System Assessment and Validation for Emergency Responders (SAVER)

Live Scan Fingerprint Systems Market Survey Report

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Science and Technology

Prepared by the National Urban Security Technology Laboratory

FOREWORD

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

- Conducting impartial, practitioner-relevant, operationally oriented assessments and validations of emergency responder equipment; and

- Providing information, in the form of knowledge products, that enables decision-makers and responders to better select, procure, use, and maintain emergency responder equipment.

Information provided by the SAVER Program will be shared nationally with the responder community, providing a life- and cost-saving asset to DHS, as well as to Federal, state, and local responders.

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

As a SAVER Program Technical Agent, the National Urban Security Technology Laboratory (NUSTL) has been tasked to provide expertise and analysis on key subject areas, including chemical, biological, radiological, nuclear, and explosives weapons detection; emergency response and recovery; and related equipment, instrumentation, and technologies. In support of this tasking, NUSTL conducted a market survey of commercially available live scan fingerprint capture devices. Live scan fingerprint capture devices fall under AEL reference number 20CS-01-AFIS, titled Fingerprint Processing and Identification Equipment.

Visit the SAVER section of the Responder Knowledge Base (RKB) website at https://www.rkb.us/saver for more information on the SAVER Program or to view additional reports on live scan fingerprint systems or other technologies.

POINTS OF CONTACT

SAVER Program
U.S. Department of Homeland Security
Science and Technology Directorate
OTE Stop 0215
245 Murray Lane
Washington, DC 20528-0215

E-mail: saver@hq.dhs.gov
Website: https://www.rkb.us/saver

National Urban Security Technology Laboratory
U.S. Department of Homeland Security
Science and Technology Directorate
201 Varick Street
New York, NY 10014-9444

E-mail: NUSTL.SAVER1@hq.dhs.gov

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1.   INTRODUCTION

Live scan fingerprint scanners capture and store electronic images from a subject's hand for comparison to, or enrollment in, regional and national databases. To provide law enforcement organizations with information on live scanners, the System Assessment and Validation for Emergency Responders (SAVER) Program conducted a market survey on live scan fingerprint systems.

This market survey report is based on information gathered between January 1, 2013, and June 30, 2013, from Internet searches, industry publications, and a government issued Request for Information (RFI) accessible from the Federal Business Opportunities website. For inclusion in this report, a live scan fingerprint system had to meet the following criteria:

- Capable of acquiring forensic quality exemplar prints including individual rolled fingerprints as well as plain thumb and four finger flat slap prints for law enforcement applications;

- Applicable for use as a desktop or fixed station system;

- Certified as tested and in compliance with the Federal Bureau of Investigation (FBI) Integrated Automated Fingerprint Identification System (IAFIS) Image Quality Specifications (IQS);

- Consist of a hardware and software system having a user interface for use by law enforcement (i.e., not a hardware or software component intended for integration into an unspecified system);

- Not designed to operate in a mobile environment as a fast capture scanner for high throughput field enrollment of large populations; and

- Not designed for Personal Identity Verification (PIV) single finger applications or for identification flats for civil applicants.

Due diligence was performed to develop a report that is representative of products in the marketplace.

2.   LIVE SCAN FINGERPRINT SYSTEMS OVERVIEW

The process of comparing a set of fingerprints to others in a database for identification is used in many aspects of law enforcement and counterterrorism operations and investigations. Fingerprints may be compared to local and national databases for criminal history or to watch lists for border security. Latent prints from crime scenes are used in forensic investigations, and fingerprints can also be used to identify victims. An Automated Fingerprint Identification System (AFIS) uses imaging technology, computers, and software to acquire, store, and search fingerprint data. Regional and state organizations may maintain their own AFIS, while smaller organizations send prints to local or national databases for comparisons. The FBI IAFIS contains over 70 million subjects in a criminal database, and 31 million noncriminal records such as those of U.S. military or Federal employees. The IAFIS responds to requests 24 hours a day, usually within 30 minutes.

Conclusive identification requires high quality images. The first step in fingerprint identification is obtaining an image of the prints of interest. Fingerprints deliberately collected from an individual's hand are called exemplar prints. They have historically been obtained using paper and ink, which must be optically scanned for database input. Some law enforcement agencies may mail inked cards for database searches. Eliminating paper and ink, live scanners capture and store an electronic image, and the digitized prints can be transmitted electronically for faster turnaround in database searches. Local law enforcement agencies are transitioning from ink on paper to live scanning.

