



Fingerprint Data Exchange

Peter T. Higgins

The Higgins-Hermansen Group, LLC

peter.higgins@thehhg.com

Agenda

- ◆ Driving Needs
- ◆ History of Standards
- ◆ Use of Standards
- ◆ Challenge

Driving Needs

- ◆ Initially paper forms were sent from local police to state ID bureaus and then on to FBI
- ◆ Rapid processing & response required electronic transactions (1990s)
- ◆ International exchange required common paper format - 1995 Interpol effort abandoned for electronic exchange

History of Standards

◆ NIST view:

- n *Five Automated Fingerprint Identification Systems (AFIS) deployed at FBI by 1981*
- n *State, local, & federal agencies acquired AFIS*
- n *Differences in minutiae metrics*
- n *Live-scan technology developed in the 80s*
- n *Process fingerprints from dissimilar systems*
- n *Common fingerprint data interchange standard to eliminate need for exchanging physical evidence*
- n *Required for communication with the FBI's IAFIS*

History of Standards

◆ Data Format for the Interchange of Fingerprint Information

- n ANSI/NBS-ICST 1-1986 Minutiae-Based
- n ANSI/NIST-CSL 1-1993 Image-Based
- n ANSI/NIST-ITL 1a-1997 Facial & SMT
- n ANSI/NIST-ITL 1-2000 Higher Resolution
- n ANSI/NIST-ITL 1-2007 Irises, etc.
- n Working on XML version

Use of Standards

- ◆ ANSI/NIST Standard requires domain of interest implementation document:
 - n FBI EFTS now EBTS (1994)
 - n RCMP NIST-NPS-ICD
 - n Interpol EFTS - based on UK Implementation
 - n DoD EBTS - based on Iraqi National EFTS
 - n State level EFTS documents
- ◆ These documents select:
 - n Acceptable record types (e.g., gray scale 500 ppi images)
 - n Compression technique
 - n Textual data (biographic and demographic)

Use of Standards

- ◆ Use of EFTS first demonstrated in 1995 between Boston PD and FBI - pre IAFIS
- ◆ Between disparate vendor systems
 - n IAI Cross-Jurisdictional Demonstrations
 - w 1997 across Internet between factories
 - w 1998 across NELETS between operational sites
- ◆ All demos were image based

Use of Standards

- ◆ NIST tested exchange of minutiae in 2006 to see the impact on reliability and accuracy (MINEX)
 - n Not for Criminal Justice applications and definitely not for latents

Challenge

- ◆ Transactions with 1,000 ppi images are large even when compressed
 - n Need images to perform verifications (other than lights out)
- ◆ FBI's ULW permits exchange of latents at the minutiae level
 - n Recommended that image accompany transaction
 - n No test have been run to compare native performance to ULW submittals



Questions?