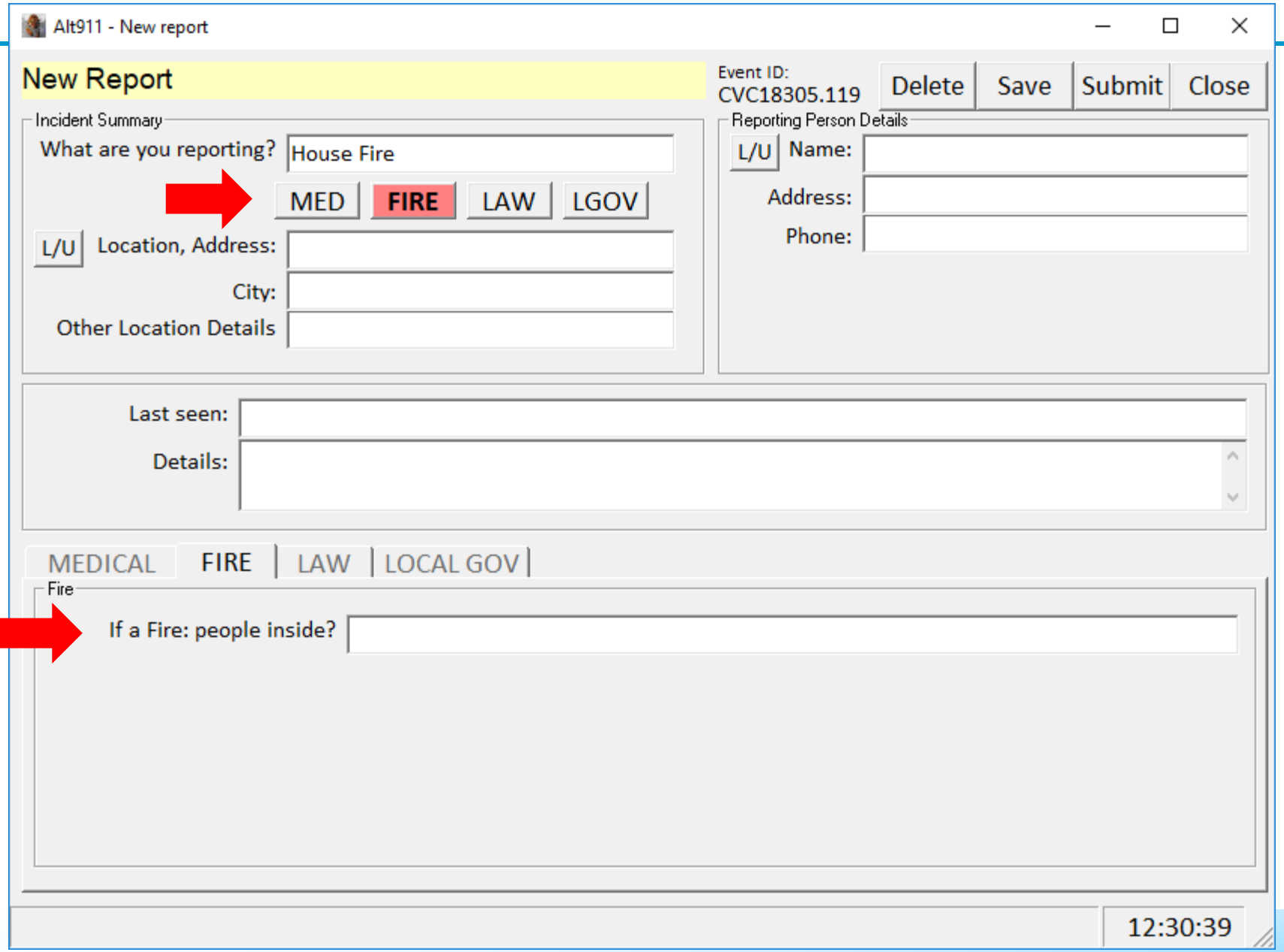
Alt911cts ⇨ Aoclient ⇨ Opdirect ⇨ Outpost ⇨ Outpost ⇨ Alt911rpt