Complete exemplar fingerprint sets contain both rolled and flat fingerprint images and may be referred to as "tenprint" sets or "forensic quality" prints as they are used in law enforcement. Rolled prints capture an image of the skin on each individual fingertip from one side of the fingernail to the other. Flat fingerprints do not include the skin on the side of the finger, but capture a plain image of the fingertip pads; typically a slap print of the four fingers are imaged together and the plain thumb is imaged separately.

The live scanners covered in this market survey are used to capture complete forensic quality tenprint sets of exemplar prints from an individual of interest for indoor law enforcement applications such as criminal booking. Portable live scanners intended for use in mobile or field law enforcement applications are not the focus of this report; dual use compact scanners are included only where they are used as components of indoor desktop or kiosk systems. The live scan systems covered would be suitable for law enforcement agencies moving from ink to inkless systems.

2.1   Current Technologies

Live scan fingerprint systems include the image capture device and supporting software that controls the hardware and guides the user through the capture process. Depending on the system, the software may be loaded on the scanner or on a personal computer (PC) that is connected to the scanner.

In most live scanners, the hardware is based on optical sensors that take a high resolution digital image of fingers placed on a glass platen. Most current fingerprint identification systems use images with 500 pixels per inch (ppi) to capture unique fingerprint ridge features. The criminal justice community is also transitioning to 1,000 ppi which allows better representation of more detailed "level 3" features. In addition to fingerprints, some scanners may also capture an image of the palm of the hand or the side of the hand known as the writer's palm. In live scanners, the fingerprint image may be captured automatically, or with a user activated capture button or foot pedal. Some products have buttons or a touch screen built into the scanner to manage the acquisition process on the device. In most systems, the captured image is transmitted to a personal computer connected to the scanner by one of two types of connection cables: a Universal Serial Bus (USB) cable or an Institute of Electrical and Electronics Engineers (IEEE) 1394 interface (also known as a FireWire). A USB connection may be specified as USB 2.0 or USB 3.0, where the greater number means higher speed data transfer. The IEEE 1394 interface is characterized by higher sustained data transfer so that the data streams in real time; some computers may require an add-on adapter card to make the IEEE 1394 port available.

Fingerprint image quality can be improved through physical or software components. Some examples of physical components are a deformable membrane on the glass platen to improve the

image quality of dry skin, or a heater within the platen to eliminate a halo around an image that could be caused by finger moisture. Software may include real-time image quality checking and can eliminate some common problems, such as a latent print left on the glass platen from a previous scan or a moisture halo. Software may perform checks for finger slippage, incorrect finger sequence, or incomplete slaps.

Some live scan systems included in this report use interface software developed by the scanner manufacturer. Other systems are offered by "solution providers" who integrate hardware made by an Original Equipment Manufacturer (OEM) and associated software development kits (SDKs) with customized interfaces for law enforcement applications. Thus, in some of the products listed in this report, distinct systems offered by different vendors may use the same scanner hardware. As explained in section 2.2, each live scan hardware-software configuration must be tested together in order to be IAFIS certified.

Live scan interfaces may include data entry screens, fingerprint capture guidance, and electronic submission to a state or the FBI IAFIS. Some systems offer full cabinet or kiosk booking station configurations and/or options for other related hardware, such as a mug shot camera or FBI-certified printer. For submission to the IAFIS, FBI-certified image compression must be used, and hardcopies must be printed on FBI certified printers, since typical office printing software is not adequate.

2.2   Standards/Regulations

Interoperability is critical to the identification process and is achieved through standards and certification. The FBI has established IQS for live scan acquisition in order to obtain the unique fingerprint ridge features needed to do an IAFIS database search. The image quality specifications are contained in Appendix F of IAFIS-DOC-01078-9.3 *Criminal Justice Information Services Electronic Biometric Transmission Specification*. The requirements ensure that a scanner is capable of producing images with appropriate sharpness, detail rendition, gray-level uniformity, gray-scale range, low noise, and without introducing significant anomalies or false details. The standard includes specification for resolutions of both 500 and 1,000 ppi.

The FBI's website posts a searchable Certified Product List (CPL) of live scan products that have been tested and are in compliance with IAFIS IQS. Accompanying text on the website notes that the CPL is not a product endorsement and advises users that other specifications and standards may still need to be met at the state and local levels. The CPL specifies whether the scanner was certified with or without a membrane over the platen. The CPL is found at https://www.fbibiospecs.org/IAFIS/Default.aspx.

