

International Association for Identification



AFIS Committee Minutes

The International Association for Identification (IAI) AFIS Committee convened in San Francisco, CA, on 19 January 1999 for a business meeting. The AFIS Committee Chair, Peter Higgins, took roll and presented the agenda for the meeting. These minutes reflect the key discussions and decisions from the meeting.

1 The Published Agenda for the meeting was as follows:

8:30 AM	Role call and introduction of participants
8:45	Review of Agenda
9:00	Join with Meagher & Hopper by phone
9:00	Discussion of Potential July IAI Conference Topics for AFIS Committee:

- FBI Minutiae based search approaches for IAFIS operations (Hopper & Meagher.) Note that IAFIS will go operational this summer and members are interested in this topic.
- Latent feature interchange standard (Hopper & Mungovan): To develop a standard for feature-based searching between dissimilar systems. At our AFIS committee meeting in Gaithersburg, Steve Meagher and I agreed to evaluate how the IAI could be involved in this project that was initiated by Tom Hopper. Perhaps we could divide the project into phase: (FBI: run type 9 searches to/from IAFIS or evaluate message formats; IAI: run LFFS searches or do all the end-to-end searches not to include IAFIS)?
- Our plans for the 1999 end-to-end searches employing minutiae-based messages and reporting on them in July and in the Journal - see topic #2 above (Mungovan & Moses.)
- The Pros and Cons of unattended tenprint AFIS-only based identification decisions at time of arrest. (Meagher & TBD)
- The basics of AFIS testing for Tenprint & Latent reliability & accuracy and overall AFIS performance and functionality (Komarinski, Meagher, Higgins – a panel chaired by Komarinski)
- A demonstration using the AFIS system in Milwaukee and any workstations that vendors want to bring in or access an AFIS remotely.

New Business

- Discussion of next committee meeting to include location, purpose, etc. If the next meeting is in July, which day is best for members?
- Review of Committee Charter and membership.
- Other topics as proposed at the meeting.

Review of Action Items

- Develop plan for generating write-ups for IAI Training Conference Announcements and web site – due date is this week.
- Assign tasks to volunteers and reviewers.

Motion to Adjourn

2 Roll Call

The meeting was called to order at 8:30 and the roll was taken. Seventeen people attended the meeting, two participated via speaker phone.

Name	Organization	Phone	Fax	E-Mail
Peter T. Higgins, <i>Committee Chair</i>	Higgins & Associates, International	202-625-7780	202-625-7781	PeterHAI@aol.com
Ken Moses, <i>Co-Chair</i>	Forensic Identification Services	415-664-2600	415-664-2615	bearup@aol.com
Baxter, Denny	Lockheed Martin	407-306-2331	407-306-1153	denny.baxter@lmco.com
Bunbury, Lloyd	RCMP	613-998-6388	613-993-1948	lloyd.bunbury@rcmp-grc.gc.ca
Castor, T.J	Sagem-Morpho	253-591-8832	253-591-8856	tjc@morpho.com
Foreman, Buck	Printrak International	714-238-2040	714-238-2009	buck@printrak.com
Gaynor, Mike	SFPD	415-553-9028	415-553-9029	mmlmkk@aol
Komarinski, Peter	NYS DCJS	518-485-7672	518-485-1859	komarins@dcjs.state.ny.us
Laake, P.A.	NEC	512-252-9679	512-252-9684	plaake@nectech.com
Marx, Bob	SEARCH Group	408-720-8384	408-245-9030	bob.marx@search.org
McCabe, Mike	NIST	301-975-2932	301-975-5287	mccabe@nist.gov
McNeil, Glen	Sagem-Morpho	253-591-8849	253-591-8856	gmccneil@morpho.com
Mungovan, Rob	AWARE	781-276-4000	781-276-4001	Rob@AWARE.com
Moore, Ben	US Secret Service	202-435-5274	202-435-5656	bmoore@erols.com
Pacholski, Bob	NEC	703-247-8907	703-247-8941	robertp@necafis.com
Schmidt, Gerald	Cogent Systems	626-300-8828	626-282-9992	info@cogentsystems.com
Wieners, Mike	FBI, LFPS	202-324-2198	202-324-3194	lablfs@fbi.gov
Via				
Teleconference				
Hopper, Tom	FBI, CJIS	202-324-3506	202-324-9398	teh@cais.com
Meagher, Steve	FBI, LFPS	202-324-6157	202-324-3194	lablfs@fbi.gov

3 Miscellaneous New Business

The Committee Chair started the meeting with a brief report on several ad-hoc items.

