



# FEMA

## Integrated Public Alert and Warning System (IPAWS)

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Best Practices and Considerations -  
IPAWS Alert Origination Tools

[IPAWS@fema.dhs.gov](mailto:IPAWS@fema.dhs.gov)

# Please note:

- Content drafted for informational purposes
- Software vendor names removed
- Best-practices and considerations for Alert Origination Tools based on IPAWS Subject Matter Experts
- FEMA IPAWS Program Management Office does not endorse any Alert Origination Software Provider product
  - WEA = Wireless Emergency Alert
  - EAS = Emergency Alert System



- Security Considerations
  - Strong network security practices
  - Vulnerability assessments
  - System login
  - 2 factor authentication
  - Strong passwords
  - Refresh passwords regularly
  - System timeout – logs User off
- System Administration
  - User permissions
    - Constrain capabilities
    - Separate logins
    - Accountability
  - Considerations
    - Limit number of Admins
    - Number of permitted IPAWS Users
    - Procedures for employee departure

— LOGIN —

fema.ipaws.lab@gmail.com

.....

Remember me?

I'm not a robot

reCAPTCHA  
Privacy - Terms

**LOG IN**

[Forgot Password?](#)



- Mass Notification System

- Benefits

- One alert to many outlets
    - Increases alert coverage
    - Reduces errors
    - Easier on User
    - Include an IPAWS option or plug-in
    - Hierarchy approach

- Considerations

- Include IPAWS with separate login
    - Limit IPAWS Users
    - Social media option

- Dashboard View

- Benefits

- Situational awareness
    - Reporting
    - Quick glance status/analytics

- Considerations

- User configurable



**Create New Message** [X]

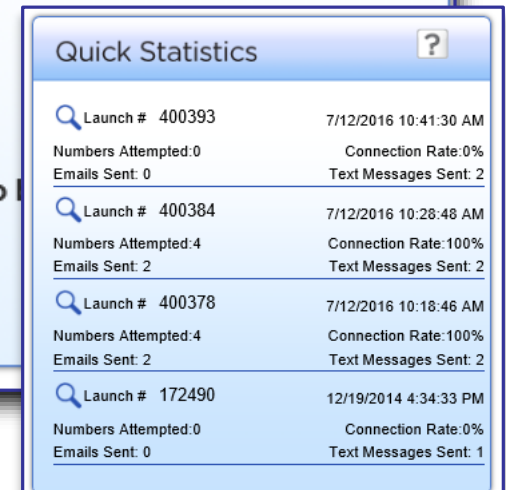
Enter a name for the message:  
[Untitled Message 01/29/2018-9:50]

Save this message for use in other scenarios

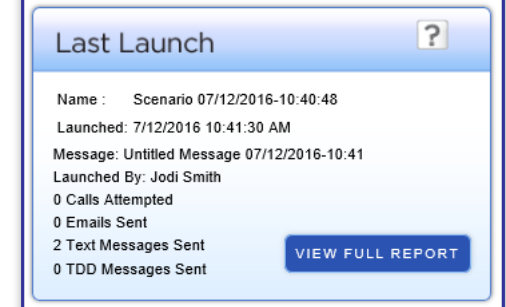
Select message components to include:

- Primary Voice
- Secondary Voice
- TDD Transmission
- Email
- Mobile App
- Text
- IPAWS

Then click here to [unclear]



Launch #	Time	Numbers Attempted	Connection Rate	Text Messages Sent
400393	7/12/2016 10:41:30 AM	0	0%	2
400384	7/12/2016 10:28:48 AM	4	100%	2
400378	7/12/2016 10:18:46 AM	4	100%	2
172490	12/19/2014 4:34:33 PM	0	0%	1



**Last Launch** [?]

Name : Scenario 07/12/2016-10:40:48  
Launched: 7/12/2016 10:41:30 AM  
Message: Untitled Message 07/12/2016-10:41  
Launched By: Jodi Smith  
0 Calls Attempted  
0 Emails Sent  
2 Text Messages Sent  
0 TDD Messages Sent

[VIEW FULL REPORT](#)



