

# National Institute of Standards and Technology



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

**Bradford Wing**

Biometric Standards Coordinator  
Information Technology Laboratory  
National Institute of Standards and  
Technology



# THE ANSI/NIST-ITL STANDARD

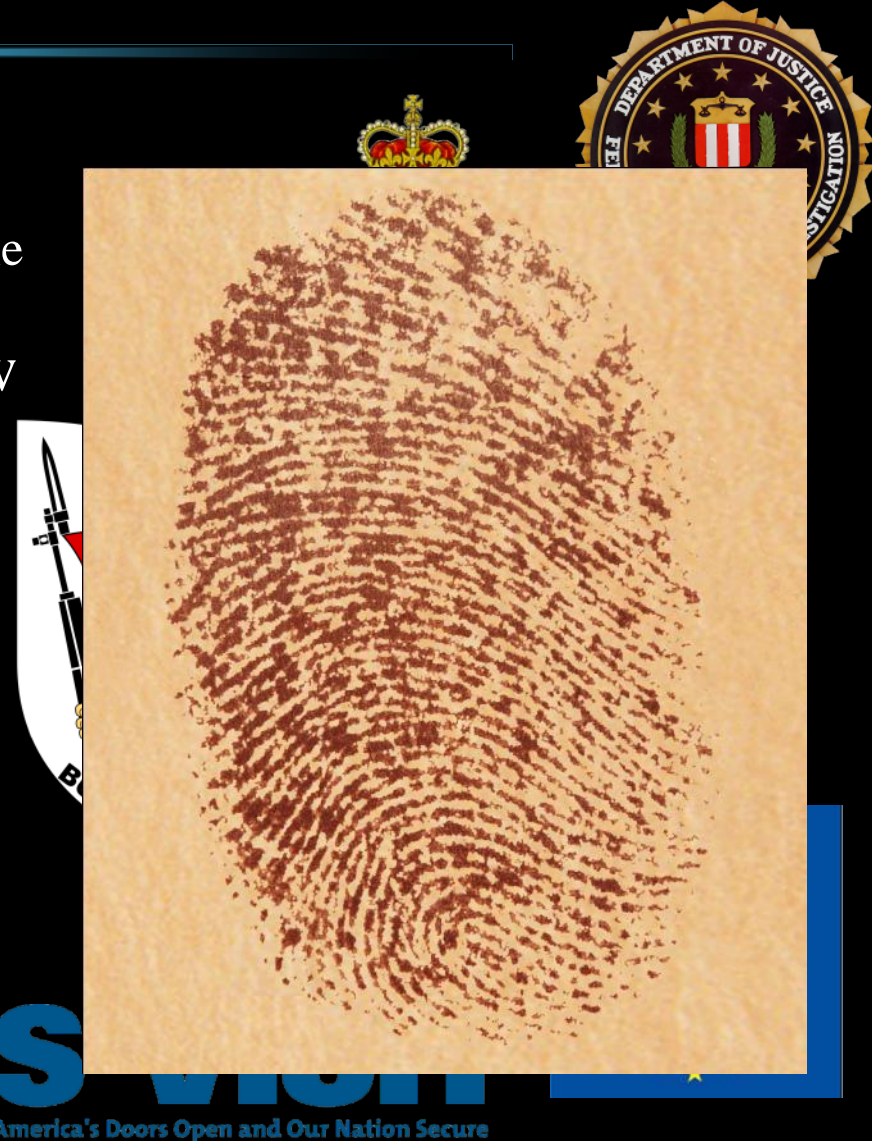
# Why use Standards?

