

National Biometric Security Project



Published Standards Relevant to Biometrics

Standard Number or Project Code	Official Name of Standard	Purpose	Current Status	Link to Latest Document (Note that documents are not necessarily available to everyone. Where a direct link is unavailable, follow the link and look for the document number. A password or payment may be required.)	Remarks
Non M1 US Standards					
AAMVA DL/ID-2005	AAMVA International Specification — DL/ID Card	Voluntary standard for drivers' licenses that includes recommended guidelines for biometric data to be stored on the license	Published	http://www.aamva.org/KnowledgeCenter/Standards/Current/DL-IDStandard2005.htm	Drivers' Licenses
ANSI / NIST ITL 1-2000	Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo (SMT) Information	Format for exchanging information in a criminal justice environment	Published	http://it.ojp.gov/servlet/ShowDocument?attachment_id=106	Law Enforcement

ANSI / NIST ITL 1-2007	Data Format for the Interchange of Fingerprint Facial, & Other Biometric Information – Part 1	Content, format, and units of measurement for the exchange of fingerprint, palmprint, facial/mugshot, scar mark & tattoo (SMT), iris, and other biometric sample information	Published	http://fingerprint.nist.gov/standard/Approved-Std-20070427.pdf	Revision of ANSI/NIST ITL 1-2000
ANSI / NIST ITL 2-2008	Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information – Part 2: XML Version .	Defines in XML format the content and units of measurement for the exchange of information that may be used in the identification process of a subject.	Published	http://fingerprint.nist.gov/standard/xml/index.html	
CJIS / FBI IAFIS-IC-0110	IAFIS WSQ Gray-Scale Fingerprint Image Compression Specification	Compression standard for fingerprint images	Published	http://citeseer.ist.psu.edu/cache/papers/cs	Law Enforcement
FBI IAFIS-DOC-01078-7.1 Replaces CJIS-RS-0010 (v)7	FBI Electronic Fingerprint Transmission Specification	Definitions for ensuring reliability and quality of fingerprints submitted to the FBI	Published	http://www.fbi.gov/hq/cjisd/iafis/efts71/efts71.pdf	Law Enforcement

FIPS PUB 201	Federal Information Processing Standards Publication 201 - Personal Identity Verification (PIV) of Federal Employees and Contractors	Standard for Implementing Smart Card Based Personal Identification in the US Government, including biometrics on the cards	Published	http://www.csrc.nist.gov/publications/fips/fips201-1/FIPS-201-1-chng1.pdf	Federal Government ID
NIST SP 800-73-1	NIST Special Publication 800-73-1 - Interfaces for Personal Identity Verification	Standard for Interfacing with a FIPS 201 Smart Card. Includes data objects for biometrics and a means of calling a match on card.	Published	http://csrc.nist.gov/publications/nistpubs/800-73-1/sp800-73-1v7-April20-2006.pdf	Federal Government ID
NIST SP 800-76	NIST Special Publication 800-76-1 - Biometric Specification for Personal Identity Verification	Detailed technical specifications for the biometrics used in FIPS PUB 201	Published	http://csrc.nist.gov/publications/nistpubs/800-76-1/SP800-76-1_012407.pdf	Note that a very important errata sheet is also available at http://csrc.nist.gov/piv-program/fips201-support-docs.html
Global JXDM (version 3.0.3)	Global Justice XML Data Model version 3.0.3	Removes the burden from agencies to independently create exchange standards	Published	http://www.it.ojp.gov/jxdm/3.0.3/jxdm-3.0.3.xls	

NIEM (version 2.0)	National Information Exchange Model version 2.0	Develop and support enterprise wide information exchange standards and processes enabling jurisdictions to share critical information	Published	http://www.niem.gov/library.php	
ICAO Standards					
ICAO Document 9303 Part 1 Volume 1	Passports with Machine Readable Data Stored in Optical Character Recognition Format	General specification for physical characteristics and layout of passports. Should be used in conjunction with Volume 2 for biometric enabled passports	Published	http://icaodsu.openface.ca/documentItem/View.ch2?ID=7986	
ICAO Document 9303 Part 1 Volume 2	Specifications for Electronically Enabled Passports with Biometric Identification Capability	Defines the logical data structure, security and other elements related to biometric enabled electronic passports	Published	http://icaodsu.openface.ca/documentItem/View.ch2?ID=9749	

