

Mobile Tactical Forensic Device Speeds In-Field Fingerprint Identification

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The introduction of new tactical forensic capabilities and equipment provide much needed help to law enforcement investigators and deployed military operators. Whether it be linking crime scenes together, finding a fugitive's trail, locating missing children, processing mass casualty sites or identifying a terrorist building improvised explosive devices (IEDs), forensics can be used to aid investigations in the absence of actual suspects.

While the forensics community at large has continued to develop cutting-edge capabilities for laboratory environments, until now there has been little work focused on getting mission-focused forensics capabilities in the hands of field-deployed personnel. With 20+ years' experience supporting site biometrics and forensics missions, Booz Allen developed the VAMPIRE™ Tactical Forensic Device to enable law enforcement, military and intelligence groups the ability to collect, analyze and identify forensic evidence in the field, allowing for critical decisions to be made while still in the field.

This device offers operators and investigators a high-quality mobile handheld for in-field latent fingerprint collection and rapid identification.

The need for rapid identification is at the root of crime scene investigation and sensitive site exploitation, an area that took on critical import in 2003. Over the next decade, unknown suspects created and deployed IEDs, which became a significant threat to U.S. and coalition forces in Iraq and Afghanistan. Prior to this, forensic capability was attempted as a "bolt-on" characteristic to biometric collection devices. With relatively crude efforts to add capability without variable spectrum or variable intensity lighting and reliance on repurposed cameras, these systems were hardly purpose-built for the



The VAMPIRE Tactical Forensic Device is used in the field to collect, analyze and identify forensic evidence. (Photo courtesy of Booz Allen Hamilton)

forensic application, and that showed in their performance.

Tactical forensics deliver actionable information in field, and in real time. Police pursuing abduction, homicide, robbery and related suspects know that time is of the essence before the trail gets cold. Sensitive site exploitation is no different, except that time windows may be even shorter due to changing conditions on the ground, and the fact that site access cannot be controlled indefinitely. While capabilities were historically limited to providing decision makers and commanders with "static" intelligence, now personnel can collect evidence and generate actionable intelligence while still at a scene. Adaptable in the face of changing operator requirements, the VAMPIRE device's capability can be customized to meet specific mission tasks, allowing frontline law enforcement agents and military operators to quickly capture and match both latent and live fingerprints.

Latent to watchlist matching: The ability to collect and automatically match latent fingerprint collection to either an onboard or remote watch list/latent fingerprint examiner in real time is essential for fast analysis. This capability allows the VAMPIRE device to store a police database or government watchlist on a portable device and identify if known suspects have been at a given scene, either automatically (no communications needed) or with the assistance of a forensic laboratory.

Latent-to-latent matching: There is a growing need for investigators to link scenes together with latent fingerprints in the absence of prior biometric (fingerprint) collections. The VAMPIRE device can conduct latent-to-latent matching onboard, allowing investigators to determine if the same prints have been found at multiple crime scenes or if the same suspect has built numerous explosives across a region. If there are numerous latent fingerprints at a scene, latent-to-latent matching can immediately

identify unique prints and prioritize data sent to forensic labs, reducing workload and improving response times.

Latent-to-live matching: The ability to tie live suspects or detainees to latent fingerprints collected in the field can change how investigators question possible persons of interest or suspects. The VAMPIRE device is equipped with an FBI-approved FAP 45 live fingerprint scanner that can show investigators which suspects touched a weapon, or even that a particular subject can be linked to a previous unsolved crime.

Tactical forensic collection with the device requires minimal forensic knowledge on part of the operator to collect professional grade results. The device has embedded forensic light sources as well as patented laser scaling capabilities eliminating the need for investigators to hold a lamp or ruler. Evidence acquisition is a simple “point and shoot” proposition and an on-device scene management capability facilitates categorization/organization of the information acquired. Advanced image

processing capabilities make the VAMPIRE device orientation-agnostic in collecting latent prints.

The device’s powerful matching capability affords benefits to the laboratory as well. Evidence triage is possible, as exclusion prints can be established. For the often task-challenged lab, this can be a significant labor and cost saving benefit. Operators can simply take an image of a latent print and it can be automatically sent to an examiner and/or back-end database within seconds without any action from the user. Depending on the mission profile, results can be returned to the operator based on the onboard match or only with the approval of a certified latent print examiner—all in a fully automated process, saving critical time.

Built as an open architecture platform, the VAMPIRE device can easily integrate to back-end enterprise systems for matching to give users immediate results in the field. Operators can develop and load mission-critical applications and use the device as a centralized data collection and communications platform.

With a modular expansion port and standard USB connections, operators can also develop additional mobile capabilities that can simply be snapped on the unit, such as an iris scanner, a portable palm scanner, or a custom waveform communication protocol.

By giving field-deployed personnel cutting-edge capabilities on mobile devices in the field, operations and cases can be analyzed and solved faster and at lower cost. The device puts real-time information in the hands of field operators, giving the enemy less time to run, and therefore, fewer places to hide. With the versatility of additional identity management capabilities, the VAMPIRE device also supports other less traditional aspects of the military mission, something reflected by the incorporation of this capability into mass casualty and humanitarian-focused missions, including disaster relief and pandemic mapping.

To learn more about the VAMPIRE device, visit <http://www.boozallen.com/consulting/products/vampire>



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