Environmental Information Exchange Network

EN2015

Tribal Emergency Response Application: Emergency Hound

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Supporting the Business of Environmental Protection

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Philadelphia, Pennsylvania

http://www.exchangenetwork.net/en2015

ABSTRACT

Emergency Hound (a free, open-source mobile app) is being developed using Exchange Network technologies that allows emergency responders to plan for and respond to emergencies in the field, even when disconnected from cellular networks. This project is a result of a multi-tribal agency Exchange Network project.

Project Background

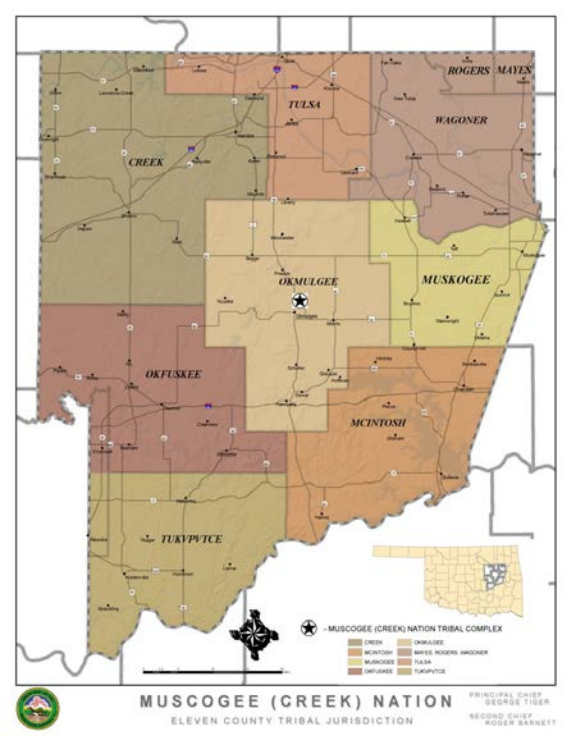
- Exchange Network Grant awarded to Muscogee (Creek) Nation to:
  1. Create a Tribal Emergency Management **data standard** that encompasses emergency management planning and response
  2. Develop an **application** to allow updates in the field and back to tribal partners via EN web services
  3. Include a **geospatial data viewer** to display available resources and incident information along with pertinent environmental data

Project Background

- Project Partners:
  - Muscogee (Creek) Nation - Lead
  - Seminole Nation
  - Citizen Potawatomi Nation
  - Kickapoo Tribe
- In coordination with:
  - Oklahoma - Office of Homeland Security
  - Inter-Tribal Emergency Management Coalition

Muscogee (Creek) Nation

- Tribal Complex in Okmulgee, OK
- Over 70,000 Tribal citizens
- Encompasses all or part of 11 counties / 4,867 sq. miles



Current Problems

- Access to important information is limited to emergency responders
- Lack of data standardization
- Need for a standards-based system to allow secure computer-to-computer interaction

How do we get information to help us answer questions and provide for better planning?

The Approach

1. Work together to develop a common tribal data standard
2. Develop an application that could:
   - Support emergency management planning and response
   - Be used in the office or in the field
     (even when wifi or cellular access is not available)
   - Be available on a variety of devices (laptops, tablets)
   - Make it free and open source so anyone can use it
3. Allow Muscogee Creek Nation to serve as a regional tribal "Portal" host:
   - Building on the successful model used of Open Waters for WQX data hosting

Tribal EM Data Standard

Why:

- Tribes have traditionally had little input in emergency management standards development
- Majority of the conversation has been state/federal agencies
- Tribes need a mechanism to collaborate with a system that best fits their needs

Tribal EM Data Standard

Development Approach:

- Data Standard Development covers Incident Management & Resource Management
- Used input from existing standards (e.g. EN Environmental Incidents, FEMA ICS, DHS RTLT, OK-OHS Credentialing Standard)
- Help tribes understand that their existing data management system can still be used even if tribes capture more comprehensive information
- Contains 150+ data elements

Tribal EM Data Standard

Emergency Management Planning:

