



Department of Defense

**Implementation Guidance for
Electronic Biometric Transmission
Specification (DoD EBTS)**

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Implementation Guidance for
Department of Defense Electronic Biometric Transmission Specification (DoD EBTS)

December 2012

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1.0 Introduction

1.1 Background

The DoD Electronic Biometric Transmission Specification (EBTS) is based on the American National Standards Institute/National Institute of Standards and Technology - Information Technology Laboratory (ANSI/NIST - ITL) - “Data Format for the Interchange of Fingerprint Facial, & Other Biometric Information” as its foundational reference. The ANSI/NIST - ITL specification provides the framework and minimum set of required data elements for entities which communicate biometric and biographic data; while also allowing for specialized business needs and requirements to be satisfied by implementers. Based on the nature of data transmitted to satisfy the biometric related missions within DoD, these unique capabilities are defined in the DoD EBTS Specification. This approach is consistent with other US Government Organizations which have their own extensions of ANSI/NIST - ITL such as the FBI Electronic Biometric Transmission Specification (FBI EBTS) and the DHS IDENT eXchange Message (IXM) Specification.

1.2 Purpose

The purpose of this document is to inform and describe technical implementation guidance of DoD EBTS. The following topics are identified to satisfy this purpose:

- Provide an understanding of the applicability and scope of DoD EBTS
- Describe implementation guidance of Logical Record Types
- Describe implementation guidance of Types of Transactions (TOT)s
- Provide implementation guidance of Application Profiles (AP)s

1.3 Audience

The intended audience of this document is entities who have implemented or plan to implement the DoD EBTS as a part of the DoD biometric enterprise. These entities include, but are not limited to:

- Software Developers
- System Implementers
- Hardware Engineers
- Commercial Vendors and Manufacturers

1.4 Scope

The figure below depicts the Standards Lifecycle Management (SLM) process, which is cyclical in nature and includes six separate sub-processes. Based on the purpose and audience of the document, primary focus is on the IMPLEMENTATION sub-process.

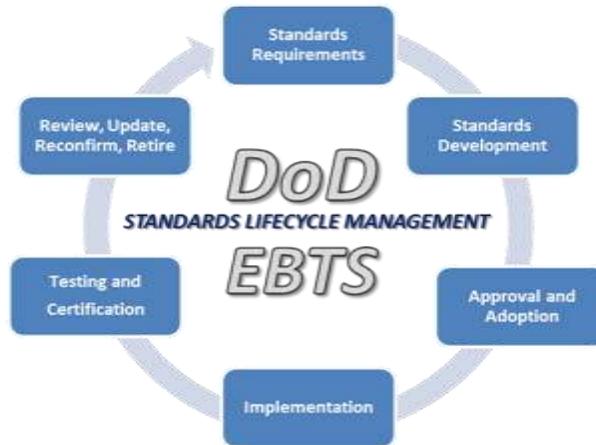


Figure 1 – Standards Lifecycle Management

2.0 DOD EBTS Applicability and Scope

2.1 DoD EBTS Support to the DoD Biometric Enterprise

The ability to transmit biometric and biographic data is critical for enabling the Department of Defense (DoD) to share and leverage information across the DoD Biometrics Enterprise. This standard is intended for those applications requiring the exchange of biometrics samples and related biographic and contextual data both within the DoD Biometrics Enterprise and with external agencies, coalition members and governments. It provides increased flexibility to multiple mission sets, including those which utilize repositories other than DoD ABIS.

Current versions of DoD EBTS and supplemental documents can be freely accessed on the BIMA public website:

<http://www.biometrics.dod.mil/CurrentInitiatives/Standards/dodebts.aspx>

2.1.1 DoD EBTS Implementation Guidance Purpose

The primary audience for DoD EBTS Implementation Guidance consists of stakeholders who develop, support, and/or test systems that interface with DoD biometric repositories or other DoD biometric systems; it contains the technical details of the specification. Readers are expected to have working knowledge of the respective ANSI/NIST-ITL standard as a prerequisite for understanding the DoD EBTS.

2.1.2 Out of Scope Functionality

The DoD EBTS supports many key biometric modalities (Facial/SMT, Fingerprint, Palmprint, and Iris Image) but not all modalities have been fully implemented across the DoD. There are additional modalities supported by ANSI/NIST - ITL, that are currently not included in DoD EBTS, such as:

- Signature Image (Type-8)

Additionally, other modalities currently absent from DoD EBTS v3.0 still under development but may be included in the next version include:

- Dental
- Voice

In addition, there are DoD capabilities that are related to biometrics but out of scope to DoD EBTS at this time. In all most all cases, biometric data files facilitate these capabilities, but are not directly contained within DoD EBTS. These capabilities include:

- Document Exploitation (DOMEX)
- Match Reports (e.g. MatchML)
- Biometrically Enabled Intelligence (BEI)
- Biometrically Enabled WatchList (BEWL)
- Biometric Intelligence Analysis Report (BIAR)

Furthermore, for interagency exchange initiated from DoD (e.g. exchange from DoD ABIS to FBI IAFIS/NGI and exchange from DoD ABIS to DHS IDENT), the predetermined agreed upon exchange format(s) should be followed. The DoD EBTS does not attempt to address partner agency specification requirements. However, DoD EBTS will attempt to ensure that necessary data concepts for the agreed upon transaction or services are supported in order for a DoD EBTS file to be transformed into the agreed upon format dictated by partner agencies.

2.2 Biometric Transmission Specification Evolution

The DoD EBTS is an extension of ANSI/NIST-ITL “Data Format for the Interchange of Fingerprint Facial, & Other Biometric Information” as it builds upon the base standard to meet DoD requirements. The structure and organization of the specification is updated to meet the expanding operational needs of the DoD Biometrics Enterprise and the progression of its base standards. The figure below illustrates the evolution of ANSI/NIST – ITL, FBI EFTS/EBTS and DoD EBTS.

