Contents

NGI Officially Replaces IAFIS—Yields More Search Options and Investigative Leads, and Increased Identification Accuracy ................................................................................................................................. 1
System Records Set at CJIS in 2014 .................................................................................................................. 5
The FBI's Law Enforcement Officers Killed and Assaulted Program Strives to Save Lives ................. 6
Need to Know: UCR Program Quarterly Available on the LEO ................................................................. 8
Stay Linked: Sign Up for Your Alert Today! .................................................................................................. 8
2014 Latent “Hit of the Year:” 1983 Massachusetts Cold Case Murder ................................................. 9
2015 Latent Hit of the Year: Submit your success! .................................................................................. 11
BUSTED...With the Help of NICS and IAFIS .............................................................................................. 12
Photo Finish: CJIS Honors Fallen Officers with Memorial Service .......................................................... 13
NGI Officially Replaces IAFIS—Yields More Search Options and Investigative Leads, and Increased Identification Accuracy

The Integrated Automated Fingerprint Identification System (IAFIS) served law enforcement well by processing volumes of fingerprint submissions that far exceeded its design. However, growing demands for biometric services, advances in technology, and expanding customer requirements drove the FBI to build its largest information technology system ever, the Next Generation Identification (NGI). From its inception, the NGI was slated for implementation in seven increments over 7 years at an estimated cost of $1.2 billion. With five increments deployed, the rollout of another increment on September 7, 2014, marked the official deployment of the NGI and the decommissioning of the IAFIS. To date, NGI Program initiatives are on scope, on schedule, and slightly below cost.

When the IAFIS became operational in July 1999 with a price tag of $640 million, it transformed the processing of fingerprint search requests. Through the IAFIS, what used to take fingerprint examiners up to 3 months to manually search, identify, and verify could be accomplished within 2 hours for criminal inquiries and within 24 hours for civil inquiries. IAFIS capabilities included automated tenprint and latent fingerprint searches, electronic image storage, and electronic exchanges of fingerprints and responses, as well as text-based searches based on descriptive information. With the world’s largest collection of digital fingerprint images and criminal history information (more than 77 million records), the IAFIS established a firm foundation for the FBI’s biometric technologies. To build on that foundation, the FBI’s Criminal Justice Information Services (CJIS) Division—with guidance from the CJIS Advisory Policy Board, the National Crime Prevention and Privacy Compact Council, and the national criminal justice user community—established the NGI Program.

The FBI’s CJIS Division has already implemented NGI Increments 0, 1, 2, 3, 4 and 5, leaving only Increment 6 to follow. This summer, when the CJIS Division deployed Increment 4, the NGI replaced the legacy IAFIS workflow and infrastructure. New capabilities in Increment 4 include a national Rap Back service; the Interstate Photo System; text-based searches for images of scars, marks, and tattoos; fingerprint verification services; more complete and accurate identity

See what law enforcement agencies are already saying about the NGI:

“Our first search with NGI resulted in arrest warrants for two individuals out of New York for an unsolved home invasion in Connecticut. If not for NGI, this case would still be unsolved.”

~Connecticut Department of Emergency Services and Public Protection

“NGI—a workhorse in latent print identification!”

~Internal Revenue Service National Forensic Laboratory

What could your agency’s NGI success story be?
records; and enhancements to the biometric identification repository. With the new capabilities in Increment 4, the total NGI system is at full operational capability, leaving only a technical refresh for Increment 6, the final phase.

**Increment 4 Capabilities and Functionality**

*National Rap Back Service.* Rap Back is a subscription service in which enrolled, authorized agencies are notified of criminal activity involving individuals working with vulnerable populations, persons serving in positions of trust, and persons under criminal justice supervision. Insight gained from a short-term pilot has helped the FBI improve the service as initially developed in order to expand it on a national scale.

