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# Mobile Biometric Device (MBD) Technology: Summary of Selected First Responder Experiences in Pilot Projects

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# Mobile Biometric Device (MBD) Technology: Summary of Selected First Responder Experiences in Pilot Projects

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**Abstract**

Mobile biometric devices (MBDs) capable of both enrolling individuals in databases and performing identification checks of subjects in the field are seen as an important capability for military, law enforcement, and homeland security operations. The technology is advancing rapidly. The Department of Homeland Security Science and Technology Directorate through an Interagency Agreement with Sandia sponsored a series of pilot projects to obtain information for the first responder law enforcement community on further identification of requirements for mobile biometric device technology. Working with 62 different jurisdictions, including components of the Department of Homeland Security, Sandia delivered a series of reports on user operation of state-of-the-art mobile biometric devices. These reports included feedback information on MBD usage in both operational and exercise scenarios. The findings and conclusions of the project address both the limitations and possibilities of MBD technology to improve operations. Evidence of these possibilities can be found in the adoption of this technology by many agencies today and the cooperation of several law enforcement agencies in both participating in the pilot efforts and sharing of information about their own experiences in efforts undertaken separately.

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- Mr. Joe Hawe, former U.S. Marshal for Western Washington State, who led the initial efforts in his capacity as a member of the DHS S&T First Responders Group
- Evidence Technical Gary Nasello and Latent Print Examiner Candace Mazzuola of the Stockton Police Department, who, together with Tom Hennig and Erin Mettler, helped pioneer an approach to using mobile biometric device technologies in crime scene investigations
- Kelly Stone, Homeland Security Director for Collin County, Texas, who willingly shared information on MBD pilot technology efforts in several jurisdictions within and nearby that county
- The West Virginia High Technology Consortium Foundation, which reported on the use of mobile biometric devices at their 2011 “Mock Prison Riot”
- James Pilkington, Supervisory Special Agent for DHS Immigration and Customs Enforcement (ICE)/Western Region, who assisted in the evaluation of MBD technologies and provided important feedback
- Mitch Harmell, Assistant Chief, Border Patrol, for sharing information of the results of Operation Tormenta
- The Gwinnett County, Georgia Sheriff’s Office, which hosted an exercise on the use of MBDs in emergency scenarios
- The Michigan State Police, which provided information on the use of MBDs
- The Los Angeles County Sheriff’s Office and the Los Angeles County Regional Information System (LACRIS), which provided continuing information to the project and willingness to directly assist other agencies seeking to implement mobile identification technologies

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# NOMENCLATURE

| | |
|---|---|
| ABIS | Automated Biometric Identification System (DoD) |
| AFIS | Automated Fingerprint Identification System |
| BITMAP | Biometrics Identification Transnational Migration Alert Program |
| CBP | Customs and Border Protection |
| CBP-OBP | Customs and Border Protection-Office of Border Patrol |
| CONOPS | Concept of Operations |
| DHS | Department of Homeland Security |
| DHS-CIS | Department of Homeland Security Citizenship and Immigration Services |
| DHS S&T | Department of Homeland Security Science and Technology Directorate |
| ERO | Immigration and Customs Enforcement and Removal Operations |
| FBI | Federal Bureau of Investigation |
| GCJ | Gwinnett County Sheriff Jail |
| HSI | Homeland Security Investigations |
| HIIDE 5 | Hand Held Interagency Detection Equipment |
| IAFIS | Integrated Automated Fingerprint Identification System |
| ICE | Immigrations and Customs Enforcement |
| ICE-HSI | Immigration and Customs Enforcement Homeland Security Investigations |
| ID | identification |
| IPT 13 | Integrated Product Team |
| LACRIS | Los Angeles County Regional Identification System |
| LASO | Los Angeles Sheriff's Office |
| MBD | mobile biometric device |
| MI3 | Mobile Ident III |
| MORIS | Mobile Offender Recognition and Identification System |
| MSP | Michigan State Police |
| OBP | Office of Border Patrol |
| POSPD | Port of Seattle Police Department |
| RISC | Repository of Individuals of Special Concern |
| SEEK | Secure Electronic Enrollment Kit |
| SPD | Seattle Police Department |
| S&T | Science and Technology Directorate |
| TSWG | Technical Support Working Group |
| T&E | test and evaluation |
| USCG | United States Coast Guard |
| WSP | Washington State Patrol |

# 1. EXECUTIVE SUMMARY

## Background

The first responder law enforcement community is increasingly interested in mobile biometric devices (MBDs)—handheld devices that gather fingerprint, iris, facial, and other biological information about subjects in the field and communicate with remote databases to rapidly provide information that can help identify the subject. To help the Department of Homeland Security Science and Technology Directorate (DHS S&T) formulate future requirements for MBD for first responders, Sandia National Laboratories in July 2010 (under HSHQPM-09-X00028-2) undertook the Mobile Biometrics Device Test and Evaluation (MBD T&E) project.

## Approach

This project ultimately led to a variety of operational end-user evaluations on state-of-the-art biometric devices in collaboration with a number of federal, state, local, and specialized law enforcement agencies, as shown in Table ES-1. The objective of these evaluations was to test the MBD in operational environments and gather user feedback on performance and usage of, and potential improvements to, the devices to increase their value to the first responder law enforcement community.

**Table ES-1. First responder MBD pilots, simulations, and evaluations**

| Name/Project Type | Device Used – Queries/Hits | Dates | Participating Organizations | Personnel |
|---|---|---|---|---|
| **Washington State/ Operational** | MI3 (3M Cogent Systems)<br><br>354/171 = 48.3%<br>[40 of 171 hits outside of WA] | November 2011–October 2012 | • Seattle Police Department (SPD) (lead)<br>• Washington State Patrol (WSP)<br>• Washington State Department of Corrections<br>• Port of Seattle PD (POSPD Airport) | • Municipal and Airport Police Officers<br>• State Corrections Officers<br>• State Patrol |
| **Stockton, CA Police Department/ Operational**[1] | Fusion (3M CogentSystems)<br><br>187/117 = 62.5%<br>See full report for context. | June 2011–August 2012 | Stockton PD | • Crime Scene Evidence Technicians<br>• Latent Print Examiner |
| **DHS ICE/ Operational** | SEEK II (CrossMatch) | September 2010–July 2012 | DHS-ICE<br>• Homeland Security Investigations (HSI)<br>• Enforcement and Removal Operations (ERO) | • ICE agents<br>• ICE Investigators |
| **Michigan State Police/Evaluation only** | SEEK II (CrossMatch) | September 2011–November 2011 | Michigan State Police | State Troopers |
| **Mock Prison Riot/Simulation** | SEEK II (CrossMatch) | May 2011 | West Virginia High Technology Consortium (sponsor)<br>• Lee County, FL Sheriff<br>• Suffolk County, NY Sheriff<br>• Passaic County, NJ Sheriff<br>• Minnesota Department of Corrections<br>• Federal Bureau of Prisons (Butner, NC)<br>• Federal Bureau of Prisons (Hazelton, WV) | Federal, state, and contractor corrections officers |
| **Emergency Evacuation Management Exercise/Tactical Situation Simulation** | SEEK II (CrossMatch) | May 2012 | Gwinnett County, GA Sheriff Jail | Sheriff's deputies assigned to jail duties |

[1] See report, Use of Mobile Biometric Device Technology in the Collection of Latent Fingerprints, Stockton, CA Police Department Report to Sandia National Laboratories, August 2012. Official Use Only – Law Enforcement Sensitive.

| | | | | |
|---|---|---|---|---|
| **Field Evaluation and Applicability of Iris Recognition Device/Evaluation only** | HIIDE 5 (MorphoTrust USA) | June 2011– July 2011 | Tarrant County, Texas Sheriff | County Chief Technology Officer |
| **Operation Lone Star, Collin County Texas** | Fusion (3M CogentSystems)<br><br>320/60 = 18.75%<br>[3 of 60 hits were Repository of Individuals of Special Concern (RISC), 57 were Texas Department of public safety Automated Fingerprint Identification Systems (AFIS)] | September 2011 – January 2012 | • North County Texas Fusion Center<br>• Allen, TX PD<br>• Carrollton, TX PD<br>• Collin County Sherriff's Office, TX<br>• Dallas, TX PD<br>• DHS (ICE)<br>• Frisco, TX PD<br>• McKinney, TX PD<br>• Plano, TX PD<br>• Richardson, TX PD<br>• Wylie, TX PD | County and municipal law enforcement |

## Findings

The MBD T&E project acquired substantial information and data on the current use of mobile identification technologies in the field by first responder law enforcement jurisdictions in the United States. A summary of these findings follows:

### *1. MBD technology is considered important to operations and officer efficiency.*

From the first responder perspective, introducing state-of-the-art MBD technologies into operations in the form of limited test and evaluation activities is important to understanding the possibilities and limitations of current and emerging biometric technologies. This perspective is underscored by the fact that more than 50 jurisdictions expressed interest in participating in the MBD T&E pilot project and that many of these jurisdictions had already decided to introduce mobile identification (ID) technology into their field operations. Moreover, the agencies that had sufficient infrastructure to participate found the pilot experience extremely helpful, as indicated in the following email of January 17, 2013, from Assistant Chief of Police Paul McDonagh of the Seattle Police Department:

> "…The Pilot Project surrounding the Mobile Identification Device funded under DHS was a success on a number of fronts.
>
> First it highlighted the emerging technology, and how the technology could be control for access to protected information. While we tested one product, in our group discussions we determined any future devices and the vendors can be varied to fit the task assignment of the officers – provided the specifications to communicate from each device to legacy system match the technical specifications.

> Different size and capabilities of the devices are required for different police functions: bike officers, patrol officers, detectives. As example this became apparent with our pilot devices. They were a little larger than convenient to carry while operating on a bicycle and smaller units would provide them with the same capability. However, the officers would use the larger devices if they did not have access to the smaller sizes.
>
> This highlights the next point: **this pilot reduced the officer out of service time to determine identity. Officers stayed in the field where they can continue to work higher crime areas and back up other officers. This has a larger impact on police services in the future as we face reduced staffing and increasing demands for police services….”**[2]
>
> Officers involved in this pilot believe this is a valuable tool that when put into place, with the necessary policy and procedures for use, will greatly enhance officer safety and effectiveness in the field.
>
> The project was, for our purposes, successful and we are researching how we can provide this capability to our officers long term.

### *2. MBDs are used by first responders today in some jurisdictions; these jurisdictions represent a small percentage of total law enforcement agencies.*

MBDs have been used since as early as 2002 by law enforcement state and local first responders. Current regular use of MBDs relies on intermediate communication links and Wi-Fi proximity to either Blackberries or patrol car mobile data terminals. [See “The Evaluability Assessment of Mobile Automated Fingerprint Identification System (AFIS)” at https://www.ncjrs.gov/pdffiles1/nij/afis.pdf]

These devices are limited to a single modality (fingerprint). However, the major providers of these devices also offer the capability to display mug shots and criminal history information associated with a fingerprint directly on the device or on the intermediary communications display. These devices have also demonstrated the capability of accessing authoritative criminal justice databases from the field, such as the Federal Bureau of Investigation’s (FBI’s) Repository of Individuals of Special Concern (RISC).