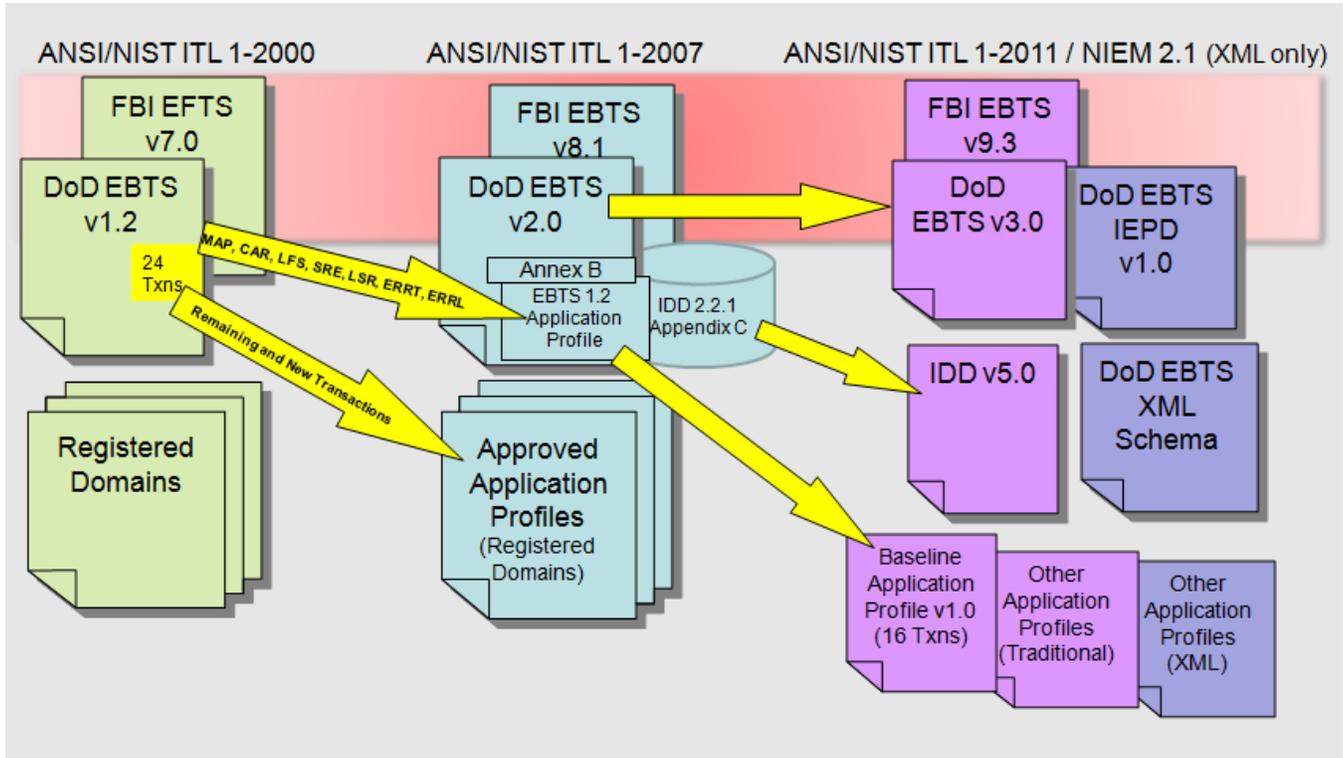


Figure 2 – ANSI/NIST - ITL and DoD EBTS Evolution

Within both ANSI/NIST - ITL and DoD EBTS, data within a single file or transmission is categorized into logical records (also known as “Record Types”). Logical records allow for transmission capabilities to be developed and deployed in a modular fashion. With the exception of Type-1 and Type-2 records, a logical record type is most often associated with a biometric modality or similar capability. As ANSI/NIST - ITL and DoD EBTS have matured, enhancements have been made to the logical records including adding new records based on stakeholder requirements. Table 1 describes the enhancements from DoD EBTS version 1.2 to 3.0. The paragraphs following add additional context to the progression in the table.

Table 1 – Logical Records Supported by DoD EBTS Version

Logical Record Supported EBTS 1.2		Logical Record Supported EBTS 2.0		Logical Record Supported EBTS 3.0	
Type-1	Transaction Information ANSI/NIST ITL 1-2000	Type-1	Transaction Information ANSI/NIST ITL 1-2007	Type-1	Transaction Information ANSI/NIST ITL 1-2011
Type-2	User - Defined Descriptive Text ANSI/NIST ITL 1-2000	Type-2	User - Defined Descriptive Text ANSI/NIST ITL 1-2000	Type-2	User - Defined Descriptive Text ANSI/NIST ITL 1-2000
Type-4	Fingerprint Image Data (High Resolution Grayscale) ANSI/NIST ITL 1-2000				
Type-7	Image Data (User-defined) (FBI EFTS 7.1 - Latent Images)				
Type-9	Minutiae Data (FBI EFTS 7.1 AFIS Feature Set)	Type-9	Minutiae Data (FBI EFTS 8.1 IAFIS Features), (INCITS M1-378 Features)	Type-9	Minutiae Data (FBI EFTS 9.3 IAFIS Features), (INCITS M1-378 Features)
Type-10	Facial & SMT Image Data ANSI/NIST ITL 1-2000	Type-10	Facial and SMT image ANSI/NIST ITL 1-2007	Type-10	Face, other body part, or scar, mark tattoo (SMT) image ANSI/NIST ITL 1-2011
Type-13	Latent Image Data (Variable-resolution) ANSI/NIST ITL 1-2000	Type-13	Variable-resolution Latent Image ANSI/NIST ITL 1-2007	Type-13	Variable-resolution latent friction ridge image ANSI/NIST ITL 1-2011
Type-14	Tenprint fingerprint Impressions (Variable-resolution) ANSI/NIST ITL 1-2000	Type-14	Variable-resolution fingerprint image ANSI/NIST ITL 1-2007	Type-14	Variable-resolution fingerprint image ANSI/NIST ITL 1-2011
		Type-15	Variable-resolution palmprint image ANSI/NIST ITL 1-2007	Type-15	Variable-resolution palmprint image ANSI/NIST ITL 1-2011
Type-16	User-defined Testing Image Data (Variable-resolution) (DoD EBTS 1.2 - Iris Image)	Type-17	Iris image ANSI/NIST ITL 1-2007	Type-17	Iris image ANSI/NIST ITL 1-2011
				Type-18	DNA data ANSI/NIST ITL 1-2011
				Type-20	Source Representation ANSI/NIST ITL 1-2011
				Type-21	Associated context ANSI/NIST ITL 1-2011
				Type-98	Information assurance ANSI/NIST ITL 1-2011
		Type-99	CBEFF biometric data record ANSI/NIST ITL 1-2007	Type-99	CBEFF biometric data record ANSI/NIST ITL 1-2011

2.3 DoD EBTS v2.0 Progression

DoD EBTS version (v) 1.2 was based on the ANSI/NIST-ITL 1-2000 and FBI Electronic Fingerprint Transmission Specification (EFTS) v7.0. After the release of DoD EBTS v1.2, a number of events shaped the release of DoD EBTS Version 2.0:

- As biometric support for various DoD mission activities evolved, so did the requirements for a more flexible standard.
- The scope of DoD biometric data collection and sharing expanded to a wider range of operational scenarios. This broader set of scenarios necessitated the use of a mechanism to tailor the DoD EBTS to individual applications. This mechanism is called an “Application Profile.” It is used to describe customizations for individual operational scenarios that make use of the DoD EBTS.

- Data elements pertaining to biometric data collection and sharing have been defined in a Glossary, a Data Dictionary, and a Data Model. All of the data elements used in the DoD EBTS are defined in the DoD Integrated Data Dictionary, included as Appendix C in the specification.
- ANSI/NIST-ITL 1-2000 was updated to ANSI/NIST-ITL 1-2007 Part 1.
- The DoD ABIS has evolved into the Next Generation ABIS (NG-ABIS), which provides additional functionality such as searching of iris images and face images.
- DoD EBTS needs to be usable for communications with DoD biometric repositories in addition to DoD ABIS (or NG-ABIS).
- FBI EFTS v7 was updated to FBI EBTS v8 to reflect ANSI/NIST - ITL1- 2007 Part 1.