ICAO Document 9303 Part 2 Volume 1	Machine Readable Visas	Contains the specifications for visas which include specifications for a Format-A visa (the original full-size visa) and an alternative, smaller, Format-B visa	Published	http://icaodsu.openface.ca/documentItemView.ch2?ID=7991	
ICAO Document 9303 Part 3 Volume 1	Size 1 and Size 2 Machine Readable Official Travel Documents	Defines the technical specifications for two sizes (TD-1 and TD-2) of machine readable official travel documents, including the crew member certificate.	Published	http://icaodsu.openface.ca/documentItemView.ch2?ID=7996	
Other Standards					
OASIS XCBF 1.1	OASIS XML Common Biometric Format	Provides an XML encoding of CBEFF patron formats	Published	http://www.oasis-open.org/committees/download.php/3353/oasis-200305-xcbf-specification-1.1.doc	
X9.84 - 2003	ANSI X9.84-2003 Biometric Information Management and Security for the Financial Services Industry	Security standards for the collection, distribution and processing of biometric data within the financial services industry	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+X9%2E84%3A2003	

ISO 19092-1:2006	ISO 19092-1:2006 Financial Services - Biometrics - Part 1 - Security Framework	Describes the security framework for using biometrics for authentication of individuals in financial services	Withdrawn	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=40559&ICS1=35&ICS2=240&ICS3=40	
ISO 19092:2008	ISO 19092:2008 Financial Services - Biometrics - Part 1 - Security Framework	Describes the security framework for using biometrics for authentication of individuals in financial services	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=50145	Revision of ISO 19092-2:2006
ISO 7816-11:2004	ISO / IEC 7816-11:2004 Identification Cards – Integrated circuit cards – Part 11: Personal verification through biometric methods	Biometrics commands and data objects to use with smartcards	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ISO%2FIEC+7816%2D11%3A2004	Produced by ISO/IEC JTC 1 SC 17 WG 4.
SIA BIO-01-1993.02(R2000.06)	Biometric Standard - Vocabulary for Testing	Defines terminology to be used with biometric technology testing and evaluation	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=SIA+BIO%2D01%2D1993%2E02%28R2000%2E06%29	This standard is being rapidly outdated by work in M1, SC 27 and SC 37

ILO SID-0002	Seafarers' Identity Documents Convention (Revised), 2003 (No. 185) - The standard for the biometric template required by the Convention	Standard for using fingerprints in a two dimensional bar code in a Seafarers' Identity Document for verification of seafarers. Includes draft versions of ISO 19794-2 and 19794-4	Published	http://www.ilo.org/public/english/dialogue/sector/papers/maritime/sid0002.pdf	Uses a specific form of ISO 19794-2 to store a two finger minutiae template
ISO 18013-2	Information technology -- Personal identification -- ISO compliant driving licence -- Part 2: Machine-readable technologies	Establishes guidelines for the content and formatting of data stored on an ISO compliant driving licence (IDL) using machine-readable technologies.	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=42199	
INCITS M1 STANDARDS					
M1.2 Standards					
INCITS 358-2002	BioAPI Specification (Version 1.1)	Defines an application programming interface for biometric software	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+358%2D2002	
ANSI/INCITS 358-2002 Amendment 1-2007	BioAPI Specification (Version 1.1) - Amendment 1 - Support for Biometric Fusion	Adds support to BioAPI for multibiometrics or biometric fusion	Published	http://www.incits.org/tc_home/m1htm/2006docs/m1060879.pdf	Product of 1703-D project.