*Facial Recognition.* Although the IAFIS can accept mug shots with criminal tenprint submissions, those photographs are made available with the associated records only when the subject is identified via a fingerprint. With NGI’s facial recognition technology, however, facial images obtained in support of an authorized criminal justice purpose can be searched against mug shots stored in the NGI. With Increment 4, the NGI image repository includes not only mug shots attached to criminal tenprint submissions, but also those submitted with civil fingerprints (when the submitting agencies request the photos’ retention), bulk photo submissions, and those added to previously submitted arrest data. Though the NGI facial recognition system does not provide positive identification, it does provide ranked candidate lists as “investigative leads” to authorized agencies. In addition, Increment 4 provides the ability to return a photo of an individual whose record is a hit within the response to an officer’s inquiry from a mobile-ID device.

**NGI, Piece by Piece**

Providing an arsenal of biometric identification and investigative services, the NGI is improving interoperability among local, state, tribal, federal, and international law enforcement systems. As each increment is implemented, it expands the framework of core capabilities for storing and searching multiple modes of biometric records.

Increment 0, *Advanced Technology Workstations, completed March 2010.* The NGI acquired technologically enhanced workstations with large, high-definition screens for use by FBI fingerprint examiners. The examiners’ ease of use of the workstations significantly increased their efficiency and effectiveness.

Increment 1, *Advanced Fingerprint Identification Technology (AFIT), completed February 25, 2011.* The AFIT replaced the Automated Fingerprint Identification System (AFIS) segment of the IAFIS. With advanced matching algorithms, the AFIT increased identification performance and machine matching accuracy from 92 percent to more than 99 percent. This reduced the dependency on supplemental name checks and manual fingerprint verification, resulting in a 90 percent decrease in manual fingerprint reviews. Response times dropped even further—
from 2 hours for criminal inquiries and 24 hours for civil inquiries to 1 hour and 12 hours, respectively.

**Increment 2, Repository for Individuals of Special Concern (RISC), completed August 25, 2011.** The NGI RISC rapid search service offers law enforcement officers using a mobile fingerprint device access to a national repository of data for wanted individuals and those with warrants, convicted sex offenders, and known or suspected terrorists (approximately 2.5 million sets of fingerprints in all). Once an officer submits the fingerprints of an encountered individual via the mobile device, the NGI responds in less than 10 seconds, providing the officer with critical information to quickly assess the potential threat of that person. Currently, 21 states and 1 federal agency are participating in this national service, accounting for more than 2,000 transactions per day with a response time of less than 5 seconds and an average hit rate of 3 to 6 percent.

**Increment 3, Latent and Palm Prints, Rapid Department of Homeland Security (DHS) and Customs and Border Protection (CBP) Response, and Full Infrastructure, completed May 5, 2013.** Thanks to a new powerful matching algorithm, latent print searches are three times more accurate than searches performed using the old IAFIS algorithm. In addition to improving accuracy, the NGI expanded latent searches of the Criminal Master File to include the Civil Repository and the Unsolved Latent File (ULF). The NGI also expanded searches of the ULF to allow for criminal, civil, and investigative biometrics to search against unsolved latent prints, which has resulted in new investigative leads.

Increment 3 also implemented the use of palm prints as an additional friction ridge-based search. It provided authorized agencies with the capability to submit palm prints with their criminal fingerprint submissions, which the NGI stores in the National Palm Print System (NPPS). The capability to search latent palm prints against a national repository has also increased investigative opportunities.

**Increment 4 (previously discussed) was deployed on September 7, 2014.** This key increment moved the functionality of NGI to the customers.

**Increment 5, Iris Pilot (IP), initiated in September 2013, ahead of schedule.** Through the IP, the FBI began building a criminal iris repository, allowing the submission of search images and providing responses to those searches using an iris matching functionality. It provides the opportunity to assess best practices for iris image capture, iris camera specification requirements, specifications for iris image compression, and a review of new and existing iris image quality metrics. The IP allows for the evaluation of the technology in an operational setting to determine its suitability for law enforcement’s application nationwide.