Day-to-day use of facial recognition capability from the field appears to remain limited and confined to only a few jurisdictions. Facial recognition, however, is available through alternate communication means, such as transfer of JPEG or other files from cell phone or social networking sites. The jurisdiction leading the implementation of facial recognition as a daily tool and facilitating adoption by other jurisdiction is the Sheriff’s Office of Pinellas County, Florida.

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[2] Emphasis added.

State and local officials see the advantages of expanding the capability of mobile wireless devices to permit identity checks from anywhere in the field, outside of the range of a patrol vehicle or intermediary communication devices. However, they stress that the ultimate utility of such capability resides in access to authoritative criminal justice/terrorist databases, such as FBI Integrated Automated Fingerprint Identification System (IAFIS), and the forthcoming FBI Next Generation ID. The Washington State pilot had access to a regional data repository: the Western States Identification Network covering seven western States. The Collin County, Texas, pilot had access to the FBI RISC database, as well as the database of the Texas Department of Public Safety.

Perhaps the heaviest user of MBD field identification is the Los Angeles County Sheriff's Office (LASO), which also manages the Los Angeles Regional Identification System (LACRIS). LASO reports that between July 1, 2006, and January 15, 2013, more than 40 jurisdictions within LA County using some 2,500 devices (BlueCheck) conducted 326,342 mobile identification searches that garnered hits or matches in 121,995 instances. LASO did not keep records on the disposition of identifications in the field (detain or release subject).[3]

Additional information was provided from the Michigan State Police (MSP). That department deployed a number of the IBIS Extreme MBDs and reported that for seven months in 2012, troopers conducted 778 roadside searches, with 293 identifications. Like LASO, the MSP does not keep specific records on the disposition of identifications in the field. MSP did provide the following perspective on the advantages of mobile ID capability when asked to address return on investment:[4]

> "…We do not have detailed statistics on how many times this roadside identification saved the officer from transporting to a live scan device when not needed. We also don't have detailed information on how many times identification was made to a wanted person which may have been released if the officer did not have a Mobile Identification device. **From our perspective 778 times last year this device assisted the officer in either saving drive time, taking an officer off the road when not needed or identifying a person that had a warrant or needed to be detained based on information that was returned because of Mobile ID.**
>
> **If positive identification is needed without Mobile ID would easily take an officer out of service for an hour per incident. There are additional costs related to the vehicle, gas and ware. The cost of releasing a person with a warrant is not easily measurable and in some cases this could easily justify the costs of Mobile ID…"**

[3] Source: January 16, 2013 email from Ben Seno, CAL-ID Manager, (LACRIS)

[4] Source: January 16, 2013 email from Scott Blanchard, Michigan State Police. Emphasis added.

### *3. MBD technologies can support efforts to prevent terrorism, but DHS first responder state and local partners require better access to data repositories containing information on known or suspected terrorists.*

DHS components most directly engaged in the mission to prevent and identify the entry into the United State of terrorists and other threat individuals or groups participated in the MBD T&E pilot project to varying degrees. The initial use of MBD under this project—to support DHS Immigrations and Customs Enforcement (ICE) operations (Southwest Border Intelligence Coordination Unit) in detention centers—led DHS ICE to plan for MBD use in future operations. Toward the end of the project, ICE was considering introduction of MBDs in each of their detention facilities, an effort being coordinated with the ICE Biometrics Identification Transnational Migration Alert Program (BITMAP) program. In addition, Operation Tormenta, conducted by the Customs and Border Protection Office of Border Patrol (CBP OBP), provided information on future mobile identification requirements, and the U.S. Coast Guard (USCG) continues to evaluate MBDs for both enrollment and identification in maritime environments.

### *4. MBD Technology Pilot preparation is complex.*

Initial planning, coordination, staging, and training are essential to a successful pilot program. Even in cases that benefited from DHS partner "champions," the process involves complete awareness and support throughout the entire organization, from first responder law enforcement agency management to the IT managers to the officers/agents using the device. However, overcoming these challenges—which requires understanding all stakeholder equities, with special detailed attention to technical questions and policy concerns—can potentially provide a payback by preparing agencies to evolve into institutionalized test beds for future biometric technologies. This lesson reflects the large issue of developing and implementing a reliable *operational test and evaluation of biometric technologies* discussed in the recent report of the National Academy of Sciences on Biometric Recognition: Challenges and Opportunities 2010.[5]

### *5. MBD technology can improve field operations and achieve cost savings for departments and agencies.*

DHS components and partners believe MBD can improve forensics in the field and potentially save time and reduce costs in both the homeland security and criminal justice processes. For example, stakeholders have noted MBD's potential for improving "forward echelon" reporting on processing aliens of special interest where a 24-hour limit on detention is a factor; point of encounter/identity adjudication for large groups of apprehended aliens to determine most efficient transportation routing; book and release in the field to avoid transport to detention facilities for non-felonies; and special event management.

Nonetheless, certain DHS CBP components have noted MBD capability gaps in after-action reports. DHS partners are pursuing MBD technical research on the value communicating latent prints images

[5] See: http://www.slideshare.net/dblackburn/the-national-biometrics-challenge-2011

directly from the field to data repositories for much earlier investigative actions up to, but not including, arrest. Use of MBD technology also requires subsequent Latent Print Examiner review and matching of the print images obtained by the mobile device.

### *6. MBD technologies for subject/suspect/detainee enrollment in the field is currently of definite interest to a limited number of certain law enforcement first responder stakeholders who have also identified a need for a truly integrated MBD that uses fingerprint, facial recognition, iris recognition, and voice recognition technologies.*

Many DHS enforcement components are interested in the use of MBD for enrollment as well as for identification at the "point of encounter" in the field of subjects in the field. However, attitudes are mixed. Specifically, after evaluating the SEEK II designed specifically for enrollment operations, the Michigan State Police indicated they did not plan to implement such a capability in future operations, but were very well satisfied with the capability to conduct identity checks in the field. In contrast, via email received on January 16, 2013, the Los Angeles County Regional Identification System Manager states:

> "LA is VERY interested in enrollment in the field. One example, we would like to conduct a complete field booking (capturing demographics and biometrics – fingerprints with appropriate subject acquisition profile level, photographs, iris, voice, on a portable device) and release on their own recognizance, when appropriate, without the officer having to take the suspect to a brick and mortar booking location."

## Conclusions

- Near-term efforts (five years or less) should focus on improving fingerprint collection in the field at the point of encounter with subjects or suspects.
- Enrollment in an actual field environment is of limited interest to the state and local first responder law enforcement community. However, DHS components such as the USCG (Mona Pass) and CBP OBP (Tormenta) expressed interest in at least monitoring this capability and participating in pilot activities with these types of devices. DHS ICE also expressed interest and participated at various stages of the pilot, but confined their use of MBDs associated with this project inside the United States (SEEK II) to the "ID only" function.
- The quality of cell phone cameras makes both facial recognition and iris recognition a real potential for field operations in the future. Nonetheless, integrating biometric modalities other than fingerprints in the context of mobile operations is problematic. Some jurisdictions are using facial recognition and incorporating iris recognition into their booking systems, but these modalities appear restricted to highly controlled environments.
- Officer safety will remain the most critical factor in a jurisdiction's decision on whether to adopt mobile ID with expanded modalities.

- A separate report that documents use of MBD use in crime scene investigation and imaging of latent prints may be of value to crime scene first responders (Evidence Technicians).[6] The context for such "cutting edge" crime scene mobile ID application should recognize the priority assigned to latent print searches by large (state and federal) AFIS systems.

- Use of MBD in emergency evacuation scenarios involving jails or jail environments—the West Virginia "Mock Prison Riot" and Gwinnett County, Georgia, jail emergency evacuation exercise—were documented in separate contract reports under this project.[7]

[6] Use of Mobile Biometric Device Technology in the Collection of Latent Fingerprints, Stockton, CA Police Department Report to Sandia National Laboratories, August 2012. Official Use Only – Law Enforcement Sensitive.

[7] "Mock Prison Riot: Operational Assessment Report", Sandia Document Number 5300915. 2011.

# 2. OVERVIEW

## 2.1. BACKGROUND

The Department of Homeland Security Science and Technology Directorate (DHS S&T) is seeking to formulate future requirements for mobile biometric device capabilities for the first responder community. To support this effort, Sandia National Laboratories in July 2010 (under HSHQPM-09-X00028-2) undertook the Mobile Biometrics Device Test and Evaluation (MBD T&E) project. Under this project, Sandia engaged in activities to identify candidate jurisdictions interested in participating in mobile biometric device test and evaluation efforts; conducted a number of site visits; facilitated training on mobile biometric devices; and collected operational end-user evaluations of state-of-the-art MBD in collaboration with a number of federal, state, local, and specialized law enforcement agencies.

As a result, the MBD T&E project acquired substantial information and data on the current use of mobile identification technologies in the field by first responder law enforcement jurisdictions in the United States. Further, the project managed an effort to demonstrate the utility of imaging latent fingerprints from crime scenes that provided insight into the complexity of introducing this technology into the field for end users.

The project underscored the federated nature of the jurisdictional information-sharing infrastructure, which does not permit a "plug and play" approach that would facilitate rapid insertion of mobile biometric device technology into departmental operations. ***Even agencies that have determined to acquire MBDs plan actual implementation of this technology in terms of several months, if not years.***

## 2.2. OBJECTIVE

The objective of this project was to collect operational end user evaluations on state-of-the-art mobile biometric devices and provide DHS S&T with reports on these activities, as well as one final report as indicated in HSHQPM-09-X00028-2, modified in July 2010.

## 2.3. APPROACH

To achieve this objective, Sandia identified, contacted, and designed a number of operation pilot tests that aligned with the procedures of the participating jurisdictions and supported evaluations of MBD use in simulated or exercise environments. Section 3 of this report summarizes this approach and Section 4 provides details on each of the pilot tests  provides an overview of related federal efforts and programs, and Section 7 offers findings, conclusions, and recommendations.

# 3. APPROACH

## 3.1. IDENTIFICATION OF PARTICIPANTS FOR THE PROJECT

To identify potential agencies to serve as pilot test beds, the project contacted a number of federal, state, local, and tribal jurisdictions. Virtually all of those contacted expressed initial interest and willingness to be a test bed. In fact, the federal DHS components—Customs and Border Protection Office of Border Patrol (CBP OBP); Immigration and Customs Enforcement (ICE); and the U.S. Coast Guard (USCG)—already had pilot MBD testing efforts underway. These components indicated interest in using MBD for both field identification (ID) and actual enrollment (booking) of subjects at the point of encounter.