ANSI/INCITS 429-2007	Conformance Testing Methodology for INCITS 358:2002 BioAPI Specification	Standardized methods of determining whether a software system conforms to the BioAPI standard INCITS 358-2002	Almost Published	http://www.incits.org/tc_home/m1htm/xm1docs/m1061065.pdf	
ANSI/INCITS 398-2008	American National Standard for Information Technology - Common Biometric Exchange Formats Framework (CBEFF) Revision	To correct technical defects and add support for nested CBEFF structures to accommodate multiple biometrics	Published	http://www.incits.org/tc_home/m1htm/xm1docs/m1060880.pdf	Revision of 398-2005 (INCITS 1622-R)
ANSI/INCITS 442-2008	Information technology - Biometric Identity Assurance Services (BIAS)	Defines a framework for deploying and invoking identity assurance capabilities that can be readily accessed using services-based frameworks (e.g. Web services)	Published	http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI+INCITS+442-2008	
ANSI/INCITS 434-2007	Information technology - Tenprint Capture Using BioAPI	Specifies how to use BioAPI for capturing tenprints, as commonly practiced by law enforcement and other government agencies	Published	http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI+INCITS+434-2007	
M1.3 Standards					

INCITS 377-2004	Finger Pattern Based Interchange Format	A data interchange format for fingerprint systems using a pattern based approach	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+377%2D2004	
INCITS 378-2004	Finger Minutiae Format for Data Interchange	A data interchange format for fingerprint systems using a minutiae based approach	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+378%2D2004	
INCITS 379-2004	Iris Image Interchange Format	A data interchange format for iris recognition systems that standardizes a rectangular or polar image of the iris	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+379%2D2004	
INCITS 381-2004	Finger Image Based Data Interchange Format	A data interchange format for fingerprint images	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+381%2D2004	
INCITS 385-2004	Face Recognition Format for Data Interchange	A data interchange format for images of faces	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+385%2D2004	
INCITS 385-2004 Amendment 1 (INCITS 1565-D)	Face Recognition Format for Data Interchange Amendment 1	Adds support for 3D range and pseudo-range images	Published	http://www.incits.org/tc_home/m1htm/2006docs/m1060560.pdf	
INCITS 396-2005	Hand Geometry Interchange Format	A data interchange format for use with hand geometry verification	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+396%2D2005	

INCITS 395-2005	Biometric Data Interchange Formats - Signature/Sign Data	A data interchange format for signatures or signs when used in biometrics	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+395%2D2005	
ANSI/INCITS 439-2008	Information technology - Fusion Information Format for Data Interchange	A data interchange format to pass score level information to any fusion algorithm	Published	http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI+INCITS+439-2008	
INCITS 423	Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards				
INCITS 423.1-2008	Generalized Conformance Testing Methodology	Common elements and framework for conformance testing of data interchange format standards	Published	http://www.techstreet.com/cgi-bin/detail?product_id=1533906	
INCITS 423.2-2008	Conformance Testing Methodology for INCITS 378 2004, Finger Minutia Format for Data Interchange	Standardized methods of determining whether a biometric system conforms to the finger minutiae data interchange format	Published	http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI+INCITS+423.2-2008	
M1.4 Standards					

INCITS 383-2008	Biometric Profile - Interoperability and Data Interchange Biometrics-Based Verification and Identification of Transportation Workers	Profile for Using Other Biometric Standards in Applications Involving Transportation Workers (primarily for TSA)	Published	http://www.techstreet.com/incitsgate.tmp	Replaces INCITS 383-2004
INCITS 394-2004	Application Profile for Interoperability, Data Interchange and Data Integrity of Biometric-Based Personal Identification for Border Management	Profile for Using Other Biometric Standards in Applications Involving Border Management (primarily for State Department and DHS)	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+394%2D2004	
INCITS 421-2006 Replaces INCITS 1676-D	Biometric Profile - Interoperability and Data Interchange - DoD Implementations	Profile for Using other Biometric Standards in Department of Defence Applications	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+421%2D2006	
INCITS 422-2007 Replaces INCITS 1706-D	Application Profile for Commercial Biometric Physical Access Control	Profile for Using other Biometric Standards in Applications Related to Physical Access Control	Published	http://www.techstreet.com/cgi-bin/detail?product_id=1320365	