It is important to note that it is the combination of scanner and specific driver/support software that is certified. The CPL includes not only products for law enforcement end users, but also includes systems for civil applications (e.g., background checks or security systems) and OEM components intended to be used in systems designed by solution providers. While some law enforcement agencies may be planning to design their own system from OEM components, these are not included in this report. Instead, this report focuses on those certified products which are complete systems specifically designed for law enforcement use.

Though they are not covered in the scope of this market survey report, the CPL also lists fingerprint card print systems which meet the requirements for printing hardcopy images of live scans, and hard copy scanners to convert paper and ink images to electronic files.

Publications from the American National Standards Institute (ANSI) and the National Institute of Standards and Technology (NIST) provide specifications for data compression, storage, and exchange. For example, ANSI /INCITIS 381-2004 *Finger Image Based Data Interchange Format* provides specifications for exchanging image data. For 500 ppi fingerprint images, the *Wavelet Scalar Quantization (WSQ) Gray-scale Fingerprint Image Compression Algorithm* is used. The FBI provides a list of certified WSQ image compression algorithms on their website at https://www.fbibiospecs.org/WSQ/Implementations/Default.aspx. For 1,000 ppi fingerprint images, ANSI/NIST-ITL 1-2011, NIST Special Publication 500-290 *Data Format for the Interchange of Fingerprint, Facial & Other Biometric Information* requires image compression using a different algorithm known as JPEG2000.

2.3   Emerging Technologies

Optical technology is currently used in most commercial live scanners. Thermal, capacitive, and ultrasound sensors are also capable of digitizing skin ridges, and thin film transistors in combination with charged polymer film is one of the newest nonoptical technologies to be FBI certified, but none of these are being used in the desktop systems covered in this report. Touchless optical scanning systems reported in research journals have used a striped or design pattern of light projected onto the fingertip to obtain a three-dimensional fingerprint image.

Five of the eleven companies responding to the RFI indicated they are working on emerging, proprietary technologies.

3.   PRODUCT DATA

This market survey identified six manufacturers of live scanners who offer complete systems for law enforcement end users, and five solution providers who integrate OEM scanners and software into complete law enforcement systems. Products ranged in price from $2,340 to $38,440. Product data presented in this report were obtained directly from the vendors. The information has not been independently verified by the SAVER Program. Features in the product comparison matrix are defined as follows, listed in column order:

Resolution (ppi) is the number of pixels per inch (ppi) that the scanner can image.

Membrane specifies whether the scanner was FBI certified with or without a deformable surface on the glass platen: some scanners were certified both with and without a membrane.

Heated Platen is a heating element in the scanner which is used to eliminate a moisture halo that could be visible in the fingerprint image.

Interface cable is the connection between the scanner and PC. A Universal Serial Bus may be specified as USB 2.0 or USB 3.0, where the greater number means higher speed data transfer. The IEEE 1394 cable has a high sustained data transfer. Some products offer more than one type of interface.

Size refers to the scanner's length, width, and height, rounded in inches.

Weight is the scanner weight rounded in pounds, not including PC or optional cabinet housing.

Cost is the price, or price range, dependent on options, as explained in subsequent sections.

Table 3-1 Product Comparison Matrix

Company	Product	Resolution (ppi)	Membrane	Heated Platen	Interface Cable	Size (in.)	Weight (lbs.)	Cost ($)
3M Cogent Inc.	Desktop Booking Livescan Fingerprint LS-CS50-D-00	500	no	optional	USB 2.0 / USB 3.0	6x6x5	4	5,880
Automation Designs and Solutions	digID Mini	500	no	no	USB 2.0	5x6x6	4	5,500 – 7,550
Biometrics4all	LS4G	500 & 1,000	both	yes	USB 2.0	6x6x4	4	6,000 – 30,000
Cross Match Technologies Inc.	L SCAN 500P L SCAN 1000PX	500 500 & 1,000	both	yes	IEEE 1394	12x12x5	15	11,990 13,598
Cross Match Technologies Inc.	Guardian Guardian IP	500 & 1,000	both	no	USB 2.0 none*	6x6x5 6x6x6	4	3,925 4,950
Dataworks Plus LLC	Livescan Plus	500 & 1,000	both	optional	USB 2.0 / USB 3.0 / IEEE 1394	8x8x6	15	12,000 – 28,000
Hunter Systems Group Inc.	Hunter FirstHand	500	both	no	USB 2.0	6x6x5	4	6,995 – 7,995
Identification International Inc. (i3)	digID Mini	500	no	no	USB 2.0 / USB 3.0	5x6x6	4	2,340 – 3,210
iTouch Biometrics LLC	Accurate-ID	500	no	yes	USB 2.0	6x6x6	2	5,500 – 8,500
Mentalix Inc.	Fed Submit (Criminal) Palm Scan Packs with L SCAN	500 & 1,000	both	yes	IEEE 1394	12x12x5	15	29,500 – 38,440
Mentalix Inc.	Fed Submit (Criminal) Live Scan Packs with Guardian	500	both	yes	USB 2.0 / IEEE 1394	6x6x5	4	20,875 – 27,815
MorphoTrak	Morpho TP5000 Morpho TP530	500 & 1,000	no	no yes	IEEE 1394 USB 2.0	14x13x6 15x9x9	14 20	12,700 – 21,403 20,300 – 28,203
MorphoTrak	MorphoTopR	500	no	no	USB 2.0	6x5x6	4	11,500 – 18,603
Secure Outcomes	LS1100	500	yes	yes	none*	12x15x6	15	15,995

