



**ISO/IEC JTC 1/SC 37 N8**

2002-09-09

**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 Minutiae Format for Data Interchange

**Document Source:** United States National Body

**Project Number:**

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

**Action ID:** ACT

**Due Date:**

**Distribution:**

**Medium:**

**Disk Serial No:**

**No. of Pages:** 4

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

**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 Biometrics
<b>Secretariat:</b> USA (ANSI)	ISO/IEC JTC 1 SC 37 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 Minutiae Format for Data Interchange

**Scope** The proposed standard will define a data format for representing one or more fingerprints in a “feature-based” manner, using the principle of minutiae points. The standard will contain a specific definition of minutiae points and other attributes, a data record format for storing and transmitting the attributes, a sample record and may include conformance criteria.

**Purpose and justification** At the present time, exchange of fingerprint information between equipment from different vendors is done using a compressed image of the fingerprint, which is often several thousand bytes per finger. This is expensive in storage and bandwidth. One way to achieve interoperability is to define a feature-based representation of a fingerprint.  
 Establishment of a common feature-based representation must rest on agreement on the appropriate features or attributes. Many fingerprint recognition technology providers follow a traditional approach of encoding a fingerprint through location of “minutiae” points. These minutiae are points located at the places in the fingerprint image where friction ridges end or split into two ridges. Describing a fingerprint in terms of the location and direction of these ridge endings and splits provides sufficient information to reliably 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 JTC 1 Subcommittees 17, 27  
 ISO TC68  
 NIST/BC Biometric Interoperability, Performance and Assurance WG  
 BioAPI Consortium  
 International Biometric Industry Association (IBIA)  
 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? .....YES.....  
 - If yes, indicate name .....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 ISO/IEC 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
<b>A Business Requirement</b>		
A.1 Market Requirement	Essential <input checked="" type="checkbox"/> Desirable <input type="checkbox"/> Supportive <input type="checkbox"/>	Currently, exchange of fingerprint information between equipment from different vendors must be done using a compressed image of the fingerprint, which is often several thousand bytes per finger. This is expensive in storage and bandwidth. One way to achieve interoperability is to define a feature-based representation of a fingerprint. By establishing a standard for feature-based representation of fingerprints, we will allow interoperability among vendors based on a small (approximately 200 bytes per finger) data record, facilitate placement of fingerprint information on lower capacity media, and encourage adoption of biometrics in applications where interoperability is vital.
A.2 Regulatory Context	Essential <input type="checkbox"/> Desirable <input type="checkbox"/> Supportive <input checked="" type="checkbox"/> Not Relevant <input type="checkbox"/>	
<b>B. Related Work</b>		
B.1 Completion/Maintenance of current standards	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	See attached list.
B.2 Commitment to other organization	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
B.3 Other Source of standards	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
<b>C. Technical Status</b>		
C.1 Mature Technology	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	The generic biometric technologies are mature.
C.2 Prospective Technology	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
C.3 Models/Tools	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
<b>D. Conformity Assessment and Interoperability</b>		
D.1 Conformity Assessment	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	The proposed standard will define some conformance criteria, and allow vendors and customers to jointly define testing to their own requirements.
D.2 Interoperability	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	This data format standard could provide a basis for the development of uniform, internationally recognized, interoperability and conformance tests. The willingness of vendors and end-users to jointly define testing requirements is presently unknown. The possible testing environment may range from the use of suppliers' declarations to third party testing.
<b>E. Other Justification</b>		

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1. Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

- A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.
- B. Related Work. Aspects of the relationship of this NP to other areas of standardization work shall be identified in this section.
- B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.
- B.2 External Commitment. Groups, bodies, or fora external to JTC1 to which a commitment has been made by JTC for cooperation and or collaboration on this NP shall be identified here.
- B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC1 as PAS, they shall be identified here.
- C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.
- C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardization.
- C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.
- C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.
- D. Any other aspects of background information justifying this NP shall be indicated here.
- D. Conformity Assessment and Interoperability
- D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.
- D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan.

**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