Due to policy, officer safety, and technical considerations, state, local, and tribal DHS partners representing the DHS S&T Integrated Product Team (IPT-13) on behalf of the first responder state and local law enforcement community were generally not interested in using MBD for field enrollment of an individual. In contrast, interest in MBD for identification in the field was high, and many jurisdictions either had begun, or were planning to begin, mobile identification using single fingerprint capture modality. Only one jurisdiction was operating a facial recognition system, although several jurisdictions were interested in this capability for the field. The project also found that several jurisdictions were operating iris enrollment and identification systems, not for actual field identification but rather for booking or for access control to such areas as evidence lockers.

Initial contacts within the participating jurisdictions were selected referencing the DHS S&T (IPT-13) First Responder Group (Law Enforcement Sub-Group) (see Table 1) and participants in the DHS S&T Public Safety Practitioner Biometrics Technical Working Group. Biometric Field Identification had been identified as a capability gap in briefings by the DHS S&T Division responsible for first responder programs. (see http://www.ems.gov/pdf/2010/FICEMS_Presentation_s&t.pdf)

**Table 1. Members of the DHS S&T IPT First Responder Group Law Enforcement Sub-Committee (July 2010)**

| First | Last | Organization | City | State | Pilot Activity |
|---|---|---|---|---|---|
| **Paul** | **Fitzgerald** | Story County Sheriff | Nevada | IA | No pilot: IT infrastructure could not support mobile query |
| **Jim** | **Burack** | Milliken Police Department | Milliken | CO | No pilot: IT infrastructure could not support mobile query |
| **Horace** | **Frank** | Los Angeles Police Department | Los Angeles | CA | No pilot: IT infrastructure could not support advanced device/LACRIS-provided information |
| **Brian** | **Harvey** | Dallas Police Department | Dallas | TX | Participated in LONESTAR |
| **Joe** | **Hawe** | U.S. Marshal Service/Department of Justice | Seattle | WA | Facilitated Washington State Pilot |
| **Peter** | **Maybee** | Department of the Interior Bureau of Indian Affairs Office of Homeland Security & Emergency Services | Washington | DC | See Taylor |
| **Patrick** | **Melvin** | City of Maricopa - Assistant City Manager | Maricopa | AZ | Tucson, Arizona PD provided information on their experience with mobile ID deployment |
| **Eddie** | **Reyes** | Alexandria Police Department | Alexandria | VA | No pilot: Retired |
| **Aaron** | **Kustermann** | Illinois State Police | Springfield | IL | No pilot: IT infrastructure could not support mobile query |
| **Frank** | **Taylor** | St. Croix Tribal Police Department | Webster | WI | No pilot: IT infrastructure could not support mobile query |
| **Rajeev** | **Divakar** | DHS CBP Office of Field Operations | Washington, DC | DC | CBP OBP provided information on mobile device usage |
| **James** | **Buckley** | DHS ICE | Clarksburg | WV | ICE-Western Region provided information and participated in SEEK II evaluations |
| **Greg** | **Browning** | Juneau Police Department | Juneau | AK | No pilot: IT infrastructure could not support mobile query |
| **Eugene** | **Smith** | Captain, Boise Police Department | Boise | ID | IT infrastructure could not support mobile query |
| **Tim** | **Cooper** | First VP, International Association of Bomb Technicians and Investigators | Los Angeles | CA | No pilot: Not related to core mission |

## 3.2. Identification of Mobile Biometric Technology Devices Acceptable For Use By Participating Jurisdictions

The DHS S&T sponsor initially identified and provided two types of state-of-the-art MBDs: the CrossMatch SEEK II (Secure Electronic Enrollment Kit) and the 3M Cogent Systems. Both of these devices provide enrollment and identification functions via multiple modalities (fingerprint, facial, and iris recognition) and have the communications capabilities needed to access data repositories directly. The SEEK IIs were provided to the sponsor from the Technical Support Working Group (TSWG). The Fusion was provided by vendor, 3M Cogent Systems. As the pilots progressed, additional devices were provided by participating vendors and are described below. All the devices used can store thousands of records on board in the form of searchable watch lists. CBP OBP, ICE and USCG also expressed interest in MBDs capable of accepting rolled 10 prints. A limited number of DHS state, local and tribal partners were interested in receiving these devices for in-house evaluation.

## 3.3. Implementation of Evaluation Projects

This project obtained information on the performance of each of these devices directly from first responder practitioners in both operational and simulated environments, including agency evaluations. Results from these pilots and evaluations varied. In some cases, access to log histories provided detailed information on the operation of the devices. In other cases, results were reported via simple email summaries of a department's personnel impressions of the device**. It should be stressed that the cost of officer time required for the planning, organization, training, operation and reporting of these efforts was borne entirely by the participating departments. It should also be noted that three of the MBD TE projects (WA State; Stockton, CA Latent Print; and LONESTAR) provided information on operational field ID usage. While the projects involving the CBP OBP and ICE also obtained operation information on field ID, this information was not shared directly with Sandia. USCG MBD pilot evaluations were conducted directly between the sponsor and USCG.**

These operational pilots, simulations, and evaluations are summarized in Table 2.

**Table 2. First responder MBD pilots, simulations, and evaluations**

| Name/Type | Device Used | Dates | Organizations Involved | Personnel Involved |
|---|---|---|---|---|
| **Washington State/ Operational** | MI3 (3M Cogent Systems) | October 2011 – October 2012 | • Seattle Police Department (SPD) (lead)<br>• Washington State Patrol (WSP)<br>• Washington State Department of Corrections<br>• Port of Seattle PD (POSPD Airport) | Officers |
| **Stockton, CA Police Department/ Operational**[8] | Fusion (3M Cogent Systems) | June 2011 – August 2012 | Stockton PD | • Crime Scene Evidence Technicians<br>• Latent Print Examiner |
| **DHS ICE/Operational** | SEEK II (CrossMatch) | September 2010 – July 2012 | • Homeland Security Investigations (HSI)-Special Collection Division<br>• Homeland Security Investigations-Alamosa, CO (training only)<br>• Enforcement and Removal Operations (ERO)-Training | Agents and Analysts |
| **Michigan State Police/Evaluation** | SEEK II (CrossMatch) | September 2011 – November 2011 | Michigan State Police | State Troopers |
| **Mock Prison Riot/Simulation** | SEEK II (CrossMatch) | May 2011 | West Virginia High Technology Consortium (sponsor) | Corrections/ Tactical Personnel |
| **Emergency Evacuation Management Exercise** | SEEK II (CrossMatch) | May 2012 | Gwinnett County, GA Sheriff Jail | Sheriff Deputies assigned to jail duties |
| **Iris Recognition Device/Evaluation only** | HIIDE 5 (MorphoTrust USA) | June 2011 – July 2011 | Tarrant County, Texas, Chief Technology Officer | Chief Technology Officer |
| **Operation Lone Star, Collin County Texas** | Fusion (3M Cogent Systems) | September 2011 – January 2012 | North County Texas Fusion Center | Patrol Officers and Detectives (Gang Unit) |

As these efforts were occurring, the project was contacted by sponsors of other pilot activities seeking to introduce mobile identification technologies into first responder law enforcement operations. These contacts enabled collaboration and information sharing with other jurisdictions that would not otherwise

[8] See report, Use of Mobile Biometric Device Technology in the Collection of Latent Fingerprints, Stockton, CA Police Department Report to Sandia National Laboratories, August 2012. Official Use Only – Law Enforcement Sensitive.

have participated in the MBD T&E Project. Specifically, the project leveraged information acquired from contacts, information exchange, and workshops with the following groups:

- DHS CBP Border Patrol conducted Operation Tormenta, May 16–26, 2011 (SEEK II). In seeking to use state of the art mobile biometrics to conduct biometric matching as subjects were being enrolled, this activity differed importantly from activities that did not enroll subjects/suspects at the point of encounter/arrest. This project involved deployment of 9 SEEK II MBDs and training of 23 agents. MBD activities are summarized as follows:

    - 14 searches of live scan enrollments against the Department of Defense's Automated Biometric Identification System (ABIS)
    - 20 latent images development
    - 1 biometric ABIS match to prior U.S. Special Operations Command /ICE enrollment
    - 2 biographic "EPIC-10" matches

  Comments from this project included the following.

- "…Of the capabilities provided in the technology demonstration, Border Patrol supervisors and agents counted the lack of forensic collection and exploitation capacity as their most significant capability gap…" [Operations Tormenta: Executive Out Brief]Albuquerque, New Mexico Police Department, conducting the Smart Policing Initiative using MorphoIDent.

- Los Angeles County Sheriff CAL ID Manager provided detailed usage information on mobile ID.

- Florida Department of Law Enforcement provided information on the mobile biometric device deployment throughout the State of Florida. There was discussion of configuring mobile roadside ID to query Unites States Visitor and Immigration Status IDENT, but such an exercise did not occur.

- Tucson, AZ Police Department implementing MorphoIDent.

Table 3 summarizes evaluations performed by device.

**Table 3. MBD evaluations by U.S. jurisdictions, by device**

** = Direct participation in MBD T&E project

*= Information provided to MBD T&E project

| MBD | MBD Website | Organization Performing Evaluation |
|---|---|---|
| **3M CogentSystems Fusion** | http://www.cogentsystems.com/downloads/Fusion_D3_EN_sm.pdf | • Stockton, CA PD** |
| **3M Cogent Systems MI3** | http://www.cogentsystems.com/downloads/MI3_EN_sm.pdf | • Seattle Police Department (lead)**<br>• Washington State Patrol**<br>• Washington State Department of Corrections**<br>• Port of Seattle Police Department Airport** |
| **CrossMatch SEEK II** | http://www.crossmatch.com/seekII.php | • ICE/Homeland Security Investigations (HSI)**<br>• ICE Enforcement and Removal Operations (ERO)**<br>• ICE/Western Region/Special Collections**<br>• ICE/BITMAP*<br>• Michigan State Police**<br>• West Virginia High Technology Consortium (sponsor)**<br>• Gwinnett County, Georgia Sheriff Jail**<br>• CBP OBP (San Diego Sector)**<br>• CBP OBP (Tucson Sector) – Operation Tormenta* |
| **Morpo/L-1 HIIDE 5** | http://www.morphotrust.com/pages/774-hiide-5 | ▪ Tarrant County, Texas Sherriff** |
| **Morpo RapidIDent** | http://www.morpho.com/identification/criminal-identification/handheld-terminals/morphoident/?lang=en | • Tucson Police Department*<br>• Albuquerque Police Department*<br>• Vermont State Police**<br>• Rutland, Vermont State Police** |
| **Morpho RAPID 1100** | http://www.morphotrak.com/MorphoTrak/MorphoTrak/CJ/mt_rapID_1100.html | • New Mexico State Police – reported planned usage only. No actual operational experience.* |
| **Morpho/L-1 IBIS Extreme** | http://www.morphotrust.com/pages/526-ibis-extreme?rev=true | • Chicago Police Department*<br>• Hennepin County, MN Sheriff*<br>• Michigan State Police*<br>• Kitsap County, WA Sheriff* |
| **Motorola MC 75** | http://www.motorola.com/web/Business/Products/Biometrics/Mobile%20AFIS/_Documents/MC75_Biometric_Attachment_specsheet.pdf | • Nueces County, Texas Sheriff*<br>• Georgia State Police* |
| **MORIS** | http://www.bi2technologies.com/index.php?q=products | Pinal County, Arizona Sheriff – indirect reporting that the device was NOT being used for field ID.* |

## 3.4. OBTAINING USER FEEDBACK

In each evaluation conducted under MBD T&E project, the jurisdiction conducting the evaluation was provided access to training on device usage and asked to report on device usage in a format tailored to the agency's operation or exercise evaluation.

