



Integrated Public Alert and Warning System

IPAWS-OPEN V 3.02 What's New and How to Use It

SIG Presentation

22 August 2012



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IPAWS-OPEN Status

- ▶ **IPAWS-OPEN 3.02 is operational in TDL.**
- ▶ **Scheduled for Production later this Month or early next Month.**
- ▶ **CMAS distribution is live (you may have received weather alerts already).**
- ▶ **EAS is live. The EAS encoding devices are ready and mostly in place.**
- ▶ **100+ Operational COGs and 40+ with Alerting Authority designation (list is growing).**

Agenda

- ▶ **New for 3.02**
- ▶ **Signature Requirements (revisited)**
- ▶ **Channels and Channel Blocking**
- ▶ **The new Feed Options**
- ▶ **How Authorizations and Geography Validations Work**

New for 3.02

- ▶ **Active-Active**
- ▶ **BLOCKCHANNEL**
- ▶ **New FEED retrieval Options.**
- ▶ **COG authorization:**
 - **Channel**
 - **Event Code**
 - **Geography**
- ▶ **Polygon and circle Validation**
- ▶ **No “chunks” or “PUT”**



CAP Signature Configuration Requirements

| | | |
|----------------------------|----------------------------|---|
| Signature Algorithm | RSA SHA-256 | http://www.w3.org/2001/04/xmldsig-more#rsa-sha256 |
| Canonicalization | Exclusive | http://www.w3.org/TR/xml-exc-c14n/ |
| Digest | SHA-256 | http://www.w3.org/2001/04/xmlenc#sha256 |
| Transforms | Enveloped Signature | http://www.w3.org/2000/09/xmldsig#enveloped-signature |
| Certificate | X.509 | http://www.ietf.org/rfc/rfc5280.txt |

“Breaking” a Signature

- ▶ Any data change.
- ▶ Any change to whitespace between tags. (Simple “pretty print”)
- ▶ But name space label changes and added namespaces have no effect on an Exclusive Signature.



```
<identifier>eg53_1234</identifier>  
<sender>abc@def.com</sender>  
TO  
<identifier>eg53_1234<identifier><sender>abc@def.com</sender>  
OR VICE VERSA
```



```
<identifier>Alert12_neg_</identifier>  
TO  
<cap:identifier>Alert12_neg_</cap:identifier>  
OR VICE VERSA
```



