

Guidelines for Implementation of Common Alerting Protocol (CAP)-Enabled Emergency Alerting



**World
Meteorological
Organization**

Weather • Climate • Water

WMO-No. 1109

PWS-27

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1. INTRODUCTION

The World Meteorological Organization (WMO) Public Weather Services (PWS) Programme has the primary role of assisting National Meteorological and Hydrological Services (NMHSs) to develop or enhance their capacity to deliver services to the public, media, disaster managers and responders and other users in socio-economic sectors. The PWS Programme therefore assists NMHSs in their responsibility of providing warning and alerting services for the safety of life and livelihood, and property when threatened by extreme weather events such as heavy rain, heavy snow, strong winds, heat waves and extreme cold. In some countries, NMHSs are also responsible for issuing warnings for non-meteorological hazards such as tsunamis and volcanic ash. In order to disseminate the alerts to as many people as possible in a timely manner, NMHSs need to be able to send a consistent alert message through multiple communication channels such as radio, television (TV), land-line telephone connections, mobile phones, Internet, facsimile (fax) and sirens. The Common Alerting Protocol (CAP) standard is key to supporting such standards-based, all-hazards, all-media public alerting. The purpose of this publication is to provide step-by-step guidance for implementing the CAP standard in NMHSs.



2. THE CHALLENGE OF ALERTING

When data shows weather conditions threatening landfall of a tropical cyclone, scientists and emergency managers rush to evaluate the danger. Airborne and satellite observations supplement surface-based data, helping alerting authorities decide where and when to issue official public alerts.

Nothing so challenges humanity, and modern technology, as a major disaster. With today's sophisticated Earth observations, maps, communications and information technology, countless lives could be saved by early warnings. Yet, for many hazardous events around the world, societies continue to suffer horribly from disasters. Lives that might have been saved are still being lost, often for lack of solid, timely warnings reaching affected populations.

Improved public alerting in situations of potential disaster is a key objective of the CAP standard. Regardless of the type of hazard situation, authorities should have the information they need to quickly warn people at risk, using all available communications media.

The CAP standard addresses the long-standing need to coordinate dissemination mechanisms for warnings and alerts. Maintained by the Organization for the Advancement of Structured Information Standards (OASIS), the CAP standard¹ was adopted as International Telecommunication Union (ITU) Recommendation X.1303.

It is a major challenge to assure that standards-based, all-hazards, all-media public alerting becomes available to societies worldwide. WMO and the ITU, among others, are urging nations to implement alerting systems that are CAP-enabled.

¹ Common Alerting Protocol Version 1.1. Committee Specification, OASIS Emergency Management Technical Committee. September 2005. Available at: <http://www.oasis-open.org/committees/emergency/>

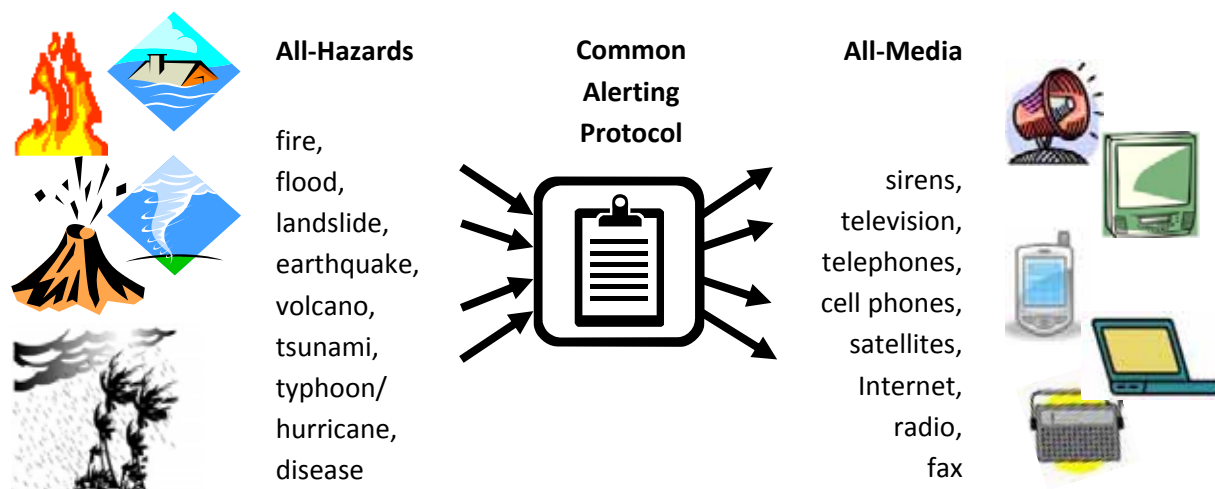
WMO and the ITU have also established the international “Register of Alerting Authorities” on the Internet^[2]. Available for public viewing or for monitoring through news feeds, each register entry shows: the name of the alerting authority; the types of that organization's authoritative messages; the geographic area for which messages are issued, and Internet addresses of alert sources.