2.4 DoD EBTS v3.0 Progression

Following the release of DoD EBTS v2.0, over 30 formal change requests were submitted through the DoD Biometrics Standards Working Group. The DoD EBTS v3.0 addresses the needs of the DoD Biometric Enterprise and adds new functionality adopted from ANSI/NIST-ITL 1-2011 as follows:

- Type-18 in DoD EBTS v3.0 shall be used to exchange DNA and related data
- Type-20 in DoD EBTS v3.0 shall contain the source representation(s) (a source representation is used to generate one or more representations for use in other record types) from which other Record Types were derived
- Type-21 in DoD EBTS v3.0 shall contain an associated context, audio/visual recording or other related data (i.e., pocket litter)
- Type-98 in DoD EBTS v3.0 shall contain security information that allows for the assurance of the authenticity and/or integrity of the transaction including such information as binary data hashes, attributes for audit or identification purposes and digital signatures

DoD EBTS 3.0 has been restructured to contain only the requirements (i.e. Field ID, Mnemonic and Cardinality) of individual fields and the structure of logical records. It does not attempt to rely solely on transactions; any definition of the combination of logical records into transactions is defined in individual application profiles. The DoD EBTS v3.0 Extensible Markup Language (XML) Information Exchange Package Documentation (IEPD) is aligned with the traditional encoding and is provided separately.

2.5 Specification Document

The DoD EBTS is a transmission specification to be used between DoD systems that capture biometric data and repositories of biometric data. The DoD EBTS describes the rules and concepts that apply to transactions. This includes identifying the logical records supported for each biometric modality, transaction control numbers, origination identifiers, error handling, and image quality requirements. It additionally addresses conformance and unique requirements for the use of application profiles, the domain for a transaction, conformance and testing, backwards compatibility, character encoding, and structure of Data Fields including Field IDs, Information Item Order, Mnemonic and Cardinality.

The DoD EBTS does not attempt to specify all data used in all biometric enabled applications. It leverages BIMA's Integrated Data Dictionary, which standardizes a broad range of data elements

available for implementation in DoD biometrics systems. In addition, definitions for transactions are provided in an Application Profile (AP). These application specific documents list the quantities necessary for each logical record for a particular transaction. These AP documents also identify mandatory and optional fields for the transactions.

2.6 Integrated Data Dictionary (IDD)

The BIMA's *Integrated Data Dictionary (IDD)* product is one of the Biometrics Published Data Products. It is the authoritative source for DoD biometrics data elements. As part of BIMA's mission to lead activities to program, integrate and synchronize biometric technologies, it requires the definition and promotion of transmission data standards for use by the DoD Biometrics Community.

The IDD helps to accomplish BIMA's mission by:

1. Identifying the high-value data exchanged across DoD biometric systems (both current and future),
2. Establishing authoritative definitions for those data, and
3. Documenting standards for them (for example, field size, character type and valid values).

Both DoD EBTS and its application profiles leverages the data elements defined within the IDD. While the specification defines how a field should be exchanged by providing information such as Field ID, Mnemonic and the minimum and maximum occurrences, the IDD defines how the elements should be built by providing characteristics such as size, character type, valid values, value constraints, format, etc.)

The *Integrated Data Dictionary* defines all DoD user-defined data elements that are to be used when data are exchanged among DoD Biometric Systems. The IDD also imports all necessary elements from other base standards (ANSI/NIST - ITL and FBI EBTS and DHS IXM) which DoD may reference for transmitting biometric data.

All data elements within the IDD are represented in a consistent manner. All the IDD elements are categorized into Subject Area sections to provide proper context for usage. Each subject area corresponds to a logical record type referenced by DoD EBTS. Within each section, the IDD contains three types of data constructs: set, information items and standalone elements. A set is natural grouping of two or more elementary information items that are usually treated as a single field. A standalone element has no information item. Neither an information item nor a standalone element can be further decomposed. This structure directly supports the DoD EBTS traditional encoding format. In addition, the XML elements within the XML IEPD Schema can be directly mapped to the data elements within the IDD.

As standards and usages evolve over time, the IDD must reflect the transition and retirement of dictionary elements. The IDD does this by tracking the lifecycle of the dictionary elements through the following element states:

Table 2 – IDD Element States

State	Description
Active	Currently viable and fully usable dictionary element.

State	Description
Deprecated	Element is still usable in current implementations, but it should not be used going forward. It will gradually be phased out with a new element(s) that incorporates the functionality of the deprecated element. The IDD provides the superseding element(s) and any qualifying condition. This helps identify the transition path from As-Is to To-Be.
Sunset	Used for alerting the user community that an element may be retired in the future.
Retired	Used to alert the user community that the retired element shall not be used for current and future applications.
Legacy Derivable	Pertains to FBI elements only. The element should only be used when exchanging directly with FBI. It can be derived from DoD element(s). The IDD provides the DoD elements and any qualifying condition(s) from which this element can be derived.
Emerging	A DoD Type-2 element that can be considered for future capability. It has not yet been approved by BSWG for use and can be subject to change.

Each element within the IDD has an assigned state. Deprecated, sunset, retired, legacy derivable and emerging elements have been clearly marked within the IDD to alert the user community.

2.7 DoD EBTS XML IEPD

The National Information Exchange Model (NIEM) is an XML-based model for information exchange. The NIEM is a United States (U.S.) government-sponsored initiative to facilitate information sharing within government organizations and their business partners. Using the NIEM helps the Department of Defense (DoD) to meet the requirements of HSPD-5, Homeland Security Presidential Directive 5: Management of Domestic Incidents and associated Executive Orders. HSPD-5 directs the DoD to establish appropriate relationships and mechanisms for cooperation and coordination with other departments and agencies responsible for protecting national security.

The DoD BIMA uses NIEM structure and naming conventions to guide the design of the XML schema defined in its DoD Electronic Biometric Transmission Specification (EBTS) standard. The design results are then packaged and distributed in an archive format to meet NIEM requirements for IEPD. The DoD EBTS Information Exchange Package (IEP) is a collection of XML schema, XML instance documents, metadata, and other information artifacts that document the rules governing the exchange of biometric information with the United States DoD.

The 1.0 version of the DoD EBTS IEPD contains files required by the NIEM IEPD specification for the XML documents defined using the DoD EBTS 3.0 standard. To view the IEPD files, extract all of the files from the zip archive to a folder, then open the file named catalog.html in a browser. Once extracted from the archive, all of the files within the package can be accessed through hypertext links in the catalog.html file.

The catalog file displays a link to the IEPD master documentation file, 'DoD EBTS IEPD 1.0 [v1].pdf.' This document presents an overview of the IEPD and describes the overall structure and contents of the IEP. The master documentation also provides background on optional technologies that can be used to create efficient transfer and compact storage solutions for systems that process DoD EBTS XML instance documents.

2.8 Enterprise Architecture Support for DOD EBTS Implementation

The use of architecture products and views to support the implementation of DoD EBTS is best understood in the context of the Department of Defense Architecture Framework (DoDAF), which serves as the principal guide for development of *integrated architectures*, and DoD Instruction 4630.8 which defines an integrated architecture as,

“An architecture consisting of multiple views facilitating integration and promoting interoperability across capabilities and among integrated architectures.”

