National Institute of Standards and Technology

ANSI
American National Standards Institute

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National Institute of Standards and Technology

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

THE ANSI/NIST-ITL STANDARD

Why use Standards?

- Ensure consistency in data definition
  - Meaning of the data
  - Usefulness of the data
- Transfer relevant information with the biometric sample(s)
- Enable data to be collected and used by different types of systems using systems from multiple vendors (facilitate interoperability)

A Brief History

- Original focus:
  - law enforcement organizations
    - sending fingerprint minutia to the FBI (starting in 1986)
- Expanded to include other law enforcement
  - Military
  - Intelligence
  - Homeland Security
    - INTERPOL
    - RCMP (Canada)
    - Bundeskriminalamt (Germany),
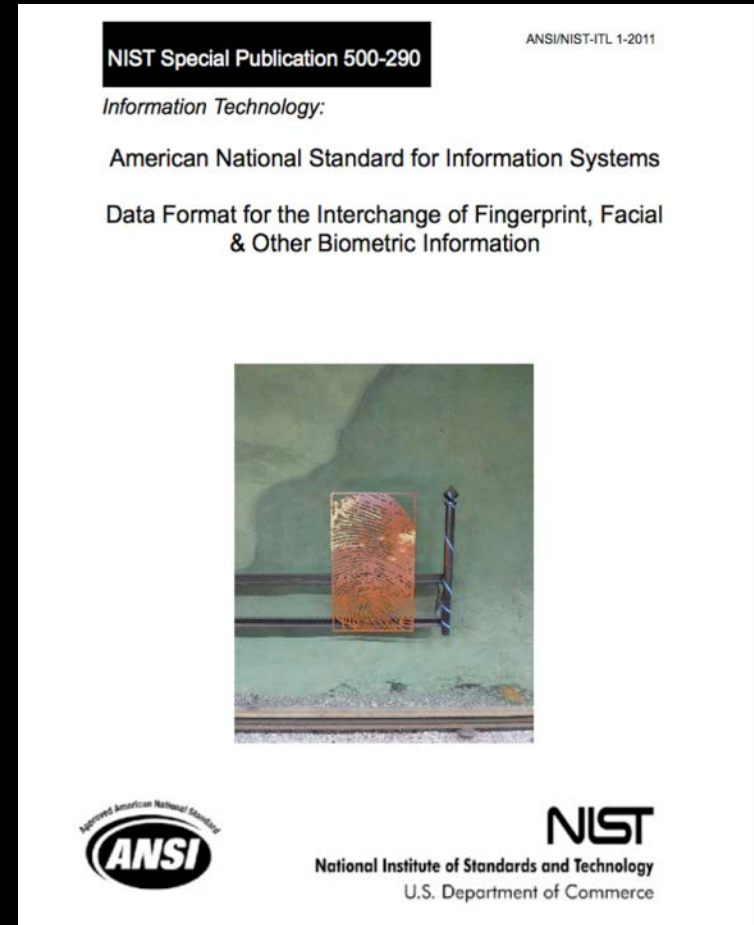   - US DoD
    - US-VISIT
    - EU Visa
    - Others

US-VISIT
Keeping America's Doors Open and Our Nation Secure
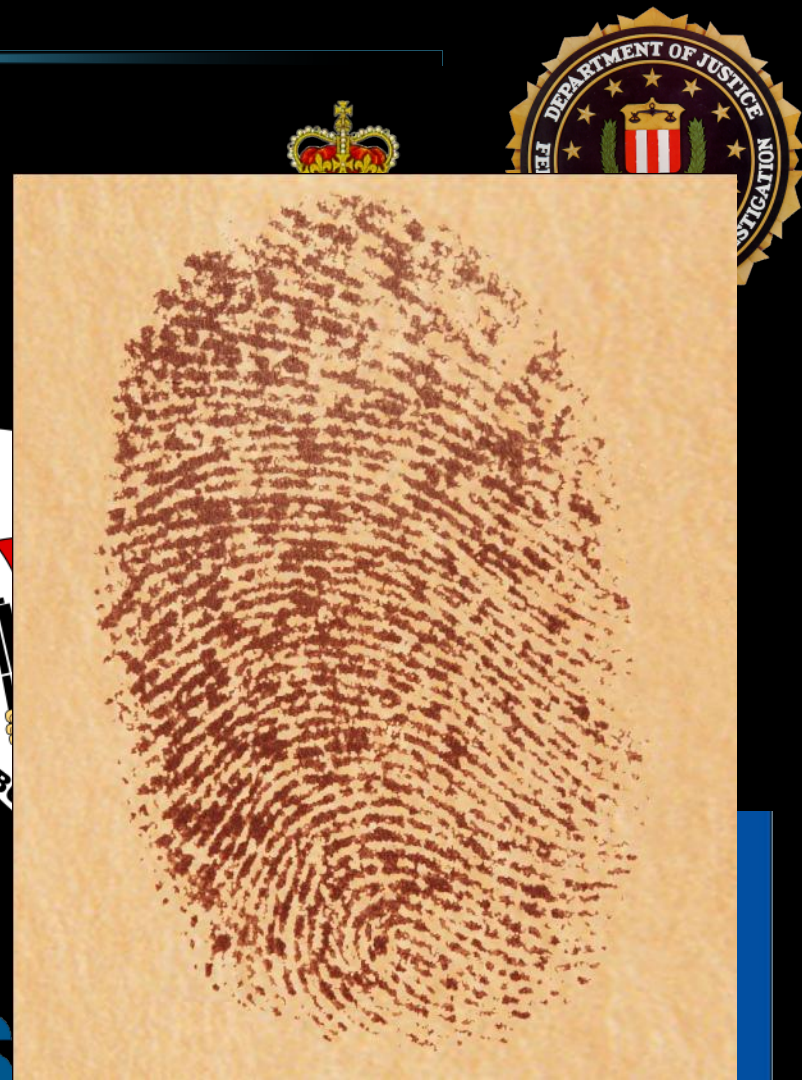
A Brief History