Official CAP alerts for earthquake and volcano events around the world are already available. Multi-language CAP alerts for weather across thirty-three nations in Europe are being made available via MeteoAlarm. CAP-enabled systems are also implemented in Australia, Canada, the Caribbean, South Africa, and the United States of America. Other nations actively implementing CAP-enabled systems include Brazil, China, Germany, Sweden, and Sri Lanka

3. BENEFITS OF CAP

With adequate alerting, people are better able to act to reduce damage and loss of life from natural and human-caused hazardous events. The key is to get timely and appropriate alerts to people who need them.

Appropriate and complete alerting is complicated by the wide variety of warning systems. Many are specific to a certain type of hazard, such as an earthquake or typhoon, or to a certain warning media, such as a siren or television announcement. Because CAP can replace single-purpose interfaces between alert sources and dissemination media, it serves as a kind of “universal adaptor” for alert messages. CAP enables the provider to communicate alerts to targeted users.



CAP serves as a kind of universal adaptor for alert messages

A key benefit of CAP is that the alert message sender can activate multiple warning systems with a single input. Using a single input reduces the cost and complexity of notifying many warning systems.

A further benefit of CAP for emergency managers is that standardized alerts from many sources can be compiled for situational awareness and pattern detection. Managers are then able to monitor at any one time the whole picture across all types of local, regional, and national alerts.

² The international “Register of Alerting Authorities” is available at: <http://www.wmo.int/alertingorg>

CAP also provides consistency in the information delivered over multiple systems. Research has found that people do not typically act on the first warning message, but begin looking for confirmation of the information. Only when convinced that the warning is not a false alarm, will people act. Therefore, it is very important that use of CAP helps people get this exact corroboration of warnings coming through multiple channels.

CAP is compatible with all kinds of public alerting information systems, including broadcast radio and TV as well as data networks. Rather than being defined for a particular communications technology, CAP defines a digital message format applicable to all types of alerts. CAP is therefore compatible with new technologies such as Web services, as well as existing formats. CAP is also very useful where alerting systems serve multi-lingual and special-needs populations.

The CAP standard message format has the features essential for existing alert and warning systems and technologies. It is also a breakthrough standard that opens the door to technical innovation, disparate systems integration, and seamlessly sharing information among hazard monitoring, analysis, alerting, warning and public notification technologies. For instance, the geographic location information in a CAP alert allows targeting of landline and cellular telephones, radio and TV sets, alerting sirens and lights, as well as the pagers and call-in systems of emergency responders. CAP alert messages can also be used at the actual sensor systems, as a format for direct reporting of relevant events to collection and analysis centres.

4. ACTIONS FOR AN ALERTING AUTHORITY

The actions listed below provide incremental steps toward an operational, CAP-enabled emergency alerting system. The objective is that an alerting authority will be able to:

- Originate alerts in CAP format for any kind of hazard;
- Disseminate alerts in CAP format to the public via multiple delivery means; and,
- Share alert information in CAP format with other organizations such as other government agencies (within and across nations), non-governmental organizations (NGOs), and private sector entities.

Most of these actions could be initiated immediately by any alerting authority:

1. Learn Some Basics About CAP;
2. Use Existing CAP Sources;
3. Consider Tools to Convert Inputs into CAP;
4. Acquire CAP Mapping Tools;
5. Implement CAP Alert Source;
6. Publish a CAP Alert News Feed;
7. Register an Alerting Authority;
8. Choose an Internet Host for CAP Sources and News Feeds;
9. Consider Other Interfaces for CAP Dissemination; and,
10. Develop Public Outreach and Education.

4.1 Learn Some Basics About CAP

Most alerting authorities are not familiar with CAP and basic education is necessary to achieve the benefits of CAP-enabled alerting. This is a matter of on-going capacity development and is complementary to training that may be entailed with any particular alerting system component.

A 10-minute video^[3] provides a basic introduction to CAP. Examples given in this document also provide basic education about freeware to generate CAP alerts and about Web applications to monitor CAP sources such as weather and earthquake alerts.

Staff of the alerting authority could be educated on use of CAP with mapping software, including standalone or Web-enabled mapping freeware and commercial packages. With a further technical and policy education, the authority could issue its own CAP alerts. The authority might then encourage other current or potential partners to make use of and/or publish CAP alert sources. Staff could also be educated on ways to exploit CAP for internal communications before, during, and after an incident occurs.

It may be that some of the alerting authority staff are already gaining such education on their own. However, a focused emphasis on CAP education would be more effective and efficient in identifying and/or sponsoring development of training materials and services appropriate to the particular alerting authority situation. Such CAP education is pre-requisite to leveraging the many other related opportunities that surface as use of CAP broadens across the regional and the global communications infrastructure.

What To Do - Identify education and training products and services relevant to CAP-enabled alerting. Some of these products and services are available online at little or no cost, while others are associated with particular CAP-enabled products and services. Contact organizations that have implemented CAP for advice on which educational products and services are most useful. Seek opportunities for joint acquisition of training and/or CAP integration into alerting products and services commonly used in the region.