**Increment 6, Technology Refreshment, scheduled for Fall 2014.** Increment 6 will consist of a technology refreshment study, followed by the gradual replacement of biometric hardware.
**Participation in the NGI**

The CJIS Division’s NGI Program Office continues to work with local, state, tribal, federal, and selected international law enforcement agencies interested in taking advantage of the new services the NGI offers. The office provides outreach support and state points of contact for planning and implementation of the NGI. Documents, such as the *RISC Implementation Guide*, are available to help educate potential users, and technical requirements are outlined in the *Electronic Biometric Transmission Specification (EBTS)*, version 10.0, which is available at [https://www.fbibiospecs.org](https://www.fbibiospecs.org).

**Conclusion**

Building on the success of the IAFIS, the NGI is taking the FBI’s biometric identification services and criminal history information to the next level. By incorporating rapidly advancing identification technologies, the NGI is poised to better address the emerging needs of law enforcement, national security, homeland protection, and civil users.

For more information about NGI, visit [http://www.fbi.gov/about-us/cjis/fingerprints_biemetrics/ngi/ngi2](http://www.fbi.gov/about-us/cjis/fingerprints_biemetrics/ngi/ngi2), or contact the NGI Program Office via email at FBINGI@leo.gov or call (304) 625-3437.
System Records Set at CJIS in 2014

CJIS had a great Year!

12,912,700 NCIC transactions in one day
One transaction every 0.0174 seconds!

NICS eChecks

45%
26% of all NICS transactions
Increase in one year
August to August

500 millionth IAFIS transaction
Processing time: less than 1 minute!

NCIC is the National Crime Information Center; NICS is the National Instant Criminal Background Check System; N-DEx is the National Data Exchange; and IAFIS is the Integrated Automated Fingerprint Identification System.
The FBI’s Law Enforcement Officers Killed and Assisted Program Strives to Save Lives

The FBI’s Law Enforcement Officers Killed and Assaulted (LEOKA) Program uses crime statistics gathered as part of the Uniform Crime Reporting Program, along with additional information collected by LEOKA personnel, in their mission to reduce the number of law enforcement officer deaths and assaults. The program issues the annual publication, Law Enforcement Officers Killed and Assaulted, which provides statistics and details concerning officer deaths, assaults, and accidents. Using more than 40 years of these statistics and research, the LEOKA Program also provides free Officer Safety Awareness Training (OSAT) to local, state, tribal, federal, and international law enforcement agencies.

In addition to training, LEOKA Program staff address officer safety in articles published several times per year to the “Highlights” Web page of the Law Enforcement Enterprise Portal’s (LEEP’s) Law Enforcement Online (LEO) Service. Select articles are also published in the FBI’s Law Enforcement Bulletin “Officer Survival Spotlight,” and the FBI National Academy Association’s bimonthly magazine, National Academy Associate. The subject matter varies, but all articles are relevant to current trends and issues law enforcement officers face each day. Some recent topics include speed and seatbelts, officer perceptions and assault prevention, as well as an article about the National Law Enforcement Memorial. All of the articles are archived and can be accessed electronically via the LEOKA Special Interest Group of the LEEP’s LEO Service. Articles published in the Law Enforcement Bulletin can be found at http://leb.fbi.gov/.

An additional resource for LEOKA information is an e-book titled Narrative Summaries of Law Enforcement Officers Feloniously Killed, 2007-2011. The e-book makes the summaries regarding

1 To locate the archive of the LEOKA officer safety articles, members can access the Law Enforcement Enterprise Portal. Next, click on the Law Enforcement Online (LEO) logo, click on the Special Interest Group (SIG) link, go to LEO SIGS drop down box and click on All SIGS and VOs. Click on the L tab, then on the Law Enforcement Officers Killed and Assaulted Program. The articles are under the heading LEOKA Officer Safety Articles. (If you don’t have access to LEO, more information is available at http://www.fbi.gov/about-us/cjis/leo.)
officers killed in the line of duty in 2007-2011 available on mobile devices such as tablets, smart phones, and e-readers. The e-book provides easy access to valuable officer information for data users, trainers, and law enforcement partners. The e-book can be downloaded by clicking here or by using the link in the lower right corner of the LEOKA, 2012 home page.