The relevance is that for the purposes of architecture development for capabilities requiring DoD EBTS conformance, the term integrated means that data required in more than one architectural model is commonly defined and understood across all associated models. As a result, architectural descriptions should depict information and system data exchanges enabled by adoption and use of DoD EBTS, and establish a documented basis for understanding technical interoperability requirements.

This kind of interoperability is often centered on (communication) protocols and the infrastructure needed for those protocols to operate. The DoD Biometrics Enterprise will adhere to formally adopted interface standards that have been recommended for the DoD. These standards include TCP/IP, Hypertext Transfer Protocol, HTTP, and World Wide Web.

By way of reference, the Technical Standards View (defined as the TV-1 in DoDAF 1.5, and the StdV-1 in DoDAF 2.0) is typically developed to support the various systems standards rules that implement and sometimes constrain the choices that can be made in the design and implementation of architecture. Its purpose is to delineate systems standards rules and conventions. When the standards profile is tied to the system elements to which they apply, the TV-1/StdV-1 serves as the bridge between the system views and the technical standards views. The TV-1/StdV-1 consists of the applicable portions of the DISR (DoD Information Technology Standards Registry) tailored to a standard profile. The Systems Resource Flow Matrix (SV-6) draws from this TV-1/StdV-1 to identify the standards applicable to the data exchanges listed in the SV-6.

The Biometric Enterprise Architecture (BioEA) SV-6 is a matrix that depicts the data exchanges between services on the SV-1 system nodes, the data being exchanged, and the attributes of the data exchange. The data exchanges identified in the SV-6 describe the data exchanges associated with the interfaces depicted on the SV-1. The Producing and Consuming System Nodes in the SV-6 matrix originate from the system nodes in the BioEA SV-1. Source and Destination System Functions were drawn from the BioEA Systems and Services Functionality Description (SV-4). The TV-1 standards applicable to the data exchange, confidentiality and integrity are identified by DISR (DoD Information Technology Standards Registry) reference numbers. The standards listed in the SV-6 are found in the BioEA TV architecture products. Like the SV-4, the BioEA SV-6 was developed using architecture data

on a representative set of biometrics systems, with assumed system data exchanges captured for similar systems in order to represent the in-scope biometrics systems detailed in the SV-1 of the architecture.

3.0 Implementation of Logical Record Types

Logical records are designed to separate the various types of biometric and biographic data being collected, stored and shared in a single DoD EBTS file. Each logical record has a specific purpose, requirements and limitations for the data which shall be stored and defined in accordance with DoD EBTS. The following table describes the contents of each logical record type for DoD EBTS v3.0.

Table 3 – Logical Record Descriptions

Record Contents	Record Identifier
<p>Transaction information Transmissions to be exchanged are required to contain one and only one Type-1 record per transaction. The Type-1 record shall always be the first record within the transaction. At least one more record shall be present in the file. The Type-1 record shall provide information describing type and use or purpose for the transaction involved, a listing of each record included in the transaction, the originator or source of the physical record, and other useful and required information items.</p>	<p>Type-1</p>
<p>User-defined descriptive text Type-2 records shall contain user-defined textual fields providing identification and descriptive information associated with the subject of the transaction. Each entry in a Type-2 record shall have a definition and format that is listed with the Domain owner.</p>	<p>Type-2</p>
<p>Minutiae data Type-9 records shall contain and be used to exchange minutiae or other friction ridge feature data. Each record shall represent the processed (automated and/or manual) image data from which the characteristics are stated. The primary use of this record type shall be for remote searching of latent prints.</p>	<p>Type-9</p>
<p>Face, other body part, or scar, mark tattoo (SMT) image Type-10 image records shall contain and be used to exchange image data from the face, scars, (needle) marks, and tattoos (SMT). New to this version of the standard is the extension of the record type to handle images of other body parts.</p>	<p>Type-10</p>
<p>Variable-resolution latent friction ridge image Type-13 image records shall contain and be used to exchange variable-resolution latent friction ridge image data (fingerprint and/or palmprint) together with fixed and user-defined textual information fields pertinent to the digitized image.</p>	<p>Type-13</p>

<p>Variable-resolution fingerprint image Type-14 image records shall contain fingerprint image data. Fixed and user-defined textual information fields pertinent to the digitized image may also be included. While the Type-14 record may be used for the exchange of 19.69 ppmm (500 ppi) images, it is strongly recommended that the resolution for fingerprint images be 39.37 ppmm (1000 ppi). It should be noted that as the class resolution is increased, more detailed ridge and structure information becomes available in the fingerprint image. However, in all cases the class resolution shall be at least 19.69 ppmm (500 ppi). The variable-resolution fingerprint image data contained in the Type-14 record may be in a compressed form. DoD EBTS specifies a set number of Type-14 records for an enrollment: ten rolled impressions of the individual fingers, two plain impressions of the thumbs, and plain impressions of the remaining fingers of each hand. If fewer than 10 fingers were printed, Field 14.018: Amputated or bandaged should be populated with the reason. If Type-14 is not included in the transaction and fingerprint images were required, then the reason for omission should include in Field 2.084: Amputated or bandaged.</p>	<p>Type-14</p>
<p>Variable-resolution palmprint image Type-15 image records shall contain and be used to exchange palm print image data together with fixed and user-defined textual information fields pertinent to the digitized image. While the Type-15 record may be used for the exchange of 19.69 ppmm (500 ppi) images, it is strongly recommended that the class resolution for Type-15 images be 39.37 ppmm (1000 ppi). It should be noted that as the resolution is increased, more detailed ridge and structure information becomes available in the image. However, in all cases the class resolution shall be at least 19.69 ppmm (500 ppi). The variable-resolution palm print image data contained in the Type-15 record may be in a compressed form. A typical transaction utilizing Type-15 includes: a writer's palm with an upper and lower palm from each hand and two full palmprints.</p>	<p>Type-15</p>
<p>Iris image Type-17 image records shall contain iris image data. This record type was developed to provide a basic level of interoperability and harmonization with the ISO/IEC 19794-6 Iris image data interchange format. It also contains optional descriptive data fields and (new to this version of the standard) image markup fields. Generic iris images may be exchanged using the mandatory fields of this record type.</p>	<p>Type-17</p>
<p>DNA data The Type-18 record shall contain and be used to exchange DNA and related data. It was developed to provide a basic level of interoperability with the draft format of the ISO/IEC 19794-14 DNA data interchange format. With full consideration to privacy, this standard only uses the non-coding regions of DNA. The regions of the DNA that encode phenotypic information are deliberately avoided.</p>	<p>Type-18</p>

