Department of Justice
Federal Bureau of Investigation

CRIMINAL JUSTICE INFORMATION SERVICES (CJIS)

ELECTRONIC BIOMETRIC TRANSMISSION SPECIFICATION (EBTS)

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CHANGE HISTORY SECTION

Version/ Revision	Revision Date	Description Of Change	QA Approved	Date
9.4	9/14/2012	General • Moving all Appendices into Excel Spreadsheets for ease of maintainability and flexibly as NGI expands • Removing 'NGI Increment 3' as deployment of those areas will be complete and available for the community during the Summer of 2013 • Removing all repeated elements from the ANSI/NIST-ITL and referring reader to the correct document • Change FGP to "Friction Ridge Generalized Position" • Adding new MNU code for DHS: FN = "Fingerprint Identification Number (DHS) – Restricted Use" • Assign NDR values of 400 – 599 for external FBI Agency usage • Assign NDR value of 16 to internal FBI usage • Increase NAM, 2.018, AKA, 2.019, and NAM, 2.2033B, fields to 50 characters • Add NOT, 2.088, field to LFIS and LFFS transactions • Make LEN, 2.001, & IDC, 2.002, mandatory for all TOTs • Make FBI (UCN), 2.014, mandatory for BATQ & BATR [UCN, 2.081, is being retired] • Make ATN, 2.006, mandatory for LFFS, LFIS, SRL, IRQ, IRR, ISR, LRSQ, LRSR, TPFS, TPIS, TPRS, TPRR, UHN, ULM, AND UULD • Add PHT, 2.036, as optional for AMN, DEK, DEU, and MPR with max occurrences of 1 • Add ULR, 2.2034, as optional for BDECR • Add MSG, 2.060, as optional for BDECR & SRE • Increase CTZ, 2.021, to 10 occurrences for those TOTs that allow		

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		the field to be populated • Validate FGP, 14.013, to allow values of 1 – 15, 19, and 40 – 50 • Require PPD, 14.014, and PPC, 14.015, fields in Type-14 when FGP, 14.013, is 19 • Reject transaction when SLC (13.008, 14.008, or 15.008) does not contain the value 1 or 2 • Remove 'Future Capability' from the titles of messages L0154 to L0164 in Table M-1 • Photos (Type-10) will not be allowed on DOCE, EMUF, FANC, FAUF, FNDR, NNDR, NFUE, NFUF, and MAP • SMTP version of message should allow for DOM, 1.013, to be formatted as: 1.013:NORAM{US}EBTS 9.4{GS} • XML version of message should allow for EBTS 3.1 in the ansi-nist:TransactionDomain field • Table P-2 need column headings of 'Max' • Table M-1 changing from 'Error Transaction Message' to 'Transaction Message' and adding 'canned' messages to that table • Removed field 9.013 AFV as it is no longer supported.		
9.3	5/27/2011	General: • Removed Latent functionality that will not be carried forward in NGI: CFS, ELR, NAR, LSMQ, & LSMR, ULAC. • Reworded Section 3.4.2 Latent Print Investigation for the added NGI functionality and changes being made. • Added more wording to new functionality being offered by NGI • Updating certain places to be conformant with ANSI/NIST-ITL 2011. • Updated functionality being offered in NGI Increment 3 by changing 'Future Capability' to 'NGI Increment 3' for		

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		those items.		
		Section 3.1.1:		
		• NGI will be enrolling palmprints and supplemental fingerprint and palmprints included on Tenprint Identification Submissions		
		Section 3.1.2:		
		• NGI will be allowing additional record types on the Latent Identification Submissions, taking over functionality of CFS & ELR		
		• Including 'inconclusive' result to also be returned		
		Section 3.1.3:		
		• Expanding RPIS to be used by CBP for rapid searching of the criminal repository.		
		Section 3.1.3:		
		• Including in the response to CBP rapid search only 'Red' or 'Green'		
		Section 3.3.1:		
		• Updated IRQ/IRR/ISR to include the new image sets being made available: Palmprint and Supplemental image sets.		
		Section 3.3.2:		
		• Adding new TOT BATQ/BATR for Audit Trail Retrieval of the new image sets.		
		Section 3.4.2:		
		• Added the repository selection, NDR, of criminal and/or civil for Penetration Query (LPNQ).		
		• Expanding LFIS/LFFS/SRL with the new functionality being offered by NGI. Major change is searching each event print to give more accurate results. Including this additional information in the search results.		

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		Section 3.4.3:
		
		• Included the option to select the repository (NDR) for the statistics query (LRSQ).
		
		Section 3.5.1:
		
		• Expanding the ULM to include when a biometric decision of an IDENT from a contributor that is not the owner of the unsolved latent print along with additional matched image sets being returned.
		
		Section 3.6.3:
		
		• Adding new BDEL/BDELR TOT for deletion of palmprint and supplemental image sets previously enrolled by owner.
		• Adding new BDEC/BDECR TOT for biometric decision request which will aid in tuning the NGI matcher accuracy.
		• Expanding the FIS TOT to support enrollment of palmprint and supplemental image sets.
		
		Appendix C:
		
		• Redefined FBI Number to use UCN
		• Increase maximum occurrences of the NDR field
		• Added 'inconclusive' to the SRF field.
		• Added new values to IMT
		• Added new fields:
		   o ATR – Audit Trail Record
		   o BIA – Biometric Available
		   o BID – Biometric Image Descriptor
		   o BSI – Biometric Set Identifier
		   o CNL – Candidate Investigative List
		   o EVI – Event Identifier
		   o NIR – Number Images Requested
		   o PPD – Print Position Descriptor		

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		o ULR – Unsolved Latent Retain Appendix J: • Including complete definition of the 'public' template NGI will be using for the Extended Feature Set. Appendix M: • Removed messages that will not be returned by FBI/CJIS. Appendix N: • Added user defined field for describing source of image o ISC Appendix P: • Adding complete definition of Fingerprint Image Set, Palmprint Image Set, and Supplemental Image Set • Including examples of transactions, updating figures Appendix Q (new): • Adding Type-15 Definitions Appendix R (new): • Adding Type-13 Definitions Appendix AC: • Adding/removing acronyms as necessary		
9.2	1/14/2011	General: • Removed all references to the document versions and added a separate listing of all the documents referenced in the standard. • Fixing clerical errors. • Adding new services now offered by FBI/CJIS/IAFIS. • Expanding definitions for new services to be offered by NGI.		

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		Table of Contents: • Corrected figure numbers and page numbers for figures in Appendix P Section 3: • Removed references to Palmprint Search and Supplemental Fingerprint and Palmprint Search as those will be covered under the enhance Friction Ridge Search. • Moved section on Palmprint and Supplemental Fingerprint and Palmprint submission to newly created Appendix P along with expanding on FBI/CJIS expectations of how to submit those image sets. • Expanded several sections with more detail of what NGI will be offering as design moves forward. • Adding wording to the following TOTs that they will not be carried over into NGI: CFS, ELR, NAR, LSMQ, & LSMR, ULAC. Appendix B: • Clarified wording on the DAT 1.005 field as date transaction was submitted. • Added XML encoding namespaces for Type-1 fields. • Corrected sample column entries in Table B-1 Appendix C: • Added XML encoding namespaces for Type-2 fields. • Removed the 'Max Byte Count' column from Table C-1 • Corrected sample column entries in Table C-1 Appendix D: • Added rows for GEO Locator fields • Added column for the new services: o FVR		

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		Appendix E:
		• Added rows for GEO Locator fields
		• Ensure that all tables in appendix have the same fields listed
		• Added column for the new services:
		   o ERRR
		• Removed the following TOTs due to duplication:
		   o ERRI
		
		Appendix F:
		• Corrected wording for the addition of the new section for Mobile ID.
		
		Appendix J:
		• Added XML encoding namespaces for Type-9 fields.
		
		Appendix L:
		• Correct number of records expected for different transactions.
		• Reorganized Tables L-3 and L-4 to allow for more modalities along with breaking them into more tables for ease of reading.
		• Added Table L-5 Transaction/Response/Error TOT Correspondence
		
		Appendix P (NEW)
		• Added more detail about how to submit Palmprint Image Sets and Supplemental Fingerprint and Palmprint Image sets.		

9.1	1/29/2010	General: • Changed all references to the ANSI/NIST standard to the ITL-2007 version. • Ensure all wording, definitions, and descriptions are consistent with ANSI/NIST-ITL 2007. • Removed Future Capability TOTs where design has not started for		

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		those messages.
		
		Section 3:
		• Changed RISC Notification to Unsolicited Hit Notification and assigned it TOT UHN.
		• Reworded text for RPIS, RPISR, and UHN TOTs to align with NGI Increment 2 design.
		• Renamed LFIS & LFFS to Latent Friction Ridge Image Search & Latent Friction Ridge Feature Search.
		
		Appendix C:
		• Added new elements:
		  o SII, 2.2023 – Supplementary Identity Information initially used for RPISR TOT
		  o HTI, 2.2024 – Hit Type Indicator initially used for UHN TOT
		• Updated element descriptions to reflect NGI Increment 2 design:
		  o ACN, 2.071 - Action to be Taken
		  o CRI, 2.073 - Controlling Agency Identifier
		  o ERS, 2.075 - Electronic Rap Sheet
		  o NOT, 2.088 - Note Field
		  o RAP, 2.070 - Request for Electronic Rap Sheet
		  o SRF, 2.059 - Search Results Findings
		• Included definition for missing element:
		  o SLE, 2.055 – Custody or Supervisory Literal
		  o ITD. 2.058 – Image Record Type Desired
		• Updated definitions:
		  o TSR, 2.043 – Type of Search Requested
		• Added DoD's definition of GeoLocator as Future Capability for Mobile ID		

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		Appendix D:
		• Added row for new SII element
		• Added/Changed elements to existing TOTs:
		   ◦ RPIS
		   ◦ RPISR
		   ◦ ITD
		• Corrected values for elements of existing TOTs that were represented incorrectly
		• Deleted column for FVR
		
		Appendix E:
		• Added new column for UHN TOT
		• Added row for new HTI element
		• Corrected values for elements of existing TOTs that were represented incorrectly
		
		Appendix I:
		• Corrected values for elements of existing TOTs that were represented incorrectly
		
		Appendix J:
		• Corrected definitions to line up with how IAFIS processes Type-9 records
		
		Appendix L:
		• Added data to tables for NGI Increment 2 design
		• Adjusted number of record types for TOTs as necessary
		• Added new fields to Tables L-1, L-2
		
		Appendix O (NEW)
		• Added NCIC POB Code Table
		
		Appendix AC
		• Added acronyms for NGI Increment 2 design
		• Corrected acronyms that had the incorrect description		

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9.0	9/8/2009	Reorganization of document into the NGI Core User Services:
		
		• Identification Service
		• Verification Service
		• Information Service
		• Investigation Service
		• Notification Service
		• Data Management Service
		
		Removed all TOTs from 'Future Capability' sections until such a time as design has been completed and decision on which TOT will be used.
		
		3.1.6:
		
		• Added new section for Card Scanning Service (CSS) TOTs.
		
		3.4.5:
		
		• Added new section for Biographic Investigation Submissions, includes new TOTs: Electronic Subject Search (EQHR, EHRR, EQER, & EQRR).
		
		Appendix A:
		
		• Reformatted Table A-1
		• Added new Tables A-2 & A-3
		
		Appendix B:
		
		• Table B-1 for Type 1 record elements was replaced with previous versions table.
		
		Appendix C:
		
		• Added new elements:
		   o CIDN, 2.2022 – Contributor Assigned Identification Number for the EQHR TOT
		• Updated elements:
		   o NCR, 2.079 – Number of Candidates/Images Returned for EQHR TOT
		
		Appendix D:		

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		• Added new columns for EHRR, EQER, EQHR, EQRR, & RPISR
		• Added/Changed elements to existing TOTs:
		   o ULM: optional 2.060, MSG
		
		Appendix L:
		• Updated Element Name:
		   o NCR, 2.079 – Number of Candidates/Images Returned for EQHR
		• Added New Element:
		   o CIDN, 2.2022 – Contributor Assigned Identification Number
		• Added new Transaction to Recordset Summary Tables:
		   o External Query History Request
		   o External Query History Response
		
		Appendix M:
		• Removed Error Codes no longer being used:
		   o L0069, S0006, W0009, & W0010
		
		Appendix AC:
		• Added new acronyms:
		   o CIDN, EHRR, EQER, EQHR, & EQRR
		• Updated acronym name:
		   o NCR		

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PREFACE

How to Use This Document

This section briefly describes the parts of this document and shows how the user can utilize the document in an efficient manner.

- ➢ Section 1: Introduction. This section explains why this document was created, brief descriptions of the specification, and the elements that are commonly used.
- ➢ Section 2: Scope. This section explains the scope of this document and its purpose.
- ➢ Section 3: Operational Concepts. This section describes the User Services being offered by Next Generation Identification (NGI).
- ➢ Appendix A: Transaction Response Times. This appendix briefly presents priorities for each transaction type and response times for the transaction described in this document.
- ➢ Appendix B: Descriptors And Field Edit Specifications For Type-1 Logical Records. This appendix describes the field list for Type-1 records (Header Information).
- ➢ Appendix C: Descriptors And Field Edit Specifications For Type-2 Logical Records. This appendix contains the definitions of fields used for the Type-2 records (Transaction Descriptive, Demographic, and Biographic Information).
- ➢ Appendix D: Summary Logical Record Layouts For Type-2 Identification And Verification Transactions. This appendix contains a summary of Type-2 fields for the Identification and Verification User Services transactions.
- ➢ Appendix E: Summary Logical Record Layouts For Type-2 Investigation, Information, and Notification Transactions. This appendix contains the summary of Type-2 fields for the Investigation, Information, and Notification User Services transactions.
- ➢ Appendix F: FBI/CJIS Image Quality Specifications. This appendix gives the Integrated Automated Fingerprint Identification System (IAFIS) Image Quality Specifications for fingerprint scanners, both for traditional rolled prints and "Identification Flats," printers, and Fast Track Certification procedures.
- ➢ Appendix G: Reserved. This appendix is currently Reserved for Future Use.
- ➢ Appendix H: Descriptors And Field Edit Specifications For Type-7 Logical Records. This appendix presents the Type-7 (Tenprint Fingerprint Card Images) logical record field list, including descriptors and edit specifications.
- ➢ Appendix I: Summary Logical Record Layouts For Type-2 Data Management Transactions. This appendix presents a summary of Type-2 record layouts for Data Management User Services transactions.
- ➢ Appendix J: Descriptors And Field Edit Specifications For Type-9 Logical Records. This appendix gives the Type-9 (Fingerprint Minutiae Information) logical record field list, including descriptors and edit specifications.
- ➢ Appendix K: Descriptors And Field Edit Specifications For Type-10 Logical Records. This appendix details the Type-10 (Photo Images) logical record field list and the Type-2 (Photo) transaction field lists. Appendix K also gives considerable detail concerning photos and Type-2 descriptor information for Scars, Marks, and Tattoos.

- ➢ Appendix L: Summary Tables. This appendix provides a complete cross-reference of elements and their tag numbers and lists logical record requirements for each transaction type.
- ➢ Appendix M: Transaction Error Messages. This appendix contains error message details.
- ➢ Appendix N: Field Edit Specifications For Type-14 Logical Records. This appendix provides definition descriptors and field edits of Type-14 Variable Resolution Fingerprint Image Record.
- ➢ Appendix O: POB Code Table. This appendix contains codes applicable to place of birth and citizenship, and displays allowable codes for each.
- ➢ Appendix P: Specifications For Transmitting Palmprints And Supplemental Fingerprints. This appendix contains the recommendations for submission of palmprints along with supplemental fingerprint and palmprint images.
- ➢ Appendix Q: Descriptors And Field Edit Specifications For Type-15 Logical Records. This appendix contains the detail of the Type-15, Palmprint, record type elements.
- ➢ Appendix R: Descriptors And Field Edit Specifications For Type-13 Logical Records. This appendix contains the detail of the Type-13, Friction Ridge, record type elements.
- ➢ Appendix AC: Acronyms.

For example, to obtain information for sending a Criminal Tenprint Submission, (Answer Required) (CAR), refer to Section 3 for CAR definition, Appendix B for Type-1 logical record field list, Appendix D for the Type-2 CAR transaction field list, and Appendix C for field definitions.

1   INTRODUCTION

1.1   Background

For nearly 100 years, fingerprint cards have been accepted as the standard means for recording and storing fingerprint identification data. Over that period, the content, format, and quality of fingerprint cards have been revised and refined. Fingerprint cards have evolved into an accepted international standard for the exchange of fingerprint, identification, and arrest data between criminal and noncriminal justice agencies.

Historically fingerprint cards were physically transported and processed; therefore, substantial delays occurred in the identification cycle. The Integrated Automated Fingerprint Identification System (IAFIS) was developed to support the paperless submission of fingerprint information. This improved the speed and accuracy of the fingerprint identification process and has nearly eliminated the need for contributing agencies to create and transport paper fingerprint cards to the FBI. As Next Generation Identification (NGI) begins to replace parts of IAFIS, contributors will see improved speed and accuracy of the fingerprint identification process along with the addition of other biometric capabilities.

In support of the development of the FBI/CJIS/NGI and in accordance with the recommendations of the FBI/CJIS Advisory Policy Board (APB) Identification Services Subcommittee, the FBI has developed a standard for electronically encoding and transmitting fingerprint images, identification, and arrest data that extends the American National Standard for Information Systems/National Institute of Standards and Technology - Information Technology Laboratory (ANSI/NIST-ITL) standard. ANSI/NIST-ITL was established in conjunction with the National Institute of Standards and Technology (NIST) and the fingerprint identification community.

The original intent of the ANSI/NIST-ITL standard was to define the content, format, and units of measurement for the exchange of information that may be used in the fingerprint identification of a subject. The ANSI/NIST-ITL standard was intended for use in the interchange between criminal justice administrations or organizations that use an Automated Fingerprint Identification System (AFIS) and to provide a common interface for other AFIS and related systems worldwide. The most recent update of the ANSI/NIST-ITL standard includes new record types to facilitate data sharing for additional biometric modalities, and has added information regarding additional biometric modes, such as palm, facial, and iris recognition.

While the aforementioned ANSI/NIST-ITL standard provides the guidelines for the exchange of biometric information between various federal, state, local, tribal, and international systems, the FBI/CJIS's EBTS defines requirements to which agencies must adhere when electronically communicating with the FBI/CJIS Division. The FBI/CJIS's EBTS and its future revisions will inherit the basic requirements for logical records set forth in the ANSI/NIST-ITL standard. However, the FBI/CJIS-specific requirements for the ANSI/NIST-ITL implementation of logical records Type-1 (Header Information), Type-2 (Transaction Descriptive, Demographic and Biographic Information), Type-4 (Fingerprint Image Descriptive Information), Type-7 (Tenprint Fingerprint Card Images), Type-9 (Fingerprint Minutiae Information), Type-10 (Photo Images),

Type-13 (Latent Friction Ridge Images), Type-14 (Variable Resolution Fingerprint Images), Type-15 (Palmprint Images), Type-17 (Iris Images), and other record types are contained in this EBTS.

The FBI/CJIS Division will be using NGI to move toward a system that will contain biometric and biographic profiles of the subject records in its databases. NGI will evolve over time as there will be incremental deliveries into the FBI/CJIS IAFIS system. This will allow the FBI/CJIS to move toward a capability that will facilitate multimodal biometric searching of its databases. Though fingerprints will continue to be the FBI/CJIS's primary mode of identification for the near future, the FBI/CJIS EBTS document describes the technical specifications for the submission of the additional biometric modalities to provide this future multimodal biometric search capability. As NGI evolves, FBI/CJIS will be introducing enhancements to Web Services and the EBTS XML schema. The XML schema element names and mapping to legacy elements will be provided in this standard and further expanded in the appendices.

1.2   File Format

EBTS defines the composition of the records comprising a transaction that is transmitted to another site or agency. Certain portions of the transaction shall be in accordance with definitions provided by the receiving agency. All records in a transaction shall pertain to a single subject. Biometric data used to identify another individual requires a separate transaction. A transaction1 is comprised of records. All of the records belonging to a single transaction shall be transmitted together. There may be multiple records in a transaction of each record type other than Type-1. The only required records are Type-1 and Type-2, which are used to describe the transaction and the subject. There shall be at least one data record accompanying a Record Type-1. The maximum number of records in a transaction is restricted to 1000.

In order to ensure that the transaction description information can be read by all systems, data for all fields, Record Type-1 shall always be recorded in all encodings using the 7-bit American National Standard Code for Information Interchange (ASCII). The eighth (leftmost) bit shall contain a zero value. (This is consistent with the specification of UTF-8 for XML encodings, since ASCII is a subset of UTF-8). Starting with this version of the FBI/CJIS EBTS, the domain (1.013 DOM) field shall be mandatory for transactions to/from FBI/CJIS in support of proper file validation and field usage, as well as file interoperability among disparate systems.

The default character encoding for Traditional encoding is 7-bit ASCII.   Users are encouraged to choose the option of UTF-8 for 'U' and 'user-defined' character types that does not require the use special control characters in Traditional Encoding.

For XML, UTF-8 shall be used. It is not possible to switch encodings within a transaction using XML.

The first field in the native tagged-field records shall be labeled as field "1" and contain the length in bytes of the record. This field is not necessary in the XML schema. The second field

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[1] An ANSI/NIST-ITL transaction is called a file in Traditional Encoding and an Exchange Package in XML encoding.

shall be labeled as field "2" in the Type-1 record and contains the version number while in the other records this field contains the image designation character. The remaining natively-encoded textual fields may occur in any order and contain the information as described for that particular numbered field. However, the remaining fields in the XML schema do come in a specific order as laid out in the appendices. For tagged-field image records Type-10 through Type-99, the last and concluding field shall have a tagged ASCII field number identifier "999" followed by the image data.

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. Thus, for example, a State Identification Bureau (SIB) could add the State Identification Number (SID) to the end of a Type-2 record created at the booking station. However, for those record types conveying image data (e.g., 13.999: DAT), the data field will always be the last field in the string. For XML encoding, the order will be defined and laid out in the appendices of this standard.

For the binary image Type-4 logical records, the content and order of the recorded fields are specified by this standard. With the exception of the first two fields, the remaining fields of the Type-7 logical image record are all user-defined (see Appendix H for FBI/CJIS EBTS definitions of those fields). All fields and data in these record types shall be recorded as binary information. For XML encoding, all the fields are laid out as ASCII with the image data being base-64 encoded.

1.3   Change Control

The EBTS defines the interface between IAFIS and the state, tribal, international, and other federal organizations' (OFO) systems. Any changes to the data fields or formats within the EBTS must honor previously published protocols to ensure that the systems are not adversely affected. Since FBI/CJIS and the states' and OFO's systems were developed independently, a process has been established that provides for coordinated enhancements within the various systems while maintaining reliable interoperability. This process is based on the tagged field structure defined in the ANSI/NIST-ITL standard and a few "business rules." The rules simply state that field definitions cannot change over time or from system to system. Each system, FBI/CJIS, state and OFO, is assigned a range of field tag numbers that they are allowed to define for passing information in their system. If a change inside that system is needed, the system would create and define the new field within the bounds of their assigned range. The new field cannot be made mandatory for established functionality, but merely enhances functionality for those systems wishing to incorporate the new definition. With this process in place, every system on the network has the opportunity to enhance its own system on its own schedule, yet no system is ever forced to make a change in order to maintain current functionality.

1.4   Tagged Fields

1.4.1   Interpretation of Tags

In the construction and interpretation of the native 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 number 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 "2.000000123".[2]

For example, in this version of the standard, native Type-2 logical record field tags were always shown as having three digits between the decimal point and colon (2.NNN:data...). However, now the Type-2 field tag numbers have been expanded to four or more digits (2.NNNN:data...). To accommodate such possibilities, the field numbers should be parsed as all digits between the period and colon.

1.4.2   Use of Separator Characters

Separator characters are used in the native encoding but are not necessary in the XML encoding. 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[3] (e.g., the ASL field contains subfields DOO and AOL), and another subfield is still to follow, the following one 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.

As stated in the ANSI/NIST-ITL, successive separator characters now may be used with no intervening blank or other character when a subfield is missing. In Type-2 records, FBI/CJIS 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 FBI/CJIS to validate each subfield in a grouped field to see whether it contains valid data or is merely a blank. This will keep invalid data out of FBI/CJIS databases.

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[2] ANSI/NIST-ITL 2007

[3] The EBTS' use of the term *subfield* is synonymous with the term *information item* found in
the ANSI standard.

1.5 Error Handling

Error processing takes on two primary forms within FBI/CJIS: front-end error detection and internal process error detection and correction. The front-end process examines every incoming transaction from a security and mandatory data perspective. Potential security violations are rejected and transferred immediately to a system administrator. Some transactions lacking mandatory data, or that are incomplete in referenced content, are rejected back to the contributor. All mandatory data and all optional data fields are content -validated for length and type of data included. Optional data failing this validation check are ignored. The remaining mandatory data that fail this validation check are passed to a Quality Check (QC) Service Provider for resolution. If the service provider can correct the data, the transaction will be forwarded for further processing. If the service provider cannot resolve the issue, the transaction can either be rejected or sent forward for attempted resolution later in the process.

Internal process error detections and corrections are performed any time IAFIS attempts to utilize incoming data to perform a search or update a database. Any such action will check the field according to length and type as well as content. Some data values are content-sensitive. That is, they can only be examined with respect to the databases against which they are to be applied. Errors in submissions detected at that time will generally be forwarded to a logic error resolution service provider. At that point, appropriate actions can be taken to correct the discrepancy, and an internal resubmission of the transaction can take place. Alternatively, if the service provider cannot resolve the issue, the transaction can be rejected.

In the interpretation of the logical record, tags that are not defined for the requested transaction are to be ignored; their inclusion is not to be considered an error. This rule makes it possible to use a single transmission format, for example, to control both intrastate and interstate transmissions. These fields will be ignored and will not be saved, nor will they be returned to the contributor on responses sent from FBI/CJIS. For XML encoding, the fields that are included in the State Defined Fields element (SDF) will be ignored by FBI/CJIS.

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 record or issuance of an error message. Rejection will occur when missing or incorrect data is received that would prevent processing of the transaction. The following list illustrates these types of errors.

- A mandatory field is missing in a submitted record set (e.g., NAM field 2.018, is missing in the Type-2 record for the TOT of a CAR) and would result in immediate rejection;

- The format of a mandatory field is incorrect (e.g., an alpha character is discovered in the SOC field) and would result in an attempt to correct the data;

- The range of data of a mandatory field is incorrect (e.g., a DOB of 18871332 was submitted—century, month, and day are all out of range) and would result in an attempt to correct the data;

- Incorrect data is discovered that cannot be corrected by a service provider and without which the transaction processing cannot proceed will result in the transaction being rejected.

Appendix M lists the current set of error messages that are pertinent to the EBTS user (i.e., FBI/CJIS internal errors are not listed).

1.6 Identifying Previous Transactions

The user may wish to refer to previous transactions for the purpose of follow-up or resubmission. The pertinent information is contained in two Type-1 fields, 1.09 Transaction Control Number (TCN) and 1.10 Transaction Control Reference (TCR) (See Appendix B).

Upon submitting a transaction to the IAFIS, 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 IAFIS 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 IAFIS places its own internal identifier for that transaction (the ICN for IAFIS Control Number, or the NCN for NGI Control Number, a 20-character alphanumeric field) in the TCN field of the response.

The TCN in the response can be used by the submitter should he have to reopen the transaction for any purpose. For example, if the IAFIS rejected the first submission of a user-fee transaction, the user would place this number in the TCR field of the resubmitted transaction to enable the IAFIS to verify the user's authorization to resubmit at no-charge. The submitter is entitled to resubmit a onetime free of charge transaction within one year if the rejection was due to poor quality fingerprint images.

1.7 Data Storage in the FBI/CJIS Database

Data submitted in FBI/CJIS transactions may or may not be stored in the FBI/CJIS database. Data not stored is considered to be user-defined. It is carried in transactions as an aid to the submitter in interpreting or routing the FBI/CJIS's response to the submission and is returned verbatim to the user. Data stored at FBI/CJIS are always converted to uppercase prior to storage. Therefore, if this data is returned as part of the response to a subsequent submission (or a III inquiry), it may differ from the originally submitted data.

1.8 Guidance on ORI and CRI Usage

The following description offers some guidance for the use of the CRI field to provide appropriate authorization to perform file maintenance within FBI/CJIS. We develop this scenario by examining how an electronic submission might be formed by a contributor and passed to FBI/CJIS for evaluation. This is intended as an example since there are many other requirements that might influence the final design. Ultimately, the contributors manage the use of the CRI field.

Assume a print is obtained by a local agency, passed to a county agency for processing, and subsequently to the FBI/CJIS Systems Agency (CSA) for transmission to the FBI/CJIS. In such a case, the transmission of ORIs and CRIs might appear as follows:

```
                                                          STATE_CSA
                               COUNTY_AGENCY          | ORI   |
          LOCAL                | ORI   |----------------->    | CRI1 |
          | ORI   |----------------->     | CRI1 |----------------->    | CRI2 |
```

When generated at the local level, no CRI need exist since this ORI is the originator. On receipt by the county agency and subsequent transmission to the state CSA, the original ORI is entered as the first instance of the CRI and the county ORI replaces the local ORI in the ORI field. On receipt by the state CSA and for subsequent retransmission to the FBI/CJIS, the local ORI is retained as CRI2, the county ORI is entered as CRI1, and the ORI of the state CSA is entered in the ORI field. The transaction is then forwarded to the FBI/CJIS via the FBI/CJIS WAN. CRI2, the local ORI, is then used as the authority for action and thus retains 'ownership' of the transaction. Then, only CRI2 can modify, cancel, confirm, or delete a latent transaction. In the response, the transaction is sent to the ORI from which it was sent, and it is the responsibility of the state CSA to route it properly to the county agency identified in CRI1. The county agency, in turn, would route the response to the local agency as appropriate.

1.9 Specific Changes to This Version

As IAFIS evolves into NGI, legacy transactions will be enhanced along with additions to Web Services for these enhancements. In this version of the EBTS, editorial enhancements were made to readabiliity. Summarized below are the latest improvements:
- Moving all Appendices into Excel Spreadsheets for ease of maintainability and flexibly as NGI expands.
- Removing 'NGI Increment 3' as deployment of those areas will be complete and available for the community during the Summer of 2013.
- Removing all repeated elements from the ANIS/NIST-ITL and referring reader to the correct document.
- Adding new MNU code for DHS.
- Assign NDR values of 400 – 599 for external FBI/CJIS Agency usage.
- Increase name fields to 50 characters.

- Add NOT, 2.088, field to LFIS and LFFS transactions.

1.10 Reference Documents

American National Standards Institute/National Institute of Standards and Technology (ANSI/NIST) – Information Technology Laboratory (ITL) 1-2007 American National Standard For Information Systems – Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo (SMT) Information," dated April 20, 2007

American National Standards Institute/National Institute of Standards and Technology (ANSI/NIST) – Information Technology Laboratory (ITL) 1-2011 American National Standard For Information Systems – Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information," draft

IAFIS-IC-0010(V3), IAFIS Wavelet Scalar Quantization (WSQ) Grayscale Fingerprint Image Compression Specification, dated December 19, 1997

2   SCOPE

The scope of the EBTS has been expanded over previous versions to include additional biometric types/indicators (e.g., face, iris) in recognition of the rapidly developing biometric industry. Significant efforts have been made to note those EBTS sections which do not clearly delineate between the functionality within FBI/CJIS that is currently available to the Authorized Contributor community and what is anticipated to be developed in the future. Functionality under development and not yet available to the user community is referred to in this document as "Future Capability". The most recent update to the ANSI/NIST-ITL standard includes new record types to provide for the sharing of data for these new biometric types. FBI/CJIS will accept biometric data for these new types of records in accordance with the ANSI/NIST-ITL standard. FBI/CJIS will provide identification and/or investigative services for these biometric types in the future as NGI gradually replaces IAFIS. FBI/CJIS/IAFIS provides identification and investigation services for fingerprints while FBI/CJIS/NGI will expand the identification services using fingerprints along with investigation services using other biometrics types including and expanding upon fingerprints.

The NGI System will also provide Identity Management, which will involve combining records from the civil, criminal and new repositories into an interoperable repository tied by a unique identity reference. Today, several numbers are utilized to identify an individual (e.g., FBI Number (FNU), Civil Record Number (CRN), and Segment Control Number (SCNA)). The NGI System will refer to this new identity as a Universal Control Number (UCN). NGI will place this UCN into the FBI Number, 2.014 . The FBI/CJIS Division is working closely with the user community prior to the transition to UCN.

This document specifies in detail the file and record content, format, and data codes necessary for the exchange of fingerprint, palmprint, photo, facial, and iris information between federal, state, and local users and the FBI/CJIS. It provides a description of all requests and responses associated with the electronic fingerprint identification service and other services. As FBI/CJIS moves to NGI, this specification is being re-organized into User Services that include the following:

1. Identification Service
2. Verification Service
3. Information Service
4. Investigation Service
5. Notification Service
6. Data Management Service

2.1   Identification Service

This service will provide user support of biometric identification. It provides searches that result in the positive identification or non-identification of the individual based on a one-to-many biometric search. In this version of the EBTS, only fingerprints will be used for this purpose, although other biometrics may be submitted in the same transactions (i.e., photo, palmprint, iris,

supplemental fingerprint and palmprint). In future versions of the EBTS, multiple biometrics may be used for identification purposes.

The Identification Service will consist of the original Tenprint service that is accessed through the electronic tenprint submission for the purpose of searching the FBI/CJIS repository. Electronic submissions may involve processing and evaluation judgments by FBI/CJIS personnel. Searches are performed by automated equipment without human intervention by FBI/CJIS personnel. The results of the search may require FBI/CJIS personnel to evaluate search results and provide their judgment. Tenprint submissions that update current fingerprint images will be handled under the Data Management Services.

The Latent submissions that fall under the Identification Service are comprised of the electronic latent fingerprint identification submissions handled by FBI/CJIS latent examiners, along with cascaded searches of the Unsolved Latent File (ULF) and the Special Population Cognizant (SPC) File for a positive identification. Additional Latent search transactions fall under the Investigation Service.

The newly added features to the Identification Service are the Rapid Search and International Terrorist Identification Search along with the Disposition Fingerprint Identification Submission.

2.2 Verification Service

This service will provide user support of biometric verification. It addresses the method that results in the confirmation of an individual's identity based on a one-to-one comparison. In this version of the EBTS, only fingerprints will be used for this purpose, although other biometric identifiers (e.g. iris) may be used in the future.

2.3 Information Service

This service will provide user support of requests for specific biographic or biometric information on an individual. It allows a user to submit a request for information on an individual by specifying a unique identifier. An image request can be used to solicit fingerprints and other types of images stored by the FBI/CJIS. All transactions and messages will be compliant with the ANSI/NIST-ITL standard for exchange of fingerprints, palmprints, facial photos along with scars, marks, and tattoo photos, and other biometric information. Other information retrieved may consist of the Audit Trail information and in the future may consist of the Rap Back Status.

2.4 Investigation Service

This service will provide user support of investigative queries and searches. The Investigation Service provides a list of candidates based on a one-to-many biometric and/or biographic search. The result set may include an ordered listing of candidates and corresponding information to facilitate the investigative decision process.

This service will also include a search of the subject history database using biographic information, which is represented by the External Query History Request. The development of the history retrieval subject search provides a means to efficiently screen large numbers of people. This function is available on a limited basis to federal agencies with prior written authorization from the FBI/CJIS.

2.5 Notification Service

This service will provide event notification to users about their data contained within any of the IAFIS/NGI repositories [e.g., Criminal and Civil Files, Repository for Individuals of Special Concern (RISC), Special Population Cognizant (SPC) Files, Unsolved Latent File (ULF)]. With this service, a data owner will receive an unsolicited notification from the system based on event criteria (triggers).

2.6 Data Management Service

This service provides users with the ability to manage data within IAFIS. It allows the user to add, delete, and modify data contained in IAFIS that is under the contributor's control.

3   OPERATIONAL CONCEPTS

FBI/CJIS will process the following types of transactions for the service areas listed below in its electronic environment:

Identification Service
> Tenprint Fingerprint Identification Submissions
> Latent Fingerprint Identification Submissions
> Rapid Fingerprint Identification Search Submissions
> International Terrorist Identification Submissions*
> Disposition Fingerprint Identification Submissions*

Verification Service
> Fingerprint Verification Submissions

Information Service
> Biometric Image Retrieval Submissions
> Biometric Audit Trail Retrieval Submissions
> Rap Back Information Retrieval Submissions*

Investigation Service
> Tenprint Fingerprint Investigation Submissions
> Latent Print Investigation Submissions
> Latent Administration Submissions
> Biometric Investigation Submissions*
>> Photo Investigation Submissions*
>>> Text-Based Photo Search Request*
>>> Text-Based SMT Photo Search Request*
>>> Facial Recognition Search Request*
>> Iris Investigation Search Request*
> Biographic Investigation Search Submissions

Notification Service
> Unsolved Biometric Match
> Unsolicited Unsolved Latent Delete
> Special Population Cognizant*
> Rap Back Activity*
> Rap Back Renewal*
> Unsolicited Hit Notification
> External Link Record Activity*
> External Link Failure*

Data Management Service
> Latent Image Maintenance Submissions
> Fingerprint Image Maintenance Submissions
> Biometric File Maintenance Submissions*

Biometric Enrollment Request
Biometric Delete Request
Biometric Decision Request
Identity File Maintenance Submissions*
Disposition Submission Maintenance Submissions*
Rap Back Services*
External Link Updates*

* Indicates Future Capability

The services that are labeled 'Future Capability' are included in this specification to allow users the opportunity to see what is in the future for the FBI/CJIS. New TOTs as well as the mandatory and optional fields will be assigned to these services when design is complete.

3.1   Identification Service

These transactions will originate from mobile devices, live-scan booking terminals, FBI/CJIS Field Offices, or card scanners at either the federal, state, or local level (see Figure 1 "Electronic Fingerprint Identification Submissions"). Local submissions may be processed by a local AFIS and electronically transmitted to a State Identification Bureau (SIB) for processing. If a positive identification is made at the state level, an Ident response will be transmitted back to the local agency, and if it is a criterion offense, it will be forwarded to the FBI/CJIS. Note: A criterion offense is based on the submitting state's retention policy/legislation. The processing flow for a civil electronic fingerprint identification submission is similar to the criminal submission flow, except that in the event of state-level Ident response, the submission may still be forwarded to the FBI/CJIS for processing under Federal and/or state statutory authority.

If no identification is made at the SIB level, the data will be forwarded via the FBI/CJIS WAN to the FBI/CJIS for processing by FBI/CJIS. Transmitted data will be automatically parsed, and a search will be conducted of the FBI/CJIS's fingerprint files utilizing the subject search function along with the features search capabilities. The identification of the submitted fingerprint images against any viable file candidates may be verified by an FBI/CJIS fingerprint examiner. Electronic responses[4] from FBI/CJIS to the contributor will be electronically routed via the FBI/CJIS WAN through the SIB using the ORI. Subsequent routing to the arresting agency is made by the SIB using the CRI. Additional copies are routed by the SIB using the SCO or other related information (see Appendices B and C for detailed ORI, SCO, and CRI definitions).

As FBI/CJIS moves towards NGI and becomes Identity based verses Criminal based, the 'Rap Sheet' will become the 'Identity History Summary'. Responses to submissions or searches by OFOs, tribal, or international agencies will be transmitted directly to the submitting agencies. When these responses are possible identifications, these responses will contain an Identity History Summary giving the individual candidate's identification and disseminable arrest history, when requested. This information is provided in the Electronic Rap Sheet field of the response being returned to the submitting agency.

These submission types are summarized in Appendix D with edit specifications for the fields used being found in Appendix C. These requests may include cascading searches of the Unsolved Latent File after a response has been provided to the Authorized Contributor.

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[4] Established procedures for sending unsolicited messages to State Identification Bureaus in response to fingerprint submissions from Interstate Identification Index (III) participating states will not be affected.
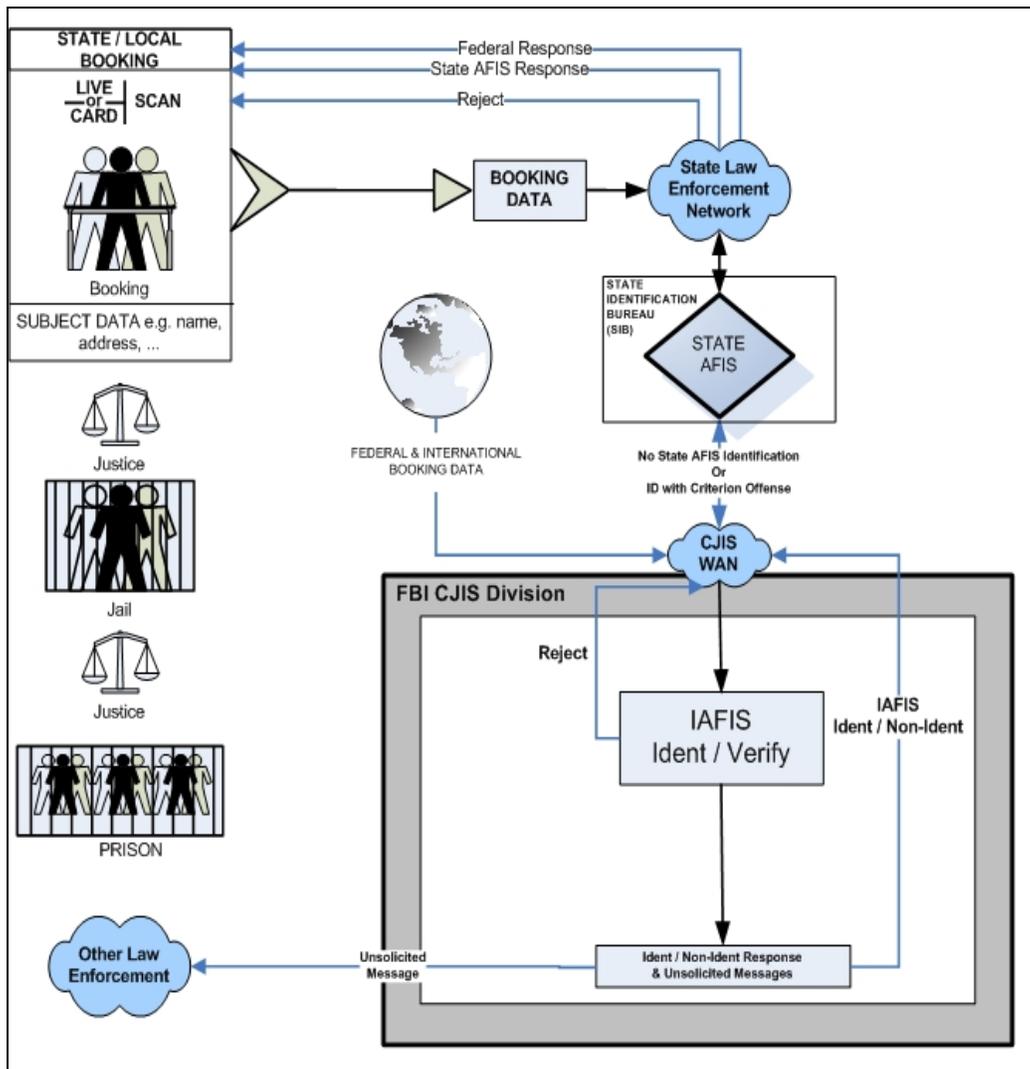
Figure 1 Electronic Fingerprint Identification Submissions

3.1.1   Tenprint Fingerprint Identification Submissions

The Tenprint Fingerprint Identification submissions consist of electronic criminal and civil transactions. The response time goals for these transactions are specified in Appendix A. The fingerprint images on these submissions will be used to search against the criminal repository. Besides the fingerprint images, the submitter may optionally include palmprint and iris images along with a set of up to 4 photos of the subject. Additionally, the contributor may optionally include any supplemental fingerprint and palmprint information with these submissions. If the contributor would like to add these optional images to the record identified in this Tenprint Identification Submission, they may use the Biometric Enrollment Transactions outlined in

Section 3.6.3.1. The biographical data and fingerprint images are used to determine potential candidates with criminal records at the FBI/CJIS. If the contributor would like to later add other biometric images to a tenprint search and retain event, they may reference the Event Identifier (EVI) from the tenprint response (SRE) within the Biometric Enrollment Transactions described in Section 3.6.3.1.The information within a retained submission will be added to an existing record, if a positive identification is made, or will create a new record if no identification was made. If a non-retain submission is not identified, no information will be retained in the FBI/CJIS databases. If a positive identification is made for a non-retain submission, the information on that submission will be added to the existing record and dissemination rules will govern the dissemination of this information. In the future, contributors will have the option to indicate if the updated record or new record is to be included in the Rap Back Data Management Service.

The response to the Tenprint Fingerprint Identification submissions will provide the Event Identifier for the enrollment(s) as well as details on each biometric type enrolled. To facilitate this, the Biometric Image Enrollment set field (BIE 2.2061) is added to the Type-2 of the SRE response. The field will provide the biometric identifiers (BSI) and image type (IMT) of each biometric set or photo that was enrolled. Where photos are enrolled the subject pose (POS) is populated for facial photos, and the scars, marks, and tattoos (SMT) field is populated for SMT photos.

In the future, cascaded searches of marked Special Population Cognizant (SPC) Files may be launched along with simultaneous searches of other external systems, such as Canada's Real-Time ID System or DHS IDENT. These will be indicated by the appropriate values for the desired destination in the Name of Designated Repository (2.098 NDR) field in the Type-2 record.

There are several types of electronic fingerprint identification submissions that will be accepted by the FBI/CJIS. The particular type of submission is identified in the Type of Transaction (TOT) field in the Type-1 record for each transaction. The following are the TOTs for identification submissions:

TOT	TRANSACTION
CAR	Criminal Tenprint Submission (Answer Required)
CNA	Criminal Tenprint Submission (No Answer Necessary)
CPDR	Criminal Fingerprint Direct Route
CPNU	Criminal Fingerprint Processing Non-Urgent
DOCE	Departmental Order Channeling Electronic
EMUF	Electronic In/Manual Out User Fee Submission
FANC	Federal Applicant (No Charge)
FAUF	Federal Applicant User Fee
FNDR	Federal No Charge Direct Route
NNDR	Non-Federal No Charge Direct Route
NFAP	Non-Federal Advanced Payment
NFUE	Non-Federal User Fee Expedite
NFUF	Non-Federal Applicant User Fee

TOT	TRANSACTION
MAP	Miscellaneous Applicant Civil
DEK	Known Deceased
DEU	Unknown Deceased
MPR	Missing Person
AMN	Amnesia Victim

FBI/CJIS's responses to electronic submissions will provide search results or indicate an error via the following TOTs:

TOT	RESPONSE TRANSACTION
SRE	Submission Results - Electronic
ERRT	Tenprint Transaction Error

3.1.1.1   Criminal Tenprint Submission (Answer Required) (CAR)

This transaction is a criminal arrest fingerprint submission for which the requester desires that a response be returned. It contains ten rolled and four plain impressions of all ten fingers, biographic descriptor data, as well as information relative to an arrest, custody, or supervisory status. The biographical data and fingerprint images are used to determine potential candidates with criminal records at the FBI/CJIS. This TOT is also used for an inquiry on a criminal suspect or informant, in which case arrest, custody, or supervisory data may or may not be present (Retention Code set to "N"). Requirements for the use of the Arrest Segment Literal (ASL) and Court Segment Literal (CSL) fields in these cases are discussed in Appendix C. The fingerprint images of any candidates generated are then compared against those in the submission and a positive identification or non-identification decision is determined. A response is returned to the contributor. The response will always contain the positive identification/non-identification decision and may contain the electronic Identity History Summary, if requested.

3.1.1.2   Criminal Tenprint Submission (No Answer Necessary) (CNA)

This transaction is a criminal arrest fingerprint submission for which the requester desires that no response be transmitted back. Otherwise, it is identical to the CAR request described above, containing ten rolled and four plain impressions, arrest, custody, or supervisory status data. Processing is also identical to the CAR request described above except that no response is returned. However, a communication protocol acknowledgment will be returned to the contributor to confirm receipt of the transaction. The Retention Code for this transaction must be set to "Y."

3.1.1.3   Criminal Fingerprint Direct Route (CPDR)

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

submission will be rejected. Please see Appendix C for detailed information of the use of the TSR field.

Note: CPDR is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.1.1.4   Criminal Fingerprint Processing Non-Urgent (CPNU)

This transaction is a criminal arrest fingerprint submission that will differ from urgent criminal transactions in response time and in online (response) notifications. The submission contains ten rolled and four plain impressions and arrest data. Processing is identical to the CAR request described above except, instead of receiving a 15-minute response, the response due time is set to 72 hours to prevent prioritization ahead of urgent criminal or civil submissions. Internal FBI/CJIS CPNU submissions may contain the TSR of "H," which will allow the online responses triggered due to the positive identification against a Want or Sex Offender Registry (SOR) entry to be suppressed. Currently, CPNU submissions from external contributors do not have the option to use a TSR of "H"; however, the use of CPNU for criminal submissions not requiring an immediate response is available. Please see Appendix C for detailed information of the use of the TSR field.

3.1.1.5   Departmental Order Channeling Electronic (DOCE)

This transaction deals with "Individuals Seeking Their Own Identity History Record Pursuant to DO 556-73." The Channeling Agencies will be responsible for the verification/authentication of the individual requesting the Identity History Summary from FBI/CJIS. The FBI/CJIS will only accept and process these submissions as current electronic, non-retained civil transactions from approved Channeling Agencies. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. There will be no requester paperwork versus fingerprint card verification/authentication performed via the FBI/CJIS. An electronic response should be sent to the Channeling Agency indicating a positive identification, non-identification, or rejection. An Identity History Summary will be returned if the response is a positive identification.

3.1.1.6   Electronic In/Manual Out User Fee (EMUF)

These submissions are for noncriminal justice purposes in which the contributor is charged a fee. The response for this submission is returned to the contributor manually instead of electronically. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. See Section 1.6 for a discussion of the use of TCN and TCR in no-charge resubmission of user-fee submissions that the FBI/CJIS has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable. When the FBI/CJIS completes processing, it will print a non-identification, positive identification, or Reject response report and mail it to the requestor.

Note: EMUF is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.1.1.7 Federal Applicant (No Charge) (FANC)

This transaction pertains to an individual who is fingerprinted in connection with applying for criminal justice employment with the federal government. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. When this TOT is used, there is no charge assessed to the contributor. Federal agencies that are considered "User Fee" contributors must not use this TOT, but use "FAUF" instead (see description below).

3.1.1.8 Federal Applicant User Fee (FAUF)

These submissions come from: (1) any of the branches of the U. S. military in connection with individuals enlisting or being considered for Officers' Candidate School; and (2) federal agencies in connection with employment, security updates, or contract personnel. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. See Section 1.6 for a discussion of the use of TCN and TCR in no-charge resubmission of user-fee submissions that the FBI/CJIS has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable.

3.1.1.9 Federal No Charge Direct Route (FNDR)

This transaction consists of an applicant fingerprint submission from a federal agency that will be directly routed to a FBI/CJIS internal log application for processing. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. The FNDR is similar to the FANC transaction with the addition of a mandatory TSR field. FBI/CJIS will ensure the required EBTS fields and a TSR of "C" are present; otherwise, the submission will be rejected. If the TSR of "C" is present and the TOT is something other than CPDR, NNDR, or FNDR, the submission will be rejected.

Note: FNDR is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.1.1.10 Non-Federal No Charge Direct Route (NNDR)

This transaction consists of an applicant fingerprint submission from a non-federal agency that will be directly routed to a FBI/CJIS internal log application for processing. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. The NNDR is similar to the FANC transaction with the addition of a mandatory TSR field. FBI/CJIS will ensure the required EBTS fields and a TSR of "C" are present; otherwise, the submission will be rejected. If the TSR of "C" is present and the TOT is something other than NNDR, FNDR, or CPDR, the submission will be rejected.

Note: NNDR is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.1.1.11 Non-Federal Advanced Payment (NFAP)

These submissions are for noncriminal justice purposes in which the contributor is charged a fee in advance. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. Examples of the types of contributors for this TOT are federal citizenship and immigration services (such as training candidate check programs). The purpose for submitting such requests is to ascertain whether individuals who have applied for training through the contributor organizations have any past criminal histories. See Section 1.6 for a discussion of the use of TCN and TCR in no-charge resubmission of user-fee submissions that the FBI/CJIS has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable.

Note: NFAP is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.1.1.12 Non-Federal User Fee Expedite (NFUE)

These non-federal civil applicant submissions are fee-based, high-priority fingerprint transactions that require an expedited search and response. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. See Section 1.6 for a discussion of the use of TCN and TCR in no-charge resubmission of user-fee submissions that the FBI/CJIS has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable.

3.1.1.13 Non-Federal Applicant User Fee (NFUF)

These submissions are for noncriminal justice purposes in which the contributor is charged a fee. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. Examples of the types of contributors of this type of transaction are federal and state banking institutions and regulatory agencies (such as stock exchanges, bankers' associations, securities dealers, Nuclear Regulatory Commission, Securities and Exchange Commission, racing or gaming control boards, etc.). Their purpose for submitting such requests is to ascertain whether individuals who have applied for employment/volunteer training through the contributor organizations have any past criminal histories. See Section 1.6 for a discussion of the use of TCN and TCR in no-charge resubmission of user-fee submissions that the FBI/CJIS has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable.

3.1.1.14 Miscellaneous Applicant Civil (MAP)

These no-charge submissions are for non-federal law enforcement and criminal justice employment. The submission contains either ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data.

3.1.1.15 Miscellaneous Applicant Civil (No Charge) (MAPC)

This transaction is similar to the MAP in that it is used for non-federal law enforcement and criminal justice employment (including state and local law enforcement) as well as gun permit applications from criminal justice agencies and will not be charged a fee. The submission will contain ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. The applicable fields for this TOT are exactly the same as those listed for the MAP in Appendix D.When the FBI/CJIS completes processing, it will print a non identification, positive identification, or Reject response report and mail it to the requestor.

Note: MAPC is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.1.1.16 Known Deceased (DEK)

These transactions are submitted for a deceased individual whose identity is known to the contributor. The submission contains either ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. If the fingerprints are determined to be identical to those of a subject in the FBI/CJIS's criminal files, the subject's FBI/CJIS record will be marked as deceased. The ICO field in this submission may be filled with the text "DECEASED."

3.1.1.17 Unknown Deceased (DEU)

This transaction is submitted with fingerprints obtained from a deceased individual whose identity is not known to the contributor. The submission contains either ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. If the fingerprints are determined to be identical to those of a subject in the FBI/CJIS's criminal files, the subject's FBI/CJIS record will be marked as deceased and the contributor will be notified of the results. Should no identification result from a search of the criminal file, a search of the civil file will be performed. The subject will be added to the FBI/CJIS database when no identification results.

3.1.1.18 Missing Person (MPR)

These noncriminal submissions pertain to persons reported as missing. The submission contains either ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. Their submission causes a search of the FBI/CJIS files and may result in the placement of a "stop" in FBI/CJIS automated files to alert whenever a future fingerprint submission (of any type) hits against the original set of fingerprints and establishes the person's whereabouts. Should no identification result from a search of the criminal file, a search of the civil file will be performed. These subjects are added to the FBI/CJIS database when no identification is made to an existing record. The Action to be Taken (ACN) field of the response will indicate if a "stop" has been established. The ICO field in this submission may be filled with the text "MISSING PERSON." The Retention Code for this transaction must be set to "Y".

3.1.1.19 Amnesia Victim (AMN)

These noncriminal submissions pertain to persons known to have amnesia. The submission contains ten rolled and four plain impressions or three identification flat impressions along with biographic descriptor data. The submission causes a search of the FBI/CJIS files and may result in the placement of a "stop" in FBI/CJIS automated files to alert whenever a future fingerprint submission (of any type) hits against the original set of fingerprints and establishes the person's identity. Should no identification result from a search of the criminal file, a search of the civil file will be performed. These subjects are added to the FBI/CJIS database when no identification is made to an existing record. The ACN field of the response will indicate if a "stop" has been established. The ICO field in this submission may be filled with the text "AMNESIA VICTIM." The Retention Code for this transaction must be set to "Y".

3.1.1.20 Rap Back Indirect Enrollment Requests (Future Capability)

Requests for Rap Back services will be facilitated through an optional Rap Back request field in the Type-2 record for electronic Tenprint Fingerprint Identification Submissions regarding individuals the submitting agency desires to enroll. After completion of the NGI design phase, a detailed list of acceptable TOTs will be added to this section. If Rap Back Services are requested for a civil submission, the agency must also request retention of the civil fingerprint or the Rap Back enrollment will be rejected. Rap Back record owners will have several options available, such as: designating a subscription expiration date; receiving a pre-notification; monitoring criminal activity, disposition activity, civil activity (if authorized), external system activity; designating to not receive intrastate-triggered events; and listing additional ORIs to receive Rap Back Notifications.

3.1.1.21 External Fingerprint Identification Search (Future Capability)

This transaction will be used by FBI/CJIS to request a search of the external system as indicated on the fingerprint identification search. FBI/CJIS will expect an External Submission Results Response from the external system.

3.1.1.22 Submission Results — Electronic (SRE)

This transaction is returned by the FBI/CJIS in response to tenprint submissions. The response will always contain a identification/non-identification decision and will contain the electronic Identity History Summary if requested. Table 3-2 describes which NAM, FBI number, and SID are returned in the SRE for Criminal, Civil and Humanitarian (DEU, MPR, and AMN) submissions, for both non-identification and identification results. A non-matching NAME is returned in the electronic rap sheet (ERS) if one was requested. The following fields, which are not stored at FBI/CJIS, are always returned exactly as submitted: ATN, SCO, EAD, OCP, RES, and TAA. A single electronic response will be sent to the contributor through the State Identification Bureau via the FBI/CJIS WAN. In the case that circumstances delay processing an EBTS request, the requestor will receive a preliminary electronic response coded as a Non-Ident with an ERS. The ERS will contain a report explaining results are not available due to a delay.

When the FBI/CJIS completes processing, it will print a non-identification or an identification response report and mail it to the requestor.

In the future, Identification Service transactions may trigger a search to other external systems either via use of multiple values in the Type-2 record field NDR or via business rules setup in NGI. Responses returned within the specified response times for the FBI/CJIS transactions will be combined into a single response. Contributors may receive multiple SRE transactions when external system responses are not returned within the allotted response time. The TCR field in the Type-1 header record of the subsequent responses will contain the TCN value from the Type-1 header record of the submission to enable correlation of the remaining responses. The Type-2 record of the subsequent SRE will also contain the unique identifier and biographic data of a subject in the external system if there is a hit.

Table 3-2 Values of NAM, FBI and SID Returned in the SRE

Type of Submission	Result	Value of Returned Field			Special Exceptions
		Name	FBI	SID	
Criminal, No FBI Submitted	Non-Ident Non-Retain	NAM Submitted	None	SID Submitted	
Criminal, No FBI Submitted	Non-Ident Retain	NAM Submitted	Master FBI	SID Submitted	
Criminal, No FBI Submitted	Ident Non-Retain	Master NAM	Master FBI	Master SID	
Criminal, No FBI Submitted	Ident Retain	Master NAM	Master FBI	Master SID	
Criminal, FBI Submitted	Non-Ident Non-Retain	NAM Submitted	None	Submitted SID	STD in RAP SHEET
Criminal, FBI Submitted	Non-Ident Retain	NAM Submitted	Master FBI	Submitted SID	STD in RAP SHEET
Criminal, FBI Submitted	Ident Non-Retain	Master NAM	Master FBI	Master SID	STD in RAP SHEET
Criminal, FBI Submitted	Ident Retain	Master NAM	Master FBI	Master SID	STD in RAP SHEET
Civil, No FBI Submitted	Non-Ident Non-Retain	NAM Submitted	None	None	
Civil, No FBI Submitted	Non-Ident Retain	NAM Submitted	CRN	None	
Civil, No FBI Submitted	Ident Non-Retain	Master NAM	Master FBI	Master SID	
Civil, No FBI Submitted	Ident Retain	Master NAM	Master FBI	Master SID	
Civil, FBI Submitted	Non-Ident Non-Retain	NAM Submitted	None	None	STD in RAP SHEET
Civil, FBI Submitted	Non-Ident Retain	NAM Submitted	CRN	None	STD in RAP SHEET
Civil, FBI Submitted	Ident Non-Retain	Master NAM	Master FBI	Master SID	STD in RAP SHEET
Civil, FBI Submitted	Ident Retain	Master NAM	Master FBI	Master SID	STD in RAP SHEET
Humanitarian, No FBI Submitted	Non-Ident	NAM Submitted	Master FBI	None	
Humanitarian, No FBI Submitted	Ident	Master NAM	Master FBI	None	

Type of Submission	Result	Value of Returned Field			Special Exceptions
		Name	FBI	SID	
Humanitarian, FBI Submitted	Non-Ident	NAM Submitted	Master FBI	None	STD in RAP SHEET
Humanitarian, FBI Submitted	Ident	Master NAM	Master FBI	None	STD in RAP SHEET

Under certain circumstances, the Electronic Rap Sheet (ERS) field in the SRE will contain Special Table Data (STD) explaining the special circumstance. For example, this would be included in a Non-Identification Report (NIDR) if a Universal Control Number (UCN) was submitted. It would be included in an Identification Report (IDRR) if a submitted UCN did not match the UCN in the Master File for subject. It would be included in an IDRR or NIDR, as appropriate, if the Master File UCN was marked expunged, deleted, or consolidated.

3.1.1.23 Tenprint Transaction Error (ERRT)

These submissions are returned by the FBI/CJIS to indicate a transaction error. It includes a message field (MSG) indicating the type of error detected. Error responses are described in the Error Message Format Section. Currently defined external error messages are detailed in Appendix M.