●Data Sent

– Mugshots

– Scar Images

– Needle Marks

– Tattoos

– Fingerprint

– Palmprint

A Brief History

- Revisions (Traditional binary encoding)
  - 1993
  - 1997
  - 2000
  - 2007
- Revisions (XML encoding)
  - 2008
  - 2011

NIST Special Publication 500-290

ANSI/NIST-ITL 1-2011

Information Technology:

American National Standard for Information Systems

Data Format for the Interchange of Fingerprint, Facial & Other Biometric Information

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Locations Of ANSI/NIST-ITL Installed Systems

Blue: National and International System Use
Red: State / Provincial / Local System Use

Application Profiles

- Tailoring of a standard to meet a specific user's needs
- Make optional fields / subfields / information items mandatory or state they not to be used
- Add specific user-defined fields
- Specify combinations of records to be used for standard transmissions, such as enrolling a criminal suspect into a database

FLORIDA

FALCON Rapid ID

- ❖ 2,655 active devices
- ❖ 75K+ transactions first six months 2010
- ❖ Two Modes:
  - Two finger (1:N) search
  - One finger (1:1) verification
- ❖ Response time target <1m
- ❖ Fingers -- 2,3,7,8
- ❖ Users
  - Department of Corrections
  - Florida Highway Patrol (every patrol Trooper)
  - Fish & Wildlife Commission
  - Department of Environmental Protection
  - Sheriffs Offices & Police Departments

FDLE

INTERPOL

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- Better quality
- Smaller size
- INTERPOL recommended standard for fingerprint transmission
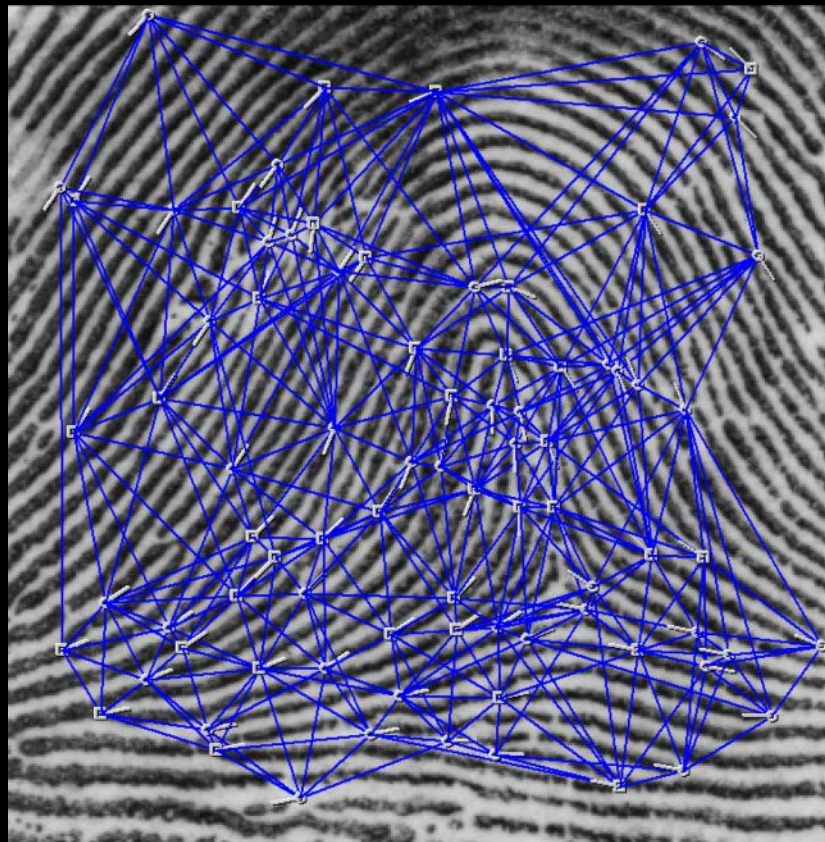
Countries sending NIST files
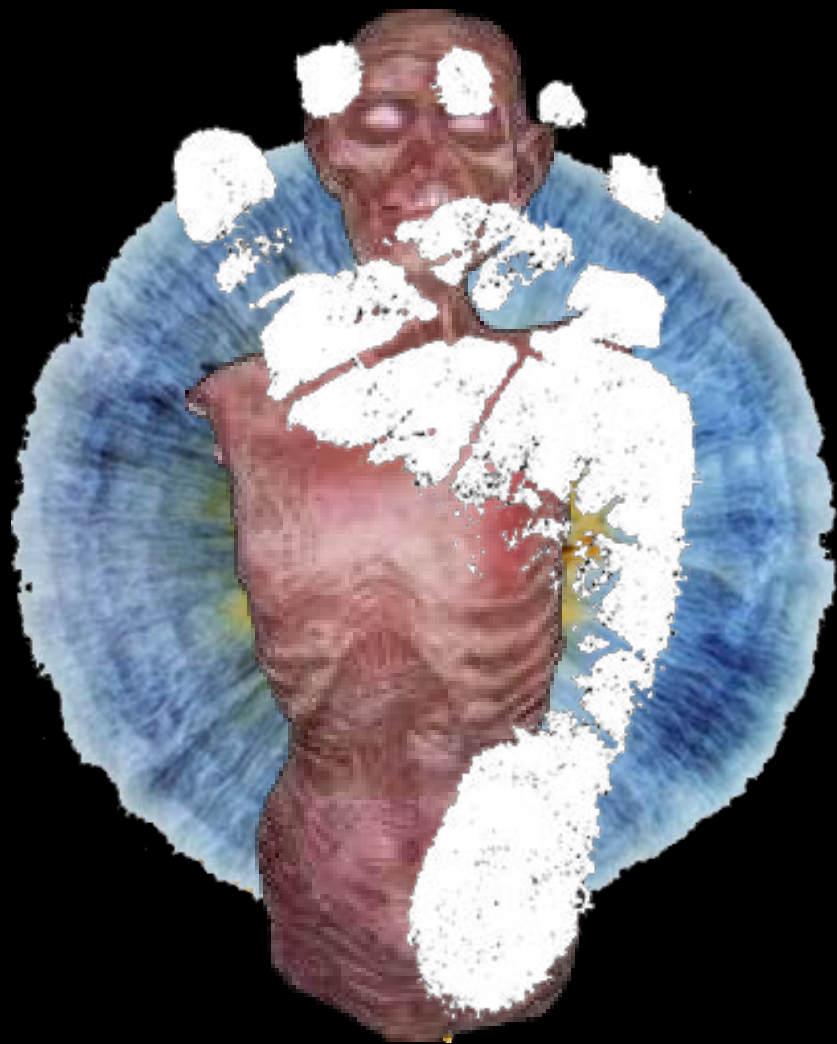
ANSI/NIST-ITL 1-2011