<p>Source representation</p> <p>The Type-20 record shall contain the source representation(s) from which other Record Types were derived. Typically, one Type-20 source representation is used to generate one or more representations for use in other record types. When a source representation (in a Type-20 record) is processed and the derived representation is to be used as the source for further derivations, then the derived representation is contained in a Type-20 record. In some cases, several Type-20 records may be processed to derive a single modality record.</p> <p>Some possible uses of the Type-20 record are shown here.</p> <ul style="list-style-type: none"> • From a group photo stored in a Type-20 record, a subject’s face is segmented and stored in a Type-10 record. • From a high-resolution color image in a Type-20 record, two latent fingerprint images are segmented, rescaled and gray-scaled for storage in separate Type-13 records. • From a series of off-angle face images stored in separate Type-20 records, a single 2D face image is generated (using fusion) that is stored in a Type-10 record. 	<p>Type-20</p>
<p>Associated context</p> <p>The Type-21 record shall contain an associated context image, audio / visual recording or other related data. This record type does NOT contain information used to derive biometric information contained in other records. Record Type-20 serves that function. Record Type-21 may be used to convey contextual information, such as an image of the area where latent fingerprints were captured.</p>	<p>Type-21</p>
<p>Information assurance</p> <p>The Type-98 record shall contain security information that allows for the assurance of the authenticity and/or integrity of the transaction, including such information as binary data hashes, attributes for audit or identification purposes, and digital signatures.</p>	<p>Type-98</p>
<p>CBEFF biometric data</p> <p>Type-99 records shall contain and be used to exchange biometric data that is not supported by other ANSI/NIST-ITL record types. This provides a basic level of interoperability and harmonization with other biometric interchange formats. This is accomplished by using a basic record structure that is conformant with the Common Biometric Exchange Formats Framework (CBEFF) and a biometric data block specification registered with the International Biometrics & Identification Association (IBIA), http://www.ibia.org.</p>	<p>Type-99</p>

4.0 Implementation of Types of Transactions (TOT)s

Types of transactions (TOTs) build upon logical records to provide a purpose to the data which is being transmitted. Each TOT and the associated responses are described below. Additional TOTs may be developed within an approved application profile as needed.

Table 4 – TOT Descriptions

TOT	Transaction Name	DoD Implementation
Biometric Transactions		
CAR	Criminal Tenprint Submission (Answer Required)	Submission used for detainees, enemy combatants, enemy prisoners of war (EPWs), or persons of interest (known or suspected terrorists).
CNA	Criminal Tenprint Submission (No Answer Required)	Submission used for detainees, enemy combatants, enemy prisoners of war (EPWs), or persons of interest (known or suspected terrorists).
CPDR	Criminal Fingerprint Direct Route (Direct Route to CJIS)	Submission used for detainees, enemy combatants, enemy prisoners of war (EPWs), or persons of interest (known or suspected terrorists).
DEK	Known Deceased	Submission used for deceased subject whose identity is known.
DEU	Unknown Deceased	Submission used for deceased subject whose identity is not known.
DPRS	DoD Flat Print Rap Sheet Search	This is only used in special circumstances.
ERRT	Tenprint Transaction Error	Error response.
MAP	Miscellaneous Applicant	Submission used as part of a background check for local nationals and third country nationals who require access to U.S. military installations or other restricted areas.
RPSR	Rapid Print Image Search Response	This notification will be sent to the submitter of a CPDR transaction as configured by the BIMA operations staff. Once the Yellow Resolve has been properly adjudicated by the fingerprint examiners, the SRE response will be sent.
SRE	Submission Results -Electronic	Response containing an Ident/Non-Ident decision; will contain an electronic rap sheet if requested.

TPRR	Tenprint Rapsheet Response	TPRR responses are rapid responses to a TPRS transaction with SRE responses sent at a later time.
TPRS	10-print Rap Sheet Search	Performs a search only, non-retain, and can return an unconfirmed-identification (“yellow”).
Latent Print Transactions		
ERRL	Latent Transaction Error	Error response.
LFIS	Latent Friction Ridge Image Search	Used for latent image submission and searches.
LFFS	Latent Friction Ridge Feature Search	Used for latent feature submission and searches.
SRL	Submission Results -Latent	Latent response including a candidate list comprising names and identifier of each candidate.

4.1 CAR: Criminal Tenprint Submission (Answer Required)

The Criminal Tenprint Submission (CAR) shall be used for detainees, enemy combatants, enemy prisoners of war (EPWs), or persons of interest (known or suspected terrorists). DoD Biometrics policy requires 10-print rolled fingerprints for subjects in a detained situation. CAR contains ten rolled or flat and four plain impressions of all ten fingers. It may also contain up to 6 Iris Images, 5 Facial Images, and 8 Palmprint Images.

The two valid responses to a CAR submission are SRE or ERRT. An SRE will be returned with the search results (Identification/Non-identification) if no errors exist in the submission. An ERRT will be returned with details of the specific error should a syntax error and/or image quality problem exist.

4.2 CNA: Criminal Tenprint Submission (No Answer Required)

The CNA submission shall be used for detainees, enemy combatants, enemy prisoners of war (EPWs), or persons of interest (known or suspected terrorists).

The CNA is identical to the CAR submission but it does not require an answer to be returned.

4.3 CPDR: Criminal Fingerprint Direct Route

This transaction consists of a criminal arrest fingerprint submission that will be directly routed to a CJIS internal log application for special processing. The submission contains ten rolled and four plain impressions and detention data. It is identical to the CAR request described above with the inclusion of a mandatory Type of Search Request (TSR) field. CJIS will ensure the required data fields and a Type of Search Requested (TSR) of “C” are present; otherwise, the submission will be rejected. If the TSR of “C” is present and the TOT is something other than CPDR, the submission will be rejected.

A RPSR will be sent to the submitter of a CPDR transaction as configured by the BIMA operations staff. Once the Yellow Resolve has been properly adjudicated by the fingerprint examiners, the SRE response will be sent. An ERRT will be returned with details of the specific error should a syntax error and/or image quality problem exist.

Note: CPDR is a limited-use TOT that requires coordination with BIMA Operations prior to use.

4.4 MAP: Miscellaneous Applicant

The MAP transaction type is typically used as part of a background check for local nationals and third country nationals who desire access to U.S. military installations or other restricted areas. DoD Biometrics policy requires 10-print rolled or flat fingerprints (14 images including slaps) for these subjects. Rolled prints are always preferred and should be collected whenever possible.

Valid responses to this submission are SRE or ERRT. An SRE will be returned with the search results (Identification/Non-identification) provided that no errors exist in the submission. If a syntax error is present or there is a problem with image quality, an ERRT transaction will be returned with details of the specific error.

4.5 DEK: Known Deceased and DEU: Unknown Deceased

The DEK transaction type is used for a deceased subject whose identity is known. The DEU transaction type is used for a deceased subject whose identity is not known. DoD Biometrics policy requires 10-print rolled fingerprints for these types of submissions.

Valid responses to this submission are SRE or ERRT. An SRE will be returned with the search results (Identification/Non/identification) provided that no errors exist in the submission. If a syntax error is present or there is a problem with image quality, an ERRT transaction will be returned with details of the specific error.