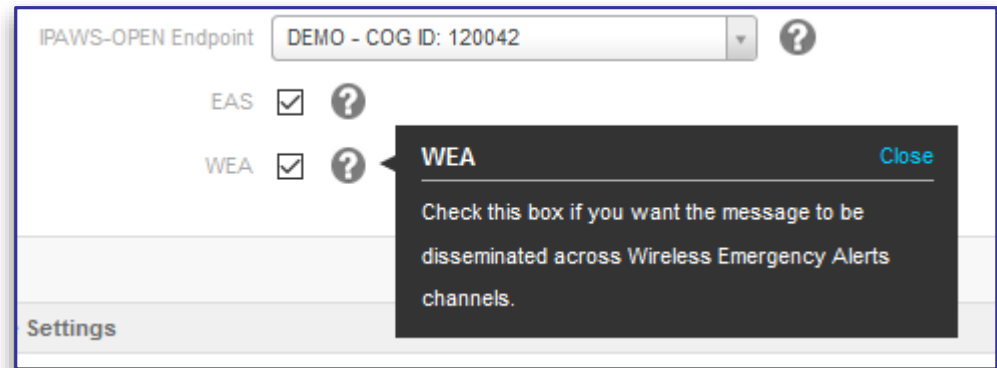
- Vendor Support

- Benefits

- Training
    - Knowledge
    - Confidence
    - Reassurance

- Considerations

- Availability - 24/7/365 technical support
    - Help menu(s)
    - Refresher training
    - Trouble ticket system
    - Software update notification



FEMA

- Digital Certificates – User Maintains

- Benefits

- User control
    - Passwords and keys with User

- Cons

- User responsibility
    - High risk for errors
    - Employee turnover

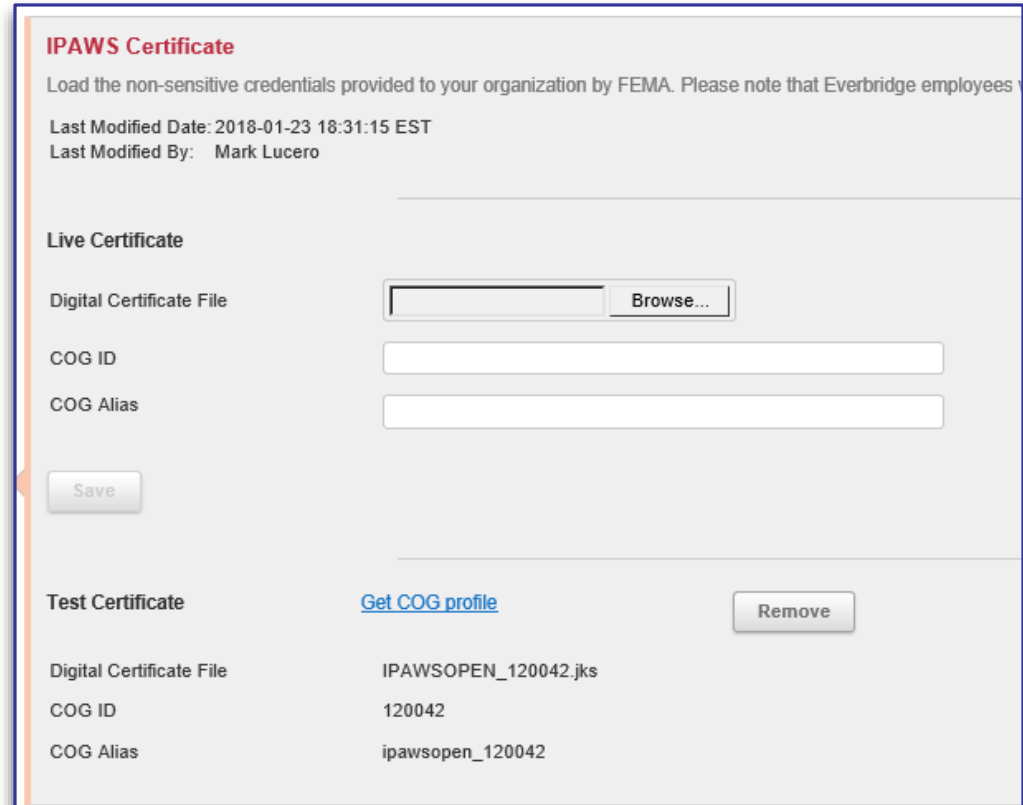
- Digital Certificates – Vendor Maintains

- Benefits

- Less stress on User
    - Low risk for errors

- Cons

- Security of software provider file storage
    - Reliability on vendor



**IPAWS Certificate**

Load the non-sensitive credentials provided to your organization by FEMA. Please note that Everbridge employees

