



BIOMETRICS
TASK FORCE

**U.S. Army
Biometrics Task Force
Standards Status and Activities Update
February 2007**

Version 1.0

Table of Contents

| | |
|---|----|
| Summary..... | 1 |
| List of Acronyms Used in this Document..... | 2 |
| Biometric Standards Sponsored by the BTF..... | 4 |
| Status Summary | 4 |
| Detailed Status and Timeline | 5 |
| Recent Letter Ballots..... | 8 |
| Standards in Public Review | 9 |
| Recent BTF Technical Contributions | 10 |
| Recent and Upcoming Standards Body Meetings | 10 |
| Biometric Standards Adoption Progress..... | 11 |
| Calls for Comments and Other Documents of Interest..... | 16 |
| Other BTF Activities..... | 20 |
| BTF Standards Team Activities POCs | 21 |
| Activities and Points of Contact | 21 |
| Contact Information | 22 |
| Current Status of Biometric Standards | 24 |

Summary

This document contains a consolidated view of the U.S. Army Biometrics Task Force (BTF) activities related to the development and adoption of biometric standards. It summarizes the current state of the biometric standards sponsored by the BTF, lists recent InterNational Committee for Information Technology Standards (INCITS) M1 letter ballots and draft standards under public review, describes BTF technical contributions to INCITS M1 and the Joint Technical Committee 1/Subcommittee 37 (JTC 1/SC 37) submitted during the past several weeks, and lists a number of standing calls for contributions and other documents available for review and comment that are of specific interest to the DoD.

This document also provides a comprehensive list and the current status of biometric standards development projects and standards development committees where the projects take place. This document will be updated on a regular basis, as the information contained herein changes frequently. The document is intended for distribution within the DoD Biometric Standards Working Group (BSWG). All inquiries regarding this document and requests for additional information should be submitted to its editors:

List of Acronyms Used in this Document

ABIS – Automated Biometric Identification System
AHGBEA – Ad Hoc Group on Biometrics and E-Authentication
ANSI – American National Standards Institute
API – Application Programming Interface
ASN – Abstract Syntax Notation
BFP – biometric function provider
BIAS – Biometric Identity Assurance Services
BIP – BioAPI Interworking Protocol
BIR – biometric identification record
BSP – biometric service provider
BSWG – Biometric Standards Working Group
BTF – Biometrics Task Force
CBEFF – Common Biometric Exchange File Format
CD – Committee Draft
CIRDIF – Conformance Issues Related to Data Interchange Formats
CR – Change Request
DHS – Department of Homeland Security
DISR – Defense Information Technology Standards Registry
DoD – Department of Defense
DTR – Draft Technical Report
EBTS – Electronic Biometric Transmission Specification
EFTS – Electronic Fingerprint Transmission Specification
FaceQM – Face Image Quality Measurement
FBI – Federal Bureau of Investigation
FCD – final committee draft
FDIS – final draft international standard
FIPS – Federal Information Processing Standard
FIQM – Finger Image Quality Measurement
GUI – graphical user interface
IA – information assurance
IAFIS – Integrated Automated Fingerprint Identification System
ICP – Interagency Coordination Plan
iDSM – interim data sharing model
IEC – International Electrotechnical Commission
INCITS M1 – InterNational Committee for Information Technology Standards
IOC – initial operating capability
IPT – Integrated Product Team
ISO – International Organization for Standardization
IT – information technology
ITL – Information Technology Laboratory
ITU-T – International Telecommunication Union Telecommunication Standardization Sector
JTC 1/SC 37 – Joint Technical Committee 1/Subcommittee 37
JXDM - Justice XML Data Model

LB – letter ballot
M1 – see INCITS M1
NISTIR – NIST Interagency Report
NB – national body
NIST – National Institute of Standards and Technology
NWI – new work item
OASIS – Organization for the Advancement of Structured Information Standards
PDAM – proposed draft amendment
PIV – Personal Identity Verification
POC – point of contact
PR – public review
SG – special group
SID – Seafarers Identity Document
SMT – scar, mark, and tattoo
SP – special publication
SPI – service provider interface
TC – technical committee
TG – task group
TWG – technical working group
USG – U.S. government
US-VISIT – U.S. Visitor and Immigrant Status Indicator Technology
WD – working draft
WG – working group
WIPT – Working Integrated Product Team
XCBF – XML Common Biometric Format
XML – eXtensible Markup Language

Biometric Standards Sponsored by the BTF

The following two tables contain a summary and detailed status, as well as a recent timeline of the national and international biometric standards that are sponsored by the U.S. Army Biometrics Task Force (BTF) and for which the BTF provides editorship and/or substantial technical contributions.

Status Summary

| Project/Standard | Sponsors | Status | Note |
|---|-----------|-------------|---|
| INCITS 429 (Project 1703-D): Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification | NIST, BTF | PR | Forwarded to INCITS for 2 nd PR |
| ISO/IEC FDIS 24709-1: Conformance Testing Methodology for BioAPI – Part 1: Methods and Procedures | BTF | FDIS ballot | Publishing |
| ISO/IEC Final Committee Draft (FCD) 24709-2: Conformance Testing Methodology for BioAPI – Part 2: Test Assertions for Biometric Service Providers | BTF | FDIS ballot | Publishing |
| INCITS Project 1749-D: Conformance Testing Methodology for INCITS 381, Finger Image Data Interchange Format | BTF | PR | Forwarded to INCITS for PR |
| INCITS 421 American National Standard for Information Technology – Biometric Profile – Interoperability and Data Interchange DoD Implementations (formerly INCITS Project 1676-D) | BTF | Published | Publicly available from the INCITS Web site |

Detailed Status and Timeline

| Sponsored Standard Status Timeline | Action Items | References |
|---|---|---|
| <p>INCITS 429 (Project 1703-D): Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification</p> <p>20 May 06: The LB on forwarding 5th draft to PR closed.</p> <p>13 Jun 06: LB results and comments discussed at M1.2 meeting in Falls Church, Va.</p> <p>15 Jun 06: M1 approved forwarding the updated draft for PR.</p> <p>18 Aug 06: PR started (closes 2 Oct).</p> <p>24 Oct 06: Text of 7th draft posted to M1 document registry.</p> <p>25 Oct 06: Recommendation to M1 on forwarding to INCITS for 2nd PR.</p> <p>31 Oct 06: 30-day LB issued.</p> <p>12 Jan 07: In PR on INCITS Web site (closed 26 Feb).</p> | <p>a. BTF to monitor the PR progress</p> <p>b. NIST to take the required steps in support of the PR</p> | <p>M1/06-0156 – Recommendation to M1 on PR</p> <p>M1/06-0169rev – Draft 5</p> <p>M1/06-0479 – LB results</p> <p>M1/06-0499 – comments on LB</p> <p>M1/06-0519 – Editor’s proposed resolution of comments (not posted)</p> <p>M1/06-0520 – Revised draft for PR (not posted)</p> <p>M1/06-0572 – Approved disposition of comments</p> <p>M1/06-0876 – Draft 7th</p> <p>M1/06-0942 – 30-day LB to send to INCITS for 2nd PR</p> <p>M1/06-1066 – Technical Group approved disposition of comments on Draft 7, 11 Dec 06</p> <p>M1/06-1065 – Draft 8, 11 Dec 06</p> |
| <p>ISO/IEC FDIS 24709-1: Conformance Testing Methodology for BioAPI – Part 1: Methods and Procedures</p> <p>25 Jan 06: Last SC 37 WG 2 meeting (Jan 2006) recommendations instruct the editors to prepare the FDIS text for delegate review and then submit the final draft for the FDIS ballot.</p> <p>15 Mar 06: The FDIS text and abstract have been prepared and sent to</p> | <p>a. BTF to monitor the project progress.</p> | <p>SC 37 N1547 – Text for FDIS ballot</p> <p>M1/06-0441 – Call for Comments</p> |

| Sponsored Standard Status Timeline | Action Items | References |
|---|---|---|
| <p>the Secretariat.</p> <p>18 Apr 06: The FDIS text was posted on SC 37 site and circulated to NBs for information. FDIS ballot is to be issued.</p> <p>15 Jun 06: M1 approved U.S. NB “yes” vote on FDIS ballot; even the ballot has not started yet.</p> <p>Dec 06: FDIS ballot in progress; closes on 31 Dec.</p> <p>15 Jan 07: The standard is being published after editor’s review.</p> | | |
| <p>ISO/IEC FDIS 24709-2: Conformance Testing Methodology for BioAPI – Part 2: Test Assertions for Biometric Service Providers</p> <p>11 Apr 06: U.S. NB vote on the FCD ballot (“yes,” no comments) has been posted.</p> <p>24 May 06: FCD ballot closed and summary of voting is posted to SC 37 document register.</p> <p>03 Jun 06: Proposed disposition of comments developed by the editor (BTF) and posted to SC 37 document register.</p> <p>03 Jul 06: FCD voting results and proposed disposition of comments discussed at the SC 37 WG2 meeting in London. Progression to FDIS approved.</p> <p>21 Jul 06: Approved disposition of comments developed by the editor (BTF) and posted to SC 37 document register.</p> <p>24 Jul 06: FDIS text developed by the editor (BTF) and forwarded to SC 37.</p> <p>Oct 06: M1 approved U.S. NB “yes” vote on FDIS ballot</p> <p>Dec 06: FDIS ballot in progress; closes on 31 Dec.</p> <p>15 Jan 07: The standard is being published after editor’s review.</p> | <p>a. BTF to monitor the project progress.</p> | <p>M1/06-0569 – Recommendation to M1 on FDIS</p> <p>M1/06-0697</p> <p>M1/06-0697rev – Call for comments</p> <p>M1/06-0825 – US NB votes Yes on imminent SC 37 ballot.</p> |
| <p>INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 4: Conformance Testing Methodology for INCITS 381, Finger Image Data Interchange Format</p> <p>15 May 06: Proposed 2nd WD posted.</p> | <p>a. BTF and NIST to take necessary steps in support of this project during the PR.</p> <p>b. Editor (BTF) to address PR</p> | <p>M1/06-0900 – Approved Disposition of Comments</p> <p>M1/06-1014 – Current (4th) draft has been sent for PR</p> |

| Sponsored Standard Status Timeline | Action Items | References |
|---|-----------------|--|
| <p>14 Jun 06: BTF presented the 2nd draft to M1.3 at the June meeting and proposed sending it for PR. The action was postponed until October, and a call for comments/contributions has been issued.</p> <p>03 Oct 06: BTF prepared a proposed disposition of comments and submitted to M1.3 for discussion at October meeting.</p> <p>03 Nov 06: 30-Day LB issued on forwarding to INCITS for PR.</p> <p>11-15 Dec 06: M1 Plenary approved forwarding to INCITS for PR.</p> <p>12 Jan 07: In PR on INCITS Web site (closed 26 Feb).</p> | <p>comments</p> | |
| <p>INCITS 421 American National Standard for Information Technology – Biometric Profile – Interoperability and Data Interchange DoD Implementations formerly “INCITS Project 1676-D”</p> <p>15 May 06: PR completed; no comments received.</p> <p>08 Sep 06: Publication process is underway. Electronic Editorial and Production Specialist from ANSI completed review and forwarded to BTF for comments.</p> <p>12 Sep 06: BTF responded to ANSI Electronic Editorial and Production Specialist with few minor comments on BSR INCITS 421.</p> <p>Jan 07: Published.</p> | <p>None</p> | <p>M1/06-0033 – 5th Draft M1/06-0101 – LB results from M1/05-0901</p> |