4.6 TPRS: Tenprint Rap Sheet Search

The TPRS transaction type may be used as part of a quick background check by the U.S military. Uses include highly mobile applications, check points, and situations with a very limited time on target. This transaction is for flat fingerprints only. One to 10 flat prints are required. This transaction is always search only (non-retain). TPRS requires no demographic or biographic information to be collected from the subject.

Valid responses to this submission are TPRR, SRE or ERRT. If a syntax error is present or there is a problem with image quality, an ERRT transaction will be returned with details of the specific error.

4.7 DPRS: DoD Flat Print Rap Sheet Search

The DPRS transaction type shall only be used in certain circumstances. These circumstances include legacy data submission and situations where acquiring full rolled fingerprints is not feasible. Highly mobile or limited time on target situations may warrant the use of this transaction type. DPRS data submission requires special coordination with DoD Biometrics. Submissions of this type may require special processing. In all situations, DoD Biometrics policy is to collect as much data as possible. DoD

entities must contact the BIMA for specific guidance on the use of this transaction type. The DPRS transaction will accept flat or rolled fingerprints. One to 14 fingerprint images are required. Mug shot images may be included in this transaction as a Type-10 record. Iris images may be included in this transaction as a Type-17 record. The DPRS transaction type is a superset of the TPRS transaction type.

An SRE will be returned with the search results provided that no errors exist in the submission. If a syntax error is present or there is a problem with image quality, an ERRT transaction will be returned with details of the specific error.

4.8 LFIS: Latent Friction Ridge Image Search and LFFS: Latent Friction Ridge Features Search

The LFIS and LFFS transaction types shall be used for latent submissions and searches. Information regarding the latent print is required. All feature searches (LFFS) are required to contain both the fingerprint image as well as feature data. Additionally, DoD Biometrics requires the name of the latent technician (i.e., the lifter or processor) and the name of the submitter (i.e., the ABIS operator).

An SRL will be returned with the search files provided that no errors exist in the submission. A candidate list is not returned. The response will contain an identification or non-identification. If a syntax error is present or there is a problem with image quality, an ERRL transaction will be returned with details of the specific error.

4.9 Logical Record Requirements by Type of Transaction (TOT)

Requirements for inclusion of logical records have been established to meet the purpose of individual TOTs. These requirements include which logical records can be used (as well as number of occurrences) for each TOT. These requirements are detailed in Table 5 below.

Table 5 – Logical Record Requirements

TOT	T-1	T-2	T-9	T-10	T-13	T-14	T-15	T-17	T-18	T-20	T-21	T-98	T-99
CAR	1	1		0-10**		0-14*	0-8***	0-6****	0-5	0-10	0-10		
CNA	1	1		0-10**		0-14*	0-8***	0-6****	0-5	0-10	0-10		
CPDR	1	1		0-10**		0-14*	0-8***	0-6****					
MAP	1	1		0-10**		0-14*	0-8***	0-6****			0-10		
DEK	1	1		0-10**		0-14*	0-8***	0-6****	0-5	0-10	0-10		
DEU	1	1				0-14*	0-8***	0-6****	0-5	0-10	0-10		
TPRS	1	1	0-10			0-10+							
DPRS	1	1	0-14	0-10**		0-14*	0-8***	0-6****					
LFIS	1	1-2			0-10	0-10	0-8***		0-5	0-10	0-10		
LFFS	1	1-2	1-10		0-10	0-10			0-5	0-10	0-10		
SRE	1	1		0-1									
SRL	1	1				0-NCR							
RPSR	1	1											
TPRR	1	1											
ERRT	1	1											
ERRL	1	1											

Notes:

A **plus sign (+)** indicates up to 10 Type-14 images may be submitted for this transaction. DoD EBTS specifies a set number of Type-14 records for an enrollment. For this transaction a Complete Fingerprint Image Set will consist of:

10 Images:

- One Rolled or Flat image of each of the 10 fingers.

An explanation for any required but missing fingerprints shall be provided in field 2.084, Amputated or Bandaged Code. Field 2.084 shall accurately represent the reason a required Type-14 record is missing. This field has two subfields: Finger Number (FGP) and Amputated or Bandaged Code (AMPCD). Both subfields are required if field 2.084 is present. Subfield FGP is a two-digit code that specifies which finger is missing. Subfield AMPCD uses the value “XX” when there is an actual amputation and the value “UP” (unable to print) for all other situations.

NCR – Number of Candidates Returned.

A single asterisk (*) indicates up to 14 Type-14 images may be submitted for this transaction. DoD EBTS specifies a set number of Type-14 records for an enrollment. Complete Fingerprint Image Sets consist of one of the following options:

14 Images:

- Rolled or Flat image of each of the 10 fingers
- One Four Finger Slap image of the right hand (no thumb)
- One Four Finger Slap image of the left hand (no thumb)
- One Flat image of the right thumb
- One Flat image of the left thumb

13 Images:

- Rolled or Flat image of each of the 10 fingers
- One Four Finger Slap image of the right hand (no thumb)
- One Four Finger Slap image of the left hand (no thumb)
- One Two-Thumb Slap Fingerprint image

An explanation for any required but missing fingerprints in a plain two thumb slap or four finger slap image shall be provided in field 14.018 Amputated or Bandaged. Field 14.018 shall accurately represent the reason for each missing fingerprint. This field has two subfields: Finger Position Code (FGP) and Amputated or Bandaged Code (AMPCD). Both subfields are required if field 14.018 is present. Subfield FGP is a two-digit code that specifies which finger is missing. Subfield AMPCD uses the value "XX" when there is an actual amputation and the value "UP" (unable to print) for all other situations.

DoD EBTS v3.0 recommends the use of ITL 1-2011 Field 14.018 in order to adhere to business rules developed for this standard. However, Field 2.084 Amputated or Bandaged and its two information items should be used to include the reason for a missing finger if a Type-14 record is not submitted or to indicate why a slap image and/or plain thumb image is missing.

DoD EBTS v3.0 does not recommend the practice of stitching fingerprint images (e.g., the right and left thumb images were captured separately, but combined prior to transmission to create a single artificial two-thumb image). For devices which are not able to submit the four finger slap image and/or two thumb slap image due to limitations on the capturing device, the 2.084 AMP field shall instead be populated to indicate the Finger Position Code and Amputated or Bandaged Code.

A double asterisk ()** indicates that up to 10 Type-10 images may be submitted for this transaction. DoD EBTS specifies a minimum of one Type-10 record for an enrollment: a facial full frontal pose. If the full frontal pose is not provided, then the reason for omission should be included in Field 2.8117: Facial Image Omitted Reason. A full set of facial images consists of the following 5 poses, however only the full frontal pose is required:

- Full Frontal, 0 degrees (Mandatory);
- Left Full Profile, 90 degrees left side;
- Left Half Profile, 45 degrees left side;
- Right Full Profile, 90 degrees right side;
- Right Half Profile, 45 degrees right side.

Up to 5 facial images may be included in the Type-10 records, an additional 5 images are allowed for SMTs and Other Body Parts.

A triple asterisk (*)** indicates that up to 8 Type-15 images may be submitted for this transaction. An explanation for any missing palmprint images is optional. Field 15.018 Amputated or bandaged should be used to indicate any missing images. The Type-2 Field 2.8112: Palmprint Image Omitted Reason has been added to DoD EBTS v3.0 and may be used to indicate the reason a Type-15 record is not submitted.