User surveys were designed by DHS S&T with the assistance of NOBLIS, a nonprofit science, technology and strategy organization. These surveys were approved for use by the participating agencies and implemented for collection using an online survey service. This approach was selected to provide secure, well organized surveys in an error-free environment. Further, the online survey service approach provided a method to download all this data in spreadsheet format for analysis and development of a summary of the results. Access to usage logs was provided for the Washington State Pilot (which involved four jurisdictions) and was found to be extremely important. Specifically, the logs allowed the project to understand actual device use that may not have always been reported by the officers.

The content of the evaluations (sample of which are available in Excel format as part of the work papers supporting this project) information on the device operator, use of the device in operations or exercises. The evaluations also provide a post-pilot summary that captures the views of operators on improvements, technological or otherwise, that would benefit their operations.

The section below provides details on the user surveys.

### *3.4.1. User Survey Details*

MBD users were asked to fill out the following:

- A survey detailing their related experiences gained prior to participating in the pilot test, including the following:
    - Contact information
    - Agency assignment(s)
    - Law enforcement experience and education level
    - Computer knowledge
    - Previous experiences with MBD
    - Comments about their pre-pilot training

- A daily usage survey at the end of their shift that gathered information operational experiences, including the following:
    - Information linking a user to a particular device on a certain date and time
    - Information about device usage, including
        - How often the device was used
        - The number of times the device displayed "hits"
        - User actions based on the results of using the device
        - Experiences with fingerprint collection
        - Performance of the device
        - Comments and anecdotal experiences using the device

- A debrief survey summarizing their experiences and opinions after the end of their participation in the tests via questions in these categories:
    - Features of the mobile devices
    - Interaction with components of the MBDs
    - Usability and satisfaction

# 4. SUMMARY OF MBD T&E PILOT ACTIVITIES

Listed below are the pilots undertaken for the MBD T&E project:

- Washington State operational evaluation of MI3 (3M Cogent Systems)
- Stockton, CA Police Department operational evaluation of Fusion (3M CogentSystems)
- DHS ICE operational evaluation of SEEK II (CrossMatch)
- Michigan State Police evaluation of SEEK II (CrossMatch)
- West Virginia High Technology Consortium (sponsor) mock prison riot simulation using SEEK II (CrossMatch)
- Gwinnett County, Georgia Sherriff tactical situation simulation using SEEK II (CrossMatch) via an emergency evacuation management exercise
- Tarrant County, Texas, Chief Technology Officer field evaluation and applicability of iris recognition device using Hand Held Interagency Detection Equipment (HIIDE 5) (MorphoTrust USA)

The sections below will provide additional information for the Washington State evaluation, DHS ICE evaluation, the Michigan State Police Evaluation, the Gwinnett County jail emergency management exercise, and the Tarrant County field evaluation, and Operation LoneStar.

In the course of this project, several jurisdictions were contacted and many participated in varying degrees. A listing of 62 of these jurisdictions is provided in Appendix A, with a brief description of the status of any separate deployments they participated in and/or their involvement with this project. More detailed contact information is available through the work papers supporting this effort that were transferred to the sponsor separately.

## 4.1. WASHINGTON STATE PILOT

The concept for the Washington State pilot was initiated through discussions between the program sponsor and members of the Law Enforcement Committee IPT-13, hereafter referred to the First Responders Group in September 2010. The lead organization for this project, Seattle Police Department (SPD) worked with three other groups: the Washington State Department of Corrections, Washington State Patrol, and Port of Seattle Police Department (POSPD) at the airport.[9]

The 12-month pilot was conducted from October 2011 to October 2012 and focused on the use of eight Cogent Systems MI3 biometric devices supplied by the vendor at no charge. The pilot, which ran 7 days a week, 24 hours a day, involved exercise and evaluation of MI3's fingerprint ID capabilities. During this pilot, users were asked to provide their perspectives on the operational experience and how best to integrate these devices into their agencies. In addition, participating agencies were asked what additional

[9] Washington State Corrections officers conduct joint operations with the SPD to enforce probationer "keep out" zones within the city. Probationers encountered in these areas are considered in violation of their probation, and the use of mobile biometric identification technologies provides reliable field identification of these individuals.

capabilities they would like to see in next-generation MBD. The results of this pilot project are contained in a forthcoming separate report, the *Washington State Pilot on Mobile Biometric Device Technology*.

## *4.2.* DHS ICE Pilot

The DHS ICE began a pilot focused on providing feedback to the TSWG on any recommendations identified to improve the operation of SEEK II. The first group to join the pilot was the ICE Homeland Security Investigations (HSI) Special Collection unit located in Laguna Niguel, California. Personnel within this unit used the SEEK II in detention facilities in the southwestern part of the United States. A parallel effort was attempted with the ICE Homeland Security Investigations unit based in Alamosa, Colorado. A final effort was initiated with the ICE Enforcement and Removal Operations (ERO) unit in Los Angeles, California. Figure 1 shows the device and some of the users.

**Figure 1. Left: SEEK II device used in the DHS ICE pilot**

Due to the need for further procedural activities and coordination with other ICE components, such as those running the Biometric Identification Transnational Migration Alert Program (BITMAP), an additional operational evaluation of SEEK II was conducted from September 2010 to July 2012. The pilot involved several component organizations, including HSI, ERO, and the TSWG. Table 4 shows the number of SEEK II provided to each participating ICE unit. At the end of the evaluations, the feedback and the devices were returned to the TSWG.

**Table 4. Number of SEEK II provided to participating ICE units**

| Agency | Unit | # of MBD provided |
|---|---|---|
| ICE | Western Region/Special Collection Unit/Laguna Niguel, CA | 3 |
| | Homeland Security Investigations/Alamosa, CO** | 1 |
| | Enforcement and Removal Operations/Los Angeles, CA | 1 |
| | BITMAP | 30 |

DHS ICE HIS personnel primarily accepted the SEEK II because SEEK II project allowed access to the Department of Defense ABIS database. Use of the field enrollment capability was discouraged inside the United States, with the exceptions within the BITMAP program, as discussed below. Thus, the device could only be used for field identification.

Pilot participants provided initial feedback to the TWSG (see Appendix B), using a form developed by TSWG. A summary of the response from one organization is shown in Table 5. After supplying this initial feedback, ICE personnel and organizations encountered a number of issues that curtailed the level of information they could generate. Nevertheless, components of ICE continued to review the device for their own internal pilot efforts within detention centers around the country.

**Table 5. Feedback On SEEK II for TSWG from ICE HIS Security Investigation – Intelligence and Special Collection Division, California**

| Feature | Feedback from DHS ICE - Homeland Security Investigations-Intelligence and Special Collection Division, California | Rank* |
|---|---|---|
| **Hot key buttons for the factory default password** | Easy to log on | 1 |
| **Adjustable screen brightness at soft and hard keyboard** | Not used | |
| **Checking of 2 finger images (quality) to ensure correct hand** | This feature has been helpful on numerous occasions | 1 |
| **Addition of single finger capture when ring and little finger don't fit on platen** | Excellent feature that we use frequently | 1 |
| **Rotate screen to allow operator to read the display when taking fingerprints** | We use this feature with every query - excellent feature | 1 |
| **Increased screen size in the fingerprint applications** | Not used | N/A |
| **Battery life** | Battery life seems excellent - no issues encountered | 1 |
| **Plastic cover for platen area** | Good feature | 2 |
| **Removable 32GB HD** | Have not used | N/A |
| **Silicone Platen** | Works well when clean. The amount of subjects enrolled dictates how often the screen requires cleaning. | 2 |
| **What type of environment are you using the device in? (day, night, inside, outside, weather condition?** | The device is used indoors in well-lit areas. Most uses are within detention facilities | |

| | |
|---|---|
| **What are your ConOps?** | Conduct HUMINT interviews and query all interviewees utilizing the SEEK device. Primary targets for interview and query are aliens from special interest countries. |
| **Are you considering other technologies (peripherals) to the SEEK?** | No. |
| **What do you like and don't like about the hardware?** | The hardware functions well. One weakness seems to be the iris scan. Conducting the scan can take numerous tries. The iris scan works much better if the device is placed on a solid surface and NOT held by the officer/agent, other than to prevent the device from moving. |
| **What do you like and don't like about the software?** | We have experienced a couple of "freezes" in which the unit locks up during the final phase of enrollment. Also, in some cases, the iris scan seems to provide a good capture (good picture), but it does not save. |
| **What items currently in the kit are not needed?** | The keyboard (full size) |
| **What items do you want to see in an accessary kit?** | Tape or other type of cloth or device to clean the platen after use. |
| **Any significant or unique problems encountered?** | No |
| **Additional comments** | Overall the unit works well and we are very pleased with it. For DHS ICE purposes, it would be beneficial to have the last name first in the biographical data. It is a great tool to deploy with agents in the field and an excellent way to interface with the ABIS database. |

*Scale 1-5, with 5 being the highest positive ranking

### Additional Information on BITMAP use of SEEK II

During the course of conducting MBD T&E pilots, the project and sponsor were informed of ongoing BITMAP operations. As indicated in Table 4, BITMAP utilized many more devices for evaluation than did the organizations, and results were discussed among the different SEEK II users at a meeting on March 11, 2011, at the Counter Terrorism Technology Support Office in the Washington, D.C., area.

Supplementary information was provided by Eric Chan on February 7, 2013, via email describing the use of the SEEK devices in the BITMAP initiative:

> "ICE Office of International Affairs - Biometric Identification Transnational Migration Alert Program or BITMAP. BITMAP is an ICE/DoD collaboration to collect biometrics abroad through ICE vetted units and our foreign partners. This collection effort is for screening and intelligence purposes which allows ICE to extend our physical borders

through the vetting of individuals and the initiation of investigations prior to an alien reaching the United States. Currently, we have 30 DoD Special Operations Command owned SEEK devices deployed throughout Central and South America and Mexico. We recently had DoD trainers provide instruction to our Attachés on the use of these devices. I also have 5 SEEK II devices on loan from TSWG in my possession which will be used exclusively for special operations such as Gang member enrollments in foreign prisons and special interest alien's detained in foreign immigration detention centers. In addition to the important mission of extending our borders away from the U.S., BITMAP is also an exercise in interoperability. My understanding is that BITMAP is the first initiative to search and enroll against all three major biometric databases to include DoD ABIS, FBI IAFIS, and DHS IDENT. The DoD to FBI pathway is fully automated at this time. DHS USVISIT reports that they should be online with FBI and DoD by this Wednesday, however technical issues continue to delay this date. BITMAP has seen success in several overseas enrollments by our ICE Attachés being matched against through Border Patrol enrollments from arrests of individuals trying to enter the U.S. illegally. In addition, ICE enrollments have also seen matches against DoD ABIS enrollments and FBI criminal records. There are other technical aspects to BITMAP which I would be glad to discuss if you are interested.