Last Modified Date: 2018-01-23 18:31:15 EST  
Last Modified By: Mark Lucero

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**Live Certificate**

Digital Certificate File

COG ID

COG Alias

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**Test Certificate** [Get COG profile](#)

Digital Certificate File IPAWSOPEN\_120042.jks  
COG ID 120042  
COG Alias ipawsopen\_120042



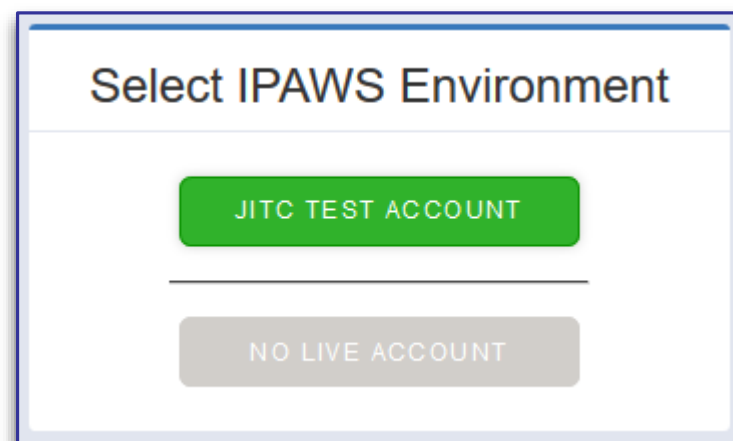
- Software Supports Live and Test certificates

- Benefits

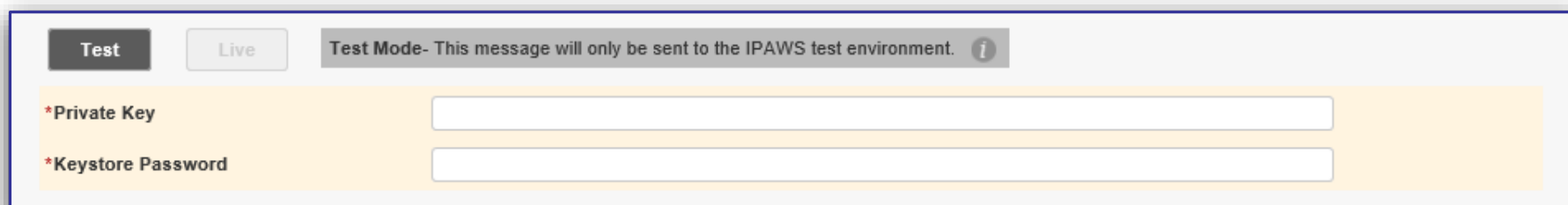
- Toggle between Live and Test environments
    - Train, test and exercise with the IPAWS Lab
    - Gain confidence using IPAWS in a closed environment

- Considerations

- Clear notification to the User which environment they are using
    - Separate credentials/procedures for Live and Test environments



The screenshot shows a dialog box titled "Select IPAWS Environment". It contains two buttons: a green button labeled "JITC TEST ACCOUNT" and a grey button labeled "NO LIVE ACCOUNT". A horizontal line separates the two buttons.



The screenshot shows a configuration interface with two tabs: "Test" (selected) and "Live". A message bar at the top reads "Test Mode- This message will only be sent to the IPAWS test environment." Below the tabs, there are two input fields: "\*Private Key" and "\*Keystore Password".

- **Connectivity Check**

- **Benefits**

- Visual connectivity to Live and/or Test environment(s)
    - Situational awareness
    - User confidence

- **Considerations**

- Color coded – green connected; red not
    - Notifies User of disconnection
    - Certificate expiration date

<b>IPAWS Connected</b>	<b>COG ID 120042</b>	<b>Certificate Expiration May 20, 2018</b>	<b>Environment TEST</b>	<b>⏻ Disconnect IPAWS</b>
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IPAWS-OPEN Service Status			
TEST	120042	Expires on <b>05/20/2018</b>	<b>Status</b>
Test	120042	Expires on <b>05/20/2018</b>	<b>Status</b>





