



BIOMETRICS
TASK FORCE

**Biometrics Task Force
Standards Status and Activities Update
March - May 2007**

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1. 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:

2. Accomplishments

Biometric Standards Sponsored by the BTF

The following two tables contain a summary, detailed status, and a recent timeline of the national and international biometric standards 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: Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification	NIST, BTF	Publishing	
ISO/IEC 24709-1: Conformance Testing Methodology for BioAPI – Part 1: Methods and Procedures	BTF	Published	Publicly available from the INCITS Web site
ISO/IEC 24709-2: Conformance Testing Methodology for BioAPI – Part 2: Test Assertions for Biometric Service Providers	BTF	Published	Publicly available from the INCITS Web site
INCITS 423.4: Conformance Testing Methodology for INCITS 381, Finger Image Data Interchange Format	BTF	Publishing	
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

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Detailed Status and Timeline

Sponsored Standard Status Timeline	Action Items	References
<p>INCITS 429: Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification</p> <p>31 Oct 06: 30-day LB issued.</p> <p>12 Jan 07: In PR on INCITS Web site.</p> <p>May 07: This standard is being published after editor’s review.</p>	<p>None</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 24709-1: Conformance Testing Methodology for BioAPI – Part 1: Methods and Procedures</p> <p>15 Jun 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>Feb 07: Published.</p>	<p>None</p>	<p>SC 37 N1547 – Text for FDIS ballot</p> <p>M1/06-0441 – Call for Comments</p>
<p>ISO/IEC 24709-2: Conformance Testing Methodology for BioAPI – Part 2: Test Assertions for Biometric Service Providers</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>Feb 07: Published.</p>	<p>None</p>	<p>M1/06-0825 – U.S. NB votes “yes” on imminent SC 37 ballot.</p>
<p>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</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>May 07: This standard is being published after editor’s review.</p>	<p>Editor (BTF) to address PR comments</p>	<p>M1/07-0178 – Editor’s Proposed Response to PR Comments</p> <p>M1/07-0234 – ANSI’s Editor Queries</p> <p>M1/07-0235 – M1 Editor’s Proposed Disposition to Queries</p>

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Sponsored Standard Status Timeline	Action Items	References
<p>INCITS 421 American National Standard for Information Technology – Biometric Profile – Interoperability and Data Interchange DoD Implementations; formerly “INCITS Project 1676-D”</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>

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Recent BTF Technical Contributions

The following table lists BTF technical contributions on biometric standards development projects. These contributions, prepared by the Standards Team with government oversight, contain technical content and editorial comments. BTF often coordinates the development of technical contributions with interagency partners from the BSWG including DHS and NIST.

Technical Contribution	Document	Date
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	M1/07-0236	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
Editor’s proposed response to Comments on INCITS 423.4 – Information Technology – Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 4: Conformance Testing Methodology for INCITS 381, Finger Image-based Data Interchange Format	M1/07-0178	2 Mar 07
BTF Response to M1 Editor’s Proposed Disposition to Queries on 423.4	M1/07-0235	27 Feb 07
TG Approved Disposition of Public Review Comments on INCITS Project 1575-D: Biometric Profile – Interoperability and Data Interchange Point-of-Sale Biometrics-Based Verification and Identification	M1/07-0067	17 Apr 07
U.S. Army BTF Letter Ballot Comments on Project 1564-D: Revision to INCITS 378-2004 – Finger Minutiae Format for Data Interchange	N/A	14 Mar 07
U.S. Army BTF Letter Ballot Comments on Project 1790-D: Biometric Fusion Data Format	N/A	14 Mar 07
U.S. Army BTF Letter Ballot Comments on Project 1576-D: Revision to INCITS 379-2004 – Iris Image Format for Data Interchange	N/A	14 Mar 07
Joint DHS/BTF Technical Contribution on CBEFF Biometric Data Quality field	M1/07-0316	2 May 07
Editing Instructions for INCITS 423.4 after Public Review	N/A	4 May 07

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3. Current Issues

Recent Letter Ballots

The following table lists the status of recent M1 LBs circulated to 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. The BTF consolidates BSWG member comments, in coordination with government personnel, before submitting to M1.

