ANSI/NIST-ITL 1-2000

Data Format for the Interchange of Fingerprint, Facial, Scar Mark & Tattoo (SMT) Information

INTERPOL IMPLEMENTATION (INT-I)

Interpol AFIS Expert Group (IAEG)

In 1997 the 66th Interpol General Assembly session meeting in New Delhi recommended that the ICPO standard for exchanging computerized fingerprint images should be based on the ANSI/NIST-CSL 1-1993 standard and any future development of that standard (Resolution AGN/66/RES/8)

In 1998 the 67th Interpol General Assembly initiated the Interpol AFIS Expert Group (IAEG) to define a "Superstandard" for the exchange of fingerprint information
(Member countries: Canada, France, Germany, Japan, Norway, The Netherlands, Spain, United Kingdom, United States)

Interpol AFIS Expert Group (IAEG)

The IAEG is currently composed of representatives from eight member countries: Brazil, Canada, France, Germany, Norway, Spain, South Africa, United Kingdom and the United States, representatives from Interpol and an observer from Europol. It is the charter of the IAEG to develop and propose for adoption by the international law enforcement community and suppliers of AFIS systems, standards for the inter-operability between AFIS systems regardless of supplier. The IAEG's focus is to provide general guidance to countries/organizations acquiring, developing, integrating and operating national AFIS.
The IAEG actively promotes implementable approaches to the international electronic exchange of fingerprint images and data.

Interpol AFIS Expert Group (IAEG)

The Acquisition Guidelines provide advice for acquiring national AFIS systems derived from the joint experience of IAEG delegates. The recommendations included in this document apply specifically to planning and writing the proposal and entering the contract. The IAEG intends to issue additional guidelines covering subsequent stages of life cycle management, such as integration, installation, migration from legacy systems, and operations and maintenance in the near future.

The Lessons Learned contribute valuable advice on the program management and control of AFIS projects and for connecting national AFIS to regional and provincial users. These lessons are derived from experiences of the IAEG delegates in procuring, integrating and operating Automated Fingerprint Identification Systems.

Interpol AFIS Expert Group (IAEG)

The Model Clauses document is intended to provide the reader with a convenient listing of Information Exchange Standards and Specifications related to the interchange of fingerprint data to be used in the acquisition of an AFIS, as well as potential contract language to be used. This will allow for a higher level of interoperability among systems that are manufactured by different vendors and suppliers.

The Best Practices document has been developed by a technical committee assigned to the IAEG. It includes recommendations for the capture of mugshots and facial images. The best compromise was sought between the requirements of the police forces as well as the size of the image files.

Interpol Standard for the exchange of Fingerprint data (INT-I)

Requirements:

- Usable for international and national data exchange
  - AFIS to AFIS
  - Electronic Capture Devices to AFIS
  - AFIS to Criminal History Database
- Open for national or bilateral extensions
  - User definable alpha-numerical fields
- Easy to implement (into existing AFIS)
- Compatible to latest ANSI/NIST Fingerprint Standard

Revisions of INT-I

Version No. 1	**October 1997** **(developed by European Expert Working Party on Computerozed Fingerprint Image Handling, based on ANSI/NIST-CSL 1-1993)**
Version No. 2	**October 1998** **(developed by European Expert Working Party on Computerozed Fingerprint Image Handling, based on ANSI/NIST-CSL 1-1993)**
Version No. 3	**June 2001** **(developed by Interpol AFIS Expert Group, based on ANSI/NIST-ITL 1a-1997)**
Version No. 4	**November 2002** **(developed by Interpol AFIS Expert Group, based on ANSI/NIST-ITL 1-2000)**
Version No. 4.22	**July 2004** **(latest revision developed by Interpol AFIS Expert Group, based on ANSI/NIST-ITL 1-2000)**