- User can Obtain COG permissions

- Benefits

- Awareness
- Reduces errors
- Verifies connectivity

- Considerations

- Updates on User login
- Allows User to pull on demand
- Simple presentation

Event Codes Permitted	PUBLIC	FLW,WSW,ADR,RMT,AVA,DSW,CEM,NMN,HMW,LAE,HUW,DMO,RHW,SPW,CDW,TRW,VOW,TOR,RWT,NUW,HWW,EQW,TSW,BZW,CAE,SMW,CFW,SVR,LEW,EVI,FFW,NPT,NIC,TOE,FRW,AVW
	CAPEXCH	EVI,SVR,SMW,CFW,NUW,SPW,FRW,LEW,RMT,LAE,FFW,TSW,AVA,RHW,DMO,ADR,EQW,VOW,TRW,WSW,CEM,CAE,NMN,TOR,NIC,DSW,HWW,CDW,TOE,HUW,AVW,BZW,NPT,FLW,RWT,HMW
	ALL	EVI,NMN,TOE,FFW,SMW,CFW,NUW,FRW,RHW,BZW,DMO,TRW,AVW,CAE,CEM,HMW,EQW,WSW,NPT,FLW,AVA,LEW,TOR,LAE,ADR,DSW,SVR,SPW,RMT,NIC,CDW,TSW,RWT,HUW,HWW,VOW
	CMAS	HWW,EVI,FRW,EQW,CEM,RMT,HUW,TSW,SMW,HMW,CDW,CAE,TRW,RHW,AVW,DSW,SPW,LEW,VOW,CFW,TOR,SVR,NUW,FFW,BZW,FLW,LAE,WSW
	EAS	BZW,NPT,HMW,TRW,VOW,SMW,RWT,TOE,TOR,DMO,ADR,SPW,RMT,AVW,CDW,LEW,NMN,FRW,HUW,DSW,HWW,FLW,NIC,EQW,RHW,AVA,NUW,CEM,WSW,TSW,CAE,LAE,SVR,CFW,EVI,FFW
GEOCodes Permitted	ALL	024017
	CAPEXCH	024017



- Supports All IPAWS Channels (pathways)
  - Benefits
    - One alert to multiple pathways
    - One alert to one pathway
    - Selections for each channel (EAS, WEA, COG-to-COG, Public, NWEM (inactive at this time))
  - Considerations
    - Radio buttons or check boxes for each pathway
    - Deselect/Reselect capable
    - Change CMAS to WEA
    - Send to Public Channel automatically

External Alert Message:  Yes  No

Distribution Channels:

- All Distribution Channels
- IPAWS: CMAS (Test)
- IPAWS: EAS (Test)
- IPAWS: NWEM (Test)
- IPAWS: PUBLIC (Test)

Select Alerts

EAS	<input checked="" type="checkbox"/>	NWEM	<input type="checkbox"/>
WEA	<input checked="" type="checkbox"/>	COG ONLY	<input type="checkbox"/>



- **Fields Displayed Based-On Event Type Selection**

- **Benefits**

- Clean design
    - Reduces errors
    - Ease of use; less burden on User

- **Considerations**

- Constrain User options based on Event Type (and Channel)
    - Display required fields based on Event Type (and channel)

Category  
General emergency and public safety

Urgency  
Immediate

Severity  
Extreme

Certainty  
Observed

- **Pre-Populate Fields**

- **Benefits**

- Quickly craft message
    - Reduces errors
    - Displays required fields only
    - Less burden on User

- **Considerations**

- Fields can be edited
    - Changing channel changes displayed fields

**ADVANCED OPTIONS**

Alert Category \*  
Safety Show Description

These values are used by the Commercial Mobile Alert System if the event code is missing or does not match the required event codes.

Urgency \*  
Immediate Show Description

Severity \*  
Extreme Show Description

For CMAS/WEA: Only those alerts with an urgency of immediate or expected meet the requirements of the Commercial Mobile Alert System 'imminent threat' alert.

Certainty \*  
Observed Show Description

For CMAS/WEA: Only those alerts with an urgency of immediate or expected meet the requirements of the Commercial Mobile Alert System 'imminent threat' alert.