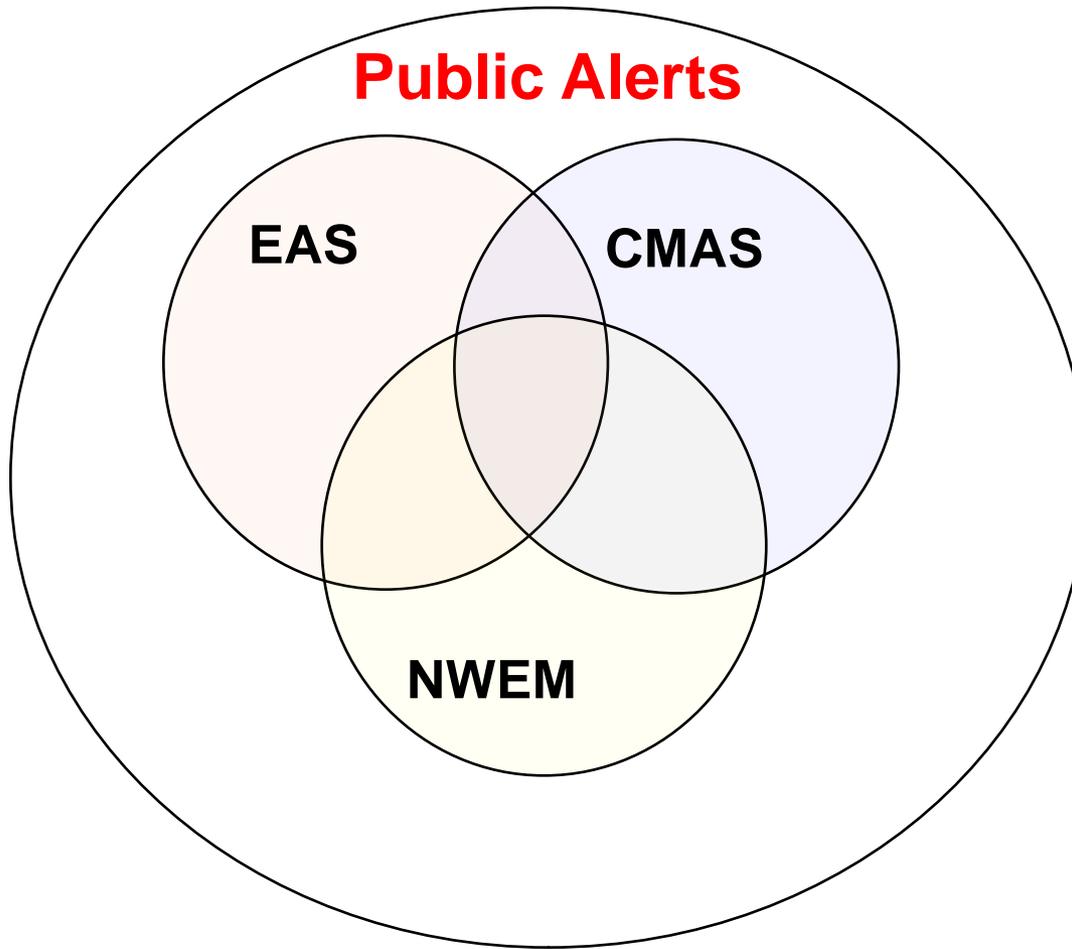
“Breaking” a Signature

- ▶ What is wrong with the following?

```
<identifier>eg53_1234</identifier>  
<sender>abc@def.com </sender>  
TO  
<identifier>eg53_1234<identifier>  
<sender>abc@def.com</sender>
```

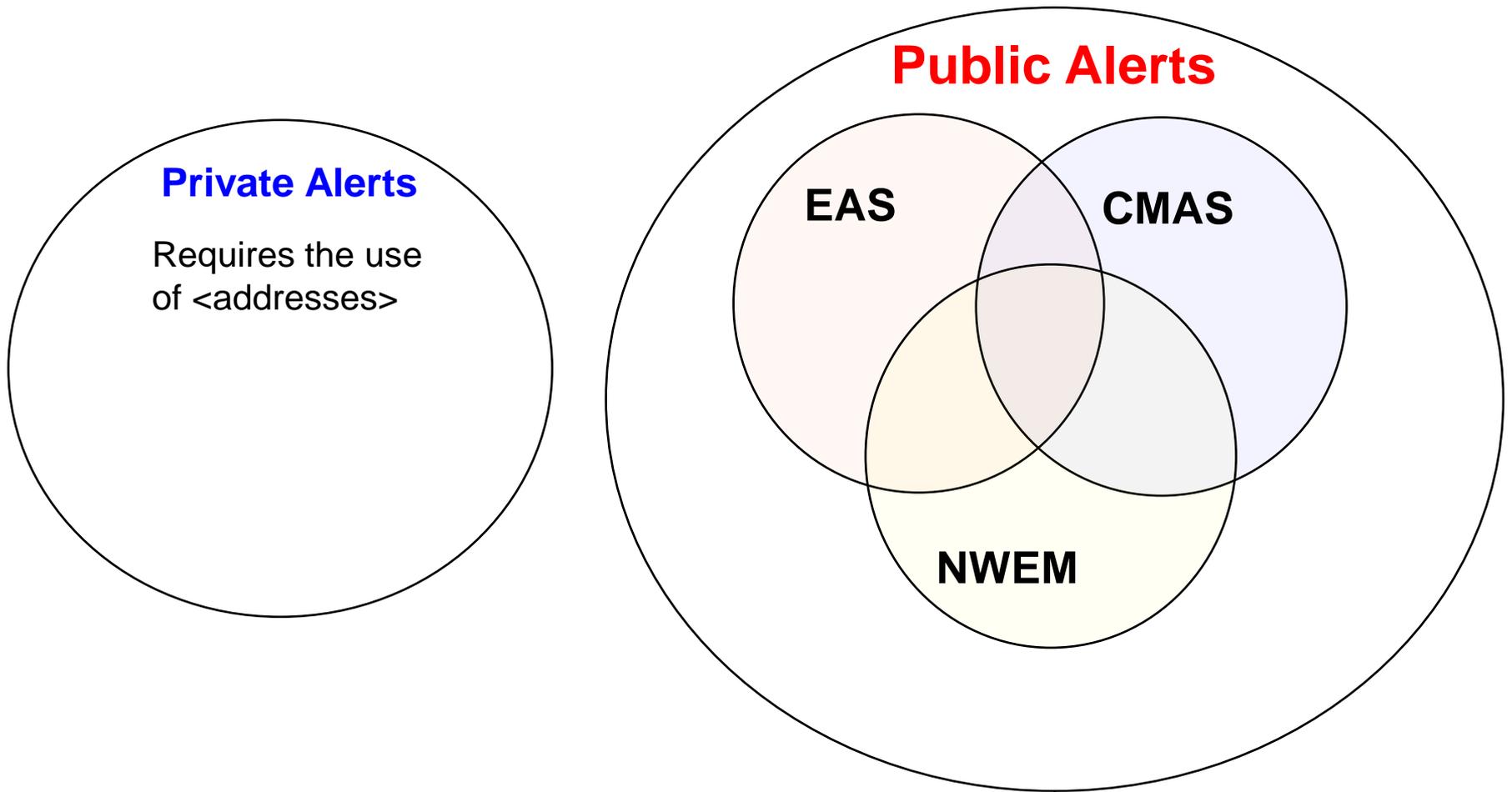
- ▶ **Even trimmed whitespace will break a signature!**