Recent Letter Ballots

The following table lists the status of the recent M1 letter ballots circulated to the member organizations. As a voting member, the BTF has an obligation to vote on these ballots. All ballots listed in the table have been circulated to the BSWG members for review and comment.

| LB Subject | Due Date/ Status | USG Coordination | References | Proposed Vote |
|--|---------------------|---------------------|--|------------------------|
| Project Proposal: INCITS 378: American National Standard for Information Technology – Finger Minutiae Format for Data Interchange – Revision 1 | 15 Feb 07 | | M1/07-0014 M1/06-0555 M1/06-0457 | Yes |
| Recommendation to INCITS on reaffirmation of INCITS 358-2002, Information Technology – BioAPI Specification | 15 Feb 07 | | M1/07-0016 | Yes |
| Forwarding the revised draft of INCITS Project 1823-D: Biometric Identity Assurance Services (BIAS) to INICTS for PR | 25 Feb 07 | | M1/07-0027 M1/06-1071 M1/06-1001 | Yes with comments |
| Forwarding the revised draft of Project 1563-D: Revision to INCITS 377-2004 – Finger Pattern Format for Data Interchange to INCITS for PR | 08 Mar 07 | | M1/06-1082 | Yes with comments |
| Approval of M1/07-1027rev as final report of the AHGBEA for further (public) distribution on behalf of M1 | 10 Mar 07 | | M1/07-0035rev | Yes with comments |
| Revision of the ANSI/NIST ITL 1-2000 to an ANSI standard | 05 Mar 07 | NIST | | Review |
| Forwarding Project 1576-D: Revision to INCITS 379-2004 – Iris Image Format for Data Interchange to INCITS for PR | 15 Mar 07 | | M1/07-0032 | TBD – needs discussion |
| Forwarding the Project 1790-D: Biometric Fusion Data Format to INCITS for PR | 15 Mar 07 | | M1/07-0033 | Yes |
| Forwarding Project 1564-D: Revision to INCITS 378-2004 – Finger Minutiae Format for Data Interchange to INCITS for PR | 15 Mar 07 | | M1/07-0029 | Yes |
| Forwarding Project 1672-D: Biometric Sample Quality Standard | 08 Mar 07 | | M1/07-0034 | No with comments |

Standards in Public Review

The following table lists the status of the M1 draft standards currently in the PR stage. Based on availability of resources, the BTF selectively reviews some of the standards and submits resulting comments to INCITS. BSWG members are notified when a standard becomes available for PR and are encouraged to review and comment on the standard.

| Standard | Due Date | Leading USG Agency | Notes |
|--|-----------|--------------------|--|
| INCITS 429.2006: Information Technology – Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification | 27 Feb 07 | NIST | BTF is a contributor to and a co-sponsor of this standard. |
| INCITS 383 Draft Information Technology – Biometric Profile – Interoperability and Data Interchange – Biometrics-Based Verification and Identification of Transportation Workers (Revision of INCITS 383-2004) | 08 Jan 07 | | BTF submitted two sets of comments that were posted on 06 Oct and 07 Nov 2006. |
| INCITS 423.1 Conformance Testing Methodology Standard – Part 1: Generalized Conformance Testing Methodology | 12 Feb 07 | | |
| INCITS 423.2 Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 2: Conformance Testing Methodology for INCITS 378 Finger Minutiae Data Interchange Format | 26 Feb 07 | | BTF submitted comments; coordinated with DHS |
| INCITS 423.4 Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 4: Conformance Testing Methodology for INCITS 381 Finger Image Data Interchange Format | 26 Feb 07 | BTF | BTF is a contributor to and a co-sponsor of this standard. |
| INCITS 358:2002 AM 1, Information Technology – BioAPI Specification Amendment 1: Support for Biometric Fusion (Version 1.1) | 12 Feb 07 | | |
| INCITS 398 Revision of INCITS 398-2005, Common Biometric Exchange Formats Framework | 02 Mar 07 | | BTF is reviewing this draft. |
| INCITS 434 Tenprint Capture using BioAPI | 26 Feb 07 | | |
| INCITS 420 Interoperability and Data Interchange – Point-of-Sale Biometrics-Based Verification and Identification | 26 Feb 07 | | |
| INCITS Adoption of ISO/IEC 19784-1:2006 Information Technology – BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification | 19 Mar 07 | | |

Recent BTF Technical Contributions

| Technical Contribution | Document | Date | Other USG Coordination |
|--|------------|-----------|------------------------|
| BTF Technical Contribution to M1.3 – Report on Potential Defects in ANSI/INCITS 379-2004: Iris Image Interchange Format Standard | M1/06-0675 | 08 Sep 06 | |
| BTF Technical Contribution to M1.3 – Report on Potential Defects in Biometric Data Interchange Formats – Part 6: Iris Image Data Standards (ISO/IEC 19794-6) | M1/06-0676 | 08 Sep 06 | |
| BTF Comments on the Revision of INCITS 383 | M1/06-0798 | 06 Oct 06 | |
| BTF Comments on M1/06-0725 – Draft of Part 2: Conformance Testing Methodology for INCITS-378 | M1/06-0790 | 10 Oct 06 | |
| BTF Technical Contribution to M1.3 – National and International Face Recognition Format Standards: Comparative Analysis Report | M1/06-0976 | 27 Nov 06 | |
| BTF Technical Contribution to M1.3 – National and International Iris Image Format Standards: Comparative Analysis Report | M1/06-0977 | 27 Nov 06 | |
| BTF Technical Contribution to M1.3 – Adoption of ISO/IEC 19794-6 Biometric Data Interchange Formats – Part 6: Iris Image Data Standard – Response to M1/07-0008 | M1/07-0140 | 23 Feb 07 | |
| BTF Comments on LB M1/06-1071, BIAS, Revision 4 | N/A | 20 Feb 07 | |
| BTF PR Comments on INCITS 423.2 Information Technology – Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 2: Conformance Testing Methodology for INCITS 378-2004, Finger Minutiae Format for Data Interchange | N/A | 26 Feb 07 | |
| BTF Comments in Response to M1.2 Call for Comments and Contributions on 19785-4, CBEFF Security Block Format Specifications | N/A | 27 Feb 07 | |

Recent and Upcoming Standards Body Meetings

| Standards Body | Date and Location of Meeting |
|---|----------------------------------|
| Ad Hoc Group on Biometrics in E-Authentication (AHGBEA) | 15 Jan 07, teleconference |
| INCITS M1 Plenary and Task Groups | 19-23 March 07, Pasadena, Calif. |
| INCITS M1 Plenary and Task Groups | 04-08 June, Location TBD |

| | |
|----------------------------|------------------------|
| JTC 1/SC 37 Working Groups | 18-26 June 07, Germany |
|----------------------------|------------------------|

Interagency and Outside Coordination

| Agency or Department | Date or Frequency of Meetings |
|--|---|
| National Science and Technology Council (NSTC) | Bi-Monthly |
| Department of Homeland Security (DHS) Interoperability Integrated Project Team (IDENT/IAFIS) | Weekly (Work on iDSM complete; work on IOC pending) |
| DHS Unique Identity Technical Working Group | Bi-Weekly |
| DHS Biometric Coordinating Group | Bi-Monthly |
| DHS Strategy and Policy Team | Bi-Weekly |
| DoD ABIS Systems Requirements Meeting | 16 Feb 07 (Next meeting TBD) |

Biometric Standards Adoption Progress

The following table contains a list and status of approved national and international biometric standards that are planned to become part of the Defense Information Technology Standards Registry (DISR). Submission of the standards to the DISR is performed through the established change request process. Each change request is circulated to BSWG members for their review, comment, and vote.

| Category of Standards | Standard Name | Description | DISR Status |
|-----------------------|---|---|-------------|
| Fingerprint Image | ANSI/NIST ITL 1-2000 Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo (SMT) Information | This standard defines the content, format, and units of measurement for the exchange of fingerprint, palm print, facial/mug shot, and SMT full-image information that may be useful in identifying a subject. | Mandated |
| | ANSI INCITS 381-2004 Finger Image-Based Data Interchange Format | This standard specifies an interchange format for the exchange of image-based fingerprint and palm print recognition data. It defines the content, format, and units of measurement for such information. This standard is intended for those identification and verification applications that require the use of raw or processed image data containing detailed pixel information. | Mandated |

| Category of Standards | Standard Name | Description | DISR Status |
|-----------------------|--|---|--|
| | ISO/IEC 19794-4 Biometric Data Interchange Formats – Part 4: Finger Image Data | This standard specifies a data record interchange format for storing, recording, and transmitting the information from one or more finger or palm image areas within an ISO/IEC 19785-1 CBEFF data structure. This can be used for the exchange and comparison of finger image data. | Emerging Standard |
| Fingerprint Template | ANSI INCITS 378-2004 Finger Minutiae Format for Data Interchange | This standard defines a method of representing fingerprint information using the concept of minutiae. It defines the placement of the minutiae on a fingerprint, a record format for containing the minutiae data, and optional extensions for ridge count and core/delta information. | Mandated |
| | ANSI INCITS 377-2004 Finger Pattern Based Interchange Format | This standard specifies an interchange format for the exchange of pattern-based fingerprint recognition data. It describes the conversion of a raw fingerprint image to a cropped and down-sampled finger pattern followed by the cellular representation of the finger pattern image to create the finger-pattern interchange data. | Mandated |
| | ISO/IEC 19794-2 Biometric Data Interchange Formats – Part 2: Finger Minutiae Data | This standard specifies a concept and data formats for representation of fingerprints using the fundamental notion of minutiae. It is generic in that it may be applied and used in a wide range of application areas where automated fingerprint recognition is involved. ISO/IEC 19794-2:2005 contains definitions of relevant terms, a description of how minutiae shall be determined, data formats for containing the data for both general use and for use with cards, and conformance information. | Emerging Standard |
| Face | ANSI INCITS 385-2004 Face Recognition Format for Data Interchange | This standard specifies definitions of photographic environment, subject pose, focus, etc. properties, digital image attributes, and a face interchange format for relevant applications, including human examination and computer-automated face recognition. | Organization-Unique Standard (Resubmitted as Mandated) |
| | ISO/IEC 19794-5 Biometric Data Interchange Formats – Part 5: Face Image Data | This standard specifies scene, photographic, digitization, and format requirements for images of faces to be used in the context of both human verification and computer-automated recognition. The format is designed to allow for the specification of visible information discernible by an observer pertaining to the face, such as gender, pose, and eye color. | Emerging Standard |