I would appreciate it if you could check with your policy people and provide any guidance from the Department which indicates our legal authority to collect biometrics from non U.S. citizens either incarcerated or during lawful encounters. Also for your future reference - Phil Gunn is my headquarters representative for BITMAP and Rodger Werner has been the biometrics lead for the deployment of Enforce and the new Eagle application which will replace Enforce for the arrest and biometric enrollment of aliens for ICE. Together, I think we can be your conduit to ensuring any biometric initiatives with ICE are fully coordinated and successful. I would also be glad to receive any support that you can provide us to further enhance BITMAP."

## 4.3. MICHIGAN STATE POLICE PILOT

The Michigan State Police (MSP) received a SEEK II in September 2011 and conducted a review of the device during that time. MSP then deployed IBIS Extremes to several task force teams. Below is information on MSP's experiences with these devices.

### MBD Field Enrollment Mobile Device: SEEK II

- The following summarizes the information obtained from September to November 2011 in emails from Inspector Gregoire P. Michaud, Assistant Division Commander, Forensic Science Division, Michigan State Police. The SEEK II device didn't fit well within MSP field operations as it is very cumbersome to use.
- Field enrollment doesn't fit with law enforcement at this level. Because of the multitude of jails and posts present in each state, the need for field enrollment is not present.
- MSP never deployed the SEEK II device to the field, because its in-house testing wasn't very successful. Officers were able to enroll with the device, but had difficulties getting it to network with MSP systems.

**MBD Field Identification: IBIS Extreme**

- Task forces saw successes using IBIS Extremes in the field.
- Deployment was focused on fugitive and drug teams. The biggest hurdle was using Blackberry as the medium for sending and receiving data.
- MSP reported working with their AFIS vendor to develop a wireless application to in-car terminals for use with the IBIS. Efforts are continuing to explore how to incorporate the capacity to take an image for facial recognition efforts. This capacity was considered to be important for enhanced value of the device.

**Usage Reporting of MBD Field Identification: IBIS Extreme**

- For calendar year 2012, MSP had 778 searches. For about 5 months of 1012, mobile ID was not being used because of state network, email, and phone conversions.
- For calendar year 2012 MSP had 293 hits/identifications.
- MSP is currently working on connecting to RISC and with completion expected by the end of March 2013.
- MSP does not have detailed statistics on how many times MBD roadside identification saved the officer from transporting to a live scan device when not needed and does not have detailed information on how many times an MBD identification of a wanted person prevented release of an individual who otherwise might not have been identified. Rather, MSP maintains that 778 times in 2012, MBDs provided the following benefits:
    - Saved officer drive time: Without an MBD, making a positive identification can require an officer can be out of service for an hour per incident and incur additional costs, such as for gas and vehicle wear.
    - Identified a person who had a warrant or needed to be detained based on information returned via the MBD. According to MSP, the cost of releasing a person with a warrant is not easily measurable and in some cases could easily justify the costs of MBD.
- MSP does not have plans to enroll subjects/suspects in the field on an MBD.

## 4.4. GWINNETT COUNTY GEORGIA SHERIFF EMERGENCY EVACUATION MANAGEMENT EXERCISE

### *4.4.1. Overview*

The Emergency Evacuation Management Exercise held at the Gwinnett County Sheriff Jail (GCJ) in Georgia, was conducted on February 21, 2012, and evaluated the SEEK II. The exercise focused on enrolling inmates to allow their rapid identification in an emergency.

The project concept began in November 2011 with a visit by the Sandia contractor, Able Responder. At this visit, the contractor explored the procedure used by Sheriffs' Deputies for enrolling detainees/inmates develop concepts for designing an MBD that could be used in an emergency. The visit included enrolling individuals from one GCJ pod into the SEEK II, which collected the following:

- Biographic information
- 10 prints (slaps and rolls)

- Irises
- Scars, marks, and tattoos (SMTs)
- A face photo (mugshot)

The simulation event involved executing four scenarios for modality enrollment—10-print, 4-print, iris plus 4-print, and single-digit identification—of 40 inmates, 25 who had been previously enrolled and 15 who had not.[10] After capturing the different data, deputies searched for a match using the SEEK II's onboard database. Each enrollment required about 8–10 minutes per person in a facility- controlled environment. The event also tested various inmate management procedures, as shown in Table 6.

**Table 6. Scenarios procedure and inmate management procedures**

| Scenario | Scenario procedure | Inmate management procedure |
|---|---|---|
| **10-print identification** | • Record inmate ID<br>• Collect 10 fingerprints (slaps)<br>• Search for match in SEEK II database<br>• Record ID made | Move inmates from one area of 2 Pod to another as inmate ID numbers were recorded and identification executed |
| **4-print identification** | • Record inmate ID<br>• Collect 4 fingerprints (2 index, 2 thumb)<br>• Search for match in SEEK II database<br>• Record ID made | Move inmates from one area of 2 Pod to another as inmate ID numbers were recorded and identification executed |
| **Iris identification plus 4-print** | • Record inmate cell number<br>• Collect iris information<br>• Search for match in SEEK II database<br>• Record ID<br>• Collect 4 fingerprints (slaps)<br>• Search for match in SEEK II database<br>• Record ID made | Manage inmates by cell numbers, which proved more successful than using inmate ID numbers |
| **Single-digit identification** | • Record inmate cell number and single right index fingerprint for identification<br>• A single digit identification was completed and recorded for all inmates<br>• Record ID made | Line inmates up in two rows by cell number to make and record identifications |

[10] At GCJ, inmates are rotated in and out of pods based on their standing/history, trial status, and other factors. Thus, at the time of the Emergency Evaluation Exercise in May 2012, only 25 of the previously enrolled inmates remained in the pod that had undergone enrollment. Prior to the start of the identification event, the listed printout indicated that only 18 of the previously enrolled inmates were present in the pod. However, it was later determined that the actual number of inmates previously enrolled was 25.

For each scenario, metrics were collected on the following:

- Scenario
- Collection officer
- Number of attempts per finger
- Time to collect print
- End-to-end (ETE) identification time
- Result and match score (result confidence)

Between scenarios, breaks were taken to debrief the team on lessons learned, make recommendations to improve the process, and reconfigure the MBD to capture the different biometrics. Representatives from the National Sheriff's Association and the American Jail Association observed the execution of the project and provided positive feedback.

#### *4.4.2. Assessment*

Table 7 summarizes the issues that emerged in the GCJ Emergency Management Exercise. See Appendix C for more details on feedback.

**Table 7.GCJ event issues summary**

| Issue | Discussion |
|---|---|
| **Collection efficiency** | A larger platen to collect fingerprints would make collection more efficient, benefitting enrollment and the 10-print scenario.<br>The 4-print scenario confirmed that collecting fewer prints was easier and more efficient than collecting 10 prints. |
| **USB keyboard** | Any keyboard, including the vendor-provided roll-up USB keyboard included with most devices, can aid in entering biographic information. The roll-up keyboard was not used in this pilot due to mobility concerns. |
| **Camera glare** | Camera glare was problematic, especially for capturing tattoo images. In fact, SMT images were unacceptable for visual comparison. The ambient fluorescent lighting in the pod also affected image quality. Two proposed solutions included using a softer, constant light versus a camera flash and using a camera auto-exposure option; such an option would need to be easily accessible from device display. |
| **Iris collection** | Iris collection was difficult, and multiple attempts were needed to collect irises during enrollment and identification. Deputies achieved better, but not error-proof, results by giving these instructions to inmates: "hold the device and use it like you're looking through a pair of binoculars." These instructions required the deputy to hand the equipment over to an inmate, leading to potentially adverse officer safety, given that the inmate was now in possession of a relatively heavy object. As a result, preference for iris vs. fingerprint identification varied among deputies. |
| **Battery** | Using industry commercial off-the-shelf (COTS) batteries (D cell, C cell, AA adapters) rather than vendor batteries would enable easier deployment with law enforcement/first responders. This led to the recommendation to develop an adapter that packages AA batteries in same form factor as proprietary battery cartridge. |
| **Power** | Using a USB power adapter cord for use/recharging rather than a military standard (MILSPEC ) cord would enable easier deployment with law enforcement/first responders. |
| **Larger display** | No input on this feature was provided. |

### *4.4.3. Conclusions of the GCJ Emergency Management Exercise*

The National Sheriffs Association and American Jail Association observers expressed interest in supporting the DHS S&T MBD outreach to the corrections community and in evaluating MBD within their jail crises management training curriculum. In addition, Gwinnett County Jail is interested in further investigating the integration of MBD technology into their statewide RapidID and jail management programs.

## 4.5. Tarrant County, Texas: Evaluation for Iris Recognition

### *4.5.1. Overview and Background*

Tarrant County conducted a field evaluation and application study of the HIIDE 5 manufactured by MorphoTrust USA from June to July 2011. The initial purpose of this field evaluation was to determine

the extent to which mobile biometric technologies could actually be used in iris recognition in an operational field environment. Tarrant County was invited to participate because that jurisdiction has been routinely capturing iris in its booking process since 2004:

> "…Tarrant County, Texas, Sheriff's Office has been using the [iris recognition] technology since May 21, 2004. Terry Grisham, the office's spokesman, said when the technology went live nearly seven years ago, officers took images of the irises of each person in the jail at that time, which was between 3,000 and 4,000 people. "We went throughout the jail, iris scanning everybody in custody," he said. "And then from that point on, when someone came into jail, they were iris scanned and it went into the database." The jail's population averages around 3,500 people per day, and today the office has almost 230,000 unique iris scans in its system.
>
> Now when someone is being booked in the Tarrant County Jail, iris scanning is part of the process. A handheld system scans each eye, and the visible characteristics are converted into a 512-byte Iris Code, which is represented as a coordinate system that looks like a series of bar codes. Because there isn't a national database for state and local law enforcement agencies to verify the iris data when identifying people, the jail must rely on its own stored scans. Grisham said the jail has numerous "frequent fliers" — approximately 50 percent of the jail's inmates are repeat offenders. As other agencies enlist the technology, the county intends to develop a system so officers can share information.
>
> Before adding iris recognition to its booking system, the process for the Tarrant County Sheriff's Office to positively identify an offender was arduous. The office electronically sent offender's fingerprints to Austin, Texas, for comparison in the FBI's Automated Fingerprint Identification System. On a good day, Grisham said, it takes as long as four hours to get a return on that information. "Because we don't have the fingerprint equipment in the housing units, the inmate has to be brought down to the release area and fingerprinted," he said. "Then in the old days, we would have to wait—that inmate would sit for as long as it would take us to get a positive return back because we don't just rely on local databases, we want everything."
>
> Iris recognition doesn't replace fingerprint scanning, but it adds another layer to the Sheriff Office's identification matrix. Other identifiers the office uses include photographs and information about unique markers, like scars, tattoos and missing body parts. "They all kind of go together to make a positive ID," Grisham said."[11]

However, once the HIIDE 5 was delivered, it was quickly determined that iris capture ***in the field*** capability was not present, and might only be possible through further modification of the current iris capture system. It should be noted that a number of other vendors offer mobile iris recognition solutions, such as the Bi2Technologies Mobile Offender Recognition and Identification System (MORIS). However, the mobile aspect of these technologies refers to both enrollment and matching in a controlled, facility environment. The feedback summary describes the result of the Tarrant County evaluation in more detail.