Public Alerting Space (IPAWS Domain)



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Public and Private Alerting Space (IPAWS Domain)



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Private Use Cases

<scope>Private</scope>

- ▶ **Pri 1 – Alert Within a Single Organization**
 - **<addresses>mycogID</addresses>**
- ▶ **Pri 2 - Alert to Other Known EM and Responder Organizations**
 - **<addresses>myCogID partnerCogID partnerCogID ... </addresses>**
- ▶ **Pri 3 - Alert of General Interest to All Emergency Managers, but not Appropriate for Distribution to the General Public**
 - **<addresses>0</addresses>**

Public Use Cases without IPAWS Push Dissemination

<scope>Public</scope>

- ▶ **Pub 1 – Alert Within a Single Organization – but may be sent by receivers to anyone**
 - **<addresses>myCogID</addresses>**
- ▶ **Pub 2 - Alert to Other Known EM and Responder Organizations – but without restriction on public redissemination**
 - **<addresses>myCogID partnerCogID partnerCogID ... </addresses>**
- ▶ **Pub 3 - Alert of General Interest to All Emergency Managers – left to the receiving Emergency manager whether to pass along or not.**
 - **<addresses>0</addresses>**

Public Use Cases with IPAWS Push Dissemination

<code>IPAWSv1.0</code>

<scope>Public</scope>

Digitally signed

- ▶ **IPAWS 1 – Alert Within a Single Organization – but will be sent to EAS CMAS, or NWEM locally, based on content and permissions.**
 - **<addresses>mycogID</addresses>**
- ▶ **IPAWS 2 - Alert to Other Known EM and Responder Organizations – but will be sent to EAS, CMAS, or NWEM to all public, based on content and permissions.**
 - **<addresses>myCogID partnerCogID partnerCogID ... </addresses>**
- ▶ **IPAWS 3 - Alert of General Interest to All Emergency Managers – and will be sent to EAS, CMAS, or NWEM to all public, based on content and permissions.**
 - **<addresses>0</addresses>**