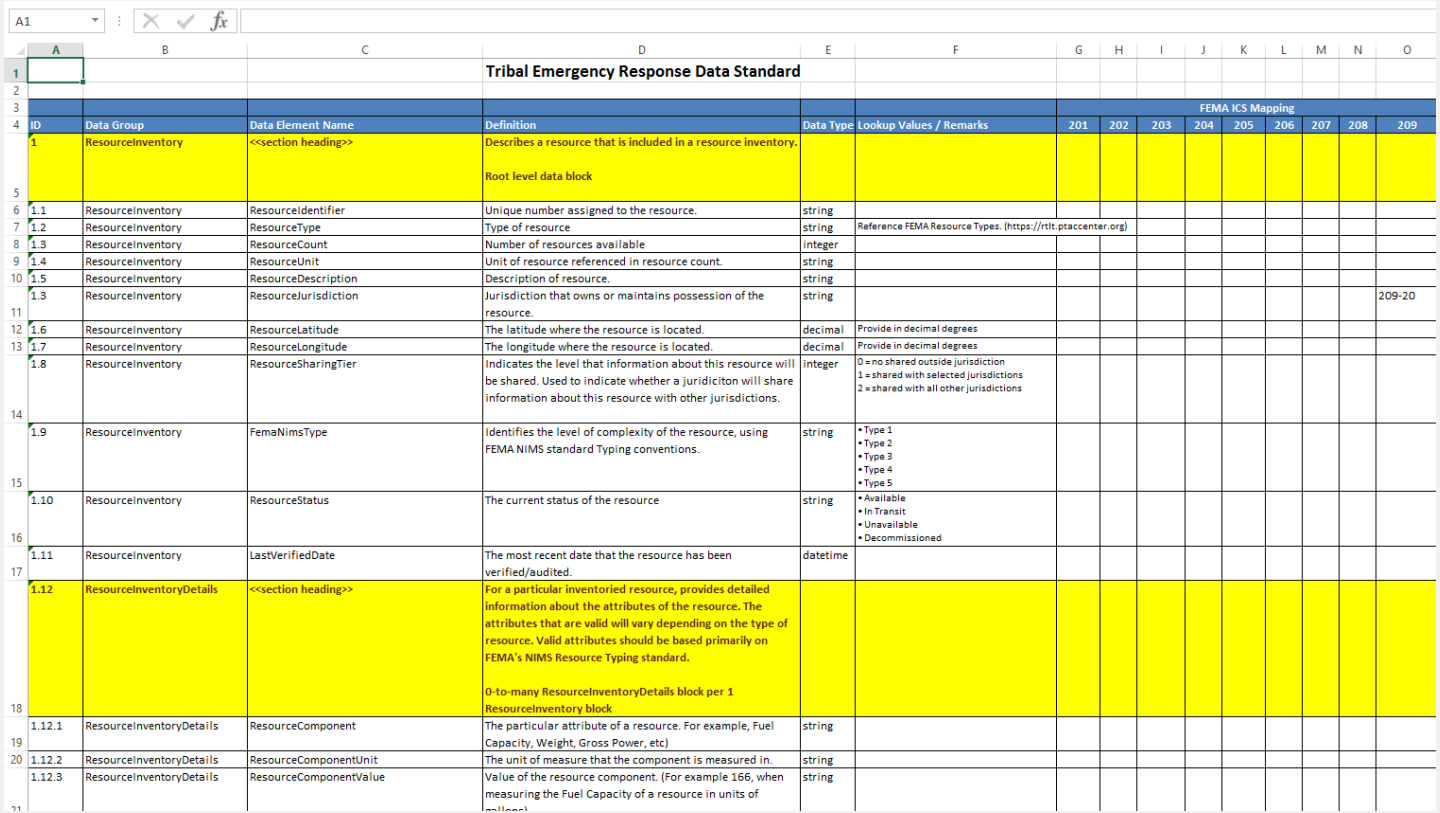
Tribal EM Data Standard

Emergency Management Response:

Incidents

- Description
- Key Dates / Status Updates
- Location (including impacted area, area of concern)
- Command Team (including chain of command)
- Resources (including allocation summary)
- Operational Periods
- Response Objectives
- Actions Taken
- Communication Plan
- Medical Plan
- Safety Plan
- Damage Assessment
- Attachments (images, reports, etc)