3.1.2   Latent Fingerprint Identification Submissions

The Electronic Latent Fingerprint Identification submission to the FBI/CJIS will originate from the FBI/CJIS Field Office having legal jurisdiction of the case. This submission, as differentiated from latent investigation searches, are strictly for the purpose of submitting crime scene information to the FBI/CJIS for processing in support of law enforcement identifications. The crime scene evidence will be processed and the desired latent prints will be electronically captured. The term "latent prints" includes fingerprints, palmprints, and supplemental fingerprints. Investigation of latent cases may also generate tenprints used for comparison purposes (e.g., suspect, victim, other personnel with authorized access to the crime scene). NGI is expanding the use of this submission to allow for tenprint fingerprint images to be submitted with this transaction, as Latent Fingerprint Image Submission (LFS) will be taking on the functionality of the discontinued Compare Fingerprint Submission (CFS) and Evaluation Report (ELR) TOTs. In the future, these submissions will include cascading searches of marked Special Population Cognizant (SPC) Files after a response has been provided to the Authorized Contributor. These submission TOTs are summarized in Appendix D with the field edit specifications found in Appendix C.

The particular type of submission will be identified in the Type of Transaction (TOT) field in the Type 1 record. The TOT for Latent Fingerprint Identification submission is:.

TOT   **TRANSACTION**
LFS   Latent Fingerprint Image Submission

The FBI/CJIS's responses to electronic submissions will provide search results or indicate an error via the following TOTs:

TOT	RESPONSE TRANSACTION
LSR	Latent Submission Results - Electronic
ERRL	Latent Transaction Error

3.1.2.1   Latent Fingerprint Image(s) Submission (LFS)

 A Latent Fingerprint Image Submission (LFS) is used by FBI Field Offices to submit friction ridge searches of NGI. The latent fingerprint images are transmitted along with the search criteria by the originator. FBI/CJIS Laboratory Latent Fingerprint Specialists will perform comparisons of the search against the candidate(s) selected and make the Identification / Non-Identification / Inconclusive decision(s). The Identification / Non-Identification / Inconclusive decision(s) will be transmitted as a response (i.e., LSR). The latent search image(s) may be stored in the ULF if requested in the submission by the originator independent of the results of the search.

3.1.2.2   Latent Submission Results (LSR)

This transaction is in response to a Latent Fingerprint Submission (LFS). It includes a Search Results Findings (SRF) field indicating an inconclusive, non-identification, or identification decision and, if the LFS results in an identification decision, it returns a name, FBI number or UCN, and an Identity History Summary of the identified subject. In the future, contributors can receive the photo set associated with this identification when requested in the LFS. The new Biometric Image Available (BIA) field is added to reflect the biometric image types available for the Identity. If the contributor needs to retrieve the biometric images, they can request them via the Biometric Image Retrieval (IRQ) request.

3.1.2.3   Latent Transaction Error (ERRL)

This transaction is returned by the FBI/CJIS in response to a transaction that contained errors such as search exceeding the penetration threshold, missing or inadequate quality fingerprints, missing mandatory information, or invalid contents. The MSG field shall include additional information on the causes for the rejection. Error responses are described in the Error Message Format Section.

3.1.3   Rapid Fingerprint Identification Search Submissions

The Rapid Search functionality provides the ability to perform an identification search against a limited repository population with a significantly reduced response time in comparison to Tenprint Fingerprint Identification Search response times. These Rapid Fingerprint Identification Search Submissions are directed against the Repository for Individuals of Special Concern (RISC), which is anticipated to contain records for Wanted Persons, Known or Appropriately Suspected Terrorists, Sexual Offender Registry Subjects, and other persons of special interest. This rapid search functionality is being expanded to include searching the criminal repository by authorized agencies. These transactions will initiate a cascaded search of the ULF after a Rapid Search response has been provided to the Authorized Contributor. In the future, these

transactions will also initiate cascading searches of marked Special Population Cognizant (SPC) Files.

The following TOT will be accepted by the FBI/CJIS for Rapid Fingerprint Identification Search Submissions:

TOT **TRANSACTION**
RPIS Rapid Fingerprint Identification Search Submission

The FBI/CJIS's responses to electronic submissions will provide search results or indicate an error via the following TOTs:

TOT **RESPONSE TRANSACTION**
RPISR Rapid Fingerprint Identification Search Response
ERRT Tenprint Transaction Error

3.1.3.1 Rapid Fingerprint Identification Search Submission (RPIS)

These submissions are provided to the FBI/CJIS to perform the rapid fingerprint search of the FBI/CJIS's RISC repository. RISC provides the capability to perform a Rapid Fingerprint Identification Search (RPIS) against the RISC subjects of heightened interest warranting more rapid responses to inquiring users. The transaction allows the user to request a full Identity History Summary as an optional return element. In the future, RPIS will allow the user to request a photo to be returned.

When the Name of Designated Repository (NDR) field contains values of 6 (all of RISC), 11 (Wants and Warrants), 12 (Sexual Offense Registry), 13 (Known or Suspected Terrorists), 14 (International Terrorist File) or 15 (Persons of Special Interest), the submission is allowed to have friction ridge position codes (FGP) of 1 – 15, and must contain at least two finger images along with biographic descriptor data. When NDR value of 1 (Criminal Master File) is used, the submission must have ten finger images (FGP = 1 – 10), with the Amputated code (2.084 AMP) field being filled in for those images not included, along with the biographic descriptor data.

Note: RPIS is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.1.3.2 Rapid Fingerprint Identification Search Response (RPISR)

Rapid Fingerprint Identification Search submissions will provide a rapid response to searches from authorized agencies. When the RPIS search is directed against the RISC repositories, the response transaction (RPISR) consists of a red/yellow/green indicator in the Search Results Findings (SRF) field corresponding to the match results against the RISC. A Red Response is a hit, indicating identification of a highly probable candidate in the RISC. However, a red response is not to be considered a positive identification, but rather the candidate score from the RISC search indicates a high likelihood of identification. It is recommended agencies submit a full tenprint fingerprint submission for positive identification. A Yellow response is a possible hit, indicating identification of a probable candidate (or candidates) in the RISC which is below the

level of confidence established for a highly probably match (red response) but above the level that excludes the possibility of a potential candidate (green response). The yellow response may thus only be used as an investigative tool providing leads for further investigative inquiries. A Green response indicates no hit (i.e., the search did not locate a viable candidate in the RISC).

For Red and Yellow responses, limited identity history information will be returned in the Supplementary Identity Information (2.2023 SII) for up to two candidates, as well as the most recent full frontal photo for each candidate if requested, on file and disseminable. The SII field may include information not within the scope of the Identity History Summary. (Photo return is a Future Capability.) If requested, the RPISR transaction will include full Identity History Summary data in the Electronic Rap Sheet (ERS) field for any returned candidates. For RISC searches, SII will contain those information items not found in the Identity History Summary (i.e., Offense and Caution codes from NCIC). The return of the full Identity History Summary may increase the response time service level. No fingerprint images will be returned for the Rapid Fingerprint Identification Search Response.

If two candidates are returned, a separate Type-2 record will be included for each candidate. The FBI Number (FBI), Name (NAM), Place of Birth (POB), Status/Error Message (MSG), Electronic Rap Sheet (ERS), and Supplementary Identity Information (SII) fields will hold information unique to each candidate. In addition, the FBI Number (FBI) field of the first Type-2 record will contain a second occurrence that holds the FBI Number of the candidate in the second Type-2 record for reference.

When the RPIS search is directed against the CMF repository, the response will consist of a red/green indicator in the SRF field. The SRF field is populated with either an "R" for Red indicating that a potential criminal match has been found, or a "G" for Green indicating that no disseminable match has been found. No biographic data or identity information (such as UCN) is included in this response. It is expected a Red indicator response will be followed by a separate Tenprint Fingerprint Identification request message to provide the identity of the subject.

3.1.4   International Terrorist Identification Submissions (Future Capability)

The FBI/CJIS International Terrorist File (ITF) is a subset of records within the RISC which includes identified terrorists, wanted aliens, or other international subjects of heightened interest warranting more rapid responses to inquiring users. These submissions will allow an authorized FBI/CJIS contributor to initiate an identification search of External International terrorist repositories. It will provide the capability for an International agency to initiate an identification search in the FBI/CJIS ITF repository.

3.1.4.1   International Terrorist Identification Submission and Response (Future Capability)

Similar to a RPIS submission, an ITF submission provides participating International Agencies with the capability to search the RISC. However, the ITF submission is different from a RPIS

submission in the following ways: allows for multi-tiered enrollment into the RISC, does not provide a "lights out" search, forwards the ITF request to other participating International Organizations, and provides a positive or negative Identification decision.

Note: ITF is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

The response will follow multi-tiered dissemination rules for ITF. These rules are as follows: notification is only provided to the record owner for tier 3 identifications; contact information for tier 2 identifications; and identity history information for tier 1 identifications. If an error occurs during the processing of this submission, it will be noted in the negative Identification decision response.

3.1.4.2 International Terrorist Identification Search Request and Response (Future Capability)

These submissions will be used by FBI/CJIS to request a search from ITF participating organizations about record information being included in the response to the International Terrorist Identification Submission. The results of this search will be merged with or appended to the International Terrorist Identification Submission Response.

3.1.5 Disposition File Maintenance Submissions (DSPE)

These submissions will provide the requester with an electronic option to submit dispositional information. The Court Segment Literal (CSL) or dispositional data may be obtained from the arresting agency, the court system, the penal system, or any other local, state, or federal entity that may render final adjudication in a criminal case. The Disposition File Maintenance Submissions (DSPE) may be used to submit from one (1) to forty (40) CSL transactions per date of arrest (DOA) without fingerprints, and is described in the Data Management Service section. An electronic response (DSPR) will be sent to the requester.

3.1.5.1 Disposition Fingerprint Identification Submission (FDSP) (Future Capability)

These submissions will use the same process as the Disposition File Maintenance Submission (DSPE), except it will have the AMP and fingerprint images as mandatory fields. Verification will be performed by comparing the FNU/UCN supplied and the fingerprint images provided to determine positive identification. If no FNU/UCN is supplied, the fingerprint images provided will be used to determine identification or non-identification. When a non-identification is made the disposition submission data will be used to establish a new FBI/CJIS record by adding the disposition data to this new record. When an identification is made, the disposition submission data which matches the existing FBI/CJIS record arrest data will be added to the existing record and will be disseminable in responses from the FBI/CJIS. An electronic response (DSPR) will be sent to the requestor.

3.1.5.2 Disposition Response (DSPR) (Future Capability)

These transactions will be returned by the FBI/CJIS in response to dispositional type related submissions (DSPE/FDSP). The response will be based on whether the transaction is processed as submitted. The DSPR will contain a FBI/CJIS transaction control number (TCN) from the submission, the submitted biographical data, and response information. The response information may be "Record Updated" if the record is successfully updated with the submitted CSL, "Manual Processing Required" if subsequent analysis of the submitted CSL is necessary, or "Rejected" and the reason for rejection listed. The response information will be contained in the Action to be Taken field (2.071 ACN). Rejections will be via the ERRT TOT.

3.2 Verification Service

This service will provide user support of requests for specific biometric verification on an individual. It allows a user to submit a request for verification on an individual by specifying a unique identifier. This Verification Service results in the confirmation of an individual's Identity based on a one-to-one comparison. The following are the TOTs for Verification submissions:

TOT	TRANSACTION
FVR	Fingerprint Verification Request

The FBI/CJIS's responses to electronic submissions will provide search results or indicate anerror via the following TOTs:

TOT	RESPONSE TRANSACTION
SRE	Submission Results - Electronic
ERRT	Tenprint Transaction Error

3.2.1 Fingerprint Verification Request (FVR)

These submissions will be used to verify the identity of a subject against a known UCN in the FBI/CJIS files. Submissions will include a quoted UCN and may include from two to ten individual fingerprint images, either flat or rolled, contained from one to fourteen image records as detailed in Table L-3 of Appendix L. If the quoted UCN is not found, an error message (ERRT) will be returned. If the UCN is found but not verified, a No Match Response will be returned in the SRE transaction. If the submitted images are verified against the quoted UCN, a Match Response will be returned including a current Identity History Summary, if requested, in the SRE transaction.

3.2.2 Fingerprint Verification Response (SRE)

This transaction is returned by the FBI/CJIS in response to a Fingerprint Verification request. A Match response will be returned when the images on file for the quoted UCN match the submitted images and will contain the electronic Identity History Summary, if requested. A No Match response will be returned when the images submitted do not match the images on file for the quoted UCN. Table 3-3 describes which NAM, FBI number, and SID are returned in the SRE for the Fingerprint Verification request. For further information, please refer to the Identification Services section, Submission Results – Electronic (SRE) subsection.

Table 3-3 Values of NAM, FBI and SID Returned in the SRE for FVR

| Type of Submission | Result | Value of Returned Field | | | Special Exceptions |
		Name	FBI	SID	
Fingerprint Verification Request	Match	Master NAM	Master FBI	Master SID	
Fingerprint Verification Request	No Match	NAM Submitted	None	Submitted SID	STD in RAP SHEET

3.2.3 Fingerprint Verification Error Response - ERRT

These transactions are returned by the FBI/CJIS to indicate a transaction error for a Fingerprint Verification request. It includes a message field (MSG) indicating the type of error detected. Error responses are described in the Error Message Format Section. Currently defined error messages are detailed in Appendix M.

3.3 Information Service

This service will provide user support of requests for specific biometric or biographic information on an individual. It allows a user to submit a request for information on an individual by specifying a unique identifier. Appendix E provides a summary of the Information Service transactions with the Type-2 fields that are optional and mandatory. Appendix C contains the detailed information for each of the Type-2 fields.

3.3.1 Biometric Image Retrieval Submission

The Biometric Image Retrieval Submission includes transactions for requesting images on file at the FBI/CJIS. To initiate a request for image(s) from the FBI/CJIS's database, the sending agency electronically transmits the unique record identifier of the subject (i.e., FBI number or other identifier, such as UCN). The Unsolved Latent File (ULF) record will also have a unique record identifier known as the UCN. Therefore, to retrieve ULF images, the contributor will provide that UCN in the FBI Number field (2.014) to retrieve the ULF record. This request will be routed to the FBI/CJIS, processed, and returned to the requester through the FBI/CJIS WAN. If the requester is a local agency, the request and response will be routed via the FBI/CJIS WAN through the state law enforcement network or the Internet. There will be no manual intervention on the part of the FBI/CJIS.

Requests for a set of images will be submitted to the FBI/CJIS under the TOT field of IRQ (denoting Image Request) in the Type-1 Record. The FBI/CJIS's response will contain a TOT of IRR (denoting Image Request Response) in the Type-1 Record. The processing flow for image requests is illustrated in Figure 8, Biometric Image Retrieval Submission.
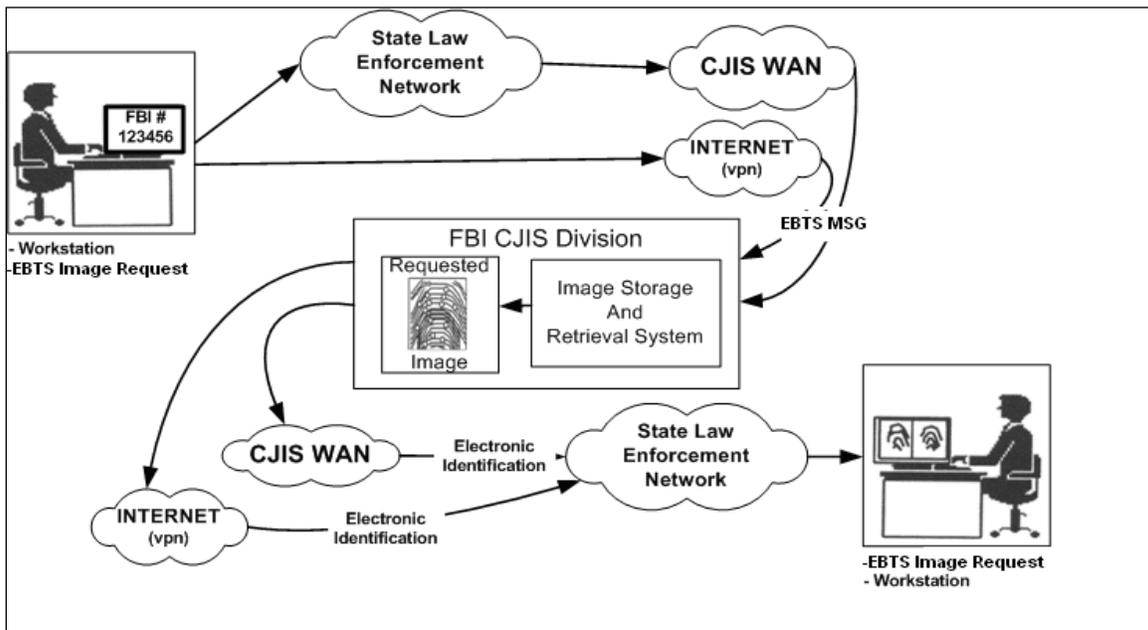
Figure 8 Biometric Image Retrieval Submission

As an IRQ could request images for multiple individuals by including a list of identifiers, the FBI/CJIS will respond with a Fingerprint Image Summary Response listing all requested FBI numbers or UCNs and their response status after completing the individual retrievals and responses. The FBI/CJIS's response will contain a TOT of ISR in the Type-1 Record.

The following TOTs are applicable for requests for fingerprint images:

TOT	TRANSACTION
IRQ	Image Request

The FBI/CJIS's response to requests for images is as follows:

TOT	RESPONSE TRANSACTION
IRR	Image Request Response
ISR	Image Summary Response
ERRI	Image Transaction Error

Other Biometric Image Retrieval Submissions include the legacy electronic photo services transaction for requesting criminal or civil photo sets from the file at the FBI/CJIS. The file from which the photos are being requested is indicated by providing the appropriate value in the Name of Designated Repository (NDR) field in the Type-2 record.

To initiate a request for a photo set from the FBI/CJIS's database, the sending agency electronically transmits the UCN (which can be an FBI number or other unique record identifier) and optionally a DOA (for criminal records) of the subject. (Note: In the future, it is anticipated that Date Photo Taken may be used to request civil photos associated with a specific event.) This request will be routed by way of the FBI/CJIS WAN to the FBI/CJIS, processed, and returned to the requester via the same path. If the requester is a local agency, the request and response will be routed via the FBI/CJIS WAN through the state law enforcement network. There will be no manual intervention on the part of the FBI/CJIS.

Requests for a photo set will be submitted to the FBI/CJIS under the TOT field of CPR (denoting Criminal or Civil Subject Photo Request) in the Type-1 Record. The FBI/CJIS's response will contain a TOT of PRR (denoting Photo Request Response) in the Type-1 Record. In the future, photo retrievals will be also included under the IRQ transaction.

The following TOTs are applicable for request for Criminal or Civil Subject Photo Images:

TOT	TRANSACTION
CPR	Subject Photo Request

The FBI/CJIS's response to requests for Criminal Subject Photo set images are as follows:

TOT	RESPONSE TRANSACTION
PRR	Photo Request Response

3.3.1.1   Biometric Image/Feature Retrieval Submission (IRQ)

This transaction enables users to retrieve images from the FBI/CJIS databases so a comparison can be made by the requester at user facilities or to populate the requestor's database. The requester identifies the subject(s) by UCN/FNU/SCNA whose fingerprint images are being requested. The requester may also include additional parameters to request more specific images (e.g., BSI) of the subject(s) whose biometric images are being requested. Up to 1,000 subjects' records may be requested per transaction. Specific fingerprint, palmprint, supplemental fingerprints and palmprint images or the complete set may be requested. In the future, other biometrics (such as photos and iris images) that are associated with that record may also be requested. The transaction will be processed, and requester-selected images on file at the FBI/CJIS will be transmitted in the response. Each subject record identifier number in the request and each set of biometrics being returned for the subject will be addressed in a separate Image Request Response (IRR). If the request contains any errors, an Image Error Response (ERRI) will be returned, including the reason for the return in a message field (MSG). Errors associated with individual record identifier numbers, such as an image set not being on file, will be reported in the Fingerprint Image Summary Response (ISR). The remaining valid subject identifier numbers will result in individual IRR responses.

NGI expands this capability to also allow for the retrieval of:

1. Tenprint Fingerprint identity composite (legacy behavior) or specific biometric image sets

2. Fingerprint image sets along with associated feature sets for identities and specific biometric image sets

3. Palmprint image sets along with associated feature sets for identities and specific biometric image sets

4. Supplemental Print image sets along with associated feature sets for identities and specific biometric image sets

5. Latent Print image sets along with associated feature sets for latent records and specific biometric image sets

New fields have been added to the IRQ in support of the identity (or subject) events as well as the new friction ridge types. In order to support multiple biometric sets and multiple modalities (image types) for an identity, a new field, the Biometric Image Description (BID), has been created. If the new BID (2.2028) field is populated, then the UCN (2.014) and FNR (2.057) fields will be ignored; therefore, UCN and FNR are modified from mandatory to optional. The BID field is a set type where its subfields define each image requested. The Image Type (IMT) field can be used to specify which types of biometric sets are requested, the Request Features Record (RFR) field can be used to request features with images, the Biometric Set Identifier (BSI) field can be used to identify the specific biometric set being requested, and the Print Position Descriptors (PPD) field can be used to accompany the FNR field to specify which Supplemental Fingerprint and Palmprint images are being requested. If the BSI field is not present, the representative biometric set(s) are retrieved for the identity specified in the FBI/UCN field. The representative set for fingerprints will be a composite fingerprint set of images, while

the representative set of palmprints or supplemental fingerprint and palmprint will be the latest set enrolled. See the table below for combinations of fields and images that will be returned. The FNR field will also be expanded to allow palmprint position codes (See Appendix P).

IMT Present	BSI Present	FNR Present	Images returned
X			Representative set for image type specified
X	X		Specific image set specified in the BSI of that image type specified
X		X	The friction ridge position image of the representative set for the image type specified
	X	X	The finger position image of the specific image set specified in the BSI
X	X	X	The finger position image of the specific image set specified in the BSI of that image type specified

3.3.1.2 Subject Photo Request (CPR)

This TOT enables users to retrieve a photo set from the FBI/CJIS repository. Each set of photos comprises photos of a subject posed from different views and/or Scars/Marks/Tattoos. Each photo set for an identity record (identified by an FBI number or UCN) is linked to the subject by the date of arrest (DOA). In the future, photo sets will be linked to the UCN and will be stored by the date photographed. The most recent frontal photo will be returned in the request as a default. The transaction will be processed, and the requester-selected photo set on file at the FBI/CJIS will be transmitted in the response. If the request contains any errors, the response code (REC) will be set to "N." A Photo Request Response (PRR) will be returned, including the reason for the rejection in a response explanation field (EXP).

3.3.1.3 External System Photo Image Retrieval and Response (Future Capability)

In the future, when an Authorized Contributor submits a Photo Image Retrieval Request to request photo images for specific Identities and events from an external system, the FBI/CJIS will use the External System Photo Image Retrieval Request to obtain those photos. The external system will respond to the FBI/CJIS with the External System Photo Image Request Response.

3.3.1.4 Image Request Response (IRR)

This transaction is returned by the FBI/CJIS to provide requested images on file at the FBI/CJIS to the requester. Each image identified in the IRQ request will cause a separate IRR response. The response will include the subject record identifier number (UCN) and the requested image set in the format they were enrolled: Type-4, Type-14 fingerprint images, or Type-15 palmprint images. The specified fingerprint, palmprint, and/or supplemental fingerprint and palmprint images will be transmitted in the response.

The IRR response will return one fingerprint, palmprint, or supplemental fingerprint and palmprint image set along with the associated biometric feature set, if requested. The new Biometric Image Available (BIA) field is added to reflect the biometric image types available for the Identity. This field will only be populated with the information contained in the BID field of the IRQ. The FBI Number field will return the NGI UCN that may contain either the criminal FBI number (FNU), the Civil Record Number (CRN), or Legacy Unsolved Latent number (SCNA) of the returned record. When a composite set is returned, no Biometric Set Identifier is returned in the message.

3.3.1.5   Image Summary Response (ISR)

This transaction is returned by the FBI/CJIS to summarize the results of the image request processing. This transaction contains the listing of each subject record identifier number returned. It is suggested that the submitting agency do a comparison between their original image request and this image summary response to determine which images were not returned due to invalid FBI number or image not on file.

New fields will be used to inform the user of all the identity's biometric sets that were returned when the IRQ contained the BID field. New fields added to the message are the Image Type (IMT) to specify the type of biometric set returned and BSI to specify the exact biometric set returned if the set is not a composite set. The FNU, SID, IMT, and BSI fields are all ordered such that each occurrence of the field is partnered with the same ordered element of the other three fields.

3.3.1.6   Photo Request Response (PRR)

Each photo request will receive a photo request response (PRR). The transaction is returned by the FBI/CJIS to indicate the condition of each request. The fields in this Type-2 record will give the result of the request. If the request contains any errors that cannot be parsed, FBI/CJIS will return an FBI=0000000; CRI=XXXXXXXXX; REC="N"; and a Response Explanation field, EXP= the translated message code of the first detected error.

3.3.1.7   Image/Information Transaction Error (ERRI)

This transaction is returned by the FBI/CJIS to indicate a transaction error. It includes a message field (MSG) indicating the type of error detected. Error responses are described in the Error Message Format Section.

3.3.2   Biometric Audit Trail Retrieval Submissions

These transactions will enable users to retrieve audit trail information for their images stored in the FBI/CJIS database. This information will consist of which agency(ies) have received the specified image(s), when the image(s) were transmitted, and for what reason. The requester provides the subject identifier (UCN) and the biometric identifier (BSI) for the image set for which they wish the audit trail information to be returned. If the biometric set identifier is not included, then the UCN is mandatory, and all the biometric sets owned by the submitter will be used. The transaction will be processed and the requested audit trail will be returned if the

originator of the request is the owner of the image for which the audit trail is being retrieved. The owner is defined as the CRI who enrolled the biometric or the State Bureau for the CRI. If the request contains any errors, an error response will be returned including the reason for the return in the message field (MSG). Errors associated with a record identifier number, such as an image set not being on file, will be reported in the error response.

3.3.2.1   Biometric Audit Trail Retrieval Query Request (BATQ)

For each request, the submitter of the transaction shall specify which subject image audit trail that FBI/CJIS will return. The response to this request will return only the audit trail for the images owned by the submitter of the request. The first phase of implementation of this transaction will include Fingerprint Audit Trail Retrieval Request, Palmprint Audit Trail, and Unsolved Latent Audit Trail Retrieval Requests. In future phases, this transaction will include Fingerprint Audit Trail, Photo Audit Trail, and Iris Audit Trail Retrieval Requests. Each transaction can retrieve either a specific biometric set or multiple biometric sets for an Identity or latent record. The response to this request will be Audit Trail Retrieval Response.

The main inputs are the UCN to specify the Identity or latent record, BSI to specify a specific biometric set, and IMT to specify the image types. Only a record owner (contributor) is allowed to request an audit trail, so a transaction error is returned if anyone other than the owner tries to request it. When IMT is provided without BSI, audit details are returned for all of the biometric sets of type IMT that are owned by the requestor for the specified Identity or latent record (UCN). When BSI and IMT are not provided, the audit trail details returned will consist of all biometric sets owned by the requestor for the specified Identity or latent record.

3.3.2.2   Audit Trail Retrieval Response (BATR)

This transaction is returned by the FBI/CJIS to provide the requested audit trail record to the requester for the image, for which the requestor is the owner, on file at the FBI/CJIS. This message contains details of when and how the biometric sets specified in a BATQ have been disseminated. If images from the requested biometric set have not been disseminated, a successful BATR is returned, but it will not have any instances of audit trail data. If the requestor does not own any of the images based on the BATQ request criteria, this will result in a transaction error condition (ERRA), including the reason for the error in the MSG field. Also, if the BSI or IMT is not associated with the UCN, an ERRA would be the response.

This response will include the subject or latent biometric record identifier and the audit trail record for that image. A new Audit Trail Record (ATR) field is added to support a repeating set containing the ORI of the originator, date of dissemination, TOT used to acquire the image, the BSI of the image, the image type, and finger positions (when the complete set is not returned) for each requested image. If the max occurrence of the ATR is reached (100), the MSG field will be populated informing user that latest 100 records are returned.

3.3.2.3 Audit Trail Transaction Error (ERRI)

This transaction is returned by the FBI/CJIS to indicate a transaction error. It includes a message field (MSG) indicating the type of error detected. Error responses are described in the Error Message Format Section.

3.3.3 Rap Back Information Retrieval Submissions (Future Capability)

These future transactions will provide the subscriber of the Rap Back Service the ability to retrieve their subscription status along with the designated recipients of the Rap Back Notifications for those enrolled in the Rap Back Service. There will also be an opportunity for the subscriber to retrieve Identity History Summaries for those enrolled in the Rap Back Service.

3.3.3.1 Rap Back Subscription List (Future Capability)

This transaction will provide the Rap Back Subscriber the ability to retrieve their Subscription List indicating their subscription status and list of designated recipients.

3.3.3.2 Rap Back Identity History Summary Request (Future Capability)

This transaction will provide the owner of the Rap Back enrollment the ability to request an Identity History Summary for the individual enrolled in the Rap Back Service after receipt of a Rap Back Activity Notification.

3.4 Investigation Service

To conduct an investigation search of the FBI/CJIS's database, the sending agency will electronically transmit images and descriptive information as required by the AFIS/FBI/CJIS (i.e., the AMP, when needed) or user-extracted characteristics. Biometric characteristics include classification, features, and any other derived data required by AFIS/FBI/CJIS. If the originator is a local law enforcement agency, the request will go through their State Identification Bureau or an approved channeling agency. The subsequent submission will be searched automatically with no additional manual editing or processing. If candidates are identified, no identification decision is made by the FBI/CJIS. Instead, up to 20 candidates' UCNs are returned to the transmitting agency along with fingerprint images from the highest scoring candidate. Appendix E provides a summary of the Investigation Service transactions with the Type-2 fields that are optional and mandatory. Appendix C contains the detailed information for each of the Type-2 fields.

3.4.1 Tenprint Fingerprint Investigation Submissions

The tenprint investigation process differs from electronic tenprint identification submission processing in that there is no manual intervention on the part of the FBI/CJIS. The user can request specific finger images, up to all 14 fingerprint images, to be returned with the response via the Fingerprint Number(s) Requested (FNR) field. The sender must designate the TOT in the Type-1 record to specify the type of search request.

The following list of TOTs is applicable to tenprint searches transmitted to the FBI/CJIS:

TOT	TRANSACTION
TPIS	Tenprint Fingerprint Image Searches
TPRS	Tenprint Rap Sheet Searches

A hierarchical approach to tenprint searches must be adhered to (i.e., for TPIS). Submissions by local agencies must be processed by the local AFIS (if available) and electronically transmitted to a state AFIS (if available) before being submitted to the FBI/CJIS. If an identification decision is made at any of the previous levels, the identification response will be transmitted to the originating agency and there will be no further processing of the request at a higher level.

The processing flow for tenprint submissions (TPIS) is shown in Figure 9, "Investigation Fingerprint Submissions."

All electronic transactions between the FBI/CJIS and the originating state agency will be routed via the FBI/CJIS WAN. State and local agencies must handle the continuance of these transactions among themselves through the state network. For OFOs, tribal, or international agencies, routing of search and response will be via their connection to the FBI/CJIS WAN.
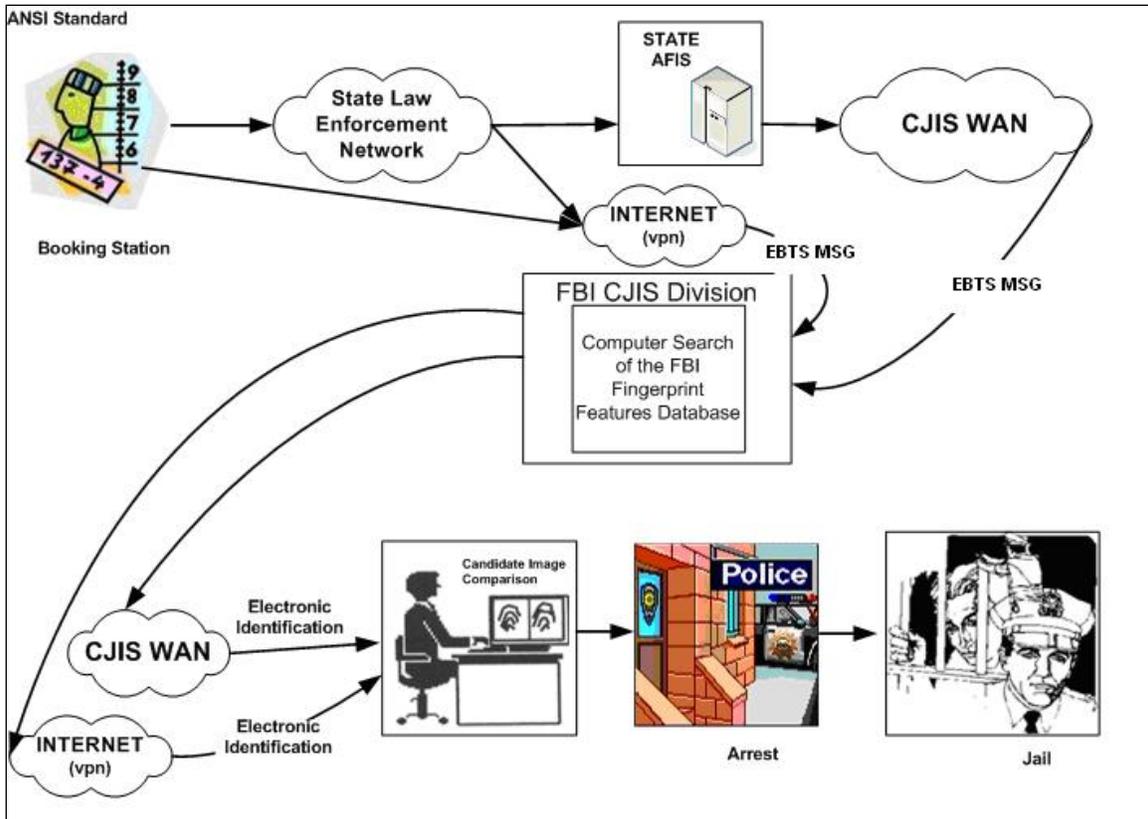
Figure 9 Investigation Fingerprint Submissions

The following are the potential responses to tenprint fingerprint submissions:

TOT	RESPONSE TRANSACTION
SRT	Search Result - Tenprint
ERRT	Tenprint Transaction Error
TPRR	Tenprint Rap Sheet Response

The Search Result Tenprint (SRT) response will include a candidate list and the fingerprint images of the highest scoring candidate who potentially matches the submitted fingerprints. Retrieval of the additional images is accomplished through separate image retrieval requests. The Tenprint Rap Sheet Response (TPRR) will contain a list of candidates and their identity history in the Electronic Rap Sheet (ERS) field, but no fingerprint images.

3.4.1.1   Tenprint Fingerprint Image Search (TPIS)

The Tenprint Fingerprint Image Search contains tenprint fingerprint images along with any descriptors submitted by the originator. The contributor may designate which CJIS repository to search by including the correct value in the Name Designated Respository (NDR, 2.084) field (i.e criminal, civil, ULF). There will be no manual editing of fingerprint characteristics. The search process of the criminal fingerprint files is conducted and the results transmitted to the originator. The response consists of the match report including the identification of matching

candidates and the corresponding fingerprint images of the candidate with the highest score. Images for the remaining candidates may be retrieved through separate image retrieval requests.

3.4.1.2 Tenprint Rap Sheet Search (TPRS) and Responses (TPRR)

The Tenprint Rap Sheet Search contains tenprint fingerprint images along with any required fingerprint classification information and descriptors. The PAT field is to be included for every amputated or unprintable finger. The fingerprint characteristics will be automatically extracted from the images at the FBI/CJIS with no human intervention. There will be no manual editing of fingerprint characteristics. The search process of the criminal fingerprint files is conducted and the results transmitted to the originator. The Tenprint Rap Sheet Response consists of identity histories for up to the top twenty candidates. Images are not returned as part of this process.

Note: TPRS is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.4.1.3 Search Results — Tenprint (SRT)

This transaction is returned by the FBI/CJIS in response to a TPIS request. It includes a candidate list composed of the names and UCNs of up to 25 subjects selected by AFIS/FBI/CJIS as determined to be potential matches to the fingerprint images or features that were submitted. The fingerprint images of the first candidate on the candidate list will also be included. The fingerprint images in the response may be specified by finger position in the search request.

3.4.1.4 Tenprint Transaction Error (ERRT)

This transaction is returned by the FBI/CJIS to indicate a transaction error. It includes a message field (MSG) indicating the type of error detected. Error responses are described in the Error Message Format Section.

3.4.2 Latent Friction Ridge Investigation Submissions

The NGI Latent Friction Ridge (LFR) system replaces the IAFIS latent search capability. The LFR system offers drastically increased accuracy through the use of latest generation matching algorithms coupled with an event-based (vice composite) friction ridge repository. Further, the LFR expands the friction ridge repository and latent searching beyond fingerprints into palm and supplemental (joint and tip) prints. This event-based repository is referred to as the Friction Ridge Investigative File (FRIF).

An Authorized Contributor may transmit one or more latent print images and/or corresponding features sets, assumed to be from the same subject, to be searched against the various FBI/CJIS friction ridge repositories. This latent print search request will originate from the agency having legal jurisdiction of the case (federal, state, local or international). The evidence will be processed and the desired latent friction ridge impressions will be electronically captured. To conduct a search with the captured latent prints, the originating agency will electronically transmit the latent print images within a Latent Friction Ridge Image Search (LFIS) or the latent

print features and preferably the latent print images within a Latent Friction Ridge Features Search (LFFS) transaction. The latent image in an LFIS/LFFS transaction should be known to be upright (i.e., for Fingerprint tip up ± 15°), with no obscuring background or multiple impressions in the image. For the LFFS that includes a latent image with the Type-9, the Type-9 may optionally provide image orientation information (see 9.020 and 9.301) that deviates from upright. By default, these images and/or features will be stored in the Unsolved Latent File (ULF). The user may override this behavior by setting the ULF flag to no.

All AFIS searches must adhere to a hierarchical approach. Transactions generated by local agencies must be processed by the local AFIS (if available) and electronically transmitted to the state AFIS (if available) before submitting a search to the FBI/CJIS. If an identification decision is made as a result of processing at any level, there will be no further processing of the request at a higher level. All electronic transactions between the FBI/CJIS and the originating agency will be routed via the FBI/CJIS WAN or other approved electronic communication medium.

The response to a valid latent search transaction will contain a TOT of "SRL" (denoting "Search Results - Latent") in the Type-1 Record. It will also include the UCN of up to the number of candidates requested (NCR) and the corresponding friction ridge images of up to the Number of Images Requested (NIR) of the candidate(s) that potentially matched the latent print. If the latent search included more than one latent print (a multi-latent search), a single merged candidate list will be returned.

In the initial rollout of NGI Investigative Services, Latent Friction Ridge investigative search TOTs will have the NDR field added and will accept values specified in EBTS for Criminal Master File, Civil File, Unsolved Latent File, and FBI/CJIS Special Population Cognizant (SPC) Files (if the requesting ORI is allowed to search the requested SPC file). The default behavior when this field is not present is to only search the criminal repository. For a given latent investigative search, NGI will not search both known (FRIF) and unknown (ULF) repositories. If the NDR field contains both repository designations, only the known repository(ies) will be searched, and this scenario will be reported in the SRL (see MSG field of SRL). Additionally, the user will be able to optionally select, in investigative searches, whether features and matched minutiae for each candidate print are returned in the Latent Friction Ridge search result response. The extended feature set and matched minutiae will reside in the EFS section of the Type-9 record for the candidate(s), as defined in the ANSI/NIST-ITL 1-2011 standard. Several changes to the investigative TOTs within EBTS for NGI will require system programming updates to take advantage of these new capabilities. FBI/CJIS will continue to be backward compatible along with providing new fields to successfully utilize the new NGI investigative services.

In future releases beyond the initial rollout of NGI Investigative Services, latent investigative searches will have the capability to request a simultaneous search of other external systems, such as Canada's Real-Time ID System or DHS IDENT. Submitters will enter the appropriate values for the desired destination in the Name of Designated Repository (2.098 NDR) field in the Type-2 record.

The biographic and/or biometric descriptor data contained in the Type-2 record(s) of the LFFS/LFIS search transaction are used to reduce the search penetration of the desired

repositories. If two Type-2 records are included in the search transaction, the Type-2 with the ULF flag = "Y" is used for deposit of the latent into the ULF, while the Type-2 with ULF = "N" sets the search filtering criteria to limit file penetration. When there are two Type-2 records and the ULF flag in both are "Y" or not included, the first Type-2 will be used for searching and the second one will be used for the deposit of the latent into the ULF. Limiting file penetration by filtering searches based on known information increases search accuracy by reducing the size of the search gallery, thus reducing the probability that the true match will be replaced in the candidate list by other potential matching impressions. Setting file penetration limits on the latent search has the added benefit of improving search response time. Investigative services users are encouraged to limit searches of the civil and/or criminal file to no more than 50% of the population of the file(s) being searched. NGI will support the biometric filter criteria friction ridge position code and pattern classification, and will also support the biographic filter criteria date of birth (only the year of birth is used), race, gender, place of birth, and place of arrest (GEO 2.044). A Latent Penetration Query (LPNQ) may be sent to determine the percentage of repository penetration prior to initiation of a search. The results will be returned in a Latent Penetration Response (LPNR). The response will include the percentage of the repository penetration determined from the submitted parameters in the fields of the Type-2 record. Detection of errors will cause a Latent Transaction Error (ERRL) response.

The FGP field may contain one or more of the possible finger or palm positions that may match the latent image. The integer code number corresponding to the known or most probable finger position will be taken from the ANSI-NIST ITL Standard Finger Position Table or Palmprint Position Table and entered as a one- or two-character ASCII subfield. (See Appendix P for acceptable values.) Additional finger and/or palm positions may be referenced by entering the alternate position codes as subfields separated by the "RS" separator character. The code "0" for "Unknown Finger" shall be used to reference every finger position from one through ten and will be used as the default when FGP is omitted or blank. The code "20" for "Unknown Palm" shall be used to reference every listed palmprint position. The Type-2 PPD field is used when FGP is set to 19 to filter which part(s) of a supplemental print(s) should be searched. The code "18" for "Unknown Friction Ridge" shall be used to reference every listed friction ridge position. ..

When submitting a single latent image, the submitter may use the PAT (2.034) and FGP (2.074) fields as follows to indicate that the position is unknown while allowing speculation on the finger position: (1) set the Finger Number subfield of FGP to "00" to indicate UNKNOWN while supplying the Pattern Classification Code as usual; (2) in conjunction, submit one or more instances of the FGP field containing the finger position guesses; and (3), in the FGP field of the Type-7/13 record, send a "0." If many finger guesses for a single finger search are provided, the PAT field should be entered only for the first finger guess and will be automatically duplicated by FBI/CJIS for all other finger guesses.

The following list of TOTs is applicable to latent friction ridge searches transmitted to the FBI/CJIS:

TOT	TRANSACTION
LFIS	Latent Friction Ridge Image Search
LFFS	Latent Friction Ridge Features Search
LPNQ	Latent Penetration Query

The following are the potential responses to latent friction ridge transactions:

TOT	RESPONSE TRANSACTION
SRL	Search Result - Latent
LPNR	Latent Penetration Response
ERRL	Latent Transaction Error

Figure 10 provides a high level view of the latent friction ridge investigative service workflow, to include the notification service and data management service transactions explained in sections 3.5 and 3.6 respectively.

Figure 10 Latent Friction Ridge Investigation Workflow
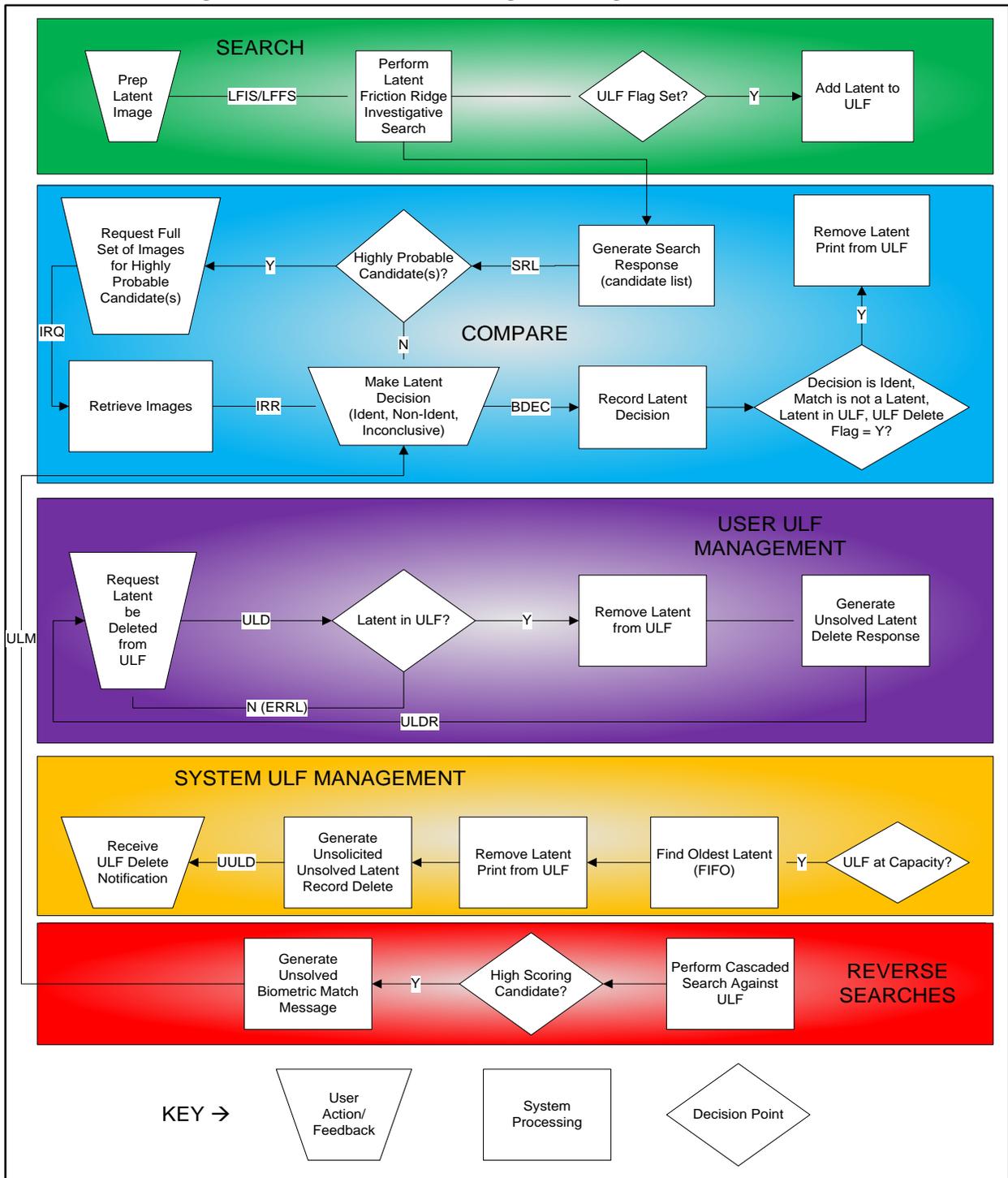
The following paragraphs describe in detail the TOTs associated with the Latent Friction Ridge Investigative Service.

3.4.2.1 Latent Friction Ridge Image(s) Search (LFIS)

The latent friction ridge image(s) are transmitted along with the search criteria by the originator. The friction ridge features will be automatically extracted from the images with no human intervention. There will be no manual editing of friction ridge characteristics by FBI/CJIS Latent Examiners. FBI/CJIS will conduct a search of the designated repository or repositories and will transmit the results back to the originator. In the event that images are of insufficient quality for the LFR system to be able to extract features and perform a search, FBI/CJIS will respond with a Latent Transaction Error message.

NGI will continue to support the multi-latent fingerprint search request, where finger positions 1 thru 10 are supported. Multiple fingerprint images may be searched if the submitter believes the images are from a single subject, and a unique finger position is provided for each image.. Only this set of fingerprint positions will be searched.

The biographic and/or biometric descriptor data contained in the Type-2 record(s) of the LFFS/LFIS search transaction are used to reduce the search penetration of the desired repositories and to define the parameters that will determine which incoming tenprint/palmprint/supplemental print images will be cascaded against the latent after deposit into the ULF. Limiting file penetration by filtering searches based on known information increases search accuracy and improves search response time. Investigative services users are encouraged to limit searches of the civil and/or criminal file to no more than 50% of the population of the file(s) being searched. This 50% population reduction may be easily achieved if the latent examiner is able to determine what hand the latent print was taken from and/or to determine what pattern classification the impression represents. NGI will support the biometric filter criteria friction ridge position code and pattern classification, and will also support the biographic filter criteria date of birth (only the year of birth is used), race, gender, place of birth, and place of arrest (GEO 2.044). A Latent Penetration Query (LPNQ) may be sent to determine the percentage of repository penetration prior to initiation of a search. The results will be returned in a Latent Penetration Response (LPNR). The response will include the percentage of the repository penetration determined from the submitted parameters in the fields of the Type 2 record. Detection of errors will cause a Latent Transaction Error (ERRL) response.

One or two Type-2 records may be submitted within a latent friction ridge search request (i.e. LFIS or LFFS). If only one Type-2 record is submitted, FBI/CJIS will automatically use the descriptive data in that record for the search, and if the ULF flag is set to "Y" or is omitted, will use that same descriptive data in the ULF deposit. If two Type-2 records are submitted, the one with the ULF flag set to "Y" will be used to set the ULF deposit parameters to filter when it is reverse searched by tenprint/palmprint/supplemental print transactions or when it is searched directly by another latent print, while the other Type-2 will be used to limit the search penetration. If two Type-2 records are present and either both are "Y" or both are "N" or both do not have the ULF flag, then the first will be used for searching and the second will be used for enrollment.When one latent friction ridge image is transmitted, the submitter may include multiple friction ridge position guesses in the FGP field of the Type-2, values from Table P-2

found in Appendix P. NGI will utilize the Type-2 PPD, when FGP =19, to support the supplemental finger positions.

The user is also able to optionally select whether features and matched minutiae for each candidate print image are returned in the LFIS response. The features and matched minutiae will reside in the EFS section of the Type-9 record for each candidate as defined in Appendix J.

3.4.2.2   Latent Friction Ridge Features Search (LFFS)

The latent friction ridge features are extracted and transmitted along with the search criteria by the originator in this transaction. While inclusion of the search image is optional in this transaction, it is highly recommended to include the latent image within the LFFS to increase search accuracy. The search process of the desired repository or repositories will be conducted and the results will be transmitted back to the originator in an SRL TOT as described for the LFIS transaction. The friction ridge features referred to here are the EFS friction ridge features as defined in Appendix J.

Originators are encouraged to add the latent image along with features in the search message to be added to the ULF. Multiple-finger searches and searches where the finger position is not known are to be treated in the same manner as the LFIS. The originating agency must have the capability to extract and encode friction ridge features compliant with the EFS to use this TOT.

3.4.2.3   Search Results - Latent (SRL)

This transaction is returned by the FBI/CJIS in response to a latent search request. It will include a ranked candidate list for each friction ridge type repository searched (see CNL field 2.2033). Each candidate list is composed of names and UCNs of each candidate (up to the NCR field value from request) along with the corresponding friction ridge image(s) for each unique UCN/BSI/FGP. The maximum number of images for each ranked candidate list is taken from the NIR field in the request using the Type-4, 14 or 15 record. Up to 99 candidates for each ranked list, their match scores, and the finger/palm/supplemental positions of the images on file that matched may be included in the response. If the NIR is not specified, then the top 20 matching images will be returned per ranked candidate list. If the NCR is not specified in search request, then the top 20 candidates will be included in each ranked candidate list. The NCR and NIR field are added to the Type-2 for SRL to report the total number of candidates and images returned in the SRL. Therefore, the NCR and NIR field values in the SRL may be smaller than their values in the LFIS/LFFS request (i.e., their values are not simply echoed from the search request). In addition, if the search included an indication that the latent image should be stored in the Unsolved Latent File, the SRL will return the UCN (2.014) of the stored unsolved latent image.

The SRL will contain a candidate list of potential matches from the repositories that were searched. The user may optionally select in the search request (LFIS or LFFS) whether features and matched minutiae for each candidate print image are returned in the SRL response. The features and matched minutiae will reside in the EFS section of the Type-9 record for the candidate(s). When RFR is selected, the SRL will contain biometric data for both probe and candidates. The probe features will always precede the candidate image and features (i.e. probe feature IDC value(s) will be less than candidate image/feature IDC values). The IDC values for

the candidate list images/features will be recorded in the Candidate Investigative List (CNL), while the IDC for the probe features will not be referenced in the CNL. Therefore, when NIR is 20 there will be 21 Type-9 records, the first one will present the matched minutae of the searched image and the remaining records will be those of the candidates returned. For the multi-latent search, there will be Type-9s for each probe image, that are distinguished by finger position. There can be up to 10 Type-9s for the probe, followed by the candidate Type-9s. Besides the currently supported criminal identifiers being returned as candidates, Civil and Unsolved Latent identifiers will also be supported. The friction ridge data may include Palmprint and Supplemental Fingerprint and Palmprint.

A new Candidate Investigative List (see CNL 2.2033) field is added for SRL. The legacy CAN field remains and will continue to be populated to support backward compatibility. For records from the FRIF, NGI populates the UCN with an FNU for the records prior to NGI and the UCN of records added to NGI will employ the UCN. For latent records from the ULF, the UCN will be returned (even if the old SCNA value exists). If the IMT field indicates a latent image, then the UCN subfield of the CNL field is a latent UCN for that candidate. The Biometric Set Identifier (BSI) for each image is returned. The Biometric Image Available (BIA) field is provided to indicate the available biometric image types for the identity. The UCN and BIA from the SRL can be used to populate the UCN and IMT in the IRQ to allow the recipient to request more images for the subject. The NDR field is enhanced to support populating the NDR value(s) for repository in which the candidate resides, limited to those NDR values actually in the search request. The NDR field is only populated when latent search requests specify only SPCs to be searched. It will be populated with the SPCs the candidate resides in from those SPCs actually searched. The NDR field is enhanced to support populating the NDR value(s) for repository in which the candidate resides, limited to those NDR values actually in the search request.
If there are high scoring matches from multiple events for a given identity/UCN in the candidate list, the BSI for each of these events will be listed in the CNL following the number of returned candidates (NCR). These additional event entries in the CNL are to enable retrieval of additional candidate biometric images via the IRQ. Therefore, no images/features are returned within the SRL for these additional events along with the IDC and NOT fields not being populated. Within a given SRL it is possible that there will be multiple candidate lists concatenated together in the CNL field based on the friction ridge type(s) to be searched. The maximum possible lists are three. They include a list for the fingerprints, a list for the lower hand and a list for the upper hand. The Fingerprint list is from the traditional distal rolled and flats. The lower hand is comprised of Palmprints of the lower palm positions including the interdigital area. The upper hand is comprised of the upper palm positions including fingerprint friction ridge (EJI and tip) and interdigital area. Each list will be ranked and images/features will be returned for the top UCN/BSI/FGP candidate from each list. In these multiple lists it is possible for the UCN to be duplicated. The lists can be distinguished by IMT and position code.

The MSG field is added to report to requestor that the latent search request specified repositories that contained both known and unsolved records (e.g., NDR of Criminal and ULF). The text states which records (known or unsolved) and repositories were not searched. The order of precedence for searching based on NDR is as follows:
  1. Criminal and/or Civil is present then search known records
  2. Criminal and/or Civil is not present and ULF is present then search unsolved records

3. Criminal and/or Civil and ULF are not present and at least one SPC contains known, then search known records

When designated repositories are not searched or partially not searched, this message will be the first entry in the MSG field so it stands out for the user. When images, candidate features and matched minutiae are being returned, the MSG field will also contain the text: "This match was made using information beyond feature data." This caveat text is provided because the NGI matcher improves accuracy by use of additional imagery data.

3.4.2.4 Latent Penetration Query (LPNQ)

The Latent Penetration Query allows the user to check for the percentage of the Criminal and/or Civil repository that will be accessed by a latent friction ridge search. The query contains the search parameters that will be defined in either the LFIS or LFFS search request in a Type-2 record. The search parameters can contain repositories, biographic descriptors (DOB, RAC, SEX, GEO & POB), fingerprint classification (pertinent general class values are AU, WU, RS, and LS), and fingerprint/palmprint position code data (and PPD when FGP =19). While the NDR field supports all valid values for repositories, meaningful penetration values are only returned for Criminal and/or Civil repositories. If SPC(s) and/or ULF are the only entries for NDR, then a penetration value for the Criminal repository is returned based on the rest of the search criteria. This allows users to set the search parameters to ensure that the search does not exceed the maximum penetration recommended by FBI/CJIS of 50 percent. Penetration tables developed by the NGI LFR system may be used as an aid to help the user determine expected penetration. This transaction applies only to a single finger, even if the original transaction included multiple fingers.

3.4.2.5 Latent Penetration Query Response (LPNR)

The response to a penetration query will contain the estimated size for the repository search based on the transaction-defined characteristics. The response will indicate the percent penetration to allow further refinement of the search criteria.

The Penetration Query Response field (PEN) contains a penetration percentage as determined by the search criteria in the LPNQ request. The penetration value returned in the PEN field will be a combined percentage of the repositories specified in the LPNQ request. SPC(s) and ULF are not considered (see LPNQ above).

3.4.2.6 Latent Transaction Error (ERRL)

This transaction is returned by the FBI/CJIS in response to a transaction that contained errors, missing or inadequate quality fingerprints, missing mandatory information, or invalid contents. The MSG field shall include additional information on the causes for the rejection. Error responses are described in the Error Message Format Section.

3.4.3 Latent Administrative Queries, Requests, and Responses

Administrative requests can be solicited by the users to improve the accuracy and efficiency of their latent operations by gaining insight into the composition of the FBI/CJIS search repositories for use in search filtering. The Latent Repository Statistics Query (LRSQ) provides the users with the statistical representation of the FBI/CJIS Criminal and/or Civil Master File used to estimate search penetration.

The following Types of Transactions (TOTs) are included in the Latent Administrative Queries:

TOT	TRANSACTION
LRSQ	Latent Repository Statistics Query

The following are the responses to the above transactions:

TOT	RESPONSE TRANSACTION
LRSR	Latent Repository Statistics Response
ERRA	Administrative Error Response

3.4.3.1 Latent Repository Statistics Query (LRSQ)

The LRSQ requests the current statistics used to estimate the penetration of the Criminal and/or Civil Repository by a latent search based on the various input characteristics. This query will provide the users the data required to update the statistical representation used to estimate the repository penetration of a latent search without having to use the Latent Penetration Query.

3.4.3.2 Latent Repository Statistics Response (LRSR)

The Latent Repository Statistics Response to the LRSQ will provide the users the data required to update the statistical representation used to estimate the repository penetration of a latent search. The ASCII file contained in the RSR field will contain the filter parameters used to filter searches of the NGI repositories (civil and/or criminal). Data will be returned for the civil and criminal files individually, as well as for the civil and criminal files in total. Statistics will not be generated for the ULF or SPC(s), as the sizes of these files will be trivial compared to the civil and criminal repositories.

3.4.3.3 Administrative Transaction Error (ERRA)

This transaction is returned by the FBI/CJIS to indicate a transaction error. It includes a message field (MSG) indicating the type of error detected. Error responses are described in the Error Message Format Section.

3.4.4 Biometric Investigation Submission

In addition to the FBI/CJIS accepting other biometrics in conjunction with Tenprint Fingerprint Identification Submissions and enrollment of other biometrics. In the future, FBI/CJIS will also

accept additional biometric modality investigation searches other than the current friction ridge searchingas those matching systems become available.

3.4.4.1 Photo Investigation Search Transactions (Future Capability)

Searching for photos in the FBI/CJIS database will be accomplished by three different methods. The Text Based Photo Search will consist of using biographical data to retrieve a list of possible candidates and their most recently taken facial photo. The Text Based SMT Photo Search will consist of using SMT descriptors to find a list of possible candidates and their SMT photos. The Facial Recognition Search will consist of comparing features from the photo supplied on the transaction against the set of features in the FBI/CJIS database.

3.4.4.1.1 Text Based Photo Search Request (Future Capability)

This transaction will allow the user to specify biographical data to be used in a search for possible candidates. The response consists of a list of candidates along with the most recently taken frontal facial photos or facial photos of the candidates with the highest score. Photos for the remaining candidates may be retrieved through separate image retrieval requests (IRQ).

3.4.4.1.2 Text Based SMT Photo Search Request (Future Capability)

This transaction will allow the user to specify SMT descriptive data to be used in a search for possible candidates. The response consists of a list of candidates along with the SMT photos of the candidates with the highest score. Photos for the remaining candidates may be retrieved through separate image retrieval requests (IRQ).

3.4.4.1.3 Facial Recognition Search Request (Future Capability)

This transaction will allow the user to submit a photo to be used for searching against the FBI/CJIS photo repository for possible candidates. The response consists of a list of candidates along with the most recently taken frontal facial photos or facial photos of the candidates with the highest score. Photos for the remaining candidates may be retrieved through separate image retrieval requests (IRQ).

3.4.4.2 Iris Investigation Search Request (Future Capability)

This transaction will allow the user to submit an iris image to be used for searching against the FBI/CJIS NGI iris repository for possible candidates. The response consists of a list of candidates along with the iris images of the candidates with the highest score. Iris images for the remaining candidates may be retrieved through separate image retrieval requests (IRQ).

3.4.5 Biographic Investigation Submissions

The Biographic Investigation Submissions are unique to performing an investigative search using the subject's biographic data instead of biometric data. The changing political and social climate necessitates the development of a process to ensure that people attending large public

functions, such as the G8 Summit or a political convention, are not associated with terrorist or criminal organizations. The development of the retrieval of a subject's history via a biographic search provides a means to efficiently screen large numbers of people. This function is available on a limited basis to federal agencies with prior written authorization from the FBI.

See Appendix B for details of the Type-1 record, Appendix C for details of the Type-2 record, and Table D-3 for a complete list of all mandatory and optional data for the Biographic Investigation Submissions.

