



**ISO/IEC JTC 1/SC 37 N12**

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**Replaces:**

**ISO/IEC JTC 1/SC 37  
Biometrics**

**Document Type:** National Body Contribution

**Document Title:** US Contribution to SC 37 on a New Work Item Proposal -Finger Image Based Interchange Format

**Document Source:** United States National Body

**Project Number:**

**Document Status:** This document is being circulated to SC 37 National Bodies for review and consideration at the December 2002 SC 37 meeting in Orlando.

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**US Contribution to JTC 1 SC 37 on an NP for a Finger Image Based Interchange Format**

**PROPOSAL FOR A NEW WORK ITEM**

<b>Date of presentation of proposal:</b> to be determined	<b>Proposer:</b> ISO/IEC JTC 1/SC 37
<b>Secretariat:</b> U.S.A. (ANSI)	ISO/IEC JTC 1/SC37 N XXXX

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal - to be completed by the proposer. Guidelines for proposing and justifying a new work item are given in ISO Guide 26.

**Title:** Finger Image Based Interchange Format

**Scope**

The proposed standard will define a data record interchange format for storing and transmitting the information from a finger image area. The format will contain detailed pixel information from the friction ridges and valleys of the image. It will define the content, format and units of measurement, and method of image compression for the exchange of fingerprint image information, and may consider quality metrics of the image.

**Purpose and justification –**

This standard is intended for those applications not limited by the amount of storage required. It is a compromise or trade-off between required data storage/transmitting and data quality/accuracy. This is in contrast to the standard formats used for exchanging fingerprint characteristics such as minutiae, pattern or other forms. With any of these formats, information recorded in one standard format cannot be used by algorithms designed to operate with another type of information. Although the two approaches produce different outputs, both initially capture the fingerprint image. Use of the captured image can be leveraged to produce more accurate matching results and provide interoperability among and between vendors relying on minutiae-based, pattern-based, or other algorithms. Establishment of an image-based representation of fingerprint information will not rely on pre-established definitions of minutiae, patterns or other types. It will provide implementers with the flexibility to accommodate images captured from dissimilar devices, varying image sizes, resolutions, and different grayscale depths. Use of the fingerprint image will allow each vendor to implement their own algorithms to determine whether two fingerprint records are from the same finger.

**Programme of work**

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

- x  a single International Standard more than one International Standard (expected number: ..... )
- a multi-part International Standard consisting of ..... parts
- an amendment or amendments to the following International Standard(s) .....
- a technical report, type .....

**Relevant documents to be considered –** See attached list.

**Cooperation and liaison**

- ISO/IEC JTC1 SC17 and SC27,
- ISO TC68
- BioAPI Consortium,
- International Biometric Industry Association (IBIA)
- NIST/BC Biometric Interoperability, Performance and Assurance WG
- The Biometric Foundation (TBF)
- International Civil Aviation Organization (ICAO)

**Preparatory work offered with target date(s):** To be distributed prior to first meeting on this subject

**Signature:**

- Will the service of a maintenance agency or registration authority be required? .....YES.....
- If yes, have you identified a potential candidate? ..... International Biometric Industry Association (IBIA).....
- Are there any known requirements for coding? .....NO.....
- If yes, please specify on a separate page
- Are there any known requirements for cultural and linguistic adaptability? ...NO....
- If yes, please specify on a separate page
- Does the proposed standard concern known patented items? ....NO.....
- If yes, please provide full information in an annex

**Comments and recommendations of the JTC 1 Secretariat** - attach a separate page as an annex, if necessary

**Comments with respect to the proposal in general, and recommendations thereon:**  
 It is proposed to assign this new item to JTC 1/SC 37

**Voting on the proposal** - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Date of circulation: YYYY-MM-DD	Closing date for voting: YYY-MM-DD	Signature of JTC 1/SC37 Secretary: Lisa A. Rajchel
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<b>NEW WORK ITEM PROPOSAL - PROJECT ACCEPTANCE CRITERIA</b>		
Criterion	Validity	Explanation
A Business Requirement		
A.1 Market Requirement	Essential <input checked="" type="checkbox"/> Desirable ___ Supportive ___	See attached
A.2 Regulatory Context	Essential ___ Desirable ___ Supportive <input checked="" type="checkbox"/> Not Relevant ___	See attached
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes <input checked="" type="checkbox"/> No ___	See attached
B.2 Commitment to other organizations	Yes ___ No <input checked="" type="checkbox"/>	
B.3 Other Source of standards	Yes ___ No <input checked="" type="checkbox"/>	
C. Technical Status		
C.1 Mature Technology	Yes <input checked="" type="checkbox"/> No ___	See attached
C.2 Prospective Technology	Yes __ No <input checked="" type="checkbox"/>	
C.3 Models/Tools	Yes ___ No <input checked="" type="checkbox"/>	
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes <input checked="" type="checkbox"/> No ___	See attached
D.2 Interoperability	Yes <input checked="" type="checkbox"/> No ___	
E. Other Justification		

Additional Notes

**A1. Market Requirements**

This standard is intended for those applications not limited by the amount of storage required. This is in contrast to the standard format used for exchanging “feature-based” characteristic such as minutiae, or the standard format for exchanging sub-pattern information. With either of these formats, information recorded in one standard format cannot be used by algorithms designed to operate with the other type of information. Use of the captured image can be leveraged to produce more accurate matching results and provide interoperability among and between vendors relying on minutiae-based, pattern-based, or image-based algorithms. The fingerprint image will allow each vendor to implement their own algorithms to determine whether two fingerprint records are from the same finger independent of the capture device, image size, image resolution, or grayscale pixel depth.

**D1. Conformity Assessment**

The interchange format is expected to be a prescriptive transform from raw image data to the interchange format. As such, conformance can be achieved through the establishment of test images with known outputs.

**D2. Interoperability**

The interchange format is intended to produce interoperability between face recognition algorithms.

**Attachment - Relevant documents to be considered**

1. AAMVA (American Association of Motor Vehicle Administrators) standard 20000630 (Annex C)
2. Other Biometric Data Interchange Formats (It is anticipated that JTC 1 SC 37 projects for the development of base standards for Biometric Data Interchange Formats for Pattern-Based Fingerprint, Iris, and Face will be initiated concurrently to this project.)
3. Common Biometric Exchange File Format (CBEFF), NISTIR 6529-2001 (An augmented version of CBEFF is under development by the NIST/BC Biometric Working Group.)
4. ANSI/INCITS 358-2002 - Information technology - BioAPI Specification
5. ANSI/NIST-ITL 1-2000, Standard Data Format for the Interchange of Fingerprint, Facial, & Scar mark & Tattoo (SMT) Information
6. ANSI/X9 X9.84-2001 - Biometric information management and security (presently under revision)
7. Other base standards - to be determined