Notes: Acronyms used: ppi = pixels per inch; USB = Universal Serial Bus; IEEE = Institute of Electrical and Electronics Engineers.

*The Cross Match Technologies Inc. Guardian IP and the Secure Outcomes LS1100 do not need to be connected to a PC.

3.1   3M Cogent Inc.: Desktop Booking Livescan Fingerprint LS-CS50-D-00

Desktop Booking Livescan Fingerprint LS-CS50-D-00

Photo courtesy of 3M Cogent Inc.

3M Cogent Inc. manufactures live scanner systems. The LS-CS50-D-00 includes the scanner, PC, and software; alternatively, the user may supply the computer. The scanner is operated through the computer interface and also has buttons and light emitting diode (LED) indicators. The fingerprint image may be captured automatically or by using a food pedal, manual button, mouse, or keyboard. Power to the scanner is supplied through the computer. Software includes fingerprint image capture, configurable data descriptor entry, and multiple transaction profile. System quality assurance and control includes duplication and sequence check, and fingerprint quality check, which includes hand geometry and incomplete finger set check, and halo and latent subtraction. The system includes electronic submission to state or local AFIS and to the FBI IAFIS, as well as other compatible systems.

Desktop and cabinet booking station configurations are both available. The unit is self calibrating with no user replaceable parts. The system includes a standard 1-year warranty, with enhanced warranties available. Additional options include a 19-inch touch screen monitor, FBI certified laser printer, mug shot capture module with backdrop and lighting kit, barcode reader, magnetic stripe reader, and signature capture pad.

The cost of the LS-CS50-D-00 is $5,880, which includes scanner, PC, and software. Volume discounts are available.

GSA: GS-35F-0763J

3.2   Automation Designs and Solutions: digID Mini

digID Mini

Photo courtesy of Automation Designs and Solutions

Automation Designs and Solutions is a distributor and turnkey solution provider. Their system uses the digID Mini scanner manufactured by Identification International Inc. (i3). The system is controlled by a PC, which can be included or provided by the user. The scanner is powered through the computer using a patented single USB connection interface for power, data, and control. The fingerprint image is captured automatically. Sequence checking is used for image quality checks. The system includes electronic submission to state or local AFIS and to the FBI IAFIS.

The digID mini is available in a desktop configuration, with cabinet or kiosk booking station optional. It includes a 1-year warranty and 1-year maintenance support plan. Maintenance and support extensions are available. This product has no platen covers and no moving parts and it auto calibrates. It is assembled in the United States using parts sourced primarily in the

United States. Optional accessories include an FBI certified laser fingerprint card printer with duplexer and universally adjustable paper drawer.

The cost of the digID Mini is $5,500; $6,675 with printer; and $7,550 with adjustable paper drawer.

GSA: Schedule 70.

