Department of Defense

Electronic Biometric Transmission Specification

8 DECEMBER 2011

Version 3.0

DIN: BIMA-STB-STD-11-001

Revision History

Draft Version	Date	Document Status	Participants/Comments
0.1 Draft 1	8 March	Initial Draft	Call for comments
0.2 Draft 2	30 September	Second Draft	Call for comments
1.0 Final	17 November	Final	Letter Ballot
1.0 Final	8 December	Approved Final Version	BSWG and BIMA Internal Staffing Approval

Change Requests

CR ID	Change Request (CR) Description
1	Support of data fields for blue force biometrics with DoD Enterprise functionality in Integrated Data Dictionary (IDD) (Fields listed as emerging in IDD)
2	Reinstate Encounter Protection, BAT GUID, Internment Serial Number, DoD Number, Electronic Data Interchange Personnel Identifier, Defense Biometric Identification System, Biometric Subject Personnel Type, Request Mug Shot, Request IAFIS Search, and XML-Based Rap Sheet fields
3	Support FBI EFTS 7.1 – Include all FBI EBTS v9.3 mandatory data fields identified by Base Application Profile (BAP)
4	Support Base Access fields with DoD Enterprise functionality as identified in the BAT-A v5 Application Profile
5	Support of International Caveat
6	Synchronization with the IDD
7	Fixes to EBTS v2.0 (i.e., mnemonics and field assignments)
8	Implement business rules for FBI legacy fields used in EBTS v3.0 and the BAP
9	Restructuring of certain Type-2 data fields to improve alignment to FBI EBTS v9.3 and NIEM
10	Adoption of Type-18, 20, 21, and 98 Records from ANSI/NIST ITL 1-2011
11	Additional guidelines on image formats and compressions adopted from ITL 1-2011
12	Support of missing palm omitted and facial image omitted indicators in Type-2
13	Update EBTS to support existing records in ITL 1-2011

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 Background 1
1.2 Scope and Purpose 2
1.3 References 3
1.4 Change Control 4
1.5 Contact Information 4

2.0 CONFORMANCE AND UNIQUE REQUIRMENTS 5

2.1 Application Profile 5
2.2 DoD EBTS Domain 5
2.3 Conformance and Testing 6
2.4 DoD ABIS Backward Compatibility 6
2.5 Character Encoding 6
2.6 Structure of a Mnemonic 7
2.7 Encounter Protection 7

3.0 DoD EBTS TRANSACTIONS 8

3.1 Record Types 8
3.2 Transaction Control Numbers 11
3.3 Origination Identifiers 12
3.4 Tagged Fields 12
3.5 Error Handling 13
3.6 Image Quality and Image Sets Requirements 14

4.0 DoD EBTS RECORDS AND FIELDS 17

4.1 Type-1 Records [Transaction Information] 17
4.2 Type-2 Records [User-Defined Descriptive Text] 20
4.3 Type-9 Records [Minutiae Data] 34
4.4 Type-10 Records [Facial & SMT] 40
4.5 Type-13 Records [Variable-Resolution Latent Image] 46
4.6 Type-14 Records [Var-Res Fingerprint Image] 49
4.7 Type-15 Records [Var-Res Palmprint Image] 53
4.8 Type-17 Records [Iris Image] 56
4.9 Type-18 Records [DNA Record] 61
4.10 Type-20 Record [Source Representation Record] 65
4.11 Type-21 Record [Associated Context Record] 69
4.12 Type-98 Record [Information Assurance Record] 72
4.13 Type-99 Records [CBEFF Biometric Data Record] 74

Appendix A: Change Request Template 77

Department of Defense Electronic Biometric Transmission Specification Change Request (CR) Submission Form 77

LIST OF FIGURES

Figure 1: Transaction Submission and Response Sequence 11
Figure 2: TCN Layout 12

LIST OF TABLES

Table 1: Logical Records 8
Table 2: Response to Unrecognized Reception 14
Table 3: Type-1 Transaction Information Record Layout 18
Table 4: Type-2 User-Defined Descriptive Text Record Layout 24
Table 5: Type-9 Minutiae Data Record Layout (IAFIS Features) 35
Table 6: Type-9 Minutiae Data Record Layout (INCITS-378 Features) 37
Table 7: Type-10 Facial and SMT Record Layout 41
Table 8: Type-13 Variable-Resolution Latent Record Layout 47
Table 9: Type-14 Variable-Resolution Fingerprint Record Layout 50
Table 10: Type-15 Variable-Resolution Palmprint Record Layout 54
Table 11: Type-17 Iris Image Record Layout 57
Table 12: Type-18 DNA Data Record Layout 62
Table 13: Type-20 Source Representation Record Layout 66
Table 14: Type-21 Associated Context Record Layout 70
Table 15: Type-98 Information Assurance Record Layout 73
Table 16: Type-99 CBEFF Biometric Data Record Layout 75

1.0 INTRODUCTION

This Department of Defense (DoD) Electronic Biometric Transmission Specification (EBTS) is based on the American National Standards Institute (ANSI)/National Institute of Standards and Technology (NIST) Information Technology Laboratory specification number 1-2011 (ITL 1-2011). The DoD's EBTS builds upon the ITL 1-2011 to meet DoD requirements via additions to and customizations of the ITL 1-2011 data format.

1.1 Background

The DoD EBTS was originally developed as an interface to the DoD Automated Biometric Identification System (ABIS). The DoD ABIS is an electronic database and an associated set of software applications that support the storage, retrieval, and searching of fingerprint and latent data collected from persons of national security interest. The DoD ABIS was designed to be similar to the FBI Criminal Justice Information Services (CJIS) Integrated Automated Fingerprint Identification System (IAFIS) and therefore its interface was based on the FBI's Electronic Fingerprint Transmission Specification (EFTS). Because of the different nature of DoD encounters and detainment circumstances, the DoD has additional operational requirements beyond those defined in the FBI EFTS. The DoD-unique capabilities are defined in the DoD EBTS.

Following extensive expert review and multiple revisions, the first widely distributed version (version 1.2) of the DoD EBTS was released in November 2006. That document described a set of capabilities that had been implemented in the DoD Biometric Enterprise as well as defining future capabilities.

DoD EBTS version (v) 1.2 was based on the FBI Electronic Fingerprint Transmission Specification (EFTS) v7.0 and ANSI/NIST-ITL 1-2000. 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. The concept of an application profile is described in Section 2.1.
- 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 Data Dictionary.
- 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 ITL-1 2007 Part 1.

Following the release of EBTS v2.0, there were a number of Change Requests submitted and fixes to Version 2.0 identified. Furthermore, DoD EBTS v3.0 allows for the transmission of new functionality. DoD EBTS v3.0 addresses the needs of the Biometrics Enterprise and will be based on ANSI/NIST ITL 1-2011 and will be closely aligned to the FBI Electronic Biometric Transmission Specification (EBTS) v9.3.

New functionality to EBTS v3.0 adopted from ANSI/NIST-ITL 1-2011 is 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

Change Requests submitted from the Biometrics Enterprise that are incorporated in EBTS v3.0 can be found in the Change Request Log.

The DoD EBTS v3.0 is described in this document.

1.2 Scope and Purpose

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 does not attempt to specify all data used in all biometric enabled applications. It does allow for the definition of application specific data elements as specified in Section 1.6 of this document.

This version of the DoD EBTS has been restructured to contain only the definitions of individual fields and the structure of logical records. It does not attempt to define transactions; any definition of the combination of logical records into transactions is defined in individual application profiles (described in Section 3.0). Furthermore, this document provides only the traditional encoding description of DoD EBTS v3.0. The DoD EBTS v3.0 Extensible Markup Language (XML) Information Exchange Packet Documentation (IEPD) will align with the traditional encoding and will be provided separately.

The primary audience for this specification consists of software/system engineers who develop, support, and/or test systems that interface with the DoD authoritative repository (i.e., DoD ABIS) or other DoD biometric systems. This document contains the technical details of the DoD EBTS. Readers are expected to have working knowledge of the ANSI/NIST-ITL 1-2011 as a prerequisite for understanding this specification.

This document may also be used by program managers, trainers, or other system design personnel to gain an understanding of the capabilities enabled by the DoD EBTS.

Users who wish to begin using services or implement biometric identification services should contact the Biometrics Identity Management Agency (BIMA) for further assistance. Refer to Section 1.5 for contact information.

1.3 References

EBTS v3.0 references multiple normative documents, which are listed in the “1.3 References" section of this standard. Although, some references listed in this section are informational rather than normative.

[ITL 1-2011] ANSI/NIST-ITL 1-2011, “American National Standard for Information Systems – Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information” (NIST Special Publication 500-290).

[IDD] DoD Integrated Data Dictionary, v5.0.

[BAP] DoD Baseline Application Profile, v1.0.

[EIP] DoD EBTS Implementation Guide, Draft.

[SOP] DoD Application Profile Approval Standard Operating Procedure.

[SOP] DoD EBTS Change Request Standard Operating Procedure.

[FBI EBTS] Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services (CJIS), “Electronic Biometric Transmission Specification” (IAFIS-DOC-01078-9.3).

[INCITS 385] ANSI INCITS 385-2004, “Face Recognition Format for Data Interchange.”

[ISO 19794-5] ISO/IEC 19794-5, “Information technology — Biometric data interchange formats — Part 5: Face Image Data.”

[ISO/IEC 19794] ISO/IEC 19794-6:2011, “Information technology – Biometric data interchange formats – Part 6: Iris image data.”

AR 190–8/OPNAVINST 3461.6/AFJI 31–304/MCO 3461.1, 1 October 1997, “Enemy Prisoners of War, Retained Personnel, Civilian Internees and Other Detainees.”

[ISO 3166-1] ISO/IEC 3166-1, “Codes for the representation of names of countries and their subdivisions – Part 1: Country Codes.”

Chief Information Officer/G-6 Memorandum, 29 November 2005, “Department of Defense Compliance with the Electronic Biometric Transmission Specification.”

The Under Secretary of Defense for Acquisition, Technology and Logistics, 6 June 2011, “Memorandum on DoD Country Code Standard.”

1.4 Change Control

The BIMA Standards Branch maintains change control responsibilities for this document. Requested changes to this document should be submitted to the DoD Biometrics Web site. Refer to Section 1.5 for more information.

1.5 Contact Information

DoD Biometrics Web site: http://www.biometrics.mil.

For technical issues, contact the BIMA Watch Desk at (304) 326-3024, or by e-mail at helpdesk@abis.biometrics.mil. The BIMA Watch Desk operates 24 hours a day and 7 days a week. For questions on the standard or for assistance with the Application Profile approval process, please contact the BIMA Standards Branch by e-mail at DCSG-3BiometricsStandardsBranchTeam@conus.army.mil.

2.0 CONFORMANCE AND UNIQUE REQUIRMENTS

2.1 Application Profile

An application profile is a document that describes how the DoD EBTS can be applied to a particular operational scenario. An application profile must be specified to fully describe an implementation.

An application profile includes:

- Transaction details for each transaction:
  - which fields are mandatory or optional for each logical record;
  - how many occurrences of each field are required/allowed;
  - which logical records are mandatory or optional; and
  - how many occurrences of each logical record are required/allowed.
- Definition of the names and purposes of each transaction;
- The identifier assigned by the BIMA to name the Application Profile (to be placed in the Application Profile Specifications field (1.016)); and
- Conformance requirements for both originators and receivers of transactions.

An Application Profile shall only use data elements defined in the Integrated Data Dictionary and those data elements shall stay within the defined range. An Application Profile describes the transactions (submissions and responses) that provide a data transfer equivalent to the Types of Transactions (TOTs) identified in the Application Profile. An Application Profile provides an additional level of granularity and sets restrictions or extensions on how EBTS is implemented.

An implementation may use the application profile associated with this Version (3.0) of the standard, or may generate a new application profile. In the latter case, those DoD entities who wish to develop an application profile must contact the BIMA Watch Desk and the BIMA Standards Branch (see Section 1.5). The Standard Operating Procedure for generating a new Application Profile should be followed and BIMA will assist in the approval process. All application profiles will be maintained by the BIMA.

The BIMA will maintain a registration authority for managing the set of application profiles. This includes the management of the identifiers used in the Domain Name field.

2.2 DoD EBTS Domain

The domain for a transaction is identified by the Domain Name field (1.013). The BIMA is the domain registrar for the DoD EBTS implementation domain and assigns values for this field. ITL 1-2011 defines an implementation domain as “a group of organizations that have agreed to use specific pre-assigned data blocks for exchanging information unique to their installations.

The ANSI/NIST-ITL 1-2011 uses implementation domains to define common sets of Type-2 tags. The DoD EBTS allows an application profile to define much more (including transactions). Users of the DoD EBTS v3.0 domain shall populate the field as follows:

Field 1.013 Domain Name

- Subfield 1.013_1 Domain Name (DNM) – DoD EBTS.
- Subfield 1.013_2 Domain Version Number (DVN) – 3.0.

2.3 Conformance and Testing

DoD EBTS implementations shall conform to the mandatory features of ANSI/NIST-ITL 1-2011.

DoD EBTS implementations shall conform to the mandatory features of this specification which are defined by the Type of Transaction in the associated Application Profile.

Implementations shall also conform to one or more application profiles that have been registered with the BIMA. DoD EBTS does not have a requirement for an implementation to conform to more than one application profile, nor does it require that all implementations conform to the application profile associated with EBTS Version 3.0. Each application profile will have its own conformance requirements.

