



BIOMETRICS
TASK FORCE

**Biometrics Task Force
Biometric Standards Development
Status Update
February - May 2008
Version 1.0**

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1. Summary

This document contains a comprehensive update of the adoption and development status of biometric standards of high priority to the Department of Defense (DoD). The first table in this document provides the status of approved and proposed national and international biometric standards that are either included or are planned for inclusion in the DoD Defense Information Technology Standards Registry (DISR). This document also lists the current status of all biometric standards development projects within various biometric standards development bodies and committees.

This document will be updated on a regular basis by the Biometrics Task Force Standards Team, 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. Biometric Standards Adoption Progress

The following table displays the status of approved and proposed national and international biometric standards that are either included or are planned for inclusion in the DoD 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.

Accepted Biometric Standards in DISR Baseline 08-0.2

The next DISR Baseline 08-0.2, to be published 14 July 2008, may include the following six biometric standards.

Standards Category	Standard Name	Description	Accepted DISR Status
Technical Interface	ISO/IEC 19784-1:2006/Amd.1:2007: BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification, Amendment 1: BioGUI Specification	This amendment adds BioAPI Graphical User Interface (BioGUI) to BioAPI 2.0. The BioGUI functionality enables an application to control the Graphical User Interface (GUI) as an alternative to using the GUI provided by Biometric Service Providers (BSPs).	Emerging
	ANSI INCITS 358:2002 AMENDMENT 1:2007 BioAPI Specification (Version 1.1)	This Amendment to ANSI INCITS 358-2002 adds support for biometric fusion to the standard. This amendment extends the API and the SPI of BioAPI by specifying new functions and new values for existing data types.	Mandated
Transmission	Department of Justice Federal Bureau of Investigation Electronic Biometric Transmission Specification (EBTS) version 8.002	The FBI CJIS Division is moving toward a system that will contain a complete biometric and biographic profile of the subject records in its databases. It is also the FBI's intent to move toward a capability that will facilitate multimodal biometric searching of its databases. The FBI EBTS v8.002 document describes the technical specifications for the submission of the additional biometric modalities to provide this future multimodal biometric search capability.	Emerging
Face	ISO/IEC 19794-5:2005 AMENDMENT 1:2007 Biometric data interchange formats - Part 5: Face image data AMENDMENT 1	The purpose of this amendment is to provide expert guidance (i.e., best practices) for the photography of faces, especially when the resulting images are to be used for identification, either by automated face recognition systems or by human viewers.	Emerging

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Standards Category	Standard Name	Description	Accepted DISR Status
Multimodal	ANSI INCITS 439-2008 – Fusion Information Format for Data Interchange	This standard addresses the most common and most readily implemented method of fusion: score-level fusion. This is implemented after two or more systems have processed and matched an individual's biometric information to one or more enrolled samples and produced scalar similarity scores as output. The scores may be either genuine (same-person) or impostor (different-person), scores and a fusion scheme is designed to combine such scores so that the class boundary between genuine and impostor scores is refined.	Emerging
Biometric Profiles	ISO/IEC 24713-1:2008, Biometric Profiles for Interoperability and Data Interchange – Part 1: Overview of Biometric Systems and Biometric Profiles	This standard describes a schema for the use of a number of biometric standards. This standard is to be used as a reference guide for the implementation of a generic biometric system or a profile-standardized system. This standard provides generic information and guidance to users about biometric systems and the use of the various base standards within biometric profiles to support interoperability and data interchange among biometric applications and systems.	Informational Guidance

Biometric Standards in DISR Baseline 08-0.1

The current DISR Baseline 08-0.1, published 3 April 2008, includes 29 biometric standards.

