

Resolutions

ANSI/NIST Fingerprint Standard Update Workshop II

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Michael McCabe

mccabe@nist.gov

fingerprint.nist.gov/standard

Compression Code Tables

- Insert a 3-column table in standard
 - *Compression algorithm*
 - *Binary code*
 - *ASCII code*
- Legitimate compression algorithms specified within the text of each record description
- Two tables were needed – one for binary images and one for grayscale/color images

Binary Image Compression Codes

Algorithm	BIN CODE	ASCII CODE	NOTES*
Uncompressed	0	---	Image Packed 8 pix/byte
Facsimile ANSI/EIA- 538 1988	1	---	Lossless

Grayscale & Color Image Compression Codes

Algorithm	BIN CODE	ASCII CODE
Uncompressed	0	NONE
WSQ Version 2.0	1	WSQ
JPEG ISO/IEC 10918	2	JPEG
JPEG 10918 (Lossless)	3	JPEGL
JPEG 2K Lossy	4	JP2
JPEG 2K Lossless	5	JP2L
Portable Network Graphics	6	PNG

M1 – Harmonization With Type-9 and Type 14 Records

- ❑ Addition of optional M1-vendor block of T-9 fields
- ❑ Coordinate system and minutiae placement and orientation in accord with INCITS 378-2004
- ❑ Minutiae location expressed in pixels
- ❑ Orientation to nearest 2 degrees
- ❑ Fields 9.121 through 9.129 reserved for M1 block
- ❑ Minimum amount of CBEFF information fields
- ❑ Addition of optional fields for T-14 record for image size, resolution, and CBEFF data

Fingerprint Image Quality Score

- Prediction of Fingerprint matching performance
- Field 14.022 – Mandatory FBI EFTS 7.1 Finger Image Quality
 - Finger Number
 - Predictive Quality Score (NFIQ)
- Field 14.024 – Optional Finger Image Quality
 - Finger Number
 - Predictive Quality Score
 - Vendor Identification
 - Vendor assigned code for algorithm
 - Version and revision of algorithm used

Slap Image Segmentation & Quality Score

- ❑ Field 14.021 – Defines offsets to bounding boxes of individual fingers in a “slap” image
- ❑ Finger segment defined by 5 information items
 - Finger number
 - X-coordinates (LEFT & RIGHT) Bounding box corners
 - Y-coordinates (TOP & BOTTOM) Bounding box corners
- ❑ Field 14.023 – Provision for segmentation quality scores
 - Information items similar to finger image quality (14.024)
 - Score and vendor information

Source Agency Length, Attended Operation, & UTF-8

- ❑ Increase the size of the Source Agency Field to 43 characters for record types 10 and above
- ❑ Optional field defined for record types 10 and above to provide device monitoring information
 - Unknown
 - Unattended
 - Observed
 - Assisted
- ❑ The UTF8 encoding scheme is preferred method to support international character sets.

Updates to Finger Position Code and Maximum Size Tables 6 & 19

- Area column removed from both tables
- Finger code 15 added to Table 6 to signify the combination of both thumbs together
 - Captured together
 - Captured separately but recorded as one image
- Maximum length dimension for finger position codes 13, 14, and 15 increased to 3.0”
- Additional palm codes added to Table 19 for
 - Right & left Interdigital
 - Right & left Thenar areas
 - Right & left Hypothenar areas

Enhanced Fingerprint Impression Types

Live-scan vs Nonlive-scan

Plain vs. Rolled

Optical vs. Non-optical

Contact vs. Non-contact

New Impression Type Codes

Live-scan plain	0
Live-scan rolled	1
Nonlive-scan plain	2
Nonlive-scan rolled	3
Latent impressionLive-scan	4
Latent tracing	5
Latent photo	6
Latent lift	7
Live-scan vertical swipe	8
Live-scan optical contact plain	20
Live-scan optical contact rolled	21
Live-scan non-optical contact plain*	22
Live-scan non-optical contact rolled	23
Live-scan optical contactless plain	24
Live-scan optical contactless rolled	25
Live-scan non-optical contactless plain	26
Live-scan non-optical contactless rolled	27
Other	28
Unknown	29

Major Case Prints

❑ Major case collection

- 1- FBI Standard Fingerprint Card
- 2- IAI Standard Palm Print Cards
- 2- Newly defined Major Case Card