LB Subject	Due Date/ Status	References	Proposed Vote
Forwarding the revised draft of Project 1563-D: Revision to INCITS 377-2004 – Finger Pattern Format for Data Interchange to INCITS for PR	8 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	5 Mar 07	http://fingerprint.nist.gov/standard/index.html	Affirmative without comment
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	No with comments
Forwarding the Project 1790-D: Biometric Fusion Data Format to INCITS for PR	15 Mar 07	M1/07-0033	Yes with comments
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 with comments
Forwarding Project 1672-D: Biometric Sample Quality Standard	8 Mar 07	M1/07-0034	No with comments
Forwarding INCITS Project 1823-D: Biometric Identity Assurance Services (BIAS) to INCITS for public review	18 May 07	M1/07-0198 M1/07-0311	Yes
Forwarding Project 1790-D: Biometric Fusion Data Format to INCITS for public review	18 May 07	M1/06-0999 M1/07-0313	Yes
Special Assessment to M1 Members for the Hosting of the January 2009 ISO/IEC JTC 1/SC37 Working Group Meetings	18 May 07	M1/07-0312	Yes, Platinum sponsor

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Standards in Public Review

The following table lists the status of M1 draft standards currently in the PR stage. Based on availability of resources, the BTF selectively reviews some of the standards in coordination with other US government organizations including NIST and DHS, 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
INCITS 358:2002 AM 1, Information Technology – BioAPI Specification Amendment 1: Support for Biometric Fusion (Version 1.1)	21 May 07
INCITS 434 Ten-print Capture using BioAPI	28 May 07
U.S. adoption of ISO/IEC 19794-1:2006 Biometric Data Interchange Formats – Part 1: Framework	28 May 07
U.S. adoption of ISO/IEC 19794-2:2005 Biometric Data Interchange Formats – Part 2: Finger Minutiae Data	28 May 07
U.S. adoption of ISO/IEC 19794-3:2006 Biometric Data Interchange Formats – Part 3: Finger Pattern Spectral Data	28 May 07
U.S. adoption of ISO/IEC 19794-4:2005 Biometric Data Interchange Formats – Part 4: Finger Image Data	28 May 07
U.S. adoption of ISO/IEC 19794-5:2005 Biometric Data Interchange Formats – Part 5: Face Image Data	28 May 07
U.S. adoption of ISO/IEC 19794-6:2005 Biometric Data Interchange Formats – Part 6: Iris Image Data	28 May 07
U.S. adoption of ISO/IEC 19794-9:2007 Biometric Data Interchange Formats – Part 9: Vascular Biometric Image Data	28 May 07
U.S. adoption of ISO/IEC 19795-1:2006 Biometric Performance Testing and Reporting – Part 1: Principles and Framework	28 May 07

4. Upcoming Issues and Events

Recent and Upcoming Standards Body Meetings

Standards Body	Date and Location of Meeting
OASIS (Organization for the Advancement of Structured Information Standards) – Biometric Identity Assurance Services (BIAS) TC	#13: 28 Mar 07 #14: 18 Apr 07 #15: 16 May 07 #16: 13 Jun 07 #17: 18 Jul 07
Ad Hoc Group on Biometrics in E-Authentication (AHGBEA)	19 March 07, Pasadena, Calif.
INCITS M1 Plenary and Task Groups	19-23 March 07, Pasadena, Calif.
INCITS M1 Plenary and Task Groups	4-8 June, Jupiter, Fla.
JTC 1/SC 37 Working Groups	18-26 June 07, Berlin, Germany
SC 37 WG2 Special Group on ACBio (Information Technology) – Security Techniques – Authentication Context for Biometrics	28 March 07

Interagency and Outside Coordination

Agency or Department	Date or Frequency of Meetings
National Science and Technology Council (NSTC) and the National Counter Terrorism Center (NCTC): Standards and Conformance Assessment (SCA) Working Group (WG)	23 February 07 13 April 07 04 May 07
Identity Protection & Management Conference 2007	16-20 April 07
PEO-EIS Preliminary Design Review of NGEA	17 April 07
DoD Data Sharing Community of Interest (COI)	20 April 07
PM Family of Systems (FOS) System Requirements Review (SRR)	8 and 10 May 07
DoD IT Standards Registry (DISR), Information Assurance (IA) Security, Information Assurance,	14 May 07