Event Response \*  
Shelter Show Description



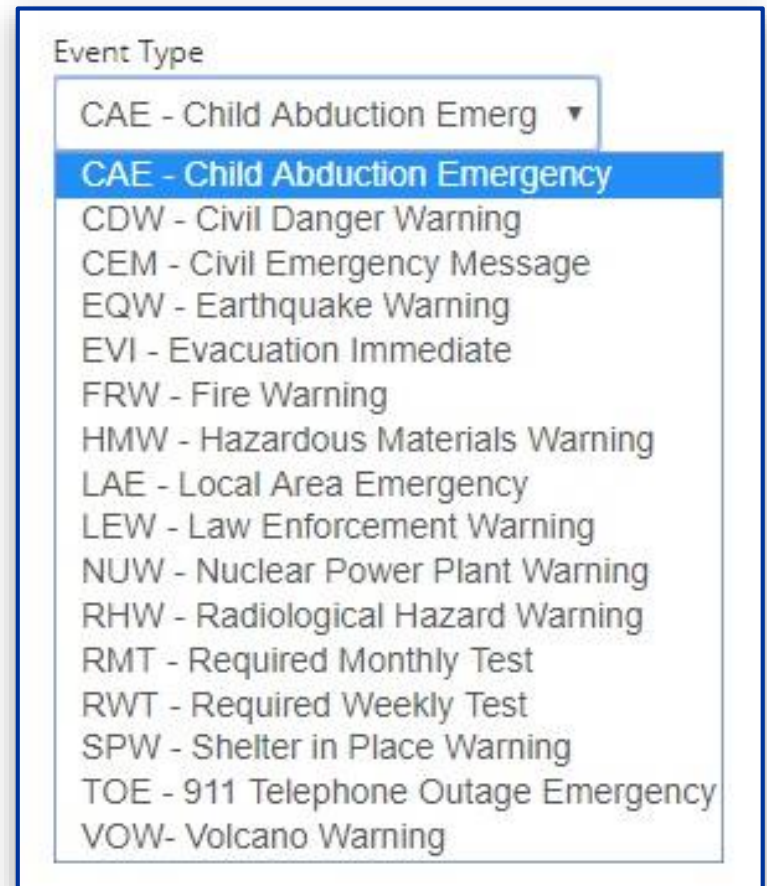
- **Constrain Event Types**

- **Benefits**

- Based-on User permissions
    - Reduces errors
    - Quicker selection of event type

- **Considerations**

- Searchable
    - Highlight selection
    - Updates event types (COG permissions) on User login
    - Spell out acronym



- Free-Form WEA Text
  - Benefits
    - Better messaging to recipients
    - Lessens confusion
    - Can use URLs and telephone numbers
  - Considerations
    - Notify User of character count
    - Software removes non-UTF-8 hidden characters
    - Spell check

COMPOSE MESSAGE      WEA Text \* 36 characters    [Show Description](#)

This is an example of WEA free-form.



- Polygons

- Benefits

- Constrains WEA distribution
    - Multiple polygons
    - Circle or polygon capable

- Considerations

- WEA node limitation
    - Ability to save polygons
    - Import or create shape files

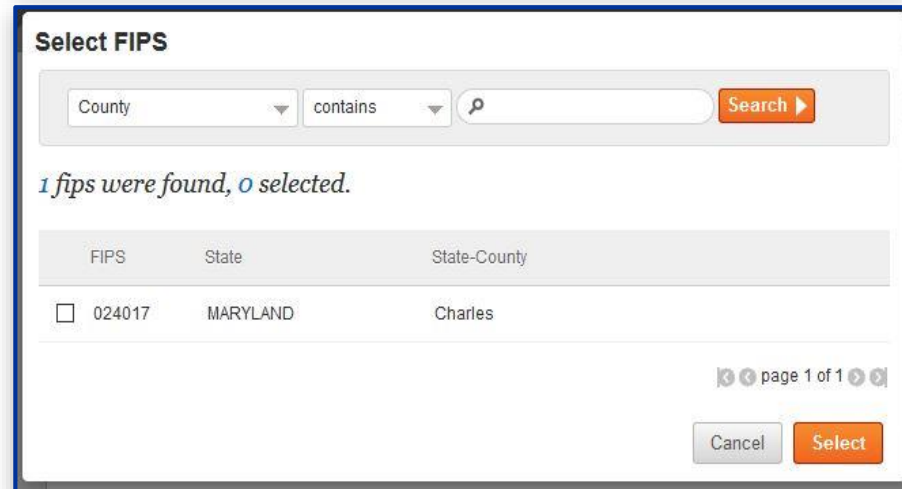
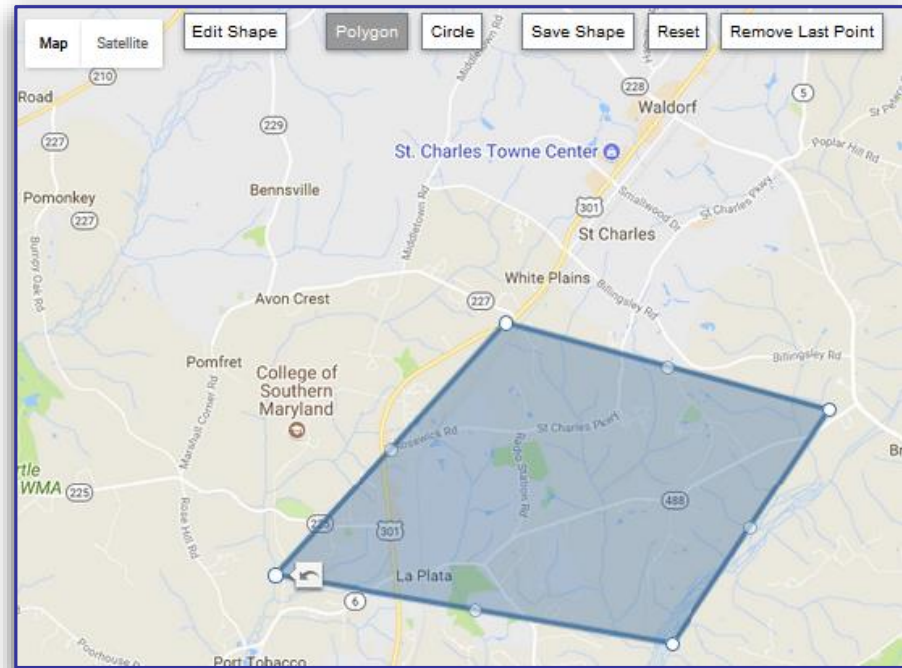
- Geocode(s)