The following TOT is applicable to these biographic search submissions to the FBI/CJIS:

TOT	TRANSACTION
EQHR	External Query History Request

The following are the responses to the above transaction:

TOT	TRANSACTION
EHRR	Electronic History Request Response
EQRR	External Query History Request Response - Summary
EQER	External Query History Error Response
ERRR	Transaction Error (Electronic Response)

3.4.5.1 External Query History Request (EQHR)

The External Query History Request (EQHR) submission requires that the subject's name, place of birth, and date of birth be submitted. A more accurate candidate list is compiled if the biographic search is performed with more criteria. Therefore, optional data, such as hair/eye color, height or weight may be submitted. External History Queries will have a transaction priority level of 6, which is considered "secondary" with a response time of 24 hours. (See Appendix A.)

3.4.5.2 External Query Request Response (EQRR)

An External Query Request Response (EQRR) will be returned containing the summary list of zero to twenty candidates that were found as result of the External Query History search.

3.4.5.3 External History Request Response (EHRR)

For each candidate returned in the EQRR, a separate External History Request Response (EHRR) is returned, if requested. If no candidates are returned in the EQRR, no EHRR messages will be returned to the contributor. Each EHRR message will contain an Identity History Summary for a candidate returned in the summary report.

3.4.5.4 External Query Error Response (EQER)

When the External Query History Request contains errors, such as missing mandatory information or invalid contents, the External Query Error Response (EQER) will be returned to the contributor. The response will include the message field (MSG) indicating the type(s) of error(s) encountered. See the Error Message Format Section for more detail on how this response is formatted.

3.4.5.5   Transaction Error (Electronic Response) (ERRR)

When the result of the External Query History Request contains candidate(s) where the Identity History Summary is not available, the Transaction Error (Electronic Response) (ERRR) will be returned to the contributor. As a large number of records for persons born before 1956 have not been automated, those Identity History Summaries will not be available. The ERRR will include a message field (MSG) indicating the status of the record. The record will be converted. In three to four business days, the contributor may submit a follow-on EQHR request to receive the Identity History Summary electronically.

3.5   Notification Service

The Notification Service provides agencies with unsolicited notifications from the system based on event criteria (triggers). An unsolicited notification may be triggered by functions initiated by the system, Authorized FBI Service Providers, or Authorized Contributors. One of the functions that may trigger these notifications are the cascaded searches from identification and investigative searches. Another may be triggered by the update of an Identity History record. Appendix E provides a summary of the Information Service transactions with the Type-2 fields that are optional and mandatory. Appendix C contains the detailed information for each of the Type-2 fields.

The FBI/CJIS's responses to system initiated functions are as follows:

TOT	RESPONSE TRANSACTION
ULM	Unsolved Biometric Match
UULD	Unsolicited Unsolved Latent Delete
UHN	Unsolicited Hit Notification

3.5.1   Unsolved Biometric Match (ULM)

An Unsolved Biometric Match Notification contains an unsolved latent file (ULF) match notification. These notifications are sent to the owners of the unsolved biometric when newly submitted criminal, civil, or latent friction ridge searches match an unsolved latent case image. A ULM will occur after a Biometric Decision submission of a possible identification from the directed search of the ULF, when requestor does not own the latent candidate record. The BIA field is added for cascaded searches of the ULF to reflect the available biometric image types available for the enrolled Identity that matched the latent. The existing SCNA field is populated with the legacy SCNA value if NGI has it, if not it is populated with the UCN value for the ULF latent that matched. The BSI field uniquely identifies the matching biometric set, the IMT field indicates what type of biometric set matched the ULF record, and the PPD field works with the existing FGP field to identify the matching images if the matching set is a Supplemental Print set.

Currently, the NGI system returns ULMs for all friction ridge searches (finger, palm, joint, tip). The response will include the UCN along with biographic identifiers associated with the subject that matched the unsolved latent image. The ULM will return the complete image set that was matched against the Unsolved Biometric File. If the submission is not retained by IAFIS/NGI up to 14 images associated with that submission will be returned in this transaction when a tenprint record hits against latent images in the ULF. The "owner" of the unsolved latent case is responsible for conducting the comparison. Currently the CIN, CIX, ATN, SCNA, and CRI fields are associated with the unsolved record while the FBI, NAM, AKA, POB, CTZ, DOB, SEX, RAC, SMT, HGT, WGT, EYE, HAI, PPA, PHT, DPR, MSG, FGP, BSI, PPD, and BIA fields are associated with the identity or submission that hit against the unsolved record.

3.5.2 Unsolicited Unsolved Latent Delete (UULD)

This transaction is used to indicate that a record has been deleted from the FBI/CJIS's ULF by the LFR system. When an attempt is made to add a record and the ULF (or a particular subfile of the ULF) contains the maximum number of allowable records, then an automated delete occurs. The record deleted will be the oldest record in the file/subfile. If a set of unsolved latent images were added from a multi-finger latent search, the UULD applies to the entire set of images added. The existing SCNA field is populated with the legacy SCNA value if NGI has it. If not, it is also populated with the UCN value for the ULF latent.

3.5.3 Special Population Cognizant (Future Capability)

A Special Population Cognizant Notification contains either a notification of a decision made against an image in the special population cognizant repository or a special population cognizant file match notification for any of the biometrics (i.e., fingerprint, latent, palm, photo, or iris). These notifications are sent to the owner of the biometric.

3.5.4 Rap Back Activity (Future Capability)

In the event that a criminal or civil submission, disposition, or external system activity identifies an individual with an active Rap Back monitoring flag, a Rap Back activity notification will be sent to the Rap Back record owner and designated recipients. Prior coordination with the FBI/CJIS will determine the type of notification agencies will receive. The FBI/CJIS will send a Rap Back expiration notification to the Rap Back record owner 30 days prior to the designated subscription expiration date for each Rap Back enrollment, with an option to renew.

3.5.5 Rap Back Subscription Renewal Notification (Future Capability)

The FBI/CJIS will send a Rap Back Renewal Notification to the Rap Back record owner prior to the designated subscription expiration date for each Rap Back enrollment. The Rap Back record owner then submits a Rap Back Maintenance request to renew their Rap Back Subscription associated with the FBI/CJIS record.

3.5.6 Unsolicited Hit Notification (UHN)

This type of notification will be provided to the owner of a record when there is a hit against a highly probable candidate. For the initial implementation, only certain types of transactions will initiate Unsolicited Hit Notifications (UHN) and dissemination rules for responses from RPIS transactions will be used. In the future, dissemination rules will be applied based on implementation of a multi-tiered data structure. Only agencies that have signed up for this notification will receive this message type.

3.5.7   External Link Record Activity Notification (Future Capability)

This type of notification will be provided when file maintenance activities (e.g., posting an arrest, consolidating records, expungement of last cycle) occur against a record which contains an external system link. These notifications will be sent to the external system owner of the record containing an external system link.

3.5.8   External Link Failure Notification (Future Capability)

This type of notification will be provided to an external system when an external link could not be established on the subject requested.

3.6 Data Management Service

This new service will provide users with the ability to manage data within FBI/CJIS. It allows users to add, delete, and modify data contained in FBI/CJIS that is under their control. Appendix I provides a summary of the Data Management Service transactions with the Type-2 fields that are optional and mandatory. Appendix C contains the detailed information for each of the Type-2 fields.

3.6.1 Latent Image Maintenance Submissions

An authorized contributor can transmit file maintenance messages to specify transactions related to the unsolved latent file; specifically, an Unsolved Latent Record Delete Request (ULD). The processing flow for electronic requests to delete unsolved latent friction ridge records is illustrated in Figure 11.
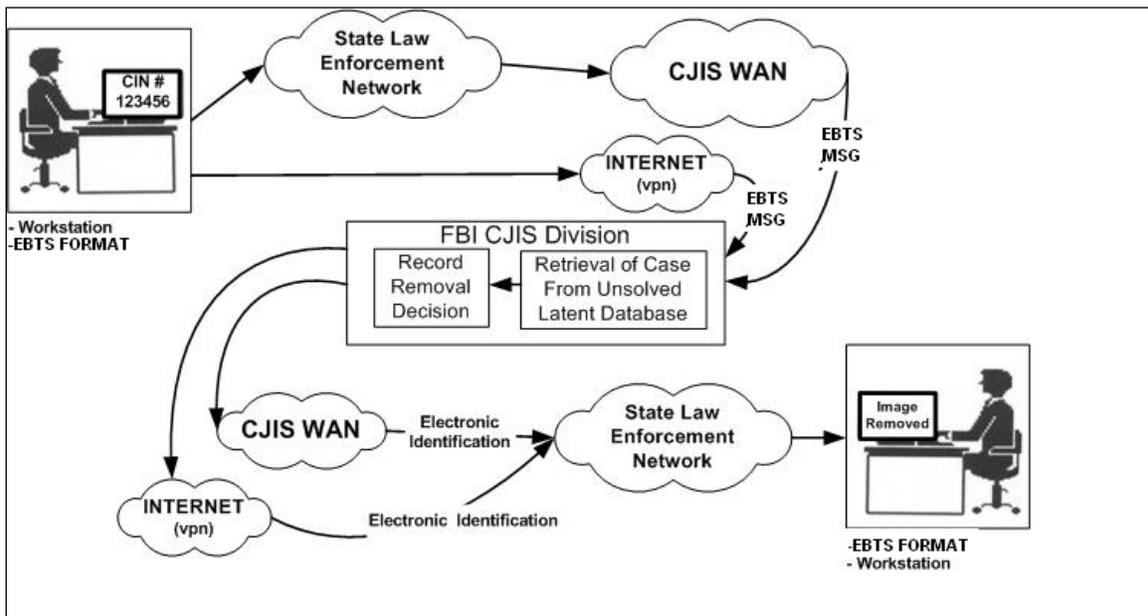
Figure 11 Electronic Requests to Delete Unsolved Latent Friction Ridge Records

The following TOTs are latent file maintenance transactions transmitted to the FBI/CJIS:

TOT	TRANSACTION
ULD	Unsolved Latent Record Delete Request

The FBI/CJIS's responses to latent maintenance transactions are as follows:

TOT	RESPONSE TRANSACTION
ULDR	Unsolved Latent Delete Response
ERRL	Latent Transaction Error

3.6.1.1 Unsolved Latent Record Delete Request (ULD)

This TOT is used to request that unsolved latent file records be removed from the FBI/CJIS's Unsolved Latent files. The identification number used to designate the latent record to be deleted under NGI will continue to be the CIN/CIX and the SCNA. If a set of unsolved latent images were added from a multi-finger latent search, the ULD applies to the entire set of images added. The existing SCNA field is populated with either the legacy SCNA value (this may be the only identifier the submitter has) or the UCN of the latent record to be deleted.

3.6.1.2 Unsolved Latent Delete Response (ULDR)

This transaction is used to indicate that a record has been deleted from the FBI/CJIS's Unsolved Latent files in response to a ULD message. The Type-2 record contents of the ULDR transaction can be viewed in Table I-1.

3.6.1.3 Latent Transaction Error (ERRL)

This transaction is returned by the FBI/CJIS to indicate a transaction error. It includes a message field (MSG) indicating the type of error detected. Error responses are described in the Error Message Format Section.

3.6.2 Fingerprint Image Submissions

Fingerprint image update transactions are to be used particularly by states participating in the National Fingerprint File (NFF) when they obtain fingerprints from subjects already on file that are of substantially better quality or include different characteristics than the existing ones (e.g., a new scar). The new fingerprints are submitted to the FBI/CJIS for evaluation and inclusion in the FBI/CJIS files.

Fingerprint Image Submissions (FIS) will use a TOT of "FIS." All 14 fingerprint images must be accounted for in the update request to verify identification and finger sequence. The NGI system will determine whether to update the master fingerprint images. The processing flow for electronic requests to upgrade fingerprint images is illustrated in Figure 12.

The following TOTs are fingerprint image transactions transmitted to the FBI/CJIS:

TOT	TRANSACTION
FIS	Fingerprint Image Submission

The FBI/CJIS's responses to fingerprint image maintenance transactions are as follows:

TOT	RESPONSE TRANSACTION
FISR	Fingerprint Image Submission Response
ERRI	Image Transaction Error
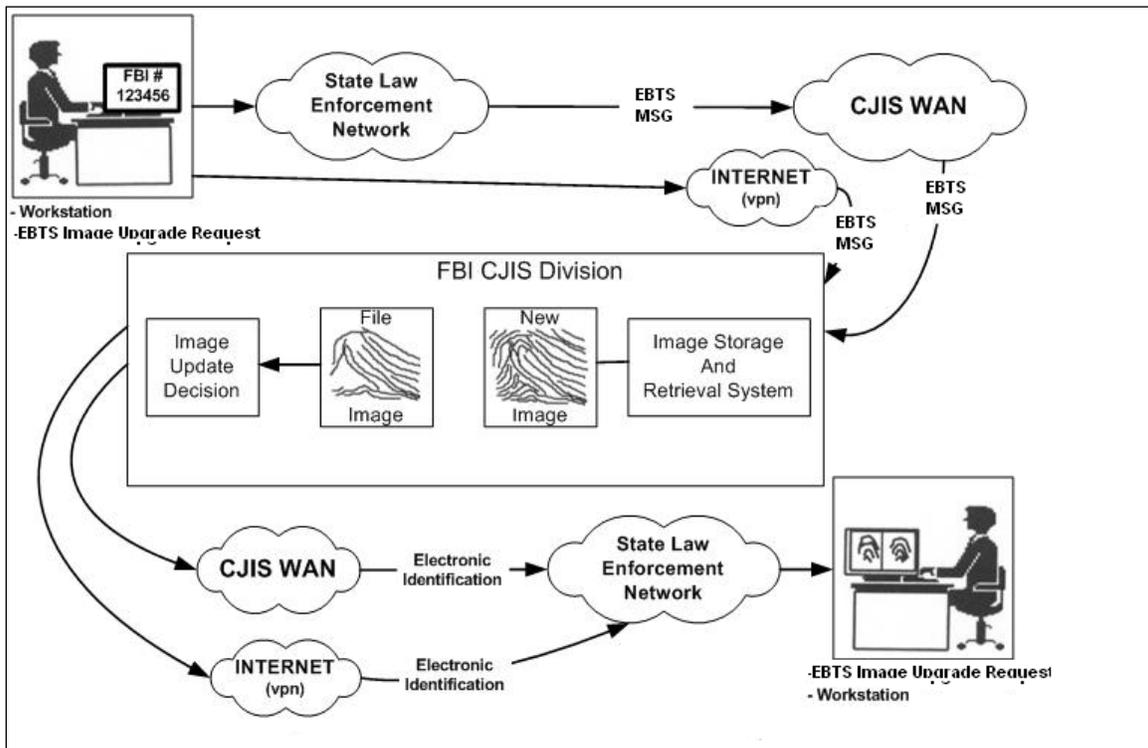
Figure 12 Electronic Requests to Upgrade Fingerprint Images

3.6.2.1   Fingerprint Image Submission (FIS)

This transaction is used to submit electronic fingerprint images that are candidates for upgrading the FBI/CJIS fingerprint image files. It is intended primarily for use by NFF states when it is determined that a second or subsequent arrest provides fingerprints of significantly better quality than those previously submitted to the FBI/CJIS, or when it is determined there are new fingerprint characteristics such as scars or amputations. The transaction submits the new fingerprints to the FBI/CJIS for evaluation and possible inclusion in the FBI/CJIS files. All 14 fingerprints, rolled and plain, must be accounted for to verify the identification and confirm fingerprint positions. The FIS TOT will support the submission of Palmprint image sets and Supplemental Fingerprint and Palmprint image sets (see details in Sections 3.6.3.1.3 & 3.6.3.1.5). Users will be allowed to submit multiple image sets in the same message. The FIS will allow users to submit image sets to be attached to an existing event or to add image sets to an identity. The event identifier field will be added to the Type-2 record to allow the user to specify an event identifier from a prior event for assignment of the new image sets.

3.6.2.2   Fingerprint Image Submission Response (FISR)

This transaction is returned by the FBI/CJIS to acknowledge a valid fingerprint image submission and specify which finger image(s) were updated. In the future, the new field biometric set identifier will be added for the biometric sets enrolled in processing the FIS message. The response contains the biometric set identifier for each biometric set submitted. The FGP field continues to indicate which fingers are replaced for messages including fingerprints, but as composite biometric sets are not maintained for Palmprint and Supplemental Print sets no corresponding values are sent back from the biometric sets.

3.6.2.3   Image Transaction Error (ERRI)

This transaction is returned by the FBI/CJIS to indicate a transaction error. It includes a message field (MSG) indicating the type of error detected. Error responses are described in Error Message Format Section.

3.6.3   Biometric File Maintenance Submissions

Electronic biometric file maintenance services include transactions for enrolling into and deleting biometrics from a specified FBI/CJIS repository. To allow for modification of biometric data, the user should submit transactions to remove the biometric and then enroll the updated biometric into the specified FBI/CJIS repository. When cascaded searches and investigative searches return possible matches, the user can submit a biometric decision notification for the purpose identifying an unknown candidate.

The following TOTs are biometric transactions transmitted to the FBI/CJIS::

TOT	TRANSACTION
FIS	Direct Supplemental Fingerprint and Palmprint Enrollment Request
FIS	Direct Palmprint Enrollment
BDEL	Biometric Delete Request
CPD	Subject Photo Delete Request
BDEC	Biometric Decision Submission

The FBI/CJIS's responses to biometric transactions are as follows:

TOT	RESPONSE TRANSACTION
FISR	Supplemental Fingerprint and Palmprint Enrollment Response
BDELR	Biometric Delete Response
PDR	Subject Photo Delete Response
BDECR	Biometric Decision Response

3.6.3.1   Biometric Enrollment Transactions

The response to the Direct Enrollment Requests will provide details on each biometric type enrolled. To facilitate this, the Biometric Image Enrollment set field (BIE 2.2061) is added to the

Type-2 of the FISR (see also SRE) response. The field will provide the biometric identifiers (BSI) and image type (IMT) of each biometric set or photo that was enrolled. Where photos are enrolled the subject pose (POS) is populated for facial photos, and the scars, marks, and tattoos (SMT) field is populated for SMT photos.

3.6.3.1.1   Direct Fingerprint Enrollment Request (Future Capability)

In the future, fingerprint images may be submitted separately from the normal tenprint transaction by using the Direct Fingerprint Enrollment request. These fingerprint images must meet FBI/CJIS standards for searches to allow them to be stored in the Special Population Cognizant (SPC) repositories. FBI/CJIS will respond with a Direct Fingerprint Enrollment Response transaction to show successful receipt and storage of the images. If the images do not meet FBI/CJIS standards for searches, an error response (ERRA) will be returned to the user.

3.6.3.1.2   Direct Latent Enrollment Request (Future Capability)

In the future, latent images may be submitted for enrollment into an SPC by an Authorized Contributor using the Direct Latent Enrollment Request. FBI/CJIS will respond with a Direct Latent Enrollment Response transaction to show successful receipt and storage of the images into the specified SPC. If FBI/CJIS encounters an error associated with this action, an error response (ERRA) will be returned to the user.

3.6.3.1.3   Direct Supplemental Fingerprint and Palmprint Enrollment Request (FIS)

Supplemental fingerprints and palmprint images may be submitted concurrently with a normal Tenprint Identification transaction or by using this Direct Supplemental Fingerprint and Palmprint Image Enrollment request. This request must be accompanied by a set of tenprint fingerprint images for validation with the UCN included to provide complete assurance that these images are being enrolled with the proper record. If this request is not accompanied by a set of tenprint fingerprint images, an agency must have an MOU in place with the FBI/CJIS prior to sending transactions without fingerprint images attached. These supplemental prints are enrolled into the FBI/CJIS repository when distal fingerprints from the supplemental (EJI) image can be matched against the tenprint fingerprint images submitted.

Currently, the supplemental fingerprint and palmprint images will be stored in the FBI/CJIS biometric database for searching and will be associated with the Identity (UCN), creating a new event. This transaction will allow users to submit image sets to be attached to an existing event (by using an Event Identifier[EVI]). When tenprint fingerprint images are included in this transaction, they will be used to conditionally update the composite tenprint fingerprint images.

FBI/CJIS will respond with a Direct Supplemental Fingerprint and Palmprint Image Enrollment Response (FISR) transaction to show successful receipt and storage of the images along with the newly created BSI. If the submitted fingerprints do not match the given UCN, an error response (ERRA) will be returned to the user. If the quality of the images being enrolled satisfies

supplemental fingerprint searching thresholds, FBI/CJIS will cascade a search of the unsolved supplementalfingerprint file and, in the future, marked special population file(s).

3.6.3.1.4 Direct Photo Enrollment Request (Future Capability)

In the future, photo images may be submitted separately from a normal tenprint transaction by using the Direct Photo Image Enrollment request. An agency must have an MOU in place with the FBI/CJIS prior to sending transactions that do not have fingerprint images attached. The photo images will be stored in a FBI/CJIS database for future searching capability. To provide complete assurance that the photo images are being enrolled with the proper record, in addition to providing the UCN of the existing record, submissions may be accompanied by electronic tenprint fingerprint images for verification. FBI/CJIS will respond with a Direct Photo Image Enrollment Response transaction to show successful receipt and storage of the photo images. If the submitted fingerprints do not match the given UCN, an error response (ERRA) will be returned to the user. If the quality of the photo images being enrolled satisfies facial searching thresholds, FBI/CJIS will cascade a search of the unsolved photo file and marked special population photo file(s).

3.6.3.1.5 Direct Palmprint Enrollment (FIS)

The FBI/CJIS will allow law enforcement agencies to enroll palmprints associated with previously enrolled tenprint records by using the Direct Palmprint Enrollment request. Palmprint images may be enrolled when submitted in conjunction with a normal Tenprint Identification transaction or by using this Direct Palmprint Image Enrollment request. This request must accompanied with a set of tenprint fingerprint images for validation with the UCN included or an agency must have an MOU in place with the FBI/CJIS prior to sending transactions that do not have fingerprint images attached. These palmprints are enrolled into the FBI/CJIS repository when the distal finger segments from the palmprint image can be validated against the tenprint fingerprint images submitted.

The palmprint images will be stored in the FBI/CJIS database for searching and will be associated with the Identity (UCN), creating a new event.. This transaction will allow users to submit image sets to be attached to an existing event . When tenprint fingerprint images are included in this transaction, they will be used to conditionally update the composite tenprint fingerprint images.

FBI/CJIS will respond with a Direct Palmprint Enrollment Response (FISR) transaction to show successful receipt and storage of the palmprint images along with the newly created. If the submitted fingerprints do not match the given UCN, an error response (ERRA) will be returned to the user. If the quality of the palmprint images being enrolled satisfies palmprint searching thresholds, FBI/CJIS will cascade a search of the ULF and, in the future, marked SPC file(s).

3.6.3.1.6 Direct Iris Image Enrollment Submissions (Future Capability)

In the future, iris images may be submitted separately from a normal tenprint transaction by using the Direct Iris Image Enrollment request. An agency must have an MOU in place with the FBI/CJIS prior to sending transactions that do not have fingerprint images attached. The iris images will be stored in a FBI/CJIS database for future searching capability. To provide complete assurance that the iris images are being enrolled with the proper record, submissions may be accompanied by electronic tenprint fingerprint images for verification, in addition to providing the UCN of the existing record. FBI/CJIS will respond with a Direct Iris Image Enrollment Response transaction to show successful receipt and storage of the iris images. If the submitted fingerprints do not match the given UCN, an error response (ERRA) will be returned to the user.

3.6.3.2 Biometric Deletion Transactions

3.6.3.2.1 Biometric Delete Request (BDEL)

This transaction will allow the user to request deletion of a specific biometric set. This transaction will support Palmprint Deletion and Supplemental Print Deletion as a result of enrollments into the FRIF. In addition, this transaction will support Unsolved Latent Deletion of Latent Prints from the ULF. In the future, this TOT will support deletions of other biometrics (photos and iris). Only a record's owner can request its deletion. The owner is defined as the CRI who enrolled the biometric or the State Bureau for the CRI. The requestor will specify the appropriate identifier(s) of the image(s) to be removed. The UCN and BSI are used to specify the specific image set being deleted and both fields are required. The BDEL can be used against the ULF where 3 combinations are supported: UCN/BSI, CIN, and CIN/CIX. The legacy ULD TOT continues to be supported to allow deletion of ULF entries using the case identifiers CIN and CIX, or SCNA.

3.6.3.2.2 Biometric Delete Response (BDELR)

This transaction is returned when a successful Biometric Delete Request was completed. If any permission (e.g., submitter is not the owner of the image) or processing errors are encountered, an error transaction (ERRA) is returned, so receipt of the Biometric Delete Response indicates the requested delete was successful.Since it is possible for more than one UCN to be deleted in a single BDEL transaction using the CIN/CIX, the UCN field will support up to a maximum of 25 values to be reported. If more than 25 UCNs are deleted, than this will be reported to the contributor in the MSG, 2.060, field.

3.6.3.2.3 Subject Photo Delete Request (CPD) and Response (PDR)

This transaction enables users to delete a specific photo set associated with a DOA. Only owners of that photo set may delete it. The requester specifies the FBI Number or UCN of the subject and the DOA, or a subject record identifier. If the request contains any errors, the response code (REC) will be set to "N". This response (PDR) will be returned including the reason for the rejection in a response explanation field (EXP).

3.6.3.2.4 Civil Deletion Request (Future Capability)

The Civil Deletion Request updates the identity history record by removing the requested civil event from the specified identity. This request must have a valid UCN, Date of Event, and the originator of the request must be the owner of the event data.

3.6.3.3 Biometric Decision Submission (BDEC)

This transaction gives the user the ability to give a decision for a potential match (ULM) resulting from a cascaded search or investigative searches (SRL). The submission will include the unique identifier associated with the biometric for which the decision is made against along with the decision being made. If a positive decision by the owner of the image is made against an image in the unsolved file, that image will be removed from the unsolved file. These biometric decisions can be for any friction ridge biometric (finger, palm or joint/tip), either known or unsolved (i.e. ULF). These decisions will be used to track and report statistically on trends to aid in analysis of system performance when evaluating for possible improvements. To aid in the capture of these statistics, the TCR (1.010) field in the Type-1 record of the BDEC shall contain the control number (TCN 1.009) from the transaction (ULM or SRL) containing the candidate information for which this decision is being made. The Search Results Findings (SRF) field is expanded to support an inconclusive ("C") decision along with the legacy values possible identification ("I"), non-identification ("N"), and pending ("P").

The candidate record can be identified by using the UCN. In all cases, the BSI can be provided to explicitly designate the image set used for the decision. A positive identification decision on a latent record in the ULF from a known probe will result in the record being deleted if the requestor owns the latent record. If the requestor does not own the latent record or the probe is also an unknown (latent), then the latent record in the ULF is not deleted, and a ULM notification is triggered to the owner of the latent record. The Unsolved Latent Retained (ULR) field is provided for latent possible identification decisions where a value of "Y" indicates that the latent record should be retained in the ULF. When the ULR field is omitted and a positive decision is indicated, the default action will be to delete the latent record.

3.6.3.4 Biometric Decision Response (BDECR)

This transaction is returned when a successful Biometric Decision Submission was completed. If any permission or processing errors are encountered, an error transaction is returned. Therefore, receipt of the Biometric Decision Response indicates the decision submission was successful. If

the decision is a positive identification and the matched candidate is a latent, the MSG field will indicate if the latent was deleted.

3.6.4 Identity File Maintenance Submission (Future Capability)

Identity maintenance actions (III Record Maintenance Request) may include modifications or deletions of individual biographical data, event data, or other Identity History data elements. The maintenance action may also include changing tier designations and copying a record into the International Terrorist File (ITF) from another FBI/CJIS repository.

This transaction enables users to submit identity file maintenance for subjects in the FBI/CJIS repository. The submitter will specify the exact elements in the biographical data to modify, delete, or add specified data.

3.6.4.1 International Terrorist File Maintenance Request (Future Capability)

This transaction enables users to submit a maintenance request to ITF, which consist of modification, deletion, or copying images into the ITF repository.

3.6.4.2 External File Maintenance Submissions (Future Capability)

External System Identity Record Maintenance request provides the capability for an External System to modify identity information. This capability will allow the addition, modification, and deletion of selected data elements. These will also include the capability for the FBI/CJIS to send External File Maintenance Submissions to External Systems and receive a response from the External Systems.

The External System File Maintenance submissions provide the ability for Authorized External Systems (e.g., IDENT) to submit records to be enrolled into the NGI Shared Data files. The process of enrolling implies an addition to the Shared Data. The Shared Data files are comprised of the NGI Shared Want Files which contain NGI records and the DHS Shared Watch Files which contain IDENT records. These submissions will also provide the ability for Authorized External Systems to remove and demote records. A demotion is a canceled Want in NGI that may be maintained in an External System (e.g., IDENT) if a previous encounter has occurred.

3.6.5 Disposition File Maintenance Submissions (DSPE) (Future Capability)

The Disposition File Maintenance Submission request service updates an identity history record by associating court and custody information to an arrest cycle. The Disposition File Maintenance service allows an Authorized Contributor to submit disposition maintenance requests to the FBI/CJIS. This functionality includes the electronic update and deletion of disposition data. An electronic response (DSPR) will be sent to the requestor.

3.6.6 Supervised Release Notification Request (SRNR) (Future Capability)

This transaction consists of a Supervised Release Notification Request submission that will be directly routed to a FBI/CJIS internal log application for special processing. This submission data will be used to update the Identity History record by associating supervisory information to an arrest cycle. The Supervised Release Notification Request Service allows and authorized Contributor to submit supervisory maintenance requests to the FBI/CJIS electronically. This functionality includes the capability to cancel a supervisory information request to to transfer a supervisory information request to another supervisory agency.

Note: SRNR is a limited-use TOT that requires coordination with FBI/CJIS prior to use.

3.6.7   Rap Back File Maintenance Submissions (Future Capability)

In the future, the Rap Back Service will provide authorized users the capability to enroll an individual and subscribe to "Rap Back" in order to receive notification of any subsequent criminal, disposition, and/or external system activity involving that individual. Under certain circumstances, this service will also provide authorized users the capability to receive notification when subsequent civil submissions are received. The Rap Back Service will also provide the users the capability to receive a pre-notification to verify the individual is still of interest prior to releasing the notification.

The Rap Back Service will automatically provide notification of expungement information for those individuals enrolled in Rap Back. The Rap Back Service will include subscription registration and maintenance (e.g., registering, unregistering), status checking, activity detection, response generation, and billing. Prior coordination with the FBI/CJIS will be required prior to Rap Back enrollment.

3.6.7.1   Rap Back Record Enrollment (Future Capability)

For an existing individual with fingerprints on file with the FBI/CJIS, agencies may request Rap Back Services to be provided without resubmitting fingerprints by providing a valid UCN (although fingerprint images may be submitted with the request for verification purposes).

3.6.7.2   Rap Back Maintenance Request (Future Capability)

The Rap Back Service will provide opportunities for authorized agencies to modify, or delete the Rap Back enrollment information. Agencies may modify the expiration date, discontinue the Rap Back Service, remove the civil fingerprint associated with the enrollment request, and modify Rap Back recipients.

3.6.8   External System Link Maintenance Submissions (Future Capability)

The External System Link Maintenance request, an External System Identity Record Maintenance request, and an External System Linked Record Activity will provide the capability for an External System to modify their link identifier associated with a UCN in the FBI/CJIS database. This will also provide the External System with the ability to report activity on a link identifier.

3.7 Error Message Format

When a transmission is rejected because a data field(s) does not pass internal editing criteria, an error response will be transmitted back to the submitting agency. Each reason for rejection will be detailed in the status/message (MSG) field. Up to 11 errors for a transaction can be recorded in the MSG field. MSG will contain an error description relating to the specific discrepancy identified. If the error is related to a field that contains invalid data, the field tag and first 30 characters of the data in the invalid field will be returned.

Errors in incoming transactions can be derived from many sources. FBI/CJIS error handling capabilities will be an evolutionary product. In its initial version, FBI/CJIS recognized and dealt with several hundred identified error conditions. Future updates to the FBI/CJIS system will develop improved capabilities that support off-nominal or error conditions.

FBI/CJIS will validate all incoming data prior to its use within the system. That is, all received and parsed fields will undergo an appropriate edit check. If any mandatory data are missing the transaction will be rejected. If any mandatory data are included but considered an error, then an attempt will be made to correct the values manually. If any optional data are in error, the data will not be stored in the FBI/CJIS repository.

The error response will be included in the ERRT, ERRA, ERRI, ERRL, ERRR or EQER transaction as appropriate. The following is a non-inclusive list of the types of error messages:

- Mandatory field missing
- Invalid field for transaction
- Field discrepancy
- Field out of range
- Request not on file
- Fingerprints do not allow extraction of characteristics
- Non-standard native-mode fingerprint characteristics

The following are five unique types of error responses:

- Tenprint Transaction Error Response (ERRT)
- Latent Transaction Error Response (ERRL)
- Information/Image Transaction Error Response (ERRI)
- Administrative Transaction Error Response (ERRA)
- Transaction Error (Electronic Response) (ERRR)
- External Query History Error Response (EQER)

Appendix M contains further details on contents of the MSG field for error conditions.

3.8 Other Special Requirements for Communicating With FBI/CJIS

3.8.1 Electronic Fingerprint Images

Electronic fingerprint images must be captured and transmitted to the FBI/CJIS in accordance with the standard for the electronic interchange of fingerprint information, the ANSI/NIST-ITL.

3.8.2 Fingerprint Image Compression/Decompression Algorithm

IAFIS-IC-0010(V3), IAFIS Wavelet Scalar Quantization (WSQ) Grayscale Fingerprint Image Compression Specification, dated December 19, 1997, provides the definitions, requirements, and guidelines for specifying the FBI/CJIS's WSQ compression algorithm. The document specifies the class of encoders required, decoder process, and coded representations for compressed image data. Latent images are not compressed.

The specification provides an informative overview of the elements of the algorithm. Refer to it for details.

ISO International Standard 10918-1, Information Technology – Digital Compression and Coding of Continuous Tone Still Images Part 1: Requirements and Guidelines, commonly known as the JPEG (The Joint Photographic Experts Group) algorithm, has been requested for use by the UK Home Office in submitting fingerprint images to FBI/CJIS.

The FBI/CJIS is responsible for maintaining a registry of approved compression algorithms and assigning a value to each (see Table 3-5). This value is to be used in the Type-4 or Type-14 Logical Record so the receiving agency can use the appropriate decompression algorithm to decode the image data. The Color and Grayscale Compression Algorithm (CGA) field is a mandatory one-byte binary field used to specify the compression algorithm used (if any). A binary zero denotes no compression. The following table indicates the acceptable values for this field. The FBI/CJIS expects 500 ppi scanned Type-4 or Type-14 tenprint images, as well as 500 ppi Type-15 palmprint images, to be compressed with compression algorithm WSQ20 with a nominal compression ratio of 15-to-1. The FBI/CJIS expects 1000 ppi scanned Type-14 and Type-15 images to be compressed with compression algorithm JP2L and Type-10 photo images to be compressed with compression algorithm JPEGB. IAFIS will accept fingerprint and palmprint images scanned at 500 and 1000 ppi. No downsampling or transcoding of 1000 ppi images is to be performed prior to transmission to the FBI/CJIS. The table will be updated when new algorithms are approved by the FBI/CJIS.

Table 3-5 Compression Algorithm Values

Compression Algorithm	Binary Value	ASCII Code
None used (Uncompressed)	0	NONE
Wavelet Scalar Quantization (WSQ) FBI/CJIS Revision 2.0 WSQ Version 3.1 or higher is recommended (Version 2.0 or Version 3.0 may be used for platen areas less than 2 inches in height)	1	WSQ20
JPEG ISO/IEC 10918 (Lossy)	2	JPEGB
JPEG ISO/IEC 10918 (Lossless)	3	JPEGL
JPEG 2K ISO/IEC 15444-1 (Lossy)	4	JP2
JPEG 2K ISO/IEC 15444-1 (Lossless)	5	JP2L
Portable Network Graphics	6	PNG

3.8.3   Fingerprint Image Quality Specifications

The IAFIS Image Quality Specifications are provided in Appendix F.

3.8.4   Fingerprint Image Size Requirements

The scanned fingerprint image sizes shown in the following table are consistent with standard fingerprint cards or common live-scan images. To accommodate live-scan equipment, where the platen size can exceed these measurements, FBI/CJIS will accept images larger than these. However, when oversize images are returned to a contributor, it is the receiver's responsibility to manage the display of these oversize images.

Table 3-6 Maximum Sizes for Fingerprint

Fingerprint	Width pixels (inches)	Height pixels (inches)
Rolled Impression Fingers 1-10 (@ 500 ppi)	800 (1.6)	750 (1.5)
Rolled Impression Fingers 1-10 (@ 1,000 ppi)	1,600 (1.6)	1,500 (1.5)
Plain Thumb Impression (@ 500 ppi)	500 (1.0)	1,500 (3.0)
Plain Thumb Impression (@ 1,000 ppi)	1,000 (1.0)	3,000 (3.0)
4 Finger Plain Impressions (@ 500 ppi)	1,600 (3.2)	1,500 (3.0)
4 Finger Plain Impressions (@ 1,000 ppi)	3,200 (3.2)	3,000 (3.0)

According to ANSI/NIST-ITL standards, FBI/CJIS will receive and store as part of a Tenprint Fingerprint Identification Search: 1,000 pixels per inch (ppi) images, Iris, Palmprint, Photo, Supplemental Fingerprint and Palmprint data. At this time, IAFIS will convert 1,000 ppi images to 500 ppi for FBI/CJIS processing and the system will return any subsequent images at 500 ppi. When FBI/CJIS begins processing 1,000 ppi under NGI, the stored images will then be resubmitted into NGI. Therefore, agencies are encouraged to submit 1,000 ppi images for FBI/CJIS storage and collection purposes. A transaction being directly submitted to NGI will be processed and stored in the submitted resolution.

APPENDIX A - TRANSACTION RESPONSE TIMES

Table A-1 represents existing average response times for incoming electronic transactions to CJIS. Table A-2 contains future NGI maximum response times. Table A-3 represents types of transactions by service. Currently, priority designation exists only for Latent transactions using the PRI field (see definition of PRI in Appendix C). There is an NGI requirement to process transactions based on priority and will be implemented in a future increment. After completion of the NGI design phase where the requirement will be implemented, more information will be included to describe how the priority for a transaction is specified. The PRY field (see definition of PRY in Appendix B) corresponds to the Priority column in Table A-2 for transactions which will process based on priority.

Table A-1 IAFIS Average Transaction Response Times

Transaction	Priority	Type	1 sec	3 sec	3.7 sec	10 sec	20 sec	2 min	3 min	7 min	15 min	30 min	1 hour	2 hours	24 hours	30 days
Criminal Fingerprint Identification Search	urgent	electronic												•		
		hard-copy												•		
		remote searches												•		
	non-urgent	electronic													•	
		hard-copy													•	
		electronic latent (LFS)													•	
		CSS														•
		remote searches													•	
Civil Fingerprint Identification Search	urgent	electronic									•					
	non-urgent	electronic													•	
		CSS														•
		hard-copy													•	
		remote searches													•	
		humanitarian													•	
RISC Rapid Search, no Identity info						•										
RISC Rapid Search, Identity info							•									
Known Fingerprint Image Requests														•		
Criminal Photo (mug shot) Requests												•				
Criminal Photo not found Response				•												
Criminal Photo (mug shot) Delete Request							•									
Tenprint Rap Sheet Search Request								•								
Tenprint Features Search*															•	
Tenprint Image Search*															•	
Latent Remote Search															•	
III Subject Search			•													
Remote Unsolved Latent Record Delete												•				
ULF Maintenance (Add)								•								
Latent Penetration Query									•							
Latent Repository Statistics Query								•								
Subject Searches* (Criminal)					•											
Subject History Retrieval Requests (Criminal or Civil)					•											

* Times in these system transaction rows are maximum values, not averages.

Table A-2 NGI Maximum Transaction Response Times

Transaction	Priority	1 sec	5 sec	10 sec	20 sec	30 sec	2 min	5 min	10 min	15 min	30 min	1 hour	2 hours	4 hours	24 hours	48 hours	15 days
Criminal Fingerprint Identification Search	high								•								
	routine										•						
	low														•		
	non-urgent																•
Civil Fingerprint Identification Search	high									•							
	routine												•				
	low														•		
	non-urgent																•
Rapid Tenprint Fingerprint Identification				•													
Rapid Fingerprint Identification Search, no Identity info				•													
Rapid Fingerprint Identification Search, Identity info					•												
International Terrorist Identification Search										•							
International Terrorist File Maintenance										•							
Fingerprint Investigation Search	high					•											
	routine						•										
	low										•						
Verification request										•							
Fingerprint Image Retrieval, single UCN								•									
Fingerprint Image Retrieval, multiple UCN																•	
Fingerprint Audit Trail Retrieval										•							
Fingerprint Maintenance										•							
Cascaded fingerprint search															•		
Latent Search	high											•					
	routine													•			
	low														•		
Latent Audit Trail Retrieval										•							
External Latent Print Search (generate)										•							

Table A-2 NGI Maximum Transaction Response Times

Transaction	Priority	1 sec	5 sec	10 sec	20 sec	30 sec	2 min	5 min	10 min	15 min	30 min	1 hour	2 hours	4 hours	24 hours	48 hours	15 days
III Subject Search		•															
III Identity History request		•															
Identification Search request (generate)										•							
Facial Recognition Search													•				
Text-based Facial Photo Search								•									
Text-based SMT Photo Search								•									
Photo Image Retrieval, 1 UCN								•									
Photo Features Retrieval, 1 UCN								•									
Photo Audit Trail Retrieval										•							
Photo Maintenance										•							
External Photo Image Retrieval (generate)										•							
Cascaded Facial Recognition Search															•		
Palmprint Image Retrieval, 1 UCN								•									
Palmprint Feature Retrieval, 1 UCN								•									
Palmprint Audit Trail Retrieval										•							
Palmprint Maintenance										•							
Cascaded Palmprint Search															•		
Iris Search													•				
Iris Image Retrieval, 1 UCN								•									
Iris Feature Retrieval, 1 UCN								•									
Iris Audit Trail Retrieval										•							
Iris Maintenance										•							
Cascaded Iris Search															•		
Supplemental Fingerprint & Palmprint Maintenance										•							
Cascaded Supplemental Fingerprint & Palmprint Search															•		
Rap Back Subscription List Retrieval										•							
Rap Back Enrollment										•							

Table A-2 NGI Maximum Transaction Response Times

Transaction	Priority	1 sec	5 sec	10 sec	20 sec	30 sec	2 min	5 min	10 min	15 min	30 min	1 hour	2 hours	4 hours	24 hours	48 hours	15 days
Rap Back Maintenance										•							
Disposition Fingerprint Search															•		
NCIC Disposition Submission			•														
EBTS Disposition Submission															•		
NCIC Disposition Maintenance			•														
EBTS Disposition Maintenance															•		
Link Maintenance from external										•							
Provide Notifications								•									
Ad Hoc Subject Search Inquiry							•										

Table A-2: NGI Maximum Transaction Response Times provides a summary of the maximum response times by transaction type and priority. Some transactions have different priorities as indicated in the table.

Table A-3 NGI Type Of Transaction By Service

SERVICE	TOT	DESCRIPTION	TRANSACTION
Identification Services	CAR	Criminal Tenprint Submission (Answer Required)	Criminal Fingerprint Identification Search
	CNA	Criminal Tenprint Submission (No Answer Necessary)	
	CPDR	Criminal Fingerprint Direct Route	
	CPNU	Criminal Fingerprint Processing Non-Urgent	
	DOCE	Departmental Order Channeling Electronic	Civil Fingerprint Identification Search
	EMUF	Electronic In/Manual Out User Fee Submissions	
	FANC	Federal Applicant (No Charge)	
	FAUF	Federal Applicant User Fee	
	FNDR	Federal No Charge Direct Route	
	NNDR	Non-Federal No Charge Direct Route	
	NFAP	Non-Federal Advanced Payment	
	NFUE	Non-Federal User Fee Expedite	
	NFUF	Non‑Federal Applicant User Fee	
	MAP	Miscellaneous Applicant Civil	
	DEK	Known Deceased	
	DEU	Unknown Deceased	
	MPR	Missing Person	
	AMN	Amnesia Victim	
	LFS	Latent Fingerprint Image(s) Submission	Latent Search
	RPIS	Rapid Fingerprint Identification Search Submission	RISC Rapid Search
	FDSP	Disposition Fingerprint Identification Submission	Disposition Fingerprint Search
	TBD	International Terrorist Identification Search	International Terrorist Identification
Verification Services	FVR	Fingerprint Verification Request	Fingerprint Verification Request
Information Services	IRQ	Biometric Image/Feature Retrieval Submission	Biometric (Fingerprint, Photo, Iris, etc.) Image
	CPR	Subject Photo Request	Photo Set Retrieval
	BATQ	Fingerprint Audit Trail Retrieval Request	Fingerprint Audit Trail Retrieval
	TBD	External System Photo Image Retrieval	External Photo Image Retrieval
	TBD	Photo Audit Trail Retrieval	Photo Audit Trail Retrieval
	BATQ	Palmprint Audit Trail Retrieval	Palmprint Audit Trail Retrieval
	TBD	Iris Audit Trail Retrieval	Iris Audit Trail Retrieval
	BATQ	Unsolved Latent Audit Trail Retrieval	Latent Audit Trail Retrieval
	TBD	Rap Back Subscription List	Rap Back Subscription List Retrieval
	TBD	Rap Back Identity History Summary	TBD
Investigation Services	TPIS	Tenprint Fingerprint Image Search	Fingerprint Investigation Search
	TPRS	Tenprint Fingerprint Rap Sheet Search	
	LPNQ	Latent Penetration Query	Latent Search
	LFIS	Latent Friction Ridge Image Search	
	LFFS	Latent Friction Ridge Feature Search	
	LRSQ	Latent Repository Statistics Query	
	TBD	Text-Based Facial Photo Search	Text-Based Facial Photo Search
	TBD	Text-Based SMT Photo Search	Text-Based SMT Photo Search
	TBD	Facial Recognition Search	Facial Recognition Search

Table A-3 NGI Type Of Transaction By Service

SERVICE	TOT	DESCRIPTION	TRANSACTION
	TBD	Iris Search	Iris Search
	EQHR	External Query History Request	Biographic Search
Notification Services	ULM	Unsolved Latent Match Response	Provide Notifications
	UULD	Unsolicited Unsolved Latent Record Delete	
	TBD	Rap Back Activity Notification	
	TBD	Special Population Cognizant Notifications	
	TBD	Rap Back Renewal Notification	
	UHN	Unsolicited Hit Notification	
	TBD	Linked Record Activity Notifications	
	TBD	Link Failure Notifications	
Data Management Services	FIS	Fingerprint Image Submission	Fingerprint Maintenance
	DSPE	Disposition Reporting	EBTS Disposition Maintenance
	ULD	Unsolved Latent Record Delete	Fingerprint Maintenance
	CPR	Photo Set Retrieval Request	Subject Photo Request
	CPD	IPS Original Photo Delete Request	Photo Maintenance
	FIS	Direct Palmprint Enrollment	Palmprint Maintenance
	TBD	Direct Iris Data Enrollment	Iris Maintenance
	TBD	Direct Rap Back Enrollment	Rap Back Maintenance
	TBD	Rap Back Maintenance	
	TBD	Fingerprint Deletion Request	Fingerprint Maintenance
	BDEC	Fingerprint Decision Request	
	TBD	III Record Maintenance	TBD
	TBD	External System Record Maintenance	Link Maintenance from external
	TBD	International Terrorist File Record Maintenance	International Terrorist File
	TBD	Civil Deletion Request	Fingerprint Maintenance
	TBD	Direct Fingerprint Enrollment	
	TBD	Direct Latent Enrollment	
	BDEC	Latent Decision Request	
	TBD	Direct Photo Enrollment	Photo Maintenance
	TBD	Photo Decision Request	
	BDEL	Palmprint Deletion Request	Palmprint Maintenance
	BDEC	Palmprint Decision Request	
	FIS	Direct Supplemental Fingerprint and Palmprint Enrollment	Supplemental Fingerprint & Palmprint Maintenance
	BDEL	Supplemental Fingerprint and Palmprint Deletion Request	
	BDEC	Supplemental Fingerprint and Palmprint Decision Request	
	TBD	Iris Data Deletion Request	Iris Maintenance
	TBD	Iris Decision Request	
	TBD	Rap Back Subscription Renewal Request	Rap Back Maintenance
	TBD	External System Link Maintenance Request	Link Maintenance from external
	TBD	External System Linked Record Activity Request	

Table A-3 shows the Types of Transaction (TOT) by service in relation to Table A-2. The transaction columns from each table link the two together.

*TBD - The EBTS TOT that supports a transaction will be developed in accordance with the ANSI/NIST-ITL Data Format for the Interchange of Fingerprint, Facial, and other Biometric Information.

APPENDIX B - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-1 LOGICAL RECORDS

This appendix will contain the descriptions and field specification for the Type-1 logical record included with a transaction being submitted. Each transaction is required to have a Type-1 record. Each natively-encoded field shall begin with the number of the record type, followed by a period, followed by the appropriate field number, followed by a colon. Multiple information items within a field or subfield shall be separated by the USseparator; multiple subfields shall be separated by the RSseparator; and information fields shall be separated by the GSseparator. Immediately following the last information field in the Type-1 logical record, an FSseparator character shall be used to separate it from the next logical record. The Type-2 record (defined in Appendix C) shall follow the Type-1 record. As NGI will be accepting this record as defined in the ANSI/NIST-ITL, refer to the ANSI/NIST-ITL for complete usage and descriptions of the Type-1 fields. Any information that is outlined below is an FBI-specific requirement for the Type-1 record.

The XML tag names have been added after the native naming of the mnemonic in bold/italics format.

Type-1 Data Dictionary

The T-1 Data Dictionary for this appendix only includes those fields that have been constrained by NGI/CJIS functionality. All other fields defined in the ANSI/NIST-ITL will be used as defined in that standard

TOT   **1.004**   **Type of Transaction.**   *<ebts:TransactionCategoryCode>*

This mandatory field shall contain an identifier, designating the type of transaction and subsequent processing that this logical file should be given. When using the XML encoding, the sender must designate the Type of Transaction (TOT) in the <ebts:TransactionCategoryCode> element, located within the <ebts:TransactionAugmentation> element of the Type-1 Record, to specify which process is to be followed. Additional TOT codes may be added to accommodate interagency information sharing by prior arrangement with the FBI. These will begin with the prefix "EXT:".

DOM   **1.013**   **Domain Name.**   *<ansi-nist:TransactionDomain>*

This field will be required for all new implementations of the CJIS EBTS transactions. This mandatory field identifies the domain name for the user-defined Type-2 logical record implementation. If present, the domain name may only appear once within a transaction. It shall consist of one or two information items. The first information item will uniquely identify the agency, entity, or implementation used for formatting the tagged fields in the Type-2 record. An optional second information item will contain the unique version of the particular implementation. The default value when submitting native (SMTP) version to CJIS for the field shall be the North American Domain implementation and shall appear as "1.013:NORAM{US}EBTS 9.4 {GS}". When submitting XML version to CJIS, the value for this field shall be the North American Domain implementation and shall appear as:
<ansi-nist:TransactionDomain>
  <ansi-nist:DomainVersionNumberIdentification>
    <nc:IdentificationID>EBTS 3.1</nc:IdentificationID>
  </ansi-nist:DomainVersionNumberIdentification>
  <ansi-nist:TransactionDomainName>NORAM</ansi-nist:TransactionDomainName> </ansi-nist:TransactionDomain>

APS   **1.016**   **Application Profile Specification.**

Use of this optional field indicates the transaction's conformance with one or more Application Profile Specifications that are derived from this standard, such as INT-I. There may be multiple subfields, each designating an application profile to which this transaction conforms. If multiple Application Profile Specifications are included in this field, the specifications must be compatible with each other: this transaction must be in conformance with all of the cited specifications. Each subfield shall consist of three mandatory information items:

  • The first information item (application profile organization / APO) will uniquely identify the agency or entity responsible for the specification.

  • The second information item (application profile name / APN) shall contain the name of the specification.

  • The third information item (application profile version number / APV) shall contain the specific version of the specification.

APPENDIX C - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-2 LOGICAL RECORDS

This appendix will contain the descriptions and field specifications for the Type-2 record being included with a transaction being submitted. Section 1 gives general information that will be applied to all fields listed in this appendix. Section 2 provides an alphabetic order of the fields being used in this record type giving the details of what is necessary to satisfy the requirements for the field. Section 3 contains the tables summarizing the fields in field number order.

1.0 User Defined Data

Table C-1 summarizes the content of each of the fields in the Type-2 record in the native encoding format. The field sizes do not account for any separator characters. Table C-2 summarizes the content and order for each element of the XML schema for the Type-2 record.

Some Type-2 elements have their origins as contributor-supplied data. User-defined data is that subset of contributor-supplied data that will not be stored in any CJIS files for later search or retrieval purposes. User-defined data will not be validated (with several exceptions), and therefore may in general consist of any printable 7-bit ASCII character: i.e., free text. This includes the ASCII (decimal) codes 07 (BEL) through 13 (CR) and 32 (SP) through 127 (DEL), inclusive. Separator characters are not part of the printable character set.

The following list gives those Type-2 elements that the FBI treats as being user-defined: ATN, SCO, OCA, SID, OCP, EAD, RES, CRI, IMA, CIDN, and TAA. In this list, SID, TAA, and CRI may not always be free-text. In criminal transactions, these fields must contain valid formats, as specified further in this appendix. Occasionally, other restrictions are specified as required in the data dictionary section. If the contributor supplies data in any of these fields in a submission or search, the data will be returned in the corresponding response.

The RAP, RET, REC, TAA, and ULF are examples of flag fields taking values of positive = "Y" and negative = "N." The negative value should not, in general, be submitted unless otherwise described in a specific definition. For XML encoding, these are represented as Boolean values.

New Geographic Locator fields (DATUM_ID 2.307, GEO_CORD 2.306, & GEO_TIME 2.305) have been borrowed from the DoD EBTS and added to the CJIS EBTS with the following field tags: GEO_TIME 2.2025, GEO_CORD 2.2026, and DATUM_ID 2.2027. Their use is to aid in facilitating the need for Mobile ID units to provide the location from which a set of images have been captured. The definitions have been added to the data dictionary along with Section 3.0 of this appendix and will be considered 'Future Capability' until the fields are implemented.

1.1 Date Fields

Date fields must be valid dates and in accordance with the requirements stated below. In general, the format for date fields is the following:

- A date is shown as an 8-digit numeric field of the format CCYYMMDD, where:
    - CC (Century) must be 19 or 20
    - YY (Year) must be 00 to 99
    - MM (Month) must be 01 to 12
    - DD (Day) must be 01 to the limit defined by the month and year (e.g., DD may be 29 for MM = 02 in leap years).

For example 19921201 represents December 1, 1992.

Since dates find a variety of uses in EBTS transactions, each use may have specific format restrictions or special edits. For specific format restrictions or special edits, see the individual date field entries in this appendix.

1.2 1.2 XML Encoding

In the following Section 2.0 Data Dictionary, the XML top level tag name is being included after the name of the field along with any special encoding that would be different from the native encoding format. Table C-2 summarizes the XML encoding format in hierarchical order.

Specifications for the ANSI/NIST-ITL Type-2 Record require substitution of the abstract element, <itl:DomainDefinedDescriptiveDetail> with a user-defined structure. EBTS provides the substitution element <ebts:DomainDefinedDescriptiveFields> to represent the EBTS Type-2 Record. The ANSI/NIST-ITL 1-2011 standard also provides for inclusion of user-specific data (e.g., for use in intrastate transactions) by creating the abstract type element <itl:OtherDescriptiveDetail>. Consequently, EBTS users may take advantage of the EBTS-provided substitution element <ebts:StateDefinedFields>. Individual data elements within this field must be well-formed XML and contain ASCII data values. These elements are user-definable; their size and content shall be defined by the user and be in accordance with the receiving agency. Currently, these data elements will be ignored when included in the transactions submitted to CJIS/FBI.

The XML encoding requires some deviations from the traditional native format, in both structure and content.

Structurally, elements with multiple data items that are natively represented as a single concatenated string are instead placed in separate fields. For example, an entire name would be held in a single string in AKA in the legacy format, while the XML encoding would break this into separate elements for First, Middle, and Last.

Additionally, data items that are related and/or have dependencies on one another may be represented by a nested XML structure, in order to convey this relationship. For example, the

concept of a "finger" is represented by using one of the complex elements <itl:FingerprintImageFingerMissing> or <ebts:FingerprintImageFinger>. Each element contains all the EBTS fields relating to an individual finger. See Table C-2 for further information.

In regards to content, the XML encoding has a few differences from the native format in the allowed data. Boolean or "flag" values are represented "true" and "false." Also, in keeping with the rules of XML, there are a few special characters which must be "escaped." These are:

XML Special Characters

Character	Escape Sequence
&	&
<	<
>	>
"	"
	'

Additionally, NIEM-conformant date fields are used to represent dates. The format is the following:

- A date is shown as CCYY-MM-DD, where:
    - CC (Century) must be 19 or 20
    - YY (Year) must be 00 to 99
    - MM (Month) must be 01 to 12
    - DD (Day) must be 01 to the limit defined by the month and year (e.g., DD may be 29 for MM = 02 in leap years).

For example <nc:Date>1992-12-01</nc:Date> represents December 1, 1992.

Type-2 Element Data Dictionary

The T-2 Data Dictionary for this appendix only includes those fields that have been constrained by NGI/CJIS functionality. All other fields defined in the ANSI/NIST-ITL will be used as defined in that standard.

ACN   **2.071**   **Action to be Taken**   *<ebts:TransactionActionText>*

This field is used to include text answers to submission requests to indicate that a latent case will be established or to indicate recommendations for further actions in either latent or tenprint responses. This field will also be used to indicate action taken by the FBI in response to electronic document (e.g., disposition) submissions. For the native encoding of this field, commas, hyphens, ampersands, slashes, number signs, and blanks are all allowed as special characters.

AGR   **2.023**   **Age Range**   *<nc.PersonAgeMeasure>*

This field will be used to give an estimated age range may be entered using a pair of two digit age numbers. For the native encoding of this field, the first two digits shall represent the minimum age, and the second two the maximum age. There shall be no separator character used between the ages. For the XML encoding, there will be two subfields defined for the minimum and maximum range.

AKA   **2.019**   **Aliases**   *<ebts:PersonAlternateName>*

This 3-to-50 alpha-numeric special (ANS) field contains alias names of the subject. Up to ten aliases may be provided.

For the native encoding of this field, each alias will be separated from one another by the RS character. AKA may contain a comma, hyphen, or blank as special characters. The format shall be the surname followed by a comma (,) followed by the given name(s) separated by a space. The following restrictions and exceptions to the general format apply (the first three apply only to the native encoding):

1. Minimum length is three bytes in the following sequence: alpha, comma, alpha.
2. A comma must be followed by a minimum of one alpha character.
3. A blank before or after comma is invalid.
4. A hyphen in first and last position of any name segment is invalid.
5. Two consecutive blanks or hyphens between characters are invalid.

AMP   **2.084**   **Amputated or Bandaged**   *<itl:FingerprintImageFingerMissing>*

This repeating field contains information about amputated or bandaged fingerprints in an EBTS submission. The field is composed of repeating sets of two subfields:

• Finger Position (FGP)

• Amputated Or Bandaged Code (AMPCD).

This field is to be used any time there are fewer than ten printable fingers in a tenprint submission for finger positions 1 – 10 or positions 11–15 to specify when no slap fingerprint images are provided in the finger positions (ex. Entire right hand is not printed). A partially amputated finger should be printed and be marked amputated, XX. If the finger's image is missing for any reason, (for example, when the arresting agency did not specify a reason in its submission to the State Identification Bureau) the UP code should be used. This field is used to tell AFIS which finger positions need to characterized. The UP code should only be used when the entire image is not provided for fingerprints in the submission. This code will indicate that AFIS should ignore this image and not include the image in the matching process.

For the native encoding, the two-character finger position code is followed by the US separator and the amputated or bandaged code. Each set of fingers/amp codes shall be separated by the RS separator.

The following example indicates that the third finger is amputated and that the ninth finger print was unavailable or not submitted.

2.084:03USXXRS09USUPGS

AMP Codes Table

Finger Position	FGP
Right thumb	1
Right index	2
Right middle	3
Right ring	4
Right little	5
Left thumb	6
Left index	7
Left middle	8
Left ring	9
Left little	10
Plain right thumb	11
Plain left thumb	12
Plain right four fingers	13
Plain left four fingers	14
Plain left and right thumbs	15

Note: When codes 13 – 15 are included, the entire block is missing

Descriptor	AMPCD
Amputation	XX
Unable to print (e.g., bandaged)	UP

ASL   2.047   **Arrest Segment Literal**   *<ebts:ArrestOffenseData>*

This field is made up of the following subfields:
- Date of Offense (DOO)
- Arrest Offense Literal (AOL).

The AOL is a free text description of an offense charged on an arrest. The first character of the AOL text must not be blank. Each AOL should have a corresponding DOO. The DOO shall appear as an eight-digit number as specified in Section 1.1 of this appendix. The DOO shall not exceed the current date except when the submission originates from an international contributor located in a time zone earlier than the Eastern Time Zone. This date field shall contain the local date for the region submitting the request. CJIS has edit checks in place to allow for the acceptance of the local date as valid up to 24 hours in advance to accommodate the variance between international time zones. Up to 40 occurrences of the ASL are allowed. For the native encoding format, each occurrence of the ASL shall be separated by the <RS> separator character. The DOO shall be separated from the AOL by the <US> separator character. A DOO is prohibited without a corresponding AOL offense. If a DOO is not present, a <US> character separator shall still be used.

The following native coding example indicates more than one occurrence of the AOL field using DOO:

2.047:19940915<US>DUI<RS>19940920<US>POSSESSION OF FIREARMS<GS>

ATN   2.006   **"Attention" Indicator**   *<nc:CaveatText>*

This alphanumeric-special field shall contain a designation of the individual to whose attention a response is to be directed. Periods shall not be used (e.g., Det. J. Q. Public shall be entered as DET J Q PUBLIC). The value of ATN returned to the submitter is the value submitted.

ATR   2.2032   **Audit Trail Record**   *<ebts:AuditTrailRecord>*

This repeating record contains the information associated with the dissemination of the owner's images. The following are the subfields included for each requested image:
   1) ORI of the originator that received the image,
   2) Date the images were disseminated,
   3) TOT used to acquire the image set,
   4) BSI of the image,
   5) IMT of the image,
   6) FNR of the image (supports fingerprint and palmprint position codes),
   7) PPD of the supplemental image when FNR equals supplemental (19).