INT-I vs. EFTS

Record Type	Description	INT-I	EFTS
1	Transaction Record	√	√
2	User-defined Text Record	√	√
4	High-resolution Grayscale Record	√	√
7	User-defined Image Record	√	√
8	Signature Record	√	-
9	Minutiae Record	√	√
10	Facial and/or SMT Binary Image Record	√	√
13	Variable-resolution Latent Image Record	√	-
14	Variable-resolution Tenprint Image Record	√	-
15	Variable-resolution Palmprint Image Record	√	-

INT-I vs. EFTS

Example: Field 1.07 Destination Agency Identifier (DAI)

EFTS: **... this field shall be a nine-byte alphanumeric field. The first two characters shall be a valid POB code, and the entire ORI shall validate to an NCIC-authorized ORI**

INT-I: **... in the following format**

***CC/agency*.**

The first information item contains the Interpol Country Code, defined in ISO 3166, two alpha-numeric characters long. The second item, *agency*, is a free text identification of the agency, up to a maximum of 32 alpha-numeric characters.

INT-I vs. EFTS

Example: Field 1.04 Type of Transaction (TOT)

Description	INT-I	EFTS
Criminal Ten-Print Submission	CPS, ATP	CAR, CNA, ...
Non-Criminal Ten-Print Submission	NPS	FANC, MAP, ...
Latent Fingerprint Image Submission	MPS, USA, ...	LFS, MCS, ...
Fingerprint Image Request	IRQ	IRQ
Fingerprint Image Response	IMR	IRR
Error Message	ERR	ERRT, ...

Compatibility Issues

Finger position	Code	ANSI / EFTS		INT-I	
Unknown	0	40.6	38.1	40.0	40.0
Right thumb	1	40.6	38.1	45.0	40.0
Right index finger	2	40.6	38.1	40.0	40.0
Right middle finger	3	40.6	38.1	40.0	40.0
Right ring finger	4	40.6	38.1	40.0	40.0
Right little finger	5	40.6	38.1	33.0	40.0
Left thumb	6	40.6	38.1	45.0	40.0
Left index finger	7	40.6	38.1	40.0	40.0
Left middle finger	8	40.6	38.1	40.0	40.0
Left ring finger	9	40.6	38.1	40.0	40.0
Left little finger	10	40.6	38.1	33.0	40.0
Plain right thumb	11	25.4	50.8	30.0	55.0
Plain left thumb	12	25.4	50.8	30.0	55.0
Plain right four fingers	13	81.3	50.8	70.0	65.0
Plain left four fingers	14	81.3	50.8	70.0	65.0

Compatibility Issues

Fingerprint Impression Type	EFTS	ISO	INT-I
Live-scan plain	0	0	0
Live-scan rolled	1	1	1
Nonlive-scan plain	2	2	2
Nonlive-scan rolled	3	3	3
Latent impression	4	4	4
Latent tracing	5	5	5
Latent photo	6	6	6
Latent lift	7	7	7
Swipe	-	8	8
Live-scan Contactless	-	9	-
Unknown	-	-	9

Compatibility Issues

ANSI/NIST-ITL 1-2000 defines the SRC-Field (Source Agency/ORI; fields 1x.004) within tables 9, 15, 16 & 17 as

Field Size: 10 to 21
Char Type: AN

In INT-I these fields have the same definition as fields 1.007 (DAI) and 1.008 (ORI)

Field Size: 6 to 35
Char Type: AN

EURODAC

The first common AFIS database in the European Union

Aim: **A regulation to facilitate the implementation of the Dublin Convention by processing the fingerprints of persons (over age of 14 years)**

- ⇒ **applying for asylum (Category 1)**
- ⇒ **apprehended in an irregular crossing of an external border (Category 2)**
- ⇒ **illegally present within a Member State to check for asylum application (voluntary) (Category 3)**

EURODAC

Main functions provided by the Central Unit

- **CAT1:** Comparing with CAT1 and CAT2 and storing
- **CAT2:** Storing only
- **CAT3:** Comparing with CAT1, no storing
- **CAT9:** Comparing with CAT1 and CAT2, no difference between blocked and unblocked records, no storing.