- New Modalities
  - DNA
  - Plantar (Footprint)
  - Iris Compact Formats
  - Images Of Additional Body Parts (Besides Face)

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- New Data Formats
  - Geo-Positioning Location
  - Information Assurance Features
  - Associated Contextual Images
  - Audio Clips
  - Visual Clips
  - Electropherograms
  - Metadata
- Logs:
  - Data Handling Logs
  - Original Representation(s)

ANSI/NIST-ITL 1-2011

- Latent Friction Ridge Extended Feature Set Markups
  - Cores
  - Deltas
  - Distinctive Characteristics
  - Minutiae
  - Dots
  - Incipient Ridges
  - Creases & Linear Distortions
  - Ridge Edge Features
  - Pores & Ridge Edgefields

ANSI/NIST-ITL 1-2011

- Forensics:
    - Universal latent workstation automated annotation
    - Images of the body (beyond face, iris and friction ridges)
    - 3D anthropomorphic facial image markup fields

Additional Information

- Type-98 (Information Assurance record) Best Practices document
- EFS Profile Specifications
- DNA list instructions
- DNA kit ID list
- DNA loci   (expanded beyond CODIS)
- XML Biometrics domain (Note: This is part of the National Information Exchange Model – NIEM)

(http://www.nist.gov/itl/iad/ig/ansi_standard.cfm)

New Projects

- Voice Biometrics
  - March 9 Full-day session at NIST
  - First draft of Type 11 record completed based upon work of the FBI/NIST Investigatory Voice Biometrics Interagency Group
  - FBI to do the update to the ANSI/NIST-ITL XML schema
  - Will be presented as a supplement to ANSI/NIST-ITL 1-2011 for voting

New Projects

- Conformance Testing
  - NIST developing test assertions for selected record types
  - Will be published as a reference document available on the home page for the standard:

  http://www.nist.gov/itl/iad/ig/ansi_standard.cfm

New Projects

American Society of Forensic Odontology

- Dental Forensics
  - Working with the American Dental Association to base Type-12 record upon their Spec 1058
  - Meetings held in Argentina, Washington, D.C. and Atlanta, Georgia
  - Coordinated with the SWGDVI (Scientific Working Group for Disaster Victim Identification)
  - FBI to do the update to the ANSI/NIST-ITL XML schema
  - Will be presented as a supplement to ANSI/NIST-ITL 1-2011 for voting

FOR FURTHER INFORMATION:

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HTTP://WWW.NIST.GOV/ITL/
IAD/IG/ANSI_STANDARD.CFM