The FNR and PPD subfields are present in ATR to identify the image within the biometric set that was disseminated when the entire set was not returned.

BIA   2.2031   **Biometric Image Available** *<ebts:BiometricImageAvailableCode>*

This field will indicate the existence of available biometric images (fingerprint, palmprint, supplemental print, facial photo, and SMT photo) for an Identity in the NGI AFIS/FBI repository.
Allowable BIA values are shown in the table (click title). The following abbreviations are used in the table for each image type: FP – Fingerprint, PP – Palmprint, SP – Supplemental Print, PHF – Photo Facial, and PSMT – Photo Scar, Mark, & Tattoo.

Type-2 Element Data Dictionary

BIA Values Table

The following abbreviations are used in the table for each image type: FP – Fingerprint, PP – Palmprint, SP – Supplemental Print, PHF – Photo Facial, and PSMT – Photo Scar, Mark, & Tattoo.

Biometric Image(s) Available	Value
None and/or Unsolved	0
FP	1
PP	2
FP, PP	3
SP	4
FP, SP	5
PP, SP	6
FP, PP, SP	7
PHF	8
FP, PHF	9
PP, PHF	10
FP, PP, PHF	11
SP, PHF	12
FP, SP, PHF	13
PP, SP, PHF	14
FP, PP, SP, PHF	15
PSMT	16
FP, PSMT	17
PP, PSMT	18
FP, PP, PSMT	19
SP, PSMT	20
FP, SP, PSMT	21
PP, SP, PSMT	22
FP, PP, SP, PSMT	23
PHF, PSMT	24
FP, PHF, PSMT	25
PP, PHF, PSMT	26
FP, PP, PHF, PSMT	27
SP, PHF, PSMT	28
FP, SP, PHF, PSMT	29
PP, SP, PHF, PSMT	30
FP, PP, SP, PHF, PSMT	31

Type-2 Element Data Dictionary

BID	2.2028	**Biometric Image Description**	*<ebts:BiometricImageDescription>*

This repeating set contains information about biometric images the user requests in the submission. Each repeating set consists of the following subfields:

1. UCN of the identity or latent record,
2. IMT image type of the image to be retrieved,
3. BSI of the biometric set to be retrieved,
4. FNR is the fingerprint or palmprint position code of the image to be retrieved,
5. PPD of the supplemental image to be retrieved when FNR equals supplemental (19).

BIE	2.2061	**Biometric Image Enrollment**	*<ebts:BiometricImageEnrollmentRecord>*

This repeating record contains enrollment information for the biometric types included in the request. There is a record for each enrolled friction ridge biometric set as well as a record for each photo image. The following are the subfields included for each enrollment:

1) BSI of the image,
2) IMT of the image,
3) POS of the subject for facial photo,
4) SMT NCIC code for image.

The POS is optionally populated when the image is a facial photo, and SMT is optionally populated when the image is a scar, mark, or tattoo.

BSI	2.2029	**Biometric Set Identifier**	*<ebts:BiometricSetID>*

This numeric field will uniquely identify a fingerprint set, palmprint set, or a supplemental print set as described in Appendix P.

CAN	2.064	**Candidate List**	*<ebts:TransactionCandidateList>*

This grouped field shall contain a candidate list. It is composed of two subfields:

• Universal Control Number (UCN)
• Name (NAM)

For native encoding, each field will be separated by a <US> separator and will be provided for each candidate in the list. Commas, hyphens, and blanks are allowed in the NAM subfield as specified in the NCIC Code Manual. Each UCN and NAM set shall be separated from the next by the <RS> separator character. For XML encoding, a new element has been added for coordinating the images with candidates in this list via the ICD in each image record included.
Note: The UCN can contain an FBI number (FNU) if appropriate for that record.

Type-2 Element Data Dictionary

CCN   _2.094_   **Court Case Number**   _<j:CourtEventSequenceID>_

This is a unique number assigned by the state or federal court system to identify a specific court event occurrence in a subject identity history record. The CCN is an optional element that may assist in matching the submitted disposition data to the correct court cycle. If present in the submission, this field should be returned in the response. Any printable 7-bit ASCII character with the exception of a period (.) is acceptable. Embedded blanks are not permitted. A CCN must not begin with a blank.

CIDN   _2.2022_   **Contributor Assigned Identification Number.**   _<ebts:ContributorAssignedIdentificationNumber>_

This field is the unique number assigned to a single biographic search by the contributor. This field shall contain ten bytes of alphanumeric data. This is a field in a Type-2 biographic search request (EQHR).

CIN   _2.010_   **Contributor Case Identifier Number**   _<ebts:ContributorCaseIdentificationNumber>_

This grouped free-text field is a 48 byte (maximum) alphanumeric-special assigned by the contributor to uniquely identify a latent case. It consists of:
   • a literal subfield Contributor Case Prefix (CIN_PRE) of up to 24 characters (e.g., "Incident #," "Laboratory Number," "Investigation No.")
   • the Contributor Case Identifier subfield (CIN_ID) of up to 24 characters.

CIX   _2.011_   **Contributor Case Identifier Extension**   _<ebts:ContributorCaseExtensionIdentification>_

This field is a two byte to four-byte numeric supplement to the Case Identifier Number that allows multiple searches to be associated with the same case. The CIX shall be used only in conjunction with the CIN.

CNL	2.2033	Candidate Investigative List	*<ebts:TransactionCandidateList>*

This field is added to the Investigative search response TOTs, providing a candidate list that supports a multi-biometric type and multi-event repository. The legacy CAN field in the SRL is still supported as well for Fingerprint only candidate list. The CNL record set contains ranked list(s) of candidates returned from an investigative search. It is possible for the CNL to contain multiple ranked lists concatenated together due to multiple biometric type repositories being searched, based on request. For friction ridge, NGI supports three biometric type repositories for a latent investigative search: fingerprint, upper-palm, and lower-palm. Therefore, an SRL can contain one, two, or a maximum of three ranked lists where the number of candidates in CNL is determined by NCR. When multiple biometric type repositories are searched, a maximum of NIR images are returned for each repository. Therefore, the max number of images for an SRL is 3 x NIR. The number of candidates returned in a CNL list is based on the NCR from the request. Therefore, the max number of candidates for an SRL is 3 x NCR. A candidate is defined as a unique event characterized by UCN/BSI/FGP. Based on match score, there may be multiple instances of the same UCN and FGP within a candidate list, but only the highest scoring UCN/BSI/FGP will return with an image, limited by NIR value from request. Other, lower scoring BSIs for a given UCN-FGP combination that appear within the NCR length list will not include images and may not be grouped by UCN (CNL is ordered by match score per ranked list). Also, depending on the number of unique UCN and FGP candidates (up to NCR), it is possible that the NIR in request will not be met; i.e. less than NIR images may be returned per candidate list biometric type. The CNL field supports a repeating set of the following subfields:

1. UCN of the candidate (FRIF or ULF member),
2. NAM indicates the name of the subject,
3. BSI of the candidate image,
4. IMT of the candidate image,
5. FGP of finger or palm,
6. PPD of the supplemental image when FGP equals supplemental (19),
7. MSC indicates the match score of the candidate,
8. BIA indicates the available biometric image types for the candidate,
9. NDR is populated with searched NDR value(s) the candidate is a member of,
10. IDC is the Image Designation Character,
11. NOT provides owning ORI information when no image is available for candidate.

CRI	2.073	Controlling Agency Identifier	*<ebts:RecordControllingAgency>*

In Criminal and Civil transactions, the first instance of this field shall contain the originating agency identifier (ORI) of the organization controlling the transaction when that organization is different than the one submitting the transaction (e.g., the CJIS Systems Agency, or CSA). When the controlling agency has the same ORI as the CSA, both the ORI and CRI fields shall be submitted with the same identifier. In criminal transactions, the CRI will usually refer to the booking station that has submitted the subject's fingerprint card or photo to be transmitted through the CSA to the FBI. For Civil submissions, this field may be user-defined in accordance with predefined parameters and must be validated through the field specification edits and the format of an NCIC-authorized ORI. The FBI uses the first instance of CRI in any transaction that would modify criminal records as the authority to do so. When a Civil transaction is an identification to a criminal subject and the first instance of the submitted CRI is not an authorized ORI, the ORI of the State Identification Bureau that submitted the transaction will be used in its stead. The second and third instances of CRI, when sent, are treated as user-defined fields. (See also Appendix B for definitions of ORI and DAI.) The CRI returned is otherwise the same as was submitted unless the submitting agency has used a deleted or retired CRI, in which case its replacement will be used. For EBTS purposes, this field shall be a nine-byte alphanumeric field. The first two characters shall be a valid alpha-character POB code, which represents the state or country in which the agency is located, and the entire CRI shall validate to an NCIC-authorized ORI. For federal agencies, the first two characters should coincide with its respective headquarters or office ORI. If an agency is submitting for an entity outside of its respective state, the channeling agency need only ensure that submitted CRIs represent valid ORIs that have been added to the CJIS Computerized Contributor Address file.

For the UHN TOT, the CRI contains the ORI of the search transaction for which a hit generates the unsolicited notification.

CRN	2.085	Civil Record Number	*<ebts:CivilRecordIdentification>*

A unique identifier assigned to each Civil Subject Record.

CSF	2.2006	Cascaded Search Flag	*<ebts:RecordCascadedSearchCode>*

This two-digit alpha field is used to flag a Special Population Cognizant (SPC) File record of interest that is to be subjected to cascaded searches from the Criminal File (CR), the Civil File (CI), or Both (BO). In the event a cascaded search record hits a flagged record, a separate response will be sent to the owner (ORI) of the SPC File for candidate image comparison.

      CSL   **2.051**   **Court Segment Literal**   *<ebts:CourtDispositionData>*

The CSL field is made up of the following subfields

    • The Court Disposition Date (CDD) is the date a court count was disposed of by the court. The CDD shall appear as an eight-digit number as specified in Section 1.1 of this appendix. The CDD shall not exceed the current date except when the submission originates from an international contributor located in a time zone earlier than the Eastern Time Zone. This date field shall contain the local date for the region submitting the request. Edit checks will accept the local date as valid up to 24 hours forward to accommodate the variance between international time zones.

    • The Court Offense Literal (COL) contains free text description of an offense charged in a court count. The first character of the COL must not be a blank.

    • The Other Court Sentence Provision Literal (CPL) contains free-text information on sentence provisions.

Up to 40 occurrences of the CSL are allowed. Each occurrence in the native encoding of the CSL shall be separated by the <RS> separator character. A CDD (if available), followed by a COL, followed by a CPL, each separated by a <US> separator character must be present for each occurrence of the CSL field. If the CDD is not available, a <US> separator character alone shall be used immediately after the field tag or preceding <RS> separator character. COL is mandatory while the CDD and CPL are optional. When a provision (CPL) is included, then the date the provision was made (CDD) may optionally be given.

When submitting a custody tenprint, use this field for custody information. In the event that there is no arrest information available when submitting a custody tenprint, the COL and CDD must be copied to the corresponding AOL and DOO fields of the Arrest Segment Literal (ASL), which is mandatory in all criminal tenprint submissions.

The following is a native encoding example of the CSL with multiple occurrences:

2.051:19940930<US>DUI<US>5 DAYS JAIL, PAY COURT COSTS<RS>19940930<US>POSSESSION OF FIREARMS<US>10 DAYS JAIL, PAY COURT COSTS, $50<GS>

The following is a native encoding example of the CSL when the first of two CDDs are not available:

      CSR   **2.048**   **Civil Search Requested Ind** *<ebts:TransactionCivilSearchRequestIndicator>*

This field shall contain a "Y" if a search of the Civil File is desired at the completion of the Criminal File search. For XML encoding, this field is represented as a Boolean value.

      CST   **2.061**   **Case Title**   *<nc:CaseTitleText>*

This field identifies the Latent Case. It will include information concerning the case, and it must include the offense type.

Type-2 Element Data Dictionary

CTZ   2.021   **Country of Citizenship**   *<ebts:PersonCitizenshipCode>*

This field contains two-letter abbreviation for the name of the country of which the subject is a citizen. Entry must be a valid country code from the NCIC State and Country Data Code Table found in Appendix O.

DATUM_ID   2.2027   **Geographic Coordinate Datum**   *<ebts:GeographicCoordinateDatumCode>*

This field contains an identifier for the datum used to express the coordinates provided in GEO_CORD. If this field is absent with the GEO_CORD present, then the default datum is WGS-84 / NAD-83.

DATUM ID Code Values Table

Datum ID	Description
AIRY	Airy
AUST	Australian
BES	Bessel 1841
BESN	Bessel 1841 (Nambia)
CLK66	Clarke 1866
CLK80	Clarke 1880
EVER	Everest
FIS60	Fischer 1960 (Mercury)
FIS68	Fischer 1968
GRS67	GRS 1967
GRS80	GRS 1980
HELM	Helmert 1906
HOUG	Hough
INT	International
KRAS	Krassovsky
AIRYM	Modified Airy
EVERM	Modified Everest
FIS60M	Modified Fischer 1960
SA69	South American 1969
WGS60	WGS-60
WGS66	WGS-66
WGS72	WGS-72
WGS84	WGS-84/NAD-83

DMI   2.2013   **Disposition Maintenance In** *<ebts:TransactionDispositionMaintenanceCode>*

An indicator set by the CJIS user that depicts a set of values that specify the type of maintenance that CJIS should perform on an identity history record when disposition data requests are received.

Type-2 Element Data Dictionary

DMI Code Values Table

EXTERNAL CODE	FLAG	LITERAL	DESCRIPTION
Blank	NULL	Blank	Default to add disposition data (A) from incoming request to a specified DOA.
A	ADD	Add	Add disposition data from incoming request to a specified DOA.
D	APP	Append	Append disposition data from an incoming request to existing disposition data on a specified DOA.
R	RPL	Replace	Replace existing disposition data for a specified DOA with disposition date from incoming request.
X	DEL	Delete	Delete existing disposition data for specified DOA.

DNAC   **2.2018**   **DNA in CODIS Flag**   *<ebts:BinaryCODISAvailableIndicator>*

This is a one-byte field that will indicate whether the DNA available is located in the CODIS database for the subject identified on the CAR, CNA, and CPNU TOTs. The permissible values are 'Y' or 'N'. For XML encoding, this field is represented as a Boolean value.

DNAF   **2.2016**   **DNA Flag**   *<ebts:PersonDNAAvailableIndicator>*

This is a one-byte field that will indicate whether DNA is available for the subject identified on the CAR, CNA, and CPNU TOTs. The permissible values are 'Y' or 'N'. For XML encoding, this field is represented as a Boolean value.

Type-2 Element Data Dictionary

DOA   2.045   **Date of Arrest**   *<ebts:ArrestDate>*

This field contains the date of arrest. The date shall appear as an eight digit number in the same format as specified in Section 1.1 of this appendix. DOA shall not exceed date of submission except when the submission originates from an international contributor located in a time zone earlier than the Eastern Time Zone. This date field shall contain the local date for the region submitting the request. Edit checks will accept the local date as valid up to 24 hours forward to accommodate the variance between international time zones.

DOB   2.022   **Date of Birth**   *<nc:PersonBirthDate>*

This field contains the date of birth. It is entered as an eight digit number in the same format as specified in Section 1.1 of this appendix. If DOB is completely unknown, for the native encoding enter as 00000000, and for the XML encoding, use the representation of a null parent element (<nc:PersonBirthDate/>). Partial DOBs are not allowed. DOB shall not exceed date of submission after time zone adjustment. When a submission contains an unknown DOB and is a non-identified retained, that submission will be rejected, as IAFIS will not allow a master record to be created with an unknown DOB.

DORI   2.2017   **DNA Location**   *<nc:BiometricRepositoryOrganization>*

This is an alpha-numeric field that will contain the ORI of the contributor which has the DNA available for the subject identified on the CAR, CNA, and CPNU TOTs. The field will be required when the DNAF = 'Y'.

DOS   2.046   **Date of Arrest – Suffix**   *<ebts:ArrestDateSuffixCode>*

This field contains a code representing the sequence of the subject's arrests within a given date. The code also indicates the type of fingerprint card on which the Date of Arrest was contained. This field is for internal use within the FBI only.

DPR   2.038   **Date Printed**   *<nc:BiometricCaptureDate>*

This field contains the date that the subject was fingerprinted. The format shall be the same as that specified in Section 1.1 of this appendix. DPR shall not exceed date of submission except when the submission originates from an international contributor located in a time zone earlier than the Eastern Time Zone. This date field shall contain the local date for the region submitting the request. Edit checks will accept the local date as valid up to 24 hours forward to accommodate the variance between international time zones.

Type-2 Element Data Dictionary

EAD   2.039   **Employer and Address**   *<nc:Employer> and <nc:EmploymentLocation>*

The name and address of the subject's primary employer may be entered into this free-text field. The EAD returned in a response is the same as the one submitted. For the native encoding, this field is a free form text field. For the XML encoding, it consists of different fields; one for the Employer and one for the Employer's address.

EID   2.049   **Employee Identification Nu** *<ansi-nist:TransactionUserIdentification>*

This field contains the employee identification number (e.g., user ID) for federal agency employees granted privileges relating to Special Population Cognizant (SPC) File searching or maintenance. Maintenance privileges include adding records, updating records, deleting records, or appending additional sets of fingerprint images to an existing SPC record.

ERS   2.075   **Electronic Rap Sheet**   *<ebts:TransactionElectronicRapSheetText>*

This field shall contain the electronic identity history. The electronic identity history is an electronic copy of the Identification Record Report (IDRR) or the Non-Identification Response (NIDR) as are done today. The electronic identity history shall consist of lines with a maximum of 74 characters per line (text of 72 plus two line control characters). The RPISR transaction will populate this field with the NGI Identity History Summary (IHS). Other transactions will migrate to using the IHS in the future. The IHS shall also consist of lines with a maximum of 74 characters per line (text of 72 plus two line control characters). For a TPRR transaction that contains multiple candidates, the identity history for each candidate will be concatenated into this field.

ETC   2.069   **Estimated Time to Complete**   *<ebts:TransactionEstimatedCompletionMinutesQuantity>*

The estimated time to complete a search or multiple searches for a Latent Search Status and Modification Query may be entered into this field. This one-to-four-byte field will contain the estimated search completion time in minutes up to five days. As this field will no longer be supported, this field will be retired in the next version.

EVI   2.2035   **Event Identifier**   *<ebts:EnrollmentEventID>*

This numeric field will be used to identify a specific enrollment event during FIS processing. An EVI may have multiple BSI sets associated with a specific event.

EXP   **2.080**   **Response Explanation**   *<ansi-nist:TransactionReasonText>*

This field is free-form text to elaborate on the Response Code field.

EYE   **2.031**   **Color Eyes**   *<nc:PersonEyeColorCode>*

For this field, the three letter code from the following table is used to indicate the subject's color of eyes.

EYE Code Table

Eye Color	Code
Black	BLK
Blue	BLU
Brown	BRO
Gray	GRY
Green	GRN
Hazel	HAZ
Maroon	MAR
Multicolored	MUL
Pink	PNK
Unknown	XXX

FBI   **2.014**   **FBI Number (UCN)**   *<j:PersonFBIIdentification>*

This field contains the subject's FBI number if known. A valid FBI number shall be no more than nine alphanumeric characters. The FBI number returned in a response is dependent upon the search results. As NGI updates and adds functionality, this field will be used to identify the specific Identity contained in the NGI database. This Universal Control Number (UCN) will be used to identify records in the criminal, civil, and other new repositories along with the Unsolved Latent File (ULF). The Segment Control Number (SCNA) used in IAFIS for ULF records and will be provided in this field where designated in the message definition.

FFN   **2.003**   **FBI File Number**   *<ebts:FBIFileNumber>*

This is a 10 byte numeric representing the FBI Investigative File Number. This is not the FBI Number specified by the mnemonic "FBI." Since it is used for FBI Latent Print Unit record-keeping purposes, it is imperative that the user transmit this number if it is known.

| **FGP** | **2.074** | **Finger Position** | *<ansi-nist:FrictionRidgePositionCode> OR <ansi-nist:FingerPositionCode>* |

This field is used for latent searches and contains the fingerprint/supplemental/palmprint position(s) code of the latent print(s) submitted for searching.

If more than one finger is submitted with native encoding, then the codes will be separated by the <RS> character separator. For latent searches, if multiple fingerprint images are included in one search, finger position is mandatory for all images. If finger position is unknown, the search may contain only a single image, and the field FGP will be omitted or may contain multiple guesses at the correct finger position in the FGP field. In this case, the PAT field must contain "00" in its Finger Number subfield to indicate that the actual position is unknown (see also PAT entry, including example of XML usage for multiple finger guesses).

| **FIU** | **2.072** | **Fingerprint Image(s) Updated** | *<ebts:TransactionFingerprintImagesUpdated>* |

This alphanumeric field contains the finger positions that were updated in the FBI's Fingerprint Image Master File as a result of an electronic request to update fingerprint images. The finger numbers for which image information is requested are selected from Table, "Finger Position Code," in the ANSI NIST ITL. Up to 13 individual finger numbers may be listed. For native encoding, each finger number will be separated from one another by the <US> separator. If images of all 14 fingers were updated, the single character "A" is shown instead of individual finger numbers. If no images were updated, an "N" will be returned. For XML encoding, '0' will be used to specify all fingers were updated while '255' will be used for no images updated.

| **FNR** | **2.057** | **Finger Number(s) Requested** | *<ebts:TransactionFingerprintImagesRequested>* |

This numeric field is used in transactions involving a request for fingerprint image information. The finger numbers for which image information is requested are selected from Table, "Finger Position Code," in the ANSI/NIST ITL. Up to 13 individual finger image numbers may be listed. For native encoding, finger numbers shall be separated from one another by the <RS> separator. If all 14 tenprint images are desired, 00 is shown instead of individual finger numbers. For transactions that allow only the ten rolled fingerprint images, when all ten images are desired, list each one separately. For native encoding, the finger codes being requested shall appear as 01<RS> 02<RS> ... <RS>10<GS>. This field may include the supplemental position code of 19, along with the palm position codes outlined in Table P-2.

| FPC | 2.033 | NCIC Fingerprint Classification | | *<ebts:NCICFingerprintClassificationCode>* |

If available, the NCIC fingerprint classification will be returned in the FBI's responses to latent submissions.
The native encoding of NCIC FPC is composed of 20 characters. In the positions representing each finger (see FPC Table for values) patterns may be placed (see FPC Table for values).
The NCIC FPC for a set of fingerprints made up of all ulnar loops in native encoding might read:
2.033:12101116141109111713GS

A combination of loops and whorls with an amputated right index finger in native encoding might read:
2.033:12XX11CO14115906Cl13GS

For XML encoding, only the two-character NCIC FPC Code value is necessary.
Refer to the NCIC Code Manual, 4-28, for the FPC Field for Unidentified Persons.

<div align="center">

FPC Values Table

Positions	Finger
1 and 2	Right thumb
3 and 4	Right index
5 and 6	Right middle
7 and 8	Right ring
9 and 10	Right little
11 and 12	Left thumb
13 and 14	Left index
15 and 16	Left middle
17 and 18	Left ring
19 and 20	Left little

</div>

Type-2 Element Data Dictionary

Pattern Type	Pattern Subgroup	NCIC FPC Code
Arch	Plain Arch	AA
	Tented Arch	TT
Loop	Radial Loop	Two numeric characters. Determine actual ridge count and add fifty (50). For example, if the ridge count of a radial loop is 16, add 50 to 16 for a sum of 66. Enter this sum (66) in the appropriate finger position of the FPC field.
Loop	Ulnar Loop	Two numeric characters indicating actual ridge count (less than 50). For example, a ridge count of 14, enter as 14; a ridge count of 9, enter as 09.
Whorl*	Plain Whorl	
	Inner	PI
	Meeting	PM
	Outer	PO
	Central Pocket Loop Whorl	
	Inner	CI
	Meeting	CM
	Outer	CO
	Double Loop Whorl	
	Inner	
	Meeting	DI
	Outer	DM
		DO
	Accidental Whorl	
	Inner	XI
	Meeting	XM
	Outer	XO
	Missing/Amputated Finger**	XX
	Scarred/Mutilated Pattern***	SR
	Approximate Fingerprint Class****	AC
	Unclassifiable****	UC

* Prior to adoption of the above method for coding whorl patterns, this pattern was divided into inner, meeting, and outer subgroups only with codes II, MM, and OO, respectively. Some older records in the file may show the codes II, MM, and OO.

** Code XX is used in instances of missing and totally/partly amputated fingers where conditions make it impossible to accurately classify an impression according to the above instructions for NCIC FPC. It is recognized that under the Henry System, if a finger is missing or amputated, it is given a classification identical to the opposite finger; however, this must not be done in the NCIC FPC because the location of finger or fingers missing/amputated is not indicated.

*** Code SR is used in instances in which the fingerprint cannot be accurately classified because of complete scarring or mutilation and a classifiable print cannot be obtained. As in the case of missing and amputated fingers, the procedure for assigning the classification of the opposite finger, as is done under the Henry System, should not be used for the NCIC FPC.

**** Codes UC and AC still exist for some legacy records in the Identity History file.

GEO	2.044	Geographic Area of Search	*<ebts:TransactionSearchAreaCode>*

This field indicates the geographic area to be searched. The appropriate two letter state abbreviation shall be used as listed in Part IV of the NCIC State and Country Data Code Table. Each GEO entry shall be separated from the next by the <RS> separator character. Up to five state selections can be made within the GEO field. If inclusion of all 50 states is desired, this field shall remain blank. When designating a specific state within the GEO field, the IAFIS database search scope is limited to images previously submitted by the specified state (i.e., individuals previously arrested within that state). The GEO selection allows users to further narrow file penetration and may result in candidates being returned which would ordinarily be dropped due to low scores (e.g., such as when a state is not chosen). Users are always encouraged to perform a second search of all 50 states if a state designated search is not successful.

GEO_CORD	2.2026	Geographic Coordinate Locator	*<ebts:RecordBiometricCaptureGeoLocation>*

This field will be used to associate the location where the biometric record was captured. This field contains the longitude and latitude at which the submission was collected. It consists of Latitude Degree, Latitude Minute, Latitude Second, Longitude Degree, Longitude Minute, and Longitude Second. Both Latitude Degree and Longitude Degree are mandatory if this field is present. Decimal values are allowed in each information item. If a decimal value is used in a particular information item, the more granular information item shall be empty (e.g., if Longitude Minutes equals 45.67, Longitude Seconds shall be empty). The data in the Latitude Degree subfield is in degrees in the range of +90 to -90. The data in the Longitude Degree subfield is in the range of +180 to -180. The hyphen representing a negative value is required; the plus sign for positive values may be omitted. The data in the Latitude Minute, Latitude Second, Longitude Minute, and Longitude Second subfields are in the range of 0 – 60. Geographic Coordinate Latitude Degree and Coordinate Longitude Degree subfields are mandatory. For the native encoding, if any other subfield is not available, a <US> separator character alone shall be used immediately after the preceding <US> separator character.

GEO CORD Value Table

Identifier	Subfield Name	Type	Min Size	Max Size	Special Characters
LATD	Latitude Degree	NS	1	9	Period, Plus, Hyphen
LATM	Latitude Minute	NS	1	8	Period
LATS	Latitude Second	NS	1	8	Period
LOND	Latitude Degree	NS	1	10	Period, Plus, Hyphen
LONM	Latitude Minute	NS	1	8	Period
LONS	Latitude Second	NS	1	8	Period

Type-2 Element Data Dictionary

GEO_TIME	2.2025	Geographic Coordinate Date Time Stamp	*<ansi-nist:TransactionUTCDate>*

The Geographic Coordinate Date Time Stamp field provides a mechanism for expressing the date and time in terms of universal Greenwich Mean Time (GMT) units for time of biometric capture. This field will be associated with the Geographic Coordinate Latitude/Longitude (GEO_CORD) and Geographic Coordinate Datum (DATUM_ID). Use of the GMT field eliminates local time inconsistencies encountered when a transaction and its response are transmitted between two places separated by several time zones. The GMT provides a universal date and 24-hour clock time independent of time zones. In the native encoding, it is represented as "CCYYMMDDHHMMSSZ," a 15-character string that concludes with a "Z." For the XML encoding, it is represented as "CCYY-MM-DDTHH:MM:SSZ," a 20-character string with a literal "T" separating the date from the time. The "CCYY" characters shall represent the year of the transaction, the "MM" characters shall be the tens and units values of the month, and the "DD" characters shall be the day of the month; the "HH" characters represent the hour, the "MM" the minute, and the "SS" represents the seconds. The complete date shall not exceed the current date.

HAI	2.032	Hair Color	*<ebts:PersonHairColorCode>*

In this field, the three letter code is used to indicate the subject's color of hair.

Hair Color Code Table

Hair Color	Code
Bald	BAL
Black	BLK
Blond or Strawberry	BLN
Blue	BLU
Brown	BRO
Gray or Partially Gray	GRY
Green	GRN
Orange	ONG
Pink	PNK
Purple	PLE
Red or Auburn	RED
Sandy	SDY
Unknown	XXX
White	WHI

HGT	2.027	Height	*<nc:PersonHeightMeasure>* *<nc:MeasurePointValue> and* *<nc:MeasureUnitText>*

This field contains the subject's height as a three character value. If reported in feet and inches, the first (leftmost) digit is used to show feet while the two rightmost digits are used to show the inches between 00 and 11. In the XML encoding, measurement units of 'FeetInches' or 'Inches' are entered in the nc:MeasureUnitText field. In the native encoding, if reported in inches, then the leftmost character is "N" followed by two digits. If height is unknown, 000 is entered. The allowable range is 400 to 711 or N48 to N95. Heights outside this range will be clamped at these limits.

HTI   2.2024   **Hit Type Indicator**   *<ebts:TransactionHitCategoryCode>*

This field will contain a code for the type of hit that generated an unsolicited notification. In the future, a fixed list of values will be created to populate this field. This field will initially be used for the UHN TOT for RISC Notifications. The value will be "RISC" for this initial use.

HTR   2.028   **Height Range**   *<nc:PersonHeightMeasure>*
<nc:MeasureRangeValue> and
<nc:MeasureUnitText>

This field will be used to give an estimated height range to be expressed as two three-character values formatted as described for mnemonic HGT, indicating the shortest and tallest heights of the subject. For the native encoding of this field, the first three characters shall represent the minimum height and the second three the maximum height. There shall be no separator character used between the heights. The allowable range is 400 to 711 or N48 to N95. Heights outside this range will be clamped at these limits.

ICO   2.056   **Identification Comments**   *<j:SubjectOffenderNoticeText>*

Additional miscellaneous identification remarks providing the reason for caution may be entered in this free-text field. The first character may not be a blank.

IDC   2.002   **Image Designation Character**   *<ansi-nist:ImageReferenceIdentification>*

This **mandatory** field shall be used to identify the user-defined text information contained in this record. The IDC contained in this field shall be the IDC of the Type-2 logical record as found in the file content field of the Type-1 record.

Type-2 Element Data Dictionary

IFS	**2.2021**	**Identification Firearms Sales**	*<j:PersonFirearmSalesDisqualifiedCode>*

This field will be a required element for the DSPE TOT indicating a prohibitor that may prevent the subject from the purchase of a firearm.

Identification Firearms Sales Code Values Table

Code	Description
D	Disqualification for Firearms Sales
X	Court Disposition Pending/Conviction Status Unknown
C	No Disqualification for Firearms Sales

IIR	**2.2012**	**Iris Images Requested**	*<ebts:RecordIrisImagesRequestedCode>*

This optional field shall be used to request iris images in an Image Request (IRQ) transaction. The values of this one-byte numeric field will be either 0 (both eyes), 1 (left eye), or 2 (right eye). If not present in the transaction, no iris images will be returned.

IMA	**2.067**	**Image Capture Equipment**	*<ebts:RecordImageCaptureDetail>*

This free-text field is used to log the make, model, and serial number of the equipment used to acquire images. It is composed of three subfields:
- Make (MAK)
- Model (MODL)
- Serial Number (SERNO) of the acquisition device

For native encoding, these subfields shall be separated by the <US> separator character.

Type-2 Element Data Dictionary

IMT   **2.062**   **Image Type**   *<ebts: RecordBiometricImageCategoryCode>*

This field identifies the type of image (e.g., palmprints, toe prints) included in an electronic submission and response. The values 6, 7, and 8 are used along with mapping the value of 2 to the new value of 6 and the values 4 & 5 will be mapped to the new value of 7. In the future, NGI will include the values of 9 – 11. The values 12 & 13 will be considered for Future Development efforts. The IMT Table values are to be used to identify which image is being referenced in the submission or response.

Image Type Code Table

Image Type	Value
Fingerprint (event)	1
Lower Joint	2
Palmprint	3
Toe Print	4
Foot Print	5
Supplemental Print	6
Latent Friction Ridge	7
Composite Fingerprint	8
Photo Facial	9
Photo Scar, Mark, & Tattoo	10
Iris	11
Fingerprints on Front of Palm Card	12
Fingerprints on Back of Palm Card	13

ITD   **2.058**   **Image Record Type Desired**   *<ebts:RecordImageRecordCategoryRequestCode>*

This field is used in transactions involving a request for a fingerprint image. It shall contain a single numeric indication of the type of record being returned. For example, if the requestor wishes the Type-4 record of the image, then this field should contain a '4'. As this field will no longer be used with the implementation of NGI, this field will be retired in the next version.

LCN   **2.012**   **FBI Latent Case Number**   *<ebts:FBILatentCaseNumber>*

This field is an 11 byte alphanumeric/special assigned by the FBI LPS. As this field is for FBI LPS internal use only, this response field will be used for record-keeping purposes only.

Type-2 Element Data Dictionary

LCX   *2.013*   **Latent Case Number Extension**   *<ebts:FBILatentCaseNumberExtension>*

Defines extensions assigned by the FBI for each submission related to a Latent Case Number. The LCX shall be a five-digit extension starting with "00000" for the first submission and incrementing by one for each subsequent submission. The LCX shall be used only in conjunction with LCN. As this field is for FBI LPS internal use only, this response field will be used for record-keeping purposes only.

LEN   *2.001*   **Logical Record Length**

This field contains the length of the logical record specifying the total number of bytes, including every character of every field contained in the record. The number of characters added to the record by the LEN field itself shall be included in calculating the value of LEN.

MIL   *2.042*   *Military Code*   *<ansi-nist:TransactionSubmissionMilitaryCode>*

A one letter code from the Military Code Table shall be entered in this field to indicate which branch of the United States Military submitted the enlistment transaction.

Military Code Table

Military Branch	Code
Army	A
Air Force	F
Navy	N
Marines	M
Coast Guard	G

Type-2 Element Data Dictionary

MNU **2.017** **Miscellaneous Identification Number** *<nc:PersonOtherIdentification>*

The subject's miscellaneous identification numbers shall be entered in this field.

For native encoding, the format of the data shall be a two letter identifying code, followed by a hyphen ( ), followed by the number itself. The size of the MNU is limited to 15 characters and as many as four miscellaneous numbers may be included in this field. Each MNU shall be separated from the next by the <RS> separator character.

For XML encoding, the data is formatted into two separate fields; one for the code from the table below and another for the number itself.

The MNU Code table lists the acceptable two letter identifying codes. If "AF" or "AS" is entered, all characters following the hyphen must be numeric. Interspersed blanks are invalid. Types of numbers not listed in the table (such as driver's license) shall not be entered. Only U.S. passport numbers shall be entered; foreign numbers shall be ignored.

Miscellanous Code Table

Identifying Agency	Code
Air Force Serial Number	AF
Non-Immigrant Admission Number	AN
Alien Registration Number	AR
Air National Guard Serial Number, Army Serial Number, National Guard Serial Number	AS
Bureau Fugitive Index Number	BF
Canadian Social Insurance Number	CI
U. S. Coast Guard Serial Number	CG
Fingerprint Identification Number (DHS)	FN
Identification Order Number	IO
Marine Corps Serial Number	MC
Mariner's Document or Identification Number	MD
RCMP Identification or Fingerprint Section Number	MP
National Agency Case Number	NA
Navy Serial Number	NS
Originating Agency Police or Identification Number	OA
Personal Identification Number (State Issued Only)	PI
Passport Number (U.S. Only)	PP
Port Security Card Number	PS
Selective Service Number	SS
Veterans Administration Claim Number	VA

MSC	**2.089**	**Match Score**	*<ebts:CandidateMatchScoreValue>*

This field contains the match score from AFIS for each candidate listed in the 2.064 CAN field.

MSG	**2.060**	**Status/Error Message**	*<ebts:TransactionStatusText>*

This free-text field will contain reason, status, or error messages that are generated as a result of the processing of a transaction and will be sent back to the submitter. For example, an Unsolicited Unsolved Latent Delete transaction will contain the reason for the deletion of a record. For native encoding, each message will be separated by the RS separator character.

NAM	**2.018**	**Name**	*<ebts:PersonName>*

This alpha-special field contains the name(s) of the subject. The native encoding format shall be the surname followed by a comma (,) followed by the given name(s), which are separated by a space. Part IV of the NCIC Code Manual describes in greater detail the manner in which each name is to be entered. Hyphens, commas, and blanks are allowed as special characters. Numerals are not allowed. The XML encoding will consist of three subfields; given name, middle name, and surname. Special values of NAM to be entered in cases where the subject's name is not known are:

Name Table

Condition Name	Field Name
Amnesia Victim	"UNKNOWN AMNESIA,XX"
Unknown Deceased	"UNKNOWN DECEASED,XX"
Name Not Available (Other)	"DOE,JOHN" or "DOE,JANE"

Type-2 Element Data Dictionary

NAM1   **2.2001**   **Name-One**   *<nc:PersonSurName>*

This alpha-special character field is the first of five name fields specifically to facilitate the communication of long names in excess of the number of characters provided for by other name field definitions. These long name fields provide the ability to identify subjects cross-culturally by simply passing as many names as are required to identify a subject in the order that subject's name appears. NAM1 could represent the last name (or surname) (e.g., Smith) or the third of a string of four or five names, possibly to indicate tribal, village, or parentage information. The maximum length of the NAM1 field is 50 characters.

NAM2   **2.2002**   **Name-Two**   *<nc: PersonGivenName>*

This alpha-special character field is the second of five name fields (see NAM1) specifically to facilitate the communication of long names in excess of the number of characters provided for by other name field definitions. This field will represent the given name (e.g., Brian) or an only name used in a single name culture (e.g., David) or the first of a string of four or five names. The maximum length of the NAM2 field is 50 characters.

NAM3   **2.2003**   **Name-Three**   *<nc: PersonMiddleName>*

This alpha-special character field is the third of five name fields (see NAM1) specifically to facilitate the communication of long names in excess of the number of characters provided for by other name field definitions. This field could be the middle name for a culture using three names (e.g., David) or the second of a string of four or five names, possibly to indicate tribal, village, or parentage information. The maximum length of the NAM3 field is 50 characters.

NAM4   **2.2004**   **Name-Four**   *<ebts:PersonFourthImportanceName>*

This alpha-special character field is the fourth of five name fields (see NAM1) specifically to facilitate the communication of long names in excess of the number of characters provided for by other name field definitions. This field could be the fourth name for a culture using four or five names (e.g., a tribal or village name, such as "al Tikriti," or from Tikrit, or to indicate parentage, such as "ben Reuben," or son of Reuben) or the fourth of a string of four or five names. The maximum length of the NAM4 field is 50 characters.

NAM5   **2.2005**   **Name-Five**   *<ebts:PersonFifthImportanceName>*

This alpha-special character field is the fifth of five name fields (see NAM1) specifically to facilitate the communication of long names in excess of the number of characters provided for by other name field definitions. This field could be the fifth name for a culture using five names (e.g., a tribal or village name, such as "al Tikriti," as in from Tikrit, or to indicate parentage, such as "ben Reuben," as in son of Reuben) or the fifth of a string of five names. The maximum length of the NAM5 field is 50 characters.

| NCR | 2.079 | **Number of Candidates Returned** | *<ebts:TransactionImagesRequestedQuantity>* |

This optional field contains the number of candidates the submitter desires to receive in response to a biometric Investigative search request per ranked candidate list with a maximum of 99. If multiple candidate lists are to be returned in a search request the NCR value applies to each. If NCR is omitted in a biometric investigative search request, it defaults to the max value of NIR. If the NIR in the request is greater than NCR in the request, CJIS will set NIR to the NCR value. This field is also found in the responses to a biometric Investigative search where it reflects the actual total number of candidates returned in the CNL field for the entire concatenated list. For EQRR, this field identifies the number of Identity History Summary reports that are be returned in response to an EQHR.

| NDR | 2.098 | **Name of Designated Repository** | *<ebts:RecordFBIRepositoryCode>* |

This field contains the numerical designation of the repository(ies) to be searched. Repository numbers are assigned by the CJIS Division. Multiple entries in this field will indicate a desire to search more than one repository, including Canada's RTID and authorized DHS records. Multiple entries in native encoding will be separated by the RS separator.

The NDR values of 4 & 5 will be retired in the next version. The NDR value of 4 for Major Case Records is being subsumed into criminal (NDR=1) and civil (NDR=2). The NDR value of 5 for the Latent Image File Records will only be accessible to the internal Latent Laboratory Examiners, therefore will not be valid for use in this standard.

Type-2 Element Data Dictionary

Name of Designated Repository Code Table

NDR Value	File Name
1	Criminal Master File Records
2	Civil Records
3	Unsolved Latent File
4	Reserved for FBI use
5	Reserved for FBI use
6	Repository for Individuals of Special Concern (RISC)
7	Canada Real Time Identification (RTID)
8	DoD Automated Biometric Identification System (ABIS)
9	DHS IDENT/US-VISIT
10	Reserved for FBI use
11	RISC Wants and Warrants (W&W)
12	RISC Sexual Offender Registry (SOR)
13	RISC Known and Suspected Terrorist (KST)
14	RISC International Terrorist File (ITF)
15	RISC Persons of Special Interest (Other)
16 – 19	Reserved for FBI Future Use
20 - 50	Reserved for Department of Defense
51 - 100	Reserved for FBI Future Use
101-199	FBI or Other Federal Organization Special Population Cognizant Files
200-399	Reserved for State/Local System
400-599	Reserved for External FBI Use
600-999	Reserved for FBI Future Use

NIR	2.2010	Number of Images Requested	*<ebts:RecordImagesRequestedQuantity>*

This optional field contains the number of maximum candidate images the submitter desires to receive in response to a biometric Investigative search request for a given candidate list. If multiple candidate lists are to be returned the NIR value applies to each. If NIR is omitted in a biometric investigative search request, it defaults to 20. This field is also found in the responses to a biometric Investigative search where it reflects the actual number of candidates with image returned in the CNL field for the entire concatenated list. This field is also used in conjunction with a Subject Photo Request (TOT = CPR) to indicate if more than one photo is being requested (e.g., for tattoos) (see Appendix K). The default value for a CPR, if not provided, will be "1".

NOT	2.088	Note Field	*<ebts:TransactionDescriptionText>*

This free-text field is used to provide additional information regarding electronic latent submissions. For latent search identification results feedback, the NOT field will be used to indicate the candidate from the SRL that matched the search image. For ULM transactions, the NOT field will provide information related to latent search images that are candidates for comparison with the unsolved latent (e.g., case-related identifiers or point of contact information). For UHN transactions, the NOT field will contain case related information about the search transaction with the hit that generated the unsolicited notification.

OCA	2.009	Originating Agency Case Number	*<nc:CaseTrackingID>*

This field contains the one-to-twenty-character Originating Agency Case Identifier (OCA) assigned by the originating agency. This alphanumeric-special (ANS) field may contain any printable 7-bit ASCII character with the exception of the period (.). The OCA must not begin with a blank.

OCP	2.040	Occupation	*<nc:EmployeeOccupationText>*

This free-text field contains the subject's occupation. The OCP returned in a response is the same as the one submitted.

OFC	2.053	Offense Category	*<ebts:OffenseCategoryCode>*

This field shall contain a "1" for a crime categorized as personal, a "2" for a crime categorized as property, and a "3" for a crime categorized as both.

PAT	2.034	Pattern Level Classifications	*<ebts:FingerprintPatternClassificationCode>*

This grouped field contains information about the finger(s) pattern types. It is composed of two subfields:
   • Finger Position (FGP)
   • Pattern Classification Code (PATCL)

PAT shall consist of two-character finger position code followed by the primary pattern type code as chosen from the following table. Up to two reference pattern classifications per finger are also allowed, thereby making the total number of pattern classes allowable per finger equal to three. For native encoding, if multiple pattern types are used for reference for the same finger, they shall be separated from each other by the US separator. Multiple fingers shall be separated by the RS separator. If submitting a Latent Fingerprint whose actual finger position is unknown, the PAT and FGP (2.074) fields are used in conjunction as follows to supply guesses for which finger position the latent print might be: place a "00" in the FGP subfield of PAT to indicate the actual position is unknown; place the actual pattern in the PATCL subfield; place one or more finger number guesses in the FGP field (2.074). For XML encoding, the FGP is repeated after the initial value of "00" to indicate one or more finger guesses.

The following is a native encoding example of the Pattern Level Classification field with only one pattern per finger.

2.034:01<US>WU<RS>02<US>LS<RS>03<US>LS<RS>04<US>LS<RS>05<US>LS<RS>06<US>RS<RS>07<US>RS<RS>08<US>LS<RS>09<US>RS<RS>10<US>RS<GS>

The following is a native encoding example of the Pattern Level Classification field with extra pattern references for some of the fingers.

Pattern Classification Code Tables

Two characters represent each finger as follows:

Finger Position	Code
Right thumb	01
Right index	02
Right middle	03
Right ring	04
Right little	05
Left thumb	06
Left index	07
Left middle	08
Left ring	09
Left little	10

The following is a list of acceptable CJIS pattern level fingerprint classifications.

Pattern	Code
Arch, Type Not Designated	AU
Whorl, Type Not Designated	WU
Right Slant Loop	RS
Left Slant Loop	LS
Complete Scar	SR
Amputation	XX
Unable to print (e.g. bandaged)	UP
Unable to Classify	UC

PEN	<u>2.078</u>	**Penetration Query Response**	*<u>\<ebts:TransactionPenetrationQueryResponsePercent\></u>*

This field provides a response to the penetration query that includes a set of search parameters for a new search. The response will be an estimated size, in percentage, of the repository(s) that will be searched given the input parameters.

PHT	2.036	**"Photo Available" Indicator**	*<u>\<ebts:PersonDigitalImageAvailableIndicator\></u>*

If a photograph of the subject is available, this field shall contain a "Y"; otherwise, the field shall be omitted. For XML encoding, this field is represented as a Boolean value. As NGI expands its support with new fields, this field will retired in upcoming versions.

POB   **2.020**   Place of Birth   *<ebts:PersonBirthPlaceCode>*

The subject's place of birth shall be entered in this field. Indicate in this POB field the state (Mexico or United States), territorial possession, province (Canada), or country of birth. The appropriate two letter abbreviation shall be used as listed in Appendix O. The criteria listed below shall also be considered when assigning POB.

POB Values Table

If the following conditions exist	Enter Code
POB stated as state AND country and applicable code not contained in Code Table; OR city can be ascertained as not being located in the United States; OR foreign POB and applicable code not contained in Code Table	YY
POB stated as only city AND city can be ascertained as being located in the United States	US
POB is Mexico or any Mexican state or province not in Code Table	MM
POB is "Mexico, Mexico"	MX
POB is unknown	XX

PPA   **2.035**   **"Palmprints Available" Indicator**   *<ebts:PersonPalmPrintAvailableIndicator>*

If palmprints are available, this field shall contain a "Y"; otherwise, the field shall be omitted. For XML encoding, this field is represented as a Boolean value.

PPD   **2.2030**   **Print Position Descriptors**   *<ebts:TransactionPrintPositionDescriptors>*

This field will be present if and only if the finger position code "19" appears in Field 2.074. This field will consist of two mandatory information items:
   • The first is the probable integer finger position code (0-10) taken from finger position table.
   • The second information item is the code taken from Table P-1, found in Appendix P, to indicate the portion of the EJI or tip image that is a part of the transaction.

	2.2028E,		
PPD	**2.2032G,**	**Print Position Descriptors**	*<ebts:PrintPositionDescriptors>*
	2.2033F		

This PPD is a subfield to fields of Type Set. This subfield will be present if and only if the subfield Friction ridge Generalized Position code (FGP) or the Friction ridge Number(s) Requested (FNR) code "19" appears in the Set field. These PPD subfields have no subfields (unlike PPD 2.2030). This field shall consist of two mandatory information items. The first is the Probable Decimal finger Position code (0-10) taken from the ANSI/NIST-ITL specification. But for the finger position it must be a two character numeric; implying a leading zero for positions 0 thru 9. The second code information item is the Finger Image Code; it also is taken from the ANSI/NIST-ITL specification to indicate the portion of the EJI or tip image. There may be up to 8 such images for a single finger. Examples of valid values are: 01EJI or 10TIP.

PRI	**2.076**	**Priority**	*<ebts:TransactionSearchPriorityCode>*

This field shall indicate the priority of a latent search (from 1 to 3, with 1 being the highest priority). The priority levels will generally correspond to the following crime types in descending order of priority.

1. Homicide, rape, and special circumstances
2. Kidnap, assault, and robbery
3. Arson, drugs, personal crimes, and property crimes

Federal agencies will determine their own priority schemes. No additional validation of priorities will be provided.

PTY	**2.2009**	**Photo Type**	*<ansi-nist:ImageCategoryCode>*

This optional field is used in conjunction with a subject photo request (TOT = CPR) (see Appendix K) to define the type of photo being requested (i.e., face, scar, mark, tattoo). The values of PTY correspond to the Type-10 field IMT (10.003). If not provided, the default value will be "FACE," and the most recent frontal facial photo will be returned. With the expansion of the IMT field, this field will be retired in the next version.

RAC   **2.025**   **Race**   *<nc:PersonRaceCode>*

This field is used to indicate the race of the subject.

Race Code Table

If Subject Is	Enter Code
Chinese, Japanese, Filipino, Korean, Polynesian, Indian, Indonesian, Asian Indian, Samoan, or any other Pacific Islander	A
A person having origins in any of the black racial groups of Africa	B
American Indian, Eskimo, or Alaskan native, or a person having origins in any of the 48 contiguous states of the United States or Alaska who maintains cultural identification through tribal affiliation or community recognition	I
Of indeterminable race	U
Caucasian, Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, Regardless of race	W

RAP   **2.070**   **Request for Electronic Rap Sheet**   *<ansi-nist:RecordRapSheetRequestIndicator>*

The purpose of this field is to allow the contributors to optionally request an electronic identity history of the suspect. That identity history will be an IDRR if an identification was made and an NIDR if the submission resulted in a non-identification. A "Y" indicates that an identity history is desired, and an omitted field or an "N" indicates that no electronic identity history should be returned with the response. The XML encoding should contain "true" or "false". For the RPIS TOT this field will request the NGI Identity History Summary.

2.2014   **Rap Back Eligibility**   *<ebts:RecordRapBackEligibilityIndicator>*

This mandatory one-character alpha field is used to convey whether the Rap Back owner of record is still eligible to receive Rap Back information (e.g., is the Rap Back subject still employed by the subscriber?). The native value "Y" or XML value "true" is used to indicate continued eligibility. This field tag acronym will be determined at a later date.

2.2015   **Rap Back Expiration Date** *<ebts:RecordRapBackExpirationDate>*

This optional field is assigned to the Rap Back Service. This field tag acronym will be determined at a later date.

2.052   **Rap Back Request**   *<ebts:RecordRapBackRequestCode>*

This optional field is assigned to the Rap Back Service. This field tag acronym will be determined at a later date.

	2.2020	**Rap Back Recipient**	*<ebts:RecordRapBackOwnerOrganization>* *<nc:OrganizationIdentification>*

This optional field is assigned to the Rap Back Service. This field tag acronym will be determined at a later date.

	2.2011	**Rap Back Verification Status**	*<ebts:RecordRapBackVerificationIndicator>*

This optional field is assigned to the Rap Back Service. This field tag acronym will be determined at a later date.

RCD1	2.091	**Ridge Core Delta One for Subpattern Classification**	*<ansi-nist:FingerPositionCode>* *<ansi-nist:RidgeCountValue>*

This grouped field contains information about the finger(s) ridge counts and is used for Native Mode searches in conjunction with the Pattern Level Classification (PAT - 2.034). It is comprised of two subfields:
- Finger Position (FGP)
- Ridge Count Number 1 (RCN1)

For the native encoding, the two-character finger position code as specified for the related Pattern Level Classification (PAT) is followed by the <US> separator and at least one RCN1. Each pattern classification PATCL specified in the tagged field 2.034 must be accompanied by two ridge count indicators, one in RCD1 (2.091) and one in RCD2 (2.092) as described in the table provided with RCD2. If multiple RCN1s are used for reference to the same finger, then they shall be separated from each other by the <US> separator. Multiple fingers, if provided, shall be separated by the <RS> separator. For XML encoding, RCD1 and RCD2 are represented by a single grouping which contains the FGP and two ridge count elements. The information for each finger position, patterns, and ridge counts are grouped together within a parent element representing exactly one finger.

RCD2	**2.092**	**Ridge Core Delta Two for**	*<ansi-nist:FingerPositionCode>*
		Subpattern Classification	*<ansi-nist:RidgeCountValue>*

This grouped field contains information about the finger(s) ridge counts and is used for Native Mode searches in conjunction with the Pattern Level Classification (PAT 2.034). It is composed of two subfields:
- Finger Position (FGP)
- Ridge Count Number 2 (RCN2)

For native encoding, the two-character finger position code as specified for the related Pattern Level Classification (PAT) is followed by the <US> separator and at least one RCN2. Each pattern classification PATCL specified in the tagged field 2.034 must be accompanied by two ridge count indicators, one in RCD1 and one in RCD2 as described in the following table. If multiple RCN2s are used for reference to the same finger, they shall be separated from each other by the <US> separator. Multiple fingers, if provided, shall be separated by the <RS> separator.

The Ridge Count Number (RCN1 and RCN2) represents the number of ridges between the core and the delta. For right and left slant loops, this count identifies the ridges crossed on a line between the core and the delta. For whorls, both the RCN1 and the RCN2 values have meaning. Permissible values are 1 to 30 for actual ridge counts and 30 if there are more than 30 ridges. The count of 31 indicates an unknown number of ridges, and 0 indicates that the ridge count is not applicable. For XML encoding, when the ridge count is 0 the ridge count element is omitted.

The following native encoding example shows the relationship between the Pattern Level Classification (2.034), Ridge Core Delta 1 (2.091) and Ridge Core Delta 2 (2.092) fields where only the primary classification for each finger is given. In this case, one PATCL, one RCN1, and one RCN2 are associated with each finger. Spaces are shown for clarity only.

2.034:01 <US> WU <RS> 02 <US> LS <RS> 03 <US> AU <RS> 04 <US> XX ... <RS> 10 <US> WU <GS>
2.091:01 <US> 9 <RS> 02 <US> 4 <RS> 03 <US> 0 <RS> 04 <US> 0 ... <RS> 10 <US> 14 <GS>
2.092:01 <US> 7 <RS> 02 <US> 0 <RS> 03 <US> 0 <RS> 04 <US> 0 ... <RS> 10 <US> 21 <GS>

The following example of the Pattern Classification (2.034) field includes two reference classifications for finger 01, only a primary classification for finger 07, and one reference classification for finger 09. Each PATCL in 2.034 requires a corresponding RCN1 and RCN2 in fields 2.091 and 2.092. Spaces are shown for clarity only.

2.034:01 <US> RS <US> WU <US> AU <RS> 07 <US> XX <RS> 09 <US> AU <US> LS <GS>
2.091:01 <US> 9 <US> 9 <US> 0 <RS> 07 <US> 0   <RS> 09 <US> 0 <US> 8 <GS>
2.092:01 <US> 0 <US> 11 <US> 0 <RS> 07 <US> 0   <RS> 09 <US> 0 <US> 0 <GS>

Type-2 Element Data Dictionary

Ridge Core Delta for Subpattern Classification Code Table

Pattern	Code	RCN1	RCN2
Arch, Type Not Designated	AU	0	0
Whorl, Type Not Designated	WU	1-31	1-31
Right Slant Loop	RS	1-31	0
Left Slant Loop	LS	1-31	0
Complete Scar	SR	0	0
Amputation	XX	0	0
Unable to print (*e.g.*, bandaged)	UP	0	0
Unable to Classify	UC	0	0

REC   2.082   **Response Code**   *<ebts:TransactionResponseIndicator>*

Natively, this one-byte alpha field will contain allowable values of "Y" or "N." In XML, it is represented as a Boolean value. This field is used in the PDR and PRR transactions to indicate the status of the corresponding request. If the request contains any errors, the response code (REC) will be set to "N." Otherwise it will be set to "Y."

RES   2.041   **Residence of Person Fingerprinted**   *<ebts:PersonResidenceLocation>*

The subject's residential address may be entered in this field as free text, including printable special characters and formatting characters (CR, LF, TAB). The RES returned in a response is the same as the one submitted. For the XML encoding, it contains sub-elements for the subject's complete address location.

RET   2.005   **Retention Code**   *<ansi-nist:RecordRetentionIndicator>*

This is an alpha field indicating whether the information submitted as a part of a transaction is to be retained as a permanent part of the FBI's Master File. Submit a "Y" for yes or an "N" for no. For XML encoding, this field is represented as a Boolean value.

RFP   2.037   **Reason Fingerprinted**   *<nc:ActivityReasonText>*

This alphanumeric-special field is used to indicate the purpose of a civil or applicant fingerprint card submission. Commas, blanks, dashes, hyphens, and slashes are all allowed as special characters. The submitting agency should indicate the specific statutory authority authorizing the fingerprint submission in this field.

Option: Agencies may choose to use standard terms in this field related to the purpose of the fingerprint submission instead of the specific statutory authority. The standard reasons are:
- Firearms
- Volunteer
- Criminal Justice Employment
- Child Care/School Employee
- Other Employment and Licensing

Note: The use of RFP requires coordination with FBI prior to use.

Type-2 Element Data Dictionary

RFR   [2.095](#)   **Request Features Record**   *<ebts:RecordFeaturesRequestIndicator>*

This one-character alpha field is used to indicate a user's desire to have CJIS return a Type-9 features record associated with an image requested during an Image Request or Latent Investigative Search. For an Image Request, the features or template will be returned in extended feature set of the Type-9 returned. For the Latent Investigative Search, the features and matched minutiae will be returned to allow for an overlay on the image for comparison purposes. An extended feature set will be returned if the RFR value equals "Y." A features record will not be returned if the field is omitted (its use is optional) or if the value of RFR equals "N." For XML encoding, this field is represented as a Boolean value.

RPR   [2.096](#)   **Request Photo Record**   *<ebts:RecordPhotoRequestIndicator>*

This one-character alpha field is used to indicate a user's desire to have CJIS return a Type-10 photo record if one is on file and disseminable. This field is used in conjunction with a Rapid Fingerprint Identification Search transaction (RPIS). For XML encoding, this field is represented as a Boolean value.

RSC   [2.2102](#)   **Reason Supervision Cancelled.**   *<ebts:SupervisedReleaseRevocationReasonText>*

This free-text field is used by an agency requesting cancellation of a supervisory notification to indicate the reason a supervised release notification is being cancelled.

RSR   [2.065](#)   **Repository Statistics Response**   *<ebts:TransactionRepositoryResponse>*

This field contains a file generated by the NGI Latent Friction Ridge system that provides detailed statistics that can be used to estimate the level of penetration of the repository given a set of search parameters defined in the search request. This field is in the form of a large ASCII file that can contain up to 96,000 characters/bytes of alphanumeric-special (ANS) data. This field contains five subfields separated by tab characters:

- Parameter name
- Parameter Value
- the fraction of the Criminal file having that value of the parameter
- the fraction of the Civil file having that value of the parameter
- the fraction of the combined Criminal and Civil files having the value of the parameter.

In the native encoding formatting, the fields are "whitespace" (spaces and/or tabs) with DOS end-of-line convention (CR+LR). A period character is used as a decimal point in the fraction values. The value should be interpreted as the percentage of records matching that category and code. Some records may specify multiple codes within the same category but such instances are undeterminable from this data. Data rows containing all zeroes will not be returned. See RSR Data Tables for examples and allowed parameter names.

Type-2 Element Data Dictionary

RSR Response Code Table

Example of RSR Response Data

Parameter	Value	Criminal	Civil	Combined
RACE	U	0.027	0.015	0.025
RACE	A	0.015	0.218	0.12
GENDER	X	0.001	0	0.001
GENDER	M	0.748	0.692	0.723
DOB	UNK	0.001	0.001	0.001
DOB	0	0	0.003	0.003
DOB	1	0.001	0.002	0.002
POB	AL	0.012	0.02	0.022
ARREST	TX	0.303	0.27	0.432
FINGER	0	0	0	0
FINGER	1	0.901	0.923	0.924
PALM	21	0.072	0	0.07
EJI	LEFT	0.081	0	0.08
EJI	DST01	0.038	0	0.035
ARCH	2	0.27	0.38	0.47
LEFTSLT	3	0.432	0.295	0.552
RIGHTSLT	4	0.47	0.501	0.59
WHORL	5	0.283	0.244	0.372

Type-2 Element Data Dictionary

RSR File Category Specification

Definition	Parameter	Parameter Size	Parameter Values
Race	RACE	5	U, A, B, I, W
Gender	GENDER	7	X, M, N, G, Y, F, Z
Year of Birth	DOB	101	UNK, or last two digits of year
Place of Birth	POB	422	EBTS defined NCIC state and country code table
Place of Arrest	ARREST	422	EBTS defined NCIC state and country code table
Finger Positions	FINGER	11	EBTS defined finger codes: 00-10
Hand Positions	PALM	17	EBTS defined palm codes 20-36
EJI Positions	EJI	30	EBTS defined joint image segments for each finger. PRX01, DST01, PRX02, MED02, DST02, etc. and LEFT/RIGHT when only full EJI is identified
Arch	ARCH	10	EBTS defined finger codes: 01-10
Left Slant Loop	LEFTSLT	10	EBTS defined finger codes: 01-10
Right Slant Loop	RIGHTSLT	10	EBTS defined finger codes: 01-10
Whorl	WHORL	10	EBTS defined finger codes: 01-10

SAN   **2.099**   **State Arrest Number**   *<j:ArrestSequenceID>*

This field contains a unique arrest number assigned by the state to a criminal subject. The SAN is an optional element that may assist in matching the submitted disposition data to the correct court cycle. If present in the submission, this field should be returned in the response. Any printable 7-bit ASCII character with the exception of a period (.) is acceptable. Embedded blanks are not permitted. SAN must not begin with a blank.