Tribal EM Data Standard

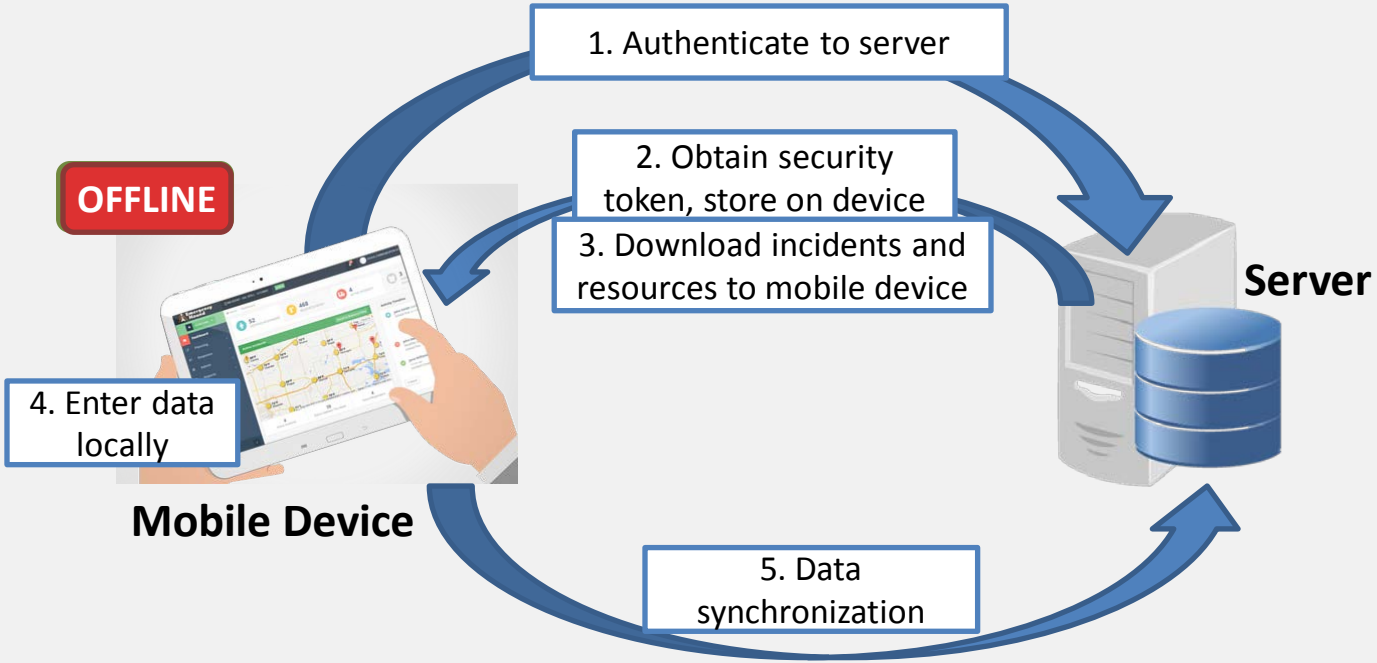


	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1				**Tribal Emergency Response Data Standard**											
2															
3							FEMA ICS Mapping								
4	ID	Data Group	Data Element Name	Definition	Data Type	Lookup Values / Remarks	201	202	203	204	205	206	207	208	209
5	1	ResourceInventory	<<section heading>>	Describes a resource that is included in a resource inventory. Root level data block											
6	1.1	ResourceInventory	ResourceIdentifier	Unique number assigned to the resource.	string										
7	1.2	ResourceInventory	ResourceType	Type of resource	string	Reference FEMA Resource Types. (https://rtlt.ptaccenter.org)									
8	1.3	ResourceInventory	ResourceCount	Number of resources available	integer										
9	1.4	ResourceInventory	ResourceUnit	Unit of resource referenced in resource count.	string										
10	1.5	ResourceInventory	ResourceDescription	Description of resource.	string										
11	1.3	ResourceInventory	ResourceJurisdiction	Jurisdiction that owns or maintains possession of the resource.	string										209-20
12	1.6	ResourceInventory	ResourceLatitude	The latitude where the resource is located.	decimal	Provide in decimal degrees									
13	1.7	ResourceInventory	ResourceLongitude	The longitude where the resource is located.	decimal	Provide in decimal degrees									
14	1.8	ResourceInventory	ResourceSharingTier	Indicates the level that information about this resource will be shared. Used to indicate whether a juridiciton will share information about this resource with other jurisdictions.	integer	0 = no shared outside jurisdiction 1 = shared with selected jurisdictions 2 = shared with all other jurisdictions									
15	1.9	ResourceInventory	FemaNimsType	Identifies the level of complexity of the resource, using FEMA NIMS standard Typing conventions.	string	• Type 1 • Type 2 • Type 3 • Type 4 • Type 5									
16	1.10	ResourceInventory	ResourceStatus	The current status of the resource	string	• Available • In Transit • Unavailable • Decommissioned									
17	1.11	ResourceInventory	LastVerifiedDate	The most recent date that the resource has been verified/audited.	datetime										
18	1.12	ResourceInventoryDetails	<<section heading>>	For a particular inventoried resource, provides detailed information about the attributes of the resource. The attributes that are valid will vary depending on the type of resource. Valid attributes should be based primarily on FEMA's NIMS Resource Typing standard. 0-to-many ResourceInventoryDetails block per 1 ResourceInventory block											
19	1.12.1	ResourceInventoryDetails	ResourceComponent	The particular attribute of a resource. For example, Fuel Capacity, Weight, Gross Power, etc)	string										
20	1.12.2	ResourceInventoryDetails	ResourceComponentUnit	The unit of measure that the component is measured in.	string										
21	1.12.3	ResourceInventoryDetails	ResourceComponentValue	Value of the resource component. (For example 166, when measuring the Fuel Capacity of a resource in units of gallons)	string										