3.3   Biometrics4all: LS4G

LS4G
Photo courtesy of Biometrics4all

Biometrics4all is a manufacturer as well as a solution provider using commercially available scanners made by Cross Match Technologies Inc., MorphoTrak, and i3. The product information in Table 3-1 is for the Cross Match Guardian scanner, but Biometrics4all can also interface with other tenprint and palm scanners as needed, at both 500 ppi and 1,000 ppi. The scanner is operated by an included PC (unless the user wants to supply the computer). The Cross Match Guardian is powered by a separate power cable. The user may select automatic capture of the fingerprint or capture by use of a use of a foot pedal, manual button, keyboard, or mouse. With automatic capture, the capture delay is set by the user. For image quality checks, the NIST Fingerprint Image Quality (NFIQ) algorithm is used, which stores up to eight images; the operator can then select the image with the best quality for submission. The system includes electronic submission to state or local AFIS and to the FBI IAFIS, and also has the capability to submit the prints to one or more external databases. The system is available as a desktop or as a cabinet/kiosk booking station.

The cost of the LS4G ranges from $6,000 - $30,000, depending on scanner, resolution and other options.

3.4   Cross Match Technologies Inc.: L SCAN 500P and L SCAN 1000PX

L SCAN 500P/1000PX
Photo courtesy of Cross Match Technologies Inc.

Cross Match Technologies Inc. is the manufacturer of the L SCAN fingerprint and palm scanners. The L SCAN 500P has 500 ppi resolution while L SCAN 1000 has both 500 and 1,000 ppi resolutions. Both scanners are controlled by a PC, which can be included or provided by the user. The scanners also have buttons and LED indicators and are powered by a separate power cord. The fingerprint image is captured automatically or by the use of a foot pedal, manual button, mouse, or keyboard. Image quality check includes the NFIQ algorithm. The system includes electronic submission to a state or local AFIS and to the FBI IAFIS. It is available in a desktop configuration or as an optional cabinet/kiosk

booking station. It is low maintenance and has no moving parts and no calibration requirements. It comes with a 1-year limited warranty. An enhanced limited warranty is recommended for 24 hour, 7 days per week (24/7) customer care service and next business day replacement of hardware. Optional accessories include cleaning kits, a mounting bracket, and prism cover.

The cost is $11,990 for the L SCAN 500P and $13,598 for the L SCAN 1000PX. Volume discounts are available.

GSA: GS-35F-0199R.

3.5   Cross Match Technologies Inc.: Guardian and Guardian IP

Guardian/Guardian IP
Photo courtesy of Cross Match Technologies Inc.

Cross Match Technologies Inc. manufactures the Guardian and Guardian IP live scanners. The Guardian is controlled by a PC, which can be included or provided by the user. The Guardian IP has an embedded processor and no PC is required; it connects directly to a network. The Guardian IP is 1inch taller and 0.7 pounds heavier than the Guardian. Both have a foldable color touch-screen display and use a separate power cord. The Guardian IP can also use Power over Ethernet plus IEEE 802.3at-2009. The fingerprint image is captured automatically or by foot pedal. The image quality checks include the NFIQ algorithm and sequence check. Electronic submission to a state or local AFIS and to the FBI IAFIS is included.

The Guardian and Guardian IP are available in desktop or cabinet/kiosk configurations. They are low maintenance, have no moving parts, and do not require calibration. Both products come with a 1-year limited warranty. An enhanced limited warranty is available that provides 24/7 customer care service and next business day replacement of hardware. Optional accessories include a desk mounting bracket and cleaning kits.

The cost is $3,295 for the Guardian and $4,950 for the Guardian IP. Volume discounts are available.

3.6   Dataworks Plus LLC: Livescan Plus

Livescan Plus
Photo courtesy of Dataworks Plus LLC

Dataworks Plus LLC is a solution provider using the Cross Match Technologies Inc. Guardian series; Cross Match models L SCAN 500P, 1000P, and 1000PTX; and Cogent Inc. CS500P, CS1000P, and S500E scanners. Systems are offered with resolutions of 500 or 1,000 ppi, and with or without palm and writer's palm capture. With palm capture capability, the scanner dimensions are 15x15x6 inches and the weight is 25 pounds. The Livescan Plus is controlled by a PC, which can be included or provided by the user. Power is supplied through the PC connection. Image capture occurs automatically or by use of a foot pedal, manual button, mouse, or keyboard. For quality control, image quality scoring and sequence checks are used. The system includes electronic submission to state or local AFIS and to the FBI IAFIS.

This product is available in a desktop configuration or as a cabinet booking station, as well as a mobile version with a laptop and case. Calibration is very rarely needed. A 1-year warranty with 24/7 telephone hotline support is offered at 14 percent of the list price. A service contract is available after the warranty period. Other options and accessories include mug shot capture with camera, iris capture, voice capture, signature capture, property capture, document capture, archiving of captured data and objects for long term storage and fingerprint matching, facial recognition matching, iris matching, voice matching, workflow interfaces, and web retrieve for data retrieval and viewing.