A complete palmprint set contains the following images for both hands:

- One writer's palm and
- Either one full palm image (the entire area of the full palm extending from the wrist bracelet to the tips of the fingers) or
- One upper palm image (extends from the bottom of the interdigital area to the upper tips of the fingers); and
- One lower palm image (shall extend from the wrist bracelet to the top of the interdigital area (third finger joint)) or
- One palm thenar area image, one palm hypothenar area image, and one palm interdigital area image

A quadruple asterisks (**)** indicates that up to 6 Type-17 images may be submitted for this transaction. This record type shall contain iris images. DoD EBTS v1.2 allows iris images in Type-16 records; this Baseline Application Profile does not. DoD EBTS specifies a set number of Type-17 records for an enrollment, 1 iris image of each eye. An iris record shall contain an image of a single iris. If either iris image could not be captured, Field 17.028: Damaged or Missing Eye should be populated with the reason. If Type-17 is not included in the transaction, then the reason for omission should be included in Field 2.8110: Iris Image Omitted Reason.

5.0 Implementation of Application Profiles (AP)s

Application Profiles (AP)s build upon DoD EBTS by designating a MISSION for which the transmission is being used. The DoD EBTS is the DoD Biometrics Enterprise standard used by numerous customers to meet specific needs; as such it must be broad enough to incorporate a range of data interchange capabilities.

For instance, the biometric and biographical data collected by an Army Sensor on the ground will differ from that of a Naval Seaman on a vessel which will differ from Special Operation Forces on a targeted endeavor. Furthermore, data which is shared with international and interagency partners (as well as the rules surrounding releasabledata) will differ based on the operational mission.

Application profiles are in place to align similar missions and facilitate interoperability between systems, databases and devices which must communicate necessary biometric and biographic data to meet their mission needs.

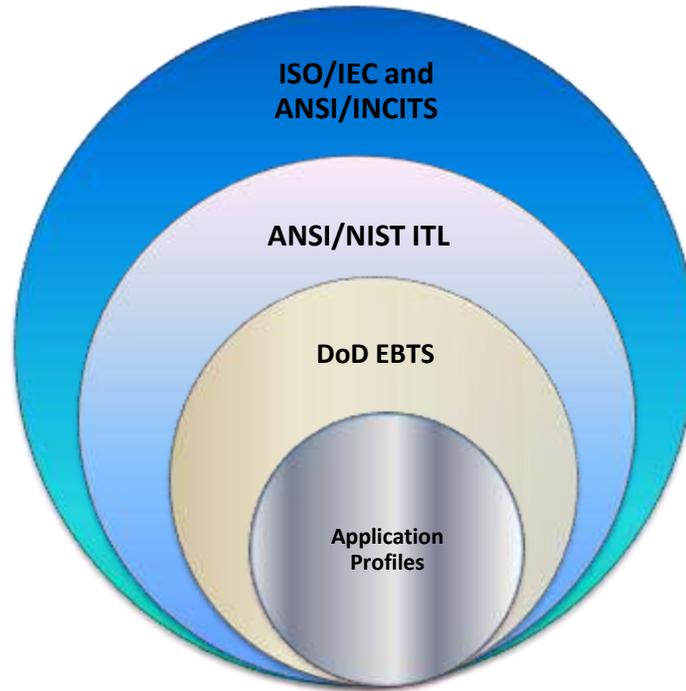


Figure 3 – Application Profiles

5.1 APs Defined

The term Application Profile (AP) is commonly used in the IT standards community, and generally refers to the adaptation, constraint, and/or augmentation of a base standard (or a set of base standards) to suit the needs of a particular community or an application domain. The process of an AP definition may include one or more of the following actions:

- Selection of a core sub-set of requirements and provisions of the base standards (e.g., elements and/or fields from the DoD EBTS and/or DoD IDD) expressed as a mandated sub-set which must be supported as a minimum);
- Addition of requirements (e.g., elements and/or fields) in a prescribed manner to the base specification (e.g., addition of a new TOT using data elements defined in the DoD IDD);
- Restriction of the ranges of values given in the base specification, or selection of parameter values from the value lists given in the base specification.

An AP characterizes a base set of standards, with options necessary to accomplish the desired purpose of interoperability, providing a construct that links detailed reference information to an instance within the enterprise. The AP is not intended to replace or duplicate detailed information describing the base standard.

A formal definition of a profile, as given in ISO TR 10000-1 technical report, is "a set of one or more base standards, and/or profiles, and, where applicable, the identification of chosen classes, conforming

subsets, options and parameters of those base standards, or profiles necessary to accomplish a particular function"¹.

For DoD EBTS purposes, an Application Profile (AP) shall:

1. Contain a definition of any and all data that is required to create, validate, and process a DoD EBTS file within a given solution.
2. Contain a verification file that is usable in an operational environment.
3. Contain a document that defines the DoD EBTS usage scenario in a specific application domain.
4. Include the following necessary elements:

Application Profile	Layer	Elements	Comments
	Data layer	EBTS specification	The historical “verification file” defining EBTS TOT, record content field definitions, numbering, mandatory or optional, occurrences, etc.
		EBTS data	An actual EBTS file created with and adherent to an EBTS specification as defined above. The file format can be traditional binary or XML formats.
	Processing Layer	Processing rules that are solution implementation specific	This portion of the AP and how it interacts or influences the entire AP will be determined by the system or solution the EBTS data is feeding into. Items such as policy, service level agreements, architecture, interface with other systems, etc. will all control or affect the business processing aspects of the EBTS data. Process flows here can be static or determined by the actual EBTS file contents.
Solution Business Layer			

5. Adhere to the following naming convention:
 - a. Implementation: This will be the Government Department or other organizational entity that is governing this AP.
 - b. Agency: This will be the operational agency that is defining this AP for operational use.
 - c. Domain Name: This will be the domain name with the Implementation and Agency of a discrete DoD EBTS Domain within an AP.
 - d. Domain Version: This will be a specific version of the Domain Name.

5.2 Application Profile Registry

The web-based application profile registry is necessary to create an open configuration management plan for standard data exchange for all biometric stakeholders. Although Configuration Management (CM) is occurring with regards to data exchange and development of APs, it is a manual and intensive process capable of being performed by a very limited number of people. In order to gain more

¹ Cited in the Intelligence Community Enterprise Standards Governance (ICEGS) Integrated Project Team (IPT) "Terminology and Acronyms with References" document as derived from ISO TR 10000-1.

transparency in the management of profiles, the Application Profile Registry will serve as a centralized location for storing approved APs.

5.3 Application Profile Decision and Approval Process

The decision to develop a new Application Profile should be made after performing the proper analysis of existing Application Profiles and determining that no existing APs meet the requirements of the customer. Coordination with the Executive Manager for biometrics is required to ensure consistency throughout the process.

