

Common Alerting Protocol (CAP) v. 1.0

Emergency Management
Technical Committee



Summary

- ◆ Purpose
- ◆ History
- ◆ Design Philosophy
- ◆ Data Dictionary
- ◆ Examples
- ◆ Who Is Using CAP?
- ◆ Next Steps
- ◆ Resources

Purpose

- ◆ Simple and standardized format for exchanging alerts and warnings over various types of networks
- ◆ Compatible with legacy and emerging “transport” methods, such as NOAA National Weather Radio specification and Web Services
- ◆ Flexible geographic targeting
- ◆ Phased and delayed effective times and expirations
- ◆ Message update and cancellation features
- ◆ Facility for including inline digital images and audio

History

- ◆ National Science and Technology Council (NSTC) released “Effective Disaster Warnings” report in November 2000, which recommend standard way to collect and relay warnings
- ◆ International working group of over 130 emergency managers, IT experts, and telecommunications experts convened in 2001 to adopted the specific recommendations and start CAP
- ◆ Drafts used and tested in field demonstrations in Virginia and California in 2002 and 2003
- ◆ CAP 0.7 contributed to EM TC shortly after formation in 2003
- ◆ CAP 1.0 becomes OASIS Standard in April 2004

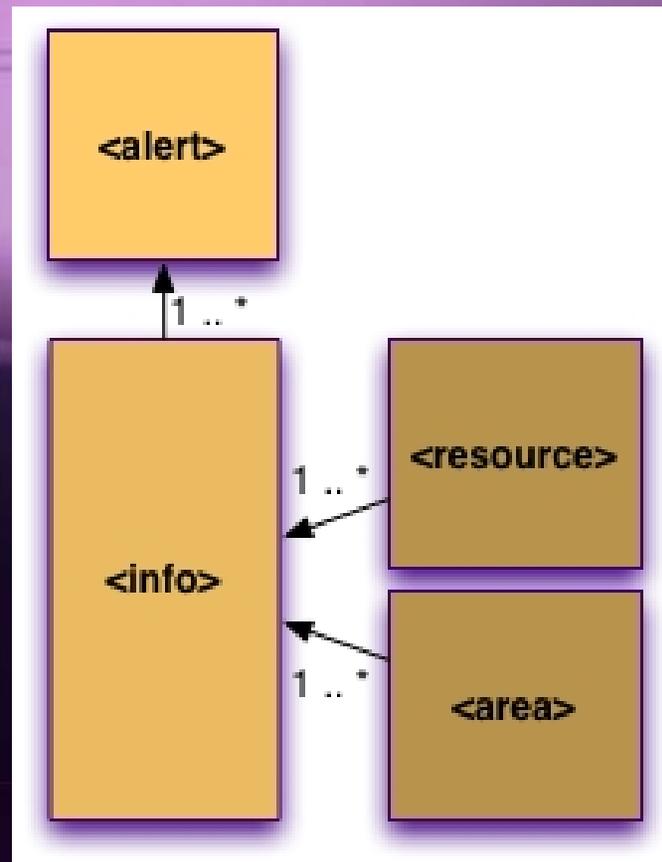
Design Philosophy

- ◆ Interoperability
- ◆ Completeness
- ◆ Simple Implementation
- ◆ Simple XML and Portable Structure
- ◆ Multi-use Format
- ◆ Familiarity
- ◆ Interdisciplinary and International Utility

Data Dictionary

- ◆ Document Object Model
- ◆ <alert> Element
- ◆ <info> Element
- ◆ <resource> Element
- ◆ <area> Element

Document Object Model



<alert> Element

- ◆ Identification containers for alert instances, sender, operator/device, and referencing other alerts or specific incidents
- ◆ Alert metadata for time/date created, status, scope, type, and source
- ◆ Recipient targeting of alert based on restrictions and addresses
- ◆ Implementation specific containers for passwords, handling codes, and exchange of general notes
- ◆ Contains one or more <info> elements

<info> Element

- ◆ Core alert details such as type, urgency, severity, certainty, category, sender's name, headline, and description
- ◆ Recipient data for specific language, intended audience, and targeting based on event code
- ◆ Applicability of alert described by effective time, onsite, and expiration
- ◆ Ability to send corresponding instructions, reference URLs, contact information, or implementation specific parameters
- ◆ Contains one or more <resource> and/or <area> elements

<resource> Element

- ◆ Ability to specify both a human-readable description of the resource as well as the MIME content type
- ◆ Container for specifying the resource's size, in bytes, to aid implementations
- ◆ Provides a URI pointing to the resource and/or a digest (hash) of the resource itself
- ◆ Mechanism for passing a base-64 encoded version of the resource