4.2 Use Existing CAP Sources

The alerting authority can select from various sources of alerting information that are already available and published via CAP news feeds, or could easily be made available as CAP sources (see Example A concerning how to subscribe to a CAP alert source). Some important alerts are already available as CAP feeds, such as earthquake and volcano alerts from the US Geological Survey (USGS), as well as hurricane and tsunami alerts from the US National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS) and the Pacific Tsunami Warning Center (PTWC). Other potential CAP sources and aggregators include GEONetcast and the World Meteorological Organization Information System (WIS).

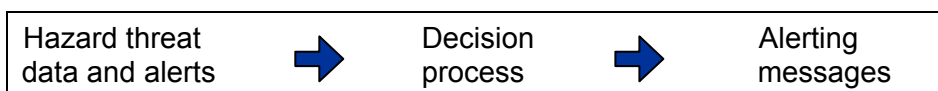
It may be that the dissemination of CAP format alerting information can be initiated most readily within a government agency. However, agencies should anticipate the involvement of other stakeholders, such as other governments and alerting authorities in the region, as well as other commercial firms and NGOs, including telecommunications providers, tourist industry companies, and international aid agencies.

³ An introductory video about CAP is available at: <http://www.youtube.com/watch?v=n0iKp60jttY>

What To Do - Begin immediately to use existing authoritative CAP sources. This can be accomplished by subscribing to existing news feeds in CAP format (as shown in Example A). Contact organizations that have implemented CAP for further advice on available CAP feeds.

4.3 Consider Tools to Convert Inputs into CAP

In simple terms, the emergency alerting process can be viewed as centred on an alerting authority and having three parts: hazard threat data and alerts are communicated as input; the alerting authority decides on appropriate actions; and alerting messages are then disseminated to various audiences (other authorities, responders, general public, etc.).



Any operational alerting process today deals with a wide variety of information inputs. Information relevant to hazard threats comes in from many sources, including sensors as well as people. These inputs are communicated with many technologies (telephone, radio, Internet, etc.). The information also takes many forms (raw data, text, audio, maps, pictures, video, etc.), often specific to the type of information service (news wires, weather notices, seismic monitoring, traffic reports, etc.).

With a CAP-enabled approach, the alerting process can be streamlined through tools that convert much of this diverse information into CAP format. CAP conversion tools are already available and others can be built as needed.

Official alerting messages to the public are often disseminated by authorities that are government agencies, and government agencies are often sources of hazard threat data and alerts. In addition to the typical government emergency management office, each alerting authority may interact with other government and NGO agencies (e.g., police, fire, medical/health, social services, Red Cross/Red Crescent, water, public works, airport authority, port authority, energy, and telecommunications). These agencies could be encouraged to implement CAP news feeds of appropriate information based on their internal policies and authority. For example, alerting authorities could explore arrangements for alerts in CAP format to be originated from public or private utilities, alerting for situations such as planned outages of power and water, traffic disruptions, etc. (see Example B concerning freeware for generating CAP alerts). These sources may be initially restricted to the emergency management community, but eventually most CAP news feeds should be publicly accessible as well.

What To Do - Explore interface tools for converting alerting information inputs to CAP format, where such conversion is cost effective. Under control of customized rules, such an interface tool can either receive alerts directly or monitor and fetch alerts available from external non-CAP sources. The tool would relay those that need to be routed into the CAP-enabled emergency alerting system. Some tools in this vein are tied to particular CAP-enabled software, while other tools are associated with general Internet services such as Google Public Alerts freeware (see Example C), common mapping platforms such as the CAP-enabled aspects of the Environmental Systems Research Institute (ESRI) Geographic Information System (GIS) software, and emergency management freeware. Seek opportunities for joint acquisition and/or integration into products and services commonly used across the region.

4.4 Acquire CAP Mapping Tools

Mapping of hazard threats and incidents is often of interest to an originator or user of CAP format alerting information. For the originator of an alert, software lets the originator draw an alert area on a map and generates the set of latitude/longitude points describing the area (in CAP, either a polygon or a circle). Software for generating CAP alerts or annotating maps that incorporate CAP alerts is available in commercial products and as freeware, supporting most of the platforms in common use: PC's, smart phones, tablets, etc.

What To Do - Acquire mapping tools that support the interactive generation of CAP alerts and/or display of CAP formatted alerting information. Some of the mapping platforms most commonly used in emergency management are CAP-enabled: the ESRI GIS software, Google Maps and Google Earth products and services. Contact organizations that have implemented CAP for advice on which mapping software they found useful. Seek opportunities for reducing costs through joint acquisition of mapping tools and/or integration into products and services commonly used in the region.