The cost of the Livescan Plus without palm image capability is $12,000, which includes a PC, 500 ppi resolution, AFIS interface, and mug shot camera; the same in a cabinet configuration is $17,000.

The cost of the Livescan Plus including palm image capability is $23,000, which includes a PC, 500 ppi resolution, AFIS interface, mug shot camera, and cabinet; or $28,000 for the same but with 1,000 ppi resolution. Volume discounts are available.

3.7   Hunter Systems Group Inc.: Hunter FirstHand

Hunter FirstHand
Photo courtesy of Hunter Systems Group Inc.

Hunter Systems Group Inc. is a solution provider using the Cross Match Technologies Inc. Guardian scanner. It is controlled by the user's PC. Power is provided through a separate power cord. Image capture is automatic, or by foot pedal, manual button, mouse, or keyboard. Image quality checks include sequence checking and automatic recognition and prompting for annotation of missing or unavailable fingers. Electronic submission features are described as "pending release."

The cost of the Hunter FirstHand is $6,995 - $7,995. Volume discounts are available.

3.8 Identification International Inc. (i3): digID Mini

digID Mini
Photo courtesy of Identification International Inc. (i3)

i3 manufactures the digID scanners and holds a patent on the single connection for power and data control. The digID Mini is controlled by a PC that can be included or provided by the user. There are also LED indicators on the scanner. Image capture is automatic. For quality checks, the system can identify missing fingers, and uses sequence checking, image quality, fingerprint size, edge detection, and hand orientation on each print taken. Residual prints on the platen from previous scans are eliminated for each print. The system includes electronic submission to state or local AFIS and to FBI IAFIS, as well as to other systems. It is available in a desktop configuration or as an optional cabinet/kiosk booking station.

The scanner has no moving parts and uses an LED light source that is claimed to last many years. Other than cleaning the platen with a micro-fiber cloth provided, no manual maintenance is needed. The device will automatically ask the user to run a calibration every 6 months, which takes only a few minutes. All i3 products and software come standard with a 1-year warranty and additional years of support and warranty can also be purchased. The device and software are made in the United States with more than 90 percent of the device parts sourced from the United States. Two other models are offered for outdoor use: the digID Rugged for field use and the digID XS, which is designed for the harshest environments; these are slightly larger and weigh 1 and 2 pounds more, respectively, than the digID Mini.

The cost of the digID Mini is $2,340 - $3,210. Volume discounts are available.

GSA: GS 35F0310V.

3.9 iTouch Biometrics LLC: Accurate-ID

DactyScan84c
Photo courtesy of iTouch Biometrics LLC

iTouch Biometrics LLC is a solution provider using the DactyScan84c live scanner manufactured by Green Bit. The scanner is operated through a PC interface, with LED indicators on the scanner. Power is supplied thorough the PC connection cable. Images are captured automatically or by using a mouse or keyboard controls. Image quality checks include automatic sequence checking, elimination of latent prints, auto segmentation of fingerprints, halo elimination, image quality scores, and slide detection. The system includes electronic submission to a state or local AFIS and to the FBI IAFIS, as well as to the clearinghouse of choice.

This product is available in a desktop configuration and has a 1-year warranty on hardware and all software upgrades. A recalibration, using a simple recalibrate button, is recommended if the ambient lighting in the booking room has changed. Optional accessories include a palm print scanner, FBI certified printer, and photo or mug shot capability.

The cost of the Accurate-ID is $5,500, $6,000 with laptop or desktop computer, and $8,500 with FBI certified printer. Volume discounts are available.

3.10   Mentalix Inc.: Fed Submit (Criminal) Palm Scan Packs with L SCAN

Fed Submit (Criminal) Palm Scan
Photo courtesy of Mentalix Inc.

Mentalix Inc. is a solution provider offering four systems based on the Cross Match L SCAN 500P or L SCAN 1000P. In addition to fingerprints, the systems can capture upper palm, lower palm, and writer's palm images. The scanner is controlled by a PC, which may be included or supplied by the user. The scanner also has buttons and LED indicators. Power is supplied through the PC. Image capture is automatic. The system includes elimination of residual images, and fingerprint quality and sequence checks. Submission to a state or local AFIS and to the FBI IAFIS is included, and can be integrated with many AFIS matching systems and booking systems. The software also includes a fingerprint-based matching capability with a local database for searches or inmate release verification. It stores more than 70,000 transactions, with full text search capability, transaction reports, customized data entry, field checks specific to criminal card requirements, and photo/mug shot import.