Standards Category	Standard Name	Description	DISR Status
Transmission	DoD Electronic Biometric Transmission Specification (EBTS) (v1.2)	This specification is an extension of the FBI's EFTS that includes transaction types and codes that support requirements for DoD encounters and detainment circumstances. The DoD EBTS defines 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 DoD repositories.	Mandated
	FBI Electronic Biometric Transmission Specification (v8.001)	The FBI's EBTS defines FBI-specific requirements for an ANSI/NIST ITL 1-2007 implementation to which agencies must adhere when electronically communicating with the FBI's IAFIS. The scope of the EBTS has been expanded over previous versions to include additional biometric modalities (<i>e.g.</i> , palm print, face, and iris) in recognition of the rapidly developing biometric identification industry.	Emerging
	Electronic Fingerprint Transmission Specification (EFTS) (v7.1)	The purpose of this specification 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 IAFIS electronic transmissions involving fingerprints.	Information Guidance

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Standards Category	Standard Name	Description	DISR Status
Multimodal	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, & Other Biometric Information – Part 1	This standard 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. Part 2, which is currently under development, will include an XML version of this exchange format.	Information/ Guidance
Fingerprint Image	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
	ISO/IEC 19794-4 Biometric Data Interchange Formats – Part 4: Finger Image Data	This international 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
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 international 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

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Standards Category	Standard Name	Description	DISR Status
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.	Mandated
	ISO/IEC 19794-5 Biometric Data Interchange Formats – Part 5: Face Image Data	This international 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
Iris	ISO/IEC 19794-6 Biometric Data Interchange Formats – Part 6: Iris Image Data	This international 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 is based on a polar image specification. DoD implementations should use the rectilinear format.	Mandated
Other Modalities	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.	Emerging
Other Standards and Normative Documents	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.	Emerging
Technical Interface	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

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Standards Category	Standard Name	Description	DISR Status
	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
	ISO/IEC 19784-1 BioAPI – Biometric Application Programming Interface (BioAPI) – 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.	Emerging
	ISO/IEC 19784-2 Biometric Application Programming Interface (BioAPI) – Part 2: Biometric Archive Function Provider Interface	This part of the BioAPI international standard specifies the interface to an archive Biometric Function Provider (BFP). An archive BFP is responsible for the storage and management of Biometric Identification Records (BIRs).	Emerging
	ISO/IEC Project 19785-1:2006 Common Biometric Exchange Formats Framework – Part 1: Data Element Specification	The CBEFF promotes interoperability of biometric-based applications and systems by specifying standard structures for BIRs and a set of abstract data elements and values that can be used to create the header part of a CBEFF-compliant BIR. The primary purpose of Part 1 of this international standard is to define these abstract data elements.	Emerging
	ISO/IEC Project 19785-2:2006: Common Biometric Exchange Formats Framework – Part 2: Procedures for the Operation of the Biometrics Registration Authority	This part of the CBEFF international standard supports such exchanges by providing unambiguous identification of biometric organizations, formats, and products. It specifies the procedures to be followed by the Biometric Registration Authority in preparing, maintaining, and publishing registers of identifiers for biometric organizations, CBEFF patron formats, biometric data block formats, security block formats, and biometric products.	Emerging
	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.	Emerging
	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	Emerging

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Standards Category	Standard Name	Description	DISR Status
		conforming implementation of that international 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.	Mandated
	INCITS 421:2006 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.	Emerging
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
	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, and assessment of performance available from complex data samples including repeated sample and multimodal data.	Mandated
	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
	INCITS 409.4 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.	Emerging

3. 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 development projects changes frequently, and this table is updated regularly based primarily on the outcomes of biometric standards body meetings. High-priority standards have a proposed priority of 1, medium-priority standards are assigned a 2, and lower-priority standards are assigned a 3. Standards projects assigned an asterisk (*) have not been assigned a priority by the DoD BSWG.