Key factors that may indicate the need for a new Application Profile include but are not limited to:

- The need for new data elements not defined in the current version of the Integrated Data Dictionary (IDD)
 - The addition of new data elements requires maintenance and modification of the IDD. This may also impact the current version of the Electronic Biometric Transmission Specification
- The need to transmit a new logical record not defined in other Application Profiles
 - Each Application Profile transaction type shall have requirements for including a certain number of logical records of each type.
- The requirement to change data fields from mandatory to optional from existing Types of Transactions (TOTs)

If a new data element or elements are needed to the current version of the IDD a formal Change Request (CR) should be submitted to the DoD Biometrics Standards Working Group (BSWG). The BSWG is responsible for adjudicating a formal CR and developing a solution based on the feedback and comments from DoD stakeholders. The stakeholders are asked to comment and provide information as it relates to their response/intentions from their own entities. The EM will have the ultimate decision on whether to accept changes to the IDD. If changes are needed, the editor will make revisions to the IDD and determine if there are any impacts to DoD EBTS or associated Application Profiles.

The Executive Manager will assist the customer in making the final determination of developing a new AP, but the customer or AP requestor is responsible for submitting a formal request and providing all relevant information regarding the application. The EM reviews the request and determines if a new AP is needed or an existing AP should be utilized.

Based on the final consensus, a new AP will be developed, an existing AP will be modified, or an existing AP will be reused. In addition, the Application Profile must be verified for integrity through generation of a valid verification text file. Implementation of the Application Profile should follow the processes described by the Configuration Control Board (CCB). Approval of implementation by the CCB will follow the proper governance structure which may need to elevate to executive governance processes. It is the responsibility of PM Biometrics and Executive Manager to determine if the AP passes the testing phase and to implement the AP into the authoritative repository (i.e., DoD ABIS). The AP shall also be registered into the AP Registry.

6.0 Existing Implementation Scenarios & Considerations

The following implementation scenarios are current examples where the DoD EBTS was utilized to accomplish specific DoD biometric related missions. The solutions described below are not mandatory, but may be of value for system implementers.

6.1 Application Profile (AP) for DoD EBTS 2.0

The Application Profile contained in Annex B of EBTS 2.0 serves as a translation of TOTs from DoD EBTS 1.2 to DoD EBTS 2.0.

The document is available online:

<http://www.biometrics.dod.mil/CurrentInitiatives/Standards/dodebts.aspx>

6.2 Application Profile (AP) for DoD EBTS 3.0

The Baseline Application Profile corresponds to DoD EBTS 3.0 and expanded on the number of TOTs contained in the DoD EBTS 2.0 AP based on the requests of the community to incorporate additional TOTs implemented.

The document is available online here:

<http://www.biometrics.dod.mil/CurrentInitiatives/Standards/dodebts.aspx>

6.3 International Caveats

International sharing of biometric data can become complex when considering legal and privacy obligations. In order to appropriately handle sharing of biometric data, an International Caveat data field has been developed. The Caveat data field provides for partner nations to label biometric records in a standardized way. This allows all records from a partner nation, provided through a specific agreement, to be labeled the same way. This label is both human and machine readable, enabling users to identify partner nation data, and allowing systems to reference the correct International Caveat Profile in order to make automated data handling decisions.

IDD Element Name	IDD Element Description	EBTS Field ID	Mnemonic
Caveat	The set allows an EBTS file to be annotated with caveat, usage or handling instructions, disclaimer or general information. The set consists of 6 information items: Caveat Originator Country Code, Caveat Originating Agency Name, Caveat Originating Agency Identifier, Caveat Date, Caveat Type and Caveat Text.	2.8399	CAV
Caveat Originating Agency Country Code	The ISO 3166-1 alpha3 country code of the organization originating the caveat.	2.8399_1	CAV_CNTRY_CD
Caveat Originating Agency Name	The name of the administration or organization originating the caveat.	2.8399_2	CAV_ORI_NAME
Caveat Originating Agency Identifier	The identifier of the administration or organization originating the caveat.	2.8399_3	CAV_ORI
Caveat Date	The date when the caveat is published.	2.8399_4	CAV_DT
Caveat Category Code	The kind of caveat described in the text field.	2.8399_5	CAV_CAT_CD
Caveat Text	The specific text for the type of caveat.	2.8399_6	CAV_TXT

6.4 DoD EBTS File Security Classification Markings

Security classification markings are needed when considering cross-domain solutions and data which need to be potentially communicated on secure networks. The DoD Electronic Biometric Transmission Specification (EBTS) Security Classification Markings Technical Report describes a means of binding granular level security classification markings to any of the records and fields of all versions and formats of DoD EBTS information to support an automated cross-domain solution and bi-directional exchange of information. This binding uses a digital signature to provide a data integrity service that allows modifications to the DoD EBTS content or its markings to be detected. Through use of a Public Key Infrastructure (PKI), the origin of the signer can be determined to provide assurance to a relying party that the source of the signed content should be trusted and to allow information received from a source not trusted to be detected. Security classification markings are metadata that can be bound to DoD EBTS information as signed attributes. Any number of attributes containing content of any type or format can be included in the binding. This approach allows any user with a need to bind metadata to DoD EBTS transactions without requiring changes to the DoD EBTS. As new DoD and IC standards are developed, expected additional metadata will be needed. Following the addition of security classification markings, future attributes may include metadata to support IC-NTK (Need-To-Know), IC-ISM (Information Security Marking), IC-ARH (Access Rights and Handling), IC-EDH (Enterprise Data Header), DDMS (DoD Discovery Metadata Specification), and GEOINT (Geospatial Intelligence) information.

ANNEX A: External Resources

- [1] ANSI/NIST-ITL 1-2011, NIST Special Publication 500-290, Data Format for the Interchange of Fingerprint, Facial & Other Biometric Information. Retrieved from http://www.nist.gov/itl/iad/ig/ansi_standard.cfm
- [2] Department of Defense (DoD) Electronic Biometric Transmission Specification (EBTS) 3.0 standard. Retrieved from <http://www.biometrics.dod.mil/CurrentInitiatives/Standards/dodebts.aspx>
- [3] Department of Defense (DoD) Electronic Biometric Transmission Specification (EBTS) IEPD 1.0. Retrieved from <http://www.biometrics.dod.mil/CurrentInitiatives/Standards/dodebts.aspx>
- [4] Integrated Data Dictionary for the Department of Defense (DoD) Biometrics Identity Management Agency (BIMA). Retrieved from <http://www.biometrics.dod.mil/CurrentInitiatives/Standards/dodebts.aspx>
- [5] National Information Exchange Model Naming and Design Rules. Retrieved from <https://www.niem.gov/documentsdb/Documents/Technical/NIEM-NDR-1-3.pdf>
- [6] NIEM Namespace Index. Retrieved from <http://release.niem.gov/niem/2.1/niem-2.1-index.html>
- [7] Requirements for a National Information Exchange Model (NIEM) Information Exchange Package Documentation (IEPD) Specification. Version 2.1, 2006. Retrieved from <http://www.docstoc.com/docs/22552615/NIEM-IEPD-Template-Requirements>
- [8] DoD Biometrics Enterprise Reference Architecture