4.5 Implement CAP Alert Source

To realize CAP-enabled alerting, the key requirement is that alerting authorities disseminate at least some of their alerting information in CAP format. Therefore, the alerting authority should implement at least one dissemination source of CAP format alerting information (freeware for generating CAP alerts is described in Example B). Access to CAP format sources may be restricted to access within the emergency management community initially, but publicly accessible CAP format sources should be made available eventually.

What To Do - Implement at least one source of alerting information in CAP format, hosted on the Internet in any of various ways discussed in section 4.8 below. Potential users should have secure access to these sources; authentication should be supported as well. This can be accomplished using various CAP-enabled products and services, including but not limited to: Google Public Alerts, ESRI GIS, and Sahana. Contact organizations that have implemented CAP for advice in this regard.

4.6 Publish a CAP Alert News Feed

A source of CAP format alerting information is like a collection of news articles. To expose those articles to potential users, the items in the source should be published as a "news feed". The alerting authority implements an Internet-accessible news feed associated with one or more of its sources of CAP format alerting information. An example of how to subscribe to CAP news feeds is provided in Example A below.

CAP news feeds in emergency alerting systems should be implemented using the standard for Internet news feeds known as Real Simple Syndication (RSS). The choice of RSS is driven by the fact that RSS is ever-present throughout the Internet, supporting nearly all news publishers and "blogs" (Web logs). As a consequence, freely available Internet tools make it easy for users to subscribe to RSS feeds. In the case of CAP feeds for emergency alerting, potential users would be able to independently subscribe to CAP news feeds as desired.

What To Do - Publish at least one RSS news feed associated with one or more of its CAP dissemination sources. This can be accomplished using various CAP-enabled products and services. Various organizations that have implemented CAP can be contacted for free advice on publishing CAP feeds.

4.7 Register an Alerting Authority

The CAP format alerting information available via RSS feeds is of interest not only to emergency management offices but to many other individuals and organizations involved in evaluating hazard threats, reporting, alerting, dispatching, or otherwise dealing with the effects of emergency situations. But, potential users need a mechanism to help them discover these sources and CAP news feeds. In keeping with WMO and ITU recommendations, alerting authorities that are endorsed by governments should have their alerting information sources and/or CAP news feeds registered at least in the international WMO Register of Alerting Authorities.

What To Do - Register as an alerting authority, together with alert sources and CAP news feeds, if available, in the international WMO Register of Alerting Authorities^[4]. WMO maintains this registration tool and also provides a technical document providing instruction on how to assign identifiers^[5].

4.8 Choose an Internet Host for CAP Sources and News Feeds

As noted above, the essential feature of the CAP-enabled alerting system is a set of CAP sources and news feeds published by official alerting authorities. These CAP sources and news feeds can be hosted anywhere on the Internet, and any of three general approaches could be used for such hosting.

One approach is that an alerting authority could publish its CAP sources and/or news feeds on one or more of its own Internet-accessible host servers.

A second approach is that an alerting authority could publish its CAP sources and/or news feeds on one or more Internet-accessible servers maintained by another alerting authority under a host sharing arrangement.

A third approach is that an alerting authority could publish its CAP sources and/or news feeds on Internet-accessible servers maintained by hosting services, which provide specifically dedicated services or more generic "cloud" hosting services.

What To Do - Explore providers of freeware, commercial software, hardware, training and other relevant services to host CAP sources and news feeds on the Internet. This could include different hosting approaches: (1) CAP sources and/or news feeds hosted on a locally managed, Internet-accessible server; (2) CAP sources and/or news feeds hosted on one or more Internet-accessible servers maintained by another alerting authority under a sharing arrangement; and (3) CAP sources and/or news feeds hosted on Internet-accessible servers maintained by external hosting services. Contact organizations that have implemented CAP for advice on Internet hosting.

⁴ To register an entry in the international WMO Register of Alerting Authorities, go to the Web page at: <http://www.db.wmo.int/alerting/authorities.html>

⁵ A WMO Public Weather Services Technical Document on how to assign identifiers is at: http://www.wmo.int/pages/prog/amp/pwsp/documents/AIR_PWS-20.pdf

4.9 Consider Other Interfaces for CAP Dissemination

Many communication facilities can be used to meet the dissemination objectives of an alerting authority, especially as the emergency alerting system becomes CAP-enabled. Tools for interfacing CAP messages to many specific communication facilities are available now: tools for triggering sirens, calling telephones, sending faxes, e-mails, and SMS messages, converting text to speech, translating to additional languages, re-directing traffic, etc. The cost effectiveness of developing and/or deploying such tools varies according to the particular technologies involved (hardware and/or software) and how the facilities are deployed.

What To Do - Evaluate CAP-enabled interfaces to alerting facilities where such an approach may be cost-effective. Contact organizations that have implemented CAP for advice. Seek cost saving opportunities by joint acquisition of interfaces or integration in common products and services.

4.10 Develop Public Outreach and Education

The objective of public outreach and education is that the public becomes aware of the new opportunities for enhanced alerting as the implementation of a CAP-enabled approach proceeds. The outreach and education could be based on freely available products developed elsewhere, such as the Aruba products at <http://kynthiaart.com/ews/aruba/>. That set includes Fact Sheets, Alerting Videos, Posters, Bumper Stickers, PC Presentations, a Link button for Websites, and Sponsor Logo designs.