INCITS 1860-D	Study Report on Biometrics in E-Authentication	Shows how biometrics can and should be used for the various OMB assurance levels in E-Authentication	Final Approved Report and NP	http://www.incits.org/tc_home/m1htm/2007docs/m1070185rev.pdf	
M1.5 Standards					
INCITS 409 Replaces INCITS 1602-D	Biometric Performance Testing and Reporting				
INCITS 409.1-2005	Principles and Framework	Defines the overall framework for performance testing and reporting, including definitions, general guidelines, etc.	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+409%2E1%2D2005	
INCITS 409.2-2005	Technology Testing and Reporting	Specific standards for testing a specific technology, usually involving exhaustive off-line tests	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+409%2E2%2D2005	
INCITS 409.3-2005	Scenario Testing and Reporting	Specific standards for tests that try to simulate specific usage scenarios and thus typically involve live capture, environmental issues , etc.	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+409%2E3%2D2005	

INCITS 409.4-2006	Operational Testing Methodologies	Specific standards for tests conducted under operational conditions when the biometric system is being used in the field	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ANSI+INCITS+409%2E4%2D2006	
ISO/IEC JTC 1 SC 37 STANDARDS					
WG 2 Standards					
ISO 19784	Biometric Application Programming Interface (BioAPI)	Defines an Application Programming Interface for biometric software			
Part 1	BioAPI Specification	Defines the architecture and all of the API/SPI calls	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=33922&ICS1=35&ICS2=40&ICS3=	
Part 1 Amendment 1	BioGUI Specification	Modifies GUI call-back functions to allow the Graphical User Interface in a BioAPI system to be controlled by the application rather than the biometric software	Published	http://isotc.iso.org/livelink/livelink/fetch/2000/2122/327993/2262372/2299791/2299268/2299795/JTC001-SC37-N-2028.pdf?nodeid=6353488&vernum=0	
Part 2	Biometric Archive Function Provider Interface	Augments BioAPI to define function calls for interfacing with an archiving module that stores biometric data	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=43303&ICS1=35&ICS2=40&ICS3=	

ISO 19785	Common Biometric Exchange Formats Framework (CBEFF)	To allow biometric data to be exchanged with clearly understood header elements defined in a registry of formats			
Part 1	Data Element Specification	Defines the elements permitted in CBEFF structures and which ones are mandatory and which optional	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=41047&ICS1=35&ICS2=40&ICS3=	
Part 2	Procedures for the Operation of the Biometric Registration Authority	Explains how the registration authority will operate, how to register a new format, etc	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=41048&ICS1=35&ICS2=40&ICS3=	IBIA will serve as the registration authority
Part 3	Patron Format Specifications	Gives examples, in various notations, of specific patron formats that may be useful	Published	http://isotc.iso.org/livelink/livelink/fetch/2000/2122/327993/2262372/2263034/2299748/JTC001-SC37-N-1713.pdf?nodeid=5564333&vernum=0	
ISO 24709	Conformance Testing for BioAPI	Standardized methods of determining whether a software system conforms to the BioAPI standard above			

Part 1	Methods & Procedures	Defines overall test methodology and a test assertion language	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=38819&ICS1=35&ICS2=40&ICS3=	
Part 2	Test Assertions for Biometric Service Providers	Defines specific assertions that must be tested in order to verify conformance for BSPs	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=43352&ICS1=35&ICS2=40&ICS3=	
ISO/IEC TR 24722: 2007	Information Technology - Biometrics - Multi-Modal and other Multi-Biometric Fusion	This Technical Report is a general primer on biometric fusion that may identify standardization requirements in this area	Published	http://isotc.iso.org/livelink/livelink/fetch/2000/2122/327993/2262372/2299791/2299796/2299746/JTC001-SC37-N-1992.pdf?nodeid=6221307&vernum=0	
ISO/IEC TR 24741: 2007	Technical Report for a Biometrics Tutorial	An overview of biometrics, biometric technologies, modes, processes, applications, and some related topics.	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38851	
WG 3 Standards					

