

ASN.1 & Emergency Interoperability

“Interoperability” is a byword in emergency management and homeland security. While many people in those areas think of interoperability in terms of two-way radios, the same challenge exists in sharing information among the digital information systems that play a crucial and growing role in public safety and emergency response. It is hard to find a critical process in homeland security or public safety that isn't in some way dependent on computers and embedded computing devices.

A coordinated family of efforts is underway within government and industry to help our various computerized systems share information promptly and accurately in emergencies.

The **Common Alerting Protocol (CAP)** is a standard digital format for expressing the essential content of effective warning messages, regardless of the technology by which they'll be delivered. A single CAP message can be used to trigger sirens, the U.S. Emergency Alert System, Weather Radios, telephone notification systems and systems for individuals with special needs such as the deaf and hearing-impaired.

CAP was originally designed in 2001 by an international ad-hoc Working Group of emergency managers and technology experts, based on a study on "Effective Disaster Warnings" published in late 2000 by the U.S. National Science and Technology Council's Subcommittee on Disaster Reduction. After a number of field trials and demonstrations in various parts of the United States, CAP 1.0 was approved by the Organization for the Advancement of Structured Information Systems (OASIS) as an OASIS standard in April 2004. An updated CAP 1.1 specification was approved as an OASIS standard in October 2005. In late 2007 the “CAP 1.1 specification was enlarged by a binary ASN.1 specification of the CAP messages that will enable the transport of CAP message to VoIP terminals using H.323 among other systems. Experts say the use of ASN.1 significantly reduces the size of the message and therefore the potential for network congestion.” *[ITU-T Newslog – Common Alerting Protocol becomes ITU-T Recommendation]*

The CAP format is compatible with emerging technologies, such as Web services, as well as existing formats including those used for the National Oceanic and Atmospheric Administration (NOAA) Weather Radio and the Emergency Alert System (EAS).

Based on the success of CAP, the U.S. Federal Emergency Management Agency (FEMA), the emergency preparedness and response branch of the Department of

Homeland Security (DHS) formed a partnership with industry members of the Emergency Interoperability Consortium (EIC) to develop an expanded family of data formats for exchanging operational information beyond warning.

The **Emergency Data Exchange Language (EDXL)** family of OASIS standards is intended to facilitate emergency information sharing and data exchange across the local, state, tribal, national and non-governmental organizations of different professions that provide emergency response and management services. The EDXL family currently comprises the following specifications: EDXL Distribution Element (EDXL-DE), Common Alerting Protocol (CAP), EDXL Resource Messaging (EDXL-RM)¹, and EDXL Hospital Availability Exchange (EDXL-HAVE). Together these specifications are intended to expedite all activities associated with resources needed to respond and adapt to emergency incidents.

Sources:

1. CAP Cookbook - http://www.incident.com/cookbook/index.php/Welcome_to_the_CAP_Cookbook
2. OASIS Emergency Data Exchange Language-Distribution Element, version 1.0 - http://docs.oasis-open.org/emergency/edxl-de/v1.0/EDXL-DE_Spec_v1.0.pdf

¹ Alessandro Triglia, OSS Nokalva, Inc. senior staff member, is one of the editors of EDXL-RM.