❑ Additional areas of capture

- Joint prints (Distal, Medial, Proximal)
- Rolled tips
- Rolled thenar

❑ FGP Fields 14.013/13.013 contains “19” from Table 6

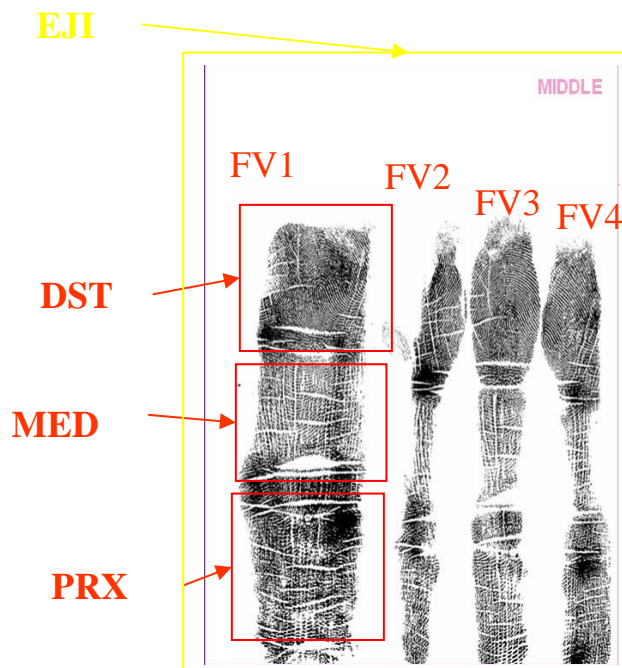
❑ MCP Field 14.014: Finger Number<us>Image Code

❑ MCS Field 14.015: Segment Positions (6 items)

❑ MCL Field 13.014: Finger Number<us>Image Code

Major Case Codes

Entire Joint Image	EJI
Rolled Tip	TIP
Full Finger View	FVx x = {1,2,3,4}
Proximal, Distal, or Medial Segment	PRX, DST, MED



Iris Record Type-17

- ❑ New record type would be based on, and be interoperable with the M1 Iris data format
- ❑ Provide for iris image representation only (polar coordinate representation excluded)
- ❑ Iris image quality represented as for finger image
- ❑ Add appropriate fields for eye color, colorspace, compression, etc.
- ❑ Consult with Iridian on record details

CBEFF Record Type -18 (?)

- ❑ Carry M1 standard biometric data
- ❑ Contains :
 - Header
 - Biometric Data Block (BDB)
 - Optional Signature Block
- ❑ Carry items not carried in other ANSI/NIST record types – exotic data types
- ❑ Move actual number type from 18 to a greater number.

Approved XML Resolution

- ❑ Incorporates all updates to the 2006 standard in the traditional and XML format
- ❑ One standard: One document : Two Parts
- ❑ Develop a Part 2 proposal as an alternative XML version of the ANSI/NIST-ITL standard
- ❑ Both parts canvassed simultaneously
- ❑ A 1:1 correspondence of data conveyed in the original structure and the new XML package
- ❑ GJXDM objects used wherever possible

Type 10 – Facial Image Resolutions – No SMT

- ❑ JPEG2 (both lossy and lossless) adopted as an appropriate compression algorithm for face
- ❑ Colorspace conventions:
 - JPEG - SRGB, GRAY, YCC
 - JPEG2K – SRGB, GRAY, SYCC
- ❑ The Subject Acquisition Profile (SAP) is a mandatory ASCII text field for facial images
- ❑ Various best practice levels for parameters used for capturing images.

Image Capture Levels

- ❑ Level 0: Unknown
- ❑ Levels 10-15: capture under the guidance of other facial standards or application profiles
- ❑ Level 15 : PIV
- ❑ Level 20: Legacy mugshots
- ❑ Level 30: 1997 BPR & ANSI/NIST 2000
- ❑ Level 40: Added requirements (768x1024 pixels)
- ❑ Level 50/51: Increased resolution JPEG 2K required (3300x4400 head & shoulders)

Best Practice Issues

- ❑ Naming convention to refer to all levels as Best Practice Image Capture and then reference specific levels by number only.
- ❑ Other specifics relating to image capture such as details relating to hair and number of photos captured
- ❑ These best practices to be placed in normative part of standard

Security Record Addendum

- ❑ *Proposal to put security at the “document” level using digital signatures to track changes*
- ❑ *Due to the amount of details to be resolved this item shall be worked on as a future addendum to the standard*
- ❑ *Event tracking will be included in this work*

Extended Fingerprint Feature Set Addendum

- ❑ *Potential Level 1, 2, & 3 features for encoding were presented and discussed*
- ❑ *Ad hoc group was created to study this work and put in the form of an addendum for later inclusion*
- ❑ *These new features may require a new record type*
- ❑ *This group headed by Austin Hicklin in cooperation with Alan McRoberts(SWGFASST) is to finish their work and make recommendation by December 31, 2006.*