



**Homeland
Security**

Science and Technology

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.

Located within the Science and Technology Directorate (S&T) of DHS, the SAVER Program conducts unbiased 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 Web site or contact the SAVER Program Support Office.

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Portable Identification Card Systems for Emergency Response

To control access to emergency scenes, especially where multiple agencies may be part of the response, lead agencies may want to issue scene specific identification (ID) cards to on-scene emergency response personnel. Portable ID card systems allow an agency to issue cards to personnel at the scene after their identity and qualifications are validated.

System Components

Portable ID card systems traditionally include: cards, card readers, databases, printers, cameras, and computer systems. Some systems may include biometric readers. Cards contain a picture and information about the emergency responder and communicate with a card reader to grant or deny access. A card reader typically scans a responder's card on-site then checks the data on the card against a database of pre-enrolled authorized personnel. The database may be stored on a server or stored locally on a portable computer. The database may contain the names, stored biometric templates (iris, fingerprint, etc.), and certifications and specialized abilities of each emergency responder.

Enrollment

Once emergency personnel arrive at the scene, secure the area, and establish a security perimeter, the on-scene personnel are enrolled into the portable ID card system. To enroll personnel, the registrar must first validate the authenticity of existing credentials and the emergency responder's purpose for accessing the scene. The registrar then collects ID data, takes a photo, and prints the ID card. The responder will gain access to the site by presenting the ID card to a guard who could use a card reader to verify the card holder is authorized access.

In addition to emergency response personnel, there may be a need to issue badges to heavy equipment operators, utility personnel, public health personnel, and the media.



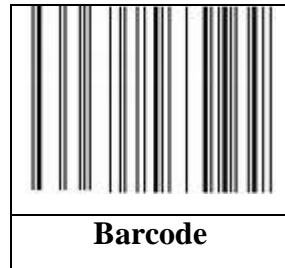
Identification Card



System Components

ID Card Technology

Barcode and magnetic stripe are the most widely used technologies in an ID card system. Smart cards, a newer technology, contain an imbedded memory chip that can store significantly more data than barcode or magnetic stripe cards. All three technologies allow the cards to be read with a portable reader at the emergency scene. However, smart cards utilizing Radio Frequency Identification (RFID) technology also can be read without direct contact with the card reader. RFID technology allows data to flow from an imbedded antenna in the card to a reader.



One difficulty with using a portable ID card system is that carrying and scanning an ID card can be cumbersome for emergency responders. The card can also be damaged, stolen, or simply forgotten. If a card is not available or damaged, it is impossible to verify the identities of emergency responders using the ID card.

Biometrics

ID cards can be used in conjunction with biometrics, a unique characteristic of an individual, if additional authentication is desired. When biometrics are used, a biometric template is created in an enrollment process and stored for future comparison with a live biometric template. A biometric template is an electronic representation of the characteristic, such as a fingerprint of an individual. When biometrics are used with ID cards, a comparison is made between a live biometric template created at the reader and the cardholder's stored biometric template. With smart card technology, the cardholder's biometric template is normally stored on the smart card. The biometric template, however, may also be stored on the reader or a computer. The comparison normally takes place on the reader, but may take place on a computer.

A bar code card or magnetic stripe card can also be used to compare a stored biometric template with a live biometric template. The bar code card or magnetic stripe card can signal the retrieval of a biometric template stored on a computer or reader. The reader would compare that to a live biometric template.

Access to an emergency scene may also be controlled with a biometrics-based identification system. In a biometrics-based identification system, an ID card is

not needed to identify an individual. A biometrics-based identification system matches the live biometric template created at the reader to a database of many stored templates. Since the system is based solely upon an individual's unique trait, the need for an ID card, password, or pin number is eliminated.

Biometrics-based identification systems may utilize devices such as fingerprint, iris, or face readers to capture the live biometric sample and create a template. Each technology has limitations depending on how and where it will be used. For example, fingerprint technologies may have problems if responders' hands are dirty or wet.

Implementation Considerations

There are three critical aspects to issuing ID cards in emergency situations: time, personnel, and functions.

Portable ID card systems used in emergency field situations should be easy to use, rugged, flexible, and capable of operation with one hand.



Emergency Scene

In addition, emergency responders are involved in a variety of situations that require different levels of security. A terrorist attack will require more authentication and security than a forest fire. Therefore, the portable ID card system should be flexible to accommodate these differing conditions.

Conclusion

Portable ID card systems are critical to incident management and the physical security of emergency scenes. Using a portable ID card system increases the security level at emergency scenes by consistently limiting site access to only authorized personnel. It also increases the operational efficiency of emergency responders in emergency situations due to the system's ability to track people, skill sets, and equipment. Portable badging technologies exist today and there are many choices to decide upon. The U.S. Department of Homeland Security is moving forward with grants to fund the implementation of enterprise level badging systems. A universal emergency responder badging system will require cooperation and planning between all local, state, and federal organizations involved.