Standards Category	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 to 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: Working Draft (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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Standards Category	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
	ISO/IEC 19794-4:2005/Cor.1:2007 – Information technology – Biometric data interchange formats – Part 4: Finger image data TECHNICAL CORRIGENDUM 1	Contains resolution of several defects found in the base standard.	1	In publication
	ISO/IEC 19794-4 Revision 1	This revised standard will include all changes (defect resolutions, amendments) to date as well as revised requirements developed as part of the revision process.	1	WD
	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	Public Review (PR)
	ISO/IEC 29109-4: Conformance Testing Methodology for Biometric Data Interchange Formats defined in ISO/IEC 19794 – Part 4: Finger Image Data	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 ISO/IEC 19794-4 standard.	*	WD
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, Revision 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	WD

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Standards Category	Standard Name	Description	Proposed Priority	Status
	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 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
	ISO/IEC 19794-2:2005/Cor.1:2007 Information Technology – Biometric Data Interchange Formats – Part 2: Finger Minutiae Data TECHNICAL CORRIGENDUM 1	Contains resolution of several defects found in the base standard.	1	In publication
	ISO/IEC 19794-2 AM 1: Detailed description of finger minutiae location, direction, and type	This amendment to the base standard will provide detailed clarifications regarding the finger minutiae location, direction, and type.	1	WD
	ISO/IEC 19794-2 Revision 1	This revised standard will include all changes (defect resolutions, amendments) to date as well as revised requirements developed as part of the revision process.	1	WD
	INCITS 423.2: Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards – Part 2: Fingerprint Minutiae Conformance Testing Methodology	This standards 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
	ISO/IEC 29109-2: Conformance Testing Methodology for Biometric Data Interchange Formats defined in ISO/IEC 19794 – Part 2: Finger Minutia Data	This standards 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 ISO/IEC 19794-2 standard.	*	WD
	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

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Standards Category	Standard Name	Description	Proposed Priority	Status
	INCITS Project 1563-D: Information Technology – Finger Pattern-Based Data Interchange Format, Revision 1	This revision 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	In publication
	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
	ISO/IEC 19794-3 Revision 1	This revised standard will include all changes (defect resolutions, amendments) to date as well as revised requirements developed as part of the revision process.	3	WD
	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	PR
	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
	ISO/IEC 19794-8 Revision 1	This revised standard will include all changes (defect resolutions, amendments) to date as well as revised requirements developed as part of the revision process.	3	WD
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

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Standards Category	Standard Name	Description	Proposed Priority	Status
	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 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	On hold, in favor of ISO/IEC 19794-5 Revision 1
	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	Published
	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	Provisional Draft Amendment (PDAM)
	ISO/IEC 19794-5:2005/Cor.3:2007 Information Technology – Biometric Data Interchange Format – Part 5: Face Image Data – Technical Corrigendum 3	Contains resolution of several defects found in the base standard.	1	In publishing

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	ISO/IEC 19794-5 Revision 1	This revised standard will include all changes (defect resolutions, amendments) to date as well as revised requirements developed as part of the revision process.	1	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	On hold in favor of ISO/IEC 29109-5
	ISO/IEC 29109-5: Conformance Testing Methodology for Biometric Data Interchange Formats defined in ISO/IEC 19794 – Part 5: Face Image Data	This standards 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 ISO/IEC 19794-5 standard.	*	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	Project withdrawn
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	Project withdrawn
	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; proposed for withdrawal; PR ended
	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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Standards Category	Standard Name	Description	Proposed Priority	Status
	ISO/IEC 19794-6 Revision 1	This revised standard will include all changes (defect resolutions, amendments) to date as well as revised requirements developed as part of the revision process.	1	WD
	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	Project withdrawn
	ISO/IEC 29109-6: Conformance Testing Methodology for Biometric Data Interchange Formats defined in ISO/IEC 19794 – Part 6: Iris Image Data	This standards 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 ISO/IEC 19794-6 standard.	*	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; proposed for withdrawal; PR ended
	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	Published
	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	Project withdrawn
	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	3	Published

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		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.		
	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	Published
	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	Project canceled; NWI proposal is requested to restart the 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	Published
	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 information and data.	2	WD
	ISO/IEC Project 19794-13: Voice Data	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	2	WD