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Cryptology, and Biometrics (SIAC) Technical Working Group (TWG)	
National Science and Technology Council (NSTC), Subcommittee on Biometrics	Bi-monthly
Department of Homeland Security (DHS) Interoperability Integrated Project Team (IDENT/IAFIS)	Weekly (work on iDSM complete; work on IOC pending)
DHS US-VISIT Unique Identity Technical Working Group	Weekly
DHS Biometric Coordinating Group	Bi-monthly
DHS Strategy and Policy Team	Bi-weekly

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/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.	Submit as mandated standard for next review cycle
	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

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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 area 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.	Under review by DISR IA TWG
	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

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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.
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.	Resubmit as emerging standard for next review cycle
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.	Approved for inclusion in next baseline
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 vendors by allowing biometric data interchange.	Mandated standard

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Category of Standards	Standard Name	Description	DISR Status
	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.	Approved for inclusion in next baseline
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
	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

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Category of Standards	Standard Name	Description	DISR Status
Conformance Testing	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.	Under review by BSWG
	ISO/IEC 24709-2: Conformance Testing Methodology 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.	Under review by BSWG

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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
M1/07-0155	Info Only	M1.3	DHS Comments on 423.1
M1/07-0156	7 Mar 07	M1.3	Call for comment and contributions toward SC37 Biometrics Quality Standards and Test Reports
M1/07-0158	Info Only	M1.5	5 th Draft of Project 1602D-5
M1/07-0160	Info Only	M1.3	DHS comments on 423.2
M1/07-0162	Info Only	M1.3	DHS comments on 423.4
M1/07-0163	Info Only	M1.3	Cross Match contribution toward adoption of 19794-X
M1/07-0164	19 Mar 07	M1/M1.5	Call for comments on proposed NWI for 19795-7
M1/07-0166	Info Only	M1.3	Transaction security comments toward adoption of 19794-7
M1/07-0167 M1/07-0167rev	Info Only	M1.3	Noblis comments toward adoption of 19794-5
M1/07-0169	Info Only	AHGBEA	Application Profile – Interoperability and Data Interchange – Biometrics for E-Authentication
M1/07-0174	14 Mar 07	M1.4	Call for review and comment on issues list for 24713-1, Biometric Profiles for Interoperability and Data Interchange Part 1: Overview of Biometric Systems and Biometric Profiles (see SC 37 N 1935 recommendation 4.4)
M1/07-0200	19 Mar 07	M1.3	Call for contribution toward FDIS on 19794-7
M1/07-0201	19 Mar 07	M1.3	Call for contribution toward FDIS 19794-10
M1/07-0206	Info Only	M1.2	Liaison comments from OASIS on BIAS Revision 4
M1/07-0207	Info Only	M1.2	INCITS 1829: BioAPI Java, Draft 0
M1/07-0235	Info Only	M1.3	M1 editor's proposed disposition to queries on 423.4
M1/07-0247	Info Only	M1.3	U.S. National Body vote toward DNA Project
M1/07-0264	18 May 07	M1.3	Call for contribution toward Uniform Metadata in Data Interchange Formats
M1/07-0265	18 May 07	M1.3	Call for contributions clarifying Polar Representation for Iris
M1/07-0266	18 May 07	M1.3	Call for contributions toward Representing Quality for Multiple Views of a Biometric
M1/07-0269	18 May 07	M1.3	Call for contributions toward Speaker Format
M1/07-0270	18 May 07	M1.3	Call for contributions toward Finger Minutia Revision
M1/07-0271	18 May 07	M1.3	Call for contributions toward Finger Image Revision
M1/07-0272	18 May 07	M1.3	Call for contributions toward Face Image Revision
M1/07-0273	18 May 07	M1.3	Call for contributions toward Iris Image Revision
M1/07-0274	18 May 07	M1.3	Call for contributions toward Face Conformance Standard
M1/07-0275	18 May 07	M1.3	Call for contributions toward Iris Conformance Standard
M1/07-0276	18 May 07	M1.3	Call for contributions toward Hand Geometry Conformance Standard
M1/07-0278	4 May 07	M1.2	Call for contributions to INCITS Project 1853-D: Conformance Testing Methodology for CBEFF Data