<area> Element

- ◆ Geographic locations defined using WGS 84 (World Geodetic System 1984), equivalent to EPSG (European Petroleum Survey Group) code 4326 (2 dimensions).
- ◆ Text description of the alert area
- ◆ Ability to describe the effected areas using polygons, circles (point/radius), and/or geocodes
- ◆ Container for providing 3-D geospatial aspects using altitude and ceiling

Examples

- ◆ Available
 - ◆ Weather warnings through National Weather Service
 - ◆ Weather and locally applicable warnings for emergency managers within California OES
 - ◆ Sharing warnings between sirens, Dialogic, and E-Team application as part of Contra Costa County Community Warning System
 - ◆ Disseminating warnings using digital broadcast at NDS
 - ◆ Ability to send and receive CAP messages within DMI-Services
- ◆ Being Considered
 - ◆ Advanced EAS Relay Network
 - ◆ Gathering all hazards warnings as part of Weather Services HazCollect Project
- ◆ Potential
 - ◆ Intelligent Sensor Systems
 - ◆ Situational Awareness

Who Is Using CAP?

- ◆ Blue292 (www.blue292.com)
- ◆ California Office of Emergency Services (www.oes.ca.gov)
- ◆ Capital Wireless Integrated Network, know as CapWIN (www.capwin.org)
- ◆ Comlabs, Inc. (www.comlabs.com)
- ◆ Contra Costa County (CA) Office of the Sheriff, Emergency Services Division
- ◆ Department of Homeland Security (www.dhs.gov)
- ◆ Department of Justice (DOJ) Office of Justice Programs (OJP) (www.it.ojp.gov) through Global Justice XML Data Model (GJXDM) implementation
- ◆ Disaster Management Interoperability Services (www.dmi-services.org)
- ◆ E Team (www.eteam.com)
- ◆ GeoDecisions, Inc. (www.geodecisions.com)
- ◆ Hormann America, Inc. (www.hormannamerica.com)
- ◆ IEM, Inc. (www.ieminc.com)
- ◆ mobileFoundations (www.mobilefoundations.com)
- ◆ MyStateUSA (www.mystateusa.com)
- ◆ National Weather Service (www.weather.gov)
- ◆ NDS, Ltd. (www.nds.com)
- ◆ NTMI, Inc. (www.ntmi.com)
- ◆ Oregon RAINS (www.oregonrains.org)
- ◆ Ship Analytics (www.shipanalytics.com)
- ◆ United States Geological Survey (www.usgs.gov)
- ◆ Virginia Department of Transportation (www.virginiadot.org)
- ◆ Warning Systems, Inc. (www.warningsystems.com)

Next Steps

- ◆ Education and evangelism
- ◆ Refinement of specification based on experience and gathering of public input and comments
- ◆ Integration with broader suite of Emergency Management standards