A DoD EBTS v3.0 transaction is conformant to ANSI/NIST-ITL 1-2011 standard if the Biometric Electronic File Transaction (EFT) is capable of being morphologically (satisfies all of the normative morphological requirements related to its data structure and data values), syntactically (satisfies all of the normative requirements related to the relationships between fields, subfields, or information items) and semantically (checks if the biometric transaction is a faithful representation of the parent biometric data and ensures requirements are satisfied that are not merely syntactical or morphological) conformant to the requirements of the standard.

The same rules shall also apply to the usage of FBI EBTS v9.3 data fields utilized in the Type-2 logical record.

2.4 DoD ABIS Backward Compatibility

To achieve backward compatibility, it is the onus of the DoD Authoritative Biometric Repository (i.e., ABIS and future evolutions of the authoritative repository) to handle the capability to process DoD EBTS v1.1, DoD EBTS v1.2, DoD EBTS v2.0, and DoD EBTS v3.0 transactions. Systems that collect DoD EBTS data shall plan their acquisition phases accordingly and use the mandated DoD Information Technology Standards and Profile Registry (DISR) EBTS version for data transmission. Legacy collection systems that send DoD EBTS v1.2 and DoD EBTS v2.0 transactions shall receive responses that conform to their respective versions.

2.5 Character Encoding

All of the fields in the Type-1 transaction record shall be recorded using the 7-bit ASCII code, which is the default character encoding set code within a transaction. In order to affect data and transaction interchanges between non-English speaking or foreign-based agencies, a technique is available to encode information using character encoding sets other than 7-bit ASCII. Fields from the Type-1 logical record and ASCII **Field xx.001** and **Field xx.002** text fields shall still be encoded using 7-bit ASCII, but all other designated text fields may be encoded using an alternate character encoding set, if they are shown with the character type of ‘U’ or ‘user-defined’ in the ITL 1-2011 record layout tables at the beginning of each Record Type Section of the ITL 1-2011 standard. Unicode Consortium Standard

Transformation Format (UTF) – 8 should be used if necessary for expressing special characters or other character sets in fields with the character type of ‘U’ or ‘user-defined.’

For further clarification on character encoding, please refer to ANSI/NIST-ITL 1-2011.

2.6 Structure of a Mnemonic

A record is comprised of fields. Within the standard, each field is assigned a number, a description, and a mnemonic. The mnemonic structure shall follow <Record Type #>_<Mnemonic of the Field>_<Mnemonic of the Information Item> which allows for the mnemonics to be unique within a given data field and used for identification purposes. For example, Field 2.8003_2 Biometric Birth Date with Information Item Date Validity is displayed as “T2_SUBJ_DOB_DATE_VLD.”

2.7 Encounter Protection

DoD EBTS v3.0 identifies Field 2.351 for Encounter Protection. However, Field 2.351 Encounter Protection shall not be configurable by the user or the biometric capturing device (i.e., Encounter Protection is for internal use only at this time). Submissions from organizations that must use Encounter Protection should contact BIMA operations and coordinate the use of Encounter Protection with them. It is the responsibility of ABIS to follow the Encounter Protection business rules based on the Originating Agency Identifier.

3.0 DoD EBTS TRANSACTIONS

DoD EBTS does not define individual transactions. Transaction contents are defined in Application Profiles. Please consult with the BIMA Standards Branch for information on developing and receiving approval for Application Profiles. This section describes the rules and concepts that apply to any of those transactions. This includes the use of logical records for each biometric modality, transaction control numbers, origination identifiers, error handling, and image quality requirements.

3.1 Record Types

Table 1 identifies the types of biometric data supported by the DoD EBTS Version 3.0 and indicates which logical record type is used to carry the data for each modality and other associated data (i.e., Type-21 Associated Context and Type-98 Information Assurance).

Table 1: Logical Records

Biometric Data Type	Logical Record
Transaction Information	Type-1
User Defined Descriptive Text	Type-2
Fingerprint Templates	Type-9
Facial, Other Body Part, and SMT Images	Type-10
Friction Ridge Latent Images	Type-13
Fingerprint Images	Type-14
Palmprint Images	Type-15
Iris Images	Type-17
DNA Data or Image	Type-18
Source Representation	Type-20
Associated Context	Type-21
Information Assurance	Type-98
CBEFF Biometric Data	Type-99

Information on the DoD EBTS support for each type of biometric data is contained in this section. The details for using these logical records for constructing transactions are described in Section 2.0.

Note that it is possible to define a new logical record in an application profile if required.

3.1.1 Fingerprint Support

Fingerprints shall be contained in Type-14 records. A Type-14 record shall contain a fingerprint image of one of:

- 500-ppi image using 15:1 Wavelet Scalar Quantization (WSQ20) compression as defined in ITL 1-2011 and FBI EBTS v9.3 or

- 1,000-ppi image using 15:1 JPEG 2000 Lossless (JP2L) compression as defined in ITL 1-2011 and FBI EBTS v9.3.

Latent fingerprints shall be contained in Type-13 records. A Type-13 record shall contain a latent fingerprint image of one of:

- 500-ppi image using no compression
- 1,000-ppi image using no compression or
- 1,000-ppi image using 15:1 JPEG 2000 Lossless (JP2L) compression as defined in ITL 1-2011 and FBI EBTS v9.3.

3.1.2 Fingerprint Template Support

Fingerprint data may also be conveyed as fingerprint minutiae templates. Fingerprint template data shall be contained in Type-9 records. Type-9 records shall choose one of the following minutiae blocks as defined in ITL 1-2011:

- "IAFIS Features" (FBI Native-Mode) minutiae block (fields 13-30) as described in the FBI EBTS or
- "M1-378 Features" minutiae block (fields 126-150) as described in Table 28 of ITL 1-2011.

The decision on which format to use is driven by interoperability requirements with other systems. ITL 1-2011 also identifies reserved blocks in the Type-9 record, each consisting of several fields, which are registered and allocated for use by specific vendors. As these blocks may contain proprietary information and do not promote interoperability across the biometrics enterprise, no detailed information is provided in DoD EBTS v3.0 regarding the content of these vendor-defined feature sets.

3.1.3 Facial Image Support

Facial images and Scar, Mark & Tattoo (SMT) images shall be contained in Type-10 records. Images may be compressed using the requirements for algorithms identified in ITL 1-2011. When Record Type-10 contains a facial image, the conditions described in ITL 1-2011 Annex E: E.6.1 Compression algorithm applies.

3.1.4 Palmprint Support

Palmprints shall be contained in Type-15 records. A Type-15 record shall contain a palmprint image of one of:

- 500-ppi image using 15:1 Wavelet Scalar Quantization (WSQ20) compression as defined in the ITL 1-2011 and FBI EBTS v9.3
- 1,000-ppi image using 15:1 JPEG 2000 Lossless (JP2L) compression as defined in ITL 1-2011 and FBI EBTS v9.3.

Latent palmprints shall be contained in Type-13 records. A Type-13 record shall contain a latent palmprint image of one of:

- 500-ppi image using no compression
- 1,000-ppi image using no compression or

- 1,000-ppi image using 15:1 JPEG 2000 Lossless (JP2L) compression as defined in ITL 1-2011 and FBI EBTS v9.3.

3.1.5 Iris Image Support

Iris images shall be contained in Type-17 records. It is recommended that raw images with dimensions of 640X480 are captured and used for submission. If images are to be compressed, they shall be compressed using JPEG lossy (JP2) or JPEG Lossless (JP2L).

The baseline JPEG algorithm (ISO/IEC 10918) shall not be used for Type-17 iris images. It has been shown that both false non-match and false match rates increase due to the presence of tiling artifacts introduced by JPEG's discrete cosine transform. While JPEG was allowed in prior versions of this standard, it shall not be allowed for new images.

3.1.6 DNA Support

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 ANSI/NIST-ITL 1-2011 which adopts the concepts of the draft format of the ISO/IEC 19794-14 DNA data interchange format.

3.1.7 Source Representation Support

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 Type-20 record.
Some possible uses of the Type-20 record are:

- 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.

3.1.8 Associated Context Support

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 or pocket litter.

3.1.9 Information Assurance Support

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.

3.1.10 Other Biometric Modality Support

A BIMA-approved application profile must define any use of Type-99 to contain other biometric modalities.

3.2 Transaction Control Numbers

An identification number is assigned to a submission and carried through on the response for tracing purposes. This Transaction Control Number (TCN) is a unique identifier generated by the system that submits the transaction. When a transaction is sent to a system that receives and generates responses, the Transaction Control Reference (TCR) in the response(s) will be the TCN used in the submission. A TCN is mandatory for a submission, and a TCR is mandatory for a response. These values are contained in the Type-1 record in an FBI EBTS or DoD EBTS transaction.

Upon submitting a transaction to a DoD repository, the submitter places his control number in the TCN field in the Type-1 record. For submissions not requiring reference to a prior transaction, the TCR field is omitted. When the DoD repository has completed processing the transaction and generates the response, it places the submitter's control number (the received TCN) into the TCR field of the response as a reference number the submitter can use to mate the response with the original submission. The DoD repository also places its own internal identifier for that transaction in the TCN field of the response.

Figure 1 illustrates, as an example, the TCN and TCR in the transaction flow in the DoD ABIS.

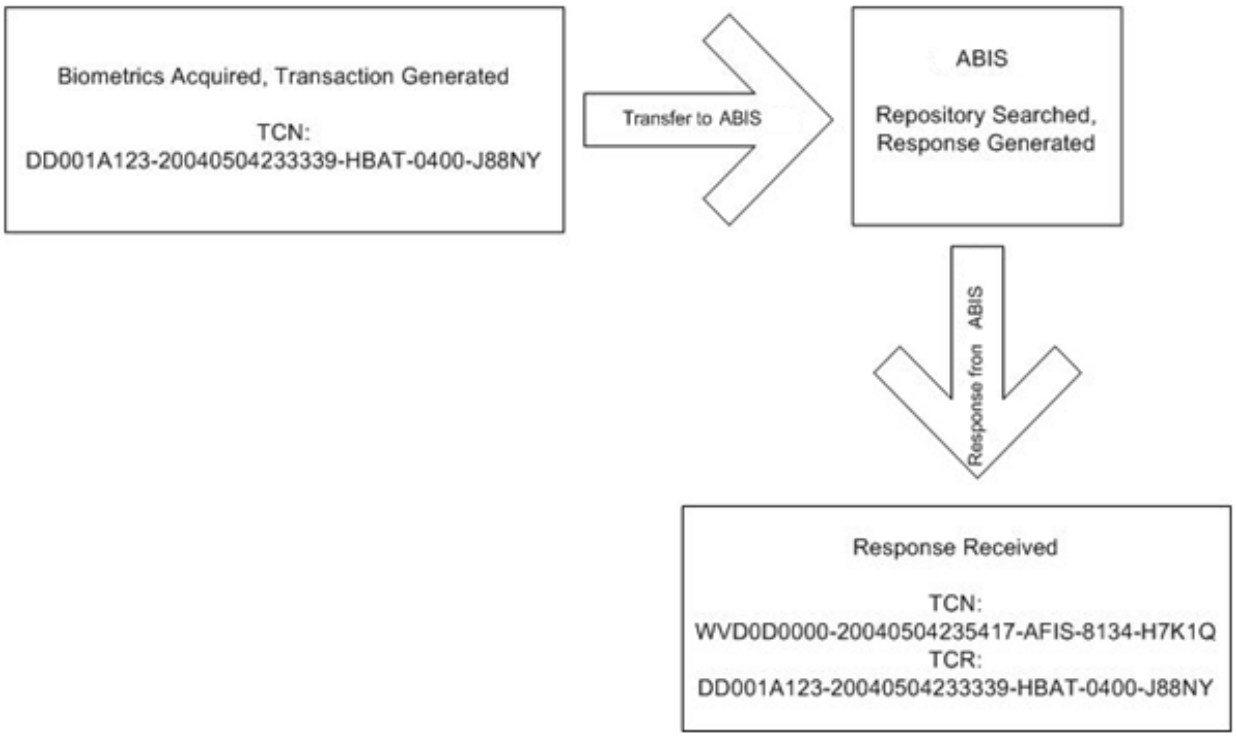

Figure 1: Transaction Submission and Response Sequence

The DoD EBTS requires a 40-byte TCN that contains:

- the Originating Agency Identifier (ORI);
- a Greenwich Mean (a.k.a. Zulu or UTC) date/time stamp;
- a code for the software used at the point of collection/transmission;
- an indicator of the software version used at the point of collection/transmission; and
- a random or sequential alphanumeric string.

A hyphen separates each of these values. Figure 2 illustrates the makeup of the TCN.

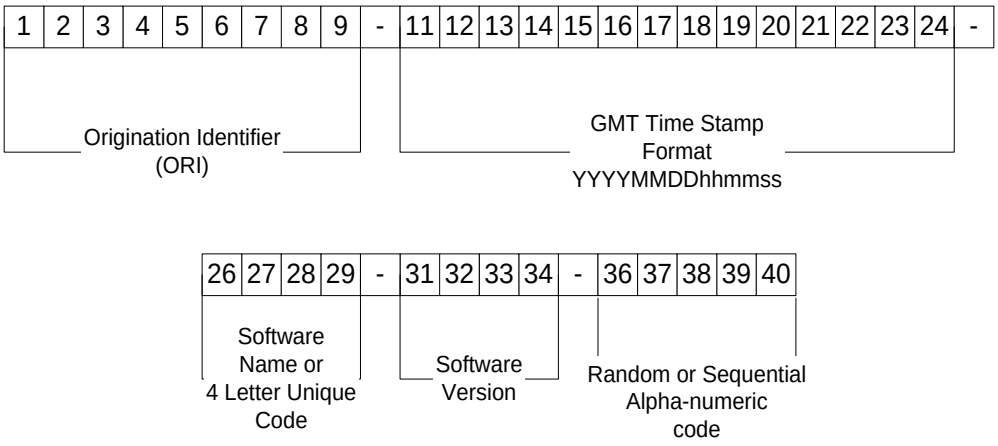

Figure 2: TCN Layout

The BIMA Watch Desk will assign a unique software code to a product. Software developers must contact the BIMA Watch Desk (see Section 1.5) to obtain a four-letter software code (Figure 2, TCN blocks 26 – 29). This code must be used consistently in the software product.