5. Receiving & printing

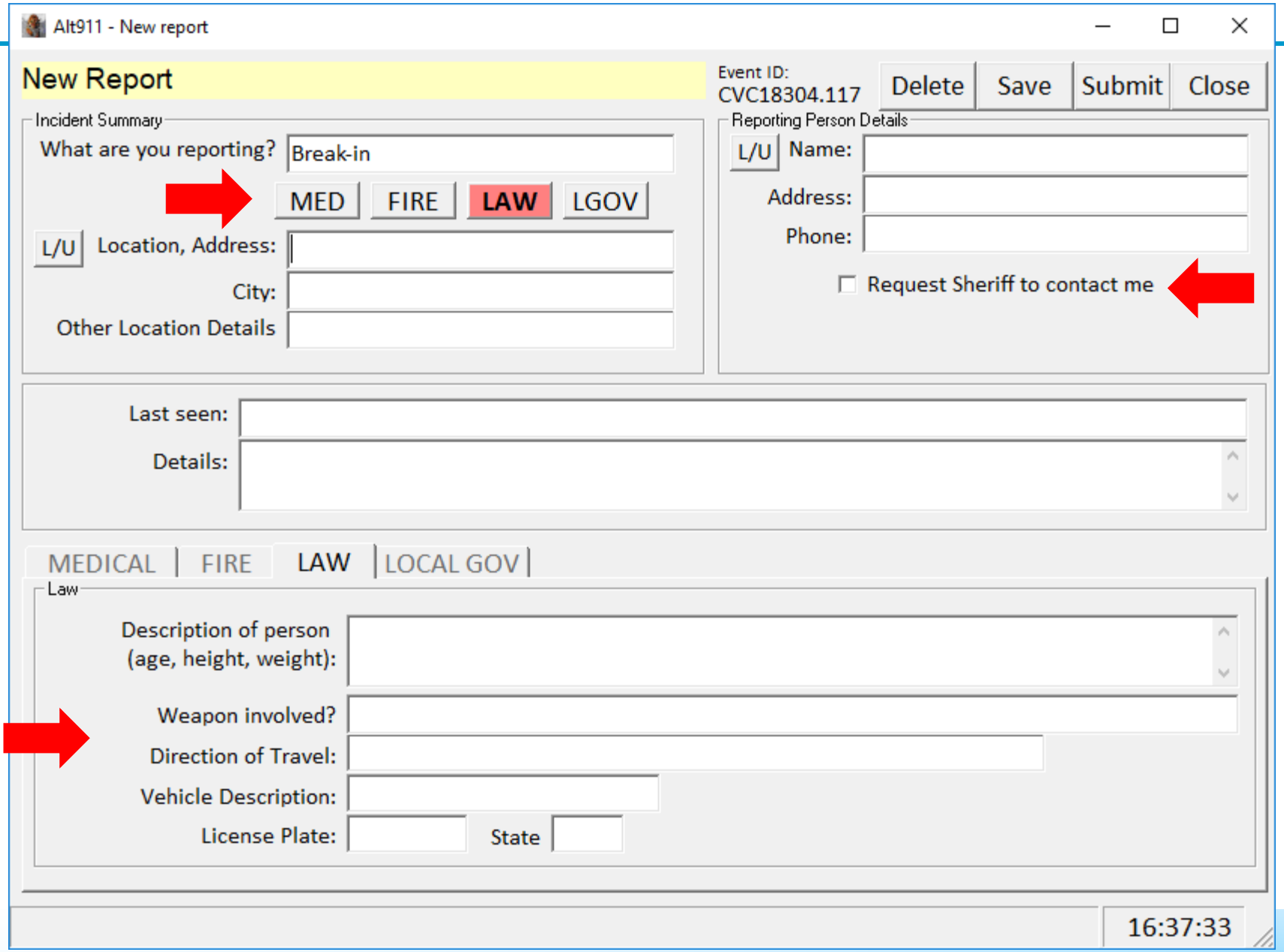


Alt911cts ⇨ Aoclient ⇨ Opdirect ⇨ Outpost ⇨ **Outpost** ⇨ **Alt911rpt**

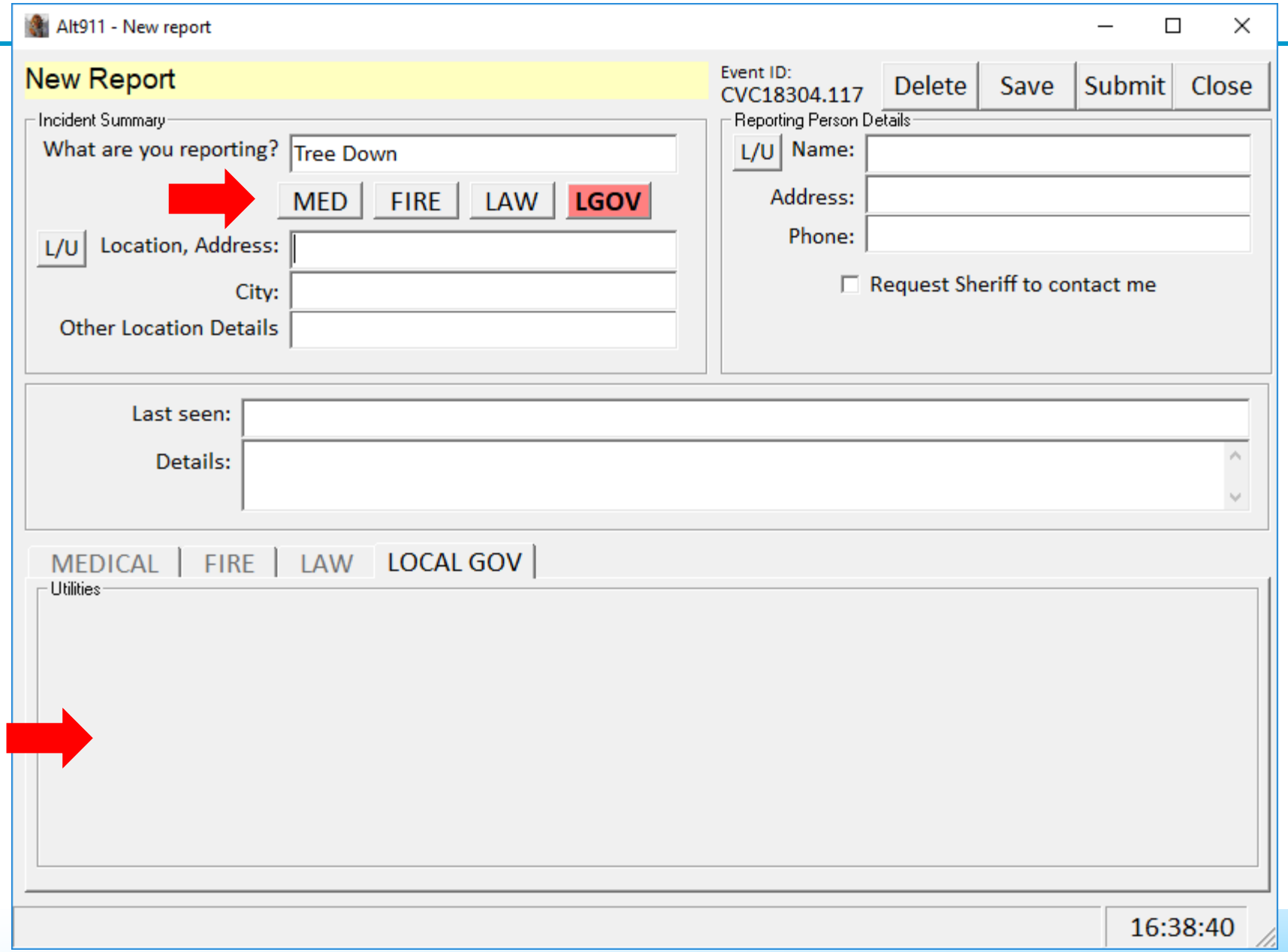
Taking a FIRE report (dispatches County Fire)