- **Update:** Only owner can update his record
- **Blocking:** Special update function, only for changing block flag
- **Delete:** Only owner can delete his record
- **Retrieval:** Retrieval can basically concern "own MS cases" only, unless a CAT9 request is sent.

- Automatic deletion for CAT1 and CAT2 cases
- Statistics according to the regulation and for monitoring purposes

CAT1: Applicants for asylum; CAT2: Illegal border crossers;
CAT3: Illegal aliens within the territory

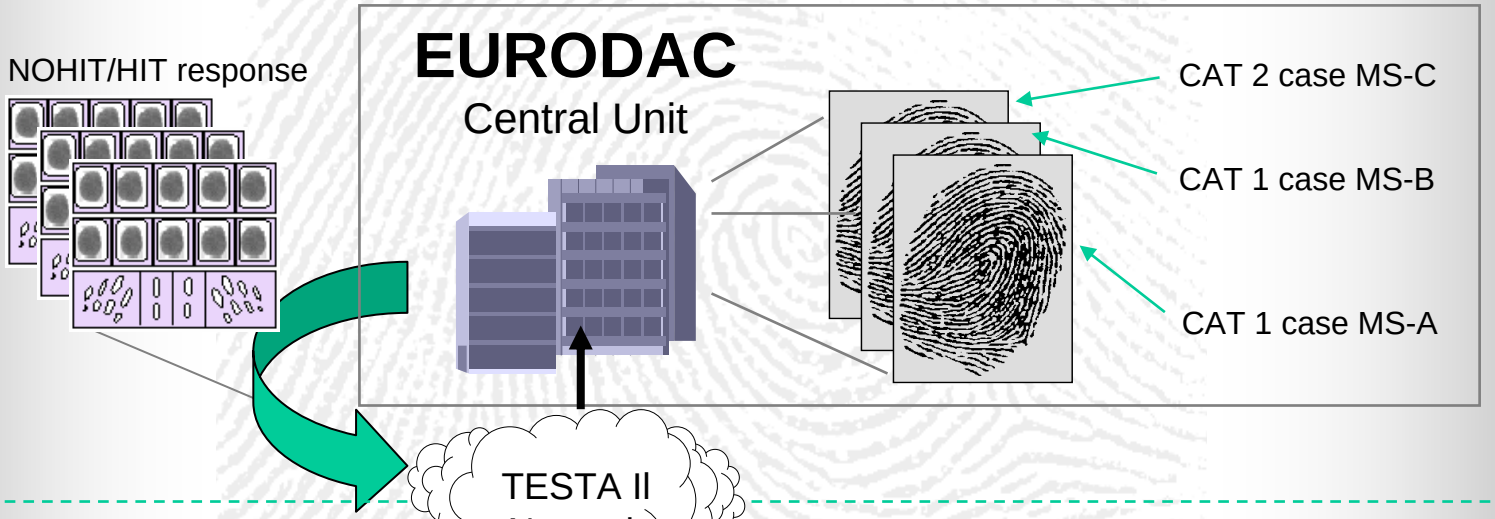
EURODAC

INT-I Transaction Types

N°	Transactions	Type	Transaction Name	Description
1	NPS	Fingerprint	Submit Cat1 or Cat3	ANSI/NIST formatted electronic fingerprint submissions of Category1 and Category 3 records. It is also used to handle Category 9 (search only) request.
2	ATP	Fingerprint	Submit Cat2	ANSI/NIST formatted electronic fingerprint submissions of Category 2 records
3	SRE	Fingerprint	Search Result	ANSI/NIST formatted search results
4	ERR	Message	Error Message	ANSI/NIST formatted error or notification message.
5	IRQ	Image Request	Retrieve Cat1 or Cat2	ANSI/NIST formatted transaction to retrieve a specific fingerprint record from the EURODAC central database.
6	IMR	Image Response	Image of Cat1 or Cat2	ANSI/NIST formatted record retrieved from the EURODAC CU central database as per the inquiry request.
7	DFP	Database	Delete Cat1 or Cat2	ANSI/NIST formatted request to delete MS own record.
8	UPR	Database	Modify Cat1 or Cat2	ANSI/NIST formatted transaction to update/block a fingerprint record stored in the EURODAC CU central database