| Category of Standards | Standard Name | Description | DISR Status |
|-----------------------|---|---|---|
| Iris | ANSI INCITS 379-2004 Iris Image Interchange Format | This standard describes a format for the exchange of iris image information. It contains a definition of attributes, a data record format, sample records, and conformance criteria. Two alternative formats for iris image data are described; one based on a Cartesian coordinate system and the other on a polar coordinate system. | Mandated Standard |
| | ISO/IEC 19794-6 Biometric Data Interchange Formats – Part 6: Iris Image Data | This standard specifies two alternative image interchange formats for biometric authentication systems that utilize iris recognition. The first is based on a rectilinear image storage format and the second format is based on a polar image specification. | Emerging Standard |
| Other Modalities | ANSI INCITS 396-2005 Hand Geometry Format for Data Interchange | This standard specifies an interchange format for the exchange of hand geometry data in a silhouette format. It defines the content, format, and units of measurement for such information. This standard is intended for those identification and verification applications that require the use of an interoperable hand geometry template. | Submitted but not yet approved as Mandated Standard |
| Transmission | Electronic Fingerprint Transmission Specification (EFTS) (v7.1) | The purpose of this document is to specify certain requirements to which agencies must adhere to communicate electronically with the FBI's IAFIS. This specification is based on ANSI/NIST ITL 1-2000 and covers the IAFIS electronic transmissions involving fingerprints. | Deferred |
| | Electronic Biometric Transmission Specification (EBTS) (v1.2) | This specification describes customizations of the FBI EFTS transactions that are necessary to utilize the DoD ABIS. | Submitted but not yet approved as Mandated Standard |
| Technical Interfaces | ANSI INCITS 358-2002 BioAPI Specification (Version 1.1) | This standard provides a high-level generic biometric authentication model suited for any form of biometric technology. It covers the basic functions of enrollment, verification, and identification and includes a database interface to allow a BSP to manage the Identification population for optimum performance. | Mandated Standard |
| | ANSI INCITS 398-2005 [NISTIR 6529-A] Common Biometric Exchange Formats Framework (CBEFF) | This standard describes a set of data elements necessary to support biometric technologies in a common way. These data elements can be placed in a single file used to exchange biometric information between different systems or system components. The result promotes interoperability of biometric-based application programs and systems developed by different | Mandated Standard |

| Category of Standards | Standard Name | Description | DISR Status |
|-----------------------|---|--|---|
| | | vendors by allowing biometric data interchange. | |
| | OASIS XML Common Biometric Format (XCBF) 1.1 | This specification defines a common set of secure XML encodings for the patron formats specified in CBEFF (NISTIR 6529). Much of the information included in this standard has been incorporated into a more recent standard, ANSI X9.84-2003. | Emerging Standard |
| Application Profiles | NIST SP 800-76.1 Biometric Data Specification for Personal Identity Verification (PIV) | This document, SP 800-76.1, is a companion document to FIPS 201. It describes technical acquisition and formatting specifications for the biometric credentials of the PIV system, including the PIV card itself. The primary design objective behind these particular specifications is high performance universal interoperability. | Submitted but not yet approved as Mandated Standard |
| Performance Testing | ANSI INCITS 409.1-2005 Biometric Performance Testing and Reporting – Part 1: Principles and Framework | This standard addresses testing the accuracy of identification and verification devices, algorithms, and systems. This part is intended to summarize the other parts of the standard. An overview of the primary testing protocols, biometric applications, and performance metrics is presented. It also provides guidance on data analysis techniques, recording of results, and performance reporting measures available. | Mandated Standard |
| | ANSI INCITS 409.2-2005 Biometric Performance Testing and Reporting – Part 2: Technology Testing and Reporting | This standard specifies methods for performance testing of biometric systems and devices. It constitutes a specialization of a biometric testing framework standard in that it is concerned only with the offline use of stored (<i>i.e.</i> , previously captured) biometric samples and not the interaction of human subjects with a biometric sensor. The standard covers comparative or absolute testing of performance of biometric algorithms, components, or systems, comparison of biometric data sets, prediction of elements of deployed online performance, assessment of performance available from complex data samples including repeated sample and multimodal data. | Mandated Standard |

| Category of Standards | Standard Name | Description | DISR Status |
|------------------------------|--|--|--------------------|
| | ANSI INCITS 409.3-2005 Biometric Performance Testing and Reporting – Part 3: Scenario Testing and Reporting | This standard specifies the requirements for scenario-based biometric testing and reporting. The goal of scenario testing is to determine the overall system performance in a prototype or simulated application. Testing is carried out on a complete system in an environment that models a real-world target application of interest. | Mandated Standard |

Calls for Comments and Other Documents of Interest

The following table lists recent documents posted to the INCITS M1 and JTC 1/SC 37 document registers. These documents are of interest to the BTF, and the BTF plans to review or comment on these documents if necessary, depending on the availability of time and resources. Review of these documents will help establish the BTF position at the upcoming M1 Task Group and Plenary meetings. If any technical contributions are developed in relation to these documents, they will be circulated to BSWG members for their review, comment, and consent.

| Document | Due Date | TC/TG | Comments |
|----------------------------|-----------|-----------------|---|
| M1/06-0880 | 02 Apr 07 | M1/M1/2 | Text for PR: INCITS 398-200x IT – CBEFF – Revision 1 |
| M1/06-0853 | 26 Feb 07 | M1/M1.4 | Biometric Profile – Interoperability and Data Interchange Point-of-Sale Biometrics-Based Verification and Identification |
| M1/06-0895 | 16 Feb 07 | M1.2 | Call for contributions on INCITS Project 1829-D: Biometric Application Programming Interface – Java Interfaces |
| M1/06-0896 | 16 Feb 07 | M1.2 | Call for project editor nominations and for contributions on INCITS Project xxxx-D: Conformance Testing Methodology for Common Biometric Exchange Formats Framework (CBEFF) Data Structures Specified in INCITS 398-200x Revision 1 |
| M1/06-1001 | 08 Mar 07 | M1.3 | Revised Draft of Quality Standard Project 1672-D |
| M1/06-1065 | 26 Feb 07 | M1/M1/2 | Draft 8, Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification |
| M1/06-1071 | 25 Feb 07 | M1/M1/2 | BIAS Revision 4 |
| M1/06-1072 | 26 Feb 07 | M1/M1.2 | Tenprint Capture Using BioAPI, Revision 4 |
| M1/06-1082 | 08 Mar 07 | M1.3 | Draft of Finger Pattern Interchange Format for Revision Project |
| M1/06-1101 | | M1.3 | Call for Contributions for Expected Revision Project on INCITS 385-2004 |
| M1/06-1102 | | M1.3 | Call for Contributions on Speaker Data Format |
| M1/06-1103 | | M1.3 | Call for Contribution toward Finger Pattern Conformance Test Methodology |
| M1/06-1104 | | M1.3 | Call for Contribution toward Face Conformance Test Methodology |
| M1/06-1105 | | M1.3 | Call for Contribution toward Iris Conformance Test Methodology |
| M1/06-1106 | | M1.4/ AHGBEA | M1 comments to CS1 on SC 27 N5534 NWI Proposal on Authentication Assurance |
| M1/06-1107 | | M1 | Draft minutes for the 22 nd meeting of INCITS TC M1, Biometrics – 14-15 Dec – Marriott Westfields Washington Dulles, Chantilly, Va. |
| M1/07-0001 | | M1.3 | Call for contributions regarding U.S. strategy for interchange standards development |
| M1/07-0002 | | M1.3 | Call for contributions regarding consolidated encoding of metadata for interchange formats |

| Document | Due Date | TC/TG | Comments |
|-------------------------------|-----------|---------|--|
| M1/07-0003 | | M1.3 | Call for comment regarding U.S. adoption of 19794-1 |
| M1/07-0004 | | M1.3 | Call for comment regarding U.S. adoption of 19794-2 |
| M1/07-0005 | | M1.3 | Call for comment regarding U.S. adoption of 19794-5 |
| M1/07-0006 | | M1.3 | Call for comment regarding U.S. adoption of 19794-5-amd 1 |
| M1/07-0007 | | M1.3 | Call for comment regarding U.S. adoption of 19794-4 |
| M1/07-0008 | | M1.3 | Call for comment regarding U.S. adoption of 19794-6 |
| M1/07-0009 | | M1.3 | Call for comment on U.S. adoption of 19794-7 |
| M1/07-0010 | | M1.3 | Call for comment regarding U.S. adoption of 19794-8 |
| M1/07-0011 | | M1.3 | Call for comment regarding U.S. adoption of 19794-9 |
| M1/07-0012 | | M1.3 | Call for comment on U.S. adoption of 19794-10 |
| M1/07-0013 | | M1 | M1 30-day LB – approval of project proposal for INCITS 378:2004 Revision 1 |
| M1/07-0014 | | M1.3 | Project Proposal: INCITS 378: American National Standard for Information Technology – Finger Minutiae Format for Data Interchange – Revision 1 |
| M1/07-0016 | | M1 | Communication from INCITS on reaffirmation or withdrawal of INCITS 358-2002, Information Technology – BioAPI Specification |
| M1/07-0017 | | | M1 30-day LB – recommendation from M1 to INCITS on reaffirmation of INCITS 358-2002 |
| M1/07-0018 | | M1/M1.5 | Call for comments on adoption of 19795-1 as an American national standard |
| M1/07-0026 | | M1 | Logistics package and schedule – INCITS M1, M1 Task Groups/Ad-Hoc Groups meetings – 19-22 Mar 07 – Pasadena, Calif. |
| M1/07-0027 | 25 Feb 07 | M1 | M1 30-day LB – BIAS |
| M1/07-0029 | 15 Mar 07 | M1 | M1 30-day LB Finger Minutiae Format for Data Interchange |
| M1/07-0030 | 08 Mar 07 | M1 | M1 30-day LB – Project 1563-D: Revision to INCITS 377-2004 – Finger Pattern Format for Data Interchange |
| M1/07-0031 | | M1.3 | Call for comments on U.S. Fingerprint Image Revision Draft |
| M1/07-0032 | 15 Mar 07 | M1 | M1 30-day LB Iris Image Format for Data Interchange |
| M1/07-0033 | 15 Mar 07 | M1 | M1 30-day LB Biometric Fusion Data Format |
| M1/07-0034 | 08 Mar 07 | M1 | M1 30-day LB – Project 1672-D: Biometric Sample Quality Standard |
| M1/07-0035rev | 10 Mar 07 | M1 | M1 30-day LB – Final report of the AHGBEA |
| M1/07-0036 | 08 Mar 07 | M1/M1.5 | Call for comments on CD 19795-5 |
| M1/07-0037 | 09 Mar 07 | M1/M1.5 | Call for comments DTR 19795-3 Modality Specific Testing |
| M1/07-0040 | 09 Mar 07 | M1.5 | Call for Contributions on 19795-6: Part 6: Biometric Performance Testing and Reporting. Part 6: Testing Methodologies for Operational Evaluation (SC 37 N1963) |
| M1/07-0042 | 05 Mar 07 | M1.4 | Call for comments on issues list for 24713-2, Biometric Profiles for Interoperability and Data Interchange – Part 2: Physical Access Control for Employees at Airports |
| M1/07-0043 | 01 Mar 07 | M1.6 | Call for comments & contributions to WD 24714-2 |
| M1/07-0044 | 01 Mar 07 | M1.6 | Call for comments on WD 24714-1 |
| M1/07-0045 | 01 Mar 07 | M1.6 | Call for contributions to WD 24779 |
| M1/07-0046 | | M1.2 | Editor’s first draft of ISO/IEC 19785 Part 4, Security Block Format Specifications |