- The Identification Services Subcommittee of the FBI's Advisory Policy Board will be looking at the TBD/TBRs identified at the NIST meeting held this past fall.
- Over the last two years the Latent Fingerprint Section of FBI has taken 300-400 fingerprint pairs, extracted features and encoded them to be used as a test of the IAFIS/AFIS being developed for the FBI by Lockheed Martin. Mike McCabe at NIST will eventually receive this information, put it on a CD and distribute it to the fingerprint community. It should prove to be very useful ground-truth for the entire AFIS community
- There is a Daubert court challenge to the science of fingerprints in a Pennsylvania Federal Court. The Daubert ruling that requires testimony to scientifically prove the uniqueness of fingerprints. At this time the FBI has asked the Court for a 90-day extension on responding to these questions. Steve Meagher has been named as the FBI's contact on this issue.

Meagher indicated that the FBI intends to address this question on three fronts:

1. medical uniqueness,
2. experience, and
3. results from AFIS technology that will allow them to generate mathematical computations showing uniqueness of fingerprint images.

The Committee Chair suggested that Jim Wayman at the Center for Biometric Testing in San Jose, CA may be able to provide statistical data to support the uniqueness-of-fingerprints arguments. He also asked all participants to provide any supporting data they had to the IAI or the FBI.

4 July IAI Meeting Content and Format

The Chairman opened the discussion of topics for the July, 1999 IAI Conference. The highlights of the discussions follow.

4.1 The FBI's presentations already planned for the July IAI Conference.

- The FBI's presentations already planned for the July IAI Conference will focus on the IAFIS capability that is expected to be operational July 30, 1999. The FBI proposed a demonstration/presentation of the IAFIS latent minutiae print encoding process using the FBI's latent workstation. The Lockheed Martin representative expressed concern that the system may not have been fully tested and that they may not want to showcase it at the meeting.
- Tom Hopper and Steve Meagher indicated that, for the July IAI meeting, the FBI plans to conduct a series of presentations or panel discussions and to set up a classroom where the workstation developed by the FBI's Advanced Technology Unit will be available for attendees to get hands-on exposure to the FBI's future

capabilities. The FBI sessions will focus on standards based searching and will be geared to the expectations of the fingerprint community.

- Steve Meagher provided the following as a possible scenario for the FBI's presentation to flow into an IAI AFIS Committee presentation.
 - How to encode latents
 - How to use the FBI's workstation to encode latents
 - IAI AFIS committee report on interoperability

4.2 Latent Feature Interchange Standards (Would be the same for tenprints)

- Participants agreed that vendors should agree on a standard way to display minutiae data.
- A suggestion from the Committee was that in addition to the Type 9 feature record a Type 7 skeleton record could be sent that would help in the identification of a common minutiae data format. The FBI indicated that latent prints require human intervention that can lead to problems because of the different ways that each examiner interprets a latent print. Problems also arise when an examiner interprets a print based on the process and procedures used by their individual AFIS equipment. Even between systems supplied by the same vendor there are 40-50% error rates for latents encoded by different examiners.

4.3 Possible AFIS Committee Sponsored Demonstrations at Milwaukee

- Committee members discussed the need to conduct real-time searches, not just report on an off-line demonstration, at the July Conference. Demonstrations have been done over the past two years and attendees will want to see an operational system performing a real time interoperability case. Ken Moses stressed the need to test systems before the demonstrations to be sure that they work properly. Tom Hopper expressed concern that reports on all the successful IAI interoperability demonstrations might have mislead AFIS System Administrators to believe that it was a "previously solved problem" and thus required no attention on their part. The committee members confirmed that the demonstrations took a lot of engineering work and require System Administrators to order the correct software configuration and have the access to appropriate communications facilities. Tom also reported that to-date no electronic submissions to the FBI have been 100% correct. See Section 4.5, below, for more information.
- Discussions were held on the problems state agencies have getting MOU/MOAs with other states for access to their databases. Committee members suggested that the IAI AFIS committee might want to develop an EFTS type document and a series of possible policies and procedures that could be used by states to reach these agreements.