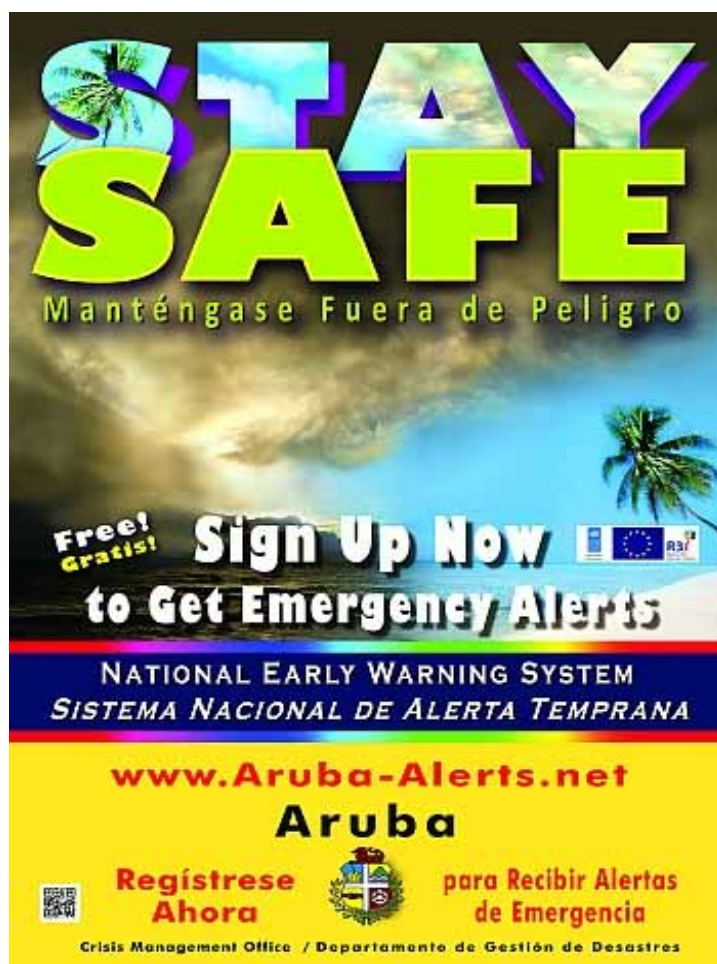


Figure 1. A poster for the “Stay Safe” campaign of the Aruba Warning System

What To Do - Assess, in partnership with relevant stakeholders, what ought to be shared with the public and what resources can be mobilized to accomplish such sharing. Reach consensus among stakeholders on immediate priority work. Design, or support design of, an outreach and education campaign including who will do what tasks by when.

5. EXAMPLE TOOLS

Example A: Subscribing to a CAP News Feed

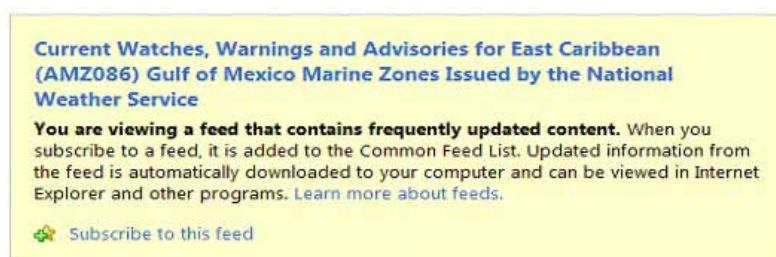
The alerting authority can begin immediately to use existing authoritative CAP sources that are available on the Internet as RSS news feeds. All Web browsers have a built-in function for subscribing to news feeds and this is easily applied to CAP alerts in the news feed format. For instance, "Watches, Warnings, or Advisories for East Caribbean" from the US NOAA/NWS are available online as shown below⁶.

The screenshot displays the NOAA/NWS website for "Watches, Warnings or Advisories for East Caribbean (AMZ086) Gulf of Mexico Marine Zones". The page features a blue header with the NOAA logo and the title. A navigation bar includes links for Site Map, News, Organization, Search, and NWS. A sidebar on the left offers various services like Local forecast, Sign-up for Email Alerts, RSS Feeds, Warnings, Observations, Radar, and Forecasts. The main content area shows the alert details for a Gale Warning issued on February 27 at 4:30 AM EST, with an urgency of Expected and status of Actual. The alert affects the East Caribbean area. The footer contains contact information for the US Dept of Commerce, National Oceanic and Atmospheric Administration, and links to Disclaimer, Information Quality, Credits, Glossary, Privacy Policy, Freedom of Information Act (FOIA), About Us, and Career Opportunities.