Systems that initiate transactions must assign TCNs rather than permit operators to enter them. **A TCN shall be unique**. A TCN shall not be reused. Matching a TCN to a TCR is the method used to match DoD EBTS responses to DoD EBTS submissions. It is recommended that the filename for the Electronic File Transaction is the TCN.

3.3 Origination Identifiers

The mandatory origination field shall contain the ORI identifying the agency or organization submitting the transaction. For DoD EBTS purposes, this field shall be a nine-byte alphanumeric field. The BIMA will assign an ORI code to entities that submit directly to DoD ABIS. Those DoD entities must contact the BIMA Watch Desk to obtain an ORI.

3.4 Tagged Fields

Systems that receive transactions (submissions or responses) shall observe the following processing rules for tagged fields.

3.4.1 Interpretation of Tags

In the construction and interpretation of the logical record, the tag number should not be taken as having a fixed number of digits. The format for each field consists of the logical record type number followed by a period (.), a field number followed by a colon (:), followed by the information appropriate to that field. The tagged-field number can be any one- to nine-digit string occurring between the period and the colon. It shall be interpreted as an unsigned integer field number. This implies that a field number of 2.123 is equivalent to and shall be interpreted in the same manner as a field number of 2.00000123. For example, in this version of the standard, Type-2 logical record field tags are shown as having three or four digits between the decimal point and colon (2.NNN:data or 2.NNNN:data). The field numbers should be parsed as all digits between the period and colon. In the construction and interpretation of the logical record, there is no requirement that the tagged fields be present within the logical record in any given order, with the exception of the Length (LEN) and Image Designation Character (IDC), which must be in the first and second position in the record, respectively. However, for those record types conveying image data (e.g., 13.999: DATA), the data field will always be the last field in the string.

3.4.2 Use of Separator Characters

Separator characters may best be understood by considering them necessary for what follows them, not what precedes them. Thus, when a tagged field includes subfields and another subfield is still to follow, the following subfield must be separated from the one preceding it by the unit separator character. If what is to follow is a repetition of a field or group of subfields, a record separator must separate the preceding field or group of subfields from the repetition to follow. If what is to follow is a new field, then the group separator character is used. If the record is complete after the previous field, the file separator is used.

Per ITL 1-2011, successive separator characters may be used with no intervening blank or other character when a subfield is missing. In Type-2 records, DoD EBTS recognizes the following sequences as meaning that a subfield is missing: <US><US>, <US><RS>, <US><GS>, and <US><FS>. These are needed to obviate the need for the receivers of transactions to validate each subfield in a grouped field to see whether it contains valid data or is merely a blank.

3.5 Error Handling

Systems that receive transactions (submissions or responses) shall observe the following processing rules for error handling.

In the interpretation of a transaction, fields that are not defined for the requested transaction are to be ignored; their inclusion is not to be considered an error.

Fields should not be transmitted when there is no value present (e.g., ... 2.033:<GS> ...). However, receipt of such an empty field, if the field is not mandatory, should not result in rejection of the submission or issuance of an error message. Rejection may occur, however, when missing or incorrect data would frustrate processing of the transaction.

Systems that receive transactions (submissions or responses) shall ignore data that are not defined in the DoD EBTS or appropriate application profile. Table 2 defines the actions that shall be taken when unrecognized data are received.

Table 2: Response to Unrecognized Reception

Error Condition	Action
Unrecognized TOT (as indicated by field 1.004 TOT)	Return an "Unauthorized EBTS Transaction" transaction error response to the submitter.
Unrecognized Record (the binary or tagged-field record is not a Type-1, Type-2, Type-9, Type-10, Type-13, Type-14, Type-15, Type-17, Type-18, Type-20, Type-21, Type-98 or Type-99)	Complete transaction and return appropriate response to the submitter. Ignore the unrecognized record and complete the transaction with appropriate response.
Unrecognized Field	Complete transaction and return appropriate response to the submitter. Ignore the unrecognized field and complete the transaction with appropriate response.
Unrecognized Subfield	Complete transaction and return appropriate response if possible. Otherwise, return an "EBTS Field Parse Error" transaction error response to the submitter.
Unrecognized Data in Tagged-Field Record	Complete transaction and return appropriate response if possible. Otherwise, return an "EBTS Field Parse Error" transaction error response to the submitter.

3.6 Image Quality and Image Sets Requirements

In the interest of maintaining an accurate and usable database of biometric data, minimum image quality requirements must be followed for images submitted in DoD EBTS transactions.

3.6.1 Fingerprint Image Quality and Image Sets (Type-14)

Fingerprint image quality requirements are defined in Appendix F of the FBI EBTS v9.3. From an image quality perspective only, any system certified by the FBI for use with Next Generation Identification (NGI) meets DoD EBTS image quality requirements.

Rolled fingerprint samples shall be captured with each finger rolled from one side of the fingernail to the other. The collection of a "complete set" of fingerprint samples shall include any of the following image submissions:

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

10 Images:

- Rolled or Flat image of each of the 10 fingers

An explanation for any required but missing fingerprints shall be provided in field 14.018 Amputated or Bandaged from a plain two thumb slap or four finger slap image. 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.

In addition, 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 AMP field shall instead be populated to indicate the Finger Position Code and Amputated or Bandaged Code.

3.6.2 Palmprint Image Quality and Image Sets (Type-15)

Palmprint image quality requirements shall follow the same image requirements and compression standards as identified for fingerprint image quality. All palmprint images shall be acquired directly from a subject using a live-scan device or approved palmprint card. Whichever method is used should be capable of providing a set of images for each hand.

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

- One writer's palm image from each hand and
    - Either one full palm image (the entire area of the full palm extending from the wrist bracelet to the tips of the fingers) from each hand or
    - One upper palm image from each hand (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) from each hand or
    - One palm thenar area image, one palm hypothenar area image, and one palm interdigital area image from each hand.

An explanation for any missing palmprint images is optional. Field 15.018 and its associated subfields shall be used to indicate any missing images. The Type-2 Field 2.8112 has been added to EBTS v3.0 and may be used to indicate if a Type-15 record is not able to be submitted.

3.6.3 Facial Photo Image Quality and Image Sets (Type-10)

All photographs shall be taken using a color camera. The camera lens orientation (photographer) shall be pointed to the front of the person, aligned approximately in the center of the face, and taken from a distance of approximately five feet. The orientation(s) of the person for facial photos shall be taken from the following options:

- Frontal view (also known as full-frontal pose);
- 90 degrees left side;
- 45 degrees left side;
- 90 degrees right side; or
- 45 degrees right side.

When photographed, the person shall not be allowed to wear any glasses, sunglasses, or other items obscuring the area photographed. The person may choose to expose only the area from ear to ear and hairline to chin (for example, to not require the removal of a headdress). There are no constraints on cosmetics.

The full frontal pose should be captured in accordance with one of the following:

- ANSI INCITS 385-2004, "Face Recognition Format for Data Interchange", clauses 8.2, 8.3, and 8.4 (The Full Frontal Image Type). NOTE: this document may be retired in favor of the ISO document below; or
- Annex A, Best Practices for Basic Face Images, of ISO/IEC 19794-5, Information technology — Biometric data interchange formats — Part 5: Face Image Data.

3.6.4 Iris Image Quality and Image Sets (Type-17)

An iris record shall contain an image of a single iris. Note: this does not imply that image capture equipment must be used twice to collect two images. If a single image of both the left and right eye is captured, further processing must result in two separate records.

Images should be captured in accordance with Annex A, Iris Image Capture, of ISO/IEC 19794-6, Information technology — Biometric data interchange formats — Part 6: Iris image data.

4.0 DoD EBTS RECORDS AND FIELDS

The DoD EBTS is 100% ITL 1-2011 conformant. Any DoD EBTS ITL 1-2011 defined field may occur in a DoD EBTS transaction in the appropriate logical record. Any field that is mandatory in ITL 1-2011 shall occur in a DoD EBTS transaction in the appropriate logical record.

This section contains any additional information not included in ITL 1-2011.

The following discussion uses the ITL 1-2011 standard definition of information separators:

- multiple occurrences of field are separated by the "RS" character (represented in this document by <RS>); and
- information items within a field are separated by the "US" character (represented in this document by <US>).

If the following sections do not identify any subfields, none are allowed.

4.1 Type-1 Records [Transaction Information]

DoD EBTS Type-1 records are defined in ITL 1-2011. Every application profile shall define values in the Application Profile Specifications field (1.016). The BIMA Baseline Application Profile shall be the default value in field 1.016 if no other value is provided. The Baseline Application Profile specifies the common transactions occurring between DoD collection devices that have direct or indirect transaction ties to the DoD authoritative biometric repository. The Baseline Application Profile enables the user to conform to DoD EBTS v3.0. For implementations using the Baseline Application Profile v1.0, the values are as follows:

Field 1.016 Application Profile Specification

- Subfield 1.016_1 Application Profile Organization (APO) – BIMA.
- Subfield 1.016_2 Application Profile Name (APN) – Base Application Profile.
- Subfield 1.016_3 Application Profile Version Number (APV) – 1.0. (The version number will be updated as necessary)

DoD EBTS v3.0 transactions do not contain Type-3 through Type-7 records, therefore the fields Native Scanning Resolution (1.011) and Nominal Transmitting Resolution (1.012) shall be set to "00.00" as specified in ITL 1-2011.

Table 3: Type-1 Transaction Information Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
1.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
1.002	VERSION NUMBER	1	1	VER
1.003	TRANSACTION CONTENT	1	1	CNT
1.003_1	- First Record Category Code[1]	1	1	- FRC
1.003_2	- Content Record Count	1	1	- CRC
1.003_3	- Record Category Code[2]	1	1	- REC
1.003_4	- Information Designation Character	1	1	- IDC
1.004	TYPE OF TRANSACTION	1	1	TOT
1.005	DATE	1	1	DAT
1.006	PRIORITY	0	1	PRY
1.007	DESTINATION AGENCY IDENTIFIER	1	1	DAI
1.008	ORIGINATING AGENCY IDENTIFIER	1	1	ORI
1.009	TRANSACTION CONTROL NUMBER	1	1	TCN
1.010	TRANSACTION CONTROL REFERENCE NUMBER	0	1	TCR
1.011	NATIVE SCANNING RESOLUTION	1	1	NSR
1.012	NOMINAL RESOLUTION	1	1	NTR
1.013	DOMAIN NAME	1	1	DOM
1.013_1	- Domain Name	1	1	- DNM
1.013_2	- Domain Version Number	1	1	- DVN
1.014	GREENWICH MEAN TIME	0	1	GMT
1.015	CHARACTER ENCODING	0	1	DCS
1.015_1	- Character Encoding Set Index	1	1	- CSI
1.015_2	- Character Encoding Set Name	1	1	- CSN

[1] The First Record Category Code and Content Record code are a single set of information items

[2] The Record Category Code and Information Designation Character subfields are repeating sets of information items based on the Content Record Count

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
1.015_3	- Character Encoding Set Version	0	1	- CSV
1.016	APPLICATION PROFILE SPECIFICATIONS	1	99	APS
1.016_1	- Application Profile Organization	1	1	- APO
1.016_2	- Application Profile Name	1	1	- APN
1.016_3	- Application Profile Version Number	1	1	- APV
1.017	AGENCY NAMES	0	1	ANM
1.017_1	- Destination Agency Name	0	1	- DAN
1.017_2	- Originating Agency Name	0	1	- OAN

4.2 Type-2 Records [User-Defined Descriptive Text]

The Integrated Data Dictionary (IDD) v5.0 defines the following Type-2 fields to meet DoD requirements. The DoD Expanded Application Profile document provides information such as whether the field is mandatory for the associated Type of Transaction (TOT) and the minimum and maximum occurrences. Each DoD EBTS field is associated with IDD elements as shown in the following tables.

Certain data elements in the EBTS v2.0 Type-2 record are now considered legacy FBI fields to the DoD and those fields are derivable by specific DoD EBTS v3.0 Type-2 or ANSI/NIST ITL 1-2011 data fields. The legacy FBI fields remain in the Base Application Profile and IDD v5.0 because they have been identified as being mandatory to specific FBI TOTs.

Data Element States Definitions as defined by IDD v5.0

State	Definition
Active	Currently viable and fully usable dictionary element.
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) doing the same thing. The IDD will clearly mark if an element is deprecated. The IDD will also provide the superseding element(s) and any qualify 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. An element nominated for sunset may not be retired if the community feels it is needed. IDD will provide indicator to clear mark if an element is in the sunset state and the reason why.
Retired	Appearing for the last time in the version of the IDD as they are being retired. The IDD will clearly mark if an element is retired. Retired element can be reinstated with necessary requirement. At that point, the element will be treated as a new element.
Legacy Derivable	Pertains to FBI elements only. The element should only be used in FBI TOTs. It can be derived from DoD element(s). The IDD clearly marks if an FBI element is derivable. The IDD will also provide the DoD elements and any qualify condition from which this element can be derived
Emerging	A DoD Type-2 element that can be considered for future capability. It can be subject to change.