Desktop and cabinet booking station configurations are offered in various package product numbers. The ruggedized cabinet includes an integrated flat-panel monitor with shatterproof security glass and built-in foot switches to enable hands-free control of the palm scanner. Calibration is not necessary, but cleaning of the glass platen is recommended. All Mentalix "packs" come with the first year annual maintenance and warranty included in the price. Optional add-ons include remote ID, mug shot, iris scan, and signature panel.

Costs for the Mentalix Fed Submit (Criminal) packages with the L SCAN 500P are listed below. The prices of the L SCAN 1000P packages are $2,000 higher than the prices listed.

$29,500 including desktop PC; $32,500 including desktop PC and ruggedized cabinet; $33,000 including desktop PC, flatbed scanner, and ruggedized cabinet; and $36,440 including desktop PC, flatbed scanner, card printer, and ruggedized cabinet. Volume discounts are available.

GSA: GS-07F-0014V; the GSA catalog is listed under Schedule 84, SIN4264L.

3.11   Mentalix Inc.: Fed Submit (Criminal) Live Scan Packs with Guardian

Fed Submit (Criminal) Live Scan
Photo Courtesy of Mentalix Inc.

In addition to the products described in section 3.10 that are based on the Cross Match L Scan 500P and L Scan 1000P, the solution provider Mentalix Inc. also offers four systems based on the Cross Match L SCAN Guardian scanner. These systems are similar to those based on the 500P and L Scan 1000P, except they use a different scanner which does not include palm print capture or options for 1,000 ppi. The L SCAN Guardian scanner has LED indicators and is controlled by a PC that can be included or provided by the user. System features for the power supply, image capture, residual image elimination, quality control, IAFIS and state/local AFIS submission, software matching capabilities, transaction storage and data handling, calibration, warranty, and optional add-ons are the same as those described in section 3.10.

Desktop and cabinet booking station configurations are offered. The ruggedized cabinet includes an integrated flat-panel monitor with shatterproof security glass.

The costs for the Mentalix Fed Submit (Criminal) packages based on the L SCAN Guardian are:

$20,875 for the desktop system; $23,875 with ruggedized cabinet; $24,375 with flatbed card scanner and ruggedized cabinet; $27,815 with flatbed card scanner, card printer, and ruggedized cabinet. Volume discounts are available.

GSA: GS-07F-0014V; the GSA catalog is listed under Schedule 84, SIN4264L.

3.12   MorphoTrak: Morpho TP5000 and TP530

MorphoTrak is a manufacturer of live scanner systems, and offers three products for law enforcement booking applications. As shown in Table 3-1, the TP5000 and TP530 systems both have dual resolution, but differ in platen heating, interface cable, and size. The main difference is that the larger TP530 has the additional capability to capture palm and writer's palm images. (A third MorphoTrak product, the TopR, is described in the next section.)

Both the TP5000 and TP530 are controlled through the included PC, and also have buttons on the scanner. Power is supplied through a separate power cord. Fingerprint images are captured automatically, or by using a foot pedal or manual button. For image quality, both systems use Moisture Discriminating Optics^{TM}, Clear Trace Imaging^{TM}, AntiSmear Technology, and sequence checking. They include electronic submission to a state or local AFIS and the FBI IAFIS.

Both products are offered as a desktop or cabinet booking station. Daily maintenance includes wiping the platen with a soft cloth after each use. Calibration is required only infrequently; the software will indicate when a calibration is needed, and simple step-by-step instructions are outlined in the manual. MorphoTrak systems come with 1-year warranty, which includes repair

or replacement of defective hardware or software. Standard 24-hour on-site response and 365 day per year 24/7 phone support with 2-hour response is also included. Upgrade support packages are also offered as options. Maintenance contract extensions are available with the same coverage as provided under the warranty.

The cost of the Morpho TP5000 is $12,700; with fixed height and adjustable height cabinets the cost is $17,800 and $21,403, respectively. A transportable configuration costs $15,500.

The cost of the Morpho TP530 is $20,300; with fixed height and adjustable height cabinets, the cost is $24,600 and $28,203, respectively. A transportable configuration costs $20,700. Volume discounts are available.