As part of the LEOKA Program’s continuing efforts to gather and share important information, the program recently initiated a special study in conjunction with personnel from the Behavioral Research and Instruction Unit (BRIU) of the FBI’s Critical Incident Response Group. This multi-year study focuses on felonious killings and assaults of law enforcement officers during ambush situations. Team members are in the process of conducting interviews with victim officers and offenders to gain insight into such incidents. The findings from this study will be published under the title Ambushes and Unprovoked Attacks: Assaults on our Nation’s Law Enforcement Officers. When complete, the study will be made available to all law enforcement officers, trainers, and executives.

The ultimate goal of the LEOKA Program is to provide relevant, high-quality, potentially lifesaving information to those who have sworn to protect their fellow citizens. For more information about LEOKA, visit the program’s most recent annual publication at http://www.fbi.gov/about-us/cjis/ucr/leoka/2012. To request an OSAT course in your area, e-mail the training staff at leoka-training@leo.gov.
Need to Know

UCR Program Quarterly Available on the LEO

The national Uniform Crime Reporting (UCR) Program replaced the UCR State Program Bulletin and UCR Newsletter with the UCR Program Quarterly to provide state UCR Program managers and direct contributors with the latest information about the program. Current and past editions of the UCR Program Quarterly are available on the FBI’s Internet site at http://www.fbi.gov/about-us/cjis/ucr/ucr-program-quarterly and via the UCR Program’s Special Interest Group (SIG) on the Law Enforcement Online (LEO) Service of the Law Enforcement Enterprise Portal (LEEP). To access the UCR Program Quarterly on the LEEP:

- Click on the LEO logo
- Click on the SIGS link
- Click by Access Type and select Unrestricted
- Click on the UCR logo
- Click on the UCR Program Quarterly folder

Users with questions concerning access to the LEO and the LEEP should contact the LEO Operations Unit by telephone at (304) 625-5555.

Stay Linked

Sign Up for Your Alert Today!

Available exclusively online, the CJIS Link provides information about system enhancements, training opportunities, policy changes, and successes to CJIS system users across the law enforcement, national security, and intelligence communities. Be sure to visit www.fbi.gov/about-us/cjis to sign up for e-mail alerts that let you know when new editions become available.

To share your feedback, success stories, and article suggestions to make this newsletter even better, e-mail the CJIS Link staff at CJIS_LINK@ic.fbi.gov.
2014 Latent “Hit of the Year”

1983 Massachusetts Cold Case Murder

Each year, the FBI’s Criminal Justice Information Services Division selects a Latent “Hit of the Year” and shares details about the case solved when latent prints were identified by a search of the FBI’s Integrated Automated Fingerprint Identification System (IAFIS). Acting Unit Chief Joseph M. Baker of the Latent and Forensic Support Unit presented this year’s award to Trooper Christopher Dolan, Massachusetts State Police, on August 12, 2014, in Springfield, Massachusetts. The details of the case follow.

In the summer of 1983, Rodney Wyman and a co-worker traveled from Connecticut to Malden, Massachusetts, to install windows at a construction site. On the night of August 22, the men were watching television at a hotel in the front bedroom of the suite they were sharing.

After hearing a noise in the back bedroom, Wyman got up to investigate. As he approached the bedroom door, he was fatally shot in the chest. A man entered the front bedroom and pointed a gun at the other individual and brutally attacked him while demanding money from him.

With the second man incapacitated, the intruder began to remove valuables from the room. However, when he tried to move the television, he activated a tamper alarm in the hotel front office, prompting two hotel employees to rush to the room. One of the employees saw a man exit the rear window of the suite and gave chase, but the intruder escaped.

Trooper Brian O’Hara of the Massachusetts State Police’s Crime Scene Services Section (CSSS) initiated the investigation by processing the crime scene. Trooper O’ Hara recovered more than 23 latent fingerprints from the hotel room. Several of the recovered latents were deemed of no value, while others were identified as those of the deceased victim and employees of the hotel. The remaining latent fingerprints were searched against the state’s Automated Fingerprint Identification System (AFIS) but produced no results. Eventually, the case went cold.