FBI legacy fields from EBTS v2.0

- Field 2.018 Name
- Field 2.020 Place of Birth
- Field 2.022 Date of Birth
- Field 2.025 Race
- Field 2.027 Height
- Field 2.029 Weight
- Field 2.031 Eye Color
- Field 2.037 Reason Fingerprinted
- Field 2.038 Date Printed
- Field 2.067 Image Capture Equipment

In addition, certain data elements associated with EBTS v2.0 have been deprecated, sunset, or are now considered as emerging due to lack of implementation and/or requirements. While these fields are not implemented in EBTS v3.0, they will reside in the Integrated Data Dictionary v5.0. These Fields are referenced below for convenience.

Fields with sunset status from EBTS v2.0

- Field 2.352 Transaction Lookup
- Field 2.353 Subsequent Notification
- Field 2.8015 Biometric Subject Other Physical Characteristics
- Field 2.8202 Verification Identifier (Was Field 2.315 in DoD EBTS v1.2)
- Field 2.8204 Limit of Candidates

Fields with deprecated status from EBTS v2.0

- Field 2.306 Geographic Coordinate Latitude/Longitude
- Field 2.307 Geographic Coordinate Datum
- Field 2.321 Geographic Coordinate Other
- Field 2.322 Geographic Coordinate Universal Transverse Mercator
- Field 2.8020 Collection Application Assigned Identification
- Field 2.8101 Contextual Data Collection Date
- Field 2.8200 Submission Priority

Fields with emerging status from EBTS v2.0

- Field 2.8206 Additional Response (Mistakenly identified as Field 2.351 in DoD EBTS v2.0)
- Field 2.8207 Request Secondary Search (Was Field 2.317 in DoD EBTS v2.0)
- Field 2.8106 Triggering Event
- Field 2.8109 Repository Candidate List
- Field 2.8203 Template Extraction Algorithm

All other emerging fields are listed in the Integrated Data Dictionary v5.0.

Fields deprecated and restructured from EBTS v2.0

To achieve better harmonization with other agencies as well as to improve alignment with the NIEM XML, the following fields have been renamed and/or restructured:

- Field 2.8000 Biometric Subject Name (Biometric Subject Name is now Field 2.8040)
- Field 2.8001 Biometric Subject Address (Biometric Subject Address is now Field 2.8031 Biometric Current Residence)
- Field 2.8002 Biometric Subject Contact (Biometric Subject Contact is now Field 2.8032 Biometric Subject Contact Telephone)
- Field 2.8004 Biometric Subject Birth Place (Biometric Subject Birth Place is now Field 2.8033 Biometric Subject Birth Location)
- Field 2.8006 Biometric Subject Death Place (Biometric Subject Death Place is now Field 2.8034 Biometric Subject Death Location)
- Field 2.8009 Biometric Subject Measurement – Height (Biometric Subject Measurement – Height is now Field 2.8035 Biometric Subject Height Measurement)
- Field 2.8010 Biometric Subject Measurement – Weight (Biometric Subject Measurement – Weight is now Field 2.8036 Biometric Subject Weight Measurement)
- Field 2.8011 Biometric Subject Eye Color Left (Biometric Subject Eye Color Left is now Field 2.8037 Biometric Subject Eye Color)
- Field 2.8012 Biometric Subject Eye Color Right (Biometric Subject Eye Color Right is now Field 2.8037 Biometric Subject Eye Color)
- Field 2.8017 Biometric Subject Associated Individual (Biometric Subject Associated Individual is now Field 2.8038)
- Field 2.8018 Biometric Subject Group Membership (Biometric Subject Group Membership is now Field 2.8039)
- Field 2.8100 Collection Location (Collection Location is now Field 2.8114; Field 2.301 Location from DoD EBTS v1.2 is also deprecated)
- Field 2.8104 Operational Personnel (Operational Personnel is now Field 2.8115)
- Field 2.8105 Conveyance (Conveyance is now Field 2.8116 Transportation)

ANSI/NIST-ITL 1-2011 has incorporated many data fields that were previously defined in the Type-2 record within earlier versions of both the DoD EBTS and FBI EBTS specifications. These fields include 2.038 Date Printed (DPR), 2.067 Image Capture Equipment (MMS), 2.306 Geographic Coordinate Latitude/Longitude, 2.307 Geographic Coordinate Datum, 2.321 Geographic Coordinate Other and 2.322 Geographic Coordinate Universal Transverse Mercator.

DoD EBTS v3.0 still needed a comprehensive way of identifying both the pieces of equipment as well as where and when the data was collected for each modality in the Type-2 Record. In order to accomplish this, DoD EBTS v3.0 created two new fields, 2.8114 Collection Location (previously 2.301 in DoD EBTS v1.2 and 2.8100 in DoD EBTS v2.0) and 2.8118 Collection Equipment Make/Model/Serial Number.

Field 2.8114 Collection Location shall be used to capture the geographic location and time for just the Type-2 data and/or for the entire submission. To maintain consistency with ANSI/NIST ITL 1-2011, the

Collection Location field has been restructured to include all the information items from the ITL 1-2011 x.998 GEO field. In addition, City, State/Province, Country Code and Village were added. An information item for Record Category Code Referenced has also been added to allow designation which logical record the information pertains to, either the entire submission or just the Type-2 data only.

Field 2.8118 Collection Equipment Make/Model/Serial Number shall be used to capture the make/model/serial number of the equipment the sample was collected for just the Type-2 data and/or for the entire submission. An information item for Record Category Code Referenced has also been added to allow designation which logical record the information pertains to, either the entire submission or just the Type-2 data only.

Table 4: Type-2 User-Defined Descriptive Text Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
2.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
2.005	RETENTION CODE	0	1	RET
2.006	ATTENTION INDICATOR	0	1	ATN
2.007	SEND COPY TO	0	9	SCO
2.009	ORIGINATING AGENCY CASE NUMBER	0	1	OCA
2.010	CONTRIBUTOR CASE IDENTIFIER NUMBER	0	5	CIN
2.010_1	- Contributor Case Identifier Prefix	1	1	- CIN_PRE
2.010_2	- Contributor Case Identifier	1	1	- CIN_ID
2.011	CONTRIBUTOR CASE IDENTIFIER EXTENSION	0	5	CIX
2.014	FBI NUMBER	0	5	FBI
2.015	STATE IDENTIFICATION NUMBER	0	1	SID
2.024	SEX	0	1	SEX
2.026	SCARS, MARKS AND TATTOOS	0	10	SMT
2.032	HAIR COLOR	0	1	HAI
2.034	PATTERN LEVEL CLASSIFICATIONS	0	10	PAT
2.034_1	- Finger Number	1	1	- FGP
2.034_2	- Pattern Classification Code	1	1	- PATCL
2.035	PALM PRINTS AVAILABLE INDICATOR	0	1	- PPA
2.036	PHOTO AVAILABLE INDICATOR	0	1	PHT
2.040	OCCUPATION	0	1	OCP
2.043	TYPE OF SEARCH REQUESTED	0	1	TSR
2.045	DATE OF ARREST	0	1	DOA
2.047	ARREST SEGMENT LITERAL	0	40	ASL
2.047_1	- Date of Offense	0	1	- DOO
2.047_2	- Arrest Offense Literal	1	1	- AOL
2.048	CIVIL SEARCH REQUESTED INDICATOR	0	1	CSR

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.051	COURT SEGMENT LITERAL	0	40	CSL
2.051_1	- Court Disposition Date	0	1	- CDD
2.051_2	- Court Offense Literal	1	1	- COL
2.051_3	- Other Court Sentence Provision Literal	0	1	- CPL
2.054	CUSTODY OR SUPERVISORY STATUS START DATE	0	1	SSD
2.055	CUSTODY OR SUPERVISORY STATUS LITERAL	0	1	SLE
2.056	IDENTIFICATION COMMENTS	0	1	ICO
2.057	FINGER NUMBER(S) REQUESTED	0	13	FNR
2.059	SEARCH RESULTS FINDINGS	0	1	SRF
2.060	STATUS/ERROR MESSAGE	0	11	MSG
2.061	CASE TITLE	0	1	CST
2.064	CANDIDATE LIST	0	99	CAN
2.064_1	- FBI Number	1	1	- FBI
2.064_2	- Name	1	1	- NAM
2.070	REQUEST FOR ELECTRONIC RAP SHEET	0	1	RAP
2.071	ACTION TO BE TAKEN	0	1	ACN
2.073	CONTROLLING AGENCY IDENTIFIER	0	3	CRI
2.074	FINGER POSITION	0	10	FGP
2.075	ELECTRONIC RAP SHEET	0	1	ERS
2.076	PRIORITY	0	1	PRI
2.079	NUMBER OF CANDIDATE IMAGES RETURNED	0	1	NCR
2.083	UNSOLVED LATENT FILE	0	1	ULF
2.084	AMPUTATED OR BANDAGED	0	13	AMP
2.084_1	- Finger Position	1	1	FGP
2.084_2	- Amputated or Bandaged Code	1	1	AMPCD
2.085	CIVIL RECORD NUMBER	0	1	CRN
2.086	AFIS SEGMENT CONTROL NUMBER	0	1	SCNA
2.087	TREAT AS ADULT	0	1	TAA
2.088	NOTE FIELD	0	1	NOT
2.089	MATCH SCORE	0	99	MSC

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.091	RIDGE CORE DELTA ONE FOR SUBPATTERN CLASSIFICATION	0	10	RCD1
2.091_1	- Finger Number	1	1	FGP
2.091_2	- Ridge Count Number 1	1	1	RCN1
2.092	RIDGE CORE DELTA ONE FOR SUBPATTERN CLASSIFICATION	0	10	RCD2
2.092_1	- Finger Number	1	1	FGP
2.092_2	- Ridge Count Number 2	1	1	RCN2
2.095	REQUEST FEATURES RECORD	0	1	RFR
2.098	NAME OF DESIGNATED REPOSITORY	0	10	NDR
2.300	BAT GLOBAL UNIQUE IDENTIFIER	0	1	GUID
2.302	INTERNMENT SERIAL NUMBER	0	1	ISN
2.303	DoD NUMBER	0	5	DOD_NO
2.308	ELECTRONIC DATA INTERCHANGE PERSONAL IDENTIFIER	0	1	EDI (Mnemonic was incorrectly shown as EDIPI in DoD EBTS v2.0)
2.309	DEFENSE BIOMETRIC IDENTIFICATION SYSTEM ID	0	1	DBIDS_ID
2.310	BIOMETRIC SUBJECT PERSONNEL TYPE	0	1	PER_TYPE
2.316	REQUEST MUG SHOT	0	1	RMS
2.317	REQUEST IAFIS SEARCH	0	1	RIS
2.318	XML-BASED RAP SHEET	0	1	XML
2.334	SUBMISSION COLOR CODE	0	1	SCC
2.335	DOSSIER NUMBER	0	10	DOSSIER
2.350	ALERT	0	1	ALERT
2.350_1	- Alert Function	1	1	- ALERT_FUN (Mnemonic was incorrectly shown as ALERT_FN in DoD EBTS v2.0)
2.350_2	- Alert Category	1	1	- ALERT_CAT
2.350_3	- Alert Value	1	1	- ALERT_VAL
2.350_4	- Alert Contact	1	1	- ALERT_CONTACT (Mnemonic was incorrectly shown as ALERT_CNTCT in DoD EBTS v2.0)
2.350_5	- Alert Detail	1	1	- ALERT_DETAIL
2.351	ENCOUNTER PROTECTION	0	1	EP

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.351_1	- Encounter Protection Function	1	1	- EP_FUN
2.351_2	- Encounter Protection Level	1	1	- EP_LEVEL (Mnemonic was incorrectly shown as EP_LVL in DoD EBTS v2.0)
2.8003	BIOMETRIC SUBJECT BIRTH DATE	0	5	SUBJ_BIRTHDATE
2.8003_1	- Birth Date	1	1	- DOB
2.8003_2	- Date Validity	0	1	- DATEVLD
2.8003_3	- Calendar Type	0	1	- CALTYP
2.8005	BIOMETRIC SUBJECT DEATH DATE	0	1	SUBJ_DEATHDATE
2.8005_1	- Death Date	1	1	- DOD
2.8005_2	- Date Validity	0	1	- DATEVLD
2.8005_3	- Calendar Type	0	1	- CALTYP
2.8007	BIOMETRIC SUBJECT CITIZENSHIP	0	5	SUBJ_CTZ
2.8008	BIOMETRIC SUBJECT ETHNIC/RACIAL CHARACTERISTIC	0	5	SUBJ_RAC
2.8013	BIOMETRIC SUBJECT BLOOD TYPE	0	3	SUBJ_BLOOD
2.8013_1	- Blood Type Code	1	1	- BLTCD
2.8013_2	- Blood Type Validity	0	1	- BLTVLD
2.8014	BIOMETRIC SUBJECT VITAL STATUS	0	3	SUBJ_VITAL
2.8014_1	- Vital Status Code	1	1	- VSCD
2.8014_2	- Vital Status Validity	0	1	- VSVLD
2.8016	BIOMETRIC SUBJECT MARITAL STATUS	0	1	SUBJ_MARITAL
2.8019	COLLECTED IDENTIFICATION	0	100	COL_IDENT
2.8019_1	- Collected Identification Type	1	1	- CITYP
2.8019_2	- Collected Identification Identifier	1	1	- CIID
2.8019_3	- Collected Identification Issuance Organization	0	1	- CIISSORG
2.8019_4	- Collected Identification Issuance Date	0	1	- CIISSDT
2.8019_5	- Collected Identification Expiration Date	0	1	- CIEXPDT
2.8019_6	- Collected Identification Issuance Office	0	1	- CIISSOFF
2.8019_7	- Comment	0	1	- CICOM
2.8021	BIOMETRIC SUBJECT CLEARANCE	0	1	SUBJ_CLEAR
2.8021_1	- Clearance Code	1	1	- CLRCD