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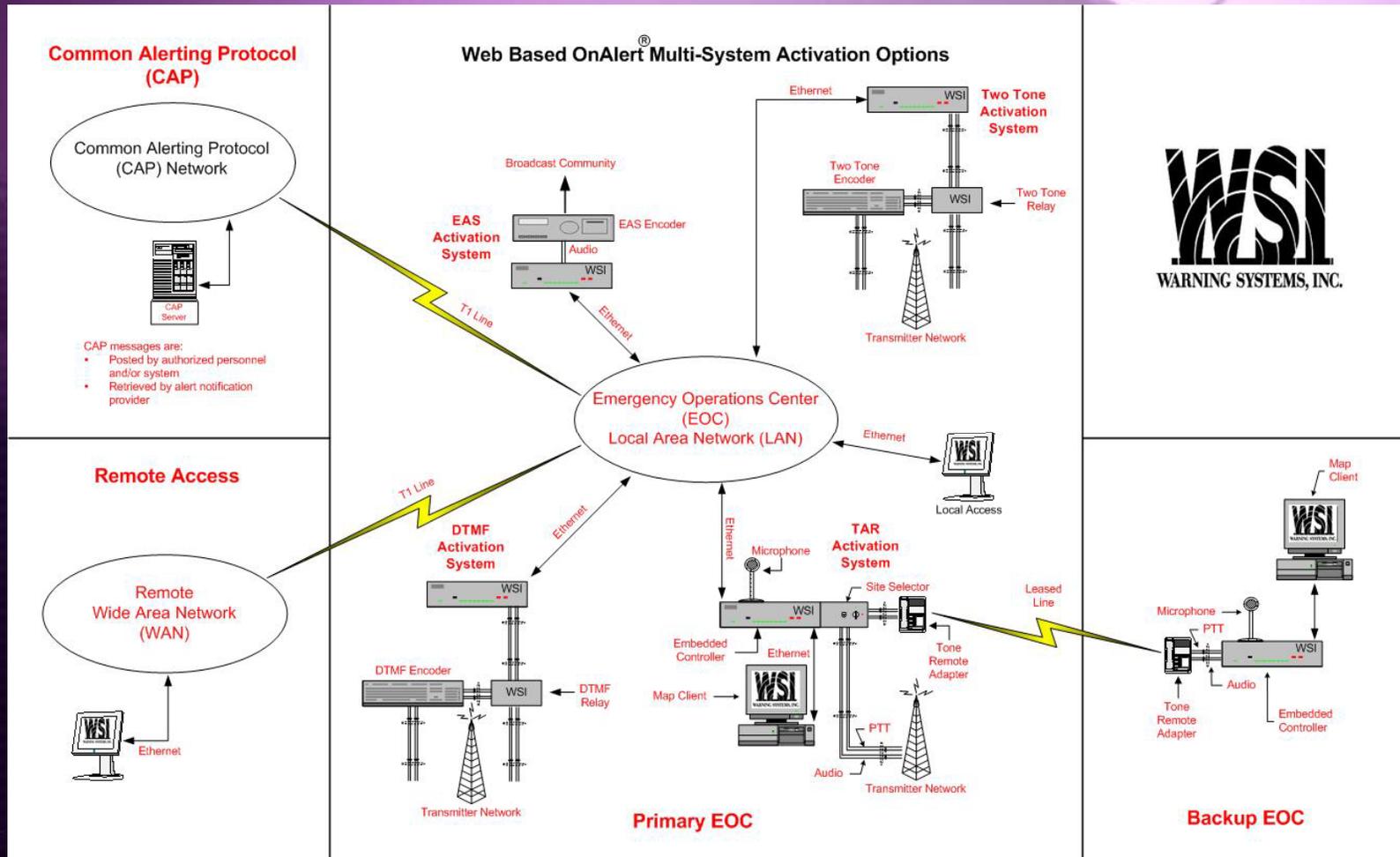
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<cap:alert xmlns:cap="http://www.incident.com/cap/1.0">
  <cap:identifier>NOAA-NWS-ALERTS Alabama 2005-06-21T06:56:59-04:00</cap:identifier>
  <cap:sender>w-nws.webmaster@noaa.gov</cap:sender>
  <cap:sent>2005-06-21T06:56:59-04:00</cap:sent>
  <cap:status>Actual</cap:status>
  <cap:msgType>Alert</cap:msgType>
  <cap:scope>Public</cap:scope>
  <cap:note>Current Watches, Warnings and Advisories for Alabama Issued by the National Weather
Service</cap:note>
  <cap:references>http://www.weather.gov/alerts/al.html</cap:references>
  <cap:info>
    <cap:category>Met</cap:category>
    <cap:event>Short Term Forecast</cap:event>
    <cap:urgency>Unknown</cap:urgency>
    <cap:severity>Unknown</cap:severity>
    <cap:certainty>Unknown</cap:certainty>
    <cap:effective>2005-06-21T10:47:00</cap:effective>
    <cap:expires>2005-06-21T11:45:00</cap:expires>
    <cap:headline>Short Term Forecast</cap:headline>
    <cap:description>SHORT TERM FORECAST NATIONAL WEATHER SERVICE HUNTSVILLE AL 547 AM CDT TUE JUN 21
2005 ALZ003-004-007-016-211145- CULLMAN-FRANKLIN AL-LAWRENCE-MORGAN- INCLUDING THE CITIES
OF...CULLMAN...HARTSELLE...MOULTON... RUSSELLVILLE 547 AM CDT TUE JUN 21 2005 .NOW... SCATTERED
SHOWERS THAT CONTINUE TO REDEVELOP OVER SOUTHERN FRANKLIN AND LAWRENCE COUNTIES ARE MOVING
EAST AT 5 TO 10 MPH. THE SHOWERS WILL EXTEND ACROSS THE BORDER REGION OF MORGAN AND CULLMAN
COUNTIES THROUGH 645 AM. SPOTTY RAINFALL OF UP TO ONE HALF OF AN INCH WILL BE POSSIBLE. $$
SCHAUB</cap:description>
    <cap:web>http://www.weather.gov/alerts/al.html#ALZ003.HUNNOWHUN.104700</cap:web>
  <cap:area>
    <cap:areaDesc>Franklin (Alabama)</cap:areaDesc>
    <cap:geocode>001059</cap:geocode>
  </cap:area>
</cap:info>
</cap:info>

```

www.nws.noaa.gov/alerts



Example



Example

The screenshot displays the 'ALABAMA CSEPP - TONE ALERT RADIO SYSTEM' interface. The main window is titled 'Map' and contains several control buttons: 'Full Map', 'Refresh Map', 'Zoom In', 'Zoom Out', 'Find Address', and 'Remove Plumes'. The map shows a geographical area with a red shaded region representing a plume. Key roads labeled include Rainbow Dr, Memorial Dr, Nisbet St NW, Mclellan Blvd, W 10th St, and Quinard Ave. Highway markers for 411, 77, 431, 9, 78, 46, and 20 are visible. The status bar at the bottom of the map window shows: 'Latitude: 33° 48' 53.0"N Longitude: 85° 52' 6.75"W County: Calhoun, Alabama Zone: A5'. On the right side, there is a 'Send Message By:' dropdown menu set to 'Zone'. Below it is a 'Select Zones:' list with 'Nursing Homes' and 'Special Population' categories. Under 'Special Population', zones M3, A5, A6, A7, A8, A9, A10, and