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Document	Due Date	TC/TG	Comments
			Structures
M1/07-0279	4 May 07	M1.2	Call for contributions to INCITS Project 1829-D: BioAPI – JAVA Interfaces
M1/07-0305	Info Only	M1.3	U.S. contribution toward International Speaker Recognition Format
M1/07-0310	Info Only	M1.2	2 nd call for comments to the OASIS BIAS Messaging Protocol Documents
M1/07-0314	24 May 07	M1.5	Call for comments on FCD 19795-4
M1/07-0127	Info Only	M1.3	Revised draft of Finger Pattern Revision
M1/07-0182	Info Only	M1/M1.4	Biometric Profile – Interoperability and Data Interchange Point-of-Sale Biometrics-Based Verification and Identification – 18 th draft
M1/07-0198	Info Only	M1/M1.2	BIAS Revision 5, text for second LB
M1/07-0207	Info Only	M1.2	INCITS 1829: BioAPI Java, Draft 0
M1/07-0237	Info Only	M1.2	Ten-print capture using BioAPI, Draft 5
M1/07-0320	18 May 07	M1.3	Call for contributions toward Finger Pattern Conformance
M1/07-0321	18 May 07	M1.3	Call for contribution toward Finger Pattern Revision
SC 37 N1948	8 May 07	WG3	Text of ISO/IEC 19795-5, Biometric Performance Testing and Reporting – Part 5: Scenario Evaluation of Biometric Access Control Systems
SC 37 N1949	8 May 07	WG2	Text of WD 19785-4, Common Biometric Exchange File Formats Framework – Part 4: Security Block Format Specifications
SC 37 N1953	9 May 07	WG3	Text of ISO/IEC 19794-5/PDAM 2, 3-Dimensional Face Image Data Interchange Format
SC 37 N1962	7 May 07	WG6	Text of WD 24779, Cross-Jurisdictional and Societal Aspects of Implementation of Biometric Technologies – Pictograms, Icons and Symbols for use with Biometric Systems
SC 37 N1970	9 May 07	WG3	Call for NB contributions on draft technical corrigendum to 19794-2, use of 19794-2 card format both with and without record header
SC 37 N1977	8 May 07	WG3	Text of WD 29794-5, Biometric Sample Quality – Part 5: Face Image Data Sample Quality
SC 37 N1978	7 May 07	WG6	Text of WD 24714-2, Cross-Jurisdictional and Societal Aspects of Implementation of Biometric Technologies – Part 2: Practical Application to Specific Contexts
SC 37 N1985	11 May 07	WG6	Text of ISO/IEC PDTR 24714-1, 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 Applications
SC 37 N1990	18 May 07	WG3	Text of DCOR 1 to ISO/IEC 19794-8, Biometric Data Interchange Format – Part 8: Finger Pattern Skeletal Data – Draft Technical Corrigendum 1
SC 37 N1997	29 June 07	WG4	Text of ISO/IEC FCD 24713-2, Biometric Profiles for Interoperability and Data Interchange – Part 2: Physical Access Control for Employees at Airports

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Document	Due Date	TC/TG	Comments
SC 37 N1998	29 June 07	WG2	Text of ISO/IEC FCD 24708, BioAPI Interworking Protocol
SC 37 N2004	3 June 07	SC 37	Proposal for NWI on Information Technology – Machine Readable Test Data for Biometric Testing and Reporting
SC 37 N2009	14 July 07	SC 37	Text of ISO/IEC FCD 19795-4, Biometric Performance Testing and Reporting – Part 4: Interoperability Performance Testing
SC 37 N2019	8 May 07	WG4	Text of 3 rd WD 24713-3, Biometric Profiles for Interoperability and Data Interchange – Part 3: Biometric Based Verification and Identification of Seafarers