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.8021_2	- Clearance Validity	0	1	- CLRVLD
2.8022	BIOMETRIC SUBJECT COMPARTMENTS	0	50	SUBJ_COMPART
2.8022_1	- Compartment Description	1	1	- CMPDESC
2.8022_2	- Compartment Validity	0	1	- CMPVLD
2.8023	BIOMETRIC SUBJECT COMMENT	0	1	SUBJ_COM
2.8024	BIOMETRIC SUBJECT US PERSON INDICATOR	0	1	US_IND
2.8025	BIOMETRIC SUBJECT DEROGATORY COMMENT	0	1	DEROG_COM
2.8026	BIOMETRIC SUBJECT ALTERNATE NAME	0	10	SUBJ_AKA
2.8026_1	- Alternate Name Category Code	1	1	- NAMCATCD
2.8026_2	- Name – One	1	1	- NAM1
2.8026_3	- Name – Two	1	1	- NAM2
2.8026_4	- Name – Three	0	1	- NAM3
2.8026_5	- Name – Four	0	1	- NAM4
2.8026_6	- Name – Five	0	1	- NAM5
2.8026_7	- Name Validity	0	1	- NAM_VLD
2.8026_8	- Transliteration Code	0	1	- TRANSLIT_CD
2.8026_9	- Comment	0	1	- COM
2.8028	EMPLOYMENT	0	5	EMPLOY
2.8028_1	- Employer Name	1	1	- EMPNAM
2.8028_2	- Employee Position Name	0	1	- POSNAM
2.8028_3	- Address Line 1	0	1	- ADD1
2.8028_4	- Address Line 2	0	1	- ADD2
2.8028_5	- City	0	1	- CITY
2.8028_6	- State/Province	0	1	- STATE
2.8028_7	- Country Code	0	1	- CTRY
2.8028_8	- Postal Code	0	1	- POSTAL
2.8028_9	- Village	0	1	- VLG
2.8028_10	- Phone Number	0	1	- PHNUM
2.8028_11	- Email	0	1	- EMAIL
2.8028_12	- Clearance Code	0	1	- CLRCD
2.8028_13	- Job Duties	0	1	- DUTY

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.8028_14	- Job Description	0	1	- JOBDESC
2.8028_15	- Supervisor Name	0	1	- SUPV
2.8028_16	- Start Date	0	1	- STARTDATE
2.8028_17	- End Date	0	1	- ENDDATE
2.8028_18	- Comment	0	1	- COM
2.8029	BIOMETRIC SUBJECT CONTACT EMAIL	0	10	SUBJ_EMAIL
2.8031	BIOMETRIC SUBJECT CURRENT RESIDENCE	0	1	SUBJ_ADDR
2.8031_1	- Address Line 1	0	1	- ADD1
2.8031_2	- Address Line 2	0	1	- ADD2
2.8031_3	- City	0	1	- CITY
2.8031_4	- State/Province	1	1	- STATE
2.8031_5	- Country Code	1	1	- CTRY
2.8031_6	- Postal Code	0	1	- POSTAL
2.8031_7	- Neighborhood/District	0	1	- NEIG
2.8031_8	- Village	0	1	- VLG
2.8031_9	- Address Validity	0	1	- ADDR_VLD
2.8032	BIOMETRIC SUBJECT CONTACT TELEPHONE	0	10	SUBJ_PHONE
2.8032_1	- Telephone Category Code	1	1	- PH_TYP
2.8032_2	- Phone Number	1	1	- PHNUM
2.8032_3	- Phone Extension	0	1	- PHEXT
2.8033	BIOMETRIC SUBJECT BIRTH LOCATION	0	1	SUBJ_POB
2.8033_1	- City	0	1	- CITY
2.8033_2	- State/Province	0	1	- STATE
2.8033_3	- Country Code	1	1	- CTRY
2.8033_4	- Village	0	1	- VLG
2.8033_5	- Comment	0	1	- COM
2.8034	BIOMETRIC SUBJECT DEATH LOCATION	0	1	SUBJ_POD
2.8034_1	- City	0	1	- CITY
2.8034_2	- State/Province	0	1	- STATE
2.8034_3	- Country Code	1	1	- CTRY
2.8034_4	- Village	0	1	- VLG

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.8034_5	- Comment	0	1	- COM
2.8035	BIOMETRIC SUBJECT HEIGHT MEASUREMENT	0	2	SUBJ_HEIGHT
2.8035_1	- Height Value	1	1	- HGT
2.8035_2	- Length Unit	1	1	- LENUNIT
2.8035_3	- Height Validity	1	1	- MEASVLD
2.8036	BIOMETRIC SUBJECT WEIGHT MEASUREMENT	0	2	SUBG_WEIGHT
2.8036_1	- Weight Value	1	1	- WGT
2.8036_2	- Mass Unit	1	1	- MASSUNIT
2.8036_3	- Weight Validity	1	1	- MEASVLD
2.8037	BIOMETRIC SUBJECT EYE COLOR	0	2	SUBJ_EYE
2.8037_1	- Eye Position	1	1	- EPOS
2.8037_2	- Eye Color	1	1	- ECOL
2.8038	BIOMETRIC SUBJECT ASSOCIATED INDIVIDUAL	0	100	IASSOC
2.8038_1	- Associated Individual Gender	1	1	- IASSOC_SEX
2.8038_2	- Associated Individual Role	1	1	- IASSOC_ROLE
2.8038_3	- Name – One	1	1	- NAM1
2.8038_4	- Name – Two	1	1	- NAM2
2.8038_5	- Name – Three	0	1	- NAM3
2.8038_6	- Name – Four	0	1	- NAM4
2.8038_7	- Name – Five	0	1	- NAM5
2.8038_8	- Address Line 1	0	1	- ADD1
2.8038_9	- Address Line 2	0	1	- ADD2
2.8038_10	- City	0	1	- CITY
2.8038_11	- State/Province	0	1	- STATE
2.8038_12	- Country Code	0	1	- CTRY
2.8038_13	- Postal Code	0	1	- POSTAL
2.8038_14	- Village	0	1	- VLG
2.8038_15	- Phone	0	1	- PHNUM
2.8038_16	- Birth Date	0	1	- DOB
2.8038_17	- Occupation	0	1	- OCC
2.8038_18	- Comment	0	1	- COM

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.8039	BIOMETRIC SUBJECT GROUP MEMBERSHIP	0	100	GRPMBR
2.8039_1	- Group Name	1	1	- GMNAM
2.8039_2	- Group Type	1	1	- GMTYP
2.8039_3	- Group Member Role	0	1	- GMRL
2.8039_4	- Address Line 1	0	1	- ADD1
2.8039_5	- Address Line 2	0	1	- ADD2
2.8039_6	- City	0	1	- CITY
2.8039_7	- State/Province	0	1	- STATE
2.8039_8	- Country Code	0	1	- CTRY
2.8039_9	- Postal Code	0	1	- POSTAL
2.8039_10	- Village	0	1	- VLG
2.8039_11	- Phone Number	0	1	- PHNUM
2.8039_12	- Comment	0	1	- COM
2.8040	BIOMETRIC SUBJECT NAME	0	1	SUBJ_NAME
2.8040_1	- Name – One	1	1	- NAM1
2.8040_2	- Name – Two	1	1	- NAM2
2.8040_3	- Name – Three	0	1	- NAM3
2.8040_4	- Name – Four	0	1	- NAM4
2.8040_5	- Name – Five	0	1	- NAM5
2.8040_6	- Name Validity Code	0	1	- NAM_VLD
2.8040_7	- Transliteration Code	0	1	- TRANSLIT_CD
2.8102	ENCOUNTER MISSION TYPE	0	1	ENCTR_MSN
2.8103	COLLECTION REASON	0	1	COL_RSN
2.8107	BIOMETRIC SUBJECT PRIVACY ACT INDICATOR	0	1	PRI_ACT
2.8108	ENCOUNTER COMMENT	0	1	ENCTR_COM
2.8110	IRIS IMAGE OMITTED REASON	0	1	IOMITTED
2.8111	COLLECTION COCOM	0	1	COCOM
2.8112	PALMPRINT IMAGE OMITTED REASON	0	1	PIOMITTED
2.8114	COLLECTION LOCATION	0	1	COLL_BLO
2.8114_1	- Universal Time Entry	0	1	- UTE
2.8114_2	- Latitude Degree Value	0	1	- LTD

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.8114_3	- Latitude Minute Value	0	1	- LTM
2.8114_4	- Latitude Second Value	0	1	- LTS
2.8114_5	- Longitude Degree Value	0	1	- LGD
2.8114_6	- Longitude Minute Value	0	1	- LGM
2.8114_7	- Longitude Second Value	0	1	- LGS
2.8114_8	- Elevation	0	1	- ELE
2.8114_9	- Geodetic Datum Code	0	1	- GDC
2.8114_10	- Geographic Coordinate Universal Transverse Mercator Zone	0	1	- GCM
2.8114_11	- Geographic Coordinate Universal Transverse Mercator Easting	0	1	- GCE
2.8114_12	- Geographic Coordinate Universal Transverse Mercator Northing	0	1	- GCN
2.8114_13	- Geographic Reference Text	0	1	- GRT
2.8114_14	- Geographic Coordinate Other System Identifier	0	1	- OSI
2.8114_15	- Geographic Coordinate Other System Value	0	1	- OCV
2.8114_16	- City	0	1	- CITY
2.8114_17	- State/Province	0	1	- STATE
2.8114_18	- Country Code	1	1	- CTRY
2.8114_19	- Village	0	1	- VLG
2.8114_20	- Record Category Code	1	1	- REC
2.8115	OPERATIONAL PERSONNEL	0	20	OPER
2.8115_1	- Operational Personnel Unit/Organization	0	1	- OPORG
2.8115_2	- Operational Personnel Role	1	1	- OPRL
2.8115_3	- Rank Grade Code	0	1	- RANK
2.8115_4	- US Person Indicator	0	1	- USIND
2.8115_5	- Operational Personnel Identifier Type	0	1	- OPIDCATCD
2.8115_6	- Operational Personnel Identifier	0	1	- OPID
2.8115_7	- Name – One	1	1	- NAM1
2.8115_8	- Name – Two	1	1	- NAM2
2.8115_9	- Name – Three	0	1	- NAM3

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
2.8115_10	- Name – Four	0	1	- NAME4
2.8115_11	- Name – Five	0	1	- NAME5
2.8115_12	- Phone Number	0	1	- PHNUM
2.8115_13	- Email Address	0	1	- EMAIL
2.8116	TRANSPORTATION	0	1	TRANSPORT
2.8116_1	- Transport Type	1	1	- TRANSPORT_TYP
2.8116_2	- Transport Identifier Category Code	0	1	- TRANSPORT_IDCATCD
2.8116_3	- Transport Identifier	0	1	- TRANSPORT_ID
2.8116_4	- Transport Make	0	1	- TRANSPORT_MAK
2.8116_5	- Transport Model	0	1	- TRANSPORT_MOD
2.8116_6	- Transport Model Year	0	1	- TRANSPORT_MODYR
2.8116_7	- Transport Color Description	0	1	- TRANSPORT_COL
2.8116_8	- Comment	0	1	- COM
2.8117	FACIAL IMAGE OMITTED REASON	0	1	FOMITTED
2.8118	COLLECTION EQUIPMENT MAKE/MODEL/SERIAL NUMBER	0	1	COLL_MMS
2.8118_1	- Make	1	1	MAK
2.8118_2	- Model	1	1	MOD
2.8118_3	- Serial Number	1	1	SER
2.8118_4	- Record Category Code	1	1	REC
2.8399	CAVEAT	0	40	CAV
2.8399_1	- Caveat Originating Agency Country Code	1	1	- CAV_CNTRY_CD
2.8399_2	- Caveat Originating Agency Name	1	1	- CAV_ORI_NAME
2.8399_3	- Caveat Originating Agency Identifier	1	1	- CAV_ORI
2.8399_4	- Caveat Date	1	1	- CAV_DT
2.8399_5	- Caveat Category Code	1	1	- CAV_CAT_CD
2.8399_6	- Caveat Text	1	1	- CAV_TXT

4.3 Type-9 Records [Minutiae Data]

DoD EBTS Type-9 records are defined in the ITL 1-2011. DoD EBTS Type-9 records shall choose one of the following minutiae blocks as defined in ITL 1-2011, Table 27:

a. the “IAFIS Features” (FBI Native-Mode) minutiae block (fields 13-30) as described in the FBI EBTS v9.3.

b. the “INCITS M1-378 Features” minutiae block (fields 126-150) as described in Table 28 of ITL 1-2011.