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CAP 1.2 Sharing Mode Summary

| CAP 1.2 Options | Private | Public | Public Plus IPAWS Push |
|-------------------|------------------------|---|--|
| Internal | Own COG members only | Own COG members with redistribution allowed | Own COG with IPAWS Channels added depending on permissions |
| Exchange Partners | Exchange partners Only | Exchange Partners with redistribution allowed | Exchange Partners with IPAWS Channels added depending on permissions |
| All | All COGs | All COGs with redistribution allowed | All COGs with IPAWS Channels added depending on permissions |

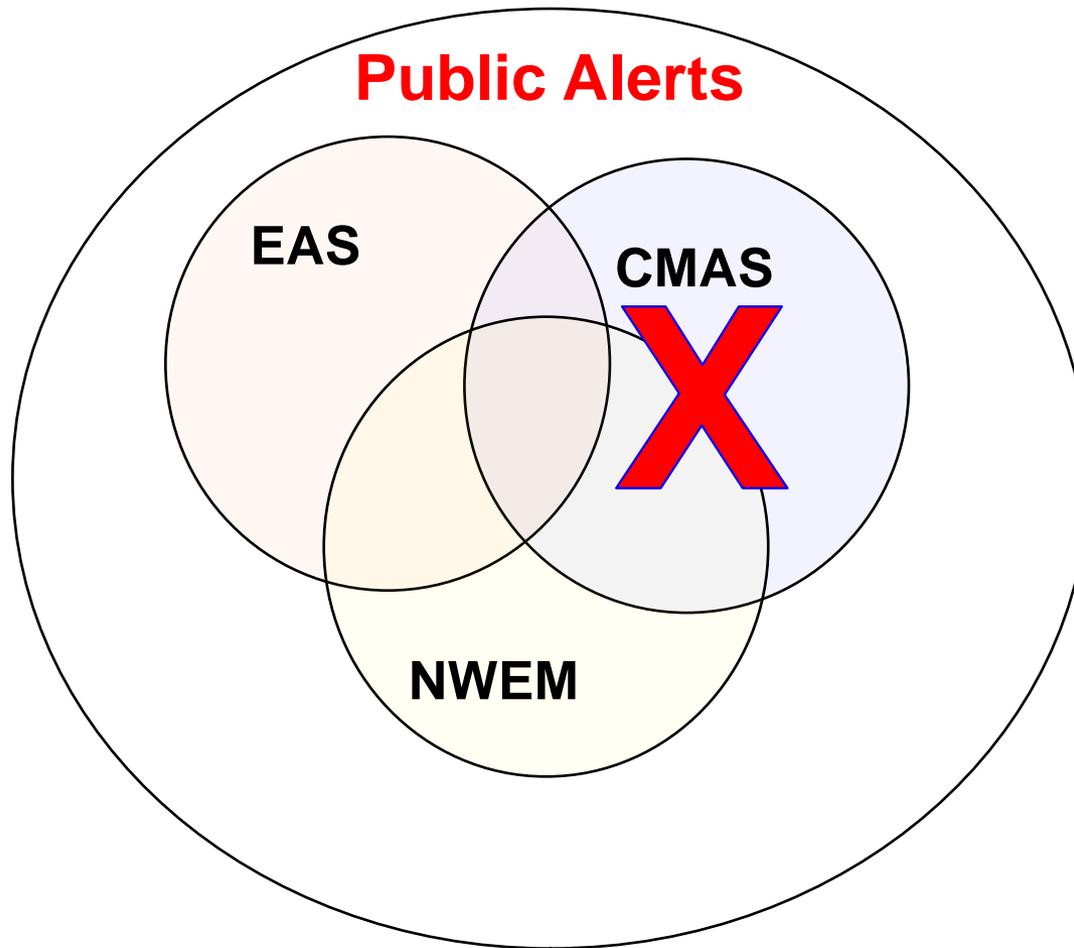


IPAWS Alerting Channels for Originators

| CAP 1.2 Options | Permissions needed | Capability |
|-----------------|---|---|
| COG-to-COG | Needs only an Operational COG. | Cap 1.2 post and retrieval using the IPAWS-OPEN SOAP Interface. |
| EAS | Added designation of COG as Public Alerting Authority | Authority to post applicable CAP messages for EAS Broadcast. (May be limited by Event Code and Geography.) |
| CMAS | Added designation of COG as Public Alerting Authority | Authority to post applicable CAP messages for Cellular Mobile Broadcast. (May be limited by Event Code and Geography.) |
| NWEM | Separately authorized by NOAA. | Authority to post applicable non weather related CAP messages for broadcast on NOAA Radio. Limited by NOAA designated Event Code and Geography. |
| PUBLIC | Public Alerting Authority | Authority to post applicable CAP messages for Public Consumption. (May be limited by Event Code and Geography.) |