In an October 2010 review of cold cases, the Massachusetts State Police requested that the CSSS reassess the latent evidence from the Wyman homicide investigation. Trooper Christopher Dolan, a
latent print examiner at the CSSS, was assigned to review the large volume of paperwork and documents processed 27 years prior.

On November 9, 2010, Trooper Dolan searched two latent images collected from the television set against the state AFIS with negative results. Trooper Dolan then prepared the latent images for a search of the FBI’s IAFIS. In less than 10 minutes, the IAFIS returned a response containing possible candidates for comparison purposes. Trooper Dolan examined the latent print evidence and positively identified the prints to the first candidate of the IAFIS response—Shawn Marsh.

Based on this identification, the Massachusetts State Police reopened the case. Investigators located Marsh and requested that he provide Major Case Prints, which resulted in an additional individualization to palm print evidence recovered from the crime scene.

Analysis of Shawn Marsh’s state criminal history record by the Massachusetts State Police showed an arrest from 1983 and revealed that his fingerprints were available within the state AFIS at the time of the murder. However, the AFIS database was relatively new to the Massachusetts State Police then.

In 1983, the examiners processing the crime scene evidence considered the right and left little fingers of no value. To conserve resources, it was a common practice to exclude them from the repository. The latent print evidence submitted to the IAFIS in 2010, which resulted in a match to Shawn Marsh, was a friction ridge from the left little finger.

On September 9, 2011, a grand jury indicted Shawn Marsh, and his trial date was set for early 2013. On April 25, 2013, Marsh pleaded guilty to manslaughter and was sentenced to 15-18 years in prison.

Because of this case, the Massachusetts State Police now train law enforcement officers to collect all available friction ridge detail when processing known tenprint images.
Submit your success!

With the Integrated Automated Fingerprint Identification System (IAFIS) serving law enforcement from January to early September and the Next Generation Identification (NGI) running from September forward, cases nominated for the 2015 Latent Hit of the Year may have been assisted by either system. Of course, the part in which CJIS is interested is how the latent technology helped solve your case!

Law enforcement officials with latent identification success stories that they would like to be considered for the 2015 Latent “Hit of the Year” should e-mail the case details to fbilatenthit@leo.gov. The deadline for submission for next year’s award is January 10, 2015.
BUSTED...With the Help of NICS and IAFIS

On June 2, the Special Processing Center (SPC) of the CJIS Division’s Biometric Services Section received a fingerprint comparison request from the Los Angeles Field Office. The request stated that two subjects in custody in Mexico were suspected of being Bureau fugitives. The fugitives had been wanted since November 12, 1997, by the Los Angeles Field Office for Unlawful Flight to Avoid Prosecution and Child Molestation. The request included four sets of fingerprints—two from the fugitives’ original case file dated November 7, 1996, and two from the suspects’ arrest in Mexico on May 27, 2014—so SPC personnel could perform a comparison to determine if the subjects were Bureau fugitives. SPC employees logged the request and positively identified the case file fingerprints to the Mexican arrest fingerprints. Because the request involved Bureau fugitives, the request was sent to the Answer Hits to Wants (AHTW) team to clear the wants. Within 3 hours of the inquiry, a response was sent to the Los Angeles Field Office.

On July 9, a legal instruments examiner with the National Instant Criminal Background Check System (NICS) Section processed a transaction for a Federal Firearms Licensee (FFL), a pawn shop in Victoria, Texas, for a long gun purchase. The NICS examiner identified a Texas state record with a drug conviction in the Interstate Identification Index, i.e., III, and a warrant in the National Crime Information Center (i.e., NCIC) for the potential purchaser. The warrant was issued by the Victoria County Sheriff’s Office in Victoria, Texas, for a probation violation. The NICS examiner contacted the wanting agency to confirm the status of the warrant, and the wanting agency advised that the warrant was active. Based on the information received, the NICS examiner provided the FFL with a deny status and obtained information on the attempted purchase, including the individual’s current address. The NICS examiner then supplied all applicable information to the wanting agency. The clerk from the sheriff’s office advised that the FFL was just down the street from the office, and a deputy was dispatched to apprehend the subject at the store.
CJIS honors fallen officers with memorial service