Table 5: Type-9 Minutiae Data Record Layout (IAFIS Features)

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
9.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
9.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
9.003	IMPRESSION TYPE	1	1	IMP
9.004	MINUTIAE FORMAT	1	1	FMT
9.013	AFIS FEATURE VECTOR	0	1	AFV
9.014	FINGER NUMBER	1	1	FGN
9.015	NUMBER OF MINUTIAE	1	1	NMN
9.016	FINGERPRINT CHARACTERIZATION PROCESS - Equipment - Version Identifier - Method	1	1	FCP - VEN - VID - MET
9.017	AFIS/FBI PATTERN CLASSIFICATION - Pattern Classification - Ridge Count Number 1 - Ridge Count Number 2	0	3	APC - APAT - RCN1 - RCN2
9.018	REGION OF VALUE POLYGON	3	20	ROV
9.019	COORDINATE OFFSETS - Offset to Upper Left Corner Subimage - Center of Rotation in Subimage - Rotation Angle Clock Wise Degrees - Rotation Center in Rotated Subimage - Offset to Upper Left Corner Final Subimage	0	1	COF - XYP - XYP - THET - XYP - XYP
9.020	ORIENTATION UNCERTAINTY	1	1	ORN
9.021	CORE ATTRIBUTES - Core Location - Core Direction in Degrees - Core Position Uncertainty	0	2	CRA - XYM - DID - PUM

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
9.022	DELTA ATTRIBUTES - Delta Location - Upward Flow Direction - Leftward Flow Direction - Rightward Flow Direction - Delta Position Uncertainty	0	2	DLA - XYM - DID - DID - DID - PUM
9.023	MINUTIA AND RIDGE COUNT DATA - Minutia Index Number - Location Direction - Quality Measure - Minutia Type - Minutia Index and Ridge Count Octant 0 - Minutia Index and Ridge Count Octant 1 - Minutia Index and Ridge Count Octant 2 - Minutia Index and Ridge Count Octant 3 - Minutia Index and Ridge Count Octant 4 - Minutia Index and Ridge Count Octant 5 - Minutia Index and Ridge Count Octant 6 - Minutia Index and Ridge Count Octant 7 - Octant Residuals	1	254	MAT - MDX - XYT - QMS - MNT - MRO - MRO1 - MRO2 - MRO3 - MRO4 - MRO5 - MRO6 - MRO7 - RSO
9.024	CHARACTERIZATION QUALITY	0	1	CHQ
9.025	CLASSIFIER QUALITY	0	1	CLQ
9.300-9.399	EXTENDED FEATURE SET[3]	-	-	EXTENDED FEATURE SET
9.901	UNIVERSAL LATENT ANNOTATION	0	Unlimited	ULA

[3] Enhancements for Extended Feature Sets supported by ANSI/NIST ITL-1-2011 are being considered in future drafts of EBTS.

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
9.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
9.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
9.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	1	1	MAKE/MODEL/SERIAL NUMBER - MAK - MOD - SER

Table 6: Type-9 Minutiae Data Record Layout (INCITS-378 Features)

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
9.001	LOGICAL RECORD LENGTH	1	1	
9.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
9.003	IMPRESSION TYPE	1	1	IMP
9.004	MINUTIAE FORMAT	1	1	FMT
9.126	CBEFF INFORMATION - CBEFF Format Owner - CBEFF Format Type - CBEFF Product Identifier	1	1	CBI - CFO - CFT - CPI
9.127	CAPTURE EQUIPMENT IDENTIFICATION - Capture Equipment Conformance Status - Capture Equipment Identifier	1	1	CEI - AFS - CID
9.128	HORIZONTAL LINE LENGTH	1	1	HLL
9.129	VERTICAL LINE LENGTH	1	1	VLL
9.130	SCALE UNITS	1	1	SLC
9.131	TRANSMITTED HORIZONTAL PIXEL SCALE	1	1	THPS

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
9.132	TRANSMITTED VERTICAL PIXEL SCALE	1	1	TVPS
9.133	FINGER VIEW	1	1	FVW
9.134	FRICTION RIDGE GENERALIZED POSITION	1	1	FGP
9.135	FRICTION RIDGE QUALITY DATA - Quality Value - Algorithm Vendor Identification - Algorithm Product Identification	1	1	FQD - QVU - QAV - QAP
9.136	NUMBER OF MINUTIAE	1	1	NOM
9.137	FINGER MINUTIA DATA - Minutia Index Number - Minutia X Coordinate - Minutia Y Coordinate - Minutia Angle - Minutia Type - Quality of Minutia	1	n[1]	FMD - MAN - MXC - MYC - MAV - MTY - QOM
9.138	RIDGE COUNT INFORMATION - Ridge Count Extraction Method - “0” - “0” or - Centering Minutiae Index - Neighboring Minutiae Index - Number of Ridges Crossed	0	n[1]	RCI - REM - “0” - “0” or - CMI - NMN - NRC
9.139	CORE INFORMATON - Core X Coordinate - Core Y Coordinate - Angle of the Core	0	9	CIN - XCC - YCC - ANGC
9.140	DELTA INFORMATON - Delta X Coordinate - Delta Y Coordinate - First Angle of the Delta	0	9	DIN - XCD - YCD - ANG1

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
9.141	M1 DELTA INFORMATION	0	9	ADA - ANG2 - ANG3
9.300-9.399	EXTENDED FEATURE SET[4]	N/A	N/A	EXTENDED FEATURE SET
9.901	UNIVERSAL LATENT ANNOTATION	0	Unlimited	ULA
9.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	1	ANN - GMT - NAV - OWN - PRO
9.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
9.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	1	1	MAKE/MODEL/SERIAL NUMBER - MAK - MOD - SER

Note 1: n equals the number of minutiae points

[4] Enhancements for Extended Feature Sets supported by ANSI/NIST ITL-1-2011 are being considered in future drafts of EBTS.

4.4 Type-10 Records [Facial & SMT]

DoD EBTS Type-10 records are defined in ITL 1-2011. Type-10 records shall contain face, SMT, and / or other body part image data and related information pertaining to the specific image contained in this record. It shall be used to exchange both grayscale and color image data in a compressed or uncompressed form.

DoD EBTS v3.0 deprecates three user defined fields that were included in EBTS v2.0.

- Field 10.200 Device Unique Identifier (DEV_UI) – Deprecated by Field 10.903 Device Unique Identifier (DUI)
- Field 10.201 Capture Device Global Identifier (DEV_GI) – Deprecated by Field 10.903 Device Unique Identifier (DUI)
- Field 10.202 Capture Device Information (DEV_INFO) – Deprecated by Field 10.904 Make/Model/Serial Number

Table 7: Type-10 Facial and SMT Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
10.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
10.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
10.003	IMAGE TYPE	1	1	IMT
10.004	SOURCE AGENCY	1	1	SRC
10.005	PHOTO CAPTURE DATE	1	1	PHD
10.006	HORIZONTAL LINE LENGTH	1	1	HLL
10.007	VERTICAL LINE LENGTH	1	1	VLL
10.008	SCALE UNITS	1	1	SLC
10.009	TRANSMITTED HORIZONTAL PIXEL SCALE	1	1	THPS
10.010	TRANSMITTED VERTICAL PIXEL SCALE	1	1	TVPS
10.011	COMPRESSION ALGORITHM	1	1	CGA
10.012	COLOR SPACE	1	1	CSP
10.013	SUBJECT ACQUISITION PROFILE	1	1	SAP
10.014	FACE IMAGE POSITION COORDINATES IN FULL POSITION - Left Horizontal Coordinate Value - Right Horizontal Coordinate Value - Top Vertical Coordinate Value - Bottom Vertical Coordinate Value - Bounding Box Head Position Code	0	1	FIP - LHC - RHC - TVC - BVC - BBC
10.015	FACE IMAGE PATH COORDINATES IN FULL IMAGE - Boundary Code - Number of Points - Horizontal Point Offset - Vertical Point Offset	0	1	FPFI - BYC - NOP - HPO - VPO
10.016	SCANNED HORIZONTAL PIXEL SCALE	0	1	SHPS
10.017	SCANNED VERTICLE PIXEL SCALE	0	1	SVPS

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
10.018	DISTORTION - Distortion Code - Distortion Measurement Code - Distortion Severity Code	0	1	DIST - IDK - IDM - DSC
10.019	LIGHTING ARTIFACTS	0	3	LAF
10.020	SUBJECT POSE	0	1	POS
10.021	POSE OFFSET ANGLE	0	1	POA
10.023	PHOTO ACQUISITION SOURCE - Photo Attribute Code - Vendor – Specific Description	0	1	PAS - PAC - VSD
10.024	SUBJECT QUALITY SCORE - Quality Value - Algorithm Vendor Identification - Algorithm Product Identification	0	9	SQS - QVU - QAV - QAP
10.025	SUBJECT POSE ANGLES - Yaw Angle - Pitch angle - Roll Angle - Uncertainty in Degrees for Yaw - Uncertainty in Degrees for Pitch - Uncertainty in Degrees for Roll	0	1	SPA - YAW - PIT - ROL - YAWU - PITU - ROLU
10.026	SUBJECT FACIAL DESCRIPTION	0	50	SXS
10.027	SUBJECT EYE COLOR	0	1	SEC
10.028	SUBJECT HAIR COLOR	0	2	SHC
10.029	FACIAL FEATURE POINTS - Feature Point Type - Feature Point Code - X Coordinate - Y Coordinate	0	88	FFP - FPT - FPC - HCX - HCY
10.030	DEVICE MONITORING MODE	0	1	DMM
10.031	TIERED MARKUP COLLECTION	0	1	TMC

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
10.032	3D FACIAL FEATURE POINTS - Feature Point Type - Feature Point Code - X Coordinate - Y Coordinate - Z Coordinate	0	88	3DF - FPT - FPC - HCX - HCY - HCZ
10.033	FEATURE CONTOURS - Feature Contour Codes - Number of Points - Horizontal Pixel Offset[5] - Vertical Pixel Offset	0	12	FEC - FCC - NOP - HPO - VPO
10.038	COMMENT	0	1	COM
10.039	TYPE-10 REFERENCE NUMBER	0	1	T10
10.040	NCIC SMT CODE	0	3	SMT
10.041	SMT SIZE - SMT Height - SMT Width	0	1	SMS - HGT - WID
10.042	SMT DESCRIPTORS - SMT Code Indicator - Tattoo Class - Tattoo Subclass - Tattoo Description	0	9	SMD - SMI - TAC - TSC - TDS
10.043	TATTOO COLOR - Tattoo Color Code 1 - Tattoo Color Code 2 - Tattoo Color Code 3 - Tattoo Color Code 4 - Tattoo Color Code 5 - Tattoo Color Code 6	0	9	COL - TC1 - TC2 - TC3 - TC4 - TC5 - TC6

[5] Horizontal and Vertical Pixel Offsets are repeated in pairs, in order by point following the contour, up to the final point for a total Number of Point pairs

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
10.044	IMAGE TRANSFORM	0	1	ITX
10.045	OCCLUSIONS - Occlusion Opacity - Occlusion Type - Number of Points - Horizontal Point Offset[6] - Vertical Point Offset	0	16	OCC - OCY - OCT - NOP - HPO - VPO
10.200 – 10.900	USER DEFINED FIELDS	N/A	N/A	UDF
10.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
10.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
10.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	1	1	MMS - MAK - MOD - SER
10.993	SOURCE AGENCY NAME	0	1	SAN
10.995	ASSOCIATED CONTEXT - Associated Context Number - Associated Segment Position	0	255	ASC - ACN - ASP
10.996	HASH	0	1	HAS
10.997	SOURCE REPRESENTATION - Source Representation Number - Reference Segment Position	0	255	SOR - SRN - RSP

[6] The Horizontal Pixel Offset and Vertical Pixel Offset are repeated as pairs, in order by point following the contour, up to the final point - For a total of Number of Points (NOP) Pairs

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
10.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION - (See ITL 1-2011 for Informational Items)	0	1	GEO - (See ITL 1-2011 for Mnemonics)
10.999	BODY PART IMAGE	1	1	DATA

4.5 Type-13 Records [Variable-Resolution Latent Image]

DoD EBTS Type-13 records are defined in ITL 1-2011. The Type-13 record shall contain image data acquired from latent captures of friction ridge images. These images require human intervention and processing to extract the desired feature information from the images. Information regarding the scanning resolution used, the image size, and other parameters required to process the image, are recorded as fields within the record.

DoD EBTS v3.0 deprecates three user defined fields that were included in EBTS v2.0.