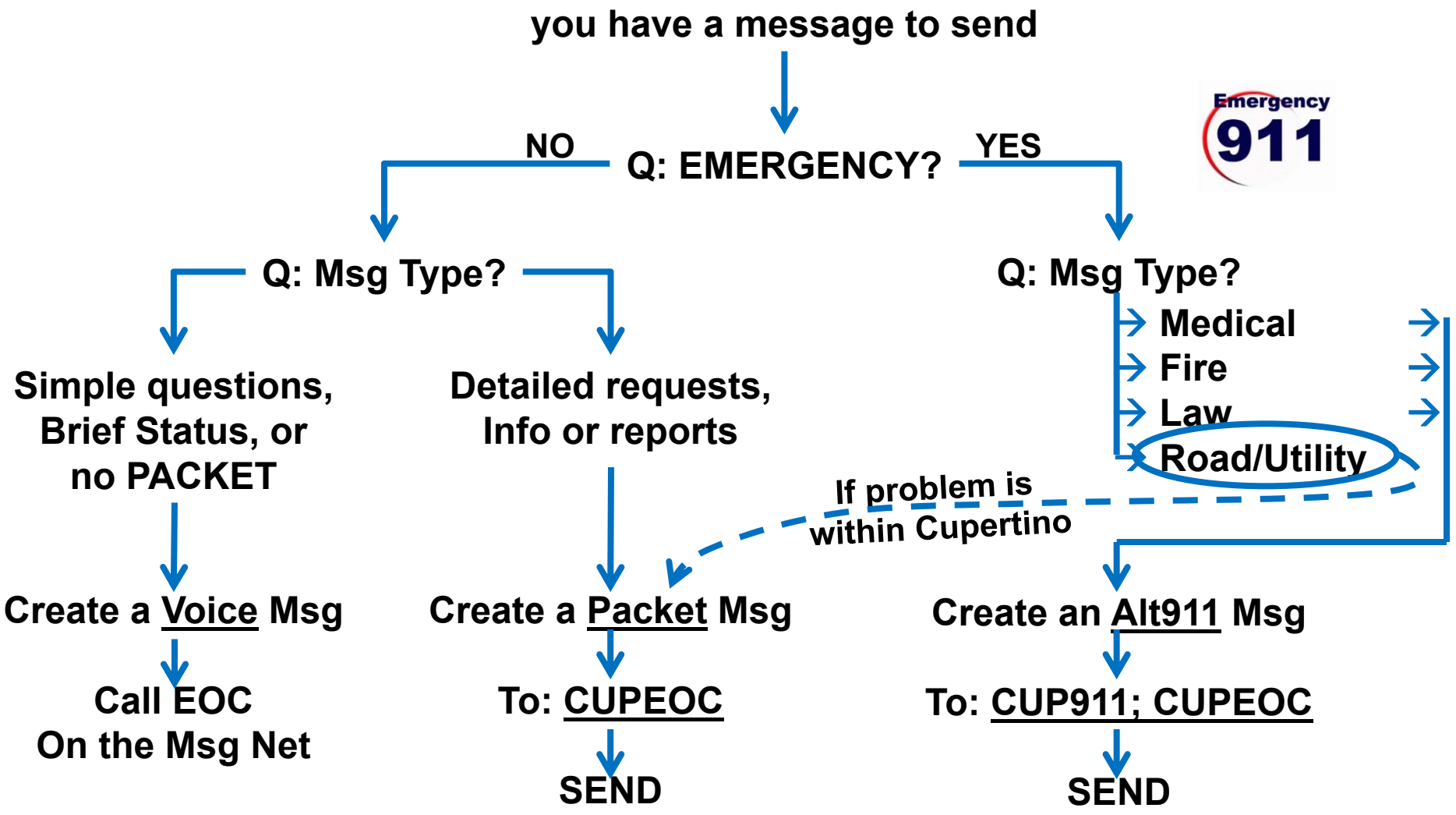
Taking a LAW report (dispatches the Sheriff)



Taking a LGOV report (send to the City for DPW)