| Document | Due Date | TC/TG | Comments |
|----------------------------|-----------|-------|---|
| M1/07-0047 | | M1.2 | Call for comments and contributions on CBEFF 19785 Part 4, Security Block Format Specifications |
| M1/07-0048 | | M1.2 | Call for comments and contributions on WD 24709-4 |
| M1/07-0049 | | M1.2 | Call for contributions on 19784-1 Amendment 2, Framework Free BioAPI |
| M1/07-0050 | | M1.2 | Call for contributions on 19784-4, BioAPI Sensor Function Provider Interface |
| M1/07-0051 | | M1.2 | Call for contributions on 24709-3, Test Assertions for BioAPI Frameworks |
| M1/07-0052 | | M1.2 | Call for contributions on 24709-4, Test Assertions for BioAPI Applications |
| M1/07-0089 | | M1.3 | Call for contributions toward technical corrigendum to 19794-2 |
| M1/07-0090 | | M1.3 | Call for contributions on Amendment 2 to 19794-5 (3-D Face) |
| M1/07-0091 | | M1.3 | Call for contributions on 19794-11 Signature/Sign Dynamic Data |
| M1/07-0092 | | M1.3 | Call for contributions on SC 37 standard for speaker recognition |
| M1/07-0093 | | M1.3 | Call for contributions to revision process of 19794-x standards |
| M1/07-0094 | | M1.3 | Call for contributions for SC 37 Conformance Testing Methodology standards |
| M1/07-0095 | | M1.3 | Call for comments regarding the U.S. adoption of 19794-3 |
| | | | |
| 1934 | 07 Mar 07 | SC 37 | Call for participation, meeting announcement and call for contributions for the WG2 Special Group on ACBio |
| 1929 | 10 Apr 07 | SC 37 | ISO/IEC CD 24761.2 Information technology – Security Techniques – Authentication Context for Biometrics |
| 1932 | 10 Apr 07 | SC 37 | Text of 2 nd CD 24761, Security Techniques – Authentication Context for Biometrics |
| 1948 | 08 May 07 | SC 37 | Text of ISO/IEC 19795-5, Biometric Performance Testing and Reporting – Part 5: Scenario Evaluation of Biometric Access Control Systems |
| 1949 | 08 May 07 | SC 37 | Text of WD 19785-4, Common Biometric Exchange File Formats Framework – Part 4: Security Block Format Specifications |
| 1951 | 08 May 07 | SC 37 | Text of WD 24709-4, BioAPI Conformance Testing, Part 4: Test Assertions for Biometric Applications |
| 1952 | 08 May 07 | SC 37 | Text of WD 29794-1, Biometric Sample Quality – Part 1: Framework |
| 1954 | 08 May 07 | SC 37 | Text of WD 29794-4, Biometric Sample Quality – Part 4: Fingerprint Sample Quality Data |
| 1963 | 08 May 07 | SC 37 | Call for NB contributions on 19795-6 Biometric Performance Testing and Reporting Part 6: Testing Methodologies for Operational Evaluation (SC 37 N1616) |
| 1971 | 08 May 07 | SC 37 | Call for NB contributions on Amendment 2 to 19794-5, 3-Dimensional Face Image Data Interchange Format |
| 1972 | 08 May 07 | SC 37 | Call for NB contributions on Signature/Sign Processed Dynamic Data |

| Document | Due Date | TC/TG | Comments |
|-----------------|-----------------|--------------|--|
| 1953 | 09 May 07 | SC 37 | Text of ISO/IEC 19794-5/PDAM 2, 3-Dimensional Face Image Data Interchange Format |
| 1955 | 09 May 07 | SC 37 | Text of DTR 19795-3, Biometric Performance Testing and Reporting – Part 3: Modality-Specific Testing |
| 1956 | 09 May 07 | SC 37 | Proposed NWI for Biometric Data Interchange Formats – Part x: DNA Data Interchange Formats |
| 1970 | 09 May 07 | SC 37 | Call for NB contributions on draft technical corrigendum to 19794-2, use of 19794-2 card format both with and without record header |
| 1964 | 18 May 07 | SC 37 | Call for NB contributions on pragmatic approaches to specifying performance requirements to meet security and usability needs in applications using biometrics |
| 1965 | 18 May 07 | SC 37 | Call for NB contributions on 24709-3, Test Assertions for BioAPI Frameworks |
| 1966 | 18 May 07 | SC 37 | Call for NB contributions on 24709-4, Test Assertions for BioAPI Applications |
| 1967 | 18 May 07 | SC 37 | Call for NB contributions on 19784-1 Amendment 2, Framework Free BioAPI |
| 1968 | 18 May 07 | SC 37 | Call for NB contributions on 19784-4, BioAPI Sensor Function Provider Interface |
| 1969 | 18 May 07 | SC 37 | Call for NB contributions on 19785-4, CBEFF Security Block Format Specification |

Other BTF Activities

| Activities | Status | Dates | Notes |
|---|--|---|---|
| Development of FIQM methodology and toolset | Development of the prototype is completed. Test with large data sets and several matchers (by NIST) is ongoing. BTF is working on the development of an updated version of the toolset. | Testing is completed; finalizing analysis of the test results | The FIQM algorithm is approved for publishing in the Journal of Forensic Identification, 4-10 May 06. |
| BTF FIQM Tool Study and Comparative Analysis | Draft 0.1 completed. | 22 Feb 07 | Next steps are to first submit to BTF and then circulate to the BSWG. |
| Development of FaceQM Methodology and Toolset | Development of initial version is completed. Test with large data sets and DoD ABIS matcher is ongoing. | Testing and development are ongoing. | BTF Standards Team began a quality analysis of a distribution of facial images from the DoD ABIS database to identify requirements for future enhancements. |
| Monitor publications and advancements within SC 37 and M1 regarding Quality Measurement Methodology | Ongoing | Ongoing | POC: Bob Yen |
| Comparative analysis of national and international standards for face image data formats | Posted to INCITS M1 document registry as technical contribution | 27 Nov 06 | M1/06-09776 |
| Comparative analysis of national and international standards for iris image data formats | Posted to INCITS M1 document registry as technical contribution | 27 Nov 06 | M1/06-0977 |
| Publication of DoD EBTS Version 1.2 to BTF Web site | Publicly available on the BTF Web site | 11 Dec 06 | |
| DoD EBTS Version 1.3 | Under development | Estimated release date: May 07 | |
| Biometric Collection, Transmission, and Storage Standards Technical Reference | Made publicly available on the BTF Web site | 23 Feb 07 | Should discuss demand for next version |

Current Status of Biometric Standards

The following table lists the status of national and international biometric standards, both approved and under development. The status of the development projects changes frequently, and this table is updated regularly based primarily on the outcomes of biometric standards bodies meetings.