SCNA   **2.086**   **AFIS Segment Control Number**   *<ebts:AFISSegmentControlID>*

This field contains an alphanumeric identifier used by the NGI AFIS/FBI to allow tracking of or referencing specific unsolved latent records. It is used, for example, to indicate the index number for individual records in the CJIS Unsolved Latent File in the response to a Latent Search. This field will contain the UCN of the Unsolved Latent File where designated in the message definition.

Type-2 Element Data Dictionary

SCO   **2.007**   **Send Copy To**   *<ansi-nist:RecordForwardOrganizations>*

The purpose of this 9-to-19-character alphanumeric-special (ANS) field is to indicate that additional electronic responses need to be forwarded to agencies other than the contributor by the State Identification Bureau. The first nine characters shall be alphanumeric and shall contain the NCIC assigned Originating Agency Identifier (ORI) for an agency who is to receive a copy of the response. At the option of the transmitting agency, the ORI may be expanded to a size of 19 characters, with 10 characters of alphanumeric-special (ANS) data appended to the end to assist in proper routing of the responses. However, no <US> or <RS> separator may be used between the ORI and routing extension (use any printable ASCII special character (e.g., a slash) as a separator). Upon receiving an electronic response, the State Identification Bureau will forward a copy of the electronic response to each agency listed in the "SEND COPY TO" block.

SDOB   **2.2007**   **Submitted Date of Birth**   *<ebts:PersonSubmittedBirthDate>*

A date of birth as provided in a submission that is determined to be different than the date of birth in the record of the identified subject.

SEAL   **2.2019**   **Seal Arrest Flag**   *<ebts:ArrestSealIndicator>*

This is a one-byte field that will indicate whether the arrest is to be sealed upon establishment of the record identified on the CAR and CNA TOTs. The permissible values are 'Y' or 'N'. For XML encoding, this field is represented as a Boolean value.

SED   **2.2100**   **Custody or Supervisory Status End Date.**   *<ebts:CustodySupervisoryData><nc:EndDate>*

This field contains the end date for the subject's indicated custody or supervisory status. The date shall appear as an eight-digit number in the same format as specified in Section 1.1 of this appendix. The SED may not be less than the SSD. Edit checks on the CJIS will validate that the SED does not exceed 99 years from the record DOB.

SEX   **2.024**   **Sex**   *<ebts:PersonSexCode>*

This field is used to report the gender of the subject.

Sex Code Table

If Following Condition Exists	Enter Code
Subject's gender reported as female	F
Occupation or charge indicated "Male Impersonator"	G
Subject's gender reported as male	M
Occupation or charge indicated "Female Impersonator" or transvestite	N
Male name, no gender given	Y
Female name, no gender given	Z
Unknown gender	X

Type-2 Element Data Dictionary

SID   [2.015](#)   **State Identification Number**   *<nc:PersonStateIdentification>*

This field contains any known state identification number. The native encoding format is the standard two character abbreviation of the state name followed by the number. Embedded blanks are not permitted. SIDs from New York, Oregon, or Pennsylvania may contain a hyphen in the last position. The SID returned in a response is dependent upon the search results. The XML encoding will include subfields; one for the state code and one for the number itself.

SII   [2.2023](#)   **Supplementary Identity Information**   *<ebts:TransactionSupplementaryIdentityInformationText>*

This field will contain identity information not within the scope of the standard NGI Identity History Summary. The format and content of the information in this field may vary for different transactions.

SLE   [2.055](#)   **Custody or Supervisory Literal**   *<ebts:SupervisionStatus> <nc:StatusText>*

This field contains the free-text description of the subject's custody or supervision status. The first character must not be blank. Entry of SLE requires that SSD also be entered.

SMT   [2.026](#)   **Scars, Marks and Tattoos**   *<nc:PhysicalFeatureCategoryCode>*

For each scar, mark, or tattoo present on the subject, the appropriate NCIC code shall be used in this information item. Blanks are allowed as special characters.

SNAM   [2.2008](#)   **Submitted Name**   *<ebts:PersonSubmittedName>*

A name as provided in a submission that is determined to be different than the name of record of an identified subject. For native encoding, this name will be formatted the same as other name fields (2.018). For the XML encoding of this field, there will be three subfields for the given name, middle name, and surname.

SOC   [2.016](#)   **Social Security Account Number**   *<nc:PersonSSNIdentification>*

This field contains the subject's Social Security number if known. This number shall be entered as nine consecutive digits with no embedded punctuation characters. No foreign social security numbers shall be used.

SPCN   [2.093](#)   **Special Population Cognizant File Number**   *<ebts:RecordSpecialPopulationCognizantFileIdentification>*

This field contains the identification number for a file in a Special Population Cognizant Repository.

Type-2 Element Data Dictionary

SRA   2.2104   **Supervised Release Action.** *<ebts:SupervisedReleaseActionCode>*

A code from the following table is used by the contributer to indicate the type of maintenance desired when submitting a Maintenance Service Message. The minimum length and maximum lenth 3 bytes. The SRA and the CRI are both mandatory when the SRNR TOT is used. For supervision transfers, the Transfer Agency Supervision (TAS) code is used with the Supervision Transferred to (STT) field to identify the new supervision agency.

SRA Values Table

If the following condition exists:	Enter Code
Establish Agency Supervision	EAS
Cancel Agency Supervision	CAS
Transfer Agency Supervision	TAS

SRF   **2.059**   **Search Results Findings**   *<ebts:TransactionSearchResultsCode>*

This field is used in responses to submissions and contains a single character indicating the results of a comparison. The following table outlines the valid values, their meanings, and permissible submissions that may contain those values.

SRF Values Table

Value	Definition	TOT
I	Identification	BDEC, LSR, SRE
N	Non-Identification	BDEC, LSR, SRE
P	Pending Verification of Identification	BDEC, LSR
C	Inconclusive	BDEC, LSR
R	Red, Hit on Potential Candidate	RPISR
Y	Yellow, Probable Candidate	RPISR
G	Green, No Hit	RPISR
R	High Confidence Match	UHN
Y	Potential Match	UHN
M	Match of Images Submitted	FVR/SRE
X	Not a Match of Images Submitted	FVR/SRE

SSD   2.054   **Custody or Supervisory Status** *<ebts:CustodySupervisoryData> <nc:StartDate>*

This field contains the start date for the subject's indicated custody or supervisory status. The date shall appear as an eight digit number in the same format as specified in Section 1.1 of this appendix. The SSD may not be less than DOA. The SSD shall not exceed the current date except when the submission originates from an international contributor located in a time zone earlier than the Eastern Time Zone. This date field shall contain the local date for the region submitting the request. Edit checks on the CJIS will accept the local date as valid up to 24 hours forward to accommodate the variance between international time zones. If custody data are submitted, all custody fields (SSD, OCA, and SLE) must be present.

SST   2.2101   **Supervised Status Type.**   *<ebts:SupervisionStatusCode>*

This field contains the three byte code that indicates the type of supervised released. If necessary, multiple types may be used for a supervised release notification. This is a mandatory field. The minimum number of occurrences is one, the maximum number is eight.

SST Values Table

If Following Conditions Exist	Enter Code
Bail Supervision	BLS
Conditional Release	CDR
Mandatory Release	MAN
Parole	PAR
Probation	PRO
Pretrial Diversion	PTD
Special Parole Term	SPT
Supervised Release	SUR

STT   2.2103   **Supervision Transferred T**o *<ebts:SupervisionReceivingOrganizationID>*

The purpose of this 9 character alphanumeric-special (ANS) field is to indicate that a Supervisory Agency who has an active supervised notification request attached to the Identity History wishes to transfer supervision of the offender to another supervisory agency. The characters shall be alphanumeric and shall contain the NCIC-assigned Originating Agency Identifier (ORI) for the agency who will become responsible for the offender's supervision. This field is mandatory when the SRA type is Transfer Agency Supervision (TAS).

TAA   2.087   **Treat as Adult**   *<ebts:PersonAdultTreatmentIndicator>*

A one-byte optional field to indicate whether a juvenile is to be processed as an adult. A "Y" indicates yes; an omitted field indicates no. For XML encoding, this field is represented as a Boolean value. The TAA returned in a response is the same as the one submitted.

TSR   2.043   **Type of Search Requested** *<ebts:TransactionSearchRequestCategoryCode>*

A one byte code shall be entered in this field from the following table to indicate the type of record being submitted. The field is applicable to the NFUF, CPDR, FNDR, NNDR, CPNU, DOCE, EMUF, NFAP, and NFUE transactions.

Type of Search Requested Code Table

Type of Record	Code	Applicable TOT
Confidential Screening	C	CPDR, FNDR, NNDR
Suppress/Modify Unsolicited Want/SOR Notification (Non-Urgent Criminal)	H	CPNU**
Pre-commission candidate record with fingerprints	P	NFUF, DOCE, EMUF, NFAP, NFUE
Civil submission in support of the National Child Protection Act of 1993	V	NFUF*, NFUE*

* When submitting fingerprints using a TSR of V, the contributing agency should specify either the VCA/NCPA or a state statute in the RFP field. To be charged at the volunteer rate, the word "volunteer" must appear with or without the statute.

**For Internal FBI use only.

    ULF   2.083   **Unsolved Latent File**   *<ebts:TransactionUnsolvedLatentFileIndicator>*

This one-character alpha field is used to designate whether a latent image or features record in a search should be added to the Unsolved Latent File. Submit a "Y" for yes. If negative, submit "N". If the field is omitted, the default behavior will be "Y". For XML encoding, this field is represented as a Boolean value.

    ULR   2.2034   **Unsolved Latent Retained** *<ebts:RecordLatentRetentionIndicator>*

This field is used in a Biometric Decision (BDEC) when the decision is a positive identification and the user requests that the unsolved record be retained in the unsolved file. A value of "Y" indicates that the latent record should be retained in the ULF. No value or a value of "N" indicates that the user does not want the unsolved record retained.

    WGT   2.029   **Weight**   *<nc:PersonWeightMeasure>*
                                                    <nc:MeasurePointValue>

In this field, the subject's weight in pounds is entered. If weight is unknown, 000 is entered. All weights in excess of 499 pounds will be set to 499 lbs. WGT must be in the range 050 to 499 lbs. (however, there is no minimum range limit for missing persons or unknown persons).

    WTR   2.030   **Weight Range**   *<nc:PersonWeightMeasure>*
                                                    <nc:MeasureRangeValue>

If a range of weight is given, it shall be expressed as two three digit numbers indicating the minimum and maximum weights (in pounds) of the subject. There shall be no separator character used between the weights. WTR must be in the range 050 to 499 lbs. (however, there is no minimum range limit for missing persons or unknown persons).

Table C-1 Field Edit Specifications for Type-2 Elements

Field Number	Identifier	Field Name	Character	Field Size (not including Character Separators) Min	Max	Max Occurrences	Example	Comments/Special Characters
2.001	LEN	LOGICAL RECORD LENGTH	N	2	7	1	2.001:909<GS>	
2.002	IDC	INFORMATION DESIGNATION CHARACTER	N	2	2	1	2.002:00<GS>	
2.003	FFN	FBI FILE NUMBER	N	10	10	1	2.003:2537597861<GS>	
2.005	RET	RETENTION CODE	A	1	1	1	2.005:Y<GS>	
2.006	ATN	ATTENTION INDICATOR	ANS	3	30	1	2.006:SA J Q DOE,RM 11867<GS>	Any printable 7-bit ASCII character with the exception of the period is allowed.
2.007	SCO	SEND COPY TO	ANS	9	19	9	2.007:NY030025P<GS>	Any printable 7-bit ASCII character is allowed.
2.009	OCA	ORIGINATING AGENCY CASE NUMBER	ANS	1	20	1	2.009:Q880312465<GS>	Any printable 7-bit ASCII character is allowed.
2.010 2.010A* 2.010B*	CIN CIN_PRE CIN_ID	CONTRIBUTOR CASE IDENTIFIER NUMBER CONTRIBUTOR CASE PREFIX (CIN_PRE) CONTRIBUTOR CASE ID (CIN_ID)	SET ANS ANS	1 1	24 24	5	2.010:INCIDENT NUMBER<US>1963BRT715<GS>	Any printable 7-bit ASCII character is allowed.
2.011	CIX	CONTRIBUTOR CASE IDENTIFIER EXTENSION	N	2	4	5	2.011:23<GS>	
2.012	LCN	FBI LATENT CASE NUMBER	ANS	11	11	1	2.012:MX-12345678<GS>	First two characters may be AN, followed by a hypen, -, remaining characters and AN
2.013	LCX	FBI LATENT CASE EXTENSION	N	5	5	1	2.013:98765<GS>	
2.014	FBI	FBI NUMBER	AN	1	9	1000	2.014:62760NY12<GS>	
2.015	SID	STATE IDENTIFICATION NUMBER	ANS	3	10	1000	2.015:NY12345678<GS>	NY, OR, and PA may use a hyphen in the last position
2.016	SOC	SOCIAL SECURITY ACCOUNT NUMBER	N	9	9	4	2.016:220565855<GS>	
2.017	MNU	MISCELLANEOUS IDENTIFICATION NUMBER	ANS	4	15	4	2.017:PP-1234567890P<GS>	A hyphen is allowed as a special character
2.018	NAM	NAME	AS	3	50	1	2.018:JONES,ANTHONY P<GS>	Commas, hyphens and blanks are all allowed as special characters.
2.019	AKA	ALIASES	AS	3	50	10	2.019:JONES,TONY<RS>JONES,A P<GS>	Hyphens, commas, and blanks are all allowed as special characters.
2.020	POB	PLACE OF BIRTH	A	2	2	1	2.020:VA<GS>	
2.021	CTZ	COUNTRY OF CITIZENSHIP	A	2	2	10	2.021:US<GS>	
2.022	DOB	DATE OF BIRTH	N	8	8	5	2.022:19790815<GS>	
2.023	AGR	AGE RANGE	N	4	4	1	2.023:1619<GS>	Estimated age range entered using a pair of two digit numbers
2.024	SEX	SEX	A	1	1	1	2.024:M<GS>	
2.025	RAC	RACE	A	1	1	1	2.025:W<GS>	
2.026	SMT	SCARS, MARKS, AND TATTOOS	A	3	10	10	2.026:MISS L TOE<GS>	Blanks are allowed as special characters.
2.027	HGT	HEIGHT	AN	3	3	1	2.027:601<GS>	
2.028	HTR	HEIGHT RANGE	AN	6	6	1	2.028:508603<GS>	
2.029	WGT	WEIGHT	N	3	3	1	2.029:182<GS>	
2.030	WTR	WEIGHT RANGE	N	6	6	1	2.030:175190<GS>	
2.031	EYE	COLOR EYES	A	3	3	1	2.031:BLU<GS>	
2.032	HAI	HAIR COLOR	A	3	3	1	2.032:BRO<GS>	
2.033	FPC	NCIC FINGERPRINT CLASSIFICATION	AN	20	20	1	2.033:AAXXP158PMXM62POTTDI<GS>	
2.034	PAT	PATTERN LEVEL CLASSIFICATIONS	SET			10	2.034:01<US>WU<RS>02<US>LS<RS>03<US>LS<RS>04<US>LS<RS>05<US>LS<RS>06<US>RS<RS>07<US>RS<RS>08<US>LS<RS>09<US>RS<RS>10<US>RS<GS>	
2.034A*	FGP	FINGER NUMBER (FGP)	N	2	2	1		
2.034B*	PATCL	PATTERN CLASSIFICATION CODE (PATCL)	A	2	2	3		
2.035	PPA	PALM PRINTS AVAILABLE INDICATOR	A	1	1	1	2.035:Y<GS>	
2.036	PHT	PHOTO AVAILABLE INDICATOR	A	1	1	1	2.036:Y<GS>	

Table C-1 Field Edit Specifications for Type-2 Elements

Field Number	Identifier	Field Name	Character	Field Size (not including Character Separators) Min	Max	Max Occurrences	Example	Comments/Special Characters
2.037	RFP	REASON FINGERPRINTED	ANS	1	75	1	2.037:CONSIDERING FOR EMPLOYMENT<GS>	Commas, blanks, dashes, hyphens, and slashes are all allowed as special characters
2.038	DPR	DATE PRINTED	N	8	8	1	2.038:19950324<GS>	
2.039	EAD	EMPLOYER AND ADDRESS	ANS	1	120	1	2.039:ACE CONSTRUCTION COMPANY,327 MAPLE AVE, BUFFALO,NY<GS>	Any printable 7-bit ASCII character is allowed.
2.040	OCP	OCCUPATION	ANS	1	50	1	2.040:PLUMBER<GS>	Any printable 7-bit ASCII character is allowed.
2.041	RES	RESIDENCE OF PERSON FINGERPRINTED	ANS	1	120	1	2.041:5021 OAK LEAF DRIVE, BUFFALO NY, USA., 14221<GS>	Any printable 7-bit ASCII character is allowed.
2.042	MIL	MILITARY CODE	A	1	1	1	2.042:M<GS>	
2.043	TSR	TYPE OF SEARCH REQUESTED	A	1	1	1	2.043:P<GS>	
2.044	GEO	GEOGRAPHICAL AREA OF SEARCH	A	2	2	5	2.044:MD<GS>	
2.045	DOA	DATE OF ARREST	N	8	8	1	2.045:19950324<GS>	
2.046	DOS	DATE OF ARREST-SUFFIX	A	1	1	1	2.046:L<GS>	
2.047	ASL	ARREST SEGMENT LITERAL	SET			40	2.047:DUI<RS>19940920<US>POSSESSION OF FIREARMS<GS>	Any printable 7-bit ASCII character is allowed.
2.047A*	DOO	DATE OF OFFENSE (DOO)	N	8	8			
2.047B*	AOL	ARREST OFFENSE LITERAL (AOL)	ANS	1	300			Any printable 7-bit ASCII character is allowed.
2.048	CSR	CIVIL SEARCH REQUESTED INDICATOR	A	1	1	1	2.048:Y<GS>	
2.049	EID	EMPLOYEE IDENTIFICATION NUMBER	AN	1	10	0	2.049:USSS123456<GS>	
2.051	CSL	COURT SEGMENT LITERAL	SET			40	2.051:19940930<US>DUI<US>5 DAYS JAIL, PAY COURT COSTS<RS>19940930<US>POSSESSION OF FIREARMS<US>10 DAYS JAIL, PAY COURT COSTS, $50<GS>	Any printable 7-bit ASCII character is allowed.
2.051A*	CDD	COURT DISPOSITION DATE (CDD)	N	8	8			
2.051B*	COL	COURT OFFENSE LITERAL (COL)	ANS	1	300			Any printable 7-bit ASCII character is allowed.
2.051C*	CPL	OTHER COURT SENTENCE PROVISION LITERAL (CPL)	ANS	1	300			Any printable 7-bit ASCII character is allowed.
2.052	*tbd	REQUEST FOR RAP BACK SERVICE (FUTURE CAPABILITY)	N	1	1	0	2.052:1<GS>	
2.053	OFC	OFFENSE CATEGORY	N	1	1	1	2.053:1<GS>	
2.054	SSD	CUSTODY OR SUPERVISORY STATUS - START DATE	N	8	8	1	2.054:19940930<GS>	
2.055	SLE	CUSTODY OR SUPERVISORY STATUS LITERAL	ANS	1	300	1	2.055:RELEASED BY COURT ORDER,19940930<GS>	Any printable 7-bit ASCII character is allowed. . First character must not be blank.
2.056	ICO	IDENTIFICATION COMMENTS	ANS	1	50	1	2.056:ARMED AND DANGEROUS<GS>	Any printable 7-bit ASCII character is allowed.
2.057	FNR	FINGER NUMBER(S) REQUESTED	N	2	2	13	2.057:01<RS>06<RS>10<GS>	
2.059	SRF	SEARCH RESULTS FINDINGS	A	1	1	1	2.059:N<GS>	
2.060	MSG	STATUS/ERROR MESSAGE	ANS	1	300	11	2.060:MATCH MADE AGAINST SUBJECTS FINGERPRINTS ON 05/01/94. PLEASE NOTIFY SUBMITTING STATE IF MATCH RESULTS<GS>	Any printable 7-bit ASCII character is allowed.
2.061	CST	CASE TITLE	ANS	1	50	1	2.061:ARMED ROBBERY FIRST COUNTY<GS>	Any printable 7-bit ASCII character is allowed.
2.062	IMT	IMAGE TYPE	N	1	2	1000	2.062:1<RS>2<RS>3<RS>4<RS>5<GS>	
2.064	CAN	CANDIDATE LIST	SET			99	2.064:273849CA2<US>BROWN,JOHN D<RS>83625NY<US>COLLINS,TERRY G<GS>	Commas, hyphens, or blanks are all allowed as special characters.
2.064A*	UCN	UNIVERSAL CONTROL (UCN) NUMBER	AN	1	9			
2.064B*	NAM	NAME (NAM)	AS	3	30			Commas, hyphens, or blanks are all allowed as special characters.

Table C-1 Field Edit Specifications for Type-2 Elements

Field Number	Identifier	Field Name	Character	Field Size (not including Character Separators) Min	Field Size (not including Character Separators) Max	Max Occurrences	Example	Comments/Special Characters
2.065	RSR	REPOSITORY STATISTICS RESPONSE	ANS	1	96,000	1	2.065:(ASCII TEXT DATA)<GS>	Period (as decimal point), Tab (as field delimiter), Newline (as record separator
2.067	IMA	IMAGE CAPTURE EQUIPMENT	SET			1	2.067:DBI<US>1134<US>12345<GS>	Any printable 7-bit ASCII character is allowed.
2.067A*	MAK	ORIGINATING FINGERPRINT READING SYSTEM MAKE (MAK)	ANS	1	25			Any printable 7-bit ASCII character is allowed.
2.067B*	MODL	ORIGINATING FINGERPRINT READING SYSTEM MODEL (MODL)	ANS	1	25			Any printable 7-bit ASCII character is allowed.
2.067C*	SERNO	ORIGINATING FINGERPRINT READING SYSTEM SERIAL NUMBER (SERNO)	ANS	1	50			Any printable 7-bit ASCII character is allowed.
2.070	RAP	REQUEST FOR ELECTRONIC RAP SHEET	A	1	1	1	2.070:Y<GS>	
2.071	ACN	ACTION TO BE TAKEN	ANS	0	300	1	2.071:IF NON-IDENT, SUBMIT TO UNSOLVED LATENT FILE<GS>	Commas, hyphens, ampersands, slashes, number signs, and blanks are all allowed as special characters.
2.072	FIU	FINGERPRINT IMAGE(S) UPDATED	AN	1	2	13	2.072:01<US>02<US>05<US>07<US>08<US>11<US>13< GS>	
2.073	CRI	CONTROLLING AGENCY IDENTIFIER	ANS	9	9	3	2.073:NY0303000<GS>	
2.074	FGP	FINGER POSITION	N	2	2	99	2.074:01<RS>02<RS>03<RS>04<RS>05<RS>06<RS>07<RS>08<RS>09<RS>10<GS>	
2.075	ERS	ELECTRONIC RAP SHEET	ANS	4	200,000	1	2.075:<rap sheet example here><GS>	Any printable 7-bit ASCII character is allowed.
2.076	PRI	PRIORITY	N	1	1	1	2.076:1<GS>	
2.078	PEN	PENETRATION QUERY RESPONSE	N	2	2	1	2.078:10<GS>	
2.079	NCR	NUMBER OF CANDIDATES' RETURNED	N	1	2	1	2.079:10<GS>	Max for Biometric Investigative requests = 99 Max for Biometric Investigative search = 99 When omitted in request = NIR max (20)
2.080	EXP	RESPONSE EXPLANATION	ANS	1	50	1	2.080:PHOTO NOT FOUND FOR SPECIFIED DOA DOS<GS>	Any printable 7-bit ASCII character is allowed.
2.082	REC	RESPONSE CODE	A	1	1	1	2.082:Y<GS>	
2.083	ULF	UNSOLVED LATENT FILE	A	1	1	1	2.083:Y<FS>	
2.084	AMP	AMPUTATED OR BANDAGED	SET			13	2.084:03<US>XX<RS>09<US>UP<GS>	
2.084A*	FGP	FINGER NUMBER (FGP)	N	2	2			
2.084B*	AMPCD	AMPUTATED OR BANDAGED CODE (AMPCD)	A	2	2			SR can only be entered by an ITN/FBI Service Provider
2.085	CRN	CIVIL RECORD NUMBER	AN	9	9	1	2.085:V12345678<GS>	
2.086	SCNA	AFIS SEGMENT CONTROL NUMBER	AN	1	10	1	2.086:3124<GS>	
2.087	TAA	TREAT AS ADULT	A	1	1	1	2.087:Y<GS>	
2.088	NOT	NOTE FIELD	ANS	1	1,000	1	2.088:NOTE<GS>	Any printable 7-bit ASCII character is allowed.
2.089	MSC	MATCHSCORE	N	1	6	99	2.089:1200<GS>	
2.091	RCD1	RIDGE CORE DELTA ONE FOR SUBPATTERN CLASSIFICATION	SET			10	2.091:01<US>13<RS>02<US>6<RS>03<US>11<RS>04<US>10<RS>05<US>11<RS>06<US>11<RS>07<US>12<RS>08<US>10<RS>09<US>13<RS>10<US>11<GS>	
2.091A*	FGP	FINGER NUMBER (FGP)	N	2	2	1		
2.091B*	RCN1	RIDGE COUNT NUMBER 1 (RCN1)	N	1	2	3		
2.092	RCD2	RIDGE CORE DELTA TWO FOR SUBPATTERN CLASSIFICATION	SET			10	2.092:01<US>10<RS>02<US>0<RS>03<US>0<RS>04<US>0<RS>05<US>0<RS>06<US>0<RS>07<US>0<RS>08<US>0<RS>09<US>0<RS>10<US>0<GS>	
2.092A*	FGP	FINGER NUMBER (FGP)	N	2	2	1		
2.092B*	RCN2	RIDGE COUNT NUMBER 2 (RCN2)	N	1	2	3		
2.093	SPCN	SPECIAL POPULATION COGNIZANT FILE NUMBER (Future Capability)	AN	3	20	0	2.093:SLC1031234<GS>	

Table C-1 Field Edit Specifications for Type-2 Elements

Field Number	Identifier	Field Name	Character	Field Size (not including Character Separators) Min	Max	Max Occurrences	Example	Comments/Special Characters
2.094	CCN	COURT CASE NUMBER (Future Capability)	ANS	1	20	0	2.094:NY123456789\<GS>	Any printable 7-bit ASCII character except period is allowed. Embedded blanks are not allowed. CCN must not begin with a blank.
2.095	RFR	REQUEST FEATURES RECORD	A	1	1	1	2.095:Y\<GS>	
2.096	RPR	REQUEST PHOTO RECORD	A	1	1	1	2.096:Y\<GS>	
2.098	NDR	NAME OF DESIGNATED REPOSITORY	N	1	3	10	2.098:1\<GS>	
2.099	SAN	STATE ARREST NUMBER (Future Capability)	ANS	0	20	0	2.099:NY123456789\<GS>	Any printable 7-bit ASCII character is allowed. except period (.). Embedded blanks not permitted. Must not begin with blank.
2.2001	NAM1	NAME-ONE (Future Capability)	AS	1	50	0	2.2001:SMITH\<GS>	Any 7-bit non-Ctrl character
2.2002	NAM2	NAME-TWO (Future Capability)	AS	1	50	0	2.2002:BRIAN\<GS>	Any 7-bit non-Ctrl character
2.2003	NAM3	NAME-THREE (Future Capability)	AS	1	50	0	2.2003:DAVID\<GS>	Any 7-bit non-Ctrl character
2.2004	NAM4	NAME-FOUR (Future Capability)	AS	1	50	0	2.2004:MAHFOUZ\<GS>	Any 7-bit non-Ctrl character
2.2005	NAM5	NAME-FIVE (Future Capability)	AS	1	50	0	2.2005:al ARABI\<GS>	Any 7-bit non-Ctrl character
2.2006	CSF	CASCADED SEARCH FLAG (Future Capability)	A	2	2	0	2.2006:CR\<GS>	
2.2007	SDOB	SUBMITTED DATE OF BIRTH (Future Capability)	N	8	8	0	2.2007:10470123\<GS>	
2.2008	SNAM	SUBMITTED NAME (Future Capability)	AS	3	50	0	2.2008:JONES, ANTHONY P\<GS>	Commas, hyphens and blanks are all allowed as special characters.
2.2010	NIR	NUMBER OF IMAGES REQUESTED	N	0	2	1	2.2010:2\<GS>	NIR max for Biometric Investigative Request = 20 NIR when omitted in request = 20 Max images in response to Biometric Investigative Search is (NIR) 20x3=60
2.2011	*tbd	RAP BACK VERIFICATION STATUS (Future Capability)	A	1	1	0	2.2011 :Y\<GS>	
2.2012	IIR	IRIS IMAGES REQUESTED (Future Capability)	N	1	1	0	2.2012:0\<GS>	
2.2013	DMI	DISPOSITION MAINTENANCE INDICATOR (Future Capability)	A	1	1	0	2.2013:A\<GS>	
2.2014	*tbd	RAP BACK ELIGIBILITY (Future Capability)	A	1	1	0	2.2014:Y\<GS>	
2.2015	*tbd	RAP BACK EXPIRATION DATE (Future Capability)	N	8	8	0	2.2015:20100101\<GS>	
2.2016	DNAF	DNA FLAG (Future Capability)	A	1	1	0	2.2016:N\<GS>	
2.2017	DORI	DNA LOCATION (Future Capability)	AN	9	9	0	2.2017:TX9876543\<GS>	
2.2018	DNAC	DNA IN CODIS FLAG (Future Capability)	N	1	1	0	2.2018:Y\<FS>	
2.2019	SEAL	SEAL ARREST FLAG (Future Capability)	A	1	1	0	2.2019:N\<GS>	
2.2020	*tbd	RAP BACK RECIPIENT (Future Capability)	ANS	9	9	0	2.2020:NY0303000\<GS>	
2.2021	IFS	IDENTIFICATION FIREARMS SALES (Future Capability)	A	1	1	0	2.2021:D\<GS>	
2.2022	CIDN	CONTRIBUTOR ASSIGNED IDENTIFICATION NUMBER	AN	10	10	1	2.2022:CINR12345\<GS>	
2.2023	SII	SUPPLEMENTARY IDENTITY INFORMATION	ANS	4	10,000	1	2.2023:\<sample SII content>\<GS>	Any printable 7-bit ASCII character is allowed.
2.2024	HTI	HIT TYPE INDICATOR	A	1	10	1	2.2024:RISC\<GS>	
2.2025	GEO_TIME	GEOGRAPHIC COORDINATE DATE TIME STAMP (Future Capability)	AN	15	15	0	2.305:201002041400500z\<GS>	
2.2026	GEO_CORD	GEOGRAPHIC COORDINATE LOCATION (Future Capability)	SET			0		
2.2026A*	LATD	LATITUDE DEGREE (Future Capability)	NS	1	9	1		Period, Plus, Hyphen
2.2026B*	LATM	LATITUDE MINUTE (Future Capability)	NS	1	8	1		Period
2.2026C*	LATS	LATITUDE SECOND (Future Capability)	NS	1	8	1	2.306:43\<US>02\<US>55\<US>123\<US>14\<US>35\<GS>	Period
2.2026D*	LOND	LONGITUDE DEGREE (Future Capability)	NS	1	10	1		Period, Plus, Hyphen
2.2026E*	LONM	LONGITUDE MINUTE (Future Capability)	NS	1	8	1		Period
2.2026F*	LONS	LONGITUDE SECOND (Future Capability)	NS	1	8	1		Period
2.2027	DATUM_ID	GEOGRAPHIC COORDINATE DATUM (Future Capability)	ANS	4	13	0	2.307:AIRY\<GS>	Slash, Hyphen
2.2028	BID	BIOMETRIC IMAGE DESCRIPTION	SET			1000		
2.2028A*	FBI/UCN	FBI NUMBER/UCN	AN	1	9			

Table C-1 Field Edit Specifications for Type-2 Elements

Field Number	Identifier	Field Name	Character	Field Size (not including Character Separators) Min	Field Size Max	Max Occurrences	Example	Comments/Special Characters
2.2028B*	IMT	IMAGE TYPE	N	1	2			
2.2028C*	BSI	BIOMETRIC SET IDENTIFIER	N	4	24			
2.2028D*	FNR	FINGER NUMBER REQUESTED	N	2	2			
2.2028E*	PPD	PRINT POSITION DESCRIPTOR	AN	5	5			
2.2029	BSI	BIOMETRIC SET IDENTIFIER	N	4	24	1000	2.2029:9283463<GS>	
2.2030	PPD	PRINT POSITION DESCRIPTOR	SET			1	2.3030:02<US>FV1<GS>	
2.2030A*	FGP	FRICTION RIDGE GENERALIZED POSITION	N	1	2			
2.2030B*	FIC	FINGER IMAGE CODE	AN	3	3			
2.2031	BIA	BIOMETRIC IMAGE AVAILABLE	N	1	2	1	2.23031:13<GS>	
2.2032	ATR	AUDIT TRAIL RECORD	SET			100		
2.2032A*	ORI	ORIGINATING AGENCY IDENTIFIER	AN	9	9			
2.2032B*	DAT	DATE OF DISSEMINATION	N	8	8			
2.2032C*	TOT	TOT OF DISSEMINATION	A	3	5			
2.2032D*	BSI	BIOMETRIC SET IDENTIFIER DISSEMINATED	N	4	24			
2.2032E*	IMT	IMAGE TYPE DISEMINATED	N	1	2			
2.2032F*	FNR	FRICTION RIDGE POSITION REQUESTED	N	2	2			
2.2032G*	PPD	PRINT POSITION DESCRIPTION	AN	5	5			
2.2033	CNL	CANDIDATE INVESTIGATIVE LIST	SET			297		CNL max will be NCR (99)x3=297
2.2033A*	UCN	FBI NUMBER/UCN	AN	1	9			
2.2033B*	NAM	MASTER NAME	ANS	3	50			
2.2033C*	BSI	BIOMETRIC SET IDENTIFIER	N	4	24			
2.2033D*	IMT	IMAGE TYPE	N	1	2			
2.2033E*	FGP	FRICTION RIDGE GENERALIZED POSITION	N	2	2			
2.2033F*	PPD	PRINT POSITION DESCRIPTOR	AN	5	5			
2.2033G*	MSC	MATCH SCORE	N	1	6			
2.2033H*	BIA	BIOMETRIC IMAGE AVAILABLE	N	1	2			
2.2033I*	NDR	NAME OF DESIGNATED REPOSITORY	NS	1	400			NDR values separated by commas
2.2033J*	IDC	INFORMATION DESIGNATION CHARACTER	N	1	2			
2.2033K*	NOT	NOTE FIELD	ANS	1	1000			
2.2034	ULR	UNSOLVED LATENT RETAINED	A	1	1	1	2.2034:Y<GS>	
2.2035	EVI	EVENT IDENTIFIER	N	4	24	1		
2.2061	BIE	BIOMETRIC IMAGE ENROLLMENT	SET			61		
2.2061A*	BSI	BIOMETRIC SET IDENTIFIER	N	4	24	1		
2.2061B*	IMT	IMAGE TYPE	N	1	2	1		
2.2061C*	POS	SUBJECT POSE	A	1	1	1		POS and SMT are optional, when IMT=9 POS is populated, and when IMT=10 SMT is populated.
2.2061D*	SMT	SCARS, MARKS, AND TATTOOS	A	3	10	1		POS and SMT are optional, when IMT=9 POS is populated, and when IMT=10 SMT is populated.

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------		itl:PackageDescriptiveTextRecord	1	*	A Type-2 descriptive record	
2.001	RCC	itl:PackageDescriptiveTextRecord/	ansi-nist:RecordCategoryCode	1	1	A kind of record, for example 1 for Type-1, 14 for Type-14	2
2.002	IDC	itl:PackageDescriptiveTextRecord/	ansi-nist:ImageReferenceIdentification/ nc:IdentificationID	1	1	An identification of a particular record in a transaction	0
2.005	RET	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ansi-nist:RecordRetentionIndicator	1	1	True if the arrest/civil submission information submitted is to be retained as a permanent part of the FBI's Criminal Master File/Civil File; false otherwise	true
2.007	SCO	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ansi-nist:RecordForwardOrganizations	0	1	A list of organization identifiers that additional electronic responses need to be forwarded to	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ansi-nist:RecordForwardOrganizations/	nc:OrganizationIdentification/ nc:IdentificationID	1	9	An identification that references an organization.	WV1000000
2.070	RAP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ansi-nist:RecordRapSheetRequestIndicator	0	1	True if an electronic rap sheet should be returned with the response; false otherwise	true
2.006	ATN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	nc:CaveatText	0	1	A warning or caution.	SA J Q DOE, RM 11867
2.062	IMT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordBiometricImageCategoryCode	0	1000	The IMT Table values are to be used to identify which image is being referenced in the submission or response.	FP
2.067	IMA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordImageCaptureDetail	0	1	A description of the Capture Device Details.	
2.067A	MAK	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordImageCaptureDetail/	ansi-nist:CaptureDeviceMakeText	1	1	A make of an image capture device	DBI

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.067B	MODL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordImageCaptureDetail/	ansi-nist:CaptureDeviceModelText	1	1	A model of an image capture device	1134
2.067C	SERNO	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordImageCaptureDetail/	ansi-nist:CaptureDeviceSerialNumberText	1	1	A serial number of the image capture device	2838590029 395784-4
*2.2009	PTY	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ansi-nist:ImageCategoryCode	0	1	A kind of image of a person	FACE
*2.2026	GEO_COORD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordBiometricCaptureGeoLocation	0	1	An element representing the global time and location of a biometric capture	
*2.2025	GEO_TIME	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/	ansi-nist:TransactionUTCDate/ nc:DateTime	1	1	A date and time of the transaction in universal Greenwich Mean Time (GMT) units	2007-01-01T 00:00:01Z
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/	nc:GeographicCoordinateLatitude	1	1	A measurement of the angular distance between a point on the Earth and the Equator.	
*2.2026A	LATD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/ nc:GeographicCoordinateLatitude/	nc:LatitudeDegreeValue	1	1	A value that specifies the degree of a latitude. The value comes from a restricted range between -90 (inclusive) and +90 (inclusive).	50
*2.2026B	LATM	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/ nc:GeographicCoordinateLatitude/	nc:LatitudeMinuteValue	0	1	A value that specifies a minute of a degree. The value comes from a restricted range of 0 (inclusive) to 60 (exclusive).	23
*2.2026C	LATS	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/ nc:GeographicCoordinateLatitude/	nc:LatitudeSecondValue	0	1	A value that specifies a second of a minute. The value comes from a restricted range of 0 (inclusive) to 60 (exclusive).	12

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/	nc:GeographicCoordinateLongitude	1	1	A measurement of the angular distance between a point on the Earth and the Prime Meridian.	
*2.2026D	LOND	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/ nc:GeographicCoordinateLongitude/	nc:LongitudeDegreeValue	1	1	A value that specifies the degree of a longitude. The value comes from a restricted range between -180 (inclusive) and +180 (exclusive).	-110
*2.2026E	LONM	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/ nc:GeographicCoordinateLongitude/	nc:LongitudeMinuteValue	0	1	A value that specifies a minute of a degree. The value comes from a restricted range of 0 (inclusive) to 60 (exclusive).	45
*2.2026F	LONS	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/ nc:GeographicCoordinateLongitude/	nc:LongitudeSecondValue	0	1	A value that specifies a second of a minute. The value comes from a restricted range of 0 (inclusive) to 60 (exclusive).	56
*2.2027	DATUM_ID	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordBiometricCaptureGeoLocation/	ebts:GeographicCoordinateDatumCode	1	1	A code designation of the geographic Datum ID.	AIRY
2.2034	ULR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordLatentRetentionIndicator	0	1	True if the latent record owner requests that the IDENT'ed record be retained in the unsolved latent file; false if otherwise.	true
2.098	NDR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordFBIRepositoryCode	0	10	A code designation of the repository(ies) to be searched.	1
2.2010	NIR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordImagesRequestedQuantity	0	1	A number that indicates how many image records are being requested.	1
*2.2012	IIR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordIrisImagesRequestedCode	0	1	An element used to request iris images in an Image Request (IRQ) transaction.	0

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
*2.2006	CSF	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordCascadedSearchCode	0	1	An element used to flag a Special Population Cognizant (SPC) File record of interest that is to be subjected to cascaded searches from the Criminal File (CR), the Civil File (CI), or Both (BO).	CR
2.095	RFR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordFeaturesRequestIndicator	0	1	True if user desires to have IAFIS return a Type-9 features record associated with an image requested, false otherwise.	true
2.096	RPR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordPhotoRequestIndicator	0	1	True if user desires to have IAFIS return a Type-10 photo record if one is on file and disseminable, false otherwise.	true
*2.2014	TBD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordRapBackEligibilityIndicator	0	1	True if the Rap Back owner of record is still eligible to receive Rap Back information, false otherwise.	true
*2.2015	TBD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordRapBackExpirationDate/ nc:Date	0	1	A date after which the Rap Back owner of record is no longer eligible to receive Rap Back information.	2014-02-25
*2.2020	TBD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordRapBackOwnerOrganization	0	3	An element that indicates the ORI of the owner of a Rap Back subject record who is to receive the Rap Back Hit Notification.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordRapBackOwnerOrganization/	nc:OrganizationIdentification/ nc:IdentificationID	1	1	An identification that references an organization.	WV0001234
*2.052	TBD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordRapBackRequestCode	0	1	An element used to request that the FBI retain and monitor the submitted subject information for record activity.	1

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
*2.2011	TBD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordRapBackVerificationIndicator	0	1	True if continued monitoring is desired for the subject record, false otherwise.	true
*2.2093	SPCN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordSpecialPopulationCognizantFileIdentifi cation/ nc:IdentificationID	0	100	An identification number for a record in a Special Population Cognizant File.	SP123456
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordTransactionData	0	1	A Record Transaction section of an EBTS Record.	
2.042	MIL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ansi-nist:TransactionSubmissionMilitaryCode	0	1	A branch of the United States Military that submitted the enlistment transaction	M
2.049	EID	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ansi-nist:TransactionUserIdentification/ nc:IdentificationID	0	1	An identification of an individual requesting a transaction	1234234544 35
2.077	CFS	itl:PackageDescriptiveTextRecord/ itl:User DefinedDescriptiveDetail/ ebts:DomainDefi nedDescriptiveFields/ ebts:RecordTransact ionData/	ebts:TransactionCancelFingerprintSearchID	0	200	An Identifier number (AFIS/FBI uses the AFIS Segment Process Control Number) for a previously submitted search to be canceled.	1
2.048	CSR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionCivilSearchRequestIndicator	0	1	True if the agency sending a transaction is requesting a civil search, false otherwise.	true
2.088	NOT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionDescriptionText	0	1	A description of additional information regarding electronic submissions.	THIS FREE- TEXT FIELD IS USED TO PROVIDE A DDITIONAL I NFORMATIO N REGARDI NG ELECTR ONIC LATEN T SUBMISS IONS
*2.2013	DMI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionDispositionMaintenanceCode	0	1	A code indicating the kind of maintenance that should be perform on a subject criminal history record when disposition data requests are received.	A

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.069	ETC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionEstimatedCompletionMinutesQuantity	0	200	~~A number of minutes estimated necessary to complete a search or multiple searches for a Latent Search Status and Modification Query may be entered into this field.~~	6270
2.057	FNR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionFingerprintImagesRequested/ ansi-nist:FingerPositionCode	0	1	An element that contains the finger numbers for which image information is requested, used in transactions involving a request for fingerprint image information.	6
2.072	FIU	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionFingerprintImagesUpdated/	ansi-nist:FingerPositionCode	1	13	A finger position code	2
2.2030	PPD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionPrintPositionDescriptors	0	10	A description of a fingerprint's probable position, to allow transactions to reference EJI or Tip images.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionPrintPositionDescriptors/	ansi-nist:FingerPositionCode	1	1	A finger position code	10
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionPrintPositionDescriptors/	ebts:FingerImageCode	1	1	An element to indicate the code for the EJI or tip image that is a part of the transaction	EJI

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.079	NCR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionImagesRequestedQuantity	0	1	An element that contains the maximum number of candidates (images) the submitter desires to receive in response to a latent image or features search. If the field is left blank, only images for the highest scoring candidate will be returned.	20
2.2028	BID	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionBiometricImagesRequested	0	1	A list of requested biometric images.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/	ebts:BiometricImageDescription	0	1000	A description to allow positive identification of a specific biometric image	
2.2028A	FBI_NUMBER_ UCN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription/	j:PersonFBIIdentification/ nc:IdentificationID	0	1	A number issued by the FBI's Automated Fingerprint Identification System (AFIS) based on submitted fingerprints.	WV234552
2.2028B	IMT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription/	ebts:BiometricImageCategoryCode	0	1	A kind of biometric image.	LJP
2.2028C	BSI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription/	ebts:BiometricSetID	0	1	An identifier to uniquely identify a fingerprint set, palmprint set, or a supplemental print set	123345442

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.2028D	FNR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription/	ansi-nist:FrictionRidgePositionCode	0	1	A friction ridge position code	19
2.2028E	PPD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription/	ebts:PrintPositionDescriptors	0	1	A description of the probable area of the finger represented in a fingerprint image.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription/ ebts:PrintPositionDescriptors/	ansi-nist:FingerPositionCode	1	1	A finger position code	2
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription/ ebts:PrintPositionDescriptors/	ebts:FingerImageCode	1	1	An element to indicate the code for the EJI or tip image that is a part of the transaction	MED
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionBiometricImagesRequested/ ebts:BiometricImageDescription	0	1	A list of requested biometric images.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionResponseData	0	1	An element that contains response information to a EBTS Transaction.	
2.2024	HTI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionHitCategoryCode	0	1	A kind of identification category for a hit response.	RISC

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.080	EXP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ansi-nist:TransactionReasonText	0	1	A reason for requesting the transaction	PHOTO NOT FOUND FOR SPECIFIED DOA DOS
2.071	ACN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionActionText	0	1	An element that includes text answers to submission requests to indicate that a latent case will be established or to indicate recommendations for further actions in either latent or ten-print responses.	IF NON-IDE NT, SUBMIT TO UNSOLV ED LATENT FILE
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionAuditTrailRecordList	0	1	A data type for containing a list of information associated with the dissemination of a Record owner's image	
2.2032	ATR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/	ebts:AuditTrailRecord	1	100	An element for containing information associated with the dissemination of a Record owner's image	
2.2032A	ORI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/	ebts:RecordReceivingAgency/ nc:IdentificationID	1	1	An agency receiving the transaction record	DC2653548
2.2032B	DAT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/	ebts:RecordDisseminationDate/ nc:Date	1	1	A date a record was disseminated.	2005-02-13

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.2032C	TOT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/	ebts:RecordTransactionCategoryCode	1	1	A kind of code used to describe the purpose of the tranaction.	CAR
2.2032D	BSI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/	ebts:BiometricSetID	0	1	An identifier to uniquely identify a fingerprint set, palmprint set, or a supplemental print set	234556545
2.2032E	IMT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/	ebts:BiometricImageCategoryCode	0	1	A kind of biometric image.	TP
2.2032F	FNR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/	ansi-nist:FrictionRidgePositionCode	0	1	A friction ridge position code	19
2.2032G	PDD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/	ebts:PrintPositionDescriptors	0	1	A description of the probable area of the finger represented in a fingerprint image.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/ ebts:PrintPositionDescriptors/	ansi-nist:FingerPositionCode	1	1	A finger position code	2

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionAuditTrailRecordList/ ebts:AuditTrailRecord/ ebts:PrintPositionDescriptors/	ebts:FingerImageCode	1	1	An element to indicate the code for the EJI or tip image that is a part of the transaction	DST
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionCandidateList	0	1	A list of candidates given as possible matches to a search request.	
2.2033	CNL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/	ebts:Candidate	1	99	An identification of a person matched by the EBTS system returned in response to an inbound transaction.	
2.2033A	UCN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	j:PersonFBIIdentification/ nc:IdentificationID	1	1	A number issued by the FBI's Automated Fingerprint Identification System (AFIS) based on submitted fingerprints.	62760NY12
2.2033B	NAM	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:PersonName	0	1	A name of a person.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/ ebts:PersonName/	nc:PersonGivenName			A first name of a person.	ANTHONY

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/ ebts:PersonName/	nc:PersonMiddleName			A middle name of a person.	PAUL
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/ ebts:PersonName/	nc:PersonSurName			A last name or family name of a person.	JONES
2.2033C	BSI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:BiometricSetID	0	1	An identifier to uniquely identify a fingerprint set, palmprint set, or a supplemental print set	1234567
2.2033D	IMT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:RecordBiometricImageCategoryCode	0	1	An element that indicates the type of image included in an electronic latent submittal to identify the Type-7 or Type-13 record(s) present	FP
2.2033E	FGP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ansi-nist:FrictionRidgePositionCode	0	1	A friction ridge position code	19
2.2033F	PPD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:PrintPositionDescriptors	0	1	A description of the probable area of the finger represented in a fingerprint image.	

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/ ebts:PrintPositionDescriptors/	ansi-nist:FingerPositionCode	1	1	A finger position code	2
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/ ebts:PrintPositionDescriptors/	ebts:FingerImageCode	1	1	An element to indicate the code for the EJI or tip image that is a part of the transaction	MED
2.2033G / 2.089	MSC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:CandidateMatchScoreValue	0	1	A number that represents the match score of a fingerprint from AFIS for a candidate list response.	1200
2.2033H	BIA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:BiometricImageAvailableCode	0	5	An element listing a kind biometric image available for a given subject.	FP
2.2033I	NDR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:RecordFBIRepositoryCode	0	100	A code designation of the repository(ies) to be searched.	9
2.2033J	IDC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ansi-nist:ImageReferenceIdentification/ nc:IdentificationID	0	1	An identification of a particular record in a transaction	1

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.2033K	NOT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionCandidateList/ ebts:Candidate/	ebts:ORIPointOfContactText	0	1	An element providing free text ORI information when no image is available for candidate.	Photo held b y NY DoJ
2.078	PEN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionPenetrationQueryResponsePercent	0	1	A response to the penetration query that includes the size, in percentage of the respository that will be searched.	1
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionRepositoryResponse	0	1	An element that holds statistics that can be used to estimate the level of penetration of the repository given a set of search parameters defined in the search request	
2.065	RSR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionRepositoryResponse/	ebts:TransactionRepositoryResponseRecord	0	*	An element that details statistics that can be used to estimate the level of penetration of the repository given a set of search parameters defined in the search request	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionRepositoryResponse/ ebts:TransactionRepositoryResponseRecord/	ebts:RepositoryParameterText	1	1	A description of the parameter name for a repository response section	EYE
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionRepositoryResponse/ ebts:TransactionRepositoryResponseRecord/	ebts:RepositoryParameterValueText	1	1	A description of the parameter value for a repository response section	BLUE

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionRepositoryResponse/ ebts:TransactionRepositoryResponseRecord/	ebts:RepositoryCriminalParameterPercent	1	1	A percentage that indicates the fraction of the criminal files having that value of the parameter for a repository response section	0.027
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionRepositoryResponse/ ebts:TransactionRepositoryResponseRecord/	ebts:RepositoryCivilParameterPercent	1	1	A percentage that indicates the fraction of the civil files having that value of the parameter for a repository response section	0.015
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionRepositoryResponse/ ebts:TransactionRepositoryResponseRecord/	ebts:RepositoryCombinedParameterPercent	1	1	A percentage that indicates the fraction of the combined criminal and civil files having that value of the parameter for a repository response section	0.025
2.082	REC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionResponseIndicator	0	1	True if the request contains no errors, false otherwise. This field is used in the PDR and PRR transactions to indicate the status of the corresponding request.	true
2.059	SRF	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionSearchResultsCode	0	1	An element that indicates the indentification results of a biometric search.	I

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.060	MSG	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionStatusText	0	11	An element that contains reason, status or error messages that are generated as a result of the processing of a transaction.	MATCH MA DE AGAINS T SUBJECT S FINGERP RINTS ON 0 5/01/94. PLE ASE NOTIF Y SUBMITTI NG STATE I F MATCH R ESULTS
2.2023	SII	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionSupplementaryIdentityInformationText	0	1	An element to allow inclusion of additional identity information regarding a subject	Subject's sup plemental ide ntity informati on goes here
2.075	ERS	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionElectronicRapSheetText	0	1	An element that represents a subject's rap sheet	Subject's Ra p Sheet goe s here
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/	ebts:TransactionBiometricImageEnrollmentRecordList	0	1	A data type for containing a list of information associated with the enrolled biometric images.	
2.2061	BIE	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionBiometricImageEnrollmentRecordList/	ebts:BiometricImageEnrollmentRecord	0	36	An element for containing information associated with the enrolled biometric image	
2.2061A	BSI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionBiometricImageEnrollmentRecordList/ ebts:BiometricImageEnrollmentRecord/	ebts:BiometricSetID	1	1	An identifier to uniquely identify a fingerprint set, palmprint set, or a supplemental print set	1234567

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.2061B	IMT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionBiometricImageEnrollment RecordList/ ebts:BiometricImageEnrollmentRecord/	ebts:BiometricImageCategoryCode	1	1	A kind of biometric image.	PHF
2.2061C	POS	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionBiometricImageEnrollment RecordList/ ebts:BiometricImageEnrollmentRecord/	ansi-nist:FaceImageSubjectPoseCode	0	1	A pose of a subject	F
2.2061D	SMT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/ ebts:TransactionResponseData/ ebts:TransactionBiometricImageEnrollment RecordList/ ebts:BiometricImageEnrollmentRecord/	nc:PhysicalFeatureCategoryCode	0	1	A specific kind of physical feature.	ART ARM
2.044	GEO	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionSearchAreaCode	0	5	An element that indicates the geographic area to be searched.	WV
2.076	PRI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionSearchPriorityCode	0	1	An element that indicates the priority of a latent search.	2
2.043	TSR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionSearchRequestCategoryCode	0	1	An element that indicates the type of record being submitted.	P
2.083	ULF	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionData/	ebts:TransactionUnsolvedLatentFileIndicator	0	1	True if latent image or features record in search should be added to the Unsolved Latent File, otherwise false.	true
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordTransactionActivity	0	1	An element to represent FBI-Specific information used to identify an Activity that initiated the transaction.	

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.037	RFP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	nc:ActivityReasonText	0	1	A reason for an activity.	LAW ENFOR CEMENT
*2.2035	EVI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:EnrollmentEventID	0	1	An identifier to uniquely identify a specific enrollment event during FIS processing. An EVI may have multiple BSI sets associated with a specific event.	1234135
2.056	ICO	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	j:SubjectOffenderNoticeText	0	1	Additional information associated with a subject.	ARMED AN D DANGER OUS
2.045	DOA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:ArrestDate/ nc:Date	0	1	A code representing the sequence of the subject's arrests within a given date and the type of fingerprint card on which the Date of Arrest was contained.	1999-03-25
2.046	DOS	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:ArrestDateSuffixCode	0	1	A code representing the sequence of the subject's arrests within a given date and the type of fingerprint card on which the Date of Arrest was contained.	L
*2.099	SAN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	j:ArrestSequenceID/ nc:IdentificationID	0	1	A sequential number assigned to the arrest of a subject.	WV0004312
2.009	OCA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	nc:CaseTrackingID	0	1	An identifier used to track a case.	Q880312465
2.053	OFC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:OffenseCategoryCode	0	1	A code that indicates the type of offense.	3
*2.2019	SEAL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:ArrestSealIndicator	0	1	True if the the arrest is to be sealed upon establishment of the record identified on the CAR and CNA TOTs, false otherwise.	false

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:CriminalCycle	0	40	A container for the arrest information and associated disposition and supervised release information about a Subject for a particular Arrest	
2.047	ASL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/	ebts:ArrestOffenseData	1	1	A container for the arrest information about a Subject for a particular Arrest	
2.047A	DOO	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:ArrestOffenseData/	ebts:OffenseDate/ nc:Date	0	1	A date of offense for a particular Arrest	1999-03-25
2.047B	AOL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:ArrestOffenseData/	j:ChargeText	1	1	The text of a charge.	DUI
2.051	CSL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/	ebts:CourtDispositionData	0	1	A container for the court disposition information about a Subject for a particular Arrest	
2.051A	CDD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CourtDispositionData/	nc:DispositionDate/ nc:Date	0	1	A date a disposition occurred.	2015-03-26
2.051B	COL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CourtDispositionData/	j:ChargeText	1	1	The text of a charge.	DUI

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.051C	CPL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CourtDispositionData/	nc:DispositionText	0	1	A result or outcome of a disposition.	5 DAYS JAIL
--------	CDN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CourtDispositionData/	ebts:DispositionCategoryCodeText	0	1	A code to express the definitive disposition information about a Subject for a particular Arrest	306+
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/	ebts:CustodySupervisoryData	0	1	A container for the supervised release information about a Subject for a particular Arrest	
2.054	SSD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/	nc:StartDate/ nc:Date	0	1	A date on which something begins.	2015-11-10
2.2100	SED	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/	nc:EndDate/ nc:Date	0	1	An end date.	2024-11-09
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/	ebts:SupervisionStatus	0	1	A container for the supervised release status information about a Subject for a particular Arrest	
2.055	SLE	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/ ebts:SupervisionStatus/	nc:StatusText	0	1	A status or condition of something or someone.	RELEASED BY COURT ORDER

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.2101	SST	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/ ebts:SupervisionStatus/	ebts:SupervisionStatusCode	0	8	A status of the supervised release about a Subject for a particular Arrest	BLS
2.2104	SRA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/	ebts:SupervisedReleaseActionCode	0	1	A Code to express the supervised release action that should be performed on the Subject Record for a particular Arrest	CAS
2.2102	RSC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/	ebts:SupervisedReleaseRevocationReasonText	0	1	A reason the supervised release is cancelled for a Subject for a particular Arrest	This free-text field is used to indicate th e reason a s upervised rel ease is canc elled.
2.2103	STT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:CriminalCycle/ ebts:CustodySupervisoryData/	ebts:SupervisionReceivingOrganizationID	0	1	An identifier containing the ORI for the agency to which supervision is being transferred	WI013415Y
*2.094	CCN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	j:CourtEventSequenceID/ nc:IdentificationID	0	1	A unique identifier for a court case event record.	C123456
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:RecordControllingAgency	0	3	An identification that contains the originating agency identifier (ORI) of the organization controlling the transaction.[CRI]	
2.073	CRI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:RecordControllingAgency/	nc:OrganizationIdentification/ nc:IdentificationID	0	*	An identification that references an organization.	NY0303000
2.086	SCNA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:AFISSegmentControlID	0	1	An identifier used by AFIS/FBI to allow tracking of or reference to specific transactions.	3124

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.2029	BSI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:BiometricSetID	0	1000	An identifier to uniquely identify a fingerprint set, palmprint set, or a supplemental print set	1234567
2.061	CST	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	nc:CaseTitleText	0	1	An official name of a case.	ARMED RO BBERY FIRS T COUNTY
2.010	CIN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:ContributorCaseIdentificationNumber	0	5	An element that contains identification information assigned by the contributor.	
2.010A	CIN_PRE	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:ContributorCaseIdentificationNumber/	ebts:ContributorCasePrefixIdentification/ nc:IdentificationCategoryText	1	1	A description of the Contributor Case number.	Investigation Number
2.010B	CIN_ID	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:ContributorCaseIdentificationNumber/	ebts:ContributorCaseIdentification/ nc:IdentificationID	1	1	An identification assigned by the contributor to uniquely identify a latent case.	1963BRT715
2.011	CIX	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:ContributorCaseIdentificationNumber/	ebts:ContributorCaseExtensionIdentification/ nc:IdentificationID	1	1	An element that supplements the Case Identifier Number, allowing multiple searches to be associated with the same case.	1
2.003	FFN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:FBIFileNumber/ nc:IdentificationID	0	1	An identification representing the FBI Investigative File Number.	2537597861
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:FBILatentCaseIdentification	0	1	An identification for a FBI latent case number.	
2.012	LCN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:FBILatentCaseIdentification/	ebts:FBILatentCaseNumber/ nc:IdentificationID	1	1	An identification assigned by the FBI and used for record keeping purposes.	MX-123456 78

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.013	LCX	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/ ebts:FBILatentCaseIdentification/	ebts:FBILatentCaseNumberExtension/ nc:IdentificationID	1	1	An identification that defines subsequent extensions assigned by the FBI for each submission related to a Latent Case Number.	1
2.2022	CIDN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:ContributorAssignedIdentificationNumber/ nc:IdentificationID	0	1	An identifier assigned to a single biographic search by the contributor.	ALA3459876
2.085	CRN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordTransactionActivity/	ebts:CivilRecordIdentification/ nc:IdentificationID	0	1	A unique identifier assigned to each Civil Subject Record.	V12345678
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/	ebts:RecordSubject	0	1	An element that contains information used to identify the subject of a record transaction.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonAgeMeasure	0	1	A measurement of the age of a person.	
2.023	AGR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonAgeMeasure/	nc:MeasureRangeValue			A measurement specified by a minimum and maximum value.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonAgeMeasure/ nc:MeasureRangeValue/	nc:RangeMinimumValue			A minimum value of a range.	25
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonAgeMeasure/ nc:MeasureRangeValue/	nc:RangeMaximumValue			A maximum value of a range.	30
2.019	AKA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonAlternateName	0	10	An alternate name or alias of a person.	

