

Emergency Data Exchange Language Suite of Standards

Universal data format standards are needed

When a disaster strikes, first responders must immediately share critical data — such as requests for equipment and personnel, hospital capacity, and patient tracking information. All too often, however, sharing this information is difficult as there is no universal standard applied to data management across emergency response agencies. Different agencies use different tools to store and distribute data, and often these tools and practices are incompatible. These incompatibilities can lead to a breakdown in the ability to share critical information at critical times.

Emergency responders can speak the same language with emergency-messaging standards

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) drives the development of emergency messaging standards through its partnerships with practitioners, industry and Standards Development Organizations. DHS S&T, along with practitioners, develops high-level requirements, which are submitted to the Organization for the Advancement of Structured Information Standards (OASIS) to develop a suite of emergency-messaging standards to help ensure responders can easily share information with each other. This suite of standards is called the Emergency Data Exchange Language (EDXL).

The EDXL standards utilize eXtensible Markup Language (XML) to define simple and flexible data formats to represent and exchange information across multiple systems.

Formatting data so it can be shared

EDXL standards define a common way to format data so different systems can share the same data. This allows the critical systems used by first responders to be interoperable without the need for point-to-point customizations each time a new system is put into use.

OASIS develops EDXL messaging standards. Four standards have been approved:

- **Common Alerting Protocol (CAP)** – used for exchanging all-hazard alerts and public warnings
- **Distribution Element (DE)** – used for routing an XML-formatted message over multiple warning systems
- **Hospital Availability Exchange (HAVE)** – used for sharing messages about a hospital's capacity and resources
- **Resource Messaging (RM)** – used for requests for equipment, supplies and personnel

By 2014, S&T anticipates three additional OASIS approved standards:

- **Situation Reporting (Sit-Rep)** – to be used for multi-sourced information that, once shared, can form the basis for incident management and decision making
- **Tracking of Emergency Patients (TEP)** – to be used for tracking and updating an emergency patient's location, condition and care
- **Tracking of Emergency Clients (TEC)** – to be used for tracking and repatriation of displaced individuals during emergencies, disasters and routine day-to-day incidents

EDXL-compliant software can literally save lives

By sending messages to connected devices such as tablets, computers and phones with EDXL-compliant software, real-time, actionable information arrives at the fingertips of those who need it most, even if the incident is miles away. Responders can monitor a fire while in route to the incident or identify an injured victim. In addition, links to photos and live video can also be shared.

EDXL standards have been field-tested under the most challenging conditions. Since 2013, CAP has been used by the Integrated Public Alert and Warning System to warn the American public of imminent threats to life and property. During the 2010 Haiti earthquake, 300,000 injured Haitians needed urgent care. Thanks to the HAVE standard, responders were able to tell foreign relief workers the location of a hospital, the availability of beds, the types of care it could provide, and the status of its electricity. As a result, the Delaware Medical Relief Team saved time obtaining critical care for four babies suffering from hydrocephalus (water on the brain), and ultimately saved their lives.



Helping improve the speed and quality of response activities

Like any set of standards, EDXL is continually being improved as new gaps and needs are discovered. Currently, HAVE and DE are undergoing a new development cycle and soon HAVE 2.0 and DE 2.0 will add improvements to the EDXL family of standards. Once all standards are approved, the EDXL suite of standards will help improve the speed and quality of coordinated response activities in real time even further. It will also allow responders to share information about life-saving resources across the full range of local, tribal, state, federal and non-governmental organizations, regardless of mission, ground or boundaries.