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|--------------------------|---|--|-------------------|--------------------------|
| Fingerprint Image | ANSI/NIST ITL 1-2000: Data Format for the Interchange of Fingerprint, Facial, & Scar Mark, & Tattoo (SMT) Information | This standard defines the content, format, and units of measurement for the exchange of fingerprint, palm print, facial/mug shot, and SMT full-image information that may be useful in identifying a subject. | 1 | Published |
| | INCITS 1577-D: Revision of INCITS 381-2004: Finger Image-Based Data Interchange Format | Implementers working with INCITS 381-2004 have raised concerns that it is not sufficiently precise regarding its conformance requirements. One objective of this project will be to evaluate such concerns and develop revisions in the standard that will resolve them. Test results of initial interoperability of biometric data that conform to INCITS 381-2004 have suggested that the degree of interoperability may, at least in certain situations, be less than was intended by the original standard. A second objective of this project will be to evaluate such test results and to possibly develop technical changes that may result in higher levels of interoperability. | TBD | Under development: WD |
| | ANSI INCITS 381-2004: Finger Image-Based Data Interchange Format | This standard specifies an interchange format for the exchange of image-based fingerprint and palm print recognition data. It defines the content, format, and units of measurement for such information. This standard is intended for those identification and verification applications that require the use of raw or processed image data containing detailed pixel information. | 1 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------------|--|---|-------------------|--------------------------|
| | ISO/IEC 19794-4: Biometric Data Interchange Formats – Part 4: Finger Image Data | This standard specifies a data record interchange format for storing, recording, and transmitting the information from one or more finger or palm image area within an ISO/IEC 19785-1 CBEFF data structure. This can be used for the exchange and comparison of finger image data. | 1 | Published |
| | INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 4: Conformance Testing Methodology for INCITS 381, Finger Image Data Interchange Format | This standard, when completed, will present an overview of conformance testing methodology that could be adapted to validate Finger Image-Based Data Interchange Format-conformant files as specified per ANSI INCITS 381-2004. | 1 | PR |
| Fingerprint Template | ANSI INCITS 378-2004: Finger Minutiae Format for Data Interchange | This standard defines a method of representing fingerprint information using the concept of minutiae. It defines the placement of the minutiae on a fingerprint, a record format for containing the minutiae data, and optional extensions for ridge count and core/delta information. | 1 | Published |
| | INCITS Project 1564-D: Information Technology – Finger Minutiae Format for Data Interchange, Amendment 1 | This amendment to INCITS 378-2004 will resolve concerns that it is not sufficiently interoperable or precise regarding its conformance requirements. One objective of this project will be to evaluate such concerns and develop revisions in the standard that will resolve them. A second objective of this project will be to develop technical changes that may result in higher levels of interoperability. | 1 | Under development: WD |
| | ISO/IEC 19794-2: Biometric Data Interchange Formats – Part 2: Finger Minutiae Data | This standard specifies a concept and data formats for representation of fingerprints using the fundamental notion of minutiae. It is generic in that it may be applied and used in a wide range of application areas where automated fingerprint recognition is involved. ISO/IEC 19794-2:2005 contains definitions of relevant terms, a description of how minutiae shall be determined, data formats for containing the data for both general use and for use with cards, and conformance information. | 1 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|--|-------------------|-----------------------|
| | INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 2: Fingerprint Minutia Conformance Test Methodology | This standard project will establish a framework and define test requirements and guidelines for a Conformance Testing Methodology to determine conformity of products and services that utilize the ANSI INCITS 378-2004 standard. | 1 | PR |
| | ANSI INCITS 377-2004 Finger Pattern Based Interchange Format | This standard specifies an interchange format for the exchange of pattern-based fingerprint recognition data. It describes the conversion of a raw fingerprint image to a cropped and down-sampled finger pattern followed by the cellular representation of the finger pattern image to create the finger-pattern interchange data. | 3 | Published |
| | INCITS Project 1563-D: Information Technology – Finger Pattern Based Data Interchange Format, Amendment 1 | This amendment to INCITS 377-2004 will resolve concerns that the existing standard is not sufficiently interoperable. One objective of this project will be to evaluate such concerns and develop interpretive and technical changes as an amendment to the standard. | 3 | Under development: WD |
| | ISO/IEC Project 19794-3: Biometric Data Interchange Formats – Part 3: Finger Pattern Spectral Data | This part of ISO/IEC 19794 specifies the interchange format for the exchange of spectral (pattern)-based fingerprint data. This proposed standard allows the exchange of local or global spectral data derived from a fingerprint image without the exchange of the entire image. | 3 | Published |
| | INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 3: Conformance Testing for INCITS 377, Finger Pattern Based Data Interchange Format | This document describes a two-step conformance test with the ANSI-INCITS 377-2004 “Finger Pattern Data Interchange Format” standard. It provides some general guidelines for conformance testing and then defines the specific assertions that must be checked in each step. | 3 | Under development: WD |
| | ISO/IEC Project 19794-8: Biometric Data Interchange Formats – Part 8: Finger Pattern Skeletal Data | This standard specifies the interchange format for the exchange of pattern-based skeletal fingerprint recognition data. It allows for the extraction of both spectral information (orientation, frequency, phase, etc.) and features (minutiae, core, ridge count, etc.). | 3 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|--|-------------------|--------------------------------|
| Face | ANSI INCITS 385-2004: Face Recognition Format for Data Interchange | This standard specifies definitions of photographic environment, subject pose, focus, properties, digital image attributes, and a face interchange format for relevant applications, including human examination and computer-automated face recognition. | 1 | Published |
| | INCITS (Project 1565-D) 385-2004: Amendment 1: Information Technology – Face Recognition Format for Data Interchange Amendment 1: 3D Face (Version 7.2) | TBD | TBD | Under management review |
| | INCITS Project 1565-M: Information Technology – Face Recognition Format for Data Interchange, Revision 1 | This proposed revision is intended to incorporate the changes to the face recognition format standard that were developed in the course of work on the 3D Face amendment project 1565-D. The changes that have been developed as a separate document should now be incorporated in the text of the standard to produce version 2.0. | 2 | New project proposal |
| | ISO/IEC 19794-5: Biometric Data Interchange Formats – Part 5: Face Image Data | This standard specifies scene, photographic, digitization, and format requirements for images of faces to be used in the context of both human verification and computer-automated recognition. The format is designed to allow for the specification of visible information discernable by an observer pertaining to the face, such as gender, pose, and eye color. | 1 | Published |
| | ISO/IEC 19794-5: Biometric Data Interchange Formats – Part 5: Face Image Data – Amendment 1 – Conditions for Taking Photographs for Face Image Data | This amendment provides expert guidance for the design of photographic studios and photo booths and, as such, it supplements the information provided in the standard and Annex A. It also provides guidance on printing quality and on scanning printed face photographs. | 1 | Final proposed draft amendment |
| | ISO/IEC 19794-5: Biometric Data Interchange Formats – Part 5: Face Image Data – Amendment 2: 3-Dimensional Face Image Data Interchange Format | This amendment of ISO/IEC 19794-5 is intended to establish a data interchange format for storing 3D human face images. To achieve this, several new image types are introduced that are a combination of 2D facial images and associated 3D range information. | 2 | Under development: WD |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|---|-------------------|-----------------------|
| | ISO/IEC 19795-5: Draft Technical Corrigendum 1 to 19794-5, Information Technology – Biometric Data Interchange Formats – Part 5: Face Image Data | Technical Corrigendum to ISO/IEC 19794-5: Biometric Data Interchange Formats – Part 5: Face Image Data | 2 | Under development: WD |
| | INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 5: Conformance Testing Methodology for INCITS 385-2004 Face Image Interchange Format | This project would establish the specifications of the framework, concepts, methodology for testing, and criteria to be achieved to claim conformance to INCITS 385-2004, Information Technology – Face Image Interchange Format. The proposed standard will include specification conformance test procedures and a critical set of test assertions useful to test the conformity requirements of INCITS 385-2004. | 1 | Under development: WD |
| | ISO/IEC Proposed Draft Technical Report 19794-12: Biometric Data Interchange Formats – Part 12: Feature Based Face Recognition | This proposed work item will develop a feature-based interchange format for face identity data that can contain the face identity data extracted by, not only MPEG-7 (video), but also other face recognition technologies. | 3 | NWI |
| Iris | INCITS Project 1576-D: Revision of INCITS 379-2004 – Iris Image Format for Data Interchange | This standard describes a format for exchange of iris image information. It contains a definition of attributes, a data record format, sample records and conformance criteria. Two alternative formats for iris image data are described, one based on a Cartesian coordinate system and the other on a polar coordinate system. | 1 | Under development: WD |
| | ANSI INCITS 379-2004: Iris Image Interchange Format | This standard describes a format for the exchange of iris image information. It contains a definition of attributes, a data record format, sample records, and conformance criteria. Two alternative formats for iris image data are described, one based on a Cartesian coordinate system and the other on a polar coordinate system. | 1 | Published |
| | ISO/IEC 19794-6: Biometric Data Interchange Formats – Part 6: Iris Image Data | This standard specifies two alternative image interchange formats for biometric authentication systems that utilize iris recognition. The first format is based on a rectilinear image storage format, and the second is based on a polar image specification. | 1 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-------------------------|---|---|-------------------|-------------------------|
| | INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 6: Conformance Testing Methodology for INCITS 379-2004: Iris Image Interchange Format | This proposed standard would establish the specifications of the framework, concepts, methodology for testing, and criteria to be achieved to claim conformance to INCITS 379-2004, Information Technology – Iris Image Interchange Format. | 1 | Under development: WD |
| Other Modalities | ANSI INCITS 396-2005: Hand Geometry Format for Data Interchange | This standard specifies an interchange format for the exchange of hand geometry data in a silhouette format. It defines the content, format, and units of measurement for such information. This standard is intended for those identification and verification applications that require the use of an interoperable hand geometry template. | 2 | Published |
| | ISO/IEC Project 19794-10: Biometric Data Interchange Formats – Part 10: Hand Geometry Silhouette Data | This standard specifies a data record interchange format for storing, recording, and transmitting the information from a hand silhouette within a CBEFF data structure. This proposed standard could be used for the exchange of hand geometry data. | 2 | Under development: FDIS |
| | INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 10: Conformance Testing Methodology for INCITS 396:2005 – Hand Geometry Interchange Format | The proposed standard would establish the specifications of the framework, concepts, methodology for testing, and criteria to be achieved to claim conformance to INCITS 396:2005, Information Technology – Hand Geometry Interchange Format. | 2 | Approved project |
| | INCITS Project 1797-D: Keystroke Dynamics Format for Data Interchange | This standard defines a method of representing keystroke dynamics information for the purpose of identifying an individual. It defines the set of data elements used to describe a set of keystrokes or other data input and a record format for containing the keystroke dynamic data. | 3 | Under development: WD |
| | ANSI INCITS 395-2005: Biometric Data Interchange Formats – Signature/Sign Data | This standard specifies a data interchange format for representation of digitized sign or signature data for the purposes of biometric enrollment, verification, or identification through the use of raw signature/sign sample data or common feature data. The data interchange format is generic in that it may be applied and used in a wide range of application areas where electronic signs or signatures are involved. No application-specific requirements or features are addressed in this standard. | 3 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|--|-------------------|-------------------------|
| | ISO/IEC Project 19794-7: Biometric Data Interchange Formats – Part 7: Signature/Sign Time Series Data | This part of ISO/IEC 19794 specifies a concept and data interchange format for dynamic signature/sign behavioral data captured in the form of a time series using devices such as digitizing tablets or advanced pen systems. This part of ISO/IEC 19794 contains definitions of relevant terms, a description of what data are captured, a data format for containing the data alongside examples of record contents, and best practice in capture. | 3 | Under development: FDIS |
| | ISO/IEC Project 19794-11: Biometric Data Interchange Formats – Part 11: Signature/Sign Processed Dynamic Data | This standard specifies a concept and data interchange format for signature/sign dynamic data captured in the form of time series using, <i>e.g.</i> , digitizing tablets or advanced pen devices. The standard contains definitions of relevant terms, a description of what data are captured, a data format for containing the data alongside examples of record contents, and best practice in capture. | 3 | Approved project |
| | ISO/IEC Project 19794-9: Biometric Data Interchange Formats – Part 9: Vascular Image Data | This part of the ISO/IEC 19794 standard specifies an image interchange format for biometric person identification or verification technologies that utilize human vascular biometric images and may be used for the exchange and comparison of vascular image data. | 3 | Under development: FDIS |
| | ISO/IEC New Project Proposal: Biometric Graphic Password | This NWI should be an amendment to the general ISO/IEC SC 37 FCD 19794 standard. Similar to the FCD 19794-7 standard for the handwritten signature, the graphic password is another instance of behavioral hand movements. Unlike the 19794-7 standard addressing signatures made with an electronic pen, this type of signature refers to signatures made with a PC mouse. The biometric graphic password consists of drawn curves that are bestowed with personal behavioral information and features such as velocity, acceleration, curvature, jitter (shaking), and others. | 3 | New project proposal |
| | INCITS Project 1821-D: Speaker Biometrics Format for Data Interchange | This draft standard will define a speaker biometric data interchange format for the exchange of speaker data. The standard will contain a specific definition of the fields of information to be included in the format to effectively communicate about speaker recognition transactions and a data record format for storing and transmitting the speaker | 2 | Under development: WD |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|---|---|--|-------------------|---------------------------|
| | | information and data. | | |
| Multi-Biometrics and Data Interchange Frameworks | ISO/IEC New Project Proposal: Voice Data File Format and Speaker Recognition Format | The scope of this project is to generate two distinct speech data interchange formats for speech recognition. The first format will support raw speech data and the second may include formats for interchange at the feature vector level. The standard specifies a data record interchange format for recording, storing, and transmitting voice information. It defines the content, format, and units of a model for the exchange of voice data that may be used in the verification or identification process of a subject/speaker. The standard also specifies interchange formats for biometric authentication systems that use speaker recognition techniques. | 2 | NWI |
| | INCITS Project 1790-D: Fusion Information Format for Data Interchange | This standard specifies several fusion information records that contain statistical information intended to facilitate interoperable, modular, score-level fusion of biometric systems. | 2 | Under development: WD |
| | INCITS Project 1538-M: BioAPI Specification (Version 1.1) – Amendment 1: Support for Biometric Fusion | This amendment to INCITS 358 adds support for biometric fusion to the standard. It extends the API and the SPI by specifying new functions and new values of existing data types. | 2 | PR |