- Benefits

- Supports one or more geocodes
    - Multi-jurisdictional alerting authority
    - One alert to more than one location

- Considerations

- **Not** hard-coded or manually input by vendor
    - Do not force User to input geocodes
    - Tool pulls geocode permissions from COG Profile



- Audio Attachments

- Benefits

- Better EAS delivery; clearer pronunciation
    - EAS devices air audio attachment before text-to-speech (TTS)

- Considerations

- URL retrieval vs. embedded audio
    - File storage
    - .mp3 file
    - Audio preview
    - TTS engine

Audio Message

B Replace this audio file

Create a New Text to Speech Message

Audio Message [Preview Text to Speech](#) ?  
[Select Existing File](#)  
[Upload File](#)



- Alert Preview

- Benefits

- Verify alert content and pathways
    - Verify posting environment (test or live)
    - Reassurance

- Alert Confirmation

- Benefits

- Safety check
    - Accountability

- Considerations

- PW or PIN required
    - Color-coded for Live or Test mode

**Are you sure you want to send a Test alert?**

IPAWS Delivery: DEMO - COG ID: 120042

Selected Template: None

Delivery Method:  WEA - Wireless Emergency Alert  
 EAS - Emergency Alert System

Event Type: Civil Danger Warning

Headline: This is a test

Area Description: MD

You are about to send a **Test** alert. **Review the details above before sending.**

Type "Test" to confirm:  ✕





- Status Codes

- Benefits

- Alert confirmation; receipt
    - Pathway confirmation
    - Reassurance to User
    - Trackable

- Considerations

- Error explanation
    - Color-coded or “successful/failed” text
    - Retrievable

The screenshot displays the 'IPAWS-OPEN Status' interface. It features a list of status items, each with a green checkmark icon and the word 'Success' in green. The first item, 'Sending to IPAWS-OPEN', includes a 'Details' link and two sub-items: '200 - CAPEXCH - Acknowledged' (Message validates against CAP 1.2 schema) and '202 - CAPEXCH - Valid XML Signature' (Message contains a valid XML signature). The other items are 'Valid IPAWS Message', 'EAS Message Distribution', and 'WEA Message Distribution', each with its own 'Details' link. At the bottom, there is a link for 'IPAWS-OPEN Response' labeled 'Download XML'.



- **Cancel Alert**

- **Benefits**

- Stops re-broadcast of WEA
    - Removes active alert from feeds

- **Considerations**

- One-click motion
    - Easily available to User
    - Saved in alert history

- **Update Alert**

- **Benefits**

- Expires active WEA
    - Sends new alert (all clear)

- **Considerations**

- Readily available to User
    - Pulls content of previous alert and allows User to edit