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		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.		
	19794-14: Biometric Data Interchange Formats – Part 14: DNA Data	This part of ISO/IEC 19794 standard specifies a DNA Data (interchange format) for personal identification or verification technologies that utilize human DNA and may be used for the exchange and comparison of DNA data (interchange format). The target is to produce an interchange format that will be useful for forensic exchanges and databases, immigration, and paternity testing. It will provide the ability for DNA-profiles produced by one conforming system to be used for comparison with other samples produced by any other conforming system, subject to privacy.	*	WD
Multi-Biometrics and Data Interchange Frameworks	INCITS 439:2008: 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	Published
	INCITS 358:2002 AMENDMENT 1:2007 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	Published
	ISO/IEC TR24722:2007 – Technical Report – Multimodal 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	Published

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	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
	ISO/IEC 19794-1 Revision 1	This revised standard will include all changes (defect resolutions, amendments) to date as well as revised requirements developed as part of the revision process.	1	WD
	ANSI/NIST ITL 1-2007 Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information – Part 1	This standard defines the content, format, and units of measurement for the exchange of fingerprint, palm print, facial/mugshot, scar mark & tattoo (SMT), iris, and other biometric sample information that may be used in the identification or verification process of a subject. 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.	1	Published
	ANSI/NIST ITL 1-2007: Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information – Part 2	This standard defines an XML encoding of the content, format, and units of measurement for the exchange of fingerprint, palm print, facial/mugshot, scar mark & tattoo (SMT), iris, and other biometric sample information that may be used in the identification or verification process of a subject.	*	Under development
	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	Published

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	ISO/IEC 29109-1: Conformance Testing Methodology for Biometric Data Interchange Format Standards – Part 1: Generalized Conformance Testing Methodology	This Part 1 of the multi-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 implementations to the ISO/IEC 19794 requirements. Furthermore, 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	CD
Transmission	FBI Electronic Fingerprint Transmission Specification (v7.1)	The purpose of the FBI Criminal Justice Information Services' EFTS 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)	The FBI's EBTS defines FBI-specific requirements for an ANSI/NIST ITL 1-2007 implementation to which agencies must adhere 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	Published
	DoD Electronic Biometric Transmission Specification (v1.2)	This specification is an extension of the FBI's EFTS that includes transaction types and codes that support requirements for DoD encounters and detainment circumstances. The DoD EBTS defines 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 DoD repositories.	1	Published

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	DoD Electronic Biometric Transmission Specification (v2.0)	This standard will contain modifications of DoD EBTS 1.2 to align it with capabilities provided by the new ANSI/NIST-ITL 1-2007 and FBI EBTS.	1	Under development
	Global Justice XML Data Model (Global JXDM) (v3.0.3)	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) (v2.0)	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 standardizes content (actual data exchange standards), provides tools, and manages processes. NIEM leverages the data exchange standards efforts successfully implemented by DOJ's Global Justice Information Sharing Initiative and extends the Global JXDM to facilitate timely, secure information sharing across the whole of the justice, public safety, emergency and disaster management, intelligence, and homeland security enterprise.	*	Published
	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.	*	Published

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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
	ANSI INCITS 358-2002 AM1: BioAPI Specification (Version 1.1) – Amendment 1: Support for Biometric Fusion	This Amendment to INCITS 358 adds support for biometric fusion to the standard. This amendment extends the API and the SPI of BioAPI by specifying new functions and new values for existing data types.	*	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	Published
	ISO/IEC Project 19784-1: BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification, Amendment 2: Framework Free BioAPI	This amendment will allow BioAPI to be applied where a system is to be built from conforming BSP components (without a BioAPI Framework module) using platform-specific system integration mechanisms.	2	WD
	ISO/IEC Project 19784-1: BioAPI – Biometric Application Programming Interface – Part 1: BioAPI Specification, Amendment 3: Support for Interchange of Certificates and Security Assertions	This amendment will add functions or parameters to the BioAPI interfaces and to related standards to support security features identified in the ISO/IEC SC 27 work on ACBio and the ITU-T SG17 work on X.tsm and X.tai.	*	WD
	ISO/IEC Project 19784-2: Biometric Application Programming Interface (BioAPI) – Part 2: Biometric Archive Function Provider	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