| | ISO/IEC Draft Technical Report 24722: Multi-Modal and Other Multi-Biometric Fusion | This technical report contains a description and analysis of current practice on multimodal and other multi-biometric fusion, including (as appropriate) references to more detailed descriptions. This technical report also contains a description and explanation of high-level multi-biometric concepts to aid in the explanation of multi-biometric fusion approaches, including multimodal, multi-instance, multi-sensorial, multi-algorithmic, decision level, score level, and alternative fusion logic. | 2 | Under development: DTR |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|---|-------------------|--|
| | ISO/IEC Project 19794-1: Biometric Data Interchange Formats – Part 1: Framework | This part of ISO/IEC 19794 is intended to describe the general aspects and requirements for defining biometric data interchange formats. It defines what is commonly applied for biometric data formats, <i>i.e.</i> , the standardization of the common content, meaning, and representation of biometric data formats of biometric types considered in the specific parts of the multipart standard. | 1 | Under development: FDIS |
| | ANSI/NIST ITL 1-2007: Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo (SMT) Information | This project is a revision of the ANSI/NIST ITL 1-2000 standard. Included in this revision is work to include additional modalities and align the standard with INCITS M1 and international IT and biometric standards. Additionally, this work may include efforts to develop an XML version of this exchange format. | 1 | Under development: work in progress |
| | INCITS Project 1749-D: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 1: Generalized Conformance Testing Methodology | This part of the multi-part standard on data interchange formats conformance testing specifies the concepts, test types, and test methodologies for conformance testing of biometric systems claiming conformance to data interchange format standards produced by INCITS M1. | 1 | PR |
| | ISO/IEC New Project Proposal: Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard | This 12-part international standard will specify conformance testing methods and procedures for implementations of ISO/IEC 19794, including procedures to be followed before, after, and during the test, test results reporting requirements, and a formal assertion language suitable for expressing the details of the conformance of the implementations to the ISO/IEC 19794 requirements. Further, this proposed international standard will provide a set of actual test cases written in that assertion language (test assertions), thus enabling the performance of automated testing and reporting activities the results of which are guaranteed to be repeatable and consistent over multiple implementations of this conformance testing standard (test suites). | 1 | NWI |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|--|-------------------|--------------------------|
| Transmission | FBI Electronic Fingerprint Transmission Specification (v7.1) | The purpose of this document is to specify certain requirements to which agencies must adhere in order to communicate electronically with the FBI's IAFIS. This specification is based on ANSI/NIST ITL 1-2000 and covers the IAFIS electronic transmissions involving fingerprints. | 1 | Published |
| | FBI Electronic Biometric Transmission Specification (v8.0) Electronic Fingerprint Transmission Specification (v7.1) | The FBI's EBTS defines FBI-specific requirements for an ANSI/NIST implementation that agencies must adhere to when electronically communicating with the FBI's IAFIS. The scope of the EBTS has been expanded over previous versions to include additional biometric modalities (<i>e.g.</i> , palm print, face, and iris) in recognition of the rapidly developing biometric identification industry. | 1 | Under development: WD |
| | DoD Electronic Biometric Transmission Specification (v1.2) | This specification is an extension of the FBI Criminal Justice Information Services EFTS that includes transaction types and codes that support requirements for DoD encounters and detainment circumstances. Additionally, the DoD EBTS defines the transmission specification for the transmission of biometric samples for face, fingerprint, and iris modalities. This standard is intended for those applications requiring the exchange of biometric samples and related biographic and contextual data with the DoD ABIS. | 1 | Published |
| | DoD Electronic Biometric Transmission Specification (v1.3) | TBD | 1 | Under development: WD |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|---|-------------------|------------|
| | Global Justice XML Data Model (Global JXDM) | The Global JXDM is an XML standard designed specifically for criminal justice information exchanges, providing law enforcement, public safety agencies, prosecutors, public defenders, and the judicial branch with a tool to effectively share data in a timely manner. The Global JXDM removes the burden from agencies to independently create exchange standards, and, because of its extensibility, there is more flexibility to deal with unique agency requirements and changes. | 1 | Published |
| Technical Interfaces | ANSI INCITS 358-2002: BioAPI Specification (Version 1.1) | This standard provides a high-level generic biometric authentication model suited for any form of biometric technology. It covers the basic functions of enrollment, verification, and identification and includes a database interface to allow a BSP to manage the Identification population for optimum performance. | 1 | Published |
| | ISO/IEC Project 19784-1: BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification | This international standard provides a high-level generic biometric authentication model suited to most forms of biometric technology. No explicit support for multimodal biometrics is currently provided. An architectural model is described that enables components of a biometric system to be provided by different vendors and to interwork through fully defined APIs. | 1 | Published |
| | ISO/IEC Project 19784-1: BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification, Amendment 1: BioGUI Specification | The functionality specified in this amendment enables an application to control the display of graphics at enrollment, verification, and identification as an alternative to using the GUI provided by BSPs. It is expected to better meet the needs of users of biometric applications who wish to have full control of the user interface during enrollment, verification, and identification. | 2 | Final PDAM |
| | ISO/IEC Project 19784-1: BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification, Amendment 2: Framework Free BioAPI | TBD | 2 | NWI |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|---|-------------------|-------------------------------|
| | ISO/IEC Project 19784-2: Biometric Application Programming Interface (BioAPI) – Part 2: Biometric Archive Function Provider Interface | This part of the BioAPI standard specifies the interface to an archive BFP. An archive BFP is responsible for the storage and management of BIRs. | 3 | Published |
| | ISO/IEC Project 19784-3: Biometric Application Programming Interface (BioAPI) – Part 3: BioAPI Lite | This international standard will specify a reduced (but BioAPI-compatible) version of BioAPI. It will enable sensor devices to have a very simple interface to facilitate communication of embedded devices through a BioAPI-compatible interface. | 2 | Under development: WD |
| | ISO/IEC Project 19784-4: Biometric Application Programming Interface (BioAPI) – Part 4: Biometric Sensor Function Provider Interface | This project concerns standardizing the lowest level internal interfaces of BioAPI, where it interfaces with the sensor device. | 2 | Under development: WD |
| | INCITS 429: Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification | This standard specifies the concepts, framework, test methods, and criteria to be achieved for BSPs to claim conformity to the BioAPI specification ANSI INCITS 358-2002. | 1 | PR |
| | ISO/IEC Project 24709-1: Conformance Testing for BioAPI – Part 1: Methods and Procedures | This international standard defines a conformance testing methodology for BioAPI as specified in ISO 19784-1. It specifies three conformance testing models that enable conformance testing of each component of BioAPI (an application, a framework, or a BSP). It also specifies a test assertion language used for the definition of test assertions. Actual test assertions for each of the BioAPIs are defined in subsequent parts of this international standard. | 1 | Under development: publishing |
| | ISO/IEC Project 24709-2: Conformance Testing for BioAPI – Part 2: Test Assertions for Biometric Service Providers | This part of ISO/IEC 24709 defines a number of test assertions written in the assertion language specified in ISO/IEC 24709-1. These assertions enable a user of this part of ISO/IEC 24709 (such as a testing laboratory) to test the conformance to ISO/IEC 19784-1 (BioAPI 2.0) of any BSP that claims to be a conforming implementation of that international standard. | 1 | Under development: publishing |
| | ISO/IEC Project 24709-3: Conformance Testing for BioAPI – Part 3: Test Assertions for BioAPI Frameworks | This part of ISO/IEC 24709 will define a number of test assertions written in the assertion language specified in ISO/IEC 24709-1. These assertions enable a user of this | 2 | NWI |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|---|-------------------|-----------------------|
| | | part of ISO/IEC 24709 (such as a testing laboratory) to test the conformance to ISO/IEC 19784-1 (BioAPI 2.0) of any BioAPI frameworks that claim conformity to that standard. | | |
| | ISO/IEC Project 24709-4: Conformance Testing for BioAPI – Part 4: Test Assertions for Biometric Applications | This part of ISO/IEC 24709 will define a number of test assertions written in the assertion language specified in ISO/IEC 24709-1. These assertions enable a user of this part of ISO/IEC 24709 (such as a testing laboratory) to test the conformance to ISO/IEC 19784-1 (BioAPI 2.0) of any BioAPI applications that claim conformity to that standard. | 2 | NWI |
| | INCITS Project 1829-D: Biometric Application Programming Interface – Java Interfaces | This proposed standard will specify an interface of a Java BioAPI framework and Java BioAPI BSP that will mirror the corresponding components specified in ISO/IEC 19784-1. Therefore, the proposed standard will be nearly identical to ISO/IEC 19784-1, with the only difference being the programming language of the interfaces. | 3 | Under development: WD |
| | INCITS 434 (Project 1832-D) – Tenprint Capture Using BioAPI | This proposed standard provides a mechanism and supplemental guidance on the use of ISO/IEC 19784-1, BioAPI specification, a software interface standard, for the purpose of performing a ten-print fingerprint capture operation. | 1 | PR |
| | ANSI INCITS 398-2005 [NISTIR 6529-A]: Common Biometric Exchange Formats Framework (CBEFF) | This standard describes a set of data elements necessary to support biometric technologies in a common way. These data elements can be placed in a single file used to exchange biometric information between different system components or between systems. The result promotes interoperability of biometric-based application programs and systems developed by different vendors by allowing biometric data interchange. | 1 | Published |
| | INCITS Project 1622-R (398-200x): Common Biometric Exchange Formats Framework (CBEFF) – Revision 1 | This proposed revision will correct alleged technical errors reported in the defect report as M1 document M1/05-0328, as well as other technical errors and modifications noted by users of the standard and clarifications to further help users and developers of these data structures. | 1 | PR |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|---|-------------------|----------------------------|
| | INCITS New Project Proposal: Conformance Testing Methodology for Common Biometric Exchange Formats Framework (CBEFF) Data Structures Specified in INCITS 398-200x Revision 1 (Project 1622-D) | This proposed standard will establish the specification of a conformance testing methodology for the CBEFF data structures specified in INCITS 398:200x Revision 1 (bit/byte encoding). This proposed standard will include a set of test cases that can determine whether data records or implementations producing them conform to the CBEFF standard requirements. It will also include general concepts, conformance testing methods and procedures, test data description and parameters, test results reporting requirements, and other criteria necessary to achieve claim of conformance to the CBEFF standard. | 1 | New project proposal |
| | ISO/IEC Project 19785-1:2006: Common Biometric Exchange Formats Framework – Part 1: Data Element Specification | The CBEFF promotes interoperability of biometric-based applications and systems by specifying standard structures for BIRs and a set of abstract data elements and values that can be used to create the header part of a CBEFF-compliant BIR. The primary purpose of Part 1 of this international standard is to define these abstract data elements. | 1 | Published |
| | ISO/IEC Project 19785-2:2006: Common Biometric Exchange Formats Framework – Part 2: Procedures for the Operation of the Biometrics Registration Authority | This Part of the CBEFF international standard supports such exchanges by providing unambiguous identification of biometric organizations, formats, and products. It specifies the procedures to be followed by the Biometric Registration Authority in preparing, maintaining, and publishing registers of identifiers for biometric organizations, CBEFF patron formats, biometric data block formats, security block formats, and biometric products. | 2 | Published |
| | ISO/IEC Project 19785-3: Common Biometric Exchange Formats Framework – Part 3: Patron Format Specifications | This international standard specifies and publishes registered CBEFF patron formats (see ISO/IEC 19785-1), and specifies their registered CBEFF patron format identifiers (see ISO/IEC 19785-2) and resulting full ASN.1 object identifiers. | 2 | Under development: FDIS |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------------|--|--|-------------------|--------------------------|
| | ISO/IEC Project 24708: BioAPI Interworking Protocol (BIP) | This international project specifies the syntax, semantics, and encodings of a set of messages to enable communication of BioAPI-conformant components installed on different computers. These messages will allow a BioAPI-conforming application to request biometric operations in remote BioAPI-conforming BSPs and to be notified of events originating in those remote BSPs. It also specifies extensions to the architecture and behavior of the BioAPI framework (specified in ISO/IEC 19784-1) that support the creation, processing, sending, and reception of BIP messages. | 1 | Under development: CD |
| | OASIS XML Common Biometric Format (XCBF) 1.1 | This specification defines a common set of secure XML encodings for the patron formats specified in CBEFF (NISTIR 6529). Much of the information included in this standard has been incorporated into a more recent standard, ANSI X9.84-2003. | 3 | Published |
| Application Profiles | NIST SP 800-76.1: Biometric Data Specification for Personal Identity Verification | This document is a companion document to FIPS 201. It describes technical acquisition and formatting specifications for the biometric credentials of the PIV system, including the PIV card itself. The primary design objective behind these particular specifications is high performance universal interoperability. | 1 | Published |
| | ANSI INCITS 383-2004: Biometric Profile – Interoperability and Data Interchange – Biometrics-Based Verification and Identification of Transportation Workers | This standard specifies a biometric profile for transportation workers. It defines a set of base standards and criteria for applying those standards in applications where tokens are used for access control and identification of employees. This standard is intended for use in the transportation industry and other industries where identification and verification of employees is necessary to ensure safety and integrity within the work environment. | 3 | Published |
| | INCITS Project 1566-D: INCITS 383-2004 – Biometric Profile – Interoperability and Data Interchange – Biometrics Based Verification and Identification of Transportation Workers – Revision 1 | This revision will correct technical errors discovered during the publication cycle or during implementation and permit the extension of the existing standard to allow the addition of new technology for this application. | 3 | PR |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|--|-------------------|----------------------------|
| | ANSI INCITS 394-2004: Application Profile for Interoperability, Data Interchange and Data Integrity of Biometric-Based Personal Identification for Border Management | This standard specifies a biometric profile for border management applications. It defines a set of base standards and criteria for applying those standards in applications that use biometrics to authenticate the identity of non-citizens as they enter, stay in, and leave the United States. | 3 | Published |
| | INCITS 421:2001: Biometric Profile – Interoperability and Data Interchange – DoD Implementations | This standard specifies a biometric profile for military applications. It defines a set of base standards and criteria for applying those standards in applications that process and store biometric data on enemy prisoners of war, detainees, internees, and persons of interest with respect to national security. | 1 | Published |
| | ANSI INCITS 422-2007: Application Profile for Commercial Biometric Physical Access Control | This standard specifies a biometric profile for access control applications. It defines a set of base standards and criteria for applying those standards in applications that use biometrics to authenticate the identity of users requesting access to a facility. | 3 | Published |
| | INCITS 420 (Project 1575-D): Biometric Profile – Interoperability and Data Interchange – Point-of-Sale Biometrics-Based Verification and Identification | This standard specifies an application profile for support of identification and verification of consumers at the point of sale through the use of biometric data collected both during a prior enrollment process and at the time of the transaction. The biometric aspects of data formats, biometric enrollment, API and other protocols, and privacy and security are specified. | 3 | PR |