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[11] http://www.govtech.com/public-safety/Iris-Scanners-New-York-Texas.html

**Figure 2. Iris recognition technologies used in the Tarrant County evaluation**

### *4.5.2. Tarrant County Feedback Summary*

- MBD strengths
  - Ergonomic and easy to handle
  - Allows for multi-modal ID and enrollment
  - Contains Large onboard database capabilities
  - Training easy and training materials provide good instructions on proper collection procedures
  - Offers wide variety of communication connectivity options
- MBD weaknesses
  - Device extremely dependent on the proprietary L-1 ABIS infrastructure. One user noted: "Tarrant County has an L-1 Identity Solutions iris scan system in use that was recently upgraded, but this system was unable to support it [the MBD]."
  - L-1 staff discouraged remote queries due to delay in response from database not onboard the device.
  - IdMap software usage presents a large training burden.
  - Touch screen keyboard is serviceable, but the weakest portion of the device.
- Perspective on future requirements
  - The remote data capabilities need to continue to be developed. If possible, the cellular radio needs to be field-upgradeable, allowing for the substitution of a CDMA or LTE radio for the included GSM radio if an alternate carrier is used or if upgraded networks are available. At the very least, the SIM card needs to be accessible without tools.
  - The capability to remotely search master databases that include biometric data needs to be improved, even if the databases contain only fingerprint data.

## 4.6. OPERATION LONE STAR

Ten law enforcement agencies in Texas participated in Operation Lone Star from September 2011 to January 2012. This pilot initially sought to evaluate the Fusion (3M CogentSystems) and the BlueCheck devices. However, the BlueCheck could not be utilized in this operation because of the information infrastructure modifications—such as the need to establish Wi-Fi links with patrol cars—and policies required for its operation.

According to the After Action Review (See Appendix D) prepared by the Collin County Office of Homeland Security, the sponsor of this pilot, Operation Lone Star sought to

"…[Demonstrate] biometric capabilities in the North Central Texas region. This Concept Of Operations (CONOPS) applies to those agencies and organizations participating in or supporting Operation LoneStar … which is designed to:

- Demonstrate the effectiveness of biometrics technologies and identify resolution as part of the overall regional security solution;
- Demonstrate the ability to share information across multiple law enforcement organizations;
- Provide data points and information to make informed decisions regarding future testing and investment by federal, state, and local LE agencies or departments…."

Table 28 shows the primary duties of the law enforcement agencies supporting Operation Lone Star. According to the After Action Report, 9 local agencies and 1 federal agency participated by using the Fusion device (see Table 8) and submitting as few as 1 and as many as 128 queries for a total of 320 submissions, which resulting in 60 matches, or hits. Three of these hits were from the FBI RISC, and 57 were from the Texas AFIS.

**Table 8. Operation Lone Star Law enforcement jurisdictions reporting MBD usage with the Fusion Device**

| Agency/Unit | # of MBD | # of queries |
|---|---|---|
| Allen Police Department | 1 | 22 |
| Carrollton Police Department | 1 | 20 |
| Collin County Sheriff's Office | 1 | 30 |
| Dallas Police Department | 2 | 21 |
| DHS ICE | 4 | 34 |
| Frisco Police Department | 1 | 27 |
| McKinney Police Department | 1 | 27 |
| Plano Police Department | 5 | 30 |
| Richardson Police Department | 3 | 128 |
| Wylie Police Department | 1 | 1 |

The Operation Lone Star After Action concluded that the pilot achieved its principal objective, as replicated from the report in Table 9 below:

**Table 9. Conclusion regarding meeting the primary objective of Operation Lone Star**

| Objective | Conclusion |
|---|---|
| **Test the efficiency and effectiveness of biometric equipment to identify criminals using false identification that would otherwise go undetected** | Operation Lone Star demonstrated that the biometric devices proved to be a low cost, effective tool in identifying violent criminals. In a 3G/4G environment, law enforcement officers were able to receive information from biometric databases in less than 3 minutes. This clearly demonstrates the increase in efficiency that cutting-edge technology can bring to law enforcement agencies in their continued pursuit of violent criminals and threats to the State of Texas. |

# APPENDIX A.

**Jurisdiction Deployments/Contributions to MBD Knowledge Base**

(As of May 20, 2013)

| Jurisdiction | City | ST | MBD | Status of Deployment/Contribution to MBD Knowledge Base |
|---|---|---|---|---|
| **Alameda County Sheriff** | Alameda | CA | Blue Check | Implementing deployment |
| **Pinal County Sheriff** | Florence | AZ | MORIS | Implementing deployment |
| **Tucson Police Department** | Tucson | AZ | MorphoIDent | Implementing deployment |
| **Vermont DPS Criminal Justice Services** | Waterbury | VT | MorphoIDent | Implementing deployment |
| **Stockton Police Department** | Stockton | CA | Fusion | Latent Print Pilot Report |
| **Tarrant County Office of the Sheriff** | Fort Worth | TX | HIIDE 5 | Letter report on suitability of device for iris recognition in field |
| **Allen Police Department** | Allen | TX | Fusion | Lone Star-participant |
| **Carrollton Police Department** | Carrollton | TX | Fusion | Lone Star-participant |
| **Collin County Sheriff's Office** | McKinney | TX | Fusion | Lone Star-participant |
| **Frisco Police Department** | Frisco | TX | Fusion | Lone Star-participant |
| **McKinney Police Department** | McKinney | TX | Fusion | Lone Star-participant |
| **Plano Police Department** | Plano | TX | Fusion | Lone Star-participant |
| **Richardson Police Department** | Richardson | TX | Fusion | Lone Star-participant |
| **Wiley Police Department** | Wiley | TX | Fusion | Lone Star-participant |
| **Federal Bureau of Prisons** | Butner | NC | SEEK II | Mock Prison Riot Report Operational Assessment Report |
| **Federal Bureau of Prisons** | Hazelton | WV | SEEK II | Mock Prison Riot Report Operational Assessment Report |
| **Lee County Sheriff** | Fort Myers | FL | SEEK II | Mock Prison Riot Report Operational Assessment Report |
| **Minnesota Department of Corrections** | St Paul | MN | SEEK II | Mock Prison Riot Report Operational Assessment Report |
| **Passaic County** | Wayne | NJ | SEEK II | Mock Prison Riot Report Operational Assessment Report |
| **Suffolk County Sheriff** | Riverhead | NY | SEEK II | Mock Prison Riot Report Operational Assessment Report |

| Jurisdiction | City | ST | MBD | Status of Deployment/Contribution to MBD Knowledge Base |
|---|---|---|---|---|
| **Collin County** | McKinney | TX | Fusion | Project LoneStar lead |
| **Dallas Police Department** | Dallas | TX | Fusion | Project LoneStar participant |
| **Gwinnett County Sheriff's Department** | Lawrenceville | GA | SEEK II | Project Report on Emergency Evacuation Exercise |
| **Michigan State Police** | Lansing | MI | IBIS Extreme, SEEK II | Projected info to project |
| **DHS-US Coast Guard R&D Center** | New London | CT | SEEK II | Provided info |
| **Albuquerque Police Department** | Albuquerque | NM | MorphoIDent | Provided info to project |
| **Chicago PD** | Chicago | IL | IBIS Extreme | Provided info to project |
| **DHS-Border Patrol** | San Diego | CA | SEEK II | Provided info to project |
| **DHS-ICE-BITMAP** | Tampa | FL | SEEK II | Provided info to project |
| **Duluth Police Department** | Duluth | GA | IBIS Extreme | Provided info to project |
| **Fairfax County Police Department** | Fairfax | VA | Blue Check | Provided info to project |
| **Florida Department of Law Enforcement** | Tallahassee | FL | Blue Check | Provided info to project |
| **Georgia State Patrol** | Atlanta | GA | MC75 | Provided info to project |
| **Hennepin County Sheriff** | Minneapolis | MN | IBIS Extreme | Provided info to project |
| **King County Sheriff's Office** | Seattle | WA | MorphoIDent | Provided info to project |
| **LA County Sheriff (LACRIS)** | Los Angeles | CA | Blue Check | Provided info to project |
| **LAPD** | Los Angeles | CA | Blue Check | Provided info to project |
| **Milwaukee Police Department** | Milwaukee | WI | IBIS Extreme | Provided info to project |
| **National Park Service** | Ft. Huachuca | AZ | SEEK II | Provided info to project |
| **New Mexico Department of Public Safety** | Santa Fe | NM | MorphoRAPID | Provided info to project |
| **Nueces County Sheriff** | Corpus Christi | TX | MC75 | Provided info to project |
| **Placer County** | Auburn | CA | MC75; AMREL DB6 | Provided info to project |
| **San Diego Sheriff's Department** | San Diego | CA | Blue Check | Provided info to project |
| **DHS-ICE-Homeland Security Investigations/OI/SCD** | Laguna Niguel | CA | SEEK II | Provided info to project on SEEK II use in detention centers |
| **DHS-Border Patrol** | Tucson | AZ | SEEK II | Provided info to project-Operation Tormenta |
| **Houston Police Department** | Houston | TX | Blue Check | Provident info to project |

| Jurisdiction | City | ST | MBD | Status of Deployment/Contribution to MBD Knowledge Base |
|---|---|---|---|---|
| **DHS-ICE-Enforcement and Removal Operations** | Los Angeles | CA | SEEK II | Received formal training on SEEK II in preparation for own pilot |
| **DHS-ICE-Homeland Security Investigations** | Alamosa | CO | SEEK II | Received formal training on SEEK II through project |
| **Cobb County Police Department** | Marietta | GA | SEEK II | Reviewed device; have not deployed |
| **Conyers Police Department** | Duluth | GA | SEEK II | Reviewed device; have not deployed |
| **Dekalb Marshal's Office** | Decatur | GA | SEEK II | Reviewed device; have not deployed |
| **Fulton County Sheriff's Office** | Fulton | GA | SEEK II | Reviewed device; have not deployed |
| **LaGrange Police Department** | LaGrange | GA | SEEK II | Reviewed device; have not deployed |
| **Marietta Police Department** | Marietta | GA | Blue Check | Reviewed device; have not deployed |
| **Pima County Sheriff** | Tucson | AZ | Blue Check | Reviewed device; have not deployed |
| **Pinellas County Sheriff** | Largo | FL | SEEK II | Reviewed device; have not deployed |
| **St. Croix Tribal Police Department** | Webster | WI | SEEK II | Reviewed device; have not deployed |
| **Colorado Department of Public Safety** | Alamosa | CO | SEEK II | Training only |
| **Seattle Police Department** | Seattle | WA | MI3 | WA State Pilot Project |
| **Port of Seattle Police Department** | Seattle | WA | MI3 | WA State Pilot Report |
| **Washington State Department of Corrections** | Seattle | WA | MI3 | WA State Pilot Report |
| **Washington State Patrol** | Seattle | WA | MI3 | WA State Pilot Report |