⁶ For instance, the US NOAA/NWS posts current Watches, Warnings, and Advisories for the East Caribbean online at: <http://alerts.weather.gov/cap/wwaatmget.php?x=AMZ086>


To subscribe to this alert, one would use the built-in Web browser function. This function can be invoked under "Tools / Feed Discovery" in Microsoft Internet Explorer. Using this Web browser function brings up a screen similar to that shown to the right.

The subscription function is labelled "Subscribe to this feed".



Current Watches, Warnings and Advisories for East Caribbean (AMZ086) Gulf of Mexico Marine Zones Issued by the National Weather Service

You are viewing a feed that contains frequently updated content. When you subscribe to a feed, it is added to the Common Feed List. Updated information from the feed is automatically downloaded to your computer and can be viewed in Internet Explorer and other programs. [Learn more about feeds.](#)

 [Subscribe to this feed](#)

Gale Warning issued February 27 at 4:30AM EST by NWS

Today, February 27, 2012, 5 hours ago | w-nws.webmaster@noaa.gov 

...GALE WARNING S OF 13N W OF 73W... .TODAY THROUGH WED...S OF 13N W OF 73W E WINDS 30 TO 35 KT DIMINISHING TO 25 KT WED NIGHT. SEAS 10 TO 14 FT SUBSIDING TO 10 FT WED NIGHT. ELSEWHERE S OF 18N E WINDS 20 TO 25 KT. SEAS 8 TO 12 FT. N OF 18N NE TO E WINDS 15 TO 20 KT. SEAS 6 TO 8 FT. .THU AND FRI...W OF 70W E WINDS 20 TO 25 KT. SEAS 8 TO 11 FT.

Example B: Freeware for Creating and Publishing CAP Alerts

A simple CAP Alerting Tool is presented here as an example of software for creating, editing, and issuing CAP alerts. In common with most CAP-enabled software, this free and open source software requires only a Web browser and runs on a local host server or a host server anywhere on the Internet (this particular freeware is Java code designed to run on Apache/Tomcat or equivalent). Creation of a new CAP alert typically starts with a previous alert or template to simplify editing. Once in final form, the alert can be posted to an RSS feed at the host server and thereby make it publicly accessible. If the source is authoritative, aggregators such as Google Public Alerts and other alerting services then disseminate the CAP alert over the Internet and other media.

This is the entry point to the Java freeware for editing CAP alerts. When the "login" button is clicked, an authorized editor of CAP alerts will be prompted to enter his/her e-mail address and associated password.

Welcome to the CAP Alert Editor

This is an editing tool for alerts in CAP (X.1303) format. Your first step is to be authenticated as an authorized editor for CAP alerts. This is done through a **login** process below, requiring your e-mail address and your personal password.

Next, you will be prompted to **initialize** values of your new CAP alert, using either a generic template or a previous CAP alert.

As you proceed with editing the new CAP alert, you can **save** it as a draft and you can have it sent to yourself by e-mail.

The final step is to **publish** the alert, which is allowed only if the alert successfully passes validation.

[Login as Editor using e-mail address](#)

Initializing an Alert:

Here, an editor can scan the dates and headlines of most recent CAP alerts. Putting the mouse over an entry shows text of the description and instruction elements for that alert.

Initialize an alert for editing

This application confirmed or created two file directories, within the designated server directory for the application, now set to null. The directory at c:/cap/nmhs/drafts is for draft CAP alerts and c:/cap/nmhs/alerts is for published CAP alerts.

Select initial values using one of the most recent posted alerts: (c:/cap/nmhs/alerts)

As Posted 2012/08/16 15:04:14	2011-02-02-10-08-30.xml	Flash flood Warning for South Central San Bernardino, Western Riverside, and North Central San Diego Counties in Southwest California
As Posted 2011/02/05 04:07:26	2011-02-02-08-37-09.xml	Geomagnetic Storm Alert
As Posted 2011/02/05 04:03:18	2011-02-05-03-03-09.xml	Magnitude 7.8 Rat Islands, Aleutian Islands, Alaska
As Posted 2011/02/05 03:58:08	2011-02-05-02-57-59.xml	Mount St Helens Volcano Advisory (aviation color code ORANGE)

Editing with a Web Form:

Here the freeware editing tool displays the CAP alert as a Web Form. The editing screen has fields with pull-down selections and input areas for text. The editor can mouse over any field to see a tip about what values are expected.

The editor can choose to view text suggestions for the *headline*, *description*, and *instruction* fields. This choice will open a new window so the editor can copy and paste suggested text.

The editor can choose to validate the CAP alert with the Google validation tool. This opens a new window giving any validation suggestions.

The editor can choose here to save the edited alert as a draft.

The editor can also choose at any time to show the CAP alert in its actual XML format. That content corresponds to the values entered in the Web form. When the editor changes anything in a field and leaves that field, the CAP message XML changes as well.

The editor can also use a map tool to specify either a circle or a polygon for the alerting area.

Click for [headline](#), [description](#), [instruction](#) text suggestions.