| | ISO/IEC Project 24713-1: Biometric Profiles for Interoperability and Data Interchange – Part 1: Biometric System Reference Architecture | This part of ISO/IEC 24713 is intended to form the reference architecture part of the multipart standard on biometric profiles for interoperability and data interchange. It will describe a schema for the use of a number of biometric standards. This part of ISO/IEC 24713 is to be used as a reference guide for the implementation of a generic biometric system or a profile-standardized system. | 1 | Under development: FDIS |
| | ISO/IEC Project 24713-2: Biometric Profiles for Interoperability and Data Interchange – Part 2: Physical Access Control for Employees at Airports | This part of ISO/IEC 24713 specifies the application profile including necessary parameters and interfaces between function modules (<i>i.e.</i> , BioAPI-based modules and an external interface) in support of token-based biometric identification and verification of employees at local access | 3 | Under development: FCD |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|---|-------------------|--------------------------|
| | | points (<i>i.e.</i> , doors or other controlled entrances) and across local boundaries within the defined area of control in an airport. The token is expected to contain one or more reference biometrics and one or more operational biometrics, or both. This standard includes recommended practices for enrollment, watch list checking, duplicate issuance prevention, and verification of the identity of employees at airports. It also describes architectures and business processes appropriate to the support of token-based identity management in the secure environment of an airport. | | |
| | ISO/IEC Project 24713-3: Biometric Profiles for Interoperability and Data Interchange – Part 3: Biometric Based Verification and Identification of Seafarers | This international standard specifies a biometric profile including necessary parameters and interfaces between function modules (<i>i.e.</i> , BioAPI-based modules and an external interface) in support of biometric identification and verification of seafarers. The domain of applicability may extend to other situations where an interoperable biometrics-based identity document is required, but the main focus is on the use of biometrics on a SID. | 2 | Under development: WD |
| | ILO SID-0002: Finger Minutiae-Based Biometric Profile for Seafarers Identity Documents | This document gives guidelines for incorporation of minutiae-based fingerprint biometric technology into the SID in accordance with the Seafarers Identity Documents Convention (Revised), 2003 (No. 185). | 3 | Published |
| Quality | ISO/IEC Project 29794-1: Biometric Sample Quality Standard – Part 1: Framework | This project will result in a multipart international standard that specifies the derivation, expression, and interpretation of biometric sample quality scores and data and interchange of these scores and data via the multipart ISO/IEC 19794 Biometric Data Interchange Format Standard. In January 2007, WG3 agreed to change the scope of this project, with Part 1 progressing as an international standard and other parts progressing as technical reports. The editor of Part 1 was instructed to incorporate relevant texts from Parts 4 and 5 in the new WD of Part 1. New drafts of Parts 4 and 5 will be prepared by their respective editors. | 1 | Under development: WD |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|--|-------------------|-----------------------|
| | ISO/IEC Project 29794-4: Biometric Sample Quality – Fingerprint Sample Quality (Technical Report) | The purpose of this part of ISO/IEC 29794 is to define and specify methodologies for objective, quantitative quality score expression, interpretation and interchange for fingerprint images. The editor of Part 1 was instructed to incorporate relevant texts from Parts 4 and 5 in the new WD of Part 1. | 1 | Under development: WD |
| | ISO/IEC Project 29794-5: Biometric Sample Quality – Part 5: Face Image Data (Technical Report) | The purpose of this part of ISO/IEC 29794 is to define and specify methodologies for objective, quantitative quality score expression, interpretation and interchange for face images. The editor of Part 1 was instructed to incorporate relevant texts from Parts 4 and 5 in the new WD of Part 1. | 1 | Under development: WD |
| | INCITS Project 1672-D: Biometric Sample Quality Standard | This standard serves to establish terms and definitions that are useful in the specification, use, and test of quality metrics. It also defines the purpose, intent, and interpretation of biometric quality scores. | 1 | Under development: WD |
| Web Services | INCITS Project 1823-D: Biometric Identity Assurance Services (BIAS) | This project defines biometric services used for identity assurance and is invoked over a services-based framework. It is intended to provide a generic set of biometric (and related) functions and associated data definitions to allow remote access to biometric services. | 1 | Under development: WD |
| | OASIS Biometric Identity Assurance Services (BIAS) | This project is identical to INCITS Project 1823-D and was initiated to jointly develop the standard with input from M1 and OASIS. | 1 | Under development: WD |
| Security | ANSI X9.84-2003: Biometric Information Management and Security for the Financial Services Industry | This standard specifies the minimum security requirements for effective management of biometric data. Within the scope of this standard, the following topics are addressed: security for the collection, distribution, and processing of biometric data encompassing data integrity, authenticity, and non-repudiation; management of biometric data across its life cycle; application of biometric technology for internal and external as well as logical and physical access control. | 2 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|--|-------------------|---|
| | ISO/TC68/SC 2 Project 19092-1: Financial Services – Biometrics – Part 1: Security Framework | This international standard describes the security framework for using biometrics for authentication of individuals in financial services. It introduces the types of biometric technologies and addresses issues concerning their application. This part of ISO 19092 also describes the architectures for implementation, specifies the minimum security requirements for effective management, and provides control objectives and recommendations suitable for use by a professional practitioner. | 2 | Published |
| | ISO/TC68/SC 2 Project 19092-2: Financial Services – Biometrics – Part 2: Cryptographic Requirements | This part of the standard describes the syntax of biometric objects and the cryptographic requirements to protect those objects when implementing biometrics for authentication in financial services. Encoding examples are provided. | 2 | Project deleted |
| | ISO/IEC Project 19792: Security Techniques – A Framework for Security Evaluation and Testing of Biometric Technology | This international standards project addresses the specific aspects that shall be considered during a security evaluation or testing process of a biometric verification system. This standard addresses only those aspects of a security evaluation that distinguish biometric systems from IT systems in general. | 2 | Under development: CD |
| | ISO/IEC Project 24745: Security Techniques – Biometric Template Protection | This international standard describes the security techniques for biometric template protection. This standard focuses on privacy enhanced techniques for biometric template generation. | 2 | Under development: WD |
| | ISO/IEC Project 24761: Security Techniques – Authentication Context for Biometrics | This international standards project defines the structure and the data elements of authentication context for biometrics. The structure design is based on the five-sub process model of biometric verification, which consists of data capture, signal processing, storage, comparison, and decision, as well as the concept of biometric process unit, the subject that executes sub process(es) of a biometric verification with a uniform level of security performance. This project also specifies cryptographic syntax that can be used to give biometric enrollment and processing context information to the verifier of biometric verification. | 2 | Under development: Draft International Standard |
| | ITU-T Recommendation X.1081: The Telebiometric Multimodal Model – A Framework for the Specification of Security | This is a framework for the specification of security aspects of telebiometrics. | 2 | Under development: work in progress |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|----------------------------|---|---|-------------------|-----------|
| | Aspects of Telebiometrics | | | |
| | ISO/IEC Project 19784-1: BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification, Amendment 3: Support for Interchange of Certificates and Security Assertions and other Security Aspects | This proposed amendment to ISO/IEC 19784-1 and related standards provides support for requirements identified in the ISO/IEC SC 27 work on ACBio and the ITU-T SG17 work on X.tsm and X.tai. | TBD | NWI |
| Performance Testing | ANSI INCITS 409.1-2005: Biometric Performance Testing and Reporting – Part 1: Principles and Framework | This standard addresses testing the accuracy of identification and verification devices, algorithms, and systems. This part is intended to summarize the other parts of the standard. An overview of the primary testing protocols, biometric applications, and performance metrics is presented. It also provides guidance on data analysis techniques, recording of results, and performance reporting measures available. | 3 | Published |
| | ANSI INCITS 409.2-2005: Biometric Performance Testing and Reporting – Part 2: Technology Testing and Reporting | This standard specifies methods for performance testing of biometric systems and devices. It constitutes a specialization of a biometric testing framework standard in that it is concerned only with the offline use of stored (<i>i.e.</i> , previously captured) biometric samples and not the interaction of human subjects with a biometric sensor. The standard covers: comparative or absolute testing of performance of biometric algorithms, components, or systems; comparison of biometric data sets; prediction of elements of deployed online performance; assessment of performance available from complex data samples including repeated sample and multimodal data. | 3 | Published |
| | ANSI INCITS 409.3-2005: Biometric Performance Testing and Reporting – Part 3: Scenario Testing and Reporting | This standard specifies the requirements for scenario-based biometric testing and reporting. The goal of scenario testing is to determine the overall system performance in a prototype or simulated application. Testing is carried out on a complete system in an environment that models a real-world target application of interest. | 3 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|---|--|-------------------|--|
| | INCITS Project 1602-D: Biometric Performance Testing and Reporting – Part 4: Operational Testing Methodologies | This standard provides the test planning, test execution, and test reporting requirements that must be followed during the biometric system’s operational test. The goal is to determine if the performance of the complete biometric system meets the requirements of that specific application environment for a target population. | 3 | Published |
| | INCITS 409.5 (Project 1602-D): Biometric Performance Testing and Reporting – Part 5: Framework for Testing and Evaluation of Biometric Subsystems for Access Control | This standard specifies a framework for testing and reporting of biometric subsystems used in applications supporting access control. It does not specify application requirements but only specifies the biometric component of the access control system. It specifies the environment in which testing will be performed, including optional testing environments, and the means by which testing will be performed and how the results will be reported. | 3 | Under development: WD |
| | INCITS 409.6 (Project 1602-D): Part 6 – Performance and Interoperability Testing of Implementations Claiming Conformance to Biometric Data Interchange Format Standards | The proposed standard will define tests in which sample data are acquired, processed, exchanged, and matched by several vendors. The standard will establish protocols and metrics for the assessment of performance and interoperability. | 1 | Not withdrawn: no further action will be taken |
| | ANSI Technical Report – Information Technology – Biometric Performance Testing and Reporting – Part 7: Framework for Testing Methodologies for Specific Environments of Biometric Systems | This technical report will describe a framework for testing methodologies for specific environments of biometric systems. | N/A | Revised project proposal draft |
| | ISO/IEC Project 19795-1: Biometric Performance Testing and Reporting – Part 1: Principles and Framework | This part of ISO/IEC 19795 is applicable to empirical performance testing of biometric systems and algorithms through analysis of the matching scores and decisions output by the system without detailed knowledge of the system’s algorithms or of the underlying distribution of biometric characteristics in the population of interest. | 3 | In publication |
| | ISO/IEC Project 19795-2: Biometric Performance Testing and Reporting – Part 2: Testing Methodologies for Technology and Scenario Evaluation | This part of ISO/IEC 19795 provides requirements and recommendations on data collection, analysis, and reporting specific to two primary types of evaluation: technology and scenario. It specifies requirements for development and descriptions of protocols for technology and scenario evaluations. | 3 | Under development: FDIS |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|---|-------------------|---------------------------------|
| | ISO/IEC Proposed Draft Technical Report 19795-3: Biometric Performance Testing and Reporting – Part 3: Modality-Specific Testing | This technical report is intended to describe the variations in testing methodologies due to modality-dependent characteristics. The purpose of this document is to present and define methods for determining how to develop a technical performance test given a specific biometric modality. | 3 | Under development: proposed DTR |
| | ISO/IEC Project 19795-4: Biometric Performance Testing and Reporting – Part 4: Interoperability Performance Testing | This standard defines tests to specifically address absolute performance, sufficiency, and interoperability available from biometric data formatted to comply with established standards, particularly those developed in the various parts of ISO/IEC 19794. However, because this standard references interchange formats generically by referencing only their black box generation and use, it also applies to other open standards. | 2 | Under development: CD |
| | ISO/IEC Project 19795-5: Biometric Performance Testing and Reporting – Part 5: Performance of Biometric Access Control Systems | The purpose of this international standard is to present the requirements and best scientific practices for conducting scenario performance testing and evaluation of biometric devices for access control systems. | 3 | Under development: WD |
| | ISO/IEC Project 19795-6: Biometric Performance Testing and Reporting – Part 6: Testing Methodologies for Operational Evaluation | This standard provides the test planning, test execution, and test reporting requirements that must be followed during the biometric system’s operational test. The goal is to determine if the performance of the complete biometric system meets the requirements of a specific application environment for a target population. A secondary goal is to document the uncontrolled population and environmental parameters that affect system performance (that could be introduced into scenario evaluations to reduce the need for performing costly operational tests). | 2 | Under development: WD |
| | INCITS Technical Report 1627-S: Evaluating Multi-Modal Biometric Systems | Although this was approved as a study project, it has not progressed as a technical report or standard. That work has been rolled in to various other standards, including the SC 37 technical report on multimodal fusion. | 2 | Published |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|--|--|---|-------------------|------------------------------------|
| Other Standards and Normative Documents | ISO/IEC Project 24714-1: Proposed Draft Technical Report on Cross-Jurisdictional and Societal Aspects of Implementation of Biometric Technologies – Part 1: Guide to the Accessibility, Privacy and Health and Safety Issues in the Deployment of Biometric Systems for Commercial Application | This technical report offers guidance on the design and development of systems using biometrics with regard to societal norms and legal requirements in the use of biometric data between different jurisdictions, in particular regarding privacy and personal data protection and the usability of biometrics by the population with regard to health and safety. | 3 | Under development: proposed DTR |
| | ISO/IEC Project 24714-2: Cross-Jurisdictional and Societal Aspects of Implementation of Biometric Technologies – Part 2: Practical Application to Specific Contexts | This document is based on ISO/IEC 24714-1 but provides a more detailed approach to cross-jurisdictional and societal aspects of biometrics. It identifies and analyzes issues with reference to a specified selection of biometric applications. It also attempts to analyze real-world applications on the basis of the same parameters selected for the technologies description. | 3 | Under development: WD |
| | ISO/IEC Draft Technical Report 24741: Biometrics Tutorial | This technical report provides a tutorial on biometrics. It contains a description of the architecture of biometric processes and defines those processes. An annex provides further details of the areas of biometrics standardization that are being progressed by the ISO. Another annex provides a list of vocabulary terms and definitions used in these standards. | 2 | Under development: DTR |
| | ISO/IEC Project 24779: Pictograms, Icons and Symbols for use with Biometric Systems | TBD | 3 | Under development: WD |
| | ISO/IEC SC 37 Standing Document 2, version 5: Harmonized Biometric Vocabulary | The purpose of this document is to provide a systematic description of the concepts in the subject field of biometrics and to clarify the use of the terms in this subject field. The compilation of this vocabulary provides a forum for analyzing, discussing, and coordinating key concepts found in ISO/IEC JTC 1/SC 37 standards. | 2 | Under development: WD |