- Field 13.200 Device Unique Identifier (DEV_UI) – Deprecated by Field 13.903 Device Unique Identifier (DUI)
- Field 13.201 Capture Device Global Identifier (DEV_GI) – Deprecated by Field 13.903 Device Unique Identifier (DUI)
- Field 13.202 Capture Device Information (DEV_INFO) – Deprecated by Field 13.904 Make/Model/Serial Number
- Field 13.203 Latent Circumstances (LATENT_CIRC) – Deprecated by Field 13.020 Comment
- Field 13.204 Latent Source Item (LATENT_ITM) – Deprecated by Type-20 or by Field 13.020
- Field 13.205 Latent Development (LATENT_MET) – Deprecated by Field 13.902 Annotated Information and/or Field 13.902_4 Process Description

Table 8: Type-13 Variable-Resolution Latent Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
13.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
13.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
13.003	IMPRESSION TYPE	1	1	IMP
13.004	SOURCE AGENCY	1	1	SRC
13.005	LATENT CAPTURE DATE	1	1	LCD
13.006	HORIZONTAL LINE LENGTH	1	1	HLL
13.007	VERTICAL LINE LENGTH	1	1	VLL
13.008	SCALE UNITS	1	1	SLC
13.009	TRANSMITTED HORIZONTAL PIXEL SCALE	1	1	THPS
13.010	TRANSMITTED VERTICAL PIXEL SCALE	1	1	TVPS
13.011	COMPRESSION ALGORITHM	1	1	CGA
13.012	BITS PER PIXEL	1	1	BPX
13.013	FRICTION RIDGE GENERALIZED POSITION	1	6	FGP
13.014	SEARCH POSITION DESCRIPTORS - Probable Decimal Finger Position Code - Finger Image Code	0	9	SPD - PDF - FIC
13.015	PRINT POSITION COORDINATES - Full Finger View - Location of a Segment - Left Horizontal Coordinate - Right Horizontal Coordinate - Top Vertical Coordinate - Bottom Vertical Coordinate	0	12	PPC - FVC - LOS - LHC - RHC - TVC - BVC
13.016	SCANNED HORIZONTAL PIXEL SCALE	0	1	SHPS
13.017	SCANNED VERTICAL PIXEL SCALE	0	1	SVPS
13.020	COMMENT	0	1	COM

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
13.024	LATENT QUALITY METRIC - Friction Ridge Metric Position - Quality Value - Algorithm Vendor Identification - Algorithm Product Identification	0	4	LQM - FRMP - QVU - QAV - QAP
13.200 – 13.900	USER DEFINED FIELDS	N/A	N/A	UDF
13.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
13.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
13.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	1	1	MMS - MAK - MOD - SER
13.993	SOURCE AGENCY NAME	0	1	SAN
13.995	ASSOCIATED CONTEXT - Associated Context Number - Associated Segment Position	0	255	ASC - ACN - ASP
13.996	HASH	0	1	HAS
13.997	SOURCE REPRESENTATION - Source Representation Number - Reference Segment Position	0	255	SOR - SRN - RSP
13.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION	0	1	GEO - (See ITL 1-2011 for Informational Items)
13.999	LATENT FRICTION RIDGE IMAGE	1	1	DATA

4.6 Type-14 Records [Var-Res Fingerprint Image]

DoD EBTS Type-14 records are defined in ITL 1-2011. The Type-14 record shall contain and be used to exchange exemplar fingerprint image data, such as a rolled tenprint, identification flats, or other complete friction ridge exemplar defined in Section 3.6.1.

DoD EBTS v3.0 deprecates three user defined fields that were included in EBTS v2.0.

- Field 14.200 Device Unique Identifier (DEV_UI) – Deprecated by Field 14.903 Device Unique Identifier (DUI)
- Field 14.201 Capture Device Global Identifier (DEV_GI) – Deprecated by Field 14.903 Device Unique Identifier (DUI)
- Field 14.202 Capture Device Information (DEV_INFO) – Deprecated by Field 14.904 Make/Model/Serial Number

Table 9: Type-14 Variable-Resolution Fingerprint Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
14.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
14.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
14.003	IMPRESSION TYPE	1	1	IMP
14.004	SOURCE AGENCY	1	1	SRC
14.005	FINGERPRINT CAPTURE DATE	1	1	FCD
14.006	HORIZONTAL LINE LENGTH	1	1	HLL
14.007	VERTICAL LINE LENGTH	1	1	VLL
14.008	SCALE UNITS	1	1	SLC
14.009	TRANSMITTED HORIZONTAL PIXEL SCALE	1	1	THPS
14.010	TRANSMITTED VERTICAL PIXEL SCALE	1	1	TVPS
14.011	COMPRESSION ALGORITHM	1	1	CGA
14.012	BITS PER PIXEL	1	1	BPX
14.013	FRICTION RIDGE GENERALIZED POSITION[7]	1	1	FGP
14.014	PRINT POSITION DESCRIPTORS - Probable Decimal Finger Position Code - Finger Image Code	0	1	PPD - DFP - FIC
14.015	PRINT POSITION COORDINATES - Full Finger View - Location of a Segment - Left Horizontal Coordinate - Right Horizontal Coordinate - Top Vertical Coordinate - Bottom Vertical Coordinate	0	12	PRINT POSITION COORDINATES - FVC - LOS - LHC - RHC - TVC - BVC
14.016	SCANNED HORIZONTAL PIXEL SCALE	0	1	SHPS

[7] In the 2007 and 2008 versions of the ITL standard, this field had a repeating subfield that could occur up to 6 times. Since only one image is sent per record, the maximum should have been 1 to maintain backward compatibility, the subfield structure has been retained, but with a maximum occurrence of once.

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
14.017	SCANNED VERTICAL PIXEL SCALE	0	1	SVPS
14.018	AMPUTATED OR BANDAGED - Friction Ridge Generalized Amputated or Bandaged Position - Amputated or Bandaged Code	0	4	AMP - FRAP - ABC
14.020	COMMENT	0	1	COM
14.021	FINGERPRINT SEGMENT POSITION(S) - Friction Ridge Generalized Position - Left Horizontal Coordinate Value - Right Horizontal Coordinate Value - Top Vertical Coordinate Value - Bottom Vertical Coordinate Value	0	1	SEG - FRSP - LHC - RHC - TVC - BVC
14.022	NIST QUALITY METRIC - Finger Position Code - NIST Image Quality Score Quantity	0	5	NQM - FRNP - IQS
14.023	SEGMENTATION QUALITY METRIC - Friction Ridge Segment Quality Position - Quality Value - Algorithm Vendor Identification - Algorithm Product Identification	0	5	SQM - FRQP - QVU - QAV - QAP
14.024	FINGERPRINT QUALITY METRIC - Friction Ridge Metric Position - Quality Value - Algorithm Vendor Identification - Algorithm Product Identification	0	5	FQM - FRMP - QVU - QAV - QAP
14.025	ALTERNATE FINGER SEGMENT POSITION(S) - Friction Ridge Alternate Segment Position - Number of Points - Horizontal Pixel Offset - Vertical Pixel Offset	0	5	ASEG - FRAS - NOP - HPO - VPO
14.026	SIMULTANEOUS CAPTURE	0	1	SCF
14.027	STITCHED IMAGE FLAG	0	1	SIF

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
14.030	DEVICE MONITORING MODE	0	1	DMM
14.031	SUBJECT ACQUISITION PROFILE – FINGERPRINT	0	1	FAP
14.200 – 14.900	USER DEFINED FIELDS	N/A	N/A	UDF
14.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
14.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
14.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	1	1	MMS - MAK - MOD - SER
14.993	SOURCE AGENCY NAME	0	1	SAN
14.995	ASSOCIATED CONTEXT	0	255	ASC - ACN - ASP
14.996	HASH	0	1	HAS
14.997	SOURCE REPRESENTATION - Source Representation Number - Reference Segment Position	0	255	SOR - SRN - RSP
14.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION (See ITL 1-2011 for Informational Items)	0	1	GEO
14.999	FINGERPRINT IMAGE	1	1	DATA

4.7 Type-15 Records [Var-Res Palmprint Image]

DoD EBTS Type-15 records are defined in ITL 1-2011. The Type-15 record shall contain and be used to exchange palm print image data. Information regarding the scanning resolution used, the image size, and other parameters or comments required to process the image are recorded as fields within the record.

DoD EBTS v3.0 deprecates three user defined fields that were included in EBTS v2.0.

- Field 15.200 Device Unique Identifier (DEV_UI) – Deprecated by Field 15.903 Device Unique Identifier (DUI)
- Field 15.201 Capture Device Global Identifier (DEV_GI) – Deprecated by Field 15.903 Device Unique Identifier (DUI)
- Field 15.202 Capture Device Information (DEV_INFO) – Deprecated by Field 15.904 Make/Model/Serial Number

Table 10: Type-15 Variable-Resolution Palmprint Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
15.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
15.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
15.003	IMPRESSION TYPE	1	1	IMP
15.004	SOURCE AGENCY	1	1	SRC
15.005	PALMPRINT CAPTURE DATE	0	1	PCD
15.006	HORIZONTAL LINE LENGTH	0	1	HLL
15.007	VERTICAL LINE LENGTH	0	1	VLL
15.008	SCALE UNITS	0		SLC
15.009	TRANSMITTED HORIZONTAL PICTURE SCALE	0	1	THPS
15.010	TRANSMITTED VERTICAL PICTURE SCALE	0	1	TVPS
15.011	COMPRESSION ALGORITHM	0	1	CGA
15.012	BITS PER PIXEL	0	1	BPX
15.013	FRICTION RIDGE GENERALIZED POSITION	0	1	FGP
15.016	SCANNED HORIZONTAL PIXEL SCALE	0	1	SHPS
15.017	SCANNED VERTICAL PIXEL SCALE	0	1	SVPS
15.018	AMPUTATED OR BANDAGED - Friction Ridge Amputated or Bandaged Position - Amputated or Bandaged Code	0	9	AMP - FRAP - ABC
15.020	COMMENT	0	1	COM
15.024	PALMPRINT QUALITY METRIC - Friction Ridge Metric Position - Quality Value - Algorithm Vendor Identification - Algorithm Product Identification	0	9	PQM - FRMP - QVU - QAV - QAP
15.030	DEVICE MONITORING MODE	0	1	DMM
15.200 – 15.900	USER DEFINED FIELDS	N/A	N/A	UDF

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
15.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
15.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
15.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	0	1	MMS - MAK - MOD - SER
15.993	SOURCE AGENCY NAME	0	1	SAN
15.995	ASSOCIATED CONTEXT - Associated Context Number - Associated Segment Position	0	255	ASC - ACN - ASP
15.996	HASH	0	1	HAS
15.997	SOURCE REPRESENTATION - Source Representation Number - Reference Segment Position	0	255	SOR - SRN - RSP
15.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION - (See ITL-2011 for Informational Items)	0	1	GEO
15.999	PALMPRINT IMAGE	0	1	DATA

4.8 Type-17 Records [Iris Image]

DoD EBTS Type-17 records are defined in ITL 1-2011. The Type-17 record shall contain and be used to exchange generic iris image data using fields of this record type.

DoD EBTS v3.0 deprecates three user defined fields that were included in EBTS v2.0.

- Field 17.200 Device Unique Identifier (DEV_UI) – Deprecated by Field 17.017 Device Unique Identifier (DUI)
- Field 17.201 Capture Device Global Identifier (DEV_GI) – Deprecated by Field 17.017 Device Unique Identifier (DUI)
- Field 17.202 Capture Device Information (DEV_INFO) – Deprecated by Field 17.019 Make/Model/Serial Number

Table 11: Type-17 Iris Image Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
17.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
17.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
17.003	EYE LABEL	1	1	ELR
17.004	SOURCE AGENCY	1	1	SRC
17.005	IRIS CAPTURE DATE	0	1	ICD
17.006	HORIZONTAL LINE LENGTH	0	1	HLL
17.007	VERTICAL LINE LENGTH	0	1	VLL
17.008	SCALE UNITS	0	1	SLC
17.009	TRANSMITTED HORIZONTAL PIXEL SCALE	0	1	THPS
17.010	TRANSMITTED VERTICAL PIXEL SCALE	0	1	TVPS
17.011	COMPRESSION ALGORITHM	0	1	CGA
17.012	BITS PER PIXEL	0	1	BPX
17.013	COLOR SPACE	0	1	CSP
17.014	ROTATION ANGLE OF EYE	0	1	RAE
17.015	ROTATION UNCERTAINTY	0	1	RAU
17.016	IMAGE PROPERTY CODE - Horizontal Orientation Code - Vertical Orientation Code - Specific Scan Type	0	1	IPC - IHO - IVO - IST
17.017	DEVICE UNIQUE IDENTIFIER	0	1	DUI
17.019	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	0	1	MMS - MAK - MOD - SER
17.020	EYE COLOR	0	1	ECL
17.021	COMMENT	0	1	COM
17.022	SCANNED HORIZONTAL PIXEL SCALE	0	1	SHPS
17.023	SCANNED VERTICAL PIXEL SCALE	0	1	SVPS

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
17.024	IMAGE QUALITY SCORE - Quality Value - Algorithm Vendor Identifier - Algorithm Product Identification	0	1	IQS - QVU - QAV - QAP
17.025	ACQUISITION LIGHTING SPECTRUM	0	1	EAS
17.026	IRIS DIAMETER	0	1	IRD
17.027	SPECIFIED SPECTRUM VALUES - Spectrum Lower Bound - Spectrum Upper Bound	0	1	SSV - LOW - HIG
17.028	DAMAGED OR MISSING EYE	0	1	DME
17.030	DEVICE MONITORING MODE	0	1	DMM
17.031	SUBJECT ACQUISITION PROFILE – IRIS	0	1	IAP
17.032	IRIS STORAGE FORMAT	0	1	ISF
17.033	IRIS PUPIL BOUNDARY - Boundary Code - Number of Points - Horizontal Point Offset[8] - Vertical Point Offset	0	1	IPB - BYC - NOP - HPO - VPO
17.034	IRIS SCLERA BOUNDARY - Boundary Code - Number of Points - Horizontal Point Offset - Vertical Point Offset	0	1	ISB - BYC - NOP - HPO - VPO
17.035	UPPER EYELID BOUNDARY - Boundary Code - Number of Points - Horizontal Point Offset - Vertical Point Offset	0	1	UEB - BYC - NOP - HPO - VPO

[8] The Horizontal Point Offset and Vertical Point Offset are repeated subfields for 17.033, 17.034, 17.035, 17.036, 17.037 – according to the total of Number of Points pairs

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
17.036	LOWER EYELID BOUNDARY - Boundary Code - Number of Points - Horizontal Point Offset - Vertical Point Offset	0	1	LEB - BYC - NOP - HPO - VPO
17.037	NON-EYELID OCCLUSIONS - Occlusion Opacity[9] - Occlusion Type - Number of Points - Horizontal Point Offset - Vertical Point Offset	0	1	NEO - OCY - OCT - NOP - HPO - VPO
17.040	RANGE	0	1	RAN
17.041	FRONTAL GAZE	0	1	GAZ
17.200 – 17.900	USER DEFINED FIELDS	N/A	N/A	UDF
17.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
17.993	SOURCE AGENCY NAME	0	1	SAN
17.995	ASSOCIATED CONTEXT - Associated Context Number - Associated Segment Position	0	255	ASC - ACN - ASP
17.996	HASH	0	1	HAS
17.997	SOURCE REPRESENTATION - Source Representation Number - Reference Segment Position	0	255	SOR - SRN - RSP

[9] The subfield allows for unlimited repeating sets of information items

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
17.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION - (See ITL 1-2011 for Informational Items)	0	1	GEO
17.999	IRIS IMAGE DATA	0	1	DATA

4.9 Type-18 Records [DNA Record]

DoD EBTS Type-18 records are completely defined in ITL 1-2011. New to this version of the standard, the Type-18 record shall contain and be used to exchange DNA data. This shall be used to exchange Autosomal Short Tandem Repeat (STR), X-Short Tandem Repeat (X-STR) Y-Short Tandem Repeat (Y-STR), Mitochondrial DNA (mtDNA), Pedigree, and electropherogram images of DNA data. This record type is based upon standardized and commonly used DNA analysis and data reporting conventions.

