

## ANSI/NIST-ITL 1-2006 Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information

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[fingerprint.nist.gov/standard](http://fingerprint.nist.gov/standard)

## ANSI/NIST-ITL 1-2000 Key Transmission Standard

- Fingerprint Data Interchange Format  
Used by Law Enforcement agencies
  - FBI, DHS, USSS
  - State & Local Police Agencies
  - Long term compatibility with FBI processing
- De facto ISO Standard
  - Canada, UK, Germany
  - Eurodac, Interpol

## ANSI/NIST ITL 1-2000

- Sixteen defined record types - ASCII, binary, or combination
- Used to exchange information describing:
  - Transaction itself
  - Descriptive, demographic, and rap sheet
  - Finger and palm print image and minutiae
  - Facial image
  - SMT image and descriptive information
  - User defined type record.

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## ANSI Requirement for 5-Year Review of Approved Standards

- Determine if:
  - Current version of standard should be withdrawn due to obsolescence/lack of use
  - Reaffirm the standard in its present form
  - Create a new version with corrections, enhancements, and additional features
- Open workshops held at NIST
  - April 26-28, 2005
  - December 5-6, 2005

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## Ad Hoc Groups Formed

- MISC - Iris & minutiae enhancements
- M1 harmonization - New record type for “exotic” type biometric data
- Face – Best Practice Recommendations  
Compression issues, poses, 3D
- XML - Develop compatible schema
- Latent - 3rd Level details, major case prints, impression types

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## Minutiae & Iris Updates

- INCITS M1 Template Support (Type 9)
  - Specified position for ridge endings and bifurcations
  - Common rules for angle determination
  - Additional info regarding the original scanned image
- New IRIS Image Record (Type 17)
  - Based on M1 iris image format
  - No provision for polar representation
  - Representation of iris image quality

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## Facial Record Updates (Type 10)

- Subject Pose Angles
  - Includes yaw, pitch, & roll
- Expanded list of subject facial descriptors
  - Includes smiles, glasses/patches, hats
- Encoding of MPEG4 subject feature points
  - Locations of eyes, lips, nose, etc.
- Use of JPEG 2000 and PNG compressions algorithms
- Provision for image quality metrics

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## Facial Record Updates (Type 10)

- Subject Acquisition Profile Levels (SAP)
  - Level 0: Unknown
  - Levels 10-14: Other facial standards
  - Level 15: PIV
  - Level 20: Legacy mugshots
  - Level 30: 1997 BPR & ANSI/NIST 2000
  - Level 40: Added requirements ( 768x1024)
  - Level 50/51: Increased resolution JPEG 2K required (3300x4400 head & shoulders)

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## Civilian Applications (Type 14)

- Civilian Applications
  - Travel
  - Civil Background Checks
  - Banking
- Plain impressions(4x4x2)
- Fast capture -15 Seconds vs 3 minutes
- Image quality and segmentation metrics

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## Fingerprint Image Quality Scores

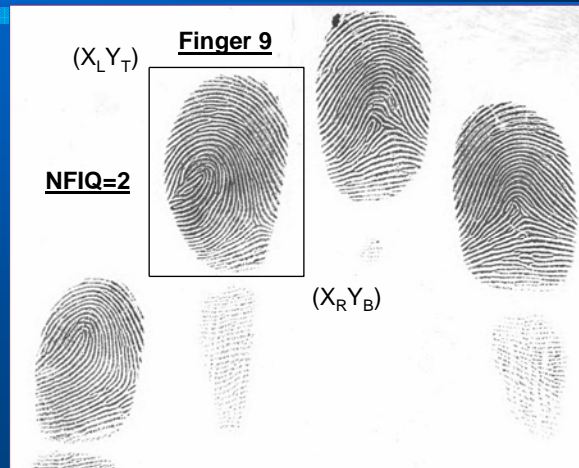
- Quality metric to predict performance
- FBI EFTS 7.1 requires NFIQ finger image quality score (1-5)
- Additional Fingerprint Predictive Performance Metrics Data
  - Finger Number
  - Predictive Quality Score (0-100 254 & 255)
  - Registered IBIA vendor Id,
  - Vendor algorithm code

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## FP Segments & Image Quality



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## CBEFF Record Type - 99

- Biometric data conforming to data format standards developed by organizations registered with the IBIA
- Carry items not carried in other ANSI/NIST record types – exotic data types
- Example: Hand Geometry

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## Approved XML Resolution

- Incorporates all 2006 updates
- Base 64 technique used for images (30% increase in data)
- One standard: Two Parts
- Develop a Part 2: alternative XML
- Both parts canvassed simultaneously
- A 1:1 correspondence of data
- GJXDM objects used

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## Steps to an ANSI Standard

- Develop a Canvass list of materially affected and interested parties
- Develop draft of proposed standard
- Consensus on a proposed standard by users, producers, integrators, & others
- Broad-based public review on draft standard

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## Interest Categories

- **Canvassees/alternates:** 73
- **Organizations:** 53
  - Users: 18 34%
  - Producers: 17 32%
  - Integrators: 6 11%
  - Consultants: 9 17%
  - Others: 3 6%

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## Government / Non-government

- **Government:** 33%
  - Local 9%
  - State 9%
  - Federal 6%
  - International 9%
- **Commercial:** 58%
- **Private Consultants:** 9%

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## Status of ANSI/NIST-ITL 1-2006

- ANSI/NIST-ITL 1-2006 draft – June
- Circulated draft to authors - July
- Comments used to update draft - Aug
- Circulate update for comment - Oct
- Use comments to update draft - Nov
- Ballot standard - Dec
- Submit to ANSI – Jan 2007

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## Interested????

- [fingerprint.nist.gov/standard](http://fingerprint.nist.gov/standard)
- Click on “Canvass Method”
- Click on: “Canvassee Signup Form”

THANK YOU

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