4.4 Unattended Searches

- Many states and foreign governments have adopted this process. However, many have raised legal and scientific questions about the reliability and accuracy of automatic fingerprint identification. The good news is that computers can do the work – the bad news is that states and locals fear lawsuits based on fact that computers may make mistakes.
- Configuration Management for unattended searches is a serious issue that needs to be addressed by FBI, NIST, and different vendors. The FBI members indicated that the Bureau doesn't currently have the resources to address unattended-AFIS issues
- The Lockheed Martin representative indicated that the FBI's IAFIS does not have a "lights-out" requirement although the system does have this capability.
- NY State looked at "lights out" features but did not make it a requirement for their new system.
- Committee members agreed that each AFIS company should be able to provide information on which systems are using AFIS in a "lights-out" situation.
- A suggestion was put to the committee that they may want to address the different types of "lights out" situations, alternatives, pros and cons and what local jurisdictions may want to look at before implementing a 'lights-out' operation.
- It was agreed that this was a good topic for July's conference.

4.5 Latent Fingerprint Interchange

- Two papers on this issue were passed out at the NIST meeting in the fall. One dealt with hierarchical searches and one dealt with searches from one system to another. Tom Hopper indicated that he is doing tests and demonstrations on these issues and asked if anyone on the AFIS Committee could help with his tests.
- Tom Hopper stated that transmissions of 10-print records to the FBI have not been successful in the past and that moving on to transmissions of latent prints is premature. Problems stem from content and format of transmissions. These need to be addressed with state criminal justice agencies to verify that they are using the most recent software versions and compatible EFTS formats.

Discussions continued re the proper format and target audience for additional information on the correct EFTS formats. Suggestions ranged from addressing the underlying issues at the IAI meeting in July to working directly with the state criminal justice agencies beginning in early February.

- FBI committee members indicated that the image processing for acceptance of tenprints from state systems has been very difficult and fear that accuracy rates with latent images will be so low that it may not be worth doing.

- The committee Chair suggested that vendors might want to consider giving presentations on how their equipment should be used to submit IAFIS searches.

4.6 End-to-End Authentication and Data Integrity

- There are many on-going discussions, including legal issues, on this topic. The industry is considering digital signatures, authentication, etc.
- FBI participants indicated that the issues of end-to-end authentication and data integrity from capturing fingerprints to going to trial in a paperless environment should be addressed at the next IAI meeting.
- NIST is preparing a workstation for the FBI to capture digital images, facial recognition, etc., smart-cards, etc. Mike McCabe indicated that the workstation is scheduled to be ready by this Spring. McCabe will probably be able to give a 30 minute presentation on the status at the July IAI meeting.
- If criminal justice departments adopt a defensible, on-going Quality Assurance program where accuracy rates are good, liability issues tend to be reduced.
- Many jurisdictions have granted AFIS records an exception to hearsay rules. AFIS records are considered business records and are accepted with the same restrictions that apply to paper records.
- Committee members felt that many of these problems were the result of fundamental business process problems. The committee considered whether to simply acknowledge that there are problems in this area and to give local jurisdictions some indication of how these problems can be addressed.

4.7 AFIS testing for Reliability and Accuracy

- Testing should focus on all functionality and performance requirements that a jurisdiction's contract required as well as on accuracy, reliability and throughput. Instructions on how to conduct the tests would also be useful.
- It was agreed that the Committee would sponsor a session on this. Peter Komarinski from New York will chair this presentation.
- Komarinski suggested that states identify:
 - the people who are going to do the tests well in advance of the tests,
 - when are they going to do the tests, and
 - where and on what equipment the tests will be run.
- He stressed that testing is an on-going activity that needs to be done each time that there is an update to the software. The same staff that conducted the original acceptance tests should do any re-testing, if still available.

- A Sagem-Morpho representative suggested that each agency has different tests for accuracy and that regression tests may give different responses depending on uncontrollable items.

4.8 POSSIBLE MILWALUKEE DEMONSTRATIONS

- Committee members felt that setting up a demonstration of either the Milwaukee City or the Wisconsin State AFIS system was unnecessary since most of the attendees had probably seen an operational system.