ALT911 packet message passing

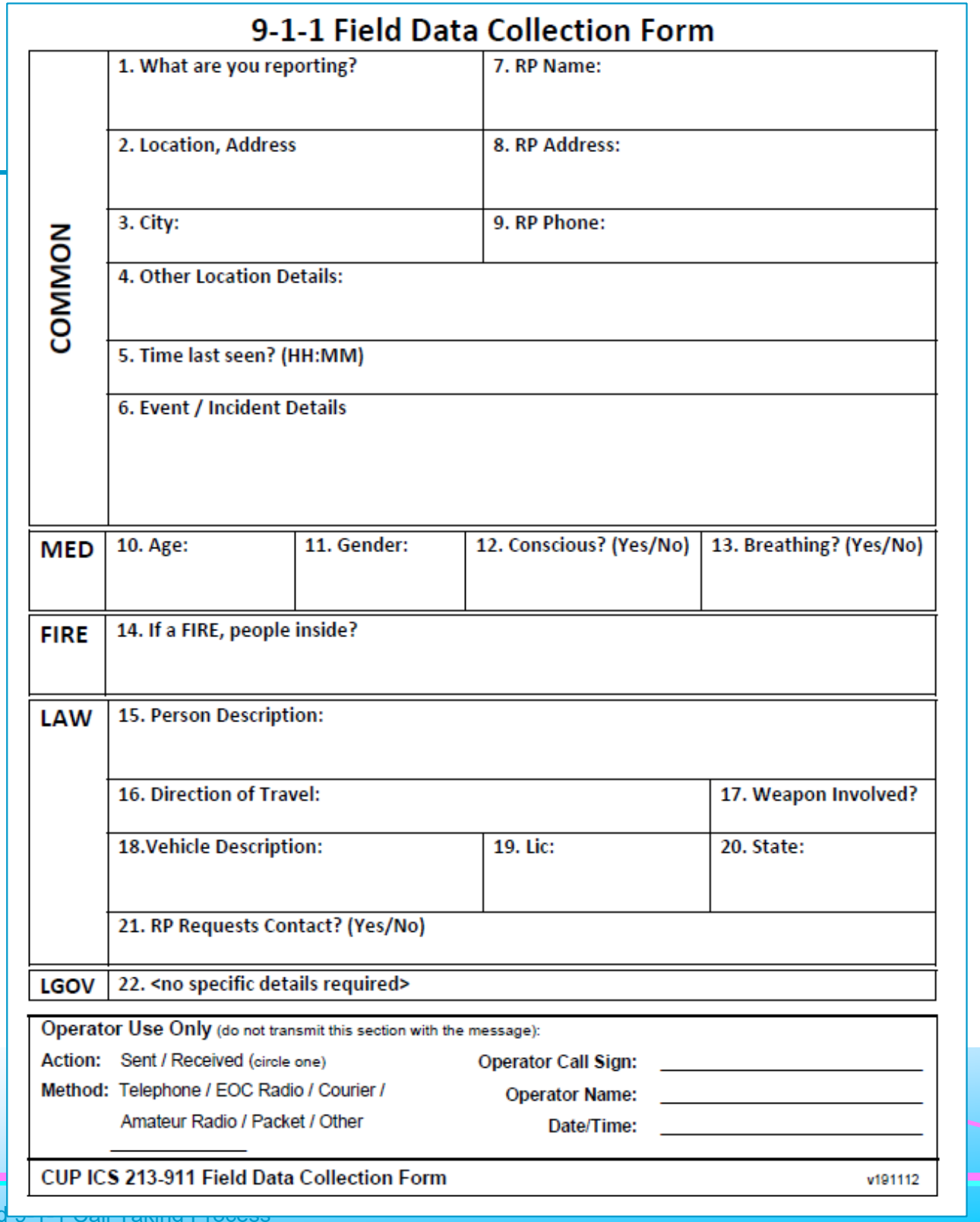


Bottom Line: Use your Judgement

9-1-1 Field data collection form

Instructions

1. Fill in the common area
2. Circle MED, FIRE, LAW, or LGOV (local gov't)
3. Fill in the respective fields depending on the type of incident
4. For a LAW incident, if the Reporting Person wants a call back, make sure to get a phone number (#9).
5. The form content can be passed on the voice net if necessary,



9-1-1 Field Data Collection Form

COMMON	1. What are you reporting?		7. RP Name:	
	2. Location, Address		8. RP Address:	
	3. City:		9. RP Phone:	
	4. Other Location Details:			
	5. Time last seen? (HH:MM)			
	6. Event / Incident Details			
MED	10. Age:	11. Gender:	12. Conscious? (Yes/No)	13. Breathing? (Yes/No)
FIRE	14. If a FIRE, people inside?			
LAW	15. Person Description:			
	16. Direction of Travel:			17. Weapon Involved?
	18.Vehicle Description:		19. Lic:	20. State:
	21. RP Requests Contact? (Yes/No)			
LGOV	22. <no specific details required>			

Operator Use Only (do not transmit this section with the message):

Action: Sent / Received (circle one)