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	Interface			
	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	Canceled; NWI proposal pending to restart the project
	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	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
	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	WD

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	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	Project canceled
	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	WD
	INCITS Project 1832-D (ANSI INCITS 434 – TBD) – 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	In publication
	ISO/IEC Project 29129: Tenprint Capture for BioAPI	An ISO-formatted version of INCITS Project 1832-D. It will be registered at the accelerated status of CD, and an LB will be issued on this CD.	*	CD
	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
	ANSI INCITS 398-2008 (INCITS Project 1622-R): Common Biometric Exchange Formats Framework (CBEFF) – Revision 1	This proposed revision corrects a number of alleged technical errors and contains other modifications noted by users of the standard, clarifications to further help users and developers, and new features such as nested data structures, and new/redefined fields.	1	Published
	INCITS Project 1853-D: Conformance Testing Methodology for Common Biometric Exchange Formats Framework (CBEFF) Data Structures	This proposed standard will establish the specification of a conformance testing methodology for the CBEFF data structures specified in INCITS 398:2005 Revision 1	1	WD

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	Specified in INCITS 398-2005 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.		
	ISO/IEC Project 19785-1:2006: Common Biometric Exchange Formats Framework – Part 1: Data Element Specification	The CBEFF promotes interoperability of biometric-based applications and systems by specifying standard structures for BIRs and a set of abstract data elements and values that can be used to create the header part of a CBEFF-compliant BIR. The primary purpose of Part 1 of this international standard is to define these abstract data elements.	1	Published
	ISO/IEC Project 19785-2:2006: Common Biometric Exchange Formats Framework – Part 2: Procedures for the Operation of the Biometrics Registration Authority	This Part of the CBEFF international standard supports such exchanges by providing unambiguous identification of biometric organizations, formats, and products. It specifies the procedures to be followed by the Biometric Registration Authority in preparing, maintaining, and publishing registers of identifiers for biometric organizations, CBEFF patron formats, biometric data block formats, security block formats, and biometric products.	2	Published
	ISO/IEC Project 19785-3: Common Biometric Exchange Formats Framework – Part 3: Patron Format Specifications	This part of the CBEFF international standard specifies and publishes registered CBEFF patron formats (see ISO/IEC 19785-1), and specifies their registered CBEFF patron format identifiers (see ISO/IEC 19785-2) and resulting full ASN.1 object identifiers.	2	Published
	ISO/IEC Project 19785-4: Common Biometric Exchange Formats Framework – Part 4: Security Block Format Specification	This part of the CBEFF international standard defines Security Block (SB) formats much as Part 3 defined Patron Formats. CBEFF Part 1 defines the options for integrity and encryption and a Security Block (SB) to contain security information related to these options, but the format and detailed content of an SB is not specified.	*	CD

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	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	FCD
	ISO/IEC Project 24708: BioAPI Interworking Protocol (BIP) – Amendment 1	This amendment will address addition of security requirements that become necessary because of ISO/IEC Project 19784-1 Amendment 3: BioAPI Part 1: BioAPI Specification, Amendment 3: Support for interchange of certificates and security assertions, and other security aspects.	*	Under development
	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