Emergency Response Application

- Complete end-to-end Emergency Management Tracking solution that can be used in the field or at the office
- Provide emergency management professionals with tools to:
  - Plan for emergencies
  - Respond to emergencies
  - Communicate with emergency responders
- One solution that supports multiple tribal organizations
  - Each participating tribe will have their own portal which they will administer and maintain
  - Each partner tribe manages and administers their users. Decides on which information is shared
  - Tribes have total control of their information

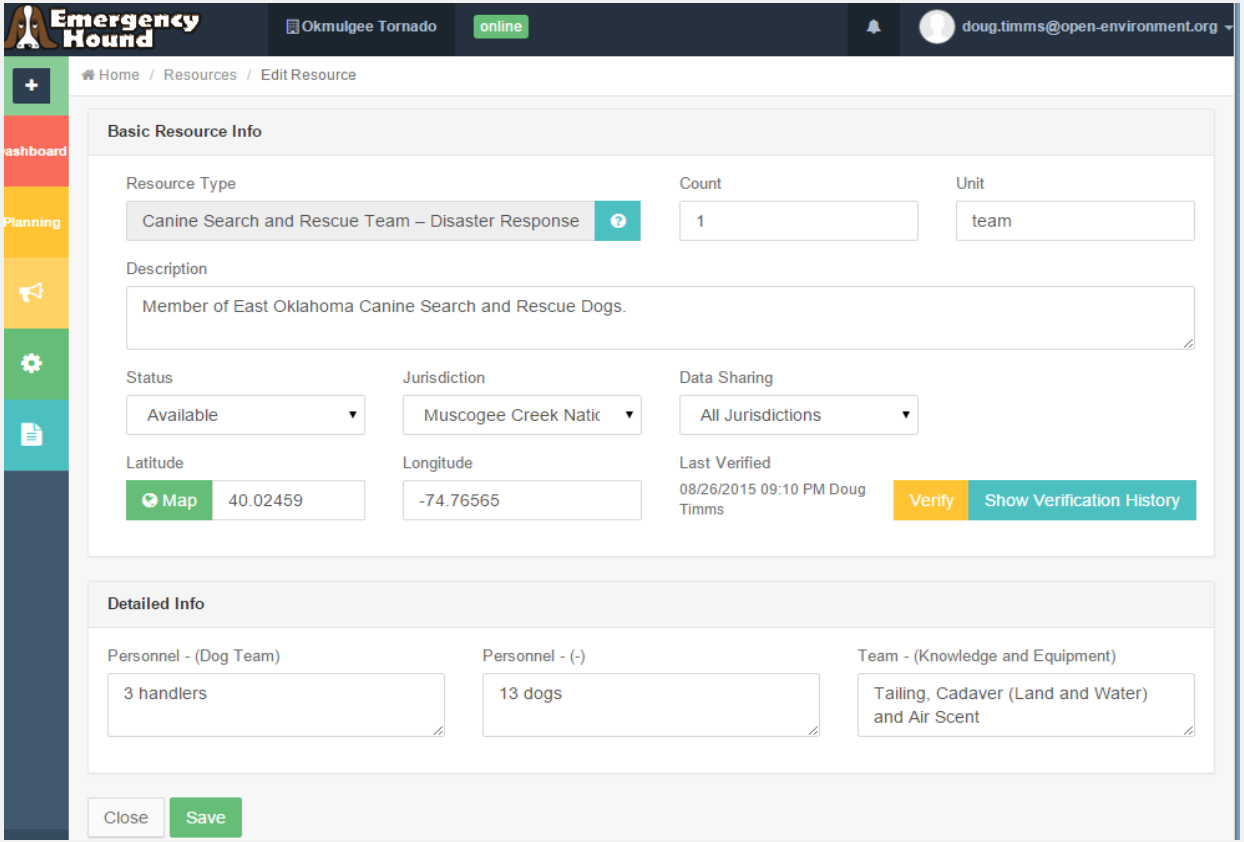
Offline Mobile Data Synchronization



Mobile Application – Incident Preparation

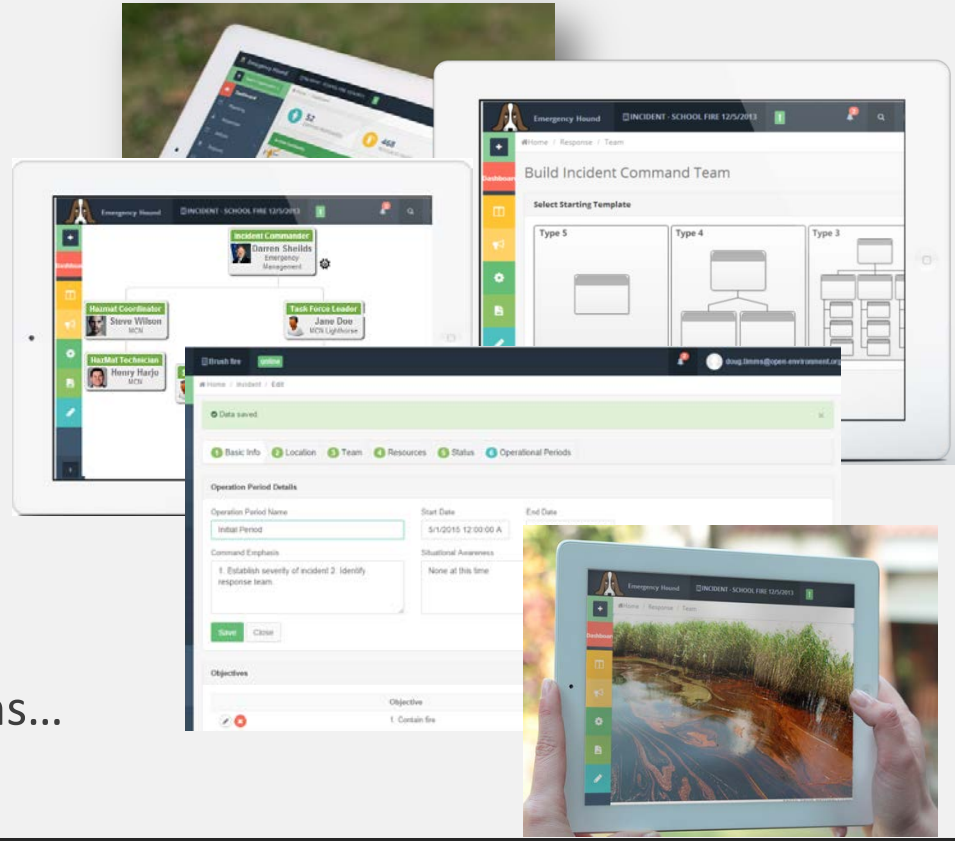
- Develop and maintain inventory of resources
  - Integrated with FEMA web services for standardized resource types
- Maintain listing of emergency responders & updated credentials
  - In coordination with OK Department of Homeland Security NIMS Credentialing Standards