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Other BTF Activities

Activities	Status	Dates	Notes
Development of FIQM Methodology and Toolset	Development of the algorithm, toolset, and documentation is completed. Based on feedback from the FIQM users, and possible large-scale testing of the toolset, will consider updates/enhancements.		The FIQM algorithm appeared in the Journal of Forensic Identification, 4-10 May 06.
Development of FaceQM Methodology and Toolset	Development of the initial version (toolset prototype) is completed. Development of an enhanced algorithm is completed. Development of the final version of the toolset is ongoing.	Estimated end of June 07	BTF Standards Team performed an initial quality analysis of a distribution of facial images from the DoD ABIS database to identify requirements for future enhancements.
Distribution of FIQM and Prototype FaceQM	Briefed and delivered copies of both toolsets to BFC and Naval Innovation Lab (NaIL). BTF received formal requests for copies of one or both tools from CENTCOM J2, Louisiana State University, and the Orange Co. Sheriff-Coroner Dept. in Santa Ana, Calif.	BFC on 13 & NaIL on 20 Apr 07	POC: Keith Andreano
Monitor publications and advancements within SC 37 and M1 regarding quality measurement methodology	Ongoing	Ongoing	POC: Dr. Bob Yen
DoD EBTS Version 2.0	Under development	Estimated release date: 3Q 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 revision
BTF to profile use of Biometric Security Standard X9.84 for use in "Application Profile for Point-of-Sale Biometric Verification/Identification"	Completed and submitted to M1	16 Apr 07	POC: Dale Hapeman
<u>Presentation of Voice Biometric JCTD Candidate</u> – Coordinate Operational Resources for Voice Exploitation and Technology (CORVET).	CORVET is a JCTD candidate.	27 Feb 07, PM Offices	POC: Benji Hutchinson

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Biometric Identification Cluster Group (hosted by Noblis, Falls Church, Va.) – Mr. Guy Swope, Senior Biometrics Architect for Raytheon Information Systems, presented “A Service Oriented Architecture (SOA) Approach to Large Scale Biometric System Design”	These seminars are re-occurring and hosted by Noblis.	14 Mar 07	POC: Dr. Bob Yen
Preparation of Summary Document for “Face Recognition Vendor Test (FRVT) 2006 and the Iris Challenge Evaluation (ICE) Large-Scale Results Evaluation Report”	BTF Standards Team reviewed and prepared a summary document to summarize and explain the test results released by NIST.	9-13 Apr 07	POC: Keith Andreano
Biometric Identification Cluster Group (hosted by Noblis, Falls Church, Va.) – Mr. Ron Sutton, Senior Manager for BearingPoint, presented “Doddingon’s Zoo and Fingerprint System Security”	These seminars are re-occurring and hosted by Noblis.	19 Apr 07	POC: Dr. Bob Yen
NIST Seminar hosted by Global Bionic Optics: Dr. Philip Wasserman, Director of R&D for Global Bionic Optics, presented “Increased Depth of Field for Forensic Biometric Imaging”	The BTF Standards Team will continue to participate in further NIST seminars as needed.	18 Apr 07	POC: Dr. Bob Yen
BTF article titled “Fingerprint Image Quality Measurement Algorithm” (Mar/Apr 2007 Journal of Forensic Identification) is listed in the National Criminal Justice Reference Service site (Administered by the Office of Justice Programs, U.S. Department of Justice) http://www.ncjrs.gov/App/Publications/Abstract.aspx?id=239295	Info Only	18 Apr 07	POC: Dr. Bob Yen
A reference was added to the DHS Biometric Coordinating Group, Community Knowledge Center, for DoD work by Robert Yen and Joseph Guzman on the subject of biometric quality (“Fingerprint Image Quality Measurement Algorithm”) that was published in the Journal of Forensic Identification, Vol.57, No.2, Mar/Apr 2007, p. 274-288.	Info Only	23 April 07	POC: Dr. Bob Yen
BTF Standards Status and Activities Update	Published	29 May 2007	Co-editors: Mr. Gregory Zektser & Mr. Benji Hutchinson

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BTF Standards Team Activities POCs

The following tables list BTF activities and the personnel assigned to each, along with the corresponding contact information.