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	ANSI INCITS 383-2008: 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	Published
	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
	ANSI INCITS 421-2006: 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 Project 1575-D: Biometric Profile – Interoperability and Data Interchange – Point-of-Sale Biometrics-Based Verification and Identification (ANSI INCITS 420-200x)	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	In Publication
	INCITS Project 1860-D: Application Profile – Interoperability and Data Interchange – Biometrics for E-Authentication	This standard is intended to support the deployment of biometric technologies in e-authentication applications. The standard’s goals are interoperability, data interchange, and security for e-authentication systems based on a variety of authentication architectural configurations with differing storage, matching, and transmission characteristics. The unique aspects of e-authentication in the context of remote authentication are also considered. The standard describes biometric e-authentication functionality and profiles base	*	NP

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		standards for the most common architectural alternatives currently being deployed for biometric authentication.		
	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	Published
	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 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.	3	FCD
	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 Seafarers Identity Document (SID).	2	CD

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	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	FCD
	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	PDTR
	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 text from Parts 4 and 5 in the new WD of Part 1.	1	PDTR
	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	On hold in favor of international counterpart (multi-part standard)
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	In Publication

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	OASIS Biometric Identity Assurance Services (BIAS)	This project was initiated to define the Web services bindings (schema, messaging protocol, etc.) for INCITS Project 1823-D: BIAS.	1	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
	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	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	WD

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Standards Category	Standard Name	Description	Proposed Priority	Status
	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	CD
	ITU-T Recommendation X.1081: The Telebiometric Multimodal Model – A Framework for the Specification of Security Aspects of Telebiometrics	This is a framework for the specification of security aspects of telebiometrics.	2	Approved
	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.	*	WD
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	3	Published

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		elements of deployed online performance; assessment of performance available from complex data samples including repeated sample and multimodal data.		
	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
	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 Project 1602-D: Biometric Performance Testing and Reporting – Part 5: Framework for Testing and Evaluation of Biometric Subsystems for Access Control (ANSI INCITS 409.5-200x)	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 Project 1602-D: Part 6 – Performance and Interoperability Testing of Implementations Claiming Conformance to Biometric Data Interchange Format Standards (ANSI INCITS 409.6-200x)	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
	INCITS Project 1602-D: Part 7 – 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.	*	WD
	INCITS Project 1602-D: Part 8 – Interpreting Biometric Performance Test Results Using Statistical Analyses	This technical report will provide guidance on interpreting the test results from the standardized performance tests. It will concentrate on the significance of the statistical test results.	*	WD

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	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
	ISO/IEC Project 19795-3: Technical Report – 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	In publication
	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	FDIS
	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	CD
	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	2	WD

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		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).		
	ISO/IEC Project 29120-1: Machine-Readable Test Data for biometric testing and reporting – Test Reports	This multipart standard will enhance the usability of biometric test reports by providing them in a common and machine-readable form.	*	NWI
	ISO/IEC Project 29120-2: Machine-Readable Test Data for biometric testing and reporting – Biometric System Test Status	This multipart standard will enhance the usability of biometric test status by providing them in a common and machine-readable form.	*	NWI
	ISO/IEC Project 29120-3: Machine-Readable Test Data for biometric testing and reporting – Test Input Data Specifications	This multipart standard will enhance the usability of biometric test input data by providing them in a common and machine-readable form.	*	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	TBD – need to clarify 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	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	WD
	ISO/IEC TR24741:2007 Technical Report – 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 biometric standardization that are being progressed by the ISO. Another annex provides a	2	Published

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		list of vocabulary terms and definitions used in these standards.		
	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	WD
	ISO/IEC SC 37 Standing Document 2, version 8: 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	WD
	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	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	FCD

3. List of Acronyms Used in this Document

ABIS – Automated Biometric Identification System
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
CJIS – Criminal Justice Information Services Division (FBI)
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 – DoD 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
FDAM – final draft amendment
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
IOC – initial operating capability

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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 – provisional draft amendment
PDTR – provisional draft technical report
PIV – Personal Identity Verification
POC – point of contact
PR – public review
SB – security block
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
WDAM – working draft amendment
WD – working draft
WG – working group
WIPT – working integrated product team

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XCBF – XML Common Biometric Format

XML – eXtensible Markup Language