Table 12: Type-18 DNA Data Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
18.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
18.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
18.003	DNA LABORATORY SETTING - Unit Type - Lab Type - Accreditation Information - Name of the Organization - Point of Contact - Code of Sending Country - International Organization Name	1	1	DLS - UTY - LTY - ACC - NOO - POC - CSC - ION
18.004	SOURCE AGENCY IDENTIFIER	1	1	SRC
18.005	NUMBER OF ANALYSES FLAG	1	1	NAL
18.006	SAMPLE DONOR INFORMATION - DNA Sample Donor - Gender ID - Date of Last Contact - Date of Birth - Ethnic Group - Dental Record Available - Sample Collection Location Description - Sample Donor Status	1	1	SDI - DSD - GID - DLC - DOB - EGP - DRA - LLC - SDS
18.007	CLAIMED OR PURPORTED RELATIONSHIP	0	1	COPR
18.008	VALIDATED RELATIONSHIP	0	1	VRS

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
18.009	PEDIGREE INFORMATION - Pedigree ID - Pedigree Member ID - Pedigree Member Status - Sample Identifier - Father Identifier - Mother Identifier - Pedigree Comment	0	1	PED - PID - PMI - PMS - SID - FID - MID - PCM
18.010	SAMPLE TYPE - Sample Cellular Type - Sample Origin	1	1	STY - SCT - SMO
18.011	SAMPLE TYPING INFORMATION	1	5	STI
18.012	SAMPLE COLLECTION METHOD	0	1	SCM
18.013	SAMPLE COLLECTION DATE	1	1	SCD
18.014	PROFILE STORAGE DATE	1	1	PSD
18.015	DNA PROFILE DATE - Profile Type - Result - Profile ID - Supplemental Message - DNA Profile Comment	1	1	DPD - PTP - RES - PRF - SUP - DPC
18.016	AUTOSOMAL STR, X-STR, AND Y-STR PROFILE - (See ITL 1-2011 for Informational Items)	0	Unlimited	STR
18.017	MITOCHONDRIAL DNA DATA - (See ITL 1-2011 for Informational Items)	0	1	DMD
18.018	DNA USER-DEFINED PROFILE DATA	0	Unlimited	UDP
18.019	ELECTROPHEROGRAM DESCRIPTION - (See ITL 1-2011 for Informational Items)	0	Unlimited	EPD
18.020	DNA GENOTYPE DISTRIBUTION	0	1	DGD

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
18.021	DNA GENOTYPE ALLELE PAIR - Genotype Locus Reference - Allele Pair - Genotype Numerical Weight	0	Unlimited	GAP - GLR - ALP - GNW
18.022	COMMENT	0	1	COM
18.023	ELECTROPHEROGRAM LADDER - Ladder Image Reference - Ladder Storage Type - Ladder Image Data Descriptor - Ladder Electropherogram Data - Ladder Electropherogram Screenshot	0	Unlimited	EPL - LIR - LST - LDD - LEPD - LES
18.200 – 18.900	USER DEFINED FIELDS	N/A	N/A	UDF
18.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
18.993	SOURCE AGENCY NAME	0	1	SAN
18.995	ASSOCIATED CONTEXT - Associated Context Number - Associated Segment Position	0	255	ASC - ACN - ASP
18.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION - (See ITL 1-2011 for Informational Items)	0	1	GEO

4.10 Type-20 Record [Source Representation Record]

DoD EBTS Type-20 records are completely defined in ITL 1-2011. New to this version of the standard, the Type-20 record contains the source representation(s) from which other Record Types were derived. Examples are an image of multiple latent prints, of which one or more is of interest. Those would be segmented and prepared for sending in a Type-13 record. An audio/visual record may provide both facial images for Type-10 record and an audio recording to be used in a future voice logical record. There are many more occasions when it might be appropriate to use a Type-20 record.

Table 13: Type-20 Source Representation Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
20.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
20.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
20.003	SRN CARDINALITY	1	1	CAR
20.004	SOURCE AGENCY	1	1	SRC
20.005	SOURCE REPRESENTATION DATE	0	1	SRD
20.006	HORIZONTAL LINE LENGTH	0	1	HLL
20.007	VERTICAL LINE LENGTH	0	1	VLL
20.008	SCALE UNITS	0	1	SLC
20.009	TRANSMITTED HORIZONTAL PIXEL SCALE	0	1	THPS
20.010	TRANSMITTED VERTICAL PIXEL SCALE	0	1	TVPS
20.011	COMPRESSION ALGORITHM	0	1	CGA
20.012	BITS PER PIXEL	0	1	BPX
20.013	COLOR SPACE	0	1	CSP
20.014	ACQUISITION SOURCE - Acquisition Source Type - Analog to Digital Conversion - Radio Transmission Format Description - Acquisition Special Characteristics	0	9	AQS - AQT - A2D - FDN - AQSC

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
20.015	SOURCE REPRESENTATION FORMAT - File Type - Decoding Instructions	1	1	SFT - FTY - DEI
20.016	SEGMENTS - Reference Segment Position - Internal File Reference Pointer - Number of Points - Horizontal Point Offset[10] - Vertical Point Offset	0	99	SEG - RSP - IPT - NOP - HPO - VPO
20.017	SCANNED HORIZONTAL PIXEL SCALE	0	1	SHPS
20.018	SCANNED VERTICAL PIXEL SCALE	0	1	SVPS
20.019	TIME INDEX - Time Index Start - Time Index End	0	99	TIX - TIS - TIE
20.020	COMMENT	0	1	COM
20.021	SOURCE REPRESENTATION NUMBER	1	1	SRN
20.100 – 20.900	USER DEFINED FIELDS	N/A	N/A	UDF
20.902	ANNOTATION INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
20.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
20.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	1	1	MMS - MAK - MOD - SER
20.993	SOURCE AGENCY NAME	0	1	SAN

[10] The Horizontal and Vertical Point Offset information items are repeated as pairs, in order by point following the contour, up to the final point – for a total of NOP pairs

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
20.994	EXTERNAL FILE REFERENCE	0	1	EFR
20.995	ASSOCIATED CONTEXT - Associated Context Number - Associated Segment Position	0	255	ASC - ACN - ASP
20.996	HASH	0	1	HAS
20.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION - (See ITL-2011 for Informational Items)	0	1	GEO
20.999	SOURCE REPRESENTATION DATA	0	1	DATA

4.11 Type-21 Record [Associated Context Record]

DoD EBTS Type-21 records are completely defined in ITL 1-2011. New to this version of the standard, the Type-21 record contains an associated context record. This information 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 of a referenced image area where latent fingerprints were captured.

Table 14: Type-21 Associated Context Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
21.001	RECORD HEADER	1	1	LEN (Used only in traditional encoding version)
21.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
21.004	SOURCE AGENCY	1	1	SRC
21.005	ASSOCIATED CONTEXT DATE	0	1	ACD
21.015	ASSOCIATED CONTEXT FORMAT - File Type - Decoding Instructions	1	1	AFT - FTY - DEI
21.016	SEGMENTS - Associated Segment Position - Internal File Reference Pointer - Number of Points - Horizontal Point Offset[11] - Vertical Point Offset	0	99	SEG - ASP - IPT - NOP - HPO - VPO
21.019	TIME INDEX - Time Index Start - Time Index End	0	99	TIX - TIS - TIE
21.020	COMMENT	0	1	COM
21.021	ASSOCIATED CONTEXT NUMBER	1	1	ACN
21.100 – 21.900	USER DEFINED FIELDS	N/A	N/A	UDF
21.902	ANNOTATION INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO

[11] The Horizontal and Vertical Point Offset information items are repeated as pairs, in order by point following the contour, up to the final point – for a total of NOP pairs

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
21.993	SOURCE AGENCY NAME	0	1	SAN
21.994	EXTERNAL FILE REFERENCE	0	1	EFR
21.996	HASH	0	1	HAS
21.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION - (See ITL 1-2011 for Informational Items)	0	1	GEO
21.999	ASSOCIATED CONTEXT DATA	0	1	DATA

4.12 Type-98 Record [Information Assurance Record]

DoD EBTS Type-98 records are completely defined in ITL 1-2011. New to this version of the standard, the Type-98 record shall contain security information that assures the authenticity and/or integrity of the transaction, possibly utilizing such techniques as binary data hashes, and/or digital signatures.

Table 15: Type-98 Information Assurance Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	IDD element
98.001	RECORD HEADER	1	1	RECORD HEADER [TYPE-21]
98.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
98.003	IA DATA FORMAT OWNER	1	1	DFO
98.004	SOURCE AGENCY	1	1	SRC
98.005	IA DATA FORMAT TYPE	1	1	DFT
98.006	IA DATA CREATION DATE	1	1	DCD
98.200 – 98.889	USER DEFINED FIELDS	N/A	N/A	UDF
98.900	AUDIT LOG - Event - Event Reason - Information Identifier - Agent - Old Reference	0	Unlimited	ALF - EVT - EVR - IID - AGT - OLD
98.901	AUDIT REVISION NUMBER	1	1	ARN
98.993	ORIGINATING AGENCY NAME	0	1	SAN

4.13 Type-99 Records [CBEFF Biometric Data Record]

DoD EBTS Type-99 records are completely defined in ITL 1-2011. The Type-99 record shall contain and be used to exchange biometric data that is not supported by other ANSI/NIST-ITL records. This data is exchanged in a format that conforms to *INCITS 398-2005, the Common Biometric Exchange Formats Framework.*

Table 16: Type-99 CBEFF Biometric Data Record Layout

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
99.001	RECORD HEADER	1	1	
99.002	INFORMATION DESIGNATION CHARACTER	1	1	IDC
99.004	SOURCE AGENCY	1	1	SRC
99.005	BIOMETRIC CAPTURE DATE	1	1	BCD
99.100	CBEFF HEADER VERSION	1	1	HDV
99.101	BIOMETRIC TYPE	1	1	BTY
99.102	BIOMETRIC DATA QUALITY - Quality Value - Algorithm Vendor Identification - Algorithm Product Identification	0	1	BIOMETRIC DATA QUALITY - QVU - QAV - QAP
99.103	BDB FORMAT OWNER	1	1	BFO
99.104	BDB FORMAT TYPE	1	1	BFT
99.200 – 99.900	USER DEFINED FIELDS	N/A	N/A	UDF
99.902	ANNOTATED INFORMATION - Greenwich Mean Time - Processing Algorithm Name/Version - Algorithm Owner - Process Description	0	Unlimited	ANN - GMT - NAV - OWN - PRO
99.903	DEVICE UNIQUE IDENTIFIER	0	1	DUI
99.904	MAKE/MODEL/SERIAL NUMBER - Make - Model - Serial Number	0	1	MMS - MAK - MOD - SER
99.993	SOURCE AGENCY NAME	0	1	SAN
99.995	ASSOCIATED CONTEXT - Associated Context Number - Associated Segment Position	0	255	ASC - ACN - ASP

Field Number	Field Name	Min Occ.	Max Occ.	Mnemonic
99.996	HASH	0	1	HAS
99.997	SOURCE REPRESENTATION - Source Representation Number - Reference Segment Position	0	255	SOR - SRN - RSP
99.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION - (See ITL 1-2011 for Informational Items)	0	1	GEO
99.999	BIOMETRIC DATA BLOCK	1	1	DATA

APPENDIX A: CHANGE REQUEST TEMPLATE

Department of Defense Electronic Biometric Transmission Specification Change Request (CR) Submission Form

The following template should be used for all Change Requests submitted to the BIMA Standards Branch regarding EBTS development (Refer to Section 1.5 for contact information). For detailed instructions, please refer to the DoD BIMA EBTS CR Standard Operating Procedure.

Submission Date	
Originator Organization	
Originator Point of Contact	
Originator E-mail	
Originator Phone	
Originator Fax (optional)	
Originator Address (optional)	
CR Description of issue to be resolved	
Associated requirement, mandate, or policy for the change	

System(s) affected by the issue	<Are there any other systems affected by this issue?>
CR Criticality	Emergency ☐ Critical ☐ Non-critical ☐
CR Criticality Justification	<Description of impact if CR is not implemented>
Proposed solution set	<Description of solution and whether this solution set addresses near term or long term needs>
CR Type	Editorial change ☐ Minor Technical ☐ Major Technical ☐ New Functionality ☐ Other ☐ If Other, explain:
Audit Flow: Assign Change Control Number:	**Date** / **Action** / **Organization**

This page intentionally left blank