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonAlternateName/	nc:PersonGivenName			A first name of a person.	TONY
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonAlternateName/	nc:PersonMiddleName			A middle name of a person.	P
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonAlternateName/	nc:PersonSurName			A last name or family name of a person.	JONES
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonAlternateName/	ebts:PersonFourthImportanceName			A name of a person to represent a the fourth name for a culture using four or five names (e.g., a tribal or village name.) It will be given the ranking of fourth importance of naming in the culture from which the person is associated.	TribalName
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonAlternateName/	ebts:PersonFifthImportanceName			A name of a person to represent a the fifth name for a culture using four or five names (e.g., a tribal or village name.) It will be given the ranking of fifth importance of naming in the culture from which the person is associated.	CulturalNam e
2.022	DOB	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonBirthDate/ nc:Date	0	5	A date a person was born.	1981-08-26
2.021	CTZ	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonCitizenshipCode	0	1	A code that indicates a person's country of citizenship	US

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.031	EYE	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonEyeColorCode	0	1	A color of the eyes of a person.	BLU
2.032	HAI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonHairColorCode	0	1	An element that represents the larger set of ansi-nist person hair color codes.	BRO
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonHeightMeasure	0	1	A measurement of the height of a person.	
2.027	HGT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonHeightMeasure/	nc:MeasurePointValue			A specific measurement value.	601
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonHeightMeasure/	nc:MeasureUnitText			A unit that qualifies the measurement value.	FeetInches
2.028	HTR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonHeightMeasure/	nc:MeasureRangeValue			A measurement specified by a minimum and maximum value.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonHeightMeasure/ nc:MeasureRangeValue/	nc:RangeMinimumValue			A minimum value of a range.	600
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonHeightMeasure/ nc:MeasureRangeValue/	nc:RangeMaximumValue			A maximum value of a range.	603
2.018	NAM	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonName	0	1	A name of a person.	

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	nc:PersonGivenName			A first name of a person.	ANTHONY
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	nc:PersonMiddleName			A middle name of a person.	PAUL
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	nc:PersonSurName			A last name or family name of a person.	JONES
2.2002	NAM2	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	nc:PersonGivenName			A first name of a person.	ANTHONY
2.2003	NAM3	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	nc:PersonMiddleName			A middle name of a person.	PAUL
2.2001	NAM1	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	nc:PersonSurName			A last name or family name of a person.	JONES
*2.2004	NAM4	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	ebts:PersonFourthImportanceName			A name of a person to represent a the fourth name for a culture using four or five names (e.g., a tribal or village name.) It will be given the ranking of fourth importance of naming in the culture from which the person is associated.	TribalName

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
*2.2005	NAM5	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonName/	ebts:PersonFifthImportanceName			A name of a person to represent a the fifth name for a culture using four or five names (e.g., a tribal or village name.) It will be given the ranking of fifth importance of naming in the culture from which the person is associated.	CulturalNam e
2.017	MNU	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonOtherIdentification	0	4	Information about an identifier with a kind that is not explicitly defined in the standard that refers to a person within a certain domain.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonOtherIdentification/	nc:IdentificationID	1	1	A value that identifies something.	1234567890 P
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonOtherIdentification/	ebts:PersonIDCategoryCode	1	1	An element to indicate the category of Miscellaneous Identification provided for a Person	PP
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonPhysicalFeature	0	1	A prominent or easily identifiable aspect of a person.	
2.026	SMT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonPhysicalFeature/	nc:PhysicalFeatureCategoryCode	0	10	A specific kind of physical feature.	MISS TOE
2.025	RAC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonRaceCode	0	1	A classification of a person based on factors such as geographical locations and genetics.	W
2.024	SEX	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonSexCode	0	1	An element that represents the larger set of EBTS gender codes as a substitution for niem-core element PersonSex.	M

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.016	SOC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonSSNIdentification/ nc:IdentificationID	0	4	A unique reference to a living person; assigned by the United States Social Security Administration.	220-56-5855
2.015	SID	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonStateIdentification	0	1000	An identification of a person based on a state- issued ID card.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonStateIdentification/	nc:IdentificationID			A value that identifies something.	12345678
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonStateIdentification/	nc:IdentificationCategoryText			A kind of identification.	NY
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonWeightMeasure	0	1	A measurement of the weight of a person.	
2.029	WGT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:PersonWeightMeasure/ nc:MeasurePointValue	0	1	A measurement of the weight of a person.	182
2.030	WTR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonWeightMeasure/	nc:MeasureRangeValue			A measurement specified by a minimum and maximum value.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonWeightMeasure/ nc:MeasureRangeValue/	nc:RangeMinimumValue			A minimum value of a range.	175
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:PersonWeightMeasure/ nc:MeasureRangeValue/	nc:RangeMaximumValue			A maximum value of a range.	185

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.020	POB	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonBirthPlaceCode	0	1	A code that indicates a person's place of birth	VA
*2.2007	SDOB	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonSubmittedBirthDate/ nc:Date	0	1	A date of birth as provided in a submission that is determined to be different than the date of birth in the record of the identified subject.	2012-04-23
*2.2008	SNAM	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonSubmittedName	0	1	A name as provided in a submission that is determined to be different than the name of record of an identified subject.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonSubmittedName/	nc:PersonGivenName			A first name of a person.	John
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonSubmittedName/	nc:PersonMiddleName			A middle name of a person.	Q
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonSubmittedName/	nc:PersonSurName			A last name or family name of a person.	Public
2.081	UCN	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonUCNIdentification/ nc:IdentificationID	0	1	An identification using a Universal Control Number.	UC-12345678
2.014	FBI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	j:PersonFBIIdentification/ nc:IdentificationID	0	1000	A number issued by the FBI's Automated Fingerprint Identification System (AFIS) based on submitted fingerprints.	62760NY12
*2.2021	IFS	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	j:PersonFirearmSalesDisqualifiedCode	0	1	A status of person's eligibility to purchase firearms.	D

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.087	TAA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonAdultTreatmentIndicator	0	1	True if a juvenile is to be processed as an adult, false otherwise.	true
2.036	PHT	~~itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/~~	~~ebts:PersonDigitalImageAvailableIndicator~~			~~True if a digital image is available for the Subject, false otherwise.~~	~~true~~
2.035	PPA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonPalmPrintAvailableIndicator	0	1	True if a subject's palmprint is available, false otherwise.	true
2.2031	BIA	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:BiometricImageAvailableCode	0	5	An element listing a kind biometric image available for a given subject.	FP
*2.2016	DNAF	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonDNAAvailableIndicator	0	1	True if a DNA sample is available for the Subject, false otherwise.	true
*2.2018	DNAC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:BinaryCODISAvailableIndicator	0	1	True if the DNA available is located in the CODIS database for the subject identified on the CAR, CNA, and CPNU TOTs, false otherwise.	false
*2.2017	DORI	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:BiometricRepositoryOrganization	0	1	An organization that is responsible for the storage of a biometric sample.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:BiometricRepositoryOrganization/	nc:OrganizationIdentification/ nc:IdentificationID			An identification that references an organization.	WI013415Y
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonGeneralizedFrictionRidgePositions	0	1	A container for latent friction ridge positions for searching palms or other LFR, such as supplementals	

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.074	FGP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonGeneralizedFrictionRidgePositions/	ansi-nist:FrictionRidgePositionCode	1	10	A friction ridge position code	36
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonFingerprintSet	0	1	A representation of the identifying characteristics of a person's set of fingerprints.	
2.038	DPR	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/	nc:BiometricCaptureDate/ nc:Date	0	1	A date a biometric sample was collected.	1999-03-25
2.084	AMP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/	itl:FingerprintImageFingerMissing	0	13	A missing finger in a fingerprint image. Deprecated in favor of biom:FingerprintImageFingerMissing.	
2.084A	FGP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ itl:FingerprintImageFingerMissing/	ansi-nist:FingerPositionCode			A finger position code	3
2.084B	AMPCD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ itl:FingerprintImageFingerMissing/	itl:FingerMissingCode			A reason for a missing finger from a fingerprint image. Deprecated in favor of biom:FingerMissingCode.	XX
2.034/ 2.091/ 2.092	RCD1/ RCD2/ PAT	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/	ebts:FingerprintImageFinger	0	10	An element that contains information about a finger in an image.	
2.034A/ 2.074/ 2.091A/ 2.092A	FGP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ ebts:FingerprintImageFinger/	ansi-nist:FingerPositionCode	1	10	A finger position code	1

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
2.033	FPC	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ ebts:FingerprintImageFinger/	ebts:NCICFingerprintClassificationCode	0	1	An element that indicates the fingerprint pattern classification code as designated by NCIC.	PI
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ ebts:FingerprintImageFinger/	ebts:RidgeCoreDelta	1	3	An element to allow for the representation of FBI specific elements for finger pattern and subpattern classifications.	
2.034B	PATCL	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ ebts:FingerprintImageFinger/ ebts:RidgeCoreDelta/	ebts:FingerprintPatternClassificationCode	1	1	An element representing IAFIS pattern level fingerprint classifications in a fingerprint image.	WU
2.091B	RCN1	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ ebts:FingerprintImageFinger/ ebts:RidgeCoreDelta/	ansi-nist:RidgeCountValue	0	1	A number of friction ridges between two features on an image	13
2.092B	RCN2	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonFingerprintSet/ ebts:FingerprintImageFinger/ ebts:RidgeCoreDelta/	ansi-nist:RidgeCountValue	0	1	A number of friction ridges between two features on an image	10
2.041	RES	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	ebts:PersonResidenceLocation	0	1	An element that indicates the residence of Person Fingerprinted.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/	nc:LocationAddress			A geophysical location described by postal information.	

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/ nc:LocationAddress/	nc:StructuredAddress			An address.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationStreet			A road, thoroughfare or highway.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/ nc:LocationAddress/ nc:StructuredAddress/ nc:LocationStreet/	nc:StreetNumberText			A number that identifies a particular unit or location within a street.	5021
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/ nc:LocationAddress/ nc:StructuredAddress/ nc:LocationStreet/	nc:StreetName			A name of a street.	OAK LEAF D RIVE
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationCityName			A name of a city or town.	BUFFALO
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationStateNCICLSTACode			A state, commonwealth, province, or other such geopolitical subdivision of a country.	NY

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ ebts:PersonResidenceLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationPostalCode			An identifier of a post office-assigned zone for an address.	14204
2.039	EAD	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:Employer	0	1	A business or person which employs a person.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:Employer/	nc:EntityOrganization/ nc:OrganizationName			An organization capable of bearing legal rights and responsibilities.	ACE CONST RUCTION C OMPANY
2.040	OCP	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:EmployeeOccupationText	0	1	A job of an employee.	PLUMBER
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/	nc:EmploymentLocation	0	1	A location where a person works.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/	nc:LocationAddress			A geophysical location described by postal information.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/ nc:LocationAddress/	nc:StructuredAddress			An address.	
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationStreet			A road, thoroughfare or highway.	

Table C-2 Type-2 Record Hierarchical Model for XML End

Field Number	Field Mnemonic	Parent	NIEM Element	Min	Max	Definition	Example
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/ nc:LocationAddress/ nc:StructuredAddress/ nc:LocationStreet/	nc:StreetNumberText			A number that identifies a particular unit or location within a street.	327
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/ nc:LocationAddress/ nc:StructuredAddress/ nc:LocationStreet/	nc:StreetName			A name of a street.	MAPLE AVE
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationCityName			A name of a city or town.	BUFFALO
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationStateNCICLSTACode			A state, commonwealth, province, or other such geopolitical subdivision of a country.	NY
--------	--------	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/ ebts:DomainDefinedDescriptiveFields/ ebts:RecordSubject/ nc:EmploymentLocation/ nc:LocationAddress/ nc:StructuredAddress/	nc:LocationPostalCode			An identifier of a post office-assigned zone for an address.	14204
--------	SDF	itl:PackageDescriptiveTextRecord/ itl:UserDefinedDescriptiveDetail/	ebts:StateDefinedFields	0	1	An element to allow for the representation of State-specific data not otherwise required by the FBI	

Deprecated Elements Appear struck-out with a gray background.

Future Capabilities are represented with a *.

APPENDIX D - SUMMARY LOGICAL RECORD LAYOUTS FOR TYPE-2 IDENTIFICATION AND VERIFICATION TRANSACTIONS

1.0 Introduction

Appendix D presents the summary logical record layouts for Identification and Verification transactions. Table D-1 is a summary representation of all Identification and Verification transactions. For detailed specifications of individual fields of these record sets, see Appendix C.

2.0 Interpretation of the Table

The column headers at the top of the page select a particular transaction. The row headers in the left margin give the tag number and ID for each field. The cell at the intersection of any given row and column gives summary information about the use of that field (row) in that transaction (column). If that cell is blank, the field is not used in that record. Otherwise, the number at the right in the cell gives the maximum number of occurrences of that field for that record. If the cell is shaded, then the field's inclusion is optional for that record; unshaded cells indicate mandatory inclusion. The diagonal pattern represents future initiatives, field tags, and type of transactions. In all cases, the minimum number of occurrences for a mandatory field is one, and zero for an optional field. Finally, the superscript in the upper left-hand corner of the cell is a reference to any note (see Appendix D Reference Notes following Table D-1) pertaining to the use of that field in the record.

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	EMUF	ERRT	FANC	FAUF
2.001 LEN	1	1	1	1	1	1	1	1	1	1	1	1
2.002 IDC	1	1	1	1	1	1	1	1	1	1	1	1
2.003 FFN												
2.005 RET	1	1	1 [1]	1	1	1	1	1	1		1	1
2.006 ATN	1	1		1	1	1	1	1	1	1	1	1
2.007 SCO	9	9		9	9	9	9	9	9	9	9	9
2.009 OCA	1	1	1	1	1	1	1	1	1	1	1	1
2.010 CIN												
2.011 CIX												
2.012 LCN												
2.013 LCX												
2.014 FBI		5 [5]	5 [5]	5 [5]	5 [5]	5		5	5	5	5	5
2.015 SID		1 [6]	1 [6]	1 [6]	1 [6]	1		1	1	1		
2.016 SOC		4	4	4	4	4		4	4		4	4
2.017 MNU	4	4	4	4	4	4	4	4	4	4	4 [3]	4 [3]
2.018 NAM	1 [4]	1	1	1	1	1	1 [4]	1	1		1	1
2.019 AKA		10	10	10	10	10		10	10		10	10
2.020 POB		1	1	1	1	1		1	1		1	1
2.021 CTZ	10	10	10	10	10	10	10	10	10		10	10
2.022 DOB	5 [4]	5	5	5	5	5	5 [4]	5	5		5	5
2.023 AGR												
2.024 SEX	1	1	1	1	1	1	1	1	1		1	1
2.025 RAC	1	1	1	1	1	1	1	1	1		1	1
2.026 SMT	10	10	10	10	10	10	10	10	10		10	10
2.027 HGT	1	1	1	1	1	1	1	1	1		1	1
2.028 HTR												
2.029 WGT	1	1	1	1	1	1	1	1	1		1	1
2.030 WTR												
2.031 EYE	1	1	1	1	1	1	1	1	1		1	1
2.032 HAI	1	1	1	1	1	1	1	1	1		1	1
2.033 FPC												
2.034 PAT												
2.035 PPA		1	1	1	1							
2.036 PHT	1	1	1	1	1	1	1					
2.037 RFP								1	1		1	1

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	EMUF	ERRT	FANC	FAUF
2.038 DPR	1					1	1	1	1		1	1
2.039 EAD		1	1	1	1	1		1	1		1	1
2.040 OCP		1	1	1	1			1	1		1	1
2.041 RES	1	1	1	1	1	1	1	1	1		1	1
2.042 MIL									1		1	1
2.043 TSR				1	1			1	1			
2.044 GEO												
2.045 DOA		1	1	1	1							
2.046 DOS												
2.047 ASL		40[2]	40[2]	40[2]	40[2]							
2.048 CSR	1						1					
2.049 EID												
2.051 CSL		40	40	40	40							
2.052 *tbd												
2.053 OFC												
2.054 SSD		1	1	1	1							
2.055 SLE		1[9]	1[9]	1[9]	1[9]							
2.056 ICO	1	1	1	1	1	1	1					
2.057 FNR												
2.059 SRF												
2.060 MSG										11		
2.061 CST												
2.062 IMT												
2.064 CAN												
2.065 RSR												
2.067 IMA	1	1	1	1	1	1	1	1	1		1	1
2.070 RAP	1	1		1	1	1	1	1	1		1	1
2.071 ACN	1											
2.072 FIU												
2.073 CRI	3	3	3	3	3	3	3	3	3	3	3	3
2.074 FGP												
2.075 ERS												
2.076 PRI												
2.078 PEN												
2.079 NCR												

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	EMUF	ERRT	FANC	FAUF
2.080 EXP												
2.082 REC												
2.083 ULF												
2.084 AMP	1^7	1^7	1^7	1^7	1^7	1^7	1^7	1^7	1^7		1^7	1^7
2.085 CRN												
2.086 SCNA												
2.087 TAA		1	1	1	1							
2.088 NOT												
2.089 MSC												
2.091 RCD1												
2.092 RCD2												
2.093 SPCN												

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	EMUF	ERRT	FANC	FAUF
2.094 CCN												
2.095 RFR												
2.096 RPR												
2.098 NDR												
2.099 SAN												
2.2001 NAM1												
2.2002 NAM2												
2.2003 NAM3												
2.2004 NAM4												
2.2005 NAM5												
2.2006 CSF												
2.2007 SDOB												
2.2008 SNAM												
2.2010 NIR												
2.2011 *tbd												
2.2012 IIR												
2.2013 DMI												
2.2014 *tbd												
2.2015 *tbd												
2.2016 DNAF												
2.2017 DORI												
2.2018 DNAC												
2.2019 SEAL												

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	EMUF	ERRT	FANC	FAUF
2.2020 *tbd												
2.2021 IFS												
2.2022 CIDN												
2.2023 SII												
2.2024 HTI												
2.2025 GEO_TIME												
2.2026 GEO_CORD												
2.2027 DATUM_ID												
2.2028 BID												
2.2029 BSI												
2.2030 PPD												
2.2031 BIA												
2.2032 ATR												
2.2033 CNL												
2.2034 ULR												
2.2035 EVI												
2.2061 BIE												

Note:
- Shaded cells represent optional elements
- Unshaded cells represent mandatory elements
- Blank cells indicate the element is not used
- Diagonal pattern represents FUTURE NGI initiatives

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	FNDR	FVR	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR
2.001 LEN	1	1	1	1	1	1	1	1	1	1
2.002 IDC	1	1	1	1	1	1	1	1	1	1
2.003 FFN			1	1						
2.005 RET	1	1			1	1	1	1	1	1
2.006 ATN	1	1	1	1	1	1	1	1	1	1
2.007 SCO	9	9	9	9	9	9	9	9	9	9
2.009 OCA	1	1			1	1	1	1	1	1
2.010 CIN										
2.011 CIX										
2.012 LCN				1						
2.013 LCX				1						
2.014 FBI	5	1		1^{10}	5		5	5	5	5
2.015 SID		1		5^{10}	1		1	1	1	
2.016 SOC	4	4		4^{11}	4	4	4	4	4	4
2.017 MNU	4^{3}	4	4	4^{11}	4	4	4	4	4	4^{3}
2.018 NAM	1	1		1^{10}	1	1	1	1	1	1
2.019 AKA	10	10		10^{11}	10	10	10	10	10	10
2.020 POB	1	1	1	1^{10}	1	1	1	1	1	1
2.021 CTZ	10	10		10^{11}	10	10	10	10	10	10
2.022 DOB	5	5		5^{11}	5	5	5	5	5	5
2.023 AGR			1							
2.024 SEX	1	1	1	1^{11}	1	1	1	1	1	1
2.025 RAC	1	1	1	1^{11}	1	1	1	1	1	1
2.026 SMT	10	10	10	10^{11}	10	10	10	10	10	10
2.027 HGT	1	1		1^{11}	1	1	1	1	1	1
2.028 HTR			1							
2.029 WGT	1	1		1^{11}	1	1	1	1	1	1
2.030 WTR			1							
2.031 EYE	1	1	1	1^{11}	1	1	1	1	1	1
2.032 HAI	1	1	1	1^{11}	1	1	1	1	1	1
2.033 FPC				1						
2.034 PAT			10	10^{11}						
2.035 PPA				1						
2.036 PHT						1				
2.037 RFP	1				1		1	1	1	1

Tag Elem	FNDR	FVR	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR
2.038 DPR	1	1		1	1	1	1	1	1	1
2.039 EAD	1				1	1	1	1	1	1
2.040 OCP	1				1	1	1	1	1	1
2.041 RES	1				1	1	1	1	1	1
2.042 MIL	1	1								1
2.043 TSR	1	1					1	1	1	1
2.044 GEO			5							
2.045 DOA										
2.046 DOS										
2.047 ASL			40 ^{3}							
2.048 CSR						1				
2.049 EID										
2.051 CSL										
2.052 *tbd										
2.053 OFC			1							
2.054 SSD										
2.055 SLE										
2.056 ICO		1				1				
2.057 FNR										
2.059 SRF				1						
2.060 MSG				1						
2.061 CST			1	1						
2.062 IMT			10							
2.064 CAN										
2.065 RSR										
2.067 IMA	1	1	1		1	1	1	1	1	1
2.070 RAP	1	1	1		1	1	1	1	1	1
2.071 ACN				1		1				
2.072 FIU										
2.073 CRI	3	3	3	3	3	3	3	3	3	3
2.074 FGP			10	10						
2.075 ERS				1						
2.076 PRI			1							
2.078 PEN										
2.079 NCR										

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	FNDR	FVR	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR
2.080 EXP										
2.082 REC										
2.083 ULF			1							
2.084 AMP	1 [7]	1 [7]			1 [7]	1 [7]	1 [7]	1 [7]	1 [7]	1 [7]
2.085 CRN										
2.086 SCNA										
2.087 TAA										
2.088 NOT			1							
2.089 MSC										
2.091 RCD1										
2.092 RCD2										
2.093 SPCN										

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	FNDR	FVR	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR
2.094 CCN										
2.095 RFR										
2.096 RPR										
2.098 NDR										
2.099 SAN										
2.2001 NAM1										
2.2002 NAM2										
2.2003 NAM3										
2.2004 NAM4										
2.2005 NAM5										
2.2006 CSF										
2.2007 SDOB										
2.2008 SNAM										
2.2010 NIR										
2.2011 *tbd										
2.2012 IIR										
2.2013 DMI										
2.2014 *tbd										
2.2015 *tbd										
2.2016 DNAF										
2.2017 DORI										
2.2018 DNAC										
2.2019 SEAL										

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	FNDR	FVR	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR
2.2020 *tbd										
2.2021 IFS										
2.2022 CIDN										
2.2023 SII										
2.2024 HTI										
2.2025 GEO_TIME										
2.2026 GEO_CORD										
2.2027 DATUM_ID										
2.2028 BID										
2.2029 BSI										
2.2030 PPD			10							
2.2031 BIA				1						
2.2032 ATR										
2.2033 CNL										
2.2034 ULR										
2.2035 EVI										
2.2061 BIE										

Note:
- Shaded cells represent optional elements
- Unshaded cells represent mandatory elements
- Blank cells indicate the element is not used
- Diagonal pattern represents FUTURE NGI initiatives

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	RPIS	RPISR	SRE
2.001 LEN	1	1	1
2.002 IDC	1	1	1
2.003 FFN			
2.005 RET			
2.006 ATN	1	1	1
2.007 SCO			9
2.009 OCA	1	1	1
2.010 CIN			
2.011 CIX			
2.012 LCN			
2.013 LCX			
2.014 FBI		2	1^8
2.015 SID			1
2.016 SOC			
2.017 MNU			
2.018 NAM	1	1	1
2.019 AKA			
2.020 POB		1	
2.021 CTZ			
2.022 DOB	1		
2.023 AGR			
2.024 SEX	1		
2.025 RAC			
2.026 SMT			
2.027 HGT			
2.028 HTR			
2.029 WGT			
2.030 WTR			
2.031 EYE			
2.032 HAI			
2.033 FPC			
2.034 PAT			
2.035 PPA			
2.036 PHT			
2.037 RFP			

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	RPIS	RPISR	SRE
2.038 DPR			
2.039 EAD			1
2.040 OCP			1
2.041 RES			1
2.042 MIL			
2.043 TSR			
2.044 GEO			
2.045 DOA			
2.046 DOS			
2.047 ASL			
2.048 CSR			
2.049 EID			
2.051 CSL			
2.052 *tbd			
2.053 OFC			
2.054 SSD			
2.055 SLE			
2.056 ICO			
2.057 FNR			
2.059 SRF		1	1
2.060 MSG		1	11
2.061 CST			
2.062 IMT			
2.064 CAN			
2.065 RSR			
2.067 IMA	1	1	
2.070 RAP	1		
2.071 ACN		1	
2.072 FIU			
2.073 CRI	3	3	3
2.074 FGP			
2.075 ERS		1	1
2.076 PRI			
2.078 PEN			
2.079 NCR			

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	RPIS	RPISR	SRE
2.080 EXP			
2.082 REC			
2.083 ULF			
2.084 AMP	1 [7]		
2.085 CRN			1 [8]
2.086 SCNA			
2.087 TAA			1
2.088 NOT		1	1
2.089 MSC			
2.091 RCD1			
2.092 RCD2			
2.093 SPCN			

Table D-1 Summary Field Lists for Identification and Verification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	RPIS	RPISR	SRE
2.094 CCN			
2.095 RFR			
2.096 RPR	1		
2.098 NDR	10		
2.099 SAN			
2.2001 NAM1			
2.2002 NAM2			
2.2003 NAM3			
2.2004 NAM4			
2.2005 NAM5			
2.2006 CSF			
2.2007 SDOB			
2.2008 SNAM			
2.2010 NIR			
2.2011 *tbd			
2.2012 IIR			
2.2013 DMI			
2.2014 *tbd			
2.2015 *tbd			
2.2016 DNAF			
2.2017 DORI			
2.2018 DNAC			
2.2019 SEAL			

Tag Elem	RPIS	RPISR	SRE
2.2020 *tbd			
2.2021 IFS			
2.2022 CIDN			
2.2023 SII		1	
2.2024 HTI			
2.2025 GEO_TIME			
2.2026 GEO_CORD			
2.2027 DATUM_ID			
2.2028 BID			
2.2029 BSI			
2.2030 PPD			
2.2031 BIA			
2.2032 ATR			
2.2033 CNL			
2.2034 ULR			
2.2035 EVI			1
2.2061 BIE			61

APPENDIX D REFERENCE NOTES

[1] For this transaction, this field must contain a "Y."

[2] The DOO portion of this field is optional, but should be provided if known. ASL is required when the submission contains a RET = Y.

[3] This field is mandatory for applicant submissions from DIS and OPM.

[4] It is obviously not expected that full Name and Date of Birth of Unknown Deceased and Amnesia victims will be known. These fields, however, must be submitted with formatted information.

[5] FBI number must be present if known for inquiry prints.

[6] Field is mandatory if fingerprint submission is from an NFF State.

[7] This field is mandatory if any finger is either amputated or a rolled impression was not made.

[8] Either an FBI number or a Civil Record Number (CRN) may be returned, but not both, depending upon transaction results. No number (neither FBI nor CRN) is returned when none is assigned (e.g., Non-Identification with RET = "N"). FBI number will be returned for any submission resulting in an Identification against the Criminal File or when a Non-Identification results in an add to the Criminal File. CRN will be returned when a submission results in a Non-Identification which causes an add to the Civil file.

[9] CSL must be included where submission includes SLE.

[10] This field will be returned in the response if subject identification is made.

[11] Field is optional unless Identification has been made and subject criminal history was requested in submission.

APPENDIX E - SUMMARY LOGICAL RECORD LAYOUTS FOR TYPE-2 INVESTIGATION, INFORMATION, AND NOTIFICATION TRANSACTIONS

1.0 Introduction

Appendix E presents the summary logical record layouts for all Investigation, Information, and Notification transactions which are currently active. Table E is the summarized representation of all currently active Investigation and Information transactions. As the 'Future Capability' transactions are developed they will be added to Table E. For detailed specifications of individual fields of these record sets, see Appendix C.

2.0 Interpretation of the Table

The column headers at the top of the page select a particular transaction. The row headers in the left margin give the tag number and ID for each field. The cell at the intersection of any given row and column gives summary information about the use of that field (row) in that transaction (column). If that cell is blank, the field is not used in that record. Otherwise, the number at the right in the cell gives the maximum number of occurrences of that field for that record. If the cell is shaded, then the field's inclusion is optional for that record; unshaded cells indicate mandatory inclusion. The diagonal pattern represents future initiatives, field tags, and type of transactions. In all cases, the minimum number of occurrences for a mandatory field is one, and zero for an optional field. Finally, the superscript in the upper left-hand corner of the cell is a reference to any note (see Appendix E Reference Notes following Table E) pertaining to the use of that field in the record.

Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	BATQ	BATR	CPR	EHRR	EQER	EQHR	EQRR	ERRI	ERRL	ERRR
2.001 LEN	1	1	1	1	1	1	1	1	1	1
2.002 IDC	1	1	1	1	1	1	1	1	1	1
2.003 FFN									1	
2.005 RET										
2.006 ATN	1	1	1					1	1	
2.007 SCO	9	9	9					9	9	
2.009 OCA										
2.010 CIN									5	
2.011 CIX									5	
2.012 LCN										
2.013 LCX										
2.014 FBI	1	1	1	1		1	20	1		1
2.015 SID								1		
2.016 SOC						1				
2.017 MNU						4			4	
2.018 NAM						1	1			
2.019 AKA						10				
2.020 POB						1				
2.021 CTZ						1				
2.022 DOB						1	1			
2.023 AGR										
2.024 SEX						1	1			
2.025 RAC						1	1			
2.026 SMT						10				
2.027 HGT						1				
2.028 HTR										
2.029 WGT						1				
2.030 WTR										
2.031 EYE						1				
2.032 HAI						1				
2.033 FPC										
2.034 PAT										
2.035 PPA										
2.036 PHT										
2.037 RFP										

Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	BATQ	BATR	CPR	EHRR	EQER	EQHR	EQRR	ERRI	ERRL	ERRR
2.038 DPR										
2.039 EAD										
2.040 OCP										
2.041 RES										
2.042 MIL						1				
2.043 TSR										
2.044 GEO										
2.045 DOA			1							
2.046 DOS			1							
2.047 ASL										
2.048 CSR										
2.049 EID										
2.051 CSL										
2.052 *tbd										
2.053 OFC										
2.054 SSD										
2.055 SLE										
2.056 ICO										
2.057 FNR										
2.059 SRF										
2.060 MSG		1			11			11	11	11
2.061 CST									1	
2.062 IMT	10									
2.064 CAN										
2.065 RSR										
2.067 IMA										
2.070 RAP						1				
2.071 ACN										
2.072 FIU										
2.073 CRI	3	3	3	1	1	1	1	3	3	1
2.074 FGP										
2.075 ERS				1						
2.076 PRI										
2.078 PEN										
2.079 NCR							1			

Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	BATQ	BATR	CPR	EHRR	EQER	EQHR	EQRR	ERRI	ERRL	ERRR
2.080 EXP										
2.082 REC										
2.083 ULF										
2.084 AMP										
2.085 CRN										
2.086 SCNA										
2.087 TAA										
2.088 NOT										
2.089 MSC										
2.091 RCD1										
2.092 RCD2										
2.093 SPCN										
2.094 CCN										
2.095 RFR										
2.096 RPR										
2.098 NDR										
2.099 SAN										
2.2001 NAM1										
2.2002 NAM2										
2.2003 NAM3										
2.2004 NAM4										
2.2005 NAM5										
2.2006 CSF										
2.2007 SDOB										
2.2008 SNAM										
2.2010 NIR										
2.2011 *tbd										
2.2012 IIR										
2.2013 DMI										
2.2014 *tbd										
2.2015 *tbd										
2.2016 DNAF										
2.2017 DORI										
2.2018 DNAC										
2.2019 SEAL										

Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	BATQ	BATR	CPR	EHRR	EQER	EQHR	EQRR	ERRI	ERRL	ERRR
2.2020 *tbd										
2.2021 IFS										
2.2022 CIDN				1	1	1	1			1
2.2023 SII										
2.2024 HTI										
2.2025 GEO_TIME										
2.2026 GEO_CORD										
2.2027 DATUM_ID										
2.2028 BID										
2.2029 BSI	1									
2.2030 PPD										
2.2031 BIA										
2.2032 ATR		100								
2.2033 CNL										
2.2034 ULR										
2.2035 EVI										

Note:
- Shaded cells represent optional elements
- Unshaded cells represent mandatory elements
- Blank cells indicate the element is not used
- Diagonal pattern represents FUTURE NGI initiatives

Tag Elem	IRQ	IRR	ISR	LFFS	LFIS	LPNQ	LPNR	LRSQ	LRSR	PRR
2.001 LEN	1	1	1	1	1	1	1	1	1	1
2.002 IDC	1	1	1	1	1	1	1	1	1	1
2.003 FFN										
2.005 RET										
2.006 ATN	1	1	1	1	1	1	1	1	1	1
2.007 SCO	9	9	9	9	9					9
2.009 OCA										
2.010 CIN				1	1	1	1			
2.011 CIX				1	1	1	1			
2.012 LCN										
2.013 LCX										
2.014 FBI	1000	1	1000							1
2.015 SID		1	1000							
2.016 SOC										
2.017 MNU										
2.018 NAM		1								
2.019 AKA										
2.020 POB				1	1	1				
2.021 CTZ										
2.022 DOB										
2.023 AGR				1	1	1				
2.024 SEX				1	1	1				
2.025 RAC				1	1	1				
2.026 SMT				10	10	10				
2.027 HGT										
2.028 HTR				1	1	1				
2.029 WGT										
2.030 WTR				1	1	1				
2.031 EYE				1	1	1				
2.032 HAI				1	1	1				
2.033 FPC										
2.034 PAT				10	10	10				
2.035 PPA		1								
2.036 PHT		1								
2.037 RFP										

Tag Elem	IRQ	IRR	ISR	LFFS	LFIS	LPNQ	LPNR	LRSQ	LRSR	PRR
2.038 DPR										
2.039 EAD										
2.040 OCP										
2.041 RES										
2.042 MIL										
2.043 TSR										
2.044 GEO				5	5	5				
2.045 DOA										1
2.046 DOS										1
2.047 ASL										
2.048 CSR										
2.049 EID										
2.051 CSL										
2.052 *tbd										
2.053 OFC										
2.054 SSD										
2.055 SLE										
2.056 ICO										
2.057 FNR	13									
2.059 SRF										
2.060 MSG										
2.061 CST										
2.062 IMT		1	1000							
2.064 CAN										
2.065 RSR									1	
2.067 IMA					1					
2.070 RAP										
2.071 ACN										
2.072 FIU										
2.073 CRI	3	3	3	3	3	3	3	3	3	3
2.074 FGP				10	10	10				
2.075 ERS										
2.076 PRI				1	1					
2.078 PEN							1			
2.079 NCR				1	1					

Tag Elem	IRQ	IRR	ISR	LFFS	LFIS	LPNQ	LPNR	LRSQ	LRSR	PRR
2.080 EXP										1
2.082 REC										1
2.083 ULF				1	1					
2.084 AMP		13								
2.085 CRN										
2.086 SCNA										
2.087 TAA										
2.088 NOT										
2.089 MSC										
2.091 RCD1				10	10	10				
2.092 RCD2				10	10	10				
2.093 SPCN										
2.094 CCN										
2.095 RFR	1			1	1					
2.096 RPR										
2.098 NDR				10	10	10	10			
2.099 SAN										
2.2001 NAM1										
2.2002 NAM2										
2.2003 NAM3										
2.2004 NAM4										
2.2005 NAM5										
2.2006 CSF										
2.2007 SDOB										
2.2008 SNAM										
2.2010 NIR				1	1					
2.2011 *tbd										
2.2012 IIR										
2.2013 DMI										
2.2014 *tbd										
2.2015 *tbd										
2.2016 DNAF										
2.2017 DORI										
2.2018 DNAC										
2.2019 SEAL										

Tag Elem	IRQ	IRR	ISR	LFFS	LFIS	LPNQ	LPNR	LRSQ	LRSR	PRR
2.2020 *tbd										
2.2021 IFS										
2.2022 CIDN										
2.2023 SII										
2.2024 HTI										
2.2025 GEO_TIME										
2.2026 GEO_CORD										
2.2027 DATUM_ID										
2.2028 BID	1000									
2.2029 BSI		1	1000							
2.2030 PPD				10	10	10				
2.2031 BIA		1								
2.2032 ATR										
2.2033 CNL										
2.2034 ULR										
2.2035 EVI										

Note:
 - Shaded cells represent optional elements
 - Unshaded cells represent mandatory elements
 - Blank cells indicate the element is not used
 - Diagonal pattern represents FUTURE NGI initiatives

[1] If known, mandatory to enter.

Tag Elem	SRL	SRT	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.001 LEN	1	1	1	1	1	1	1	1
2.002 IDC	1	1	1	1	1	1	1	1
2.003 FFN								
2.005 RET								
2.006 ATN	1	1	1	1	1	1	1	1
2.007 SCO	9	9	9	9	9			
2.009 OCA		1	1	1	1	1		
2.010 CIN	1						1	1
2.011 CIX	1						1	1
2.012 LCN								
2.013 LCX								
2.014 FBI	1					1	1	1
2.015 SID								
2.016 SOC								
2.017 MNU								
2.018 NAM							1	
2.019 AKA							10	
2.020 POB							1	
2.021 CTZ							10	
2.022 DOB							5	
2.023 AGR								
2.024 SEX							1	
2.025 RAC							1	
2.026 SMT							10	
2.027 HGT							1	
2.028 HTR								
2.029 WGT							1	
2.030 WTR								
2.031 EYE							1	
2.032 HAI							1	
2.033 FPC								
2.034 PAT								
2.035 PPA							1	
2.036 PHT							1	
2.037 RFP								

Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	SRL	SRT	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.038 DPR						1	1	
2.039 EAD		1	1	1	1			
2.040 OCP		1	1	1	1			
2.041 RES		1	1	1	1			
2.042 MIL								
2.043 TSR								
2.044 GEO								
2.045 DOA								
2.046 DOS								
2.047 ASL								
2.048 CSR								
2.049 EID								
2.051 CSL								
2.052 *tbd								
2.053 OFC								
2.054 SSD								
2.055 SLE								
2.056 ICO								
2.057 FNR								
2.059 SRF						1		
2.060 MSG	1						1	11
2.061 CST								
2.062 IMT							1	
2.064 CAN	99	25						
2.065 RSR								
2.067 IMA								
2.070 RAP				1				
2.071 ACN								
2.072 FIU								
2.073 CRI	3	3	3	3	3	1	3	3
2.074 FGP	99						10	
2.075 ERS					1			
2.076 PRI								
2.078 PEN								
2.079 NCR	1	1	1	1				

Tag Elem	SRL	SRT	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.080 EXP								
2.082 REC								
2.083 ULF	1							
2.084 AMP		1	10	10				
2.085 CRN								
2.086 SCNA	1						1	1
2.087 TAA								
2.088 NOT						1		
2.089 MSC	99							
2.091 RCD1								
2.092 RCD2								
2.093 SPCN								
2.094 CCN								
2.095 RFR								
2.096 RPR								
2.098 NDR			1					
2.099 SAN								
2.2001 NAM1								
2.2002 NAM2								
2.2003 NAM3								
2.2004 NAM4								
2.2005 NAM5								
2.2006 CSF								
2.2007 SDOB								
2.2008 SNAM								
2.2010 NIR	1	1	1					
2.2011 *tbd								
2.2012 IIR								
2.2013 DMI								
2.2014 *tbd								
2.2015 *tbd								
2.2016 DNAF								
2.2017 DORI								
2.2018 DNAC								
2.2019 SEAL								

Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	SRL	SRT	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.2020 *tbd								
2.2021 IFS								
2.2022 CIDN								
2.2023 SII								
2.2024 HTI						1		
2.2025 GEO_TIME								
2.2026 GEO_CORD								
2.2027 DATUM_ID								
2.2028 BID								
2.2029 BSI							1	
2.2030 PPD							10	
2.2031 BIA							1	
2.2032 ATR								
2.2033 CNL	297							
2.2034 ULR								
2.2035 EVI								

APPENDIX F - FBI/CJIS IMAGE QUALITY SPECIFICATIONS

1.0 Scope and Purpose

These specifications apply to: (1) systems that scan and capture fingerprints[5] in digital, softcopy form, including hardcopy scanners such as tenprint card scanners, and live scan devices, altogether called "fingerprint scanners"; and (2) systems utilizing a printer to print digital fingerprint images to hardcopy called "fingerprint printers." These specifications provide criteria for ensuring the image quality of fingerprint scanners and printers that input fingerprint images to, or generate fingerprint images from within, the Integrated Automated Fingerprint Identification System (IAFIS).

Digital softcopy images obtained from fingerprint scanners must have sufficient quality to allow the following functions to be performed: (l) conclusive fingerprint comparisons (identification or non-identification decision), (2) fingerprint classification, (3) automatic feature detection, and (4) overall Automated Fingerprint Identification System (AFIS) search reliability. The fingerprint comparison process requires a high-fidelity image. Finer detail, such as pores and incipient ridges, are needed because they can play an important role in the comparison.

The fingerprint examiners in the FBI/CJIS environment will depend upon softcopy-displayed images of scanned fingerprints to make comparisons, but will also need to accept and utilize hardcopy images in certain instances. For example, some contributors may print cards from live scan or card scan systems for submission to the FBI/CJIS. These hardcopy prints will be obtained from printers that include printing algorithms optimized for fingerprints. The printer's principal function is to produce life-size prints of digital fingerprints that have met FBI/CJIS format requirements and provide sufficient print quality to support fingerprint comparisons, *i.e.*, support identification or non-identification decisions.

The image quality requirements covered in the following Section 2 for fingerprint scanners, Section 3 for fingerprint identification flats, Section 4 for fingerprint printers, Section 5 for mobile scanners, and Section 6 for fast-track requirements have associated test procedures that are described in detail in [Test Procedures].

These test procedures will be used by the FBI/CJIS principally for certification of fingerprint systems; they may also be used in acceptance testing and in performance capability demonstrations as an indication of capability to perform. Equipment shall be tested to meet the requirements in normal operating modes, e.g., scanners shall not be tested at slower-than-normal operating speeds in an attempt to meet geometric accuracy specifications. A vendor may recommend alternate testing methods if the test procedures given in this appendix are not applicable or cannot be applied to the particular system under test.

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[5] The term "fingerprint" in this appendix may also include palmprint, whole hand print, or a print from other parts of the human body.

2.0 Finger/Palm Print Scanner

The fingerprint scanner must be capable of producing images that exhibit good geometric fidelity, sharpness, detail rendition, gray-level uniformity, and gray-scale dynamic range, with low noise characteristics. The images must be true representations of the input fingerprints without creating any significant artifacts, anomalies, false detail, or cosmetic image restoration effects.

The scanner's final output resolution in both sensor detector row and column directions shall be in the range: (R–0.01R) to (R+0.01R) and shall be gray-level quantized to eight bits per pixel (256 gray-levels). The magnitude of "R" is either 500 pixels per inch (ppi) or 1,000 ppi; a scanner may be certified at either one or both of these resolution levels. The scanner's true optical resolution shall be greater than or equal to R.

A scanner intended to scan standard 8.0 by 8.0 inch tenprint cards, *e.g.*, applicant fingerprint card type FD-258 or FD-249, shall be capable of capturing an area of at least 5.0 by 8.0 inches, which captures all 14 printblocks, either each printblock as a separate image or all printblocks together as a single image. In terms of individual printblocks, Table F-1 gives the preferred capture sizes applicable to both card scan and live scan systems, with the exception that, when scanning fingerprint cards, the card form dimensions take precedence.

Table F-1 Preferred Capture Sizes

	Preferred Width (inches)	Preferred Height (inches)
roll finger	1.6*	1.5
plain thumb	1.0	2.0
plain 4-fingers (sequence check)	3.2	2.0
plain 4-fingers (identification flat)	3.2	3.0
full palm	5.5**	8.0
half palm	5.5**	5.5**
writer's palm	1.75	5.0

  * Live scanner must be capable of capturing at least 80% of full roll arc length,
  where full roll arc length is defined as arc length from nail edge to nail edge.
  ** 5.0" impressions will be accepted, although not preferred

The practice of "stitching" together images that were not captured simultaneously is prohibited. Individual images with the proper position code should be transmitted by the contributor. For example, non-simultaneous plain image captures from the two individual thumbs should be submitted as two individual image records with position codes 11 and 12 instead of being submitted as a single image record with position code 15. In this example, submitting individual images for each thumb avoids the masking of sequence errors. Another example is the

submission of full palmprint images. If the upper and lower palms are captured separately, they should be submitted as individual images using position codes 25 and 26 for the right hand or position codes 27 and 28 for the left hand. Under no circumstances should upper and lower palm images be stitched together and submitted as full palm impressions (position code 21 or 23), as the geometric relationship between minutiae is altered within the stitched image, which affects matching accuracy.

2.1 Linearity

Requirement:
When measuring a stepped series of uniform target reflectance patches (*e.g.*, step tablet) that substantially cover the scanner's gray range, the average value of each patch shall be within 7.65 gray-levels of a linear, least squares regression line fitted between target reflectance patch values (independent variable) and scanner output gray-levels (dependent variable).

Background:
All targets used in Image Quality Specifications (IQS) compliance verification are expected to be scanned with the scanner operating in a linear input/output mode. Linearity enables valid comparisons of test measurements with requirements, *e.g.*, a system's spatial frequency response in terms of Modulation Transfer Function (MTF) is, strictly speaking, a linear systems concept. Linearity also facilitates comparisons between different scanners through the "common ground" concept. In atypical cases, a small amount of smooth, monotonic nonlinearity may be acceptable for the test target scans, *i.e.*, when it is substantially impractical and unrepresentative of operational use, to force linearity on the scanner under test (*e.g.*, some live scan devices). Linearity is not a requirement for the operational or test fingerprint scans, which allows for processing flexibility to overcome inadequate tonal characteristics of fingerprint samples.

2.2 Geometric Accuracy

Requirement (across-bar):
When scanning a multiple, parallel bar target, in both vertical bar and horizontal bar orientations, the absolute value of the difference between the actual distance across parallel target bars and the corresponding distance measured in the image shall not exceed the following values for at least 99.0 percent of the tested cases in each printblock measurement area and in each of the two orthogonal directions.

> For 500-ppi scanner:
> $D \leq 0.0007$, for $0.00 < X \leq 0.07$
>
> $D \leq 0.01X$, for $0.07 \leq X \leq 1.50$

> for 1,000-ppi scanner:
> $D \leq 0.0005$, for $0.00 < X \leq 0.07$
>
> $D \leq 0.0071X$, for $0.07 \leq X \leq 1.5$

where:

        $D = |Y-X|$

        X = actual target distance

        Y = measured image distance

        D, X, Y are in inches.

Requirement (along-bar):

When scanning a multiple, parallel bar target, in both vertical bar and horizontal bar orientations, the maximum difference in the horizontal or vertical direction, respectively, between the locations of any two points within a 1.5-inch segment of a given bar image shall not exceed 0.016 inches for at least 99.0 percent of the tested cases in each printblock measurement area and in each of the two orthogonal directions.

Background:

In this Section 2.2, the phrase: *multiple, parallel bar target* refers to a Ronchi target, which consists of an equal-width bar and space square wave pattern at 1.0 cy/mm, with high contrast ratio and fine edge definition. This target is also used to verify compliance with the scanner resolution requirement given in Section 2.0 of this appendix.

Across-bar geometric accuracy is measured across the imaged Ronchi target bars that substantially cover the total image capture area. The 500-ppi requirement corresponds to a positional accuracy of ± 1.0 percent for distances between 0.07 and 1.5 inches and a constant ± 0.0007 inches (1/3 pixel) for distances less than or equal to 0.07 inches. The 1,000-ppi requirement corresponds to a positional accuracy of ± 0.71 percent for distances between 0.07 and 1.5 inches and a constant ± 0.0005 inches (1/2 pixel) for distances less than or equal to 0.07 inches.

This measurement procedure is also used to verify the ppi resolution requirement given in Section 2.0 of this appendix.

Along-bar geometric accuracy is measured along the length of an individual Ronchi target bar in the image. For a given horizontal bar, for example, the maximum difference between bar center locations (in vertical direction), determined from bar locations measured at multiple points along a 1.5" bar segment length, is compared to the maximum allowable difference requirement (analogously for vertical bar). This requirement is to ensure that pincushion or barrel distortion over the primary area of interest, *i.e.*, a single fingerprint, is not too large.

2.3 Spatial Frequency Response

Requirements:

The spatial frequency response shall be measured using a continuous tone sine wave target denoted as MTF measurement unless the scanner cannot obtain adequate tonal response from this target, in which case a bi-tonal bar target shall be used to measure the spatial frequency response, denoted as Contrast Transfer Function (CTF) measurement. When measuring the sine wave MTF, it shall meet or exceed the minimum modulation values given in Table F-2 in both the detector row and detector column directions and over any region of the scanner's field of

view. When measuring the bar CTF, it shall meet or exceed the minimum modulation values defined by equation 2-1 or equation 2-2 (whichever applies) in both the detector row and detector column directions and over any region of the scanner's field of view. CTF values computed from equations 2-1 and 2-2 for nominal test frequencies are given in Table F-3. None of the MTF or CTF modulation values measured at specification spatial frequencies shall exceed 1.05.

The output sine wave image or bar target image shall not exhibit any significant amount of aliasing.

Table F-2 MTF Requirement Using Sine Wave Target

Frequency (cy/mm)	Minimum Modulation for 500 ppi Scanner	Minimum Modulation for 1000 ppi Scanner	Maximum Modulation
1	0.905	0.925	1.05 at all frequencies
2	0.797	0.856	
3	0.694	0.791	
4	0.598	0.732	
5	0.513	0.677	
6	0.437	0.626	
7	0.371	0.579	
8	0.312	0.536	
9	0.255	0.495	
10	0.200	0.458	
12		0.392	
14		0.336	
16		0.287	
18		0.246	
20		0.210	

Note: Testing at 7 and 9 cy/mm is not a requirement if these frequency patterns are absent from the sine wave target.

Table F-3 CTF Requirement Using Bar Target (Nominal Test Frequencies)

Frequency (cy/mm)	Minimum Modulation for 500 ppi Scanner	Minimum Modulation for 1000 ppi Scanner	Maximum Modulation
1.0	0.948	0.957	
2.0	0.869	0.904	
3.0	0.791	0.854	
4.0	0.713	0.805	
5.0	0.636	0.760	
6.0	0.559	0.716	
7.0	0.483	0.675	1.05 at all frequencies
8.0	0.408	0.636	
9.0	0.333	0.598	
10.0	0.259	0.563	
12.0		0.497	
14.0		0.437	
16.0		0.382	
18.0		0.332	
20.0		0.284	

Note: Testing at or near 7 and 9 cy/mm is a requirement when using a bar target. It is not required that the bar target contain the exact frequencies listed in Table F-3; however, the target does need to cover the listed frequency range and contain bar patterns close to each of the listed frequencies. The following equations are used to obtain the specification CTF modulation values when using bar targets that contain frequencies not listed in Table F-3.

500-ppi scanner, for f = 1.0 to 10.0 cy/mm:
$$CTF = 3.04105E\text{-}04 * f^2 - 7.99095E\text{-}02 * f + 1.02774 \quad (eq.2\text{ -}1)$$

1,000-ppi scanner, for f = 1.0 to 20.0 cy/mm:
$$CTF = -1.85487E\text{-}05 * f^3 + 1.41666E\text{-}03 * f^2 - 5.73701E\text{-}02 * f + 1.01341 \quad (eq.2\text{ - }2)$$

<u>Background:</u>
For MTF assessment, the single, representative sine wave modulation in each imaged sine wave frequency pattern is determined from the sample modulation values collected from within that pattern. The sample modulation values are computed from the maximum and minimum levels corresponding to the "peak" and adjacent "valley" in each sine wave period. For a sine wave image, these maximum and minimum levels represent the image gray-levels that have been locally averaged in a direction perpendicular to the sinusoidal variation and then mapped through a calibration curve into target reflectance space. Sample image modulation in target reflectance space is then defined as:

modulation = (maximum - minimum) / (maximum + minimum)

The calibration curve is the curve of best fit between the image gray-levels of the density patches in the sine wave target and the corresponding target reflectance values. [It is assumed that sine

wave target modulations and target density patch values are supplied by the target manufacturer.]
The scanner MTF at each frequency is then defined as:

MTF = peak image modulation / target modulation

For CTF assessment, the modulations are determined directly in image space, normalized by the image modulation at zero frequency, instead of using a calibration curve. The scanner CTF at each frequency is then defined as:

CTF = peak image modulation / (zero frequency image modulation)

The bar target must contain at least 10 parallel bars at each of the higher spatial frequencies (~50% Nyquist to Nyquist frequency), which helps to ensure capture of optimum scanner – target phasing and aids investigation of potential aliasing. The bar target must also contain a very low frequency component, *i.e.*, a large square, bar, or series of bars whose effective frequency is less than 2.5 percent of the scanner's final output resolution. This low frequency component is used in normalizing the CTF; it must have the same density (on the target) as the higher frequency target bars.

The upper limit of 1.05 modulation is to discourage image processing that produces excessive edge sharpening, which can add false detail to an image.

Aliasing on sine wave images or bar images may be investigated by quantitative analysis and from visual observation of the softcopy-displayed image.

2.4 Signal-to-Noise Ratio (SNR)

Requirement:
The white signal-to-noise ratio (SNR) and black signal-to-noise ratio shall each be greater than or equal to 125.0 in at least 97.0 percent of respective cases within each printblock measurement area.

Background:
The signal is defined as the difference between the average output gray-levels obtained from scans of a uniform low reflectance and a uniform high reflectance target, measuring the average values over independent 0.25 by 0.25 inch areas within each printblock area. The noise is defined as the standard deviation of the gray-levels in each of these quarter-inch measurement areas. Therefore, for each high reflectance, low reflectance image pair there are two SNR values, one using the high reflectance standard deviation and one using the low reflectance standard deviation. To obtain a true measure of the standard deviation, the scanner is set up such that the white average gray-level is several gray-levels below the system's highest obtainable gray-level and the black average gray-level is several gray-levels above the system's lowest obtainable gray-level.

2.5 Gray-Level Uniformity

Requirement – adjacent row, column uniformity:
At least 99.0 percent of the average gray-levels between every two adjacent quarter-inch-long rows and 99.0 percent between every two adjacent quarter-inch-long columns within each imaged printblock area shall not differ by more than 1.0 gray-levels when scanning a uniform low-reflectance target and shall not differ by more than 2.0 gray-levels when scanning a uniform high-reflectance target.

Requirement – pixel-to-pixel uniformity:
For at least 99.9 percent of all pixels within every independent 0.25 by 0.25 inch area located within each imaged printblock area, no individual pixel's gray-level shall vary from the average by more than 22.0 gray-levels when scanning a uniform high-reflectance target and shall not vary from the average by more than 8.0 gray-levels when scanning a uniform low-reflectance target.

Requirement – small area uniformity:
For every two independent 0.25 by 0.25 inch areas located within each imaged printblock area, the average gray-levels of the two areas shall not differ by more than 12.0 gray-levels when scanning a uniform high-reflectance target and shall not differ by more than 3.0 gray-levels when scanning a uniform low-reflectance target.

Background:
Measurements are made over multiple, independent test areas on a printblock-by-printblock basis. (For a live scanner, the entire capture area is normally considered a single printblock area). To obtain a true measure of the standard deviation, the scanner is set up such that the white average gray-level is several gray-levels below the system's highest obtainable gray-level and the black average gray-level is several gray-levels above the system's lowest obtainable gray-level.

2.6 Fingerprint Image Quality

The scanner shall provide high quality fingerprint images; the quality will be assessed with respect to the following requirements.

Requirement – Fingerprint Gray Range:
At least 80.0 percent of the captured individual fingerprint images shall have a gray-scale dynamic range of at least 200 gray-levels, and at least 99.0 percent shall have a dynamic range of at least 128 gray-levels.

Background:
Card and live scan systems at a booking station have some control over dynamic range on a subject-by-subject or card-by-card basis, *e.g.*, by rolling an inked finger properly or by adjusting gain on a livescanner. However, with central site or file conversion systems where a variety of card types and image qualities are encountered in rapid succession, automated adaptive processing may be necessary. The eight-bits-per-pixel quantization of the gray-scale values for very low contrast fingerprints needs to more optimally represent the reduced gray-scale range of

such fingerprints, but without significant saturation. The intent is to avoid excessively low contrast images without adding false detail.

Dynamic range is computed in terms of number of gray-levels present that have signal content, measuring within the fingerprint area and substantially excluding white background and card format lines, boxes, and text.

For card scanners, compliance with these dynamic range requirements will be verified using a statistically stratified sample set of fingerprint cards assembled by the FBI/CJIS. The test fingerprint card set may include cards with difficult-to-handle properties, *e.g.*, tears, holes, staples, glued-on photos, or lamination, for testing card scanners that have automatic document feeder mechanisms. For live scanners, compliance will be verified with sets of livescans produced by the vendor.

Requirement – Fingerprint Artifacts and Anomalies:
Artifacts or anomalies detected on the fingerprint images that are due to the scanner or image processing shall not significantly adversely impact support to the functions of conclusive fingerprint comparisons (identification or non-identification decision), fingerprint classification, automatic feature detection, or overall Automated Fingerprint Identification System (AFIS) search reliability.

Background:
The fingerprint images will be examined to determine the presence of artifacts or anomalies that are due to the scanner or image processing; assessment may include measurements to quantify their degree of severity and significance. Image artifacts or anomalies such as the following non-inclusive list may be investigated.
- jitter noise effects
- sharp truncations in average gray-level between adjacent printblocks
- gaps in the gray-level histograms, *i.e.*, zero pixels in intermediate gray-levels, or clipping to less than 256 possible gray-levels
- imaging detector butt joints
- noise streaks
- card bleed-through
- gray-level saturation

Requirement – Fingerprint Sharpness & Detail Rendition:
The sharpness and detail rendition of the fingerprint images, due to the scanner or image processing, shall be high enough to support the fingerprint functions stated in Section 1, paragraph 2.

Background:
Fingerprint sharpness and detail rendition that is due to the scanner or image processing may be investigated by employing suitable, objective image quality metrics, as well as by visual observation of the softcopy-displayed image.

3.0 Identification Flats

Traditional fingerprint sets contain both rolled and plain fingerprint images. The rolled impressions support the search processing and identification functions and the plain impressions are used primarily for sequence verification. Fingerprinting systems designed for "Identification Flats" civilian background checks capture a single set of plain impressions. This single set of plain impressions must support finger sequence verification, search processing, and identification.

Image quality has historically been a challenge for civil background checks. Some programs require a large number of relatively low-volume capture sites, which makes training difficult. A key goal for identification flats scanners is to reduce the need for training so that inexperienced users consistently capture quality fingerprint images.

The identification flats scanner shall meet all of the requirements stated in Section 2 of this appendix as well as the following requirements.

Requirement – Capture Protocol:
The system shall provide a simple capture protocol.

Background:
A simple capture protocol supports the inexperienced user's ability to more consistently capture high quality fingerprints. Identification flats collection systems will be evaluated for their ability to produce a very small rate of failure to enroll in an operational setting. Systems with a minimum capture area of 3.2 inches (width) by 3.0 inches (height) that can capture four fingers simultaneously in an upright position will be considered in compliance with the simple capture protocol requirement. Other capture approaches will require specific testing and documentation.

Requirement – Verifiable Finger Sequence Data:
The method of capturing the fingers shall result in very low probability of error in the finger numbers.

Background:
The fingerprinting system's capture protocol will be evaluated for its ability to capture verifiable finger sequence data. Based on the Ohio WebCheck National trial systems with a minimum capture area of 3.2 inches (width) by 3.0 inches (height) that capture the left four fingers simultaneously, the right four fingers simultaneously and the two thumbs simultaneously (4-4-2) in an upright position will be considered in compliance with the finger sequence requirements. Other capture approaches will require specific testing and documentation.

4.0 Fingerprint Printer

Requirement:
The fingerprint printer, consisting of a printer and specialized print algorithm, must be capable of producing hardcopy images that exhibit good geometric fidelity, sharpness, detail rendition, gray-level uniformity, and gray-scale dynamic range characteristics, with low noise, no significant creation of false detail, and with the capability to support magnified viewing of the

print without breakup of the virtual fingerprint image presented to the eye. This printer is expected to provide high throughput, good repeatability, good print permanency characteristics, and low cost per copy. A typical fingerprint printer is a gray-scale laser printer[6] with 1,200 black/white dots per inch resolution combined with a printing algorithm that typically includes image contrast and printer gamma/highlight/lowlight adjustments, image rescaling, and an error diffusion model with randomized dot dither printing applied to the rescaled image.

The print system's principal function is to produce life-size prints of digital fingerprints that have met FBI/CJIS format requirements as specified in EBTS and ANSI/NIST-ITL and to provide sufficient print quality to support fingerprint comparisons, *i.e.*, support identification or non-identification decisions. The printer should also have the capability to print gray-scale mugshots and property/evidence photos (not necessarily using a fingerprint printing algorithm), as well as print black & white documents containing text and graphics, onto 8.5 x 11.0 inch paper.

A required printer resolution is 500 ppi, which produces the required life-size print when the input digital fingerprint is 500 ppi or when a 1,000-ppi digital fingerprint is down-scaled to 500 ppi prior to printing. In both cases, all other 500-ppi printer requirements must also be met.

Background:
Verification of the specific performance requirements in Section 4 of this appendix is accomplished by evaluating the printer's output print of an FBI/CJIS-designated test set of digitized fingerprints and FBI/CJIS-designated digital test target. Requirements compliance verification is performed by a combination of visual assessments of the test prints (aided by visual instruments) and computer-aided assessments of scanned digital images of the test prints. With respect to those requirements that depend on assessments of print scans for compliance verification, the scan resolution is expected to be twice the required gray-scale print resolution, *e.g.*, a print with 500-ppi resolution is scanned at 1,000 ppi, and the scanner is expected to be setup in a calibrated linear input/output, grayscale reflectance capture mode.

4.1 Spatial Frequency Response

Requirement:
The printer shall provide sufficient spatial frequency response to support visually resolving the required printer resolution in orthogonal directions on the print.

Background:
Resolution verification is performed by printing high-contrast digital bar targets and visually inspecting the print under magnification. (When employing a laser printer with a fingerprint printing algorithm, it is recognized and accepted that the effective resolution may vary in complex image areas such as a fingerprint.)