BLOCKCHANNEL==CMAS



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Blocking Two Channels

```
<parameter>
```

```
  <valuename>BLOCKCHANNEL</valuename>
```

```
  <value>CMAS</value>
```

```
</parameter>
```

```
<parameter>
```

```
  <valuename>BLOCKCHANNEL</valuename>
```

```
  <value>NWEM</value>
```

```
</parameter>
```



Blocking a Channel

```
<parameter>  
  <valuename>BLOCKCHANNEL</valuename>  
  <value>CMAS</value>  
</parameter>
```



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BLOCKCHANNEL Codes

- ▶ **When you BLOCKCHANNEL no validation for that dissemination channel is done at all.**

- ▶ **You do get a response code identifying that the message was not sent to the channel (these are NOT error codes):**
 - **401 No NWEM**
 - **501 No EAS**
 - **601 No CMAS**
 - **801 No Non-EAS PUBLIC**

- ▶ **500 and 800 are mutually exclusive**
 - **500 requires 801**
 - **800 requires 501**
 - **501 and 801 can happen together**



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IPAWS Feed Access

- ▶ **If you only want access to recent unexpired Public EAS Messages there is an Atom Feed option (easier than SOAP):**
- ▶ **Automatic access to any EAS Participant as defined in 47 CFR Part 11.2**
- ▶ **Re-Disseminators that meet the conditions and follow the rules of the IPAWS EAS Atom Feed Eligibility policy document (downloadable).**
 - **MOA required.**
 - **Your use will be reviewed and/or monitored to be sure you meet the rules.**



IPAWS Feed Access – New Time Based Retrievals

- ▶ To get all recent public IPAWS Profile conforming messages that did not qualify for the EAS Feed (response code 800):
[...EAS_FEED_ENDPOINT/public_non_eas/recent/YYYY-MM-DDTHH:mm:ssZ?pin=xxxxxxxx](#)
- ▶ To get all recent public IPAWS Profile conforming messages, both EAS and non-EAS (response codes 500 and 800):
[...EAS_FEED_ENDPOINT/rest/public/recent/YYYY-MM-DDTHH:mm:ssZ?pin=xxxxxxxx](#)
- ▶ To get all recent IPAWS Profile conforming messages that were qualified for EAS (response code 500):
[...EAS_FEED_ENDPOINT/rest/eas/recent/YYYY-MM-DDTHH:mm:ssZ?pin=xxxxxxxx](#)
- ▶ **“Recent” is a configurable value – Currently 20 minutes in TDL.**



IPAWS Feed Access – Original EAS Only Calls

- ▶ To determine the last update to the feed:
[...EAS_FEED_ENDPOINT/rest/update?pin=xxxxxxx](#)
- ▶ To get a list of metadata and identifiers for currently unexpired EAS messages: [...EAS_FEED_ENDPOINT/rest/feed?pin=xxxxxxxxx](#)
- ▶ To get a particular CAP message based on the metadata and using the identifier (nnn): [...EAS_FEED_ENDPOINT/rest/eas/nnn?pin=xxxxxxxxx](#)
- ▶ Please note this is for EAS messages only. These are the calls made by the EAS broadcaster owned devices.

Authorizations

- ▶ Channels
- ▶ Event Codes
- ▶ FIPS (SAME) Codes
- ▶ Circles and Polygons – Based on shapes around FIPS codes

Comments and Questions

▶ **IPAWS Website** - <http://www.fema.gov/emergency/ipaws>

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