EURODAC

Submissions from and to Member States

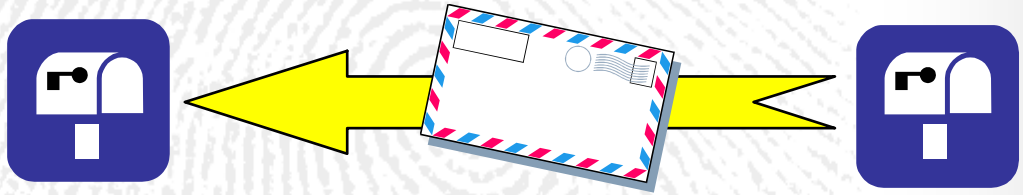


Austria, Belgium, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK

Interpol

Processing of fingerprints: current situation 1

AFIS



Mail processing

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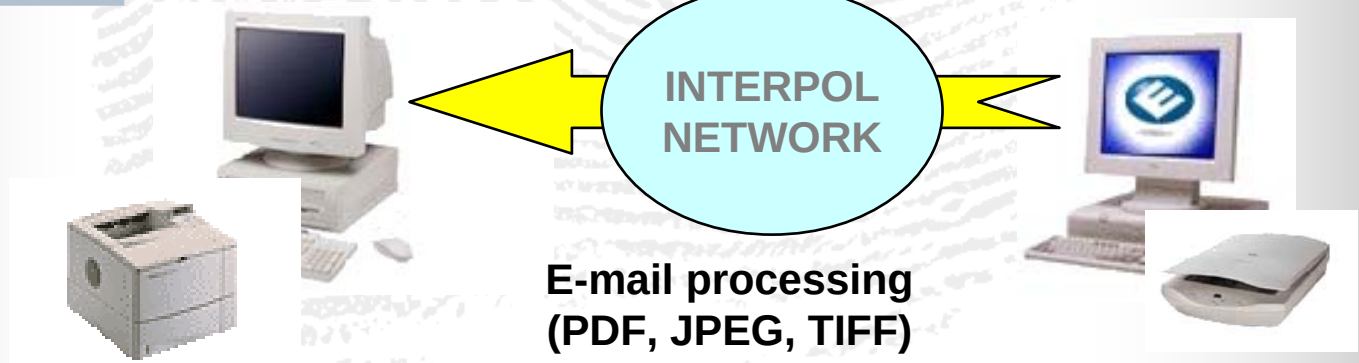
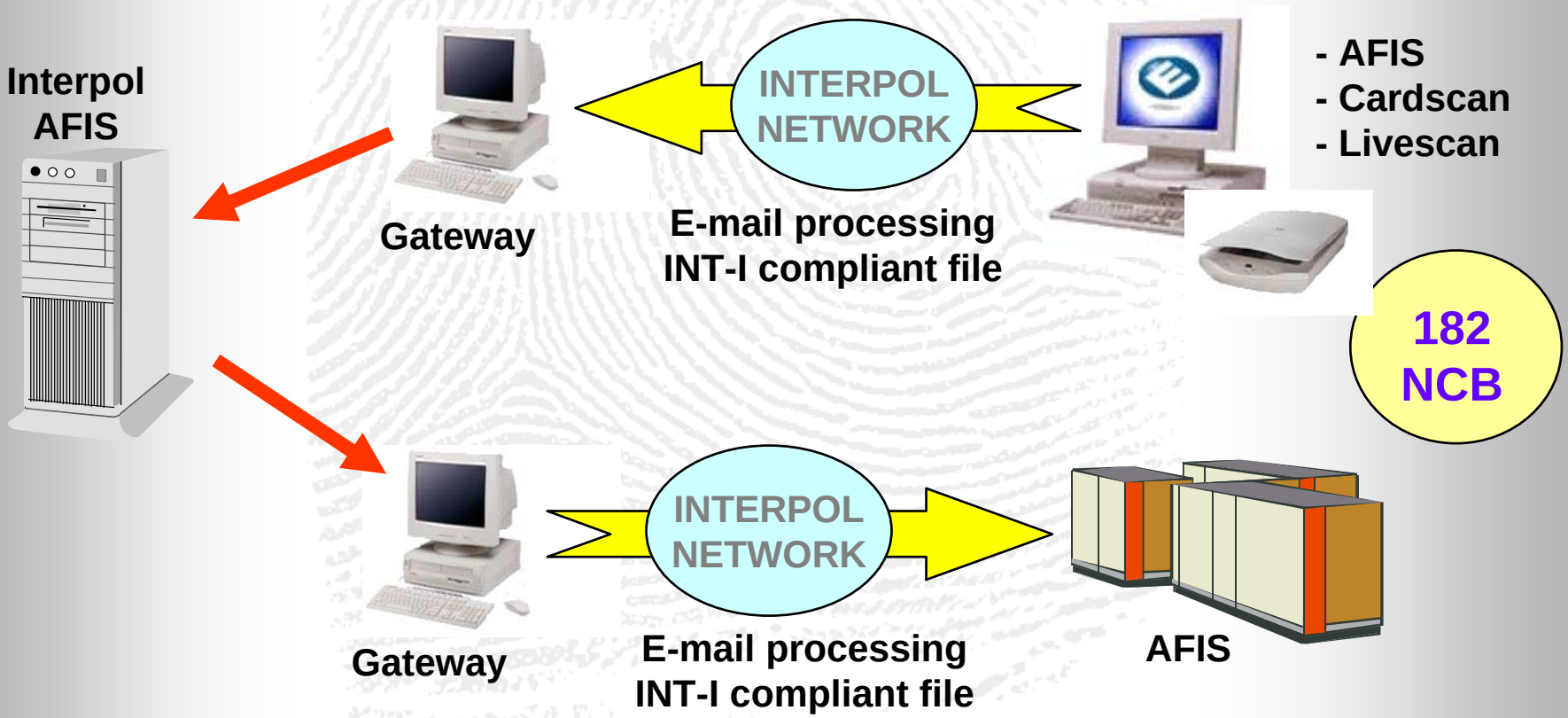
NCB



E-mail processing
(PDF, JPEG, TIFF)

Interpol

Processing of fingerprints: current situation 2



Prospect

The usage of INT-I based interconnections between countries and/or common AFIS will increase

Examples:

- **“Joint Declaration of Intent” between UK and Germany**
- **Austria, Belgium, Germany, Luxembourg and The Netherlands are working on an agreement to establish a direct link between their AFIS**
  - **⇒ automated TP/TP search, verification has to be done by requester**
  - **⇒ automated LT/TP search, encoding and verification has to be done by requester, exchange of minutiae data**
- **European VISA System**

Import & Export of fingerprint data will be a base function of AFIS

Central police agencies will require the possibility to convert biometric data between national and international standards

Lessons learned & Summary

- International agreed standards are absolutely essential to simplify and accelerate the data exchange between countries
- Electronic transmission of data will improve quality and accuracy, reduce response time, and help to solve crime
- Conversion between different Implementations of ANSI/NIST fingerprint standard is possible without loosing quality
- Interpol Member Countries shall establish technology for the electronic exchange of fingerprint data between their NCBs and to Interpol GS as soon as possible

Questions/answers, discussion

Thank you very much for your attention!