# APPENDIX B.

## DHS ICE Evaluations of SEEK II

**Scale 1-5, with 1 being the highest positive score**

| Features | Evaluators | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Pinellas County, FL Sheriff** | **Rank** | **DHS/Border Patrol - Border Intelligence Unit** | **Rank** | **Gwinnett County, GA Sheriff** | **Rank** | **DHS ICE - Homeland Security Investigations-Intelligence and Special Collection Division-California** | **Rank** |
| **Hot key buttons for the factory default password** | Evaluator was unaware of this feature | 3 | | 1 | Combination has yet to work | 5 | Easy to log on | 1 |
| **Adjustable screen brightness at soft and hard keyboard** | Very important for varying operational environments | 1 | | 3 | Works without issue | 2 | Not used | |
| **Checking of 2 finger images (quality) to ensure correct hand** | Very important for enrollment integrity | 1 | | 2 | | 3 | This feature has been helpful on numerous occasions | 1 |
| **Addition of single finger capture when ring and little finger don't fit on platen** | Not assessed. Assessed for 10 print collection | 3 | | 2 | | 3 | Excellent feature that we use frequently | 1 |
| **Rotate screen to allow operator to read the display when taking fingerprints** | Very important for operator review during collection | 1 | | 2 | | 1 | We use this feature with every query - excellent feature | 1 |
| **Increased screen size in the fingerprint applications** | SEEK II screen was considered small/Larger screen highly recommended | 1 | | 2 | | 2 | Not used | N/A |
| **Battery life** | Battery Life was ample for customary deputy shift. Hot swap batteries and in car charging helped with charging. | 2 | | 1 | Needs an external charger | 3 | Battery life seems excellent - no issues encountered | 1 |
| **Plastic cover for platen area** | Absolutely needed | 1 | | 2 | A latch to hold the cover open would be helpful | 3 | Good feature | 2 |
| **Removable 32GB HD** | Not assessed - removable media recommended | 1 | | 3 | Option for emory card would be useful | 3 | Have not used | N/A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Silicone Platen** | Great for sensor protection, but dust, dirt and hair magnet. | 1 | | 1 | | 2 | Works well when clean. The amount of subjects enrolled dictates how often the screen requires cleaning. | 2 |
| **What type of environment are you using the device in? (day, night, inside, outside, weather condition?** | The SEEK II was used in outdoor various lighting conditions. Primarily daytime. | | All weather conditions, mainly outside | | Day, night, inside, outside | | The device is used indoors in well-lit areas. Most uses are within detention facilities | |
| **What are your ConOps?** | Law Enforcement related field interviews of suspicious persons or investigations interview involving one to multiple subjects. Traffic stops or related activity did not use the SEEK. | | No comment | | No comment | | Conduct HUMINT interviews and query all interviewees utilizing the SEEK device. Primary targets for interview and query are aliens from special interest countries. | |
| **Are you considering other technologies (peripherals) to the SEEK?** | No | | No | | Not yet | | No. | |
| **What do you like and don't like about the hardware?** | LIKES: Compactness of multimodal biometric collection. Rugged form factor; DISLIKE: Screen size; integrated keyboard size; awkwardness for iris capture | | If the unit had a built in aircard it would be best "version" and smaller PDA size. | | Overall the hardware is well designed. The mouse touchpad is responsive and the physical keyboard while a little small is adequate. | | The hardware functions well. One weakness seems to be the iris scan. Conducting the scan can take numerous tries. The iris scan works much better if the device is placed on a solid surface and NOT held by the officer/agent, other than to prevent the device from moving. | |
| **What do you like and don't like about the software?** | LIKES: Ease of navigation and feature iconization. Biometric capture flow and ease of use. DISLIKES: None noted. | | Issues logging in and boot up speed needs to improve | | Most buttons are larger enough to use without the stylus. Fields for input could be larger. This would make the fields easier to read under less optimal conditions, lessen the dependency of stylus allowing the operator to work more efficiently and add to the consistency of the user interface. | | We have experienced a couple of "freezes" in which the unit locks up during the final phase of enrollment. Also, in some cases, the iris scan seems to provide a good capture (good picture), but it does not save. | |
| **What items are currently in the kit that are not needed?** | For our mobile deployment the mouse and external keyboard | | Roll up keyboard. | | none at this time | | The keyboard (full size) | |

| | | | | |
|---|---|---|---|---|
| | were not used. | | | |
| **What items do you want to see in an accessary kit?** | Nothing Additional | Wireless keyboard, i.e. Pyramid Distro pro-mini 2.4 GHZ keyboard with mouse pad | external battery charger | Tape or other type of cloth or device to clean the platen after use. |
| **Any significant or unique problems encountered?** | None. | S/NC issues at times along with E3 issues being down. | not at this time | No |
| **Additional comments** | The SEEK II demonstrated well for a multimodal biometric capture device. Users mentioned the form factor was acceptable and intuitive software aided collection. PCSO did not integrate the biometric search features with this pilot period which limited the amount of real world ident/verification processing. Deputies reported for law enforcement roadside deployment the SEEK II would be cumbersome to use due to the amount of information required to be collected. Military application would be a more suitable conop/deployment scenario for population catalog or detainee operations. | The unit is bulky …a smaller PDA size would be nice. | page 9 in the field reference guide is missing that correspond to the descriptions in table 3 to the numbered image in figure a on page 8. | Overall the unit works well and we are very pleased with it. For DHS/ICE purposes, it would be beneficial to have the last name first in the biographical data. It is a great tool to deploy with agents in the field and an excellent way to interface with the ABIS data base. |

**Additional comment from Michigan State Police - SEEK Greg Michaud, Division Commander:**

In short, the SEEK II device doesn't fit well within our field operations as it is very cumbersome to use. Field enrollment is something that really doesn't fit for law enforcement at this level. Because of the multitude of jails and posts present in each state, the need for it just isn't there.

# APPENDIX C.

**Gwinnett County Jail SEEK II Evaluation Feedback**

| **Mock Prison Riot - SEEK II = Survey information** | **Mock Prison Riot - SEEK II - 11 Scenarios** | | **Gwinnett County Jail SEEK II** | **Gwinnett County Jail SEEK II Rapid ID for Inmate Evacuation** |
|---|---|---|---|---|
| Evaluator Name | Multiple (15) respondents completing 25 surveys from 4 agencies | | Personnel | Multiple (6) Sheriff Office personnel |
| Title | | | Platen | Size of Platen needs to be larger for 4 finger slaps |
| Department/Correctional Facility | 3 Sheriff; 2 Federal Prison; 1 State | | External Keyboard | Utilizing a larger keyboard for enrollments was suggested. A roll-up USB keyboard is provided in the jump kit. Use of external keyboard makes the unit less mobile. Any USB keyboard can be used. |
| Street Address | | | SMT Images | SMT images were unacceptable for visual comparison. Images appeared washed out with glare. Recommend better light and clear focus |
| State (s) | FL, NC, WV, NJ, MN, NY | | Entering tattoo location fields | Process a little time consuming. Possible touch screen stickman illustration for use when entering SMT location types. |
| Zip | | | Iris | Multiple attempts were often needed for collecting irises during enrollment and identification events. Iris was easier to capture when inmate held the device. As a result, opinions varied among deputies preferring iris vs. fingerprint identification. |
| Email | | | Battery | It was suggested that using standard AA rechargeable battery packs would be beneficial. |
| Phone | | | Power | It was suggested to provide USB power charging capability. |
| Years of Experience | Avg. = 9.94 years | | Touch Screen | Stylus was preferred to mouse pad |

| | | | | |
|---|---|---|---|---|
| About your facility - Federal or State Prison? County Jail? Local Jail? Inmate population? Visitors per day? In-processing per year? | Avg. inmate population - 1,440; Visitors per day avg. - 90; Inmates/in processed per year - 3,400; Corrections officers avg. - 307 | | Larger display | No Comment |
| Does your agency currently use biometrics? IF YES…name of device. Fingerprint? Iris? Voice? Other? | 60% Yes - 40% no. 6 Respondents from Federal or State prisons; 9 respondents from county jails. | | Work Detail | Interest to explore biometrics for tracking inmate work details |
| Are you currently or would like to use the biometrics in the following applications/Functions. Yes/No Current use; Should to Should not use in future 1-5 If currently using biometrics, are visitors screened by State AFIS? County AFIS; FBI AFIS; FBI RISC? DOD ABIS? US VISIT? | 15 respondents completed 25 surveys. The following summarizes these responses: Yes No Future Avg | | Weight | Weight is OK during use. Officers are trained that all objects are potential impact weapons in the event of an emergency. May be too heavy to carry on person all day. |
| 1) Arrest and booking | 15 4.4 | 10 | Evacuation Process | During a real emergency, there is no time to ID during evacuation. ID and population inventory performed once inmates are safely evacuated. |
| 2) Access control to secure spaces and equipment | 7 3.8 | 18 | Use Case (Jail Evacuation) | Last year (2011) there were 35 jails evacuated within the United States. |
| 3) Inmate induction and release | 10 4.4 | 15 | Use Case (Medical) | It would be beneficial if the SEEK device also maintained medical history of people ID (staff & Inmates) for emergency purposes. MBT could also be used for inmate pharmacy disbursements. |
| 4) Tracking Visitors | 7 4.0 | 18 | Implementation | Recommended agencies seek “Regional approach” to technology implementation and purchasing, supporting lower cost and interoperability. |

| | | | | | |
|---|---|---|---|---|---|
| 5) Dispensing medical services and medicine; | 8<br>4.2 | 15 | | Future Interest | NSA is very interested to support DHS mobile biometric device outreach efforts to the Corrections community and to evaluate mobile device technologies into their Jail Crises Management training curriculum. Gwinnett County Jail is interested in further investigating the integration of this type of technology into their statewide RapidID and Jail Management programs. |
| 6) Tracking inmate movement within the facility | 7<br>4.2 | 18 | | | |
| 7) Tracking inmate Movement Into/Out of Facility | 8<br>4.1 | 17 | | | |
| 8) Tracking inmate telephone or commissary privileges | 13<br>4.1 | 12 | | | |
| 9) Identification of inmate visitors | 8<br>4.6 | 17 | | | |
| Your Assessment of the Device…Operated for 1) performing enrollments; 2) Performing ID checks; 3) Enrolling into the system | | | | | |

Based on your encounter circle the most appropriate response from Strongly Agree to Strongly Disagree (1 to 5) or N/A.. 1) Overall, the software interface was intuitive and easy to use with minimal training; 2) Display screen was clear, bright, and large enough to make it easy to read text and view photographs; 3) The onboard keypad was sufficient for basic text entering operations; 4) Touch screen display and touchpad and mouse buttons were sufficient for user control; 5) Device is lightweight and small enough that a person could be expected to carry it with them all day; 6) Photocapture camera was easy to use; 7) Device was suitably set up to capture flat finger and thumbprints for enrollment; 8) Device can be easily used to capture fingerprints of a handcuffed subject; 9) Device employs an easily workable method for capturing iris images; 10) The device can be configured with many custom features and peripheral devices (i.e. printer/bar code reader, etc...). Our agency could use a small, simple wireless fingerprint reader to check for IDs that are stored on the device.