B4 are listed, with A5 and A9 highlighted in blue. There are 'Select All Zones' and 'Clear All Zones' buttons. The 'Message Type:' dropdown is set to 'Time Update'. The 'Text Message:' field contains the text: 'CALHOUN CO EMA', 'THIS IS A TEST', 'THIS IS ONLY', and 'A TEST'. A red 'Send Message' button is located below the text field. At the very bottom right of the interface is an 'Exit' button. The Windows taskbar at the bottom shows the 'start' button, several open applications, and the system clock displaying '9:56 AM'.

Resources

- ◆ OASIS Emergency Management TC:
 - ◆ <http://www.oasis-open.org/committees/emergency/>
- ◆ OASIS CAP Implementer Forum Signup:
 - ◆ <http://www.oasis-open.org/mlmanage/index.php>
- ◆ OASIS EM TC Archive:
 - ◆ <http://lists.oasis-open.org/archives/emergency/>
- ◆ OASIS EM TC Public Comment Archive:
 - ◆ <http://lists.oasis-open.org/archives/emergency-comment/>
- ◆ Partnership for Public Warning's (PPW) Uniform Standards for Alerting Working Group (USA-WG) Archive:
 - ◆ <http://www.incident.com/pipermail/usa-wg/>
- ◆ Original Common Alerting Protocol Working Group Archive (CAP-list):
 - ◆ <http://www.incident.com/pipermail/cap-list/>
- ◆ Original CAP Interoperability Testing Archive (CAP-Interop):
 - ◆ <http://www.incident.com/pipermail/cap-interop/>

CAP 1.1

- ◆ Final Ratification Anticipated 9/30/05
- ◆ Added <responseType> element
- ◆ Made <category> element mandatory
- ◆ Amended enumerated values for the <certainty> element
- ◆ Deleted the <password> element
- ◆ Various editorial corrections and clarifications
- ◆ Normative language added to specify uniqueness of <identifier>
- ◆ Change [dateTime] format for <sent>, <effective>, <onset> and <expires> elements
- ◆ Change <language> element RFC from 1166 to 3066 and added null
- ◆ Changed the <mineType> element RFC 1521 to 2046
- ◆ Added <derefURI> element
- ◆ Security Note updated and added Digital Signature and Encryption note paragraphs

EDXL Distribution Element

- ◆ Emergency Data Exchange Language
- ◆ Distribution Element
- ◆ Public Comment Period Aug 29-Oct 28
- ◆ www.OASIS-open.org
 - ◆ Technical Work: Law & Government
 - ◆ Emergency Management Technical Committee

EDXL Resource Management

- ◆ Handed off to the EM-TC 8/29/05
- ◆ Voted to accept 9/6/05
- ◆ Includes standard messaging to:
 1. "Request Resource"
 2. "Response to Request Resource"
 3. "Order Resource"
 4. "Dispatch Resource"
 5. "Request for Resource Information (RFI)"
 6. "Response to Request for Resource Information (RFI)"
 7. "Unsolicited Resource Offer"
 8. "Release Resource"
 9. "Request to Return Resource"
 10. "Response to Request Return Resource"
 11. "Request Resource Quote"
 12. "Response to Request Resource Quote"
 13. "Request for Resource Status"
 14. "Resource Request Status"