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[6] In this appendix, "laser printer" refers to a type of printer in which a laser beam "draws" an electrostatic image of an input signal onto a drum. Toner (typically dry powder) is then transferred to the charged areas of the drum, which then transfers the toner onto paper, where it is fused by heat, creating a black/white/gray image.

The resolution limit is a single point on the spatial frequency response curve; the entire curve may be measured by scanning the print of an appropriate target, performing appropriate computer-aided assessment on the scan, and comparing results to a minimally acceptable spatial frequency response curve.

4.2 Gray-Levels

Requirement:
At least 16 gray-levels shall be visually distinguishable on the print.

Background:
Visual observation of the print of a digital target containing a step tablet is used to verify the 16-gray-level requirement. A higher number of gray-levels is expected to be distinguishable by appropriate computer-aided assessment of the scanned image of the print.

4.3 Dynamic Range

Requirement:
The printer shall have the capability to print an input digital image gray range of at least 130, excluding print black saturation and print white saturation.

Background:
The print of a digital step tablet is scanned, each pixel's output gray-level value is converted to the corresponding print reflectance value, and the average print reflectance value within each step is computed. A plot of step average print reflectance versus input digital step tablet gray-level must result in a gray range of at least 130, excluding any saturation on the low end (print black reflectance) and high end (print white reflectance). (The scanner output gray-level to print reflectance conversion is established by generating the scanner's input/output curve using a calibrated step tablet.)

4.4 Geometric Accuracy and Print Scale

Requirement (across-bar):
When printing a digital bar target containing multiple, parallel bars, the absolute value of the difference between the measured distance across parallel bars on the print and the correct distance on the print shall not exceed the values given in Table F-4 for at least 97 percent of the tested "short distance" and "medium distance" cases in each direction (vertical and horizontal).

Table F-4 Printer Geometric Accuracy Requirements

Distance Error (D)	Distance Range (X)	Comment
D ≤ 0.001	0.00 < X ≤ 0.07	short distance
D ≤ 0.015X	0.07 < X ≤ 1.50	medium distance
D ≤ 0.010X	4.75 < X ≤ 8.00	long distance

Table Note: $D = |Y-X|$
   X = correct distance = digital target pixels / required print resolution
   Y = measured distance on print
   D, X, Y are in inches

The average of all "medium distance" test cases, in each direction, shall not exceed the corresponding values of D given in Table F-4.

The average of all "long distance" test cases, in each direction, shall not exceed the corresponding values of D given in Table F-4.

Requirement (along-line):
Straight target lines printed parallel to or at a 45-degree angle to the paper or card edges shall be straight on the print with no significant waviness, bow, or "staircasing."

Background:
The across-bar requirement corresponds to a positional accuracy of ± 1.5 percent for distances greater than 0.07 inches and less than or equal to 1.5 inches and a constant ± 0.001 inches for distances less than or equal to 0.07 inches. With a 500 ppi-required print resolution, a digital bar target with a period of 18 pixels is used, which corresponds to a bar frequency of 500 / (25.4*18) cy/mm on the print, when printed life-size. The measured distance on the print can be obtained by scanning the print and applying computer-assisted assessment on the resulting digital image. The requirement takes into account the geometric errors inherent in a good quality scanner. For life-size printing, the print scale error is measured over a distance in the 0.07 to 1.50 inch range. Print scale error is equal to: (correct distance - measured distance) / correct distance. For lifesize printing at 500 ppi, a 1.5 percent allowable error in distance, measured in inches, is equivalent to an allowable print ppi error equal to ± 7.5 ppi.

The along-line requirement can be assessed visually, aided, *e.g.*, by a straight-edge and magnifying lens.

4.5 Noise

Requirement:

For a required printer resolution of 500 ppi, the noise magnitude shall be less than 0.120 at each average print reflectance level when noise magnitude is defined as the standard deviation of print reflectance values within an area on the print corresponding to a constant gray-level on the input digital target. (Print reflectance is measured in fractional units: 0.0 to 1.0 range.)

Background:

A digital step tablet is printed, the print is scanned at 1000 ppi, each pixel's output gray-level value is converted to the corresponding print reflectance value, and the standard deviation of print reflectance values within each step is computed. The scanner output gray-level to print reflectance conversion is established by generating the scanner's input/output curve using a calibrated step tablet.

4.6 Print Polarity and Color

Requirement:

The printed fingerprints shall appear as dark gray-to-black ridges on a light gray-to-white background.

4.7 Print Permanence

Requirement:

The printed fingerprints shall not smear or smudge with normal handling.

4.8 Print Stability

Requirement:

Both the fingerprints and the card stock or paper on which they are printed shall retain their visually neutral (black, white, gray) color over time.

4.9 Hazardous Materials

Requirement:

The prints shall not produce any health hazard as a result of handling. They shall not produce any noxious, annoying, or unpleasant odors when accumulated in large numbers and handled in areas having limited ventilation.

Background:

Requirements 4.7 (print permanence), 4.8 (print stability), and 4.9 (hazardous materials) are met by standard laser printers.

4.10 Fingerprint Prints

4.10.1 Print Types Requirements

Requirement:

The printer shall have the capability to print a set of individual livescans or previously scanned, individual inked fingerprints, life-size and in their correct printblock locations, onto a standard tenprint fingerprint card (*e.g.*, fingerprint card type FD-258), or print onto blank 8.0 by 8.0 inch card stock, or print onto blank 8.5 x 11.0 inch plain paper. In the case of printing fingerprints onto blank card stock or blank paper, the printer shall also print the printblock boundary lines and labeling that normally appears on a standard tenprint card.

The printer shall have the capability to print a previously scanned tenprint card in its entirety and life-size onto blank 8.0 x 8.0 inch card stock or onto blank 8.5 by 11.0 inch plain paper.

NOTE: Printer margins for any printblock when printed on 8.0 x 8.0 inch card stock may not exceed 10% of the image width dimensions. For an image 1.6 inches wide, this means a margin of 0.16 inches or less. In worst case, truncation of card edges is acceptable. Any shrinkage resulting in image reduction is unacceptable.

The printer shall have the capability to print a single fingerprint magnified up to five times beyond life-size onto 8.5 by 11.0 inch plain paper.

When printing in tenprint card format onto tenprint card stock, blank card stock, or plain paper, the printer shall also have the capability to print labels, bar chart, step tablet, and finger condition codes, all on the same print with the fingerprints. Figure F-1 illustrates the printing of this auxiliary information. Sections 4.10.2 through 4.10.5 of this appendix give the detailed requirements.

4.10.2 Labels

Requirement:
When printing fingerprints in tenprint card format, the printing process shall have the capability to print a character string of scanner information within the left four finger plain impression printblock and a character string of printer information within the right four finger plain impression printblock. Each character string shall be printed along the top inside edge of the respective printblock in a type font and size that is large enough for human readability without the aid of a magnifier and small enough so as not to unduly impinge on fingerprint structure.

The scanner information string shall include the scanner make, model number, and serial number, if available, and/or similar information on the scanner system. The printer information string shall include the printer make, model number, and serial number, if available, and shall include similar information on the fingerprint printing algorithm, if available, and shall include the date and time of printing.

The scanner and printer character strings shall be printed without a background, border, or any other type of added surround.

Background:

Information for the scanner string can typically be obtained from the EBTS Type-2 record field identified as "IMA 2.067 – Image Capture Equipment," which includes scanner system make, model number, and serial number.

A printer is certified as a <u>combination</u> of a specific brand/model printer and fingerprint printing algorithm; the latter may also have a name or version designation.

Character string printing: a solid background (*e.g.*, white) to the character string is unacceptable because it would unnecessarily obliterate some parts of fingerprints on some images. Individual characters with no background that overprint the fingerprint would obliterate a much smaller proportion of the fingerprint and are acceptable. Printing the character strings in an open space created by offsetting printblocks 6-10 from printblocks 11-14 is unacceptable because it changes the dimensions of the standard tenprint card format, and it cannot adequately accommodate fingerprints that stray across printblock boundaries.

Proper text size typically would correspond to a height of a numeral or upper case letter being in the range: 0.067 inches to 0.095 inches.

4.10.3 Bar Chart

<u>Requirement</u>:
When printing fingerprints in tenprint card format, the printing process shall have the capability to print a bar chart consisting of equally spaced horizontal black bars and vertical black bars printed at the required printer resolution.

The bar chart shall be positioned at the top edge within the right thumb plain impression printblock and shall have a maximum width of 0.8 inches and a maximum height of 0.125 inches. The bar chart shall contain at least 10 parallel bars in each direction, vertical and horizontal, with a bar length of at least 0.0625 inches (not necessarily the same number of bars, or same bar length, in the two directions).

An optional, uniform mid-grey-level patch may be included between the horizontal and vertical bar components.

The bar chart shall be printed without border or any other type of added surround.

<u>Background</u>:
For a 500-ppi printer requirement, the limiting frequency is 250 cycles per inch, which implies that 250 black bars per inch are printed**,** where the 0.002-inch width of an individual bar is equal to the width of the white space between two bars.

If a mid-gray patch between the vertical and horizontal bar patterns appears to have the same overall gray-level on the print as the two bar patterns, then this may indicate that the printer gamma/highlight/lowlight settings are optimum and/or that the printer toner supply was adequate for printing.

4.10.4 Step Tablet

Requirement:
When printing fingerprints in tenprint card format, the printing process shall have the capability to print a step tablet, consisting of two adjacent horizontal bands, each band having 16 gray-levels. The top band should progressively darken from left to right and the bottom band should progressively darken from right to left. The 16 digital input gray-levels corresponding to one band shall be identically the same as for the other band, and both bands shall substantially cover the total gray-level range. This step tablet shall be positioned at the top edge within the left thumb plain impression printblock and shall have a total width between 0.5 inches and 0.8 inches and a total height between 0.0625 inches and 0.125 inches.

The step tablet shall be printed without border or any other type of added surround.

Background:
If the top band and bottom band appear "balanced" on the print, *i.e.*, the same mid-gray level appears in the middle of both the top and bottom bands, then this may indicate that the printer gamma/highlight/lowlight settings are optimum.

4.10.5 Finger Condition Codes

Requirement:
When printing fingerprints in tenprint card format, the printing process shall have the capability to notate the presence of an abnormal finger condition in the appropriate printed fingerprint block for those cases where the EBTS Type-2 record field identified as "AMP" (amputated or bandaged) is available and/or for those cases where similar information is available from other sources, such as a state system (possibly with other notation codes).

4.10.6 Fingerprint Quality

Requirement:
The printer shall produce sufficient print quality to allow usable viewing of life-size fingerprint prints under magnification to support fingerprint comparisons, *i.e.*, identification or non-identification decisions. The print image shall maintain its sharpness and detail rendition structure up to at least 4X magnification to the extent that ridges and ridge joints, bifurcations, and terminations that exist in the input digital image to the printer can be substantially discerned by the human observer on the output print without being "lost in the noise." In addition, the printing process shall not create significant false detail, *e.g.*, it shall not create ridges where none existed in the input digital image.

Background:
Assessment of the requirement is performed by visual inspection of the print augmented by appropriate quantitative analysis of the scanned print.

Figure F-1 Auxiliary Information Printed in Tenprint Card Format Print
(Example Text)

Scanner Label   Step Tablet   Bar Chart   Printer Label

Biojax model 1 with Acme LS -75 #123456

Ajax P-101 #6521 with Biojaxsw v2 1/15/04 14:31:05

XX

LEFT FOUR FINGERS TAKEN SIMULTANEOUSLY

RIGHT FOUR FINGERS TAKEN SIMULTANEOUSLY

Condition Code
(XX = amputated)
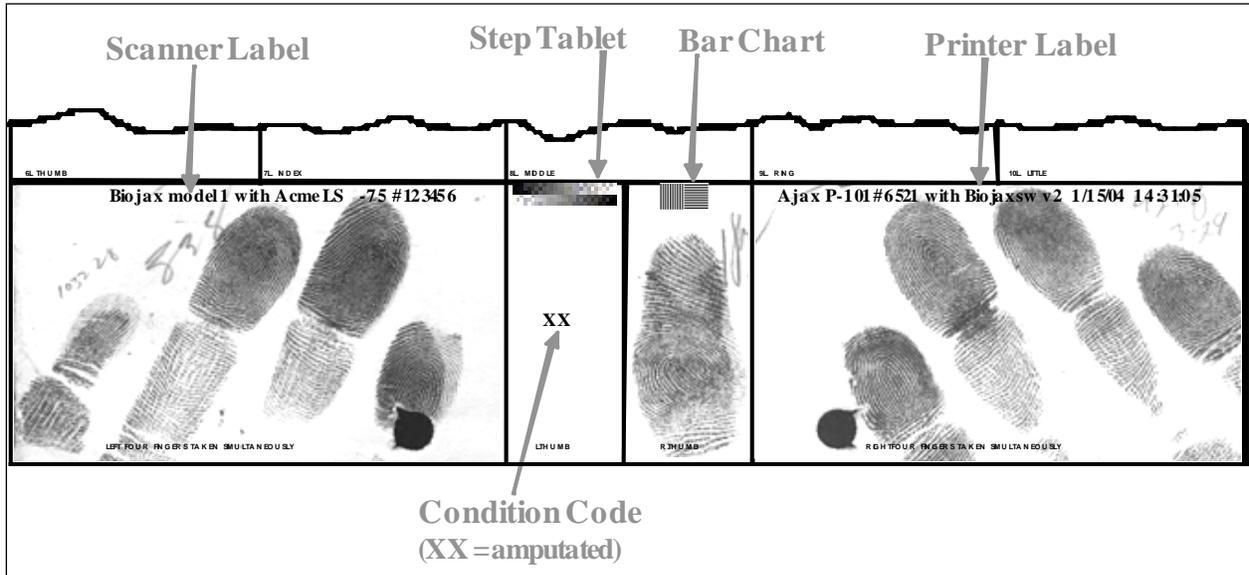
5.0 Mobile ID

A mobile identification device is a livescanner viewed in the context of a portable biometric acquisition station, i.e. one that is not intended to be stationary and hardwired to a much larger system used for comparing or matching biometric samples. Since mobile devices may satisfy a variety of collection modalities with differing image size and accuracy requirements, a set of Fingerprint Acquisition Profiles (FAP) for fingerprint images has been developed. Table F-5 summarizes the image sizes and IQS specification requirements relevant for each image interchange profile allowed by the FBI/CJIS for an RPIS transaction.

Requirement – Image Size/Impression Type:
For a given FAP, the minimum image dimensions and full range of simultaneous number of fingers specified in Table F-5 shall be met. The device shall be able to collect flat impressions. Rolled acquisition is optional.

Requirement – Image Quality:
As indicated in Table F-5, two IQS specification requirements are supported for mobile ID scanners. When the IQS specification requirement is PIV, then all requirements in Personal Identity Verification (PIV) Image Quality Specifications for Single Finger Capture Devices shall be met. When the IQS specification requirement is App F, then all the requirements in Section 2 of this document shall be met.

Background:
FAP 30 and lower are for single finger sensors and are primarily for identification/verification, while FAP 40 and above support simultaneous image capture which is faster, reduces sequence errors and produces higher quality images for both enrollment and identification searches. For RISC participation. The FBI/CJIS recommends that acquisition devices meet a minimum of FAP 30 to allow the following functions to be performed: (1) automatic feature detection; (2) fingerprint classification; (3) overall AFIS search reliability; and (4) conclusive fingerprint comparisons. Agencies submitting RPIS transactions should select a FAP level based on their specific requirements.

Table F-5 Mobile ID IQS Requirements

Fingerpint Acquisition Profile (FAP)	Minimum Image Dimensions (WxH in inches)	IQS Specification Requirements	Simultaneous # of Fingers
10	0.5 x 0.65	PIV	1
20	0.6 x 0.8	PIV	1
30	0.8 x 1.0	PIV	1
40	1.6 x 1.5	PIV	1-2
45	1.6 x 1.5	App F	1-2
50	2.5 x 1.5	App F	1-3
60	3.2 x 3.0	App F	1-4

NOTE: Although the RISC will accept submissions from Mobile Fingerprint Scanners that don't meet these requirements, the FBI/CJIS Division reserves the right to enforce these, or any other, scanner requirements deemed necessary to meet accuracy levels established by the FBI/CJIS Division's Advisory Policy Board. NGI RISC participants should refer to the FBI/CJIS Biometric Specification (www.fbibiospecs.org) IAFIS Certified Products List/Mobile ID Category for a list of mobile identification devices which have been certified by the FBI/CJIS as tested and in compliance with the FBI/CJIS's Next Generation Identification (NGI) initiatives and Integrated Automated Fingerprint Identification System (IAFIS) Image Quality Specifications (IQS). The certification process is not intended to endorse one product over a competitor's product but merely to certify that the product meets FBI/CJIS standards and that, between two products that meet FBI/CJIS standards, the FBI/CJIS does not recommend one over the other.

6.0 Fast-Track Certification

First, to review, full certification testing is required when:

- An uncertified livescan device is presented together with suitable SW such that the combination prospectively meets all IQS requirements.

- A hardcopy scanner or printer (typically a COTS product) is presented together with suitable SW such that the combination prospectively meets all IQS requirements. (The specific SW may be sold separately from the COTS HW, but only the specific HW/SW combination is certified.)

- Substantive modifications are made to an already-certified device. For example, the sensor or optics is changed, the capture area is expanded, the signal processing is substantively changed, or a 500 ppi-certified device is extended for operation at 1000 ppi.

Fast track certification testing is sufficient when:

- A vendor adds "value" to an already certified device by, for example, integrating additional SW and/or HW and repackaging the combination to create a Value-Added Reseller (VAR) label system. However, if there is a reasonable expectation that the added SW, HW, or repackaging will affect the image quality performance of the original certified device, then full certification testing would be required.

- A vendor makes relatively minor modifications to a previously certified device. For example, a membrane is added to (or deleted from) a certified livescanner, an automatic document feeder is added to a certified manual-feed cardscanner, or a 1000 ppi-certified scanner is operated at 500 ppi using the same optics, sensor, and illumination.

Table F-6 presents the test data requirements for some common fast track certification scenarios; for test requirements for other scenarios, contact the FBI/CJIS. In addition to the test data, the vendor seeking fast track certification must provide a written statement to the FBI/CJIS (letter or e-mail) affirming that the previously certified fingerprint device has not been changed with respect to device functions, hardware, firmware, or software that could reasonably be expected to affect image quality performance.[7] Specific to a scanner, the optics and optical layout, sensor, illumination, image capture electronics, and signal processing have not been changed and the maximum capture area has not been increased.

No certification testing is necessary when:

- The original recipient of a certification wishes to change the model name and there are no other changes to the certified product.

- The original recipient of a certification wishes to repackage the device if there is a reasonable expectation that the repackaging will not affect the image quality performance of the device. All device HW/SW components that may affect image quality performance must remain the same as they were when originally certified. For example, repackaging a device into a ruggedized cabinet or repackaging a floor-standing device as a desktop device by separating out the host computer would not necessarily require further testing, but changing the optical path or optical train of elements to accommodate the repackaging would normally require retesting.

- A reseller of a certified device wishes to sell the device under its own label or under the original label. The certified device must remain intact, unmodified, and as a stand-alone product with no added HW/SW. If relabeled by reseller, the certification is only valid when that label does in fact contain the originally certified device, *i.e.*, no blanket certification for rebrands.[8]

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[7] Except for inherent image quality changes in specific situations, e.g., when recertifying a 1000 ppi scanner at 500 ppi.

[8] If there is no Fast Track testing, the device will not be listed under the resellers name in the FBI certification list. Instead it will remain listed / certified under the original vendor and device name. A separate reseller listing requires some Fast Track data.

An end user receives a certified device to be used "as is" without modification (an end-user does not need its own certification).

Table F-6 Fast Track Certification Procedures (Common Scenarios)

Fast Track Certification	Type	Test Data to be Provided to FBI/CJIS	Requirements Compliance within Appendix F
Livescanner	Vendor A incorporates vendor B's certified device into vendor A's value-added system.	Livescans from 5 subjects (10 rolls & 4 plains, each subject)	Section 2.6
	Vendor adds (or deletes) platen membrane to certified device.	Sinewave or bar target scans (target supplied by vendor) and livescans from 5 subjects (10 rolls & 4 plains, each subject).	Sections 2.1, 2.3, & 2.6
Cardscanner	Vendor A incorporates vendor B's certified device into vendor A's value-added system.	Ten 10-print card scans (cards supplied by FBI/CJIS)	Section 2.6
Cardscanner with Automatic Document Feeder (ADF)	Vendor recertifies manual card scanner for use with ADF.	100 10-print card scans (cards supplied by FBI/CJIS)	Section 2.6
Printer	Vendor A incorporates vendor B's certified device into vendor A's value-added system.	Print of printer test target (target supplied by FBI/CJIS)	all subsections under section 4.0 pertaining to digital test target
1000 ppi fingerprint scanner as 500 ppi fingerprint scanner	Vendor recertifies its own fingerprint scanner in alternate operating mode.	Cardscanner: Sinewave target scans (target supplied by vendor) and ten 10-print card scans (cards supplied by FBI/CJIS) Livescanner: Sinewave or bar target scans (target supplied by vendor) and livescans from 5 subjects (10 rolls & 4 plains, each subject)	Sections 2.1, 2.3, & 2.6

Appendix F - Definition of Terms:

HW – Hardware, which may include firmware

SW – Software, which may include firmware

COTS – Commercial-Off-The-Shelf product

Vendor – generic term to include Original Equipment Manufacturer (OEM), reseller, VAR, product assembler, systems integrator, and similar.

Full IQS Certification – a complete set of test data covering all IQS requirements is submitted.

Fast Track IQS Certification – a partial set of test data covering defined IQS requirements is submitted.

APPENDIX F - REFERENCES

[MobileID] - *Mobile ID Device Best Practice Recommendation & Specification*, Aug 2009, National Institute of Standards and Technology (NIST), available at http://fingerprint.nist.gov/mobileid

[PIVspec] – *Personal Identity Verification (PIV) Image Quality Specifications for Single Finger Capture Devices*, FBI/CJIS Biometric Specifications, 10 July 2006, available at http://www.fbibiospecs.org/fbibiometric/docs/pivspec.pdf

[ANSI/NIST-ITL 1-2007] - *American National Standard for Information Systems-Data Format for the Interchange of Fingerprint Facial, & Other Biometric Information – Part 1,* April 20, 2007

[TestProcedures] -Test Procedures for Verifying IAFIS Image Quality Requirements for Fingerprint Scanners and Printers, v1.3, MITRE Technical Report MTR050016R6, May 2012.

[ANSI/NIST-ITL 1-2011] - *NIST Special Publication 500-290 - Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information.* http://www.nist.gov/itl/iad/ig/ansi_standard.cfm

APPENDIX G - RESERVED

APPENDIX H - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-7 LOGICAL RECORDS

Table H-1 summarizes the content of each of the fields in the Type-7 record. However, the byte counts do not account for any separator characters. Table H-2 summarizes the XML encoding mapping.

Table H-1 Field List for Type-7 (Miscellaneous Image) Logical Records

Identifier	Condition	Field Name	Character Type	Field Size Per Occurrence Min.	Field Size Per Occurrence Max.	Occurrences Min.	Occurrences Max.	Max. No. of Bytes
LEN	M	LOGICAL RECORD LENGTH	B	4	4	1	1	4
IDC	M	INFORMATION DESIGNATION CHARACTER	B	1	1	1	1	1
IMP	M	IMPRESSION TYPE	B	1	1	1	1	1
FGP	M	FINGER POSITION	B	6	6	1	1	6
ISR	M	IMAGE SCANNING RESOLUTION	B	1	1	1	1	1
HLL	M	HORIZONTAL LINE LENGTH	B	2	2	1	1	2
VLL	M	VERTICAL LINE LENGTH	B	2	2	1	1	2
GCA	M	GRAYSCALE COMPRESSION ALGORITHM	B	1	1	1	1	1
IMG	M	IMAGE DATA	B	1	6,200,000	1	1	6,200,000

Table H-2 Type-7 (Miscellaneous Image) Logical Record Hierarchical XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition	Example
Type 7	--------		itl:PackageUserDefinedImageRecord	0	*	A Type-7 user-defined image record	
Type 7	RCC	itl:PackageUserDefinedImageRecord/	ansi-nist:RecordCategoryCode	1	1	A kind of record, for example 1 for Type-1, 14 for Type-14	07
Type 7	IDC	itl:PackageUserDefinedImageRecord/	ansi-nist:ImageReferenceIdentification/nc:IdentificationID	1	1	An identification of a particular record in a transaction	02
Type 7	--------	itl:PackageUserDefinedImageRecord/	ansi-nist:FingerprintImage	0	1	An image of a fingerprint	
Type 7	IMG	itl:PackageUserDefinedImageRecord/ansi-nist:FingerprintImage/	nc:BinaryBase64Object	1	1	A binary encoding of data.	mrHbPdrko3u1s7ahtgPBjtmO1s85tfG2U7bpofY94Czu2SbY7d7wF9fQ7ZptgGrtkO2a2dsJ7wZbe8BlzvAmQ7xq+Y94GoHeEsR3ikWd4DIGhzmp3k42d4DRmzs94DKveDTB3hqw6PeBLrtpPep0H/+h
Type 7	ISR	itl:PackageUserDefinedImageRecord/ansi-nist:FingerprintImage/	ansi-nist:ImageCaptureDetail/ansi-nist:CaptureResolutionCode	1	1	A set of information regarding the captured (e.g., scanned) image	1
Type 7	GCA	itl:PackageUserDefinedImageRecord/ansi-nist:FingerprintImage/	ansi-nist:ImageCompressionAlgorithmCode	1	1	An image compression algorithm	2
Type 7	HLL	itl:PackageUserDefinedImageRecord/ansi-nist:FingerprintImage/	ansi-nist:ImageHorizontalLineLengthPixelQuantity	1	1	A number of pixels on a single horizontal line of an image	80
Type 7	VLL	itl:PackageUserDefinedImageRecord/ansi-nist:FingerprintImage/	ansi-nist:ImageVerticalLineLengthPixelQuantity	1	1	A number of horizontal lines in an image	65
Type 7	FGP	itl:PackageUserDefinedImageRecord/ansi-nist:FingerprintImage/	ansi-nist:FingerprintImagePosition/ansi-nist:FingerPositionCode	1	6	A set of possible finger position codes, most probable position first	2
Type 7	IMP	itl:PackageUserDefinedImageRecord/ansi-nist:FingerprintImage/	ansi-nist:FingerprintImageImpressionCaptureCategoryCode	1	1	A kind of impression capture by which a fingerprint image information was obtained	3

APPENDIX I - SUMMARY LOGICAL RECORD LAYOUTS FOR TYPE-2 DATA MANAGEMENT TRANSACTIONS

1.0 Introduction

Appendix I presents the summary of the Type-2 logical record layouts for Data Management transactions. Table I-1 is a summarization representation of these transactions. For detailed specifications of individual fields of these record sets, see Appendix C.

2.0 Interpretation of the Table

The column headers at the top of the page select a particular transaction. The row headers in the left margin give the tag number and ID for each field. The cell at the intersection of any given row and column gives summary information about the use of that field (row) in that transaction (column). If that cell is blank, the field is not used in that record. Otherwise, the number at the right in the cell gives the maximum number of occurrences of that field for that record. If the cell is shaded, then the field's inclusion is optional for that record; unshaded cells indicate mandatory inclusion. The diagonal pattern represents future initiatives, field tags, and type of transactions. In all cases, the minimum number of occurrences for a mandatory field is one, and zero for an optional field.

I - SUMMARY LOGICAL RECORD LAYOUTS FOR TYPE-2 DATA MANAGEMENT TRANSACTIONS

1.0 Introduction

Appendix I presents the summary of the Type-2 logical record layouts for Data Management transactions. Table I-1 is a summarization representation of these transactions. For detailed specifications of individual fields of these record sets, see Appendix C.

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The column headers at the top of the page select a particular transaction. The row headers in the left margin give the tag number and ID for each field. The cell at the intersection of any given row and column gives summary information about the use of that field (row) in that transaction (column). If that cell is blank, the field is not used in that record. Otherwise, the number at the right in the cell gives the maximum number of occurrences of that field for that record. If the cell is shaded, then the field's inclusion is optional for that record; unshaded cells indicate mandatory inclusion. The diagonal pattern represents future initiatives, field tags, and type of transactions. In all cases, the minimum number of occurrences for a mandatory field is one, and zero for an optional field.

Table I-1 Summary Field Lists for Data Management Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Element	BDEC	BDECR	BDEL	BDELR	CPD	PDR	ERRA	FIS	FISR	SRNR	ULD	ULDR
2.001 LEN	1	1	1	1	1	1	1	1	1	1	1	1
2.002 IDC	1	1	1	1	1	1	1	1	1	1	1	1
2.003 FFN												
2.005 RET												
2.006 ATN	1	1	1	1	1	1	1	1	1	1	1	1
2.007 SCO					9	9	9	9	9	9	9	9
2.009 OCA										1		
2.010 CIN			1	1							1	1
2.011 CIX			1	1							1	1
2.012 LCN												
2.013 LCX												
2.014 FBI	1	1	1	25	1	5		1	1	1		
2.015 SID								1	1			
2.016 SOC										4		
2.017 MNU										4		
2.018 NAM								1	1	1		
2.019 AKA										10		
2.020 POB										1		
2.021 CTZ										10		
2.022 DOB										5		
2.023 AGR												
2.024 SEX										1		
2.025 RAC										1		
2.026 SMT										10		
2.027 HGT										1		
2.028 HTR												
2.029 WGT										1		
2.030 WTR												
2.031 EYE										1		
2.032 HAI										1		
2.033 FPC												
2.034 PAT												
2.035 PPA									1			
2.037 RFP												
2.038 DPR								1				
2.039 EAD												
2.040 OCP												
2.041 RES												
2.042 MIL												
2.043 TSR												
2.044 GEO												
2.045 DOA					1	1					1	
2.046 DOS					1	1						

Table I-1 Summary Field Lists for Data Management Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Element	BDEC	BDECR	BDEL	BDELR	CPD	PDR	ERRA	FIS	FISR	SRNR	ULD	ULDR
2.047 ASL										40		
2.048 CSR												
2.049 EID												
2.051 CSL										40		
2.052 *tbd												
2.053 OFC												
2.054 SSD										1		
2.055 SLE										1		
2.056 ICO												
2.057 FNR												
2.059 SRF	1											
2.060 MSG		1		1			11		11			
2.061 CST												
2.062 IMT												
2.064 CAN												
2.065 RSR												
2.067 IMA												
2.070 RAP												
2.071 ACN												
2.072 FIU									13			
2.073 CRI	3	3	3	3	3	3	3	3	3	3	3	3
2.074 FGP	1											
2.075 ERS												
2.076 PRI												
2.078 PEN												
2.079 NCR												
2.080 EXP						1						
2.082 REC						1						
2.083 ULF												
2.084 AMP								1				
2.085 CRN												
2.086 SCNA											1	1
2.087 TAA												
2.088 NOT												
2.089 MSC												
2.091 RCD1												
2.092 RCD2												
2.093 SPCN												
2.094 CCN												
2.095 RFR												
2.096 RPR												
2.098 NDR												
2.099 SAN												

Table I-1 Summary Field Lists for Data Management Transactions
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Element	BDEC	BDECR	BDEL	BDELR	CPD	PDR	ERRA	FIS	FISR	SRNR	ULD	ULDR
2.2001 NAM1												
2.2002 NAM2												
2.2003 NAM3												
2.2004 NAM4												
2.2005 NAM5												
2.2006 CSF												
2.2007 SDOB												
2.2008 SNAM												
2.2009 PTY												
2.2010 NIR												
2.2011 *tbd												
2.2012 IIR												
2.2013 DMI												
2.2014 *tbd												
2.2015 *tbd												
2.2016 DNAF												
2.2017 DORI												
2.2018 DNAC												
2.2019 SEAL												
2.2020 *tbd												
2.2021 IFS												
2.2022 CIDN												
2.2023 SII												
2.2024 HTI												
2.2025												
2.2026												
2.2027												
2.2028 BID												
2.2029 BSI	1		1									
2.2030 PPD												
2.2031 BIA												
2.2032 ATR												
2.2033 CNL												
2.2034 ULR	1											
2.2035 EVI								1				
2.2100 SED										1		
2.2101 SST										8		
2.2102 RSC										1		
2.2103 STT										1		
2.2104 SRA										1		
2.2061 BIE									61			

APPENDIX J - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-9 LOGICAL RECORDS

This appendix provides the field specifications for submitting a Type-9 Image Feature record with a transaction. Along with a detailed explanation of the FBI IAFIS block fields and the Extended Feature Set block that can be included in this record type, the XML tag name has been included. Specifications for minutiae data are based on the ANSI/NIST-ITL Type-9 Record. As NGI moves forward with replacing latent functionality, CJIS will be adding the 'public' templates (Extended Feature Set). These templates are outlined at the end of the detailed CJIS block fields. This standard has additional requirements for this message and therefore contains a created substitution element for the abstract ANSI/NIST-ITL element <itl:RecordMinutiae>. This standard uses this element, <ebts:Minutiae>, to represent information specific to an FBI Biometric Identification message.

Refer to the ANSI/NIST for complete Type-9 field usage and descriptions. The following subsections layout in alphabetically order the complete definition of fields used by NGI while processing a Type-9 record. NGI will allow for both FBI IAFIS Feature Set and the ANSI/NIST Extended Feature Set. When both sets are present, NGI will use the Extended Feature Set. When features are being returned, NGI will place those features in the Extended Feature Set only.

Type-9 Data Dictionary

The T-9 Data Dictionary for this appendix only includes those fields that have been constrained by NGI/CJIS functionality. All other fields defined in the ANSI/NIST-ITL will be used as defined in that standard.

1) Common Types

The following list of fields are those common to both the FBI IAFIS Feature Set and the Extended Feature Set. Refer to the ANSI/NIST-ITL Standard for complete definition and usage of the following fields.

FMT   **9.004 Minutiae Format.**   *<ansi-nist:MinutiaeFormatNISTStandardIndicator>*

IDC   **9.002 Information Designation Character.**   *<ansi-nist:ImageReferenceIdentification>*

IMP   **9.003 Impression Type.**   *<ansi-nist:MinutiaeImpressionCaptureCategoryCode>*

LEN   **9.001 Logical Record Length.**

2) FBI IAFIS Feature Set Fields

The following list of fields represent the FBI IAFIS Feature Set. These fields are supported for backward compatibility with LFFS searches of fingerprint (FGP 0-10) features only.

AFV   **9.013 AFIS Feature Vector.**   *<nc:BinaryBase64Object>*

This field is a bit-packed field on the minutiae, the nearest neighbors, pattern class, and ridge counts. Its presence in the Type-9 record is allowed by including a "U" in the tagged field 9.004. It possesses sufficient features data to replace the rest of the Type-9 native mode record.

APC   **9.017 AFIS/FBI Pattern Classification.**   *<ebts:MinutiaeFingerPattern>*

This field contains one to three subfields. For native encoding, these fields will be separated by the ^R_S separator with each subfield composed of three information items separated by the ^U_S separator character. Each subfield reports a possible basic pattern class (APAT) and the ridge counts (RCN1, RCN2) defining its subpattern class. The AFIS/FBI automatic classifier recognizes only four basic pattern classes: arch (AU), left slant loop (LS), right slant loop (RS), and whorl (WU). It further subdivides the basic pattern classes of loops and whorls according to the count of ridges crossed or touched along a straight line joining the core(s) to the delta(s). The count is one more than the number of intervening ridges. For latents, the latent examiner is expected to make a best estimate as opposed to a range. AFIS/FBI treats all indicated pattern classes equally (*i.e.*, no significance given to the order of the possible classes provided). AFIS/FBI will apply a suitable tolerance to the specified ridge count for search space penetration.

The tagged field accommodates a primary pattern and up to two reference patterns in the one‑to‑three subfields. The first information item of a subfield contains the two‑character symbol for the pattern being designated. The second and third information items contain the appropriate subpattern class ridge count between the core(s) and the delta(s) with permissible values of 1 to 30 for actual ridge counts. For native encoding, a zero (0) should be entered if a ridge count is not appropriate; a thirty‑one (31) if it was appropriate but not counted or indeterminate. For XML encoding, the field is omitted if the value is zero (0). Both information fields in the native encoding are zero for an arch, the second information item in a subfield should be zero if the pattern for the subfield is a loop, and neither information item should be zero for a whorl. If a whorl is indicated in pattern classification, the second information item (RCN1) of a subfield contains the ridge count from the left delta to the downward opening core, and the third information item (RCN2) contains the ridge count from the right delta to the upward opening core. This implies that a central pocket whorl will have both a downward and an upward opening (directed) core generally aligned along the major axis of the innermost ellipse. If the automatic or manual classifier indicates all four basic patterns are possible, then the fingerprint should be designated as "fully referenced" by providing only one subfield with the first information item "UC"; the second and third information items should both be "31." If a particular fingerprint was not characterized for a tenprint native mode search request, no Type‑9 logical record should be submitted for that finger position, and the classification code for the missing finger must be placed in the Type-2 pattern class field.

AFIS/FBI Pattern Classification Table

Description	First Information Item	Second Information Item	Third Information Item
Arch (type not designated)	AU	0	0
Left slant loop	LS	1 – 31	0
Right slant loop	RS	1 – 31	0
Whorl (type not designated)	WU	1 – 31	1 ‑ 31
Complete scar	SR	0	0
Amputation	XX	0	0
Unable to classify	UC	0 or 31	0 or 31

CHQ   **9.024 Characterization Quality.**   *<ebts:MinutiaCharacterizationQualityValue>*

This is a single information item field of three numeric characters with the possible value of 1 to 254. Within AFIS/FBI, the principal quality parameter is the "Equivalent Number of Minutiae." The distribution of the parameter over thousands of fingerprints approximates a Gaussian distribution with a mean of about 50 and a standard deviation of about 12. The equivalent number of minutiae is calculated as the sum of the weighted normalized quality with the weighting being the number of qualified neighbors for the minutiae divided by the maximum number of neighbors (eight). The normalized minutiae quality ranges from unity (best) to zero (worst). A qualified neighbor would be another minutia with a reliable separating ridge count (less than 14) and within a reliable distance (not more than 1/5 inch).

CLQ **9.025 Classifier Quality.** *<ebts:MinutiaClassifierQualityValue>*

This is a single information item field of seven characters representing a positive real number between one (1.0000) and 99 (99.9999) indicating the quality or confidence of the automatic classification. The presence of the information item may reduce the AFIS/FBI processing load, but its absence will not degrade AFIS/FBI performance. A value of 1.0000 indicates best possible quality or confidence; increasing values indicate progressively worse quality or confidence. The information item format shall be XX.YYYY in which XX represents the integer portion and YYYY the fractional portion to four decimal places with a decimal point (period) between.

COF **9.019 Coordinate Offsets.** *<ebts:MinutiaCoordinateOffsets>*

This field allows the recording of translation, rotation, and image cropping employed in the characterization process to allow the examiner or an analyst to overlay onto the original or intermediate image the features reported in this record. The field contains five eight‑character information items. For native encoding, each item will be separated by the ^U_S separator. Unused information items may be empty, but the ^U_S separators must be included.

For AFIS/FBI, the units are in original image pixels and degrees using standard image processing coordinates; that is, (0,0) origin at the upper left, column index increasing from left to right, and row index increasing from top to bottom. For the native encoding, the column and row coordinate indexes (XYP) shall be coded as a single eight‑digit integer number composed of a four‑digit column coordinate (X) connected to a four‑digit row coordinate (Y) using a format of XXXXYYYY. A minus sign is permitted in the leftmost digit of a four‑digit group. For the XML encoding, there will be separate fields for X and Y coordinates.

The five information items are:

1 The offset to the upper left corner of a non‑rotated sub-image used subsequently in image processing
2 The coordinates of the center of rotation within the sub-image about which the sub-image is rotated
3 The clockwise rotation angle (THET) in ten‑thousandths of a degree resolution (*e.g.*, 072.2342) including the decimal point
4 The coordinates of the center of rotation in the rotated sub-image after the sub-image has been translated to eliminate negative column and row indexes
5 The upper-left-corner column and row offsets to a cropped sub-image taken from the rotated image once adjusted to eliminate negative coordinate values.

CRA **9.021 Core(s) Attribute.** *<ebts:MinutiaeFingerCoreAttributePosition>*

This field is for cores that can be perceived in the fingerprint (both tenprint and latent). If there is no core perceived in the fingerprint image, the tagged field should be omitted. This field contains up to two subfields (one subfield for each core). For native encoding, the subfields will be separated by the ^R_S separator. Each subfield contains three information items representing the attributes of each core. For native encoding, these information items will be separated by the ^U_S separator.

- The first information item of a subfield contains the X and Y coordinate position of the core (XYM). The position shall be established either automatically or manually according to the definitions presented in The Science of Fingerprints. The X and Y values shall be coded as a single eight-digit integer number composed of the four‑digit X coordinate (column) followed by the four‑digit Y coordinate (row) using a format of XXXXYYYY. The X coordinate and Y coordinate are in units of 10 micrometers with the origin at the upper left. Core positions shall be in the same coordinate system as the minutiae. For the XML encoding, there will be separate fields for X and Y coordinates.

- The second information item of a subfield is of three digit size and contains the direction of the core in integer degrees (DID). The direction is that of the core opening through the center of curvature for the innermost recurve at maximum curvature. The direction angle is positive counterclockwise from the reference horizontal to the right. Direction angles shall be reported between "001" and "360" degrees only. The value "000" shall be reserved for "direction not provided" while "360" shall be equivalent to zero degrees.

- The third information item of a subfield is of four digit size representing the radius of position uncertainty (PUM) in the manual or automatic placement of the core in integer units of 10 micrometers.

DLA   9.022 Delta(s) Attributes.   *<ebts:MinutiaeFingerDeltaAttribute Position>*

This field is for deltas that can be perceived in the fingerprint for both AFIS/FBI latent and tenprint characterizations. If there is no delta perceived in the fingerprint image, the tagged field should be omitted. This field contains up to two subfields (one subfield for each delta). For native encoding, these subfields will be separated by the ^R_S separator. Each subfield contains five information items representing the attributes of each delta. For native encoding, these information items will be separated by the ^U_S separator.

- The first information item of a subfield consists of eight characters and contains the X and Y coordinate position (XYM) of the delta(s). The position shall be established either automatically or manually according to the definitions presented in The Science of Fingerprints. The X and Y values shall be coded as a single eight-digit integer number composed of the four‑digit X coordinate (column) followed by the four‑digit Y coordinate (row) using a format of XXXXYYYY. The X coordinate and Y coordinate are in units of 10 micrometers with the origin at the upper left. For the XML encoding, there will be separate fields for X and Y coordinates. Delta positions shall be in the same coordinate system as the minutiae.

- The next three information items of a subfield shall be of three‑digit size each to contain the three directions of ridge flow (DID) outward from the delta in integer degrees.

  o The second information item of a subfield is the direction of the ridge flow upward from the delta.

  o The third information item of a subfield shall be the direction of ridge flow outward from the delta and to the left.

  o The fourth information item shall be the direction of the ridge flow outward from the delta to the right. The direction angles are positive counterclockwise from the reference horizontal to the right. Direction angles shall be reported between "001" and "360" degrees only. The value "000" shall be reserved for "direction not provided" while "360" shall be equivalent to zero degrees.

- The fifth subfield of four‑digit size represents the radius of position uncertainty (PUM) in the manual or automatic placement of the delta in integer units of 10 micrometers.

FCP   **9.016 Fingerprint Characterization Process.**   *<ebts:MinutiaeReadingSystem>*
This field of three information items identifies the characterization equipment and the amount of manual intervention employed in the characterization process. For native encoding, the three information items shall be separated by the ^{U}S separator.

- The first information item shall contain the name of the organization (VEN) providing the automatic process software.

- The second information item shall be a vendor‑supplied, alphanumeric character pair (VID) representing the model and/or version of the automatic process.

- The third information item (MET) shall be an ordered sequence of three characters selected from the following list indicating the degree of automation in the characterization process.

Fingerprint Characterization Process Table

Description	Code
First (leftmost) character (classification):	
Automatic pattern classification without manual intervention	C
Manually initiated or verified pattern classification	N
Second (middle) character (minutiae generation):	
Minutiae automatically generated, no manual editing or verification	A
Minutiae automatically generated, examiner verified or edited	E
Minutiae manually generated by examiner	M
Third (rightmost) character (ridge count):	
Automatic, synthesized ridge count without manual verification	S
Automatic, actual ridge count without manual verification	T
Automatic ridge count any method, examiner edited or verified	V

FGN   **9.014 Finger Number.**   *<ansi-nist:MinutiaeFingerPositionCode>*

This AFIS/FBI two‑byte field shall contain a character designating the finger position that produced the information in this Type-9 record. If the exact finger position cannot be determined, "00" shall be entered. Multiple codes are not permitted. Possible finger positions for single latent characterizations are specified in the accompanying Type‑2 logical record. If multiple latents from the same person are transmitted, the particular finger position corresponding to the Type‑9 record must be identified within the Type‑9 record.

Allowable codes are taken from the ANSI/NIST-ITL standards, and are as follows.

Finger Number Table

Finger Position	Code
Unknown finger	0
Right thumb	1
Right index	2
Right middle	3
Right ring	4
Right little	5
Left thumb	6
Left index	7
Left middle	8
Left ring	9
Left little	10

MAT   **9.023 Minutiae and Ridge Count Data.**   *<ebts:MinutiaDetail>*

This AFIS/FBI field shall contain all of the individual minutiae and ridge count data associated with the current fingerprint impression. It shall be composed of as many subfields as there are minutiae stated in the minutiae count in the tagged field 9.015, NMN. Each subfield shall be devoted to a single minutia and shall consist of multiple information items. For native encoding, subfields shall be separated by the separator character and all information items within a subfield shall be separated by the separator character. The minutiae shall be indexed from one to NMN and need not be ordered according to any particular attribute. The first two information items are required, and the others allow AFIS/FBI to achieve best possible candidate list performance. An information item may be omitted, but its separator character must remain, except all ridge count data must be present with special values designating missing or omitted data.

Index number (MDX): The first information item shall be the index number, which shall be initialized to one and incremented by one for each additional minutia in the fingerprint. This index number serves to identify each individual minutia.

X, Y, and theta values (XYT): The X and Y coordinates are values ranging from zero upward, and the theta direction value, between 000 and 360, shall comprise the second required information item. These three values shall be coded and recorded as a single 11‑digit integer number corresponding to the connected X, Y, and theta values, in that order. If the minutia is of Type D, the theta value shall be recorded as "000." The origin of the coordinate system shall be the upper left corner of the image with X increasing to the right and Y increasing downward. For XML encoding, this information field is represented in three separate fields for X, Y, and Theta.

The coordinate system units shall be units of 0.01mm (10 micrometers). The direction of an ending shall be into the ending ridge and the direction of a bifurcation shall be into the white space created by the dividing ridge. Angles shall be in integer degrees measured positive counterclockwise from a reference horizontal and to the right. The XY coordinates shall be applied after all rotation and translation of the image has been accomplished.

Quality measure (QMS): If present, the third information item is the minutiae quality measure. The two‑digit values shall range from 0 to 63. The value zero shall indicate a manually encoded minutia. The value "1" shall indicate that no method of indicating a confidence level is available. Values between 2 and 63 shall indicate decreasing levels of confidence, with 2 denoting the greatest confidence.

Minutiae type designation (MNT): The fourth information item is the minutiae type designation. This shall be a single character chosen as follows.

<div align="center">

Minutiae Type Design Table

Description	Type
Ridge ending	A
Ridge bifurcation	B
Ridge ending or bifurcation, no distinction provided	C
Type other than ending or bifurcation	D

</div>

Ridge count data (MRO): The fifth information item is the ridge count data for the nearest neighboring minutia of the indexed minutia. It shall be formatted as a series of eight sub-items, each consisting of a minutiae index number and a ridge count. This information shall be conveyed by combining the identity (MDX) of the neighboring minutia and the ridge count to that of neighboring minutiae into a five digit number. For AFIS/FBI, the minutiae identification index (MDX) shall increase from 1 to 254. The ridge count values (one more than number of intervening ridges) shall range from 0 to 15; with 14 indicating a count greater than 13, and 15 indicating an indeterminate count. Up to eight neighboring minutiae can be recorded, each being the nearest neighbor in an angular sector of 45 degrees (octant) with the zero‑th octant centered (+/- 22.5 degrees) and aligned with the direction of the minutiae and increasing in octant index in the counterclockwise direction. If a minutia does not have a neighbor in a particular octant, the value "25515" should be used for the sub-item in native encoding. Fox XML encoding, this information item is represented in separate fields for the index and ridge count.

Octant residuals (RSO): The last information item of eight ASCII characters indicates into which half of the octant each neighboring minutia lies. This subfield is beneficial for performance but not mandatory. The characters are ordered left to right according to the ascending octant index. The corresponding character shall be 1 if the neighboring minutia lies in the counterclockwise half of the octant. The corresponding character shall be 0 if the neighboring minutia lies in the clockwise half of the octant or if there is no neighboring minutiae in the octant.

NMN   **9.015 Number of Minutiae.**   <ansi-nist:MinutiaeQuantity>
This AFIS/FBI field shall contain the count of the number of minutiae recorded for this fingerprint. For AFIS/FBI, the number should not exceed 254. If the number of minutiae provided in this field exceeds the number of minutiae the system can accommodate, the list will be truncated according to the reported minutiae quality. Minutiae below the proximal crease generally are not included.

ORN   **9.020 Orientation Uncertainty.**   *<ansi-nist:PositionUncertaintyValue>*

The orientation uncertainty is a substantial contribution for AFIS/FBI latent fingerprint characterizations and is not used for tenprint searches. This one‑to‑three-character mandatory field contains an estimate of the deviation in degrees of the latent image (after rotation and translation to support editing and characterization) relative to fingertip up. The entry shall be the absolute value of the angular deviation from "tip‑up." The uncertainty would be zero if the impression were made with the extended finger aligned with the vertical of the displayed image. It is expected to be a human visual estimate of "the final image is aligned tip up within about X‑degrees." If the examiner can not provide an estimate, the value shall be 180 (unoriented).

ROV	**9.018 Region of Value.**	*<ebts:MinutiaPolygonalVerticesPositions>*

This is a field of three to twenty subfields separated by the ^R_S separator defining the vertices of a polygon that bounds the region of the image from which the characterization products have been extracted. For native encoding, each eight‑character subfield consists of the combination of the row and column coordinates (XYM), with the first four digits representing the column and the second four digits representing the row in the XXXXYYYY structure. For the XML encoding, there will be separate fields for X and Y coordinates. The vertices shall be identified in the same coordinate system as the minutiae, cores, and deltas in units of 10 micrometers and padded on the left with zeros as appropriate. The order of the vertices must be in their consecutive order around the perimeter of the polygon, either clockwise or counterclockwise. The polygon side defined by the last subfield and the first subfield shall complete the polygon. The polygon must be a simple, plane figure with no sides crossing and no interior holes. For native encoding, the subfields will be separated by the ^R_S separator.

3) Extended Feature Set Fields

The following list of fields are those used by NGI in the Extended Feature Set.

ORT	**9.301 Orientation.**	*<ansi-nist:MinutiaeCommentText>*
FPP	**9.302 Finger-Palm-Plantar Position.**	*<ansi-nist:MinutiaeCore>*
FSP	**9.303 EFS Feature Set Profile.**	*<ansi-nist:MinutiaeFeatureCorrespondence>*
PAT	**9.307 Pattern Classification.**	*<ansi-nist:MinutiaeDelta>*
FQM	**9.316 Friction Ridge Quality Metric.**	*<ansi-nist:MinutiaeFingerLocation>*
DEL	**9.321 Deltas.**	*<ansi-nist:ImageQuality>*
MIN	**9.331 Minutiae.**	*<ansi-nist:ExtendedFeatureSetProfileIdentification>*

<u>COM</u>	**9.351**	**Comment.**	*<ansi-nist:MinutiaeFeatureDetection>*
<u>CPF</u>	**9.361**	**Corresponding Points or Features.**	*<ansi-nist:EFSMinutia>*
<u>RRC</u>	**9.363**	**Relative Rotation of Corresponding Print.**	*<ansi-nist:FingerprintImageFingerprintOrientation>*
<u>ROI</u>	**9.300**	**Region of Interest.**	*<ansi-nist:FingerprintPatternClassification>*
<u>COR</u>	**9.320**	**Cores.**	*<ansi-nist:FrictionRidgeImageRegionOfInterest>*
<u>MFD</u>	**9.350**	**Method of Feature Detection.**	*<biom:FrictionRidgeImageRelativeRotation/>*

The usage for each field is applicable when the EFS section is intended to represent the template.

The following Table J-1 summarizes all the allowed fields in the Type-9 record in the native encoding format. The field sizes do not account for any separator characters. The additional column 'Applicable' is used to indicate which fields will be used by NGI for matching (inbound) and responses (outbound). All the remaining fields may be included on inbound messages, but NGI will currently ignore them and only return those fields indicated for outbound. Table J-2 summarizes the content and order for each element of the XML schema for the Type-9 record used by NGI.