---

- 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



# A Brief History

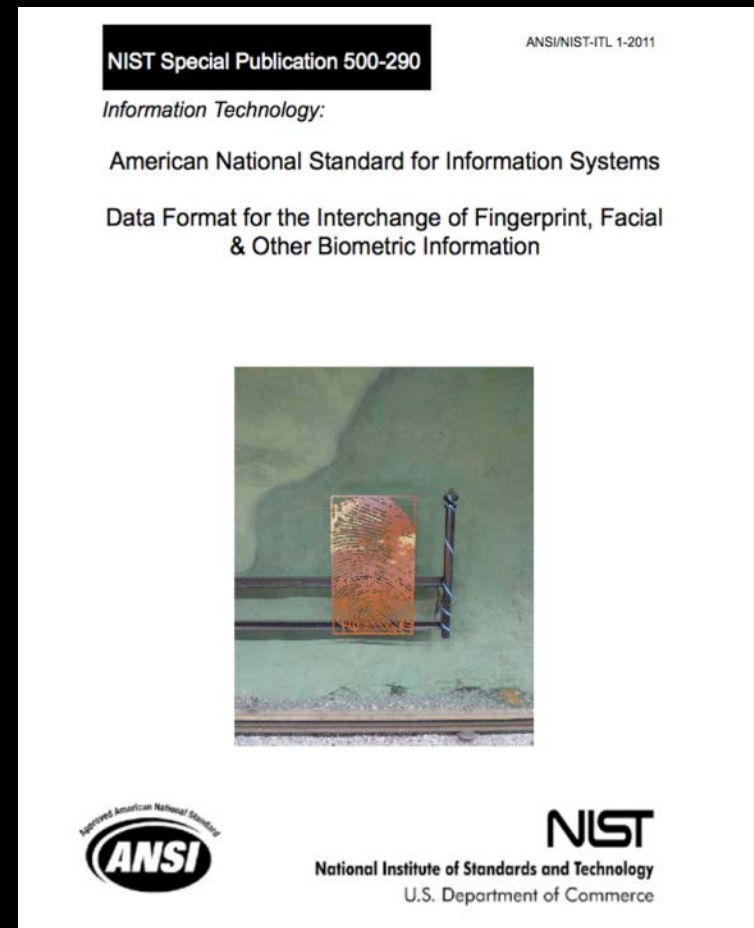
---

- 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





# Locations Of ANSI/NIST-ITL Installed Systems



# 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



INTERPOL



National Institute of Standards and Technology

- Better quality
- Smaller size
- INTERPOL recommended standard for fingerprint transmission



Countries sending NIST files



## Biometric Center of Excellence

The BCOE is the FBI program for exploring new and advanced biometric capabilities to solve crimes and protect national security.

# FBI Biometrics Today



## Biometric Interoperability Program

The Biometric Interoperability Program establishes interoperability between the FBI IAFIS and other biometric systems.

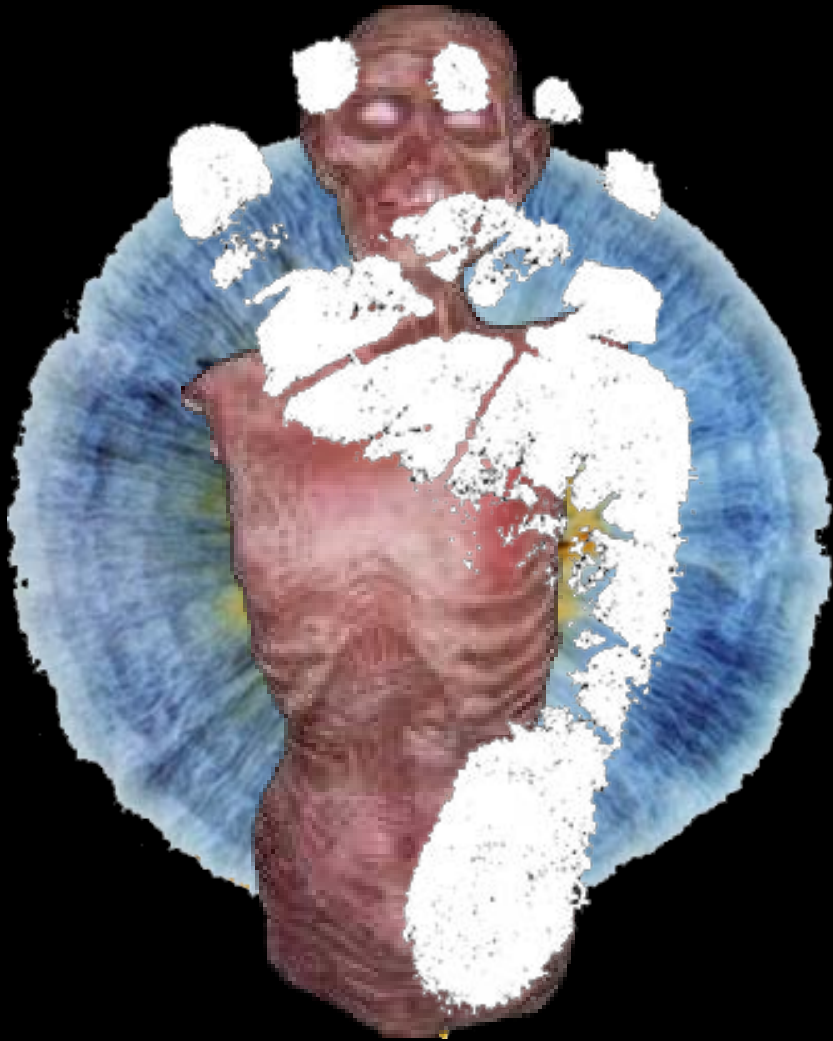


## Next Generation Identification

The NGI program will enhance the current IAFIS and offer state-of-the-art biometric identification services.