ISO 19794	Biometric Data Interchange Formats	Data interchange formats to allow exchange of biometric data and interoperability between different biometric systems using a particular modality or, in some cases, a specific sub-type of a modality (e.g. finger minutiae, finger pattern spectral, finger image, finger pattern skeletal). Many modalities are supported.			
Part 1	Framework	Describes overall framework, including parts of a biometric system and other generalities	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=38745&ICS1=35&ICS2=40&ICS3=	
Part 2	Finger Minutiae Data	Uses minutiae points from a fingerprint	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=38746&ICS1=35&ICS2=40&ICS3=	See INCITS 378-2004
Part 3	Finger Pattern Spectral Data	Uses spectral analysis (Fourier components, Gabor wavelets, etc.) of a fingerprint	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=38747	
Part 4	Finger Image Data	Uses an image of a fingerprint	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ISO%2FIEC+19794%2D4%3A2005	

Part 5	Face Image Data	Uses an image of a face	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ISO%2FIEC+19794%2D5%3A2005	
Part 5 Amendment 1, 2007	Conditions for Taking Photographs for Face Image Data	Specifies details on how to take photographs either in a photographer's studio or a photo booth to give optimal face recognition performance	Published	http://isotc.iso.org/livelink/livelink/fetch/2000/2122/327993/2262372/2263034/2299748/JTC001-SC37-N-1714.pdf?nodeid=5564681&vernum=0	
Part 5 Correction 1, 2008	Face Image Data — Technical Corrigendum 1	to correct technical errors and ambiguities in ISO/IEC 19794-5:2007, which were inadvertently introduced in drafting and could lead to incorrect application of that International Standard.	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=44907	

Part 5 Correction 2, 2008	Face Image Data — Technical Corrigendum2	to correct technical errors and ambiguities in ISO/IEC 19794-5:2007, which were inadvertently introduced in drafting and could lead to incorrect application of that International Standard.	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=51410	
Part 6	Iris Image Data	Uses a rectilinear or polar image of an iris	Published	http://webstore.ansi.org/ansidocstore/product.asp?sku=ISO%2FIEC+19794%2D6%3A2005	
Part 7	Signature/Sign Time Series Data	Uses time based series of data such as x and y positions on a signature pad	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38751	
Part 8	Finger Pattern Skeletal Data	Uses a skeletal decomposition of a finger (based on thinned ridges)	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=40715&ICS1=35&ICS2=40&ICS3=	
Part 9	Vascular Image Data	Uses an image of sub-surface veins	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=43637&ICS1=35&ICS2=40&ICS3=	
Part 10	Hand Geometry Silhouette Data	Uses a silhouette of a hand or part of a hand	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=43638	
WG 4 Standards					
ISO 24713	Biometric profiles for interoperability and data interchange				

Part 1	Overview of biometric systems and biometric profiles	Defines the overall architecture of a biometric system and defines appropriate terms, etc.	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38823	
Part 2	Physical Access Control for Employees at Airports	Designed for employees in a highly secure workplace such as the airside of an airport	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=46330	
WG 5 Standards					
ISO 19795	Biometric Performance Testing & Reporting				
Part 1	Principles & Framework	Defines the scientific philosophies and principles that are fundamental to biometric testing	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=41447&ICS1=35&ICS2=40&ICS3=	
Part 2	Testing Methodologies for Technology and Scenario Evaluation	Gives specific details on methods and techniques for conducting a scenario or technology test	Published	http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=41448&ICS1=35&ICS2=40&ICS3=	
Part 3 Technical Report 19795-3	Technical Report on Modality-Specific Testing	Attempts to define a taxonomy of biometric applications so that different testing methods can be specified where appropriate	Published	http://isotc.iso.org/livelink/livelink/fetch/2000/2122/327993/2262372/2263034/2300189/JTC001-SC37-N-1955.pdf?nodeid=6169555&vernum=0	

Part 4	Interoperability Performance Testing	Specifies how to conduct performance based interoperability testing for biometric systems	Published	http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=46329	
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