Table J-1 Field List for Type-9 (Minutiae) Native-Mode Logical Record

Identifier	Condition	Applicable	Field No.	Field Name	Character Type	Field Size Per Occurrence Min.	Field Size Per Occurrence Max.	Occurrences Min.	Occurrences Max.	Example Data	Special Characters Allowed
LEN	M		9.001	LOGICAL RECORD LENGTH	N	2	5	1	1	9.001:3144<GS>	
IDC	M		9.002	INFORMATION DESIGNATION CHARACTER	N	1	2	1	1	9.002:02<GS>	
IMP	M		9.003	IMPRESSION TYPE	N	1	2	1	1	9.003:10<GS>	
FMT	M		9.004	MINUTIAE FORMAT	A	1	1	1	1	9.004:U<GS>	
AFV	D		9.013	AFIS FEATURE VECTOR	B	2,048	2,048	0	1	9.013:binary data<GS>	
FGN	D		9.014	FINGER NUMBER	N	2	2	1	1	9.014:04<GS>	
NMN	D		9.015	NUMBER OF MINUTIAE	N	2	3	1	1	9.015:96<GS>	
FCP	D		9.016	FINGERPRINT CHARACTERIZATION PROCESS	SET			1	1	9.016:AFISFBI<US>R2<US>CAV<GS>	
VEN	M			Equipment	A	3	12	1	1		
VID	M			Version Identifier	AN	2	2	1	1		
MET	M			Method	A	3	3	1	1		
APC	D		9.017	AFIS/FBI PATTERN CLASSIFICATION	SET			0	3	9.017:LS<US>9<US>0<RS>RS<US>13	
APAT	M			Pattern Classification	A	2	2	1	1		
RCN1	D			First Subpattern Ridge Count (RCN1)	N	1	2	0	1		
RCN2	D			Second Subpattern Ridge Count (RCN2)	N	1	2	0	1		
ROV	O		9.018	REGION OF VALUE	SET			0	1		
XYM	M			Vertex (XXXXYYYY)	N	8	8	3	20		
COF	O		9.019	COORDINATE OFFSETS	SET			0	1	9.019:01230444<US>04650433<US><U	
XYPU	M			Offset to UL Corner Subimage (XXXXYYYY)	N	8	8	1	1	S><US><RS>	
XYPC	D			Center of Rotation in Subimage (XXXXYYYY)	N	8	8	0	1		
THET	D			Rotation Angle CW Degrees (III.FFFF)	N	8	8	0	1		
XYPR	D			Rotation Center in Rotated Subimage (XXXXYYYY)	N	8	8	0	1		
XYPF	D			Offset to UL Corner Final Subimage (XXXXYYYY)	N	8	8	0	1		
ORN	D		9.020	ORIENTATION UNCERTAINTY	N	1	3	1	1		
CRA	D		9.021	CORE ATTRIBUTES	SET			0	2	9.021:07612387<US>265<US>0175<RS	
XYM	D			Location (XXXXYYYY)	N	8	8	0	1	>	
DID	D			Direction in Degrees (DDD)	N	3	3	0	1		
PUM	D			Position Uncertainty (RRRR)	N	4	4	0	1		
DLA	O		9.022	DELTA ATTRIBUTES	SET			0	2	9.022:07612387<US>078<US>210<US>	
XYM	D			Location (XXXXYYYY)	N	8	8	0	1		
DIDU	D			Upward Flow Direction (DDD)	N	3	3	0	1		
DIDL	D			Leftward Flow Direction (DDD)	N	3	3	0	1		
DIDR	D			Rightward Flow Direction (DDD)	N	3	3	0	1		
PUM	D			Position Uncertainty (RRRR)	N	4	4	0	1		
MAT	D		9.023	MINUTIAE AND RIDGE COUNT DATA	SET			1	254	9.023:001<US>XXXXYYYYTTT<US>Q	
MDX	M			Minutiae Index Number (III)	N	3	3	1	1	Q<US>A<US>NNNCC<US>NNNCC<U	
XYT	M			Location Direction (XXXXYYYY)	N	11	11	1	1	S>NNNCC<US>NNNCC<US>NNNCC<	
QMS	O			Quality Measure	N	2	2	1	1	US>NNNCC<US>NNNCC<US>NNNCC	
MNT	O			Minutiae Type	A	1	1	1	1	<GS>	
MRO	D			Minutiae Index and Ridge Count Octant 0 (NNNCC)	N	5	5	1	1		
MRO1	D			Minutiae Index and Ridge Count Octant 1 (NNNCC)	N	5	5	1	1		
MRO2	D			Minutiae Index and Ridge Count Octant 2 (NNNCC)	N	5	5	1	1		
MRO3	D			Minutiae Index and Ridge Count Octant 3 (NNNCC)	N	5	5	1	1		
MRO4	D			Minutiae Index and Ridge Count Octant 4 (NNNCC)	N	5	5	1	1		
MRO5	D			Minutiae Index and Ridge Count Octant 5 (NNNCC)	N	5	5	1	1		
MRO6	D			Minutiae Index and Ridge Count Octant 6 (NNNCC)	N	5	5	1	1		
MRO7	D			Minutiae Index and Ridge Count Octant 7 (NNNCC)	N	5	5	1	1		
RSO	O			Octant Residuals (RRRRRRRR)	N	8	8	0	1		
CHQ	O		9.024	CHARACTERIZATION QUALITY	N	1	3	0	1	9.024:73<GS>	
CLQ	O		9.025	CLASSIFIER QUALITY	N	6	7	0	1	9.025:1.0525<GS>	

Identifier	Condition	Applicable	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Example Data	Special Characters Allowed
						Min.	Max.	Min.	Max.		
RSV			9.026 - 9.030	RESERVED FOR FBI IAFIS FEATURE SET							
RSV			9.031 - 9.055	RESERVED FOR COGENT FEATURE SET							
RSV			9.056 - 9.070	RESERVED FOR MOTOROLA FEATURE SET							
RSV			9.071 - 9.099	RESERVED FOR SAGEM MORPPHO FEATURE SET							
RSV			9.100 - 9.125	RESERVED FOR NEC FEATURE SET							
RSV			9.126 - 9.150	RESERVED FOR MI-378 FIELDS							
RSV			9.151 - 9.175	RESERVED FOR IDENTIX FEATURE SET							
RSV			9.176 - 9.225	OTHER FEATURE SETS - DEFINED FIELDS							
RSV			9.226 - 9.299	Reserved for future use by ANSI/NIST-ITL							
ROI	M		9.300	REGION OF INTEREST	SET			1	1		
EWI	M			Region of Interest Width	N	1	5	1	1		Maximum of 50,000
EHI	M	Search/ Response		Region of Interest Height	N	1	5	1	1		Maximum of 50,000
EHO	O			Region of Interest Horizontal Offset	N	1	5	0	1		Maximum of 50,000
EVO	O			Region of Interest Vertical Offset	N	1	5	0	1		Maximum of 50,000
ROP	O			Region of Interest Polygon	NS	1	1,188	0	1		
ORT	O	Search/Re sponse	9.301	ORIENTATION	SET			0	1		
EOD	M			Orientation Direction	NS	1	4	1	1		Valid Values: -179 - 180
EUC	O			Orientation Uncertainty	N	1	3	0	1		Valid Values: 0 - 180
FPP	M		9.302	FINGER, PALM, PLANTAR POSITION	SET			1	20		
FGP	M			Friction Ridge Generalized Position	N	1	2	1	1		
FSM	O	Search/ Response		Finger Segment	A	3	3	0	1		Valid values: DST, PRX, MED or UNK
OCF	O			Off-Center Fingerprint	A	1	1	0	1		Valid values: T, R, or L
SGP	O			Segment Polygon	NS	1	1,188	0	1		
FSP	O	Search	9.303	FEATURE SET PROFILE	N	1	2	0	9		
RSV			9.304 - 9.306	Reserved for future use by ANSI/NIST-ITL							
PAT	D		9.307	PATTERN CLASSIFICATION	SET			0	1		
GCF	M	Search/ Response		General Class	A	2	2	1	1		
SUB	D			Subclass	A	2	2	0	1		
WDR	D			Whorl-Delta Relationship	A	1	1	0	1		Valid Values: I, O or M
RQM	O		9.308	RIDGE QUALITY MAP	AN	1	50,000	0	1		
RQF	O		9.309	RIDGE QUALITY MAP FORMAT	SET			0	1		
GSZ	M			Grid Size	N	1	2	1	1		Valid Values: 1 - 41
RDF	M			Ridge Quality Data Format	A	3	3	1	1		Valid Values: UNC or RLE
RFM	O		9.310	RIDGE FLOW MAP	AN	1	100,000	0	1		Hexidecimal values
RFF	O		9.311	RIDGE FLOW MAP FORMAT	SET			0	1		
SFQ	M			Sampling Frequency	N	1	2	1	1		Valid Values: 1 - 41
RDF	M			Ridge Flow Data Format	AN	3	3	1	1		Valid Values: UNC or B64
RWM	O		9.312	RIDGE WAVELENGTH MAP	AN	1	100,000	0	1		
RWF	O		9.313	RIDGE WAVELENGTH MAP FORMAT	SET			0	1		
FWS	M			Sampling Frequency	N	1	2	1	1		
FDF	M			Data Format	AN	3	3	1	1		Valid Value: UNC

Identifier	Condition	Applicable	Field No.	Field Name	Character Type	Field Size Per Occurrence Min.	Field Size Per Occurrence Max.	Occurrences Min.	Occurrences Max.	Example Data	Special Characters Allowed
TRV	O		9.314	TONAL REVERSAL	A	1	1	0	1		Valid Values: N or P
PLR	O		9.315	POSSIBLE LATERAL REVERSAL	A	1	1	0	1		Valid Values: L or U
FQM	O		9.316	FRICTION RIDGE QUALITY METRIC	SET			0	9		
QVU	M	Response		Quality Value	N	1	3	1	1		Valid Values: 0 - 100, 254 or 255
QAV	M			Algorithm Vendor Identification	H	4	4	1	1		
QAP	M			Algorithm Product Identification	N	1	5	1	1		Valid Values: 1 - 65,534
PGS	O		9.317	POSSIBLE GROWTH OR SHRINKAGE	SET			0	1		
TGS	M			Growth or Shrinkage Type	A	1	1	1	1		
CGS	M			Growth or Shrinkage Comment	ANS	1	1,000	1	1		
RSV			9.318 - 9.319	Reserved for future use by ANSI/NIST-ITL							
COR	O		9.320	CORES	SET			0	*		
CXC	M			X Coordinate	N	1	5	1	1		
CYC	M	Search/ Response		Y Coordinate	N	1	5	1	1		
CDI	O			Direction	NS	1	4	0	1		Valid Values: -179 - 180
RPU	O			Radius of Position Uncertainty	N	1	3	0	1		Valid Values: 1 - 999
DUY	O			Direction Uncertainty	N	1	3	0	1		Valid Values: 0 - 359
DEL	O		9.321	DELTAS	SET			0	*		
DXC	M			X Coordinate	N	1	5	1	1		
DYC	M			Y Coordinate	N	1	5	1	1		
DUP	O			Direction Up	N	1	3	0	1		Valid Values: 0 - 180
DLF	O			Direction Left	N	1	3	0	1		Valid Values: 0 - 180
DRT	O	Search/ Response		Direction Right	N	1	3	0	1		Valid Values: 0 - 180
DTP	O			Delta Type	AN	1	3	0	1		Valid Values: L, R, C, I00 - I10 or I16 or
RPU	O			Radius of Position Uncertainty	N	1	3	0	1		Valid Values: 1 - 999
DUU	O			Direction Uncertainty Up	N	1	3	0	1		Valid Values: 0 - 180
DUL	O			Direction Uncertainty Left	N	1	3	0	1		Valid Values: 0 - 180
DUR	O			Direction Uncertainty Right	N	1	3	0	1		Valid Values: 0 - 180
CDR	O		9.322	CORE-DELTA RIDGE COUNTS	SET			0	255		
CIX	M			Core Index	AN	1	2	1	1		Valid Values: 1 - 99, L or U
DIX	M			Delta Index	AN	1	2	1	1		Valid Values: 1 - 99, L or R
MNRC	M			Min Ridge Count	N	1	2	1	1		Valid Values: 1 - 99
MXRC	O			Max Ridge Count	N	1	2	0	1		Valid Values: 1 - 99
CPR	O		9.323	CENTER POINT OF REFERENCE	SET			0	3		
CPM	M			Method	AN	1	1	1	1		Valid Values: L or 0 or 1
PXC	M			X Coordinate	N	1	5	1	1		
PYC	M			Y Coordinate	N	1	5	1	1		
RPU	O			Radius of Position Uncertainty	N	1	3	0	1		Valid Values: 1 - 999
DIS	O		9.324	DISTINCTIVE FEATURES	SET			0	99		
DIT	M			Distinctive Feature Type	A	4	11	1	1		
DFP	O			Distinctive Features Polygon	NS	11	1,188	0	1		
DFC	O			Distinctive Features Comment	ANS	1	1,000	0	1		
NCOR	D		9.325	NO CORES PRESENT	A	1	1	0	1		Valid Value: Y
NDEL	D		9.326	NO DELTAS PRESENT	A	1	1	0	1		Valid Value: Y
NDIS	D		9.327	NO DISTINCTIVE FEATURES PRESENT	A	1	1	0	1		Valid Value: Y
RSV			9.328 - 9.330	Reserved for future use by ANSI/NIST-ITL							
MIN	O		9.331	MINUTIAE	SET			0	999		
MXC	M			X Coordinate	N	1	5	1	1		
MYC	M	Search/ Response		Y Coordinate	N	1	5	1	1		
MTD	M			Theta Degrees	N	1	3	1	1		Valid Values: 0 - 180
MTY	M			Minutia Type	A	1	1	1	1		Valid Values: E, B or X
MRU	O			Radius of Position Uncertainty	N	1	3	0	1		Valid Values: 0 - 999

Table J-1 Field List for Type-9 (Minutiae) Native-Mode Logical Record

Identifier	Condition	Applicable	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Example Data	Special Characters Allowed
						Min.	Max.	Min.	Max.		
MDU	O			Minutia Direction of Uncertainty	N	1	3	0	1		Valid Values: 0 - 359
MRA	O		9.332	MINUTIAE RIDGE COUNT ALGORITHM	AN	5	6	0	1		Valid Vaules: OCTANT or EFTS7
MRC	O		9.333	MINUTIAE RIDGE COUNTS	SET			0	7,992		
MIA	M			Minutia Index A	N	1	4	1	1		Valid Values: 1 - 9999
MIB	M			Minutia Index B	N	1	4	1	1		Valid Values: 1 - 9999
MIR	M			Ridge Count	N	1	2	1	1		Valid Values: 1 - 99
MRN	O			Reference Number	N	1	1	0	1		Valid Values: 1 - 8
MRS	O			Residual	N	1	1	0	1		Valid Values: 0 or 1
NMIN	D		9.334	NO MINUTIA PRESENT	A	1	1	0	1		Valid Value: Y
RCC	O		9.335	RIDGE COUNT CONFIDENCE	SET			0	7,992		
ACX	M			X Coordinate Point A	N	1	5	1	1		
ACY	M			Y Coordinate Point A	N	1	5	1	1		
BCX	M			X Coordinate Point B	N	1	5	1	1		
GCY	M			Y Coordinate Point B	N	1	5	1	1		
MORC	M			Method of Ridge Counting	A	1	1	1	1		Valid Values: A, T or M
MCV	M			Confidence Value	N	1	2	1	1		Valid Values: 0 - 99
RSV			9.336 - 9.339	Reserved for future use by ANSI/NIST-ITL							
DOT	O		9.340	DOTS	SET			0	999		
DOX	M			DOT X Coordinate	N	1	5	1	1		
DOY	M			DOT Y Coordinate	N	1	5	1	1		
DOL	O			DOT Length	N	1	2	0	1		
INR	O		9.341	INCIPIENT RIDGES	SET			0	999		
XIC	M			X Coordinate Point 1	N	1	5	1	1		
YIC	M			Y Coordinate Point 1	N	1	5	1	1		
X2C	M			X Coordinate Point 2	N	1	5	1	1		
Y2C	M			Y Coordinate Point 2	N	1	5	1	1		
CLD	O		9.342	CREASES AND LINEAR DISCONTINUITIES	SET			0	999		
XID	M			X Coordinate Point 1	N	1	5	1	1		
YID	M			Y Coordinate Point 1	N	1	5	1	1		
X2D	M			X Coordinate Point 2	N	1	5	1	1		
Y2D	M			Y Coordinate Point 2	N	1	5	1	1		
TPD	M			Type	AN	2	5	1	1		
REF	O		9.343	RIDGE EDGE FEATURES	SET			0	999		
CLX	M			X Coordinate Point	N	1	5	1	1		
CLY	M			Y Coordinate Point	N	1	5	1	1		
CLT	M			Type	A	1	1	1	1		Valid Values: P, I or D
NPOR	D		9.344	NO PORES PRESENT	A	1	1	0	1		Valid Value: Y
POR	O		9.345	PORES	SET			0	9,999		
POX	M			X Coordinate Point	N	1	5	1	1		
POY	M			Y Coordinate Point	N	1	5	1	1		
NDOT	D		9.346	NO DOTS PRESENT	A	1	1	0	1		Valid Value: Y
NINR	D		9.347	NO INCIPIENT RIDGES PRESENT	A	1	1	0	1		Valid Value: Y
NCLD	D		9.348	NO CEASES PRESENT	A	1	1	0	1		Valid Value: Y
NREF	D		9.349	NO RIDGE EDGE FEATURES PRESENT	A	1	1	0	1		Valid Value: Y
MFD	O		9.350	METHOD OF FEATURE DETECTION	SET			0	99		
FIE	M			Field	ANS	3	999	1	1		
FME	M			Method	A	3	4	1	1		
FAV	D			Algorithm Vendor	ANS	1	40	0	1		
FAL	D	Response		Algorithm	ANS	1	40	0	1		
ESN	D			Examiner Surname	ANS	1	40	0	1		
EGN	D			Examiner Given Name	ANS	1	40	0	1		
EAF	D			Examiner Affiliation	ANS	1	99	0	1		

Identifier	Condition	Applicable	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Example Data	Special Characters Allowed
						Min.	Max.	Min.	Max.		
EMT	O			Date and Time (GMT)	AN	15	15	0	1		Use Greenwich Mean Time format
NTS	O			Notes	ANS	1	99	0	1		
COM	O	Response	9.351	COMMENT	ANS	1	126	0	1		
LPM	O		9.352	LATENT PROCESSING METHOD	A	3	3	0	9		
EAA	O		9.353	EXAMINER ANALYSIS ASSESSMENT	SET			0	1		
AAV	M			Value	A	5	8	1	1		
ALN	M			Examiner Last Name	ANS	1	40	1	1		
AFN	M			Examiner First Name	ANS	1	40	1	1		
AAF	M			Examiner Affiliation	ANS	1	99	1	1		
AMT	M			Date and Time (GMT)	AN	15	15	1	1		Use Greenwich Mean Time format
ACM	O			Comment	ANS	1	200	0	1		
CXF	O			Analysis Complexity Flag	A	7	7	0	1		Valid Value: COMPLEX
EOF	O		9.354	EVIDENCE OF FRAUD	SET			0	4		
FRA	M			Fraud Type	A	3	3	1	1		
CFD	O			Comment	ANS	1	200	0	1		
LSB	O		9.355	LATENT SUBSTRATE	SET			0	3		
CLS	M			Code	N	1	2	1	1		
OSD	O			Comment	ANS	1	1,000	0	1		
LMT	O		9.356	LATENT MATRIX	SET			0	3		
TOM	M			Code	N	1	2	1	1		
CLA	O			Comment	ANS	1	1,000	0	1		
LQI	O		9.357	LOCAL QUALITY ISSUES	SET			0	*		
LQT	M			Type	N	4	10	1	1		
LQP	M			Polygon	NS	11	1,188	1	1		
LQC	O			Comment	ANS	1	1,000	0	1		
RSV			9.358 - 9.359	Reserved for future use by ANSI/NIST-ITL							
AOC	O		9.360	AREA OF CORRESPONDENCE	SET			0	*		
CIR	M			IDC Reference	N	1	2	1	1		Valid Values: 0 - 99
AOP	M			Polygon (Closed Path)	NS	11	1,188	1	1		
CAC	O			Comment	ANS	1	1,000	0	1		
CPF	O		9.361	CORRESPONDING POINTS OR FEATURES	SET			0	*		
COL	M			Label	AN	1	3	1	1		
TOC	M			Type of Correspondence	A	1	2	1	1		
CFN	D	Response		Corresponding Field Number	N	3	3	0	1		
FOC	D			Corresponding Field Occurrence	N	1	3	0	1		Valid Values: 0 - 999
CXC	D			Corresponding X Coordinate	N	1	5	0	1		
CYC	D			Corresponding Y Coordinate	N	1	5	0	1		
COC	O			Comment	ANS	1	1,000	0	1		
ECD	O		9.362	EXAMINER COMPARISON DETERMINATION	SET			0	*		
EDC	M			IDC Reference	N	1	2	1	1		Valid Values: 0 - 255
EDE	M			Determination	AS	4	6	1	1		
WIP	M			Work in Progress	A	5	11	1	1		Valid Values: PRELIMINARY or FINAL
ELN	M			Examiner Last Name	ANS	1	40	1	1		
EFN	M			Examiner First Name	ANS	1	40	1	1		
EAF	M			Examiner Affiliation	ANS	1	99	1	1		
DTG	M			Date and Time (GMT)	AN	15	15	1	1		Use Greenwich Mean Time format
CZZ	O			Comment	ANS	1	200	0	1		
CCF	O			Complex Comparison Flag	A	7	7	0	1		Valid Value: COMPLEX
RRC	O	Response	9.363	RELATIVE ROTATION OF CORRESPONDING PRINT	SET			0	*		
RIR	M			IDC Reference	N	1	2	1	1		

Table J-1 Field List for Type-9 (Minutiae) Native-Mode Logical Record

Identifier	Condition	Applicable	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Example Data	Special Characters Allowed
						Min.	Max.	Min.	Max.		
ROR	M			Relative Overall Rotation	NS	1	4	1	1		Valid Values: -179 - 180
RSV			9.364 - 9.371	Reserved for future use by ANSI/NIST-ITL							
SIM	O		9.372	SKELETONIZED IMAGE	B	8	*	0	1		
RPS	O		9.373	RIDGE PATH SEGMENTS	NS	11	1,188	0	*		
RSV			9.374 - 9.399	Reserved for future use by ANSI/NIST-ITL							
RSV			9.400 - 9.900	Reserved for future use by ANSI/NIST-ITL							
ULA	O		9.901	UNIVERSAL LATENT ANNOTATION	ANS	22	300	1	*		
ANN	O		9.902	ANNOTATED INFORMATION	SET			0	*		
GMT	M			Greenwich Mean Time	ANS	15	15	1	1		
NAV	M			Processing Algorithm Name/Version	ANS	1	64	1	1		
OWN	M			Algorithm Owner	ANS	1	64	1	1		
PRO	M			Process Description	ANS	1	255	1	1		
DUI	O		9.903	DEVICE UNIQUE IDENTIFIER	ANS	13	16	0	1		
MMS	O		9.904	MAKE/MODEL/SERIAL NUMBER	SET			0	1		
MAK	M			Make	ANS	1	50	1	1		
MOD	M			Model	ANS	1	50	1	1		
SER	M			Serial Number	ANS	1	50	1	1		
RSV			9.905 – 9.999	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only							

D   Dependent upon certain conditions stated in the text

Applicable   Utilized by NGI on "Search" and/or "Response"

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	--------		itl:PackageMinutiaeRecord	1	*	A Type-9 minutiae data record
9.001	RCC	itl:PackageMinutiaeRecord/	ansi-nist:RecordCategoryCode	1	1	A kind of record, for example 1 for Type-1, 14 for Type-14
9.002	IDC	itl:PackageMinutiaeRecord/	ansi-nist:ImageReferenceIdentification/nc:IdentificationID	1	1	An identification of a particular record in a transaction
9.902	ANN	itl:PackageMinutiaeRecord/	ansi-nist:ProcessAnnotation	0	*	A set of elements describing, or logging, a single step in a biometric processing algorithm or workstation
--------	GMT	itl:PackageMinutiaeRecord/ansi-nist:ProcessAnnotation/	ansi-nist:ProcessUTCDate/nc:DateTime	1	1	A date and time for a biometric processing algorithm
--------	NAV	itl:PackageMinutiaeRecord/ansi-nist:ProcessAnnotation/	ansi-nist:ProcessName	1	1	A name of a biometric processing algorithm or workstation, along with a version number
--------	OWN	itl:PackageMinutiaeRecord/ansi-nist:ProcessAnnotation/	ansi-nist:ProcessOwnerText	1	1	A set of contact information for the organization that owns the biometric processing algorithm or latent workstation
--------	PRO	itl:PackageMinutiaeRecord/ansi-nist:ProcessAnnotation/	ansi-nist:ProcessDescriptionText	1	1	A description of a biometric process or procedure applied to an image
9.003	IMP	itl:PackageMinutiaeRecord/	ansi-nist:MinutiaeImpressionCaptureCategoryCode	1	1	A kind of impression capture by which the fingerprint or palmprint image information was obtained
9.004	FMT	itl:PackageMinutiaeRecord/	ansi-nist:MinutiaeFormatNISTStandardIndicator	1	1	True if the NIST standard format for minutiae is used; false otherwise
9.901	ULA	itl:PackageMinutiaeRecord/	ansi-nist:MinutiaeUniversalLatentWorkstationAnnotationText	0	*	An annotation, logging or processing information associated with the FBI-developed Universal Latent Workstation (ULW) or compatible software
--------	--------	itl:PackageMinutiaeRecord/	ansi-nist:BiometricCaptureDetail	0	1	A set of information regarding the captured biometric information
9.903	DUI	itl:PackageMinutiaeRecord/ansi-nist:BiometricCaptureDetail/	ansi-nist:CaptureDeviceIdentification/nc:IdentificationID	0	1	An identification of a capture device or source of an image
--------	MAK	itl:PackageMinutiaeRecord/ansi-nist:BiometricCaptureDetail/	ansi-nist:CaptureDeviceMakeText	1	1	A make of an image capture device

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	MOD	itl:PackageMinutiaeRecord/ansi-nist:BiometricCaptureDetail/	ansi-nist:CaptureDeviceModelText	1	1	A model of an image capture device
--------	SER	itl:PackageMinutiaeRecord/ansi-nist:BiometricCaptureDetail/	ansi-nist:CaptureDeviceSerialNumberText	1	1	A serial number of the image capture device
--------	--------	itl:PackageMinutiaeRecord/	ansi-nist:ExtendedFeatureSetMinutiae	0	1	A set of elements for the measure and definition of friction ridge detail within a particular region of interest in a fingerprint or palmprint image
9.303	FSP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:ExtendedFeatureSetProfileIdentification/nc:IdentificationID	0	9	An EFS Profile, which defines the specific set of EFS fields incorporated in a specific ANSI/NIST-ITL transaction.
9.300	ROI	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FrictionRidgeImageRegionOfInterest	1	1	A square or polygon within a friction ridge image containing minutiae
--------	EWI	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/	ansi-nist:ImageSegmentWidthMeasure	1	1	A width of a rectangular image segment in 10 micrometer (0.01mm) units
--------	EHI	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/	ansi-nist:ImageSegmentHeightMeasure	1	1	A height of a rectangular image segment in 10 micrometer (0.01mm) units
--------	EHO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/	ansi-nist:ImageSegmentHorizontalOffsetMeasure	0	1	A distance in 10 micrometer units (0.01mm) from the left edge of an original image to the left edge of a rectangular image segment
--------	EVO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/	ansi-nist:ImageSegmentVerticalOffsetMeasure	0	1	A distance in 10 micrometer units (0.01mm) from the top edge of an original image to the top edge of a rectangular image segment

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	ROP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/	ansi-nist:ImageSegmentPolygon	0	1	A set of vertices within an image describing a polygon-shaped region
--------	ROP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/ansi-nist:ImageSegmentPolygon/	ansi-nist:ImageSegmentVertex	3	99	A single pair of horizontal and vertical measures describing a point in an image
--------	HPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	VPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRegionOfInterest/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
9.301	ORT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FingerprintImageFingerprintOrientation	0	1	A deviation from upright of the finger tip within a fingerprint image
--------	EOD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FingerprintImageFingerprintOrientation/	ansi-nist:OrientationAngleValue	1	1	An angle of the position of the finger tip within an image, from -179 to +180, with 0 as upright

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	EUC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FingerprintImageFingerprintOrientation/	ansi-nist:OrientationAngleUncertaintyValue	0	1	A half of the total uncertainty of the orientation angle, in degrees
9.302	FPP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeFingerLocation	1	*	A finger position, segment, offcenter code, and polygon location within an image
--------	FGP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFingerLocation/	ansi-nist:FingerPositionCode	1	1	A finger position code
--------	FSM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFingerLocation/	ansi-nist:SegmentLocationCode	0	1	A location of a segment of a finger, e.g. distal, medial, or proximal
--------	OCF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFingerLocation/	ansi-nist:FingerprintOffCenterCode	0	1	An off-center position of a finger or thumb image
--------	SGP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFingerLocation/	ansi-nist:ImageSegmentPolygon	0	1	A set of vertices within an image describing a polygon-shaped region
--------	SGP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFingerLocation/ansi-nist:ImageSegmentPolygon/	ansi-nist:ImageSegmentVertex	3	99	A single pair of horizontal and vertical measures describing a point in an image
--------	HPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFingerLocation/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	VPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFingerLocation/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
9.307	PAT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FingerprintPatternClassification	0	7	A classification and subclassification of a fingerprint pattern
--------	GCF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FingerprintPatternClassification/	ansi-nist:FingerprintPatternGeneralClassCode	1	1	A class of fingerprint pattern used by most automated fingerprint information systems
--------	SUB	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FingerprintPatternClassification/	ansi-nist:FingerprintPatternSubClassCode	0	1	A subclass of fingerprint pattern that is an arch or whorl
--------	WDR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FingerprintPatternClassification/	ansi-nist:FingerprintPatternWhorlDeltaRelationshipCode	0	1	A relationship between a whorl and a delta in a fingerprint pattern
9.309	RQF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeRidgeQualityMap	0	1	A map of ridge quality values assigned to cells in a grid overlaying an image containing minutiae
--------	GSZ	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeQualityMap/	ansi-nist:MinutiaeRidgeQualityMapCellSizeValue	1	1	A length (or width) in 10 micrometer units (0.01mm) of a square cell in a ridge quality map
--------	RDF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeQualityMap/	ansi-nist:MinutiaeRidgeQualityMapFormatCode	1	1	A format of ridge quality values in a ridge quality map
9.308	RQM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeQualityMap/	ansi-nist:MinutiaeRidgeQualityMapRowText	1	*	A string of values for cells in one row of a ridge quality map
9.311	RFF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeRidgeFlowMap	0	1	A map of ridge flow values assigned to cells at a matrix of points overlaying an image containing minutiae
--------	SFQ	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeFlowMap/	ansi-nist:MinutiaeRidgeFlowMapSamplingFrequencyValue	1	1	A sampling frequency resolution in 10 micrometer units (0.01mm) of points in a ridge flow map

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	RDF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeFlowMap/	ansi-nist:MinutiaeRidgeFlowMapFormatCode	1	1	A format of ridge flow values in the ridge flow map
9.310	RFM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeFlowMap/	ansi-nist:MinutiaeRidgeFlowMapRowText	1	*	A string of values for cells in one row of a ridge flow map
9.313	RWF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeRidgeWavelengthMap	0	1	A ridge wavelength value assigned to cells at a matrix of points overlaying an image containing minutiae
--------	FWS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeWavelengthMap/	ansi-nist:MinutiaeRidgeWavelengthMapSamplingFrequencyValue	1	1	A sampling frequency resolution in 10 micrometer units (0.01mm) of points in a ridge wavelength map
--------	FDF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeWavelengthMap/	ansi-nist:MinutiaeRidgeWavelengthMapFormatCode	1	1	A format of ridge wavelength values in a ridge wavelength map
9.312	RWM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeWavelengthMap/	ansi-nist:MinutiaeRidgeWavelengthMapRowText	1	*	A string of values for cells in one row of a ridge wavelength map
9.314	TRV	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FrictionRidgeImageTonalReversalCode	0	1	A full or partial reversal of ridge and valley tones in an image
9.315	PLR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FrictionRidgeImageLateralReversalCode	0	1	An indication that an image is or may be laterally reversed
9.316	FQM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:ImageQuality	0	9	A set of details about the quality of an image
--------	QAP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:ImageQuality/	ansi-nist:QualityAlgorithmProductIdentification/nc:IdentificationID	1	1	An identification of a product assigned by a vendor to the quality algorithm

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	QVU	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:ImageQuality/	ansi-nist:QualityValue	1	1	A value of the quality of a particular sample
--------	QAV	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:ImageQuality/	ansi-nist:QualityAlgorithmVendorIdentification/nc:IdentificationID	1	1	An identification of a vendor of a quality algorithm
9.317	PGS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeGrowthOrShrinkage	0	1	A growth or shrinkage indicating whether this impression may be larger or smaller than other exemplars for this subject
--------	TGS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeGrowthOrShrinkage/	ansi-nist:MinutiaeGrowthOrShrinkageCode	1	1	A growth or shrinkage indicating whether this impression may be larger or smaller than other exemplars for this subject
--------	CGS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeGrowthOrShrinkage/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.325	NCOR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoCoresPresentIndicator	0	1	True if no cores could be discerned in the friction ridge image; false otherwise
9.320	COR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeCore	0	15	A core in a friction ridge image
--------	CXC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeCore/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	CYC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeCore/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	CDI	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeCore/	ansi-nist:MinutiaeCoreDirectionMeasure	0	1	An average tangent direction of the two closest ridges to the core
--------	RPU	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeCore/	ansi-nist:ImageLocationUncertaintyRadiusMeasure	0	1	A distance in 10 micrometer units (0.01mm) from a particular X,Y coordinate

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	DUY	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeCore/	ansi-nist:MinutiaeCoreDirectionUncertaintyValue	0	1	A value indicating the uncertainty of the core direction measure
9.326	NDEL	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoDeltasPresentIndicator	0	1	True if no deltas could be discerned in the friction ridge image; false otherwise
9.321	DEL	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeDelta	0	15	A delta in a friction ridge image
--------	DXC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	DYC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	DUP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:MinutiaeDeltaDirectionUpMeasure	0	1	An up direction of a delta
--------	DLF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:MinutiaeDeltaDirectionLeftMeasure	0	1	A left direction of a delta
--------	DRT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:MinutiaeDeltaDirectionRightMeasure	0	1	A right direction of a delta
--------	DTP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:MinutiaeDeltaCategoryCode	0	1	A kind of delta
--------	RPU	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:ImageLocationUncertaintyRadiusMeasure	0	1	A distance in 10 micrometer units (0.01mm) from a particular X,Y coordinate
--------	DUU	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:MinutiaeDeltaDirectionUpUncertaintyValue	0	1	A value indicating the uncertainty of the delta up direction measure
--------	DUL	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:MinutiaeDeltaDirectionLeftUncertaintyValue	0	1	A value indicating the uncertainty of the delta left direction measure

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	DUR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDelta/	ansi-nist:MinutiaeDeltaDirectionRightUncertaintyValue	0	1	A value indicating the uncertainty of the delta right direction measure
9.322	CDR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeRidgeCountCoreToDelta	0	225	A core to delta ridge count
--------	CIX	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountCoreToDelta/	ansi-nist:MinutiaeCoreIdentification/nc:IdentificationID	1	1	An identification of a particular core
--------	DIX	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountCoreToDelta/	ansi-nist:MinutiaeDeltaIdentification/nc:IdentificationID	1	1	An identification of a particular delta
--------	MNRC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountCoreToDelta/	ansi-nist:RidgeCountMinimumValue	1	1	A minimum number of friction ridges between two features on an image
--------	MXRC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountCoreToDelta/	ansi-nist:RidgeCountMaximumValue	0	1	A maximum number of friction ridges between two features on an image
9.323	CPR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FrictionRidgeImageCenter	0	3	A location of the center of a friction ridge impression
--------	CPM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageCenter/	ansi-nist:FrictionRidgeImageCenterLocationMethodCode	1	1	A method of determining the center of a friction ridge impression
--------	PXC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageCenter/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	PYC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageCenter/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	RPU	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageCenter/	ansi-nist:ImageLocationUncertaintyRadiusMeasure	0	1	A distance in 10 micrometer units (0.01mm) from a particular X,Y coordinate
9.327	NDIS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoDistinctiveFeaturesPresentIndicator	0	1	True if no distinctive characteristics could be discerned in the friction ridge image; false otherwise
9.324	DIS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeDistinctiveFeature	0	99	A distinctive feature in a friction ridge image
--------	DIT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDistinctiveFeature/	ansi-nist:MinutiaeDistinctiveFeatureCategoryCode	1	1	A kind of distinctive feature in a friction ridge image
--------	DFP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDistinctiveFeature/	ansi-nist:ImageSegmentPolygon	1	1	A set of vertices within an image describing a polygon-shaped region
--------	DFP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDistinctiveFeature/ansi-nist:ImageSegmentPolygon/	ansi-nist:ImageSegmentVertex	3	99	A single pair of horizontal and vertical measures describing a point in an image
--------	HPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDistinctiveFeature/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	VPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDistinctiveFeature/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	DFC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDistinctiveFeature/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.334	NMIN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoMinutiaePresentIndicator	0	1	True if no minutiae could be discerned in the friction ridge image; false otherwise
9.331	MIN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:EFSMinutia	0	999	A minutia in a friction ridge image
--------	MXC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSMinutia/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	MYC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSMinutia/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	MTD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSMinutia/	ansi-nist:ImageLocationThetaAngleMeasure	1	1	An angular position of a feature from another point in an image
--------	MTY	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSMinutia/	ansi-nist:EFSMinutiaCategoryCode	1	1	A kind of minutia (e.g. a ridge ending, bifurcation, or other)
--------	MRU	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSMinutia/	ansi-nist:ImageLocationUncertaintyRadiusMeasure	0	1	A distance in 10 micrometer units (0.01mm) from a particular X,Y coordinate
--------	MDU	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSMinutia/	ansi-nist:MinutiaDirectionUncertaintyValue	0	1	A value indicating the uncertainty of the minutia direction
9.332	MRA	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:EFSRidgeCountAlgorithmCode	0	1	A quadrant matrix for associating minutiae

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
9.333	MRC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:EFSRidgeCountItem	0	7992	A ridge count between two minutiae
--------	MIA	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSRidgeCountItem/	ansi-nist:MinutiaIdentification/nc:IdentificationID	1	1	An identification of a single minutia
--------	MIB	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSRidgeCountItem/	ansi-nist:MinutiaReferenceIdentification/nc:IdentificationID	1	1	An identification of a second minutia, when two minutia are to be examined
--------	MIR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSRidgeCountItem/	ansi-nist:RidgeCountValue	1	1	A number of friction ridges between two features on an image
--------	MRN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSRidgeCountItem/	ansi-nist:MinutiaeRidgeCountOctantNumeric	0	1	A number assigned to a specific octant for ridge count purposes
--------	MRS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:EFSRidgeCountItem/	ansi-nist:MinutiaeRidgeCountResidualCode	0	1	A number assigned to the half of an octant in which a neighboring minutia lies
9.335	RCC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeRidgeCountConfidence	0	7992	A confidence in a ridge count between two points
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/	ansi-nist:MinutiaLocationPoint	1	1	A point of a minutia used in a comparison between two points
--------	ACX	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/ansi-nist:MinutiaLocationPoint/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	ACY	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/ansi-nist:MinutiaLocationPoint/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
-------	-------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/	ansi-nist:MinutiaLocationReferencePoint	1	1	A second (reference) point of a minutia used in a comparison between two points
-------	BCX	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/ansi-nist:MinutiaLocationReferencePoint/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
-------	BCY	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/ansi-nist:MinutiaLocationReferencePoint/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
-------	MORC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/	ansi-nist:MinutiaeRidgeCountMethodCode	1	1	A method of counting ridges
-------	MCV	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeCountConfidence/	ansi-nist:MinutiaeRidgeCountConfidenceValue	1	1	A degree of confidence in a ridge count between two points
9.346	NDOT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoDotsPresentIndicator	0	1	True if no dots could be discerned in the friction ridge image; false otherwise
9.340	DOT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeDot	0	999	A dot feature in a friction ridge image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	DOX	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDot/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	DOY	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDot/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	DOL	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeDot/	ansi-nist:MinutiaeDotLengthMeasure	0	1	A length in 10 micrometer units (0.01mm) of a dot feature in a friction ridge image
9.347	NINR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoIncipientRidgesPresentIndicator	0	1	True if no incipient ridges could be discerned in the friction ridge image; false otherwise
9.341	INR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeIncipientRidge	0	999	An incipient ridge in a friction ridge image
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeIncipientRidge/	ansi-nist:MinutiaLocationPoint	1	1	A point of a minutia used in a comparison between two points
--------	X1C	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeIncipientRidge/ansi-nist:MinutiaLocationPoint/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	Y1C	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeIncipientRidge/ansi-nist:MinutiaLocationPoint/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeIncipientRidge/	ansi-nist:MinutiaLocationReferencePoint	1	1	A second (reference) point of a minutia used in a comparison between two points
--------	X2C	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeIncipientRidge/ansi-nist:MinutiaLocationReferencePoint/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	Y2C	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeIncipientRidge/ansi-nist:MinutiaLocationReferencePoint/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
9.348	NCLD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoCreasesPresentIndicator	0	1	True if no creases could be discerned in the friction ridge image; false otherwise
9.342	CLD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeFlexionCrease	0	999	A permanent flexion crease
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFlexionCrease/	ansi-nist:MinutiaLocationPoint	1	1	A point of a minutia used in a comparison between two points
--------	X1D	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFlexionCrease/ansi-nist:MinutiaLocationPoint/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	Y1D	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFlexionCrease/ansi-nist:MinutiaLocationPoint/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFlexionCrease/	ansi-nist:MinutiaLocationReferencePoint	1	1	A second (reference) point of a minutia used in a comparison between two points
--------	X2D	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFlexionCrease/ansi-nist:MinutiaLocationReferencePoint/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	Y2D	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFlexionCrease/ansi-nist:MinutiaLocationReferencePoint/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	TPD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFlexionCrease/	ansi-nist:MinutiaeFlexionCreaseCategoryCode	1	1	A kind of flexion crease
9.349	NREF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoRidgeEdgeFeaturesPresentIndicator	0	1	True if no ridge edge features could be discerned in the friction ridge image; false otherwise
9.343	REF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeRidgeEdgeOrDiscontinuity	0	999	A ridge edge or discontinuity
--------	CLX	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeEdgeOrDiscontinuity/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	CLY	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeEdgeOrDiscontinuity/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	CLT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeRidgeEdgeOrDiscontinuity/	ansi-nist:MinutiaeRidgeEdgeOrDiscontinuityCategoryCode	1	1	A kind of ridge edge or discontinuity
9.344	NPOR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeNoPoresPresentIndicator	0	1	True if no pores could be discerned in the friction ridge image; false otherwise
9.345	POR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaePore	0	9999	A location of pores in a friction ridge image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	POX	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaePore/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	POY	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaePore/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
9.350	MFD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeFeatureDetection	0	99	A detection and encoding of minutiae
--------	FIE	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeFeatureDetectionFieldListText	1	1	A list of fields that correspond to the feature detection method coded
--------	FME	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeFeatureDetectionMethodCode	1	1	A method by which minutiae features are detected and encoded
--------	FAV	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeAlgorithmVendorIdentification/nc:IdentificationID	0	1	An identification of a vendor, or name of vendor of the minutiae extraction and encoding algorithm, from a registry table
--------	FAL	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeAlgorithmIdentification/nc:IdentificationID	0	1	An identification of a minutiae extraction and encoding algorithm
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeExaminer	0	1	A minutiae examiner
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/ansi-nist:MinutiaeExaminer/	nc:PersonName	0	1	A combination of names and/or titles by which a person is known.
--------	EGN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/ansi-nist:MinutiaeExaminer/nc:PersonName/	nc:PersonGivenName	0	1	A first name of a person.

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	ESN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/ansi-nist:MinutiaeExaminer/nc:PersonName/	nc:PersonSurName	0	1	A last name or family name of a person.
--------	EAF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeExaminerAffiliation/nc:OrganizationName	0	1	An organizational affiliation of the minutiae examiner
--------	EMT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeFeatureDetectionDateTime/nc:DateTime	0	1	A date/time of the minutiae feature detection
--------	NTS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureDetection/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.351	COM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.352	LPM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:LatentProcessingCategoryCode	0	9	A kind of technique used for processing the latent friction ridge impression
9.353	EAA	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeValueAssessment	0	1	An examiner's assessment of the value of a friction ridge impression
--------	AAV	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/	ansi-nist:MinutiaeValueAssessmentResultCode	1	1	A result of an examiner's assessment of the value of the friction ridge impression
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/	ansi-nist:MinutiaeExaminer	1	1	A minutiae examiner
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/ansi-nist:MinutiaeExaminer/	nc:PersonName	1	1	A combination of names and/or titles by which a person is known.

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	AFN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/ansi-nist:MinutiaeExaminer/nc:PersonName/	nc:PersonGivenName	1	1	A first name of a person.
--------	ALN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/ansi-nist:MinutiaeExaminer/nc:PersonName/	nc:PersonSurName	1	1	A last name or family name of a person.
--------	AAF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/	ansi-nist:MinutiaeExaminerAffiliation/nc:OrganizationName	1	1	An organizational affiliation of the minutiae examiner
--------	AMT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/	ansi-nist:MinutiaeValueAssessmentDateTime/nc:DateTime	1	1	A date/time of a minutiae value assessment
--------	CXF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/	ansi-nist:MinutiaeAnalysisComplexityCode	0	1	A level of complexity of an examiner's analysis
--------	ACM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeValueAssessment/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.354	EOF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeFraudEvidence	0	4	A friction ridge impression fraud
--------	FRA	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFraudEvidence/	ansi-nist:MinutiaeFraudEvidenceCategoryCode	1	1	A kind of evidence of friction ridge impression fraud
--------	CFD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFraudEvidence/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.355	LSB	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeLatentSubstrate	0	3	A surface on which a friction ridge impression was deposited

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	CLS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLatentSubstrate/	ansi-nist:MinutiaeLatentSubstrateCategoryCode	1	1	A kind of surface on which this friction ridge impression was deposited
--------	OSD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLatentSubstrate/	ansi-nist:MinutiaeLatentSubstrateDescriptionText	0	1	A description of the object or surface on which a print was deposited, or provides clarifying information regarding the substrate
9.356	LMT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeLatentMatrix	0	3	A substance deposited by a friction ridge impression
--------	TOM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLatentMatrix/	ansi-nist:MinutiaeLatentMatrixCategoryCode	1	1	A kind of substance deposited by this friction ridge impression
--------	CLA	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLatentMatrix/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.357	LQI	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeLocalQualityIssues	0	*	A localized friction ridge transfer quality issue
--------	LQT	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLocalQualityIssues/	ansi-nist:MinutiaeLocalQualityIssuesCategoryCode	1	1	A kind of localized friction ridge transfer quality issue
--------	LQP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLocalQualityIssues/	ansi-nist:ImageSegmentPolygon	1	1	A set of vertices within an image describing a polygon-shaped region
--------	LQP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLocalQualityIssues/ansi-nist:ImageSegmentPolygon/	ansi-nist:ImageSegmentVertex	3	99	A single pair of horizontal and vertical measures describing a point in an image
--------	HPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLocalQualityIssues/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	VPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLocalQualityIssues/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	LQC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeLocalQualityIssues/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.360	AOC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FrictionRidgeImageAreaOfCorrespondence	0	*	A portion of a friction ridge image that corresponds to another image
--------	CIR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageAreaOfCorrespondence/	ansi-nist:ImageReferenceIdentification/nc:IdentificationID	1	1	An identification of a particular record in a transaction
--------	AOP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageAreaOfCorrespondence/	ansi-nist:ImageSegmentPolygon	1	1	A set of vertices within an image describing a polygon-shaped region
--------	AOP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageAreaOfCorrespondence/ansi-nist:ImageSegmentPolygon/	ansi-nist:ImageSegmentVertex	3	99	A single pair of horizontal and vertical measures describing a point in an image
--------	HPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageAreaOfCorrespondence/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	VPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageAreaOfCorrespondence/ansi-nist:ImageSegmentPolygon/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	CAC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageAreaOfCorrespondence/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.361	CPF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeFeatureCorrespondence	0	*	A correspondence between features in different friction ridge images
--------	COL	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureCorrespondence/	ansi-nist:MinutiaeFeatureIdentification/nc:IdentificationID	1	1	An identification of a particular point or feature in a friction ridge image
--------	TOC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureCorrespondence/	ansi-nist:MinutiaeFeatureCorrespondenceCategoryCode	1	1	A kind of correspondence between features in different friction ridge images
--------	CXC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureCorrespondence/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	0	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image
--------	CYC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureCorrespondence/	ansi-nist:ImageLocationVerticalCoordinateMeasure	0	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	COC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeFeatureCorrespondence/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.363	RRC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FrictionRidgeImageRelativeRotation	0	*	A relative overall rotation necessary for two prints to be compared
--------	RIR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRelativeRotation/	ansi-nist:ImageReferenceIdentification/nc:IdentificationID	1	1	An identification of a particular record in a transaction
--------	ROR	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:FrictionRidgeImageRelativeRotation/	ansi-nist:ImageRelativeOverallRotationValue	1	1	A measure of rotation of an image
9.362	ECD	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeExaminerComparisonDetermination	0	*	An examiner's comparison of friction ridge impressions
--------	EDC	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:ImageReferenceIdentification/nc:IdentificationID	1	1	An identification of a particular record in a transaction
--------	EDE	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:MinutiaeExaminerComparisonDeterminationResult Code	1	1	A result of an examiner's comparison of friction ridge impressions
--------	WIP	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:MinutiaeExaminerProgressCode	1	1	A status of progress of an examiner's comparison of friction ridge impressions

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:MinutiaeExaminer	1	1	A minutiae examiner
--------	--------	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/ansi-nist:MinutiaeExaminer/	nc:PersonName	1	1	A combination of names and/or titles by which a person is known.
--------	EFN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/ansi-nist:MinutiaeExaminer/nc:PersonName/	nc:PersonGivenName	1	1	A first name of a person.
--------	ELN	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/ansi-nist:MinutiaeExaminer/nc:PersonName/	nc:PersonSurName	1	1	A last name or family name of a person.
--------	EAF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:MinutiaeExaminerAffiliation/nc:OrganizationName	1	1	An organizational affiliation of the minutiae examiner
--------	DTG	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:MinutiaeExaminerComparisonDeterminationDateTime/nc:DateTime	1	1	A status of progress of an examiner's comparison of friction ridge impressions

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	CCF	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:MinutiaeComparisonComplexityCode	0	1	A level of complexity of an examiner's comparison
--------	CZZ	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeExaminerComparisonDetermination/	ansi-nist:MinutiaeCommentText	0	1	A free text comment about friction ridge features, methods, description, location, or background
9.372	SIM	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:FrictionRidgeSkeletonizedImageBinaryObject	0	1	A PNG-compressed, base64 encoded data block containing a ridge tracing of a friction ridge impression
9.373	RPS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/	ansi-nist:MinutiaeImageRidgePathRepresentation	0	1	A set of ridge paths in a particular friction ridge image
--------	RPS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeImageRidgePathRepresentation/	ansi-nist:MinutiaeRidgePathSegment	1	*	A set of points overlaying a friction ridge image that describes all or part of a ridge
--------	RPS	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeImageRidgePathRepresentation/ansi-nist:MinutiaeRidgePathSegment/	ansi-nist:ImageSegmentVertex	2	99	A single pair of horizontal and vertical measures describing a point in an image
--------	HPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeImageRidgePathRepresentation/ansi-nist:MinutiaeRidgePathSegment/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationHorizontalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the left edge of a region of interest in an image

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	VPO	itl:PackageMinutiaeRecord/ansi-nist:ExtendedFeatureSetMinutiae/ansi-nist:MinutiaeImageRidgePathRepresentation/ansi-nist:MinutiaeRidgePathSegment/ansi-nist:ImageSegmentVertex/	ansi-nist:ImageLocationVerticalCoordinateMeasure	1	1	A distance in 10 micrometer units (0.01mm) from the top edge of a region of interest in an image
--------	--------	itl:PackageMinutiaeRecord/	ebts:Minutiae	1	1	A representation of the minutiae of a fingerprint.
9.014	FGN	itl:PackageMinutiaeRecord/ebts:Minutiae/	ansi-nist:MinutiaeFingerPositionCode	1	1	A finger position for an image in a minutiae record
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaeFBIStandard	1	1	An element that represents the FBI Standard Minutiae data.
9.023	MAT	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/	ebts:MinutiaDetail	1	254	A representation of the minutia detail of a fingerprint.
9.023A	MDX	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/	ansi-nist:MinutiaIdentification/nc:IdentificationID	1	1	An identification of a single minutia
9.023B	XYT	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/	ansi-nist:PositionThetaAngleMeasure	1	1	A minutia's theta angle
9.023C	QMS	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/	ansi-nist:MinutiaQualityValue	1	1	A quality value assigned to a minutia
9.023E-L	MRO	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/	ebts:MinutiaRidgeCount	8	8	A description of Ridges between Minutia.

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/ebts:MinutiaRidgeCount/	ansi-nist:RidgeCountReferenceIdentification/nc:IdentificationID	1	1	An identification of a distant minutia point
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/ebts:MinutiaRidgeCount/	ansi-nist:RidgeCountValue	1	1	A number of friction ridges between two features on an image
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/ebts:MinutiaRidgeCount/	ebts:MinutiaOctantNumeric	1	1	A number representing the octant containing Minutia.
9.023M	RSO	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/ebts:MinutiaRidgeCount/	ebts:MinutiaOctantResidualNumeric	0	1	An element that indicates into which half of the octant minutia lies.
9.023D	MNT	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaDetail/	ebts:MinutiaTypeCode	0	1	An element that indicates the minutiae type designation.
9.015	NMN	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/	ansi-nist:MinutiaeQuantity	1	1	A number of minutiae recorded in a record
9.016	FCP	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/	ebts:MinutiaeReadingSystem	1	1	An element that describes the characterization equipment and the amount of manual intervention employed in the characterization process.
9.016A	VEN	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaeReadingSystem/	ansi-nist:ReadingSystemName	1	1	A name of a system for reading, encoding, and recording minutiae
9.016B	VID	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaeReadingSystem/	ansi-nist:ReadingSystemSubsystemIdentification/nc:IdentificationID	1	1	An identification of the originator's equipment for reading, encoding, and recording minutiae
9.016C	MET	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFBIStandard/ebts:MinutiaeReadingSystem/	ebts:ReadingSystemCodingMethodCode	1	1	An element to describe the degree of automation in the characterization process, using the three part MET codes.

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
9.019	COF	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaCoordinateOffsets	0	1	An element that allows the recording of translation, rotation, and image cropping employed in the minutia characterization process.
9.019A	XYP	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/	ebts:OffsetUpperLeftCoordinates	1	1	A set of coordinates that represents the offset to the upper-left-corner of a non-rotated sub-image used subsequently in image processing.
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetUpperLeftCoordinates/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetUpperLeftCoordinates/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
9.019B	XYP	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/	ebts:OffsetCenterOfRotation	0	1	A set of coordinates that represents the center of rotation within the sub-image.
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetCenterOfRotation/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetCenterOfRotation/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
9.019C	THET	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/	ansi-nist:PositionThetaAngleMeasure	0	1	A minutia's theta angle
9.019D	XYP	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/	ebts:OffsetTranslatedCenterOfRotation	0	1	A set of coordinates that represents the center of rotation in the rotated sub-image after the sub-image has been translated to eliminate negative column and row indexes.
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetTranslatedCenterOfRotation/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetTranslatedCenterOfRotation/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
9.019E	XYP	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/	ebts:OffsetTranslatedUpperLeftCoordinates	0	1	A set of coordinates that represents the upper-left-corner column and row offsets to a cropped sub-image taken from the rotated image once adjusted to eliminate negative coordinate values.
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetTranslatedUpperLeftCoordinates/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaCoordinateOffsets/ebts:OffsetTranslatedUpperLeftCoordinates/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
9.018	ROV	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaPolygonalVerticesPositions	0	1	An element that provides the Cartesian positions defining the vertices of a polygon that bounds the region of the image from which the characterization products have been extracted.
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaPolygonalVerticesPositions/	itl:PositionPolygonVertex	3	8	A vertex in a position polygon. Deprecated in favor of biom:PositionPolygon Vertex.
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaPolygonalVerticesPositions/itl:PositionPolygonVertex/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaPolygonalVerticesPositions/itl:PositionPolygonVertex/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
9.021	CRA	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaeFingerCoreAttributePosition	0	2	An element that indicates the attributes of a pattern core in a fingerprint.

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
9.021B	DID	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerCoreAttributePosition/	ansi-nist:PositionDirectionDegreeValue	1	1	A direction of a core opening, through the center of curvature for the innermost recurve at maximum curvature in integer degrees (000 to 360)
9.021A	XYM	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerCoreAttributePosition/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate
9.021C	PUM	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerCoreAttributePosition/	ansi-nist:PositionUncertaintyValue	1	1	A radius of position uncertainty (PUM) in the manual or automatic placement of the core in integer units of 10 micrometers
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerCoreAttributePosition/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
9.022	DLA	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaeFingerDeltaAttributePosition	0	2	An element that indicates the position of a pattern delta in a fingerprint.
9.022B	DID	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerDeltaAttributePosition/	ansi-nist:PositionDirectionDegreeValue	1	1	A direction of a core opening, through the center of curvature for the innermost recurve at maximum curvature in integer degrees (000 to 360)
9.022A	XYM	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerDeltaAttributePosition/	ansi-nist:PositionHorizontalCoordinateValue	1	1	A feature's X coordinate
9.022E	PUM	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerDeltaAttributePosition/	ansi-nist:PositionUncertaintyValue	1	1	A radius of position uncertainty (PUM) in the manual or automatic placement of the core in integer units of 10 micrometers
--------	--------	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerDeltaAttributePosition/	ansi-nist:PositionVerticalCoordinateValue	1	1	A feature's Y coordinate
9.017	APC	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaeFingerPattern	0	3	An element that contains the AFIS/FBI Pattern Classification and the ridge count for the fingerprint minutiae.
9.017A	APAT	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerPattern/	ebts:FingerprintPatternClassificationCode	1	1	An element representing IAFIS pattern level fingerprint classifications in a fingerprint image.

Table J-2 Type-9 Record Hierarchical Model for XML Encoding

Field Code	Name	Parent	NIEM element	Min	Max	Definition
9.017B	RCN1	itl:PackageMinutiaeRecord/ebts:Minutiae/ebts:MinutiaeFingerPattern/	ansi-nist:RidgeCountValue	0	1	A number of friction ridges between two features on an image
9.024	CHQ	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaCharacterizationQualityValue	0	1	A number representing the distribution of the parameter over thousands of fingerprints approximating a Gaussian distribution.
9.025	CLQ	itl:PackageMinutiaeRecord/ebts:Minutiae/	ebts:MinutiaClassifierQualityValue	0	1	A number that indicates the quality or confidence of the automatic classification.
9.020	ORN	itl:PackageMinutiaeRecord/ebts:Minutiae/	ansi-nist:PositionUncertaintyValue	1	1	A radius of position uncertainty (PUM) in the manual or automatic placement of the core in integer units of 10 micrometers

APPENDIX K - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-10 LOGICAL RECORDS

Type-10 records shall contain facial and/or SMT image data and related ASCII 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. As NGI will be accepting images as defined in the ANSI/NIST-ITL, refer to the ANSI/NIST-ITL for complete usage and descriptions of the Type-10 fields.

Type-10 Data Dictionary

The T-10 Data Dictionary for this appendix only includes those fields that have been constrained by NGI/CJIS functionality. All other fields defined in the ANSI/NIST-ITL will be used as defined in that standard.

IMT **10.003 Image Type.** *<biom:ImageCategoryCode>*

This mandatory field shall be used to indicate the type of image contained in this record and is restricted to FACE, SCAR, MARK and TATTOO for use when enrolling into NGI.

SMT **10.040 NCIC SMT Code.** *<biom:PhysicalFeatureNCICCode>*

This field is mandatory when field 10.003, Image type (IMT) = "SCAR", "MARK", or "TATTOO". It is used to identify a general location of the captured scar, mark, tattoo, or other characteristic (including piercings) in an image. The contents of this field shall be from the NCIC code (See Annex D of the ANSI/NIST-ITL). The captured image may encompass an area larger than that specified by a single NCIC body part code for the particular image type. This situation may be accommodated by listing multiple NCIC codes, each in a separate subfield. In this case the primary code is listed first. There need not be more than one subfield. It is highly recommended that field 10.042, SMT Descriptors (SMD), be included to further define the image included along with aiding in the NGI text-based search..

APPENDIX L - SUMMARY TABLES

This appendix contains summary tables that collect information otherwise dispersed through the EBTS document. Tables L-1 and L-2 cross-reference all currently used EBTS elements from their Element IDs to their Tag Numbers. The cross-references appear in two ways. Table L-1 lists the fields in Element ID order. Table L-2 lists them in Tag Number order.

In several instances, Tag Numbers shown have alpha suffixes. These suffixes are given only to make the list complete (i.e., to include subfields as well as simple elements in the list) and to aid in determination of what the parent field is in such cases. For example, the field tag 2.084A identifies this (FGP) as a subfield of AMP (2.084). Under no circumstance is a subfield tag to be used in formatting any legacy EBTS electronic message. Subfields do not have independent tags, either with or without an alpha suffix.

Tables L-3 and L-4 list record set requirements for each EBTS transaction type. Table L-3 lists the record set requirements for each type of submission. Table L-4 lists record set requirements for each response type. In instances where these requirements differ depending upon which submission the response is made for, several entries will be present. Note that the Type-4 requirements for tenprint submissions are stated to be 14 while Type-14 is 3. If fewer images are submitted, each missing image must be noted in the AMP field of the accompanying Type-2 record. The TPIS indicate that N-10 Type-4/14 or Type-9 records, respectively, are to be submitted. N is the minimum number of fingers required by AFIS for a search, and N = 2 for CJIS. Table L-5 shows the correlation of EBTS TOTs and their responses, including error responses. The columns and values for Table-L-5 were taken from the previous versions of Tables L-3 and L-4 (Tables L-3 and L-4 have been expanded to show separate values for Type-4 and Type-14, and Type-7 and Type-13 records for each TOT).

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
*tbd	2.052	REQUEST FOR RAP BACK SERVICE (FUTURE CAPABILITY)
*tbd	2.2011	RAP BACK VERIFICATION STATUS (Future Capability)
*tbd	2.2014	RAP BACK ELIGIBILITY (Future Capability)
*tbd	2.2015	RAP BACK EXPIRATION DATE (Future Capability)
*tbd	2.2020	RAP BACK RECIPIENT (Future Capability)
3DF	10.032	3D FACIAL FEATURE POINTS
ACN	2.071	ACTION TO BE TAKEN
AFM	14.024	ALTERNATE FINGERPRINT QUALITY METRIC
AGR	2.023	AGE RANGE
AKA	2.019	ALIASES
AMP	2.084	AMPUTATED OR BANDAGED
AMPCD	2.084B*	AMPUTATED OR BANDAGED CODE (AMPCD)
ANN	10.902	ANNOTATED INFORMATION
ANN	13.902	ANNOTATED INFORMATION
ANN	14.902	ANNOTATED INFORMATION
ANN	15.902	ANNOTATED INFORMATION
AOC	9.360	AREA OF CORRESPONDENCE
AOL	2.047B*	ARREST OFFENSE LITERAL (AOL)
APC	9.017	AFIS/FBI PATTERN CLASSIFICATION
ASC	10.995	ASSOCIATED CONTEXT
ASC	13.995	ASSOCIATED CONTEXT
ASC	14.995	ASSOCIATED CONTEXT
ASC	15.995	ASSOCIATED CONTEXT
ASL	2.047	ARREST SEGMENT LITERAL
ATN	2.006	ATTENTION INDICATOR
ATR	2.2032	AUDIT TRAIL RECORD
BIA	2.2031	BIOMETRIC IMAGE AVAILABLE
BIA	2.2033H*	BIOMETRIC IMAGE AVAILABLE
BID	2.2028	BIOMETRIC IMAGE DESCRIPTION
BPX	13.012	BITS PER PIXEL
BPX	14.012	BITS PER PIXEL
BPX	15.012	BITS PER PIXEL
BSI	2.2029	BIOMETRIC SET IDENTIFIER
BSI	2.2028C*	BIOMETRIC SET IDENTIFIER
BSI	2.2032D*	BIOMETRIC SET IDENTIFIER DISSEMINATED
BSI	2.2033C*	BIOMETRIC SET IDENTIFIER
CAN	2.064	CANDIDATE LIST
CCN	2.094	COURT CASE NUMBER (Future Capability)
CDD	2.051A*	COURT DISPOSITION DATE (CDD)
CDR	9.322	CORE-DELTA RIDGE COUNTS
CGA	10.011	COMPRESSION ALGORITHM
CGA	13.011	COMPRESSION ALGORITHM
CGA	14.011	COMPRESSION ALGORITHM
CGA	15.011	COMPRESSION ALGORITHM
CHQ	9.024	CHARACTERIZATION QUALITY
CIDN	2.2022	CONTRIBUTOR ASSIGNED IDENTIFICATION NUMBER
CIN	2.010	CONTRIBUTOR CASE IDENTIFIER NUMBER
CIN_ID	2.010B*	CONTRIBUTOR CASE ID (CIN_ID)
CIN_PRE	2.010A*	CONTRIBUTOR CASE PREFIX (CIN_PRE)
CIX	2.011	CONTRIBUTOR CASE IDENTIFIER EXTENSION
CLD	9.342	CREASES AND LINEAR DISCONTINUITIES
CLQ	9.025	CLASSIFIER QUALITY
CNL	2.2033	CANDIDATE INVESTIGATIVE LIST

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
CNT	1.003	FILE CONTENT
COF	9.019	COORDINATE OFFSETS
COL	2.051B*	COURT OFFENSE LITERAL (COL)
COL	10.043	TATTOO COLORS
COM	9.351	COMMENT
COM	10.038	COMMENT
COM	13.020	COMMENT
COM	14.020	COMMENT
COM	15.020	COMMENT
COR	9.320	CORES
CPF	9.361	CORRESPONDING POINTS OR FEATURES
CPL	2.051C*	OTHER COURT SENTENCE PROVISION LITERAL (CPL)
CPR	9.323	CENTER POINT OF REFERENCE
CRA	9.021	CORE ATTRIBUTES
CRI	2.073	CONTROLLING AGENCY IDENTIFIER
CRN	2.085	CIVIL RECORD NUMBER
CSF	2.2006	CASCADED SEARCH FLAG (Future Capability)
CSL	2.051	COURT SEGMENT LITERAL
CSP	10.012	COLOR SPACE
CSR	2.048	CIVIL SEARCH REQUESTED INDICATOR
CST	2.061	CASE TITLE
CTZ	2.021	COUNTRY OF CITIZENSHIP
DAI	1.007	DESTINATION AGENCY IDENTIFIER
DAT	1.005	DATE
DAT	10.999	IMAGE DATA
DAT	13.999	IMAGE DATA
DAT	14.999	IMAGE DATA
DAT	15.999	IMAGE DATA
DAT	2.2032B*	DATE OF DISSEMINATION
DATUM_ID	2.2027	GEOGRAPHIC COORDINATE DATUM (Future Capability)
DCS	1.015	DIRECTORY OF CHARACTER SETS
DEL	9.321	DELTAS
DIS	9.324	DISTINCTIVE FEATURES
DIST	10.018	DISTORATION
DLA	9.022	DELTA ATTRIBUTES
DMI	2.2013	DISPOSITION MAINTENANCE INDICATOR (Future Capability)
DMM	10.030	DEVICE MONITORING MODE
DMM	14.030	DEVICE MONITORING MODE
DMM	15.030	DEVICE MONITORING MODE
DNAC	2.2018	DNA IN CODIS FLAG (Future Capability)
DNAF	2.2016	DNA FLAG (Future Capability)
DOA	2.045	DATE OF ARREST
DOB	2.022	DATE OF BIRTH
DOM	1.013	DOMAIN NAME
DOO	2.047A*	DATE OF OFFENSE (DOO)
DORI	2.2017	DNA LOCATION (Future Capability)
DOS	2.046	DATE OF ARREST-SUFFIX
DOT	9.340	DOTS
DPR	2.038	DATE PRINTED
DTX	9.179	OTHER FEATURE SETS – CONTACT INFORMATION AND DESCRIPTIVE TEXT
DUI	10.903	DEVICE UNIQUE IDENTIFIER
DUI	13.903	DEVICE UNIQUE IDENTIFIER

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
DUI	14.903	DEVICE UNIQUE IDENTIFIER
DUI	15.903	DEVICE UNIQUE IDENTIFIER
EAA	9.353	EXAMINER ANALYSIS ASSESSMENT
EAD	2.039	EMPLOYER AND ADDRESS
ECD	9.362	EXAMINER COMPARISON DETERMINATION
EID	2.049	EMPLOYEE IDENTIFICATION NUMBER
EOF	9.354	EVIDENCE OF FRAUD
ERS	2.075	ELECTRONIC RAP SHEET
EVI	2.2035	EVENT IDENTIFIER
EXP	2.080	RESPONSE EXPLANATION
EYE	2.031	COLOR EYES
FAP	14.031	SUBJECT ACQUISITION PROFILE – FINGERPRINT
FBI	2.014	FBI NUMBER
FBI/UCN	2.2028A*	FBI NUMBER/UCN
FCD	14.005	FINGERPRINT CAPTURE DATE
FCP	9.016	FINGERPRINT CHARACTERIZATION PROCESS
FEC	10.033	FEATURE CONTOURS
FFN	2.003	FBI FILE NUMBER
FFP	10.029	2D FACIAL FEATURE POINTS
FGN	9.014	FINGER NUMBER
FGP	2.074	FINGER POSITION
FGP	7.004	FINGER POSITION
FGP	13.013	FINGER/PALM POSITION
FGP	14.013	FINGER POSITION
FGP	15.013	FRICTION RIDGE POSITION
FGP	2.034A*	FINGER NUMBER (FGP)
FGP	2.084A*	FINGER NUMBER (FGP)
FGP	2.091A*	FINGER NUMBER (FGP)
FGP	2.092A*	FINGER NUMBER (FGP)
FGP	2.2030A*	FRICTION RIDGE GENERALIZED POSITION
FGP	2.2033E*	FRICTION RIDGE GENERALIZED POSITION
FIC	2.2030B*	FINGER IMAGE CODE
FIP	10.014	FACE IMAGE BOUNDING BOX COORDINATES IN FULL IMAGE
FIU	2.072	FINGERPRINT IMAGE(S) UPDATED
FMT	9.004	MINUTIAE FORMAT
FNR	2.057	FINGER NUMBER(S) REQUESTED
FNR	2.2028D*	FINGER NUMBER REQUESTED
FNR	2.2032F*	FRICTION RIDGE POSITION REQUESTED
FPC	2.033	NCIC FINGERPRINT CLASSIFICATION
FPFI	10.015	FACE IMAGE PATH COORDINATES IN FULL IMAGE
FPP	9.