<input type="button" value="Validate (Google)"/> <input type="button" value="Save edited alert"/> <input type="button" value="Show XML"/> <input type="button" value="End this session"/>		
identifier <input type="text" value="urn:oid:2.49.0.1.0.0.2012.8.21.19.59.54"/>		
sender <input type="text" value="echristian@usgs.gov"/>		
sent <input type="text" value="2012-08-21T19:59:54-00:00"/>		
status <input type="text" value="Test"/>	msgType <input type="text" value="Alert"/>	scope <input type="text" value="Public"/>
language: <input type="text" value="en-US"/>	category: <input type="text" value="Met"/>	
event: <input type="text" value="Message from USGS Volcanoes Program"/>		
urgency <input type="text" value="Expected"/>	severity <input type="text" value="Minor"/>	certainty <input type="text" value="Possible"/>
senderName: <input type="text" value="USGS Volcanoes Program, Craig Weaver"/>		
headline <input type="text" value="Mount St Helens Volcano Advisory (aviation color code ORANGE)"/>		
description <input type="text" value="Current status is Volcano Advisory (Alert Level 2); aviation color code ORANGE: Growth of the new lava dome inside the crater of Mount St. Helens continues, accompanied by low rates of seismicity, low emissions of steam and volcanic gases, and minor production of ash. During such eruptions, changes in the level of activity can occur over days to months. The eruption could intensify suddenly or with little warning and produce explosions that"/>		
instruction <input type="text" value="Wind forecasts from the National Oceanic and Atmospheric Administration (NOAA), coupled with eruption models, show that any ash clouds that rise above the crater rim today would drift principally eastward. Under current eruptive conditions, small, short-lived explosions may produce ash clouds that exceed 30,000 feet in altitude. Ash from such events can travel 100 miles or more downwind."/>		
web <input type="text" value="http://vulcan.wr.usgs.gov/Volcanoes/MSH/Eruption04/"/>		
image <input type="text" value="http://www.fs.fed.us/gpnnf/volcanocams/msh/"/>		
contact <input type="text" value="Craig Weaver 1-206-553-0627"/>		
areaDesc <input type="text" value="Skamania County, Washington, in the Pacific Northwest region of the United States (96 miles south of Seattle, Washington and 53 miles northeast of Portland, Oregon)"/>		
circle <input type="text" value="46.2,-122.2 0"/> Circle format: lat,long<space>radius Make circle using map	geocode <input type="text"/> Geocode format: 'type' = 'value'	
polygon <input type="text"/> Polygon format: SW NW NE SE SW (lat,lon points) Make rectangle using map		

Send Draft Alert by E-mail:

Whenever a draft alert is saved, the editor can hit a button to send a copy to the editor's e-mail address. This is how a CAP message looks when it comes to the editor's usual e-mail system. An editor can use his/her e-mail system to get others to review the alert, or the editor could send the CAP message to a notification mailing list. The actual CAP message is contained as an attachment (signified by a blue hyperlink in this e-mail system).



Publishing a Completed CAP Alert: When the editor is satisfied that the saved CAP message is ready for release, he/she can hit a button that will copy the CAP alert to the directory of posted alerts. Doing so also updates the RSS news feed, which points to the CAP XML files in the publicly accessible directory of posted alerts. Subscribers to the RSS news feed will get the alert when they next check in.

If it is important for Google Public Alerts to publish this alert in seconds, there is a mechanism for that as well.


Example C: Google Public Alerts Freeware


Google Public Alerts is a CAP-based platform of open source freeware supported by Google's philanthropic organization, Google.org. It is designed to provide authoritative and relevant emergency alerts to the hundreds of millions of users of Google-supported technologies worldwide. Information for organizations to make alerts available through the Google public alerts tool is available online⁷.










As of this writing, Google Public Alerts is offered only through Google Maps and the tool only shows CAP feeds provided by NOAA/NWS and the USGS. The screen shot below shows how a Flood Warning in northern Indiana is displayed when a Google Maps user enters the search term "flood Indiana". Note: This is provided for general understanding of a CAP-enabled authoring tool as open source freeware; it is not to be interpreted as a vendor recommendation.

⁷ Information about the Google public alerts tool is at: <http://support.google.com/publicalerts>

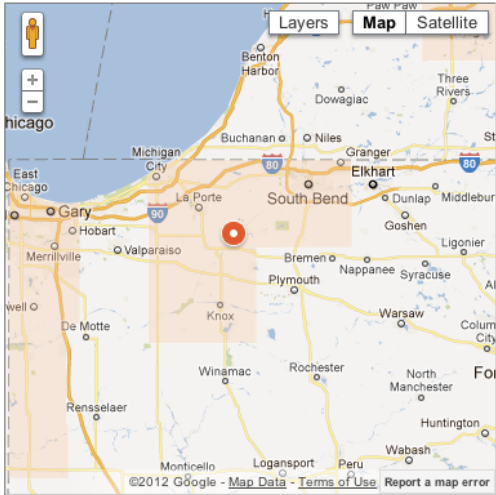

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 **public alerts**
a google.org project