Activities and Points of Contact

Activity	Standards Team POC
<u>Standards Bodies Participation and Standards Development</u>	
INCITS M1 – Technical Committee on Biometrics (voting member, membership issues)	Mr. Arun Vemury
INCITS M1 – Technical Committee on Biometrics (LBs, PRs, other voting issues and positions)	Mr. Gregory Zektser
INCITS M1.2 – TG on Biometric Technical Interfaces (voting member)	Mr. Dale Hapeman
INCITS M1.3 – TG on Biometric Data Formats (voting member)	Mr. Gregory Zektser
INCITS M1.4 – TG on Biometric Application Profiles (voting member)	Mr. Dale Hapeman
INCITS M1.5 – TG on Biometric Performance Testing (voting member)	Mr. Gregory Zektser
INCITS M1.6 – TG on Cross Jurisdictional and Societal Issues (voting member)	Mr. Benji Hutchinson
OASIS (Organization for the Advancement of Structured Information Standards) – Biometric Identity Assurance Services (BIAS) Technical Committee (TC)	Mr. Dale Hapeman
ISO/IEC JTC 1/SC 37 – WG2 on Biometric Technical Interfaces (member of U.S. experts delegation)	Mr. Gregory Zektser
ISO/IEC JTC 1/SC 37 – WG3 on Biometric Data Formats (member of U.S. experts delegation)	Mr. Gregory Zektser
NIST Revision of ANSI/NIST ITL-1 2000 (voting member, chair of CBEFF WG)	Mr. Dale Hapeman
INCITS M1 AHGBEA	Mr. Dale Hapeman
Development of DoD-sponsored standards at INCITS M1 and JTC 1/SC 37	Mr. Gregory Zektser
EBTS Configuration Management	Mr. Gregory Zektser
EBTS Development	Mr. Dale Hapeman
U.S. Expert Delegation to ISO/IEC JTC 1/SC 37	Mr. Gregory Zektser Mr. Dale Hapeman
JTC 1/SC 37 WG3 SG on Conformance Issues Related to Data Interchange Formats (CIRDIF)	Mr. Gregory Zektser
JTC 1/SC 37 WG3 SG on Common Data Format Headers	Mr. Gregory Zektser

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Activity	Standards Team POC
<u>DoD and USG Standards Coordination</u>	
NSTC Subcommittee on Biometrics – Standards and Conformance ICP (Chaired by BTF Director)	Mr. Arun Vemury
DoD BSWG (Chair)	Mr. Arun Vemury
DoD BSWG (Secretary)	Mr. Benji Hutchinson
DISR IA TWG	Mr. Arun Vemury
DHS Biometric Coordinating Group	Mr. Arun Vemury
DHS Strategy and Policy Team	Mr. Benji Hutchinson
IDENT/IAFIS Interoperability IPT	Mr. Arun Vemury
<u>DoD Standards Support</u>	
Standards Support to DoD ABIS	Mr. Dale Hapeman
Standards Support to DoD Data Sharing COI	Mr. Dale Hapeman Mr. Arun Vemury Mr. Benji Hutchinson
Standards Support to Requirements WIPT	Mr. Benji Hutchinson
Standards Support to Architecture WIPT	Mr. Benji Hutchinson
Standards Support to Policy WG	Mr. Benji Hutchinson
<u>Tools Development & Support</u>	
BioAPI Conformance Testing Suite	Mr. Arun Vemury
FIQM Tool	Dr. Bob Yen
FaceQM Tool	Dr. Bob Yen

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5. Annexes

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
COI – Community of Interest
CORVET - Coordinate Operational Resources for Voice Exploitation and Technology
CR – change request
DCOR - Draft Corrigendum
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
FOS – Family of Systems
FRVT – Face Recognition Vendor Test
GUI – graphical user interface
IA – information assurance
IAFIS – Integrated Automated Fingerprint Identification System
ICE – Iris Challenge Evaluation
ICP – interagency coordination plan
iDSM – interim data sharing model
IEC – International Electrotechnical Commission
INCITS M1 – InterNational Committee for Information Technology Standards

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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
JCTD – Joint Capability Technology Demonstration
JTC 1/SC 37 – Joint Technical Committee 1/Subcommittee 37
JXDM - Justice XML Data Model
LB – letter ballot
M1 – see INCITS M1
NaIL – Naval Innovation Laboratory
NB – national body
NCTC – National Counter Terrorism Center
NGEA – Next Generation Enterprise ABIS
NIEM – National Information Exchange Model
NIST – National Institute of Standards and Technology
NISTIR – NIST interagency report
NSTC – National Science and Technology Council
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
SCA – Standards and Conformance Assessment
SD – standing document
SG – special group
SIAC – Security, Information, Assurance, Cryptology, and Biometrics
SID – Seafarers Identity Document
SMT – scar, mark, and tattoo
SOA – Service Oriented Architecture
SP – special publication
SPI – service provider interface
SRR – System Requirements Review
TC – technical committee
TG – task group
TWG – technical working group
TWPDES – Terrorist Watchlist Person Data Exchange
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

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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 body 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.	1	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

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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 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	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	In publication
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

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Category of Standards	Standard Name	Description	Proposed Priority	Status
	INCITS 423.2: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 2: Fingerprint Minutiae 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	In publication
	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 423.3: 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