3.13   MorphoTrak: MorphoTopR

In addition to the two products described in the previous section, MorphoTrak manufactures the MorphoTopR system with 500 ppi resolution. The MorphoTopR is controlled through the included PC. In addition to the differences shown in Table 3-1, the MorphoTopR differs from the TP5000 and TP530 in several features: the MorphoTopR has LED indicators but no buttons on the scanner, image capture is automatic only, and power is provided through the PC rather than by a separate power cord. The Morpho TopR quality assurance is comprised of sequence checking and liveness detection. As with the other MorphoTrak products, the TopR also includes electronic submission to state or local AFIS and the FBI IAFIS.

The TopR is available in desktop and cabinet configurations. Daily maintenance, calibration, support, and warranty are the same as that described in section 3.12 for the TP5000 and TP530.

The cost for the MorphoTopR is $11,500; with fixed height and adjustable height cabinets the cost is $15,000 and $18,603, respectively. A transportable configuration costs $11,800. Volume discounts are available.

3.14   Secure Outcomes: LS1100

LS1100
Photo courtesy of Secure Outcomes

Secure Outcomes is a manufacturer and distributor. The LS1100 system is not connected to a PC. It is operated by a touch screen. Power is provided through a separate power cord. Fingerprint images are captured automatically. The system includes electronic submission to the FBI IAFIS. The LS1100 is available in a configuration for law enforcement comprising a desktop booking station anchored to a booking table. It may also be rendered portable. Optional software enhancements include a palm scanner and secure mug shot capability.

The cost of the LS1100 is $15,995. Volume discounts are available.

4.   VENDOR CONTACT INFORMATION

Additional information on the products included in this market survey report can be obtained from the vendors of Live Scan Fingerprint Systems.

Table 4-1 Product and Vendor Contact Information

Company	Product	Address Phone Number	Website
3M Cogent Inc.	Desktop Booking Livescan Fingerprint LS-CS50-D-00	1881 Campus Commons Drive Reston, VA 20191 (703) 476-4600	www.cogentsystems.com
Automation Designs and Solutions	digID Mini	1070 Lake Village Circle Suite D Brandon, MS 39047 (601) 922-4121	www.fingerpro.net
Biometrics4all	LS4G	220 Commerce, Suite 150 Irvine, CA 92602 (714) 568-9888	www.biometrics4all.com
Cross Match Technologies Inc.	L SCAN 500P and L SCAN 1000PX Guardian and Guardian IP	3950 RCA Boulevard, Suite 500 Palm Beach Gardens, FL 33410 (561) 622-1650	www.crossmatch.com
Dataworks Plus LLC	Livescan Plus	728 N. Pleasantburg Drive Greenville, SC 29607 (864) 672-2780	www.dataworksplus.com
Hunter Systems Group Inc.	Hunter FirstHand	5 Bound Brook Court Scituate, MA 02066 (339) 793-2888	huntersystemsgroup.com
Identification International Inc. (i3)	digID mini	2901 Prosperity Road, Suite E Blacksburg, VA 24060 (540) 953-1365	www.idintl.com
iTouch Biometrics LLC	Accurate-ID	1320 Tower Road Schaumburg, Illinois 60173 (847) 706-6789	www.iTouchBiometrics.com
Mentalix Inc.	Fed Submit (Criminal) L SCAN Fed Submit (Criminal) Guardian	1255 W. 15th., Suite 370 Plano, TX 75032 (972) 423-9377	www.mentalix.com
MorphoTrak	Morpho TP5000 Morpho TP530 MorphoTopR	113 S. Columbus Street, Suite 400 Alexandria, VA 22314 (630) 551-5417	www.morphotrak.com
Secure Outcomes	LS1100	2902 Evergreen Parkway Suite 200 Evergreen, CO 80439 (888) 670-8375	www.secureoutcomes.net

5.   SUMMARY

This market survey report includes 17 live scan fingerprint systems for law enforcement offered by 11 companies, ranging in price from $2,340 to $38,440. The companies include six which manufacture the scanner hardware used, and five which integrate scanners from original equipment manufacturers into their systems.

Most of the live scan fingerprint systems are operated using a PC that is included with the product. One product requires a user-supplied PC, and two products do not use a PC. With one exception, all systems include electronic submission to the local AFIS and the FBI IAFIS, and six offer capabilities for submission to other external databases. Two systems also include matching capabilities for internal database searches. Various options are available, including 500 and 1,000 ppi resolution, palm and writer's palm capture, many types of image quality checking, and desktop and cabinet configurations.