 **Flood Warning in Northern Indiana**
Alert active for next 1 day, 20 hours - Issued 10:33 PM EST (25 minutes ago)
[weather.gov](#)
Locations: La Porte; St. Joseph; Starke
How likely:    How soon:    How severe:  

Message
...THE FLOOD WARNING CONTINUES FOR THE FOLLOWING RIVERS...
KANKAKEE RIVER AT DAVIS ROUTE 30 AFFECTING LA PORTE...ST.
JOSEPH
AND STARKE COUNTIES
...RECENT HEAVY RAINFALL AND SNOW MELT HAS CAUSED MINOR
FLOODING ALONG
THE KANKAKEE RIVER AT DAVIS.
THE FLOOD WARNING CONTINUES FOR
THE KANKAKEE RIVER AT DAVIS ROUTE 30
* UNTIL FRIDAY EVENING.
* AT 10 PM TUESDAY THE STAGE WAS 10.4 FEET AND STEADY.
* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST.
* FLOOD STAGE IS 10.0 FEET.
* FORECAST...THE RIVER WILL FALL BELOW THE 10.0 FOOT FLOOD
STAGE
AROUND 7 PM THURSDAY JANUARY 26.
* AT 10.0 FEET...FLOODING OF LOW LYING AGRICULTURAL AREAS
BEGINS.
* THIS CREST COMPARES TO A PREVIOUS CREST OF 10.7 FEET WHICH
OCCURRED
ON MAY 16 2011.


 [Affected region](#) [Open map in new window](#)
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[Send feedback](#)

Using the location information in a CAP alert allows Google Public Alerts to focus the display of an alert to users in a particular area. In addition to the user's search term, the display is governed within Google Public Alerts by a relative priority based on CAP alert values such as Severity, Urgency, and Certainty as well as date/time values.

Users interested in all active alerts in an area can use the homepage at <http://www.google.org/publicalerts> shown as a screen shot below.

http://www.google.org/publicalerts/?hl=en&gl=US

You Web Images Videos Maps News Shopping Gmail more + Help Sign in

Google public alerts
a google.org project

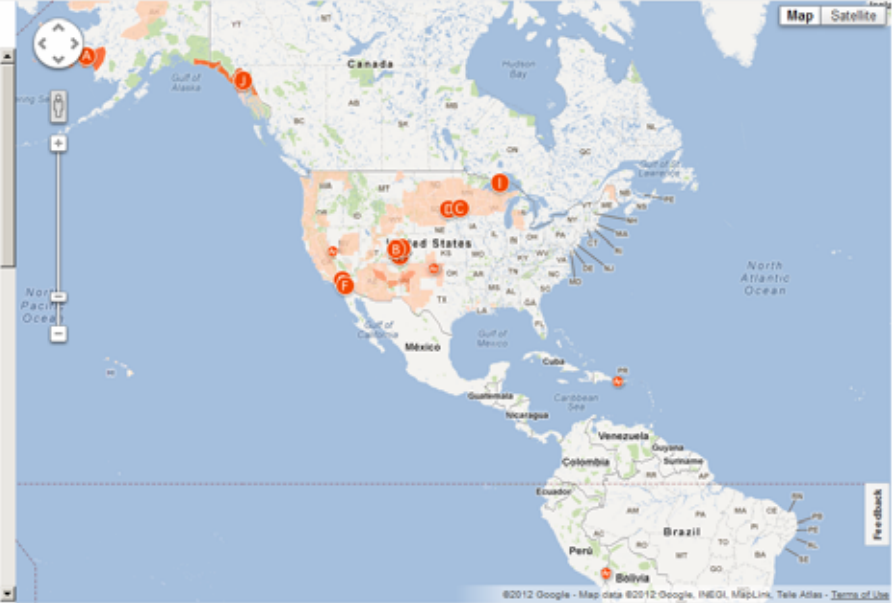
Advanced search

Important alerts from across the web when and where they're needed most. [Learn more](#)

[Link to page](#)

Show: all alerts, in all locations, sorted by relevance

- A** **Blizzard Warning for Kuskokwim Delta, Alaska**
Blinding snow, deep drifts, and dangerous wind chill likely.
Alert active for next 50 minutes
[weather.gov](#)
- B** **Winter Storm Warning in Western Colorado**
Heavy snow, heavy freezing rain, or heavy sleet is imminent.
Alert active for next 1 day, 18 hours
[weather.gov](#)
- C** **Winter Storm Warning in Southwestern Minnesota**
Heavy snow, heavy freezing rain, or heavy sleet is imminent.
Alert active for next 2 days
[weather.gov](#)
- D** **Winter Storm Warning in Southeastern SD**
Heavy snow, heavy freezing rain, or heavy sleet is imminent.
Alert active for next 2 days
[weather.gov](#)
- E** **Winter Storm Warning in Southeastern Colorado**



Map Satellite

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Feedback

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