| Category of Standards | Standard Name | Description | Proposed Priority | Status |
|-----------------------|--|--|-------------------|------------------------------|
| | INCITS M1 Standing Document 4 (SD4): Report on Issues for Harmonizing Conformity Assessment to Biometric Standards | This report identifies and defines the types of activities that may occur in conformity assessment schemes. It also discusses various kinds of biometric standards that M1 could develop for use in biometric standards-based conformance testing programs. It provides guidance on a generalized taxonomy for conformance testing methodology standards, recommendations to M1 on best practices for supporting conformance testing to biometric standards, and suggestions for harmonizing biometric standards-based conformance testing programs. | 2 | Published: standing document |
| | ISO/IEC 7816-11:2004: Identification Cards – Integrated Circuit Cards – Part 11: Personal Verification through Biometric Methods | This international standard specifies the use of inter-industry commands and data objects related to personal verification through biometric methods in integrated circuit cards. The inter-industry commands used are defined in ISO/IEC 7816-4. The data objects are partially defined and partially imported from ISO/IEC 19785-1. This standard also presents examples for enrollment and verification and addresses security issues. | 3 | Published |
| | ISO/IEC Project 18013-2: Personal Identification – ISO-Compliant Driving License – Part 2: Machine-Readable Technologies | The purpose of this project is to produce a standard for an ISO-compliant, machine-readable, driving license. Most of SC 37 comments from the New Zealand meetings were related to terminology used in the draft standard. | 3 | Under development: FCD |