5 CONCLUSIONS

Committee Members produced the following five (5) abstracts for AFIS Committee presentations at the July 1999 IAI meeting.

Session 1

UNATTENDED AFIS-ONLY BASED IDENTIFICATION DECISIONS

Bob Marx
The SEARCH Group

The presenter will describe the various concepts of operations and work flows associated with unattended AFIS decision making. "Lights-out" operations and paperless operations will be explored and a case study presented. Presenter will discuss the results of a survey of installations having unattended AFIS matching capabilities and the various decisions and underlying logic leading to their use or non-use. Topics to be considered include policy, threshold setting, name searches, and database quality considerations.

Session 2

AFIS TESTING FROM VENDOR SELECTION TO SYSTEM UPGRADES

Peter Komarinski
New York State Division of Criminal Justice Services

Peter Higgins
Higgins & Associates, International

Stephen Meagher
Federal Bureau of Investigation

Testing is intended to insure that your AFIS works as promised. Whether you are considering the purchase of a new AFIS system or about to upgrade an existing one, how do you insure that you get what you need and pay for? The panel will focus on a variety of testing techniques and the resources required to insure accuracy, throughput, and reliability of your AFIS system.

Discussion will include benchmark testing as well as acceptance, regression and functionality testing. The need for proper training and documentation will be reviewed. Suggestions for resolution of typical problems will also be offered.

Session 3
MANAGEMENT CHALLENGES ASSOCIATED WITH CROSS
JURISDICTION AFIS SUBMISSIONS AND SERCHES

Peter Komarinski
New York Division of Criminal Justice Services

The reduced cost of computer processing power coupled with increased communication bandwidth offers the latent print examiner new opportunities for latent image searches. For instance, examiners will soon be able to search the FBI database through IAFIS. The presenter will discuss the administrative and technical challenges of searching databases in other jurisdictions electronically.

The discussion will include use and dissemination agreements, volume of searches permitted and electronic interconnectivity between dissimilar AFIS systems.

Session 4
TECHNICAL CHALLENGES ASSOCIATED WITH CROSS JURISDICTION
AFIS SUBMISSIONS AND SEARACHES

Rob Mungovan
AWARE, Inc.

The presenter will review the results of the past two years IAI AFIS Committee Interoperability AFIS demonstrations. These demonstrations have proven the technical feasibility of running cross-jurisdictional image based searches independent of AFIS vendor. With the advent of IAFIS minutiae definitions, the IAI is exploring minutiae based interpretability demonstrations. The presenter will provide the current status of this IAI effort.

The following technical issues will be addressed:

1. Electronic exchange protocols (SMTP, TCP/IP, etc.)
2. Network alternatives (NLETS, Internet, LEO, etc.)
3. ANSI/NIST formats and alternative implementations (FBI, Interpol, UK, etc.)
4. Error checking and data verifications
5. Image data vs. minutiae data
6. Alternative architectures
7. Transferring data from the network into an AFIS

Session 5
END-TO-END FINGERPRINT RECORD AUTHENTICATION AND DATA
INTEGRITY TECHNICAL AND LEGAL PERSPECTIVES

Mike McCabe
National Institute of Standards and Technology

Ken Moses
Forensic Identification Services

As agencies move to electronic fingerprints and a paperless environment, the ability to link fingerprint images and criminal history records to an individual at a point and place in time presents a challenge to law enforcement business processes. These digital records support simultaneous use by multiple individuals, instant retrieval and rapid searching through local and remote databases. But to what extent will law-enforcement stand up to the inevitable challenges that this technology will face in the nation's courtrooms?

In a two-part approach to this problem, presenters will first report on the progress of the effort to apply digital signatures, smart cards, biometric data, etc., to guarantee the integrity of the record. This effort will address the integrity of: the contents of the record, the source of records, and the date and time of creation and any changes to the records.

In a parallel approach, the presenter will look to court precedents and long established procedures for authenticating any business records and how such procedures were being expanded to cover the new technologies.

6 FUTURE MEETINGS

The next meeting of the IAI AFIS Committee will be held in Milwaukee, Wisconsin in July 1999 in conjunction with the Annual IAI Conference.

If there are any questions about these minutes they should be addressed to the Chair, Peter Higgins or the Co-Chair, Ken Moses.