Method: Telephone / EOC Radio / Courier / Amateur Radio / Packet / Other _____

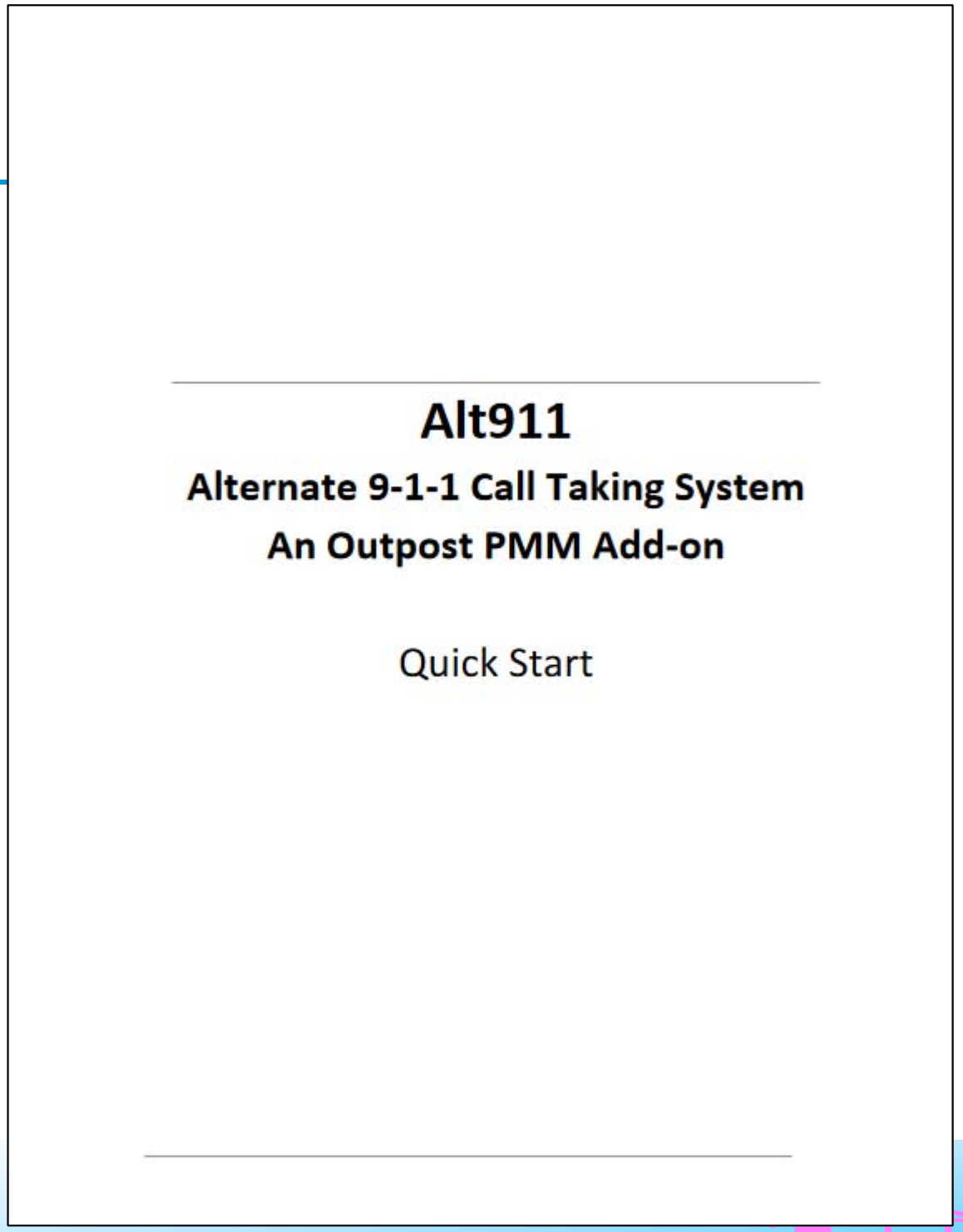
Operator Call Sign: _____

Operator Name: _____

Date/Time: _____

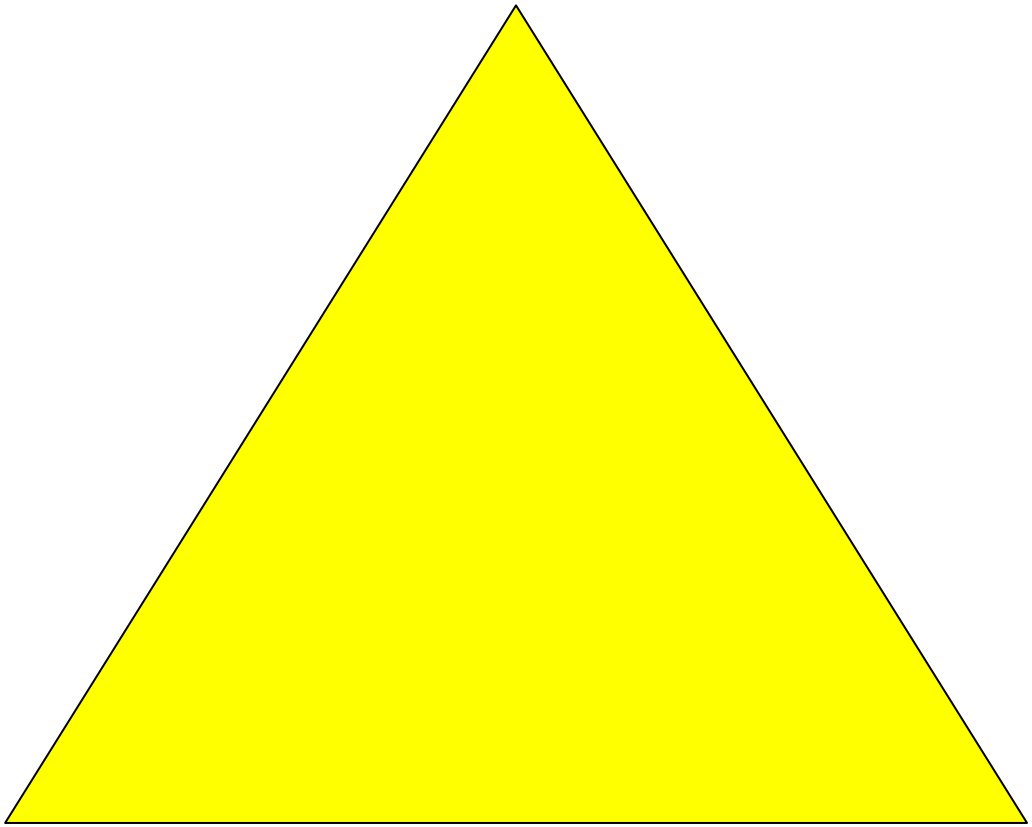
CUP ICS 213-911 Field Data Collection Form v191112

Quick Start Doc



Thank you

Any Questions?

