The Integrated Public Alert and Warning System (IPAWS)

Wade Witmer
Deputy Director, IPAWS Division

www.fema.gov/IPAWS  IPAWS@dhs.gov
What is IPAWS?

- IPAWS is a *National System for Local Alerting*
  - Can be used by local, state, tribal, territorial, and federal officials, to send geo-targeted emergency alert and information messaging to the public through IPAWS connections to:
    - radio and television as *Emergency Alert System* broadcasts
    - cellular phones as *Wireless Emergency Alerts*
    - NOAA All Hazards Weather Radio (*currently disabled, returning soon*)
    - Internet applications and websites
  - FEMA, tasked by DHS, is responsible for:
    - Development, operation, integration and maintenance of the IPAWS which includes the EAS, WEA, NOAA HazCollect, and IPAWS Alerts Feed components plus future connections for alerting TBD
    - And making it available for state/local/territorial/tribal to use
Who is using IPAWS?

– Public safety officials with coordinated authority to alert the public of emergency situations in their jurisdiction.
  
  ▪ Local, State, Territorial, Tribal, Federal officials
  
  ▪ Public safety officials: emergency management, law enforcement, homeland security, county, city, regional - *Other organizations at approval of local and/or state government of jurisdiction*

Is there a requirement to use IPAWS?
– No. IPAWS Use is voluntary
IPAWS Users & Stakeholders

as of March 2016: (average of five new applications received per week)

- President
- 700+ Local authorities
- 64 State level agencies in 50 States
- 3 Territorial agencies (Puerto Rico, Virgin Islands and the District of Columbia)
- 2 Federal Authorities (National Weather Service and National Center for Missing and Exploited Children – AMBER Alerts)

IPAWS OPEN

Emergency Alert System

Wireless Emergency Alerts

NOAA

Canadian MASAS As of June 9, 2014

Connection with Canadian equivalent of IPAWS for cross border sharing of warning information

NOAA Weather Radio connection offline pending further NOAA development and testing

26,000 radio, TV cable providers monitor the IPAWS EAS Feed

61 Cellular Carriers = WEA to millions of handsets

NOAA Weather Radio network

55 Internet apps vendors have access to All Hazards Alert & Info Feed

American Public (devices)

FEMA

National Public Warning System

FEMA Operations Centers

- XM Sirius Radio
- NPR
- Premier Radio Networks

IPAWS Users & Stakeholders as of March 2016: (average of five new applications received per week)
Emergency Alert System (EAS)

– all FCC licensee’s monitor the IPAWS EAS feed
– IPAWS supports additional content delivery to
EAS devices:
  • text for screen crawl and display
  • audio attachments (mp3)
  • URL/links to additional content and information

Requires Local Coordination & Partnership
➢ Broadcasters are not required to air all alerts
Wireless Emergency Alerts (WEA)

- 90 character emergency alert text message broadcast to cellular phones in a small area – targeting as small as one cell tower coverage

- "Cell Broadcast" technology
  - Not affected by cell site network congestion
  - Different protocol/channel than used for voice, SMS, web/app data communications
  - One way Broadcast protocol

- Cellular carrier participation voluntary
  - Most Commercial Mobile Service Providers (CMSP) have opted into WEA

- U.S phones are delivered opted-in
  - Citizens may opt-out of receiving alerts

- **WEA is free – no usage or text message charges**

- Significantly different from SMS/email based alerting systems

  - Not subscription based –
    - true location based alerting - sends alerts to all phones in a cell coverage area - not to a database of phone numbers
    - No sign-up or registration
    - No app
    - No tracking or delivery info or status feed back

- **IPAWS is the only interface to networks for Wireless Emergency Alerts (WEA)**
WEA Changes per FCC Report and Order

• Increase message length from 90 to 360 characters
  – 360 for 4G/LTE networks, 90 for legacy networks
• Add new alert category, “Public Safety Messages”
  – Lower than Imminent Threat category
• Support URLs and phone numbers
  – Just text at first, then “clickable” in the future
• Spanish language WEA
  – Alert Originator will translate, will follow phone language setting
• WEA test code
  – Will be disabled on customer phones by default
NOAA All Hazards Weather Radio via IPAWS

Non-Weather Emergency Messages (NWEM) from local alerting authorities can be sent to NOAA for broadcast to NOAA Weather Radios via IPAWS routing.

- Permission to access NOAA Weather Radio transmitters via IPAWS must be coordinated and approved through the NWS in coordination with your local Weather Forecast Office (additional info at http://www.nws.noaa.gov/os/hazcollect/)

NWEM via IPAWS is temporarily NOT enabled!

NOAA testing and system modifications in process to re-enable capability soonest.

Local officials may still send alerts over NWR by calling/coordinating with the local Weather Forecast Office.
IPAWS All-Hazards Alert Feed for Internet apps/websites

- Approved 3rd party internet web services and applications can monitor and retrieve alerts for the public posted in CAP format
  - Not all alert origination tools post to the IPAWS All-Hazards Alerts Feed
- Web apps/services may distribute or publish alert info to apps, websites, email lists, text messaging groups, social media, etc.
  - Sampling of companies with monitor access to the All-Hazards Alert Feed:
    - Alcatel-Lucent NSIT Lab
    - AtHoc, Inc.
    - ATI Systems, Inc.
    - Avalution Consulting, LLC
    - Broadcast Television Group, LLC
    - Burli Software, Inc.
    - Callaway GraphicSoftware, LLC
    - Carnegie Mellon University Silicon Valley
    - City of Lakewood
    - Communications & Power Engineering (dba CommPower), Inc.
    - Deaf Link Inc.
    - Department of Homeland Security Geospatial Management Office (GMO)
    - Dotomi
    - EZ Automation
    - Google
    - Facebook
    - Flaggpole, Inc. dba Twitzip
    - Geo-Comm
    - Global Security Systems, LLC
    - Grandpaham.com
    - Interop Solutions, LLC
    - KDEE Technology, LLC
    - MIR3, LLC
    - MyStateUSA, Inc.
    - National Public Radio (NPR)
    - Omnilert, LLC
    - PIER Systems LLC
    - Public Alerter, LLC
    - Rapid Notify, Inc.
    - Rave Wireless
    - SafeT, Inc.
    - Samsung Information Systems America Inc.
    - Singlewire Software LLC
    - Skitter Inc.
    - Spectacular Media
    - Spectrum Solutions and Services
    - Swan Island Networks, Inc.
    - TechRadium, Inc.
    - The Weather Channel Companies
    - Thunder Eagle, Inc.
    - TriStateAlerts, LLC
    - Weather Message Software LLC
    - WHDT World Television Service
    - Wisemen Multimedia LLC
    - WRAL-TV, Capitol Broadcasting Company, Inc.
When is IPAWS Used?

When public safety officials need to warn of a threat to public safety:

- Evacuation
- Shelter-In-Place
- Law Enforcement Situations
- 911 Outage
- Road Closure
- Chemical Spill/Release
- Water Contamination
- Distribution Location
- Emergency Relief Location
- Emergency Shelter Locations
- Dam Release Alert
- Child Abductions/AMBER Alerts
- Critical Power Outage
- Nuclear Accident
- Landslide
- Pipe Line Break
- Extreme Weather
- Flooding
- Volcano
- Earthquakes
- Wildfires

IPAWS Usage

(As of January 2016)

- messages processed \textit{avg per month} = 39,000
- Since 2012
  - WEA for severe weather sent by NOAA = 22,196
  - WEA AMBER Alerts sent by National Center for Missing and Exploited Children or State AMBER Coordinators = 593
  - WEA sent by local or state authorities = 299
  - EAS delivered (includes tests) = 5,115
  - Posted to All-Hazards Information Feed = 1,304,284
NOAA types send via IPAWS WEA:

### WEA Messages Originated by NWS

<table>
<thead>
<tr>
<th>Warning Type</th>
<th>WEA Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tsunami Warning*</td>
<td>Tsunami danger on the coast. Go to high ground or move inland. Listen to local news. –NWS</td>
</tr>
<tr>
<td>Tornado Warning</td>
<td>Tornado Warning in this area til hh:mm tzT. Take shelter now. Check local media. –NWS</td>
</tr>
<tr>
<td>Extreme Wind Warning</td>
<td>Extreme Wind Warning this area til hh:mm tzT ddd. Take shelter. –NWS</td>
</tr>
<tr>
<td>Hurricane Warning</td>
<td>Hurricane Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS</td>
</tr>
<tr>
<td>Typhoon Warning</td>
<td>Typhoon Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS</td>
</tr>
<tr>
<td>Flash Flood Warning</td>
<td>Flash Flood Warning this area til hh:mm tzT. Avoid flooded areas. Check local media. -NWS</td>
</tr>
<tr>
<td>Dust Storm Warning</td>
<td>Dust Storm Warning in this area til hh:mm tzT ddd. Avoid travel. Check local media. -NWS</td>
</tr>
</tbody>
</table>

**Legend**
- tzT = timezone
- ddd= three letter abbreviation for day of the week

*WEA activated for Tsunami Warnings when Tsunami Watch or Tsunami Advisory not previously in effect.

Local WFO’s do not have control of the message text sent for weather WEAs. Warning message is automatically generated to IPAWS by central NOAA application when a WFO generates any of the 7 warning types above.
IPAWS use example:
Los Angeles Police Depart Active Shooter Warning

IPAWS used to broadcast a Wireless Emergency Alert (WEA) message to cellular phones in a 1-mile radius around a suspect shooting from a balcony in Van Nuys.

“Neighbors said they heard shots fired, and LAPD appeared to have sent an emergency alert to cellphones in the area at about 4 p.m., warning of “suspect shooting from balcony.” … The unidentified man surrendered to police around 5:45 p.m. and was taken away in handcuffs.” - KTLA News 5 Report

IPAWS WEA use examples

Emergency Alert
Multiple explosions at AmeriGas on Gregory Ln. Those in 1 block radius should evac immed.

Settings  Dismiss

Emergency alert
Please evacuate due to wildfire on Corkscrew between Happy Hills and Highway 291
Type: Imminent extreme alert

View  Next

Emergency Alert
MANDATORY EVACUATION Zone A, Rockaways, Hamilton Bch, City Is. NYC.gov or 311 for details

Settings  Dismiss

Emergency Alert
Flood Warning for residents near Little Sandy River till 8:00pm. Prepare to evacuate.

Emergency Alerts

Emergency Alert  18m ago
There is no emergency at the Susquehanna Steam Electric Station. Tune to your local TV and
Process to become an IPAWS User

1. Select IPAWS compatible software
2. Apply for Memorandum of Agreement
3. Apply for Public Alerting Authority permission
4. Complete IPAWS web-based training
5. Complete the application

http://www.fema.gov/how-sign-ipaws
IPAWS-Compatible Alerting Tools

- More than 50 vendors offer IPAWS compatible tools/systems
- Vary widely in capabilities and user interface options

Not all tools support all IPAWS capabilities! (e.g. polygon warning, testing with IPAWS Lab) – Ask your vendor!

Ask the IPAWS Office (ipaws@fema.dhs.gov)
IPAWS Lab

• FEMA Test Lab supports alert and warning system evaluation, demonstration, exercises and testing
  – Offline version of IPAWS with alerting outlets
  – Located at DISA Joint Interoperability Test Command
For more information

- Email the IPAWS inbox: IPAWS@fema.dhs.gov
- IPAWS Website: http://www.fema.gov/ipaws/
- EMI Independent Study Courses:
  - **IS-247a: IPAWS Introduction**
    https://training.fema.gov/EMIWeb/IS/is247a.asp
  - **IS-248: IPAWS for the American Public**
  - **IS-251: IPAWS for Alerting Authorities**
- IPAWS Webinar and Information Mailing List:
IPAWS is the only system providing rapid, geo-targeted, broadcast of information to the public over multiple communications channels simultaneously.
Questions

IPAWS
Integrated Public Alert and Warning System

FEMA