



# FEMA

# TechNote

U.S. Department of Homeland Security



System Assessment and Validation for Emergency Responders

The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders making procurement decisions. The SAVER Program conducts objective operational tests on commercial equipment and systems and provides those results along with other relevant equipment information to the emergency response community in an operationally useful form. SAVER provides information on equipment that falls within the categories listed in the DHS Authorized Equipment List (AEL).

Information provided by the SAVER Program will be shared nationally with the responder community providing life- and cost-saving assets to federal, state, and local responders.

The SAVER Program is supported by a network of technical agents who perform assessment and validation activities. Further, SAVER focuses primarily on two main questions for the emergency responder community: "What equipment is available?" and "How does it perform?"

For more information on this and other technologies, please see the SAVER website or contact the SAVER Program Support Office.

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This SAVER TechNote was prepared by the Space and Naval Warfare Systems Center, Charleston, for the SAVER Program.



## A Common Operating Picture for Emergency Responders

According to the Federal Emergency Management Agency (FEMA) National Response Framework (NRF), a common operating picture (COP) is "a continuously updated overview of an incident compiled throughout an incident's life cycle from data shared between integrated systems for communication, information management, and intelligence and information sharing." In short, a COP achieves real-time situational awareness across all levels of incident management and jurisdictions. A COP can provide emergency operations centers, incident commanders, and response personnel accurate and timely information concerning equipment distribution, location of personnel, on-site intelligence, and incident mapping when responding to and managing an incident.

The National Incident Management System (NIMS) and NRF suggest that agencies develop a COP for responding to a large-scale incident or an incident involving multiple agencies. Specifically, the NRF states that local governments should "gain and maintain situational awareness" in their response actions during a crisis event. Developing a COP system which incorporates advanced technology such as mapping tools, sensors, and video feeds, can improve incident response by dramatically enhancing information sharing, situational awareness, and data transfer during emergency incidents.

### Building a Common Operating Picture System

Agencies typically develop a COP system by integrating various technologies or tools. However, building a COP system is more complicated than buying and installing software on a few computers. There is no single COP system solution and there are no standard components of a system. Many vendors and system integrators sell suites of software that can serve as the core platform to build a COP system. This core platform is then customized to integrate with other systems and information sources based on the needs of an agency or region.

When considering the implementation of a COP system, agencies should identify the core requirements for the system and then work with vendors to determine the right tools. Possible users of the system should also be involved to ensure the system design incorporates the desired functionality.

### Common COP System Tools

Tools that can be integrated into a COP system user interface vary by agency but may include communications systems (radios, phones, Internet, instant messaging, and e-mail), sensor and intelligence systems (video cameras and gunshot-sensing systems), mapping tools, modeling tools (plume or fire modeling), and resource management software.

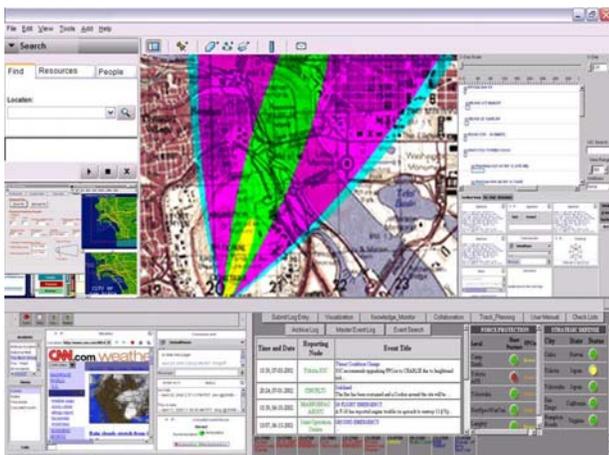
The COP system can also be linked to external databases that provide criminal histories or crime statistics and reporting.

Another key building block of a COP system is a Geographic Information System (GIS). A GIS is an electronic map that can display the location of personnel, sensors, assets, crime trends, or other data. For example, the GIS could include Global Positioning System (GPS) locations for people and resources, video feeds from camera systems, images and sensor data, and firsthand accounts from people on the scene. Information can then be displayed on the single interface and overlaid with GIS mapping to provide an accurate real-time image of the situation on the ground.

Other key systems that a COP system can be integrated with include computer-aided dispatch (CAD) systems and records management systems (RMS). These can enable an operations center to effectively deploy the necessary units to the scene, and can provide historical information for a location or individual. COP systems can incorporate data logs, forms, and documentation required for day-to-day operations or incident response.

## COP System Interface

A key feature of a COP system is a single interface that ties the tools together. This user interface is commonly referred to as a portal and is illustrated below. The portal provides personnel at the scene, operations center, or incident command access to the COP system and to the same key information in real-time.



Example of a COP System Portal

In the example, the system is providing wildfire modeling, incident updates from personnel on the scene, resource management, Internet connectivity,

and latest weather trends. Taken together, this information can assist decision makers with determining the best approach to fighting the wildfire. Agencies can customize user rights and privileges based on an individual's role to better tailor the information available. In addition, interfaces can be customized for use on portable devices, such as cell phones or personal digital assistants (PDA), as well as laptops installed in vehicles. This can improve a responders ability to provide real-time updates in the field and send information directly to command and operations centers.

## Applications

A COP system can assist emergency responders in many applications. For example, COP systems can pull information on critical infrastructure or various incident reports and present the information on a map. Users can sort through the information according to the agency involved, type of incident, location, or other criteria to determine the course of action. In Los Angeles, officials have used their system to improve wildfire response by connecting remote cameras to the system, which has assisted in predicting the path of a fire and managing evacuations. In Alabama, a COP system allows real-time vehicle and asset tracking, emergency evacuation routing, and critical infrastructure mapping. This enables state and local officials to make critical decisions, such as those associated with managing a hurricane response, based on timely and accurate information.

A COP system can provide agencies with a tool for responding to and analyzing criminal activities. The City of Chicago has created a system that ties surveillance cameras, gunshot sensing systems, and other warning systems throughout the city, which allows for faster notification of crimes and improved officer response. Additionally, the COP system is linked to a database of criminal activities and police incident reports. By tying together incident reports and mapping tools, officers are able to analyze potential trends in criminal activity throughout the city.

## Resources

### National Response Framework

<http://www.fema.gov/emergency/nrf/>

### National Incident Management System

<http://www.fema.gov/emergency/nims/>