Mobile Application: Incident Preparation

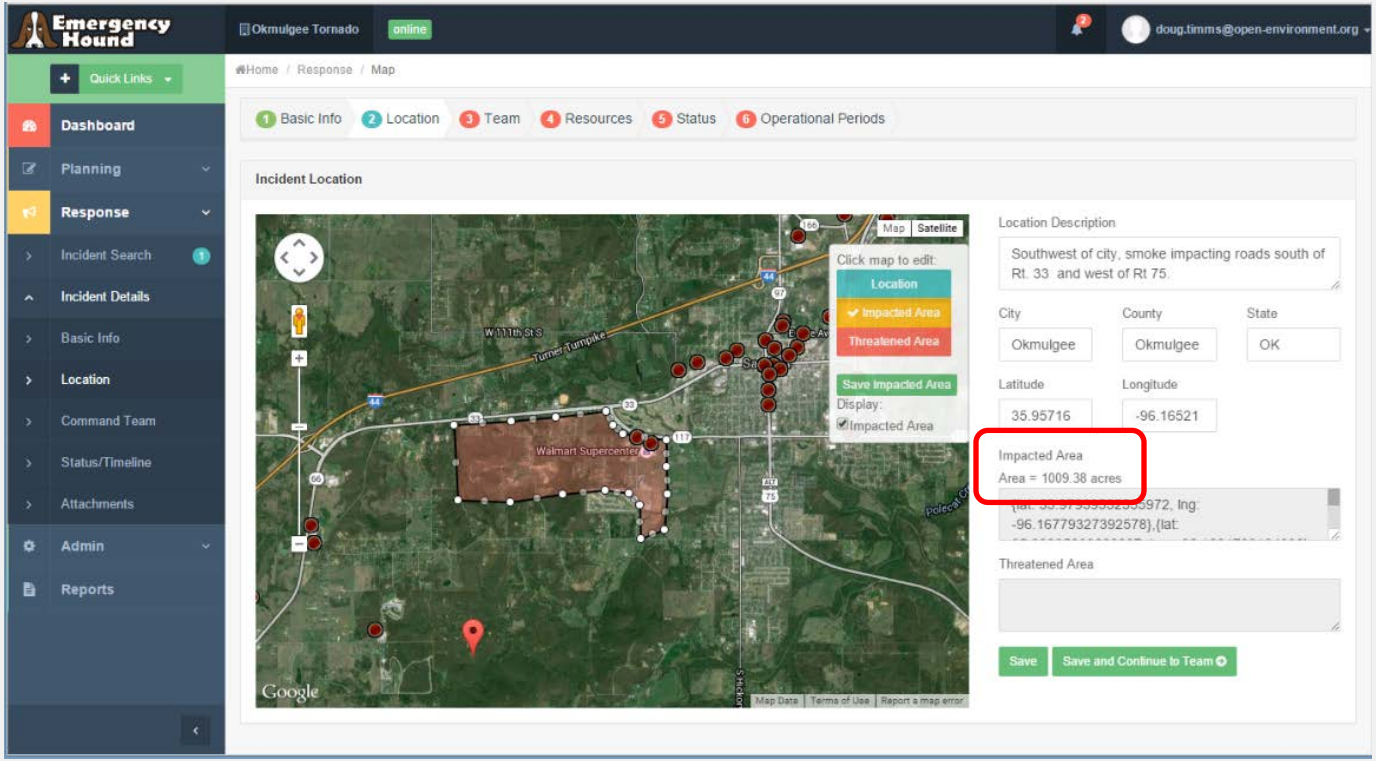


Mobile Application– Incident Response

- Log initial incident info
- Map out incident:
  - Identify nearby environmental concerns (integration with EN web services)
  - Plot impacted & affected areas
- Organize Incident Command Team:
  - Check-in / check-out
- Manage incident objectives, planned actions, operational periods, status updates, health and safety briefings, situational summaries, command emphasis, hazardous material concerns…
- Onsite picture/video logging

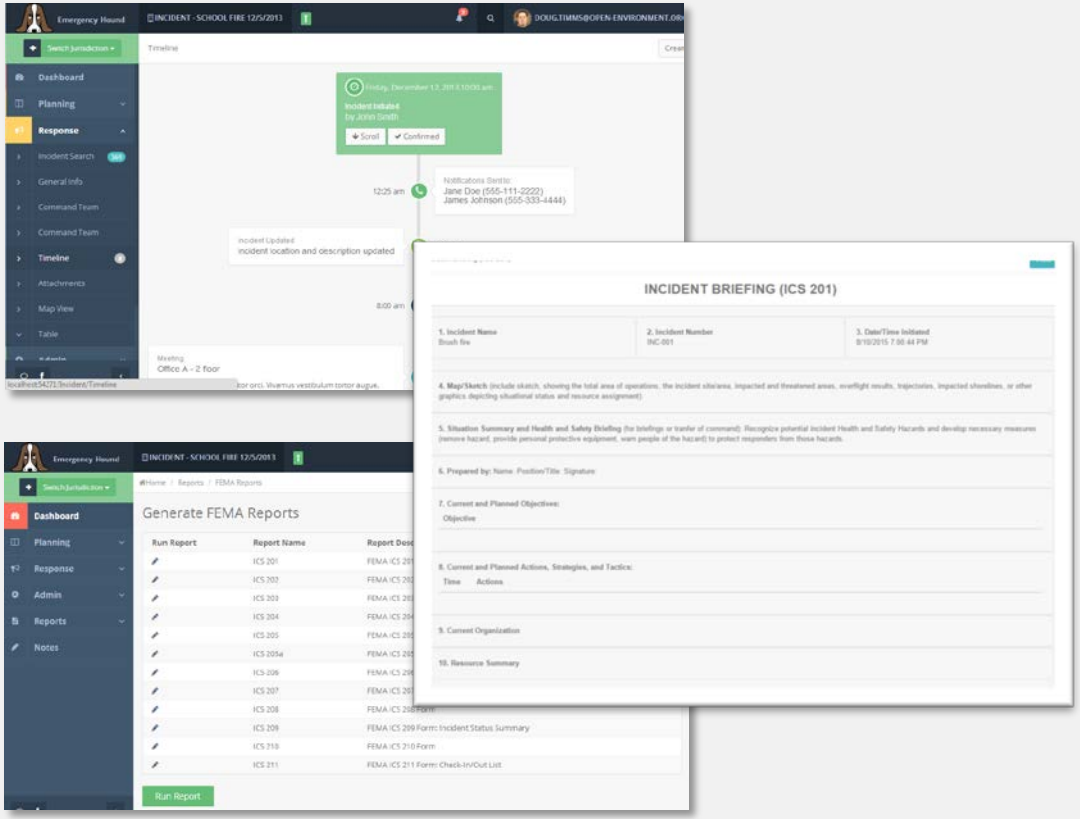


Mobile Application– Incident Response

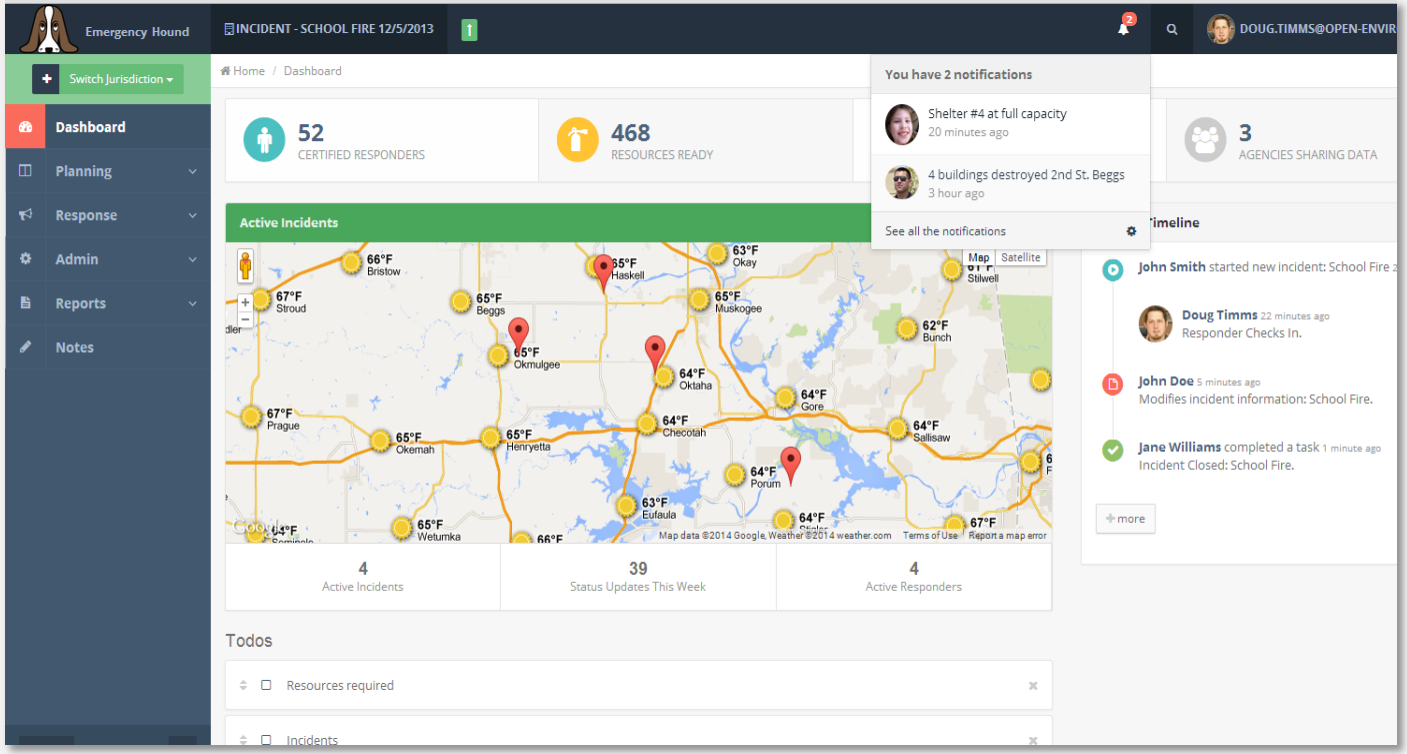


Mobile Application – Incident Analysis

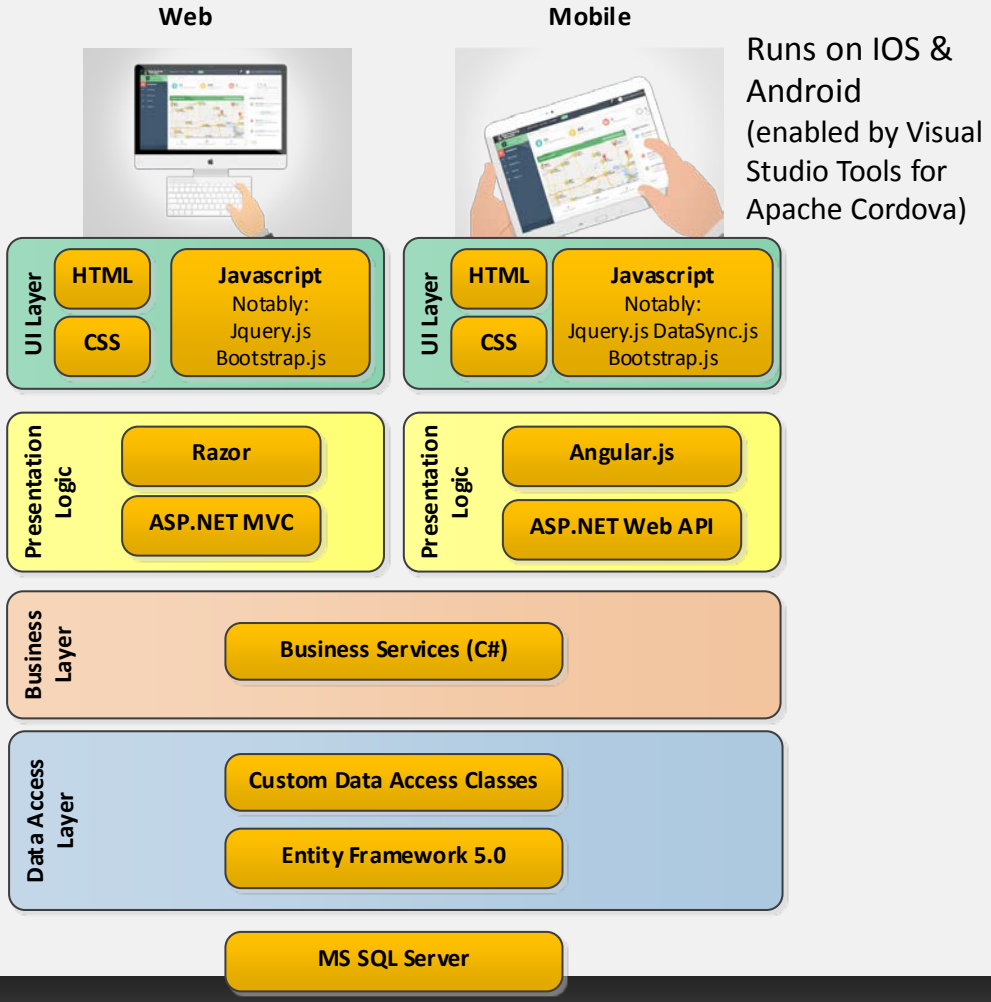
- Review Incident Timeline
- Generate reports
  - Includes FEMA 200 series ICS forms



System Demo


Emergency Hound
INCIDENT - SCHOOL FIRE 12/5/2013
DOUG.TIMMS@OPEN-ENVIR
Switch Jurisdiction
Dashboard
Planning
Response
Admin
Reports
Notes
Home / Dashboard
You have 2 notifications
Shelter #4 at full capacity
20 minutes ago
4 buildings destroyed 2nd St. Beggs
3 hour ago
See all the notifications
52
CERTIFIED RESPONDERS
468
RESOURCES READY
3
AGENCIES SHARING DATA
Active Incidents
Timeline
John Smith started new incident: School Fire
Doug Timms 22 minutes ago
Responder Checks In.
John Doe 5 minutes ago
Modifies incident information: School Fire.
Jane Williams completed a task 1 minute ago
Incident Closed: School Fire.
+ more
Map
Satellite
Map data ©2014 Google, Weather ©2014 weather.com
Terms of Use
Report a map error
4
Active Incidents
39
Status Updates This Week
4
Active Responders
Todos
Resources required
Incidents

Technology Stack



Open Source Solution

- **Free redistribution:** no restrictions for other parties to give away or sell the software
- **Source code:** source code will be publicly available [via GitHub]
- **Derived works:** allowed but must remain open source
- **No discrimination:** license available to all (e.g. no restrictions for gov't agencies or commercial vendors)

Remaining Project Schedule

- Q4 2015: Tribal partner review of system; incorporate feedback into Phase C
- Q1 2016: Phase C (Complete System)
  Publishing to App Stores
- Q1-Q2 2016: Regional Training / Outreach Sessions

For More Information

- Newsletter:

  http://www.emergencyhound.com

  Sign up to mailing list for project updates

- Contact:

  Frank Harjo: fharjo@mcn-nsn.gov

  Doug Timms: doug.timms@open-environment.org