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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	This is an amendment to INCITS 385-2004, Information Technology – Face Recognition Format for Data Interchange. The amendment defines a new version of the data format that enables optional storage of 3D face data in addition to regular 2D photo image. Backward compatibility is provided.	1	In publication
	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 discernible 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

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Category of Standards	Standard Name	Description	Proposed Priority	Status
	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
	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	On hold
	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

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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	This 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	Project withdrawn
	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

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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

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Category of Standards	Standard Name	Description	Proposed Priority	Status
		information and data.		
	ISO/IEC New Project Proposal 19794-13 (N1733): 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
Multi-Biometrics and Data Interchange Frameworks	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 Multimodal 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	In publication
	ISO/IEC Final Text 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	In publication

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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	Published
	ANSI/NIST ITL 1-2007: Data Format for the Interchange of Fingerprint, Facial, and 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	Published
	INCITS 423.1: 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	In publication
	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

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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 (e.g., 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)	Currently, outstanding DoD EBTS CRs include minor corrections, definitions for additional personnel types, and the ability to provide responses that indicate the results of searching more than one database. Version 2.0 of the DoD EBTS will be reworked to align with capabilities provided by the new version of ANSI/NIST-ITL 1-2000 and the ongoing revisions to the FBI EFTS.	1	Under development: WD

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	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
	National Information Exchange Model (NIEM)	NIEM is a partnership of the U.S. Department of Justice and the Department of Homeland Security. It is designed to develop, disseminate and support enterprise-wide information exchange standards and processes that can enable jurisdictions to effectively share critical information in emergency situations, as well as support the day-to-day operations of agencies throughout the nation. NIEM enables information sharing, focusing on information exchanged among organizations as part of their current or intended business practices. The NIEM exchange development methodology results in a common semantic understanding among participating organizations and data formatted in a semantically consistent manner. NIEM will standardize content (actual data exchange standards), provide tools, and managed processes. NIEM builds on the demonstrated success of the Global Justice XML Data Model. Stakeholders from relevant communities work together to define critical exchanges, leveraging the successful work of the GJXDM. Convergence of GJXDM and NIEM is at GJXDM 4.0/NIEM 1.1 (slated for Q2 07)	TBD	Published

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	Terrorist Watchlist Person Data Exchange (TWPDES)	This standard provides a data exchange format for terrorist watch list data that supports the Department of State, Department of Justice, Intelligence Community under the Director of Central Intelligence, and the Department of Homeland Security. The purpose is to develop and maintain, to the extent permissible by law, the most thorough, accurate, and current information possible about individuals known or appropriately suspected to be or have been involved in activities constituting, in preparation for, in aid of, or related to terrorism.	TBD	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:	TBD	2	NWI

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Category of Standards	Standard Name	Description	Proposed Priority	Status
	Framework Free BioAPI			
	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	In publication
	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	Published
	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	Published

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Category of Standards	Standard Name	Description	Proposed Priority	Status
	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 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.	2	NWI
	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

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	<p>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)</p>	<p>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.</p>	1	New project proposal
	<p>ISO/IEC Project 19785-1:2006: Common Biometric Exchange Formats Framework – Part 1: Data Element Specification</p>	<p>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.</p>	1	Published
	<p>ISO/IEC Project 19785-2:2006: Common Biometric Exchange Formats Framework – Part 2: Procedures for the Operation of the Biometrics Registration Authority</p>	<p>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.</p>	2	Published
	<p>ISO/IEC Project 19785-3: Common Biometric Exchange Formats Framework – Part 3: Patron Format Specifications</p>	<p>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.</p>	2	Under development: FDIS

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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	In publication

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	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

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		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 biometric and one or more operational biometric, 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

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	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

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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

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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

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	ANSI INCITS 409.4-2006: 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	On hold
	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	Project withdrawn
	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	Under development: WD
	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	In publication

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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: 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
	ISO/IEC Project 19795-7: Biometric Performance Testing and Reporting – Performance Test Report using XML	TBD	TBD	Proposed NWI
	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

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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	This standard specifies a family of icons and symbols used in association with devices for biometric registration, verification, and/or identification. The purpose of the specified icons is for display on visual display screens. Symbols are printed on signs and on cases or keytops and buttons of terminal equipment.	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

U.S. Army Biometric Standards and Activities Status Update
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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: SD
	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