How might your agency leverage the device's mobile booking capability? In field booking prior to transport or transfer; Book and release; Pre-booking; In-house booking; We wouldn't

Rank the following features of a mobile biometric device with 1 being Very Essential to 5 being Not Important: Full mobile ten-print booking capability; Latent fingerprint capture capability; One to One biometric matching (verification); One to Many biometric matching (identification); Fully self-contained onboard database; Remote database access and search; Simple ID card verification only.

| | |
|---|---|
| Recommendations for product improvements | ENROLLMENT: 1) The user interface should be tailored specifically for a law enforcement perspective; 2) Develop camera technologies that have the ability to capture iris and face simultaneously and at a single distance to increase officer efficiency and safety; OPERATIONS/IDENTIFICATION: 3) Technologies and/or methods/procedures should be developed that provide police officers the ability to easily obtain finger prints from a handcuffed suspect; 4) Develop fingerprint technologies that are less susceptible to moisture and dirt; 5) Reduce the mobile biometric device weight and size while increasing the size of the most commonly used buttons during identification. |

Please rank the product using the following benchmarks with 1 indicating a High Degree to 5 indicating a Low Degree or Not Evaluated. 1) **Functionality** (The degree to which the technology operated as described in response to user needs)…Does it do what the manufacturer says it will do? 2) **Reliability** (The degree to which the technology operated consistently under realistic field conditions)...Do you feel it would perform reliably under real-world conditions? 3) **Performance** (The degree to which the technology operated efficiently and timely relative to expected end user needs)...Did it make the job easier? 4) **Compatibility** (The degree to which the technology can be added to the user's toolset without a negative impact on existing/traditional tools already in use) Did it cause adverse effects on other existing tools in use?

# APPENDIX D.

**LoneStar After Action Report**

## Operation LoneStar
## After Action Review

**Contents**

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Training ……... 5
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## Background

Operation LoneStar was a pilot program utilizing forensic analysis of Biometric characteristics, associated contextual information, and the matching of identity attributes within authoritative databases. The purpose of the pilot was to provide a collaborative network that can be shared with and searched by authorized users. The goal of Operation LoneStar was to:

- Demonstrate the effectiveness of Biometrics technologies and identify resolution as part of the overall regional security solution;
- Demonstrate the ability to share information across multiple law enforcement (LE) organizations;
- Provide data points and information to make informed decisions regarding future testing and investment by federal, state, and local LE agencies or departments.

The overall purpose of this demonstration was to leverage existing LE and federal agencies' Biometric repositories; while pinpointing their respective roles, and identifying effective ways to process and disseminate Biometric information. Operation LoneStar used existing consumer off the shelf/governmental off the shelf (COTS/GOTS) solutions in an effort to:

- Demonstrate the utility of Biometrics in providing real-time information to those organizations involved in the security of citizens;
- Serve as a mechanism to alert LE officials to emerging threats;
- Assist officials in understanding the nature of potential threats.

## Pre-Operation Administrative Issues

The lessons learned from rural areas along the Southwest border in Arizona during Operation Tormenta were used as a guideline for Operation LoneStar. Prior to Operation LoneStar, mission objectives and benchmarks were developed and incorporated into a Concept of Operations. Initial training was hosted at the Collin County Sheriff's Office (CCSO) where a representative from each agency was in attendance. An attempt was made to get Memorandums of Understanding (MOU) signed prior to Operation LoneStar, but there were significant time delays with one large city and a federal agency. Initially the Texas Department of Public Safety (TxDPS) MOU only included access to the Federal Bureau of Investigation (FBI) Repository of Individuals of Special Concern (RISC) database. All participating agencies signed the initial MOU with the exception of DHS Investigations. Texas DPS later included access to the Automated Fingerprint Identification System (AFIS) in September, which required another MOU. The MOU required review by the TxDPS legal department and participating law enforcement legal departments. Reviews by agencies' legal departments are always a requirement, but this delayed the access to the AFIS database.

One local agency delayed usage of the Biometric devices until the TxDPS Automated Fingerprint Identification System (AFIS) database was functional. The agency did not feel that their officers would utilize the devices without the AFIS system. As a result, they did not use the devices as often as other agencies.

## Pre-Operation Technical Issues

Operation LoneStar was presented to the Collin County Emergency Communications Committee (CCECC) in order to review technical requirements associated with the project. The CCECC role is to evaluate technology projects to identify concerns prior to implementing technology projects to promote buy-in from CIOs. Discussions during this presentation led to a resistance in the use of the Blue-Check Biometric devices. Some Information Technology (IT) departments had policies that prohibited the download of software to enable the Bluetooth connections for these devices to Mobile Data Computers (MDC). Several other IT departments attempted to connect the Blue-Check devices to their mobile data computers; however, there were ongoing issues with the Blue-Check devices. The problems could not be resolved and eventually all of the Blue-Check devices were taken out of service. Future advances in technology may alleviate these issues.

## Operation

The outcome of Operation LoneStar proved to be a success in spite of obstacles. There was substantial proof of value in the overall concept and it highlighted the importance of utilizing Biometric devices provided by Northern Command (NORTHCOM) in the future. The Fusion Biometric devices required additional work to initiate operability, but the officers' used it more often than Blue-Check Biometric devices due to the problem with Bluetooth connectivity.

## Lesson Learned

The Biometric devices used in Operation LoneStar required software/code updates. Officers were required to return to the Sheriff's Office for updates to the devices. In an effort to increase efficiency, an automated software update, including officer notifications and 24/7 support, is recommended. Included in this recommendation is the implementation of remote access to each device (i.e. wireless connectivity or Wi-Fi) so that auditing and troubleshooting can take place away from the facility. Although the biometric devices were important, the relationships that were already in place were essential to the success of this project. Access to the databases (AFIS and RISC) was the critical selling point with law enforcement agencies. These law enforcement agencies were also very interested in access to the US Department of Homeland Security IDENT database, which was not able to be addressed during Operation LoneStar. It would be ideal to include the Department of Homeland Security (DHS)/Automated Biometric Identification System (ABIS).

## Positive Outcomes

Richardson Police Department (RPD) had executive level support, mid-level manager support, and front line supervisors who were also supportive of this project. This allowed officers to receive training at the beginning of each shift ensuring that the Biometric devices were fully utilized. As a result, RPD checked 129 individuals during the project period and had the most positive returns, including 2 individuals listed in the RISC database.

There were examples by several agencies where suspects were detained without identification and when the officer presented the Fusion Biometric device, the suspect provided their true identity. In these circumstances the Fusion device was utilized as a lie detector in the field, even before it was used.

## Concerns

There were delayed returns from the FBI's RISC database; as a result, one subject was released prior to identification. In another situation, the suspect was arrested and incarcerated before the RISC hit was received.

Additional observations:

- Executive-level support and shift-level training by the City of Richardson Police Department was invaluable.
- There is limited interoperability between Texas and other state AFIS.
- The IT process for connecting Blue-Check to MDC is not well documented and needs to be addressed.
- The cost of the Fusion Biometric device may be offset by using officers' cell phones—which would allow for Bluetooth connectivity.
- Officers would return the Fusion device at the end of shift and the battery was dead. The Fusion Biometric devices only had AC chargers and car chargers would have been useful during the Operation to keep the devices deployed in the field.
- The Fusion Biometric device was identified as the most user-friendly.
- No Automated Fingerprint Identification System (AFIS) access at beginning of Operation LoneStar, which became operational in mid-October.
- Dallas gang unit noted that enrolling in Fusion Biometric device is very beneficial, when available.
- The mobile hotspot "Rocket" may be a cheaper alternative to using wireless cell.

## Training

All of the users were offered training prior to Operation LoneStar, but most departments sent one or two officers who served as training officers for the devices. Training was provided by these trainers, but this worked better in some jurisdictions than others. Training for users during shift change was more effective.

## Conclusion

Operation LoneStar demonstrated that the biometric devices proved to be a low cost, effective tool in identifying violent criminals. In a 3G/4G environment, law enforcement officers were able to receive information from biometric databases in less than 3 minutes. This

clearly demonstrates the increase in efficiency that cutting-edge technology can bring to law enforcement agencies in their continued pursuit of violent criminals and threats to the State of Texas.

**Operation LoneStar Statistics**

| **Department** | (# Fusions + # BlueChecks) | **Total Hits** |
|---|---|---|
| **Allen PD** | 1 Fusion Device +2 Blue Checks | 23 |
| **Carrollton PD** | 1 Fusion Device +3 Blue Checks | 20 |
| **CCSO** | 1 Fusion Device +3 Blue Checks | 30 |
| **Dallas PD** | 2 Fusion Devices + 0 Blue Checks | 21 |
| **DHS** | 4 Fusion Devices + 0 Blue Checks | 7 |

| | | |
|---|---|---|
| **Frisco PD** | 1 Fusion Device +3 Blue Checks | 34 |
| **McKinney PD** | 1 Fusion Device +3 Blue Checks | 27 |
| **Plano PD** | 5 Fusion Devices + 0 Blue Checks | 33 |
| **Richardson PD** | 3 Fusion Devices + 0 Blue Checks | 129 |
| **Wylie PD** | 1 Fusion Device + 1 Blue Checks | 1 |
| | Total (20 Fusions + 15 BlueChecks) | 325 |
| | AFIS HITS: | 5 7 |
| | RISC HITS: | 3 |

## DISTRIBUTION

| | | | |
|---|---|---|---|
| 2 | DHS S&T<br>Patricia Wolfhope, patricia.wolfhope@dhs.gov | | |
| 1 | MS9003 | Alex Roesler | 08112 |
| 1 | MS9003 | Chris Aldridge | 08112 |
| 1 | MS0899 | Tech Library | 9536 (electronic copy) |

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