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DHS Science and Technology Directorate

Next-Generation Incident Command System

Coordinating large-scale disasters presents significant challenges to responders

When disaster strikes, multiple agencies and jurisdictions respond to the call. Organizing, coordinating, and commanding large-scale events presents significant challenges to participating responders. To overcome these challenges, effective collaboration, shared situational awareness, and decision support require the timely distribution of information across disparate systems and platforms.

The Department of Homeland Security Science and Technology Directorate's (S&T) Next-Generation Incident Command System (NICS) is a collaborative, online incident map with a virtual whiteboard that allows first responders to collaborate, pool resources, and plot strategies. The Massachusetts Institute of Technology Lincoln Laboratory, in partnership with the California Department of Forestry and Fire Protection, developed the Web-based software for S&T.

Providing a "higher command view"

During an incident, NICS manages and distributes real-time feeds – such as vehicle locations, airborne images, video, weather, critical infrastructure, and terrain – to first responder decision makers. NICS integrates these feeds as part of an online map using a geographic information system. Any credentialed responder can mark up the map, add data, or type a message on the whiteboard. NICS users can continue viewing and creating content in disconnected network environments; new data is synchronized once a network connection is re-established, thereby allowing responders to collaborate during intermittent communications. NICS provides a "higher command view" of all active incidents for responders to effectively coordinate and communicate with more people in less time.

The real value

Available at no cost to first responders, NICS has been used for more than 300 live operational incidents since 2010, including wildland fires, floods, search and rescue, and special events. For example, responders used NICS as the primary hazardous materials (HazMat) management capability for the 2014 Boston Marathon. Responders used

NICS to coordinate HazMat personnel and sensors at various locations along the race course in this "moving" event

and facilitate management decisions to keep forces aligned with moving threats. Response crews also used NICS extensively during the 2013 "Rim" fire in Yosemite National Park (Figure 1).

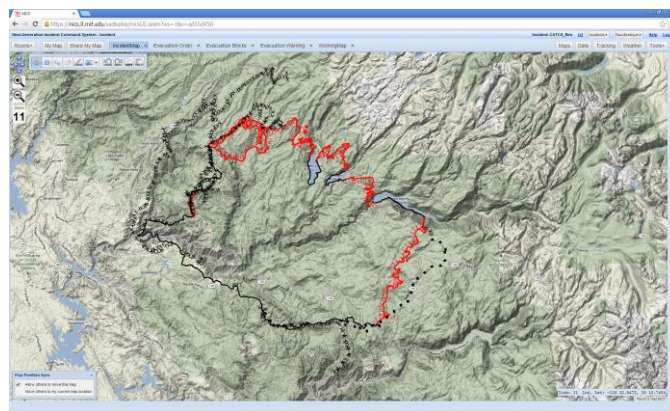


Figure 1 - During the September 2013 "Rim" wildland fire in Yosemite National Park that burned 235,000 acres (fire perimeter shown above), numerous organizations used NICS to coordinate responders, collaborate on decision making, and disseminate information.

To date, more than 2,000 first responders across more than 250 organizations have been trained to use NICS (e.g., California Office of Emergency Services, San Diego County, and Massachusetts Department of Fire Services). Additional personnel receive training every week.

Increased usage and next steps

The State of California made NICS operational for all-hazard response in 2012. As of mid-2014, 25 states use or are evaluating NICS. Additionally, the State of Victoria's Office of Emergency Management in Australia uses its technology. NICS supports mobile applications (e.g., Android and iOS) through a collaborative effort, initiated for oil spill response, with the United States Coast Guard R&D Center. By the end of 2014, S&T will transition NICS to the NICS Users Group, a California-based group of more than 200 volunteer organizations representing the fire, law, and medical communities.

At S&T, NICS is an important piece of a broader incident management information sharing capability being developed for the first responder community.



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To learn more about the Next Generation Incident Command System and information sharing and collaboration capabilities, please contact SandTFRG@dhs.gov.