# ANSI/NIST-ITL 1-2011

---

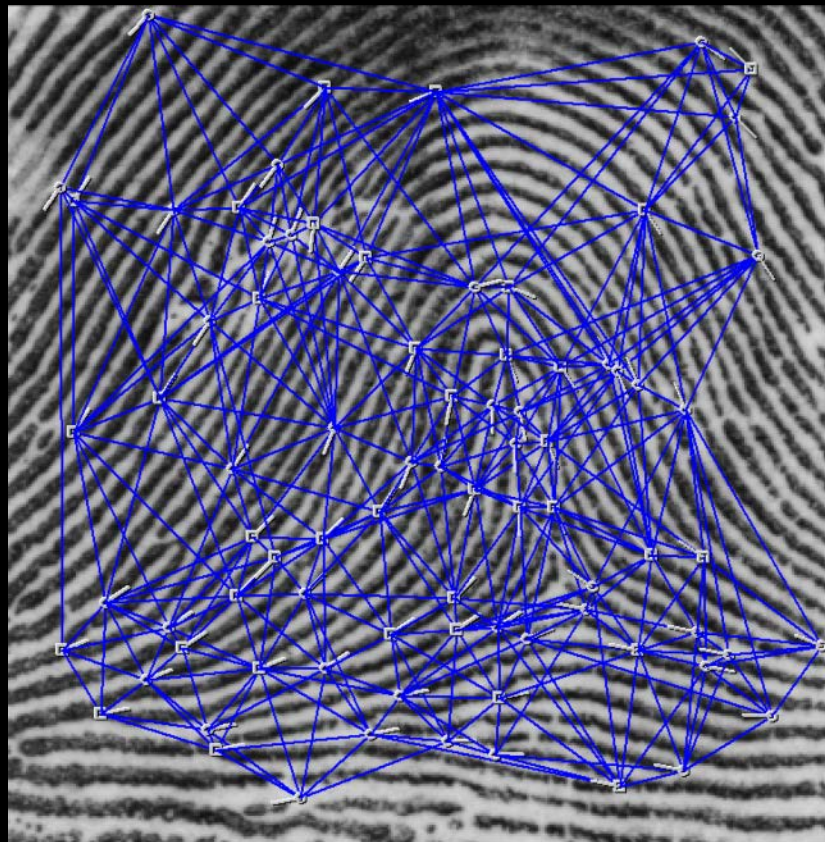


- New Modalities
  - DNA
  - Plantar (Footprint)
  - Iris Compact Formats
  - Images Of Additional Body Parts (Besides Face)





# 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](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

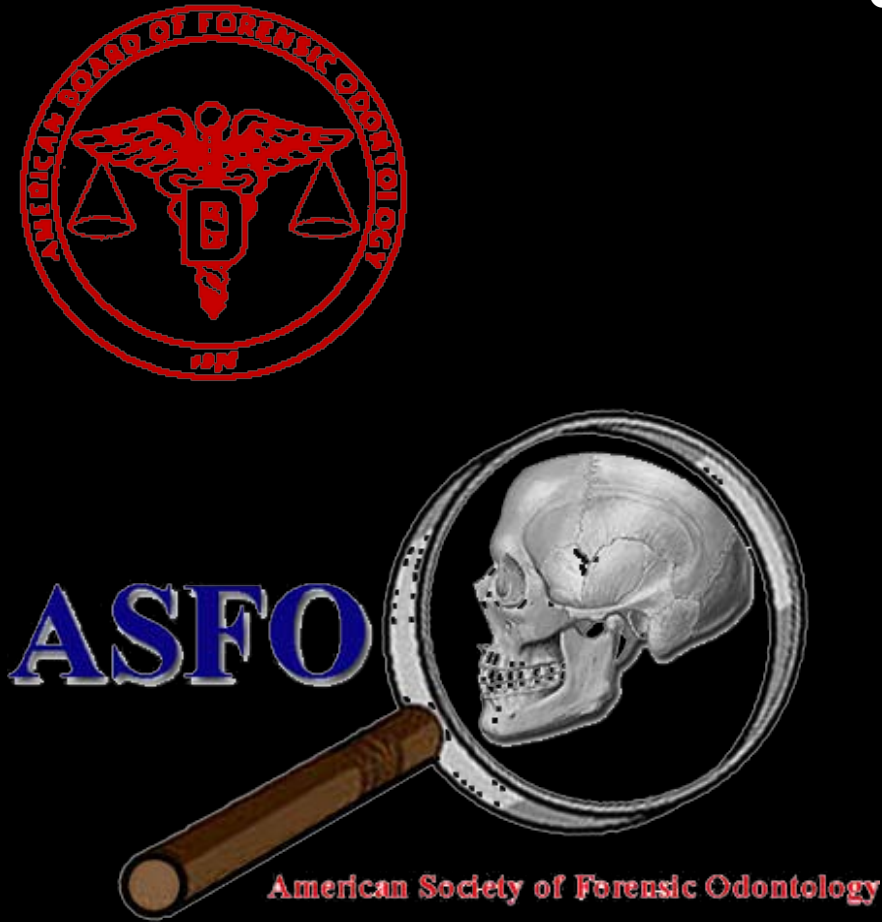
# New Projects

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

# New Projects



- 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:

---

Brad Wing, NIST, Information Technology Laboratory

[Brad.Wing@NIST.GOV](mailto:Brad.Wing@NIST.GOV)

301 975 5663



[HTTP://WWW.NIST.GOV/ITL/  
IAD/IG/ANSI\\_STANDARD.CFM](http://WWW.NIST.GOV/ITL/IAD/IG/ANSI_STANDARD.CFM)