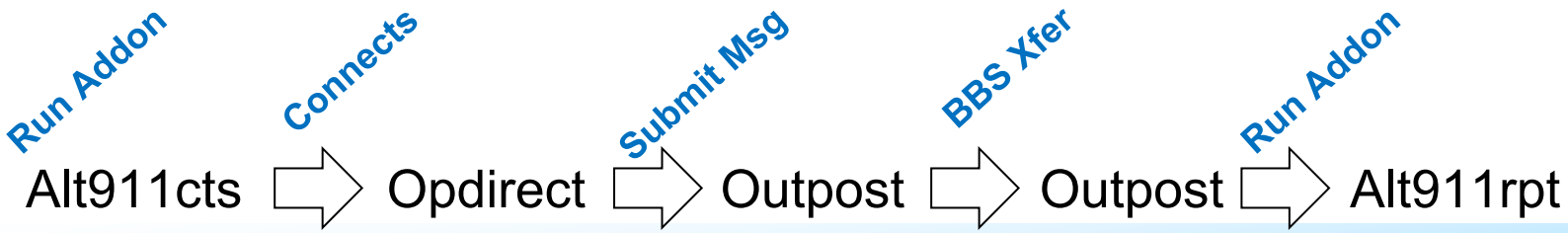


ALT911

Alt911 – an Outpost add-on program.
Computer Aided Call Taking System; manages the field-based message collection, hand-off, and printing of an Alternate 9-1-1 message. Consists of two programs:

Alt911cts.exe – interactive program that guides the call taking process.

Alt911rpt.exe – program that prints the message in the local format.



MPDS – What's the Complaint?

1. Abdominal Pain/Problems
2. Allergies (Reactions) / Envenomations (Stings, Bites)
3. Animal Bites / Attacks
4. Assault / Sexual Assault / Stun Gun
5. Back Pain (Non-Traumatic / Non-Recent)
6. Breathing Problems
7. Burns (Scalds) / Explosions
8. Carbon Monoxide / Inhalation / HAZMAT / CBRN
9. Cardiac or Respiratory Arrest / Death
10. Chest Pain
11. Choking
12. Convulsions / Seizures
13. Diabetic Problems
14. Drowning / Diving / SCUBA Accident
15. Electrocution / Lightning
16. Eye Problems / Injuries
17. Falls
18. Headache
19. Heart Problems / A.I.C.D.
20. Heat / Cold Exposure
21. Hemorrhage / Lacerations
22. Inaccessible Incident / Entrapments
23. Overdose / Poisoning (Ingestion)
24. Pregnancy / Childbirth / Miscarriage
25. Psychiatric / Suicide Attempt
26. Sick Person
27. Stab / Gunshot / Penetrating Trauma
28. Stroke (CVA) / Transient Ischemic Attack (TIA)
29. Traffic / Transportation Incidents
30. Traumatic Injuries
31. Unconscious / Fainting (Near)
32. Unknown Problem (Collapse 3rd Party)
33. Inter-Facility Transfer / Palliative Care
34. Automatic Crash Notification (A.C.N.)
35. Health-Care Practitioner Referral (UK only)
36. Flu-Like Symptoms (Possible H1N1)
37. Inter-Facility Transfer specific to medically trained callers

MPDS – Recommended Response

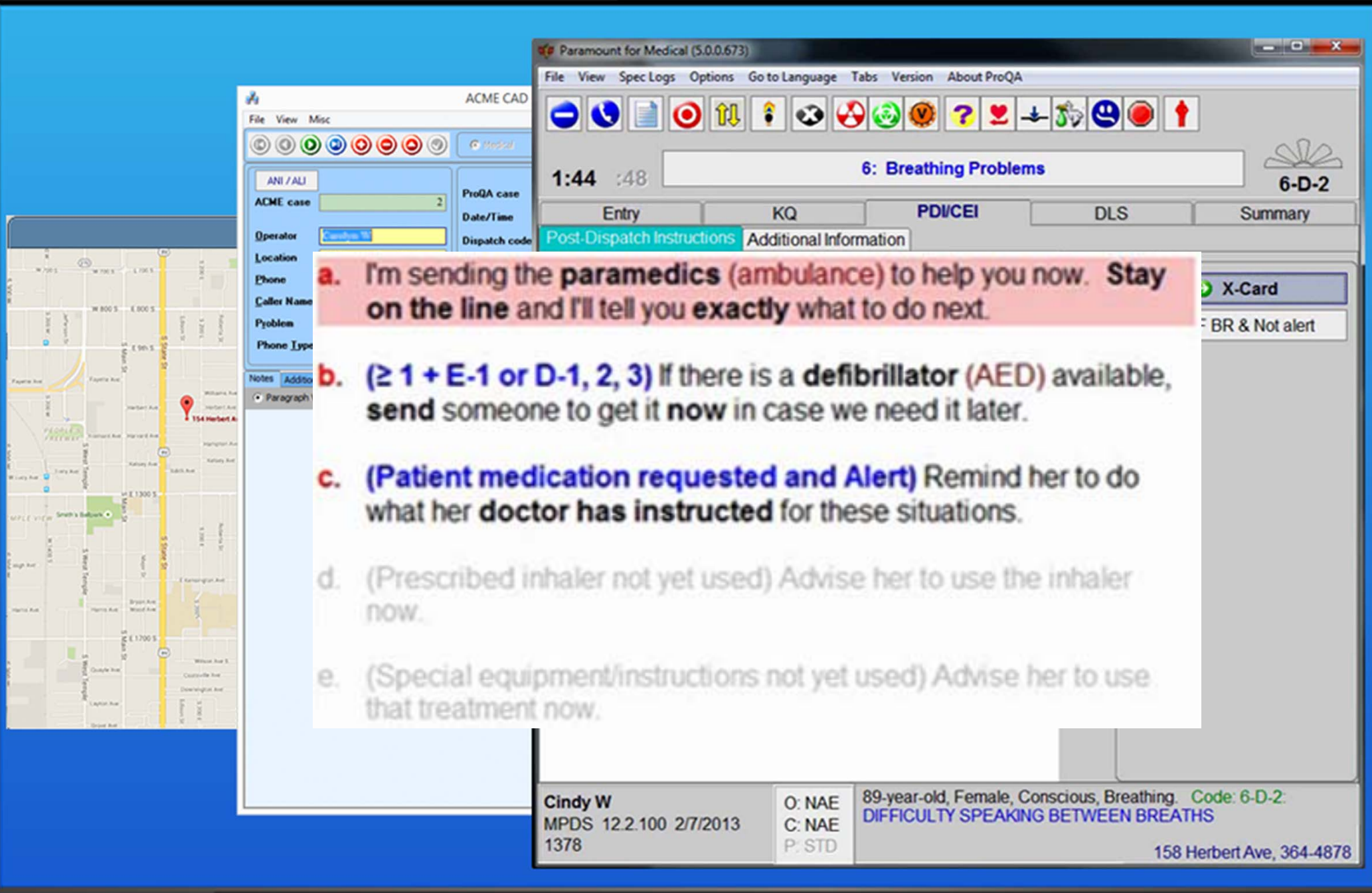
- **Helps identify the potential severity of injury or illness based on information provided by the caller and the recommended type of response.**

Type	Capability	Response Time
Alpha	Basic Life Support	Cold (single unit)
Bravo	Basic Life Support	Hot (multiple units)
Charlie	Advanced Life Support	Cold (single unit)
Delta	Advanced Life Support	Hot (multiple units)
Echo	Advanced Life Support and special units	Hot (Multiple units) plus other first responders, e.g. FIRE, HAZMAT

MPDS – Instructions to the caller

- **Provides instructions for the dispatcher to give to the caller while assistance is en route…**

1. cardiopulmonary resuscitation for adults, children, babies, and newborns
2. the use of a defibrillator
3. the use of the Heimlich maneuver to clear the airway of a choking patient
4. delivering a baby
5. extinguishing the flames for a person on fire
6. escaping from a sinking vehicle
7. bleeding control
8. flushing of chemical contamination
9. cooling of burns
10. Administering epinephrine/adrenaline autoinjectors
11. administering Narcan/naloxone


Paramount for Medical (5.0.0.673)
File View Spec Logs Options Go to Language Tabs Version About ProQA
1:44 :48
6: Breathing Problems
6-D-2
Entry KQ PDI/CEI DLS Summary
Post-Dispatch Instructions Additional Information
a. I'm sending the paramedics (ambulance) to help you now. Stay on the line and I'll tell you exactly what to do next.
b. (≥ 1 + E-1 or D-1, 2, 3) If there is a defibrillator (AED) available, send someone to get it now in case we need it later.
c. (Patient medication requested and Alert) Remind her to do what her doctor has instructed for these situations.
d. (Prescribed inhaler not yet used) Advise her to use the inhaler now.
e. (Special equipment/instructions not yet used) Advise her to use that treatment now.
X-Card
BR & Not alert
ACME CAD
File View Misc
ANI / ALI
ACME case
Operator
Location
Phone
Caller Name
Problem
ProQA case
Date/Time
Dispatch code
Cindy W
MPDS 12.2.100 2/7/2013
1378
O: NAE
C: NAE
P: STD
89-year-old, Female, Conscious, Breathing. Code: 6-D-2
DIFFICULTY SPEAKING BETWEEN BREATHS
158 Herbert Ave, 364-4878