The screenshot displays the 'Launch Records' interface. At the top, there is a search bar and a table of launch records. The table has columns for Status, Launch Date/Time, Expiration Date/Time, Event Code, Type, Message Name, Launched By, Time Zone, and Launch ID. One record is highlighted as 'Active' with a red dot, showing a launch on Oct 31 2017 at 09:59, expiring at 11:01, with event code LAE and type Alert. Below the table, there are two main sections. The left section shows 'No name assigned' and 'LAUNCH ID #629' with 'UPDATE' and 'CANCEL' buttons. Below this are fields for EVENT CODE (LAE), CATEGORY (SAFETY), URGENCY (IMMEDIATE), CERTAINTY (OBSERVED), SEVERITY (EXTREME), and RESPONSE TYPE (EXECUTE). The right section shows 'Expires In 01h 01m 36s' with an 'Active' indicator, 'LAUNCHED ON OCT 31 2017 09:59', 'EXPIRES ON OCT 31 2017 11:01', and 'TIME ZONE EST'. There is also a map showing the alert area around Chicago and New York, and a 'Validation Codes' table with one entry: CAPEX, 200, Ack.

Status	Launch Date/Time	Expiration Date/Time	Event Code	Type	Message Name	Launched By	Time Zone	Launch ID
Active	Oct 31 2017 09:59	Oct 31 2017 11:01	LAE	Alert	No name assigned	JITC_1200 42_2	EST	629

No name assigned	LAUNCH ID #629
<b>UPDATE</b>	<b>CANCEL</b>
EVENT CODE	LAE
CATEGORY	SAFETY
URGENCY	IMMEDIATE
CERTAINTY	OBSERVED
SEVERITY	EXTREME
RESPONSE TYPE	EXECUTE

Expires In	01h 01m 36s	Active
LAUNCHED ON	OCT 31 2017 09:59	
EXPIRES ON	OCT 31 2017 11:01	
TIME ZONE	EST	

Code Name	Code Number	Result
CAPEX	200	Ack



- Alert History

- Benefits

- Tracking/reporting
- Retrieve status
- Usable logs

- Considerations

- Active or expired status
- Searchable
- Archived or stored

**Message History**

Subject	From	Date Sent
<a href="#">IPAWS-Open Test</a>	fema.ipaws.lab@gmail.com	10/19/2017 11:48:32 AM EDT
<a href="#">LOCAL AREA EMERGENCY FOR LINCOLN AND MOORE COUNTIES</a>	fema.ipaws.lab@gmail.com	10/17/2017 10:57:39 AM EDT
<a href="#">Cancel</a>	fema.ipaws.lab@gmail.com	10/17/2017 10:37:16 AM EDT
<a href="#">GOVERNOR ORDERS EVACUATION OF COASTAL AREAS</a>	fema.ipaws.lab@gmail.com	10/17/2017 10:35:09 AM EDT
<a href="#">GOVERNOR ORDERS EVACUATION OF COASTAL AREAS</a>	fema.ipaws.lab@gmail.com	10/17/2017 10:21:22 AM EDT
<a href="#">Test one test two test three</a>	fema.ipaws.lab@gmail.com	10/13/2017 11:34:20 AM EDT
<a href="#">Hurricane Warning</a>	fema.ipaws.lab@gmail.com	10/13/2017 10:47:52 AM EDT

Messages > Manage Messages

Voice Fax E-Mail SMS Pager Social Networking RSS CAP

**CAP Messages**

Items Per Page: 10 Jump to Page: Page 1

	Name	Status	Category	Last Used
[Delete] [Edit] [Access] [Post Alert]	LEW	Actual	CBRNE	2/14/2017 10:47:09 AM
[Delete] [Edit] [Access] [Post Alert]	Test message	Actual	CBRNE	2/7/2017 3:31:18 PM
[Delete] [Edit] [Access] [Post Alert]	Jody's test	Actual	CBRNE	Never
[Delete] [Edit] [Access] [Post Alert]	Test Message	Actual	Safety	6/10/2016 2:50:52 PM
[Delete] [Edit] [Access] [Post Alert]	Test	Actual	CBRNE	4/25/2016 10:35:45 AM
[Delete] [Edit] [Access] [Post Alert]	Test	Actual	CBRNE	8/26/2015 4:52:42 PM
[Delete] [Edit] [Access] [Post Alert]	Test Message	Actual	Safety	10/13/2015 1:10:36 PM
[Delete] [Edit] [Access] [Post Alert]	test	Actual	Geo	9/1/2015 9:12:09 AM
[Delete] [Edit] [Access] [Post Alert]	swifttest	Actual	Met	9/1/2015 10:11:29 AM
[Delete] [Edit] [Access] [Post Alert]	LEW	Actual	Safety	6/13/2016 10:49:50 AM



FEMA

- **Templates**

- **Benefits**

- Pre-determined
    - Quick drafting
    - Reduces risk for errors

- **Considerations**

- Editable
    - Easily available
    - Categorized

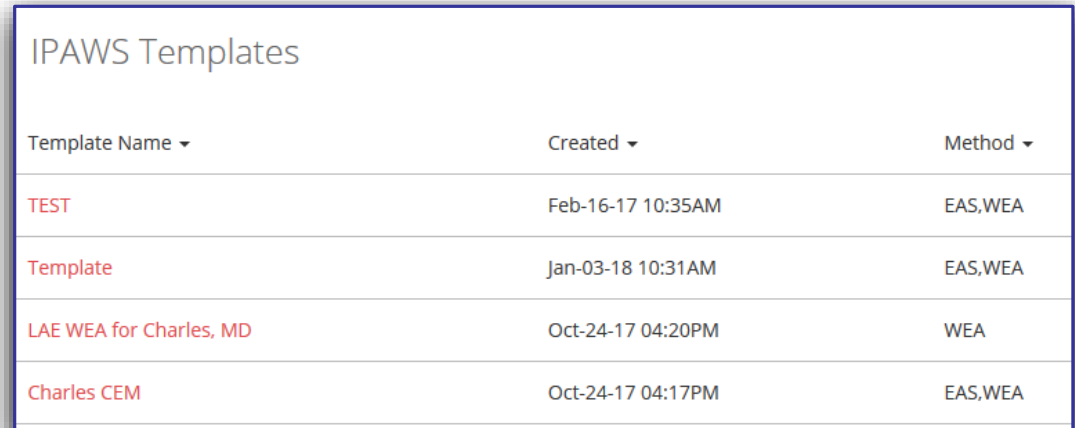
- **Multilingual**

- **Benefits**

- Reach more people
    - Less confusion
    - IPAWS accommodates Spanish
    - Future support for WEA

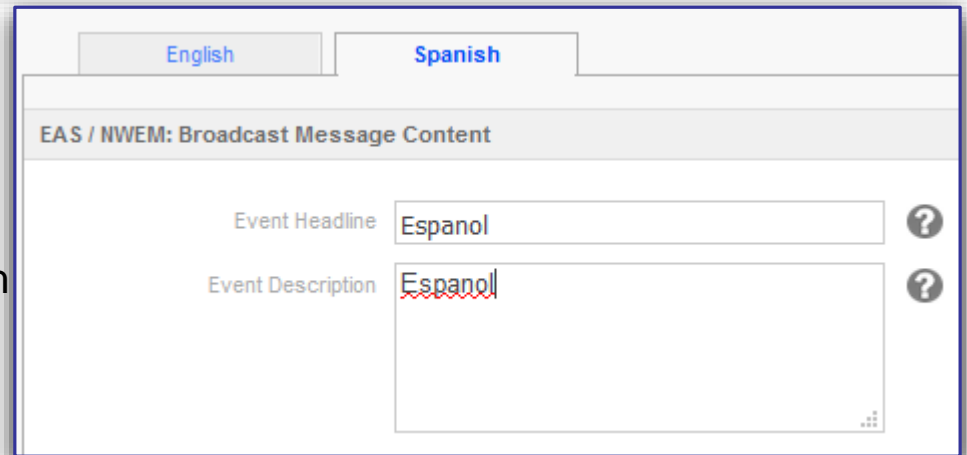
- **Considerations**

- Dialect
    - Non-UTF 8 characters and WEA
    - Today limited to English and Spanish



IPAWS Templates

Template Name ▾	Created ▾	Method ▾
TEST	Feb-16-17 10:35AM	EAS,WEA
Template	Jan-03-18 10:31AM	EAS,WEA
LAE WEA for Charles, MD	Oct-24-17 04:20PM	WEA
Charles CEM	Oct-24-17 04:17PM	EAS,WEA



English Spanish

EAS / NWEM: Broadcast Message Content

Event Headline  ?

Event Description  ?



- Internal Best-Practices
  - Maintain excellent security procedures
  - Keep tool up-to-date with latest software
  - Perform new user training and refresher training
  - Require regular practice
  - Participate in exercises (local and multi-jurisdictional)
  - Update EAS Plans and SOPs to include IPAWS
  - Create desk guide
  - Maintain a relationship with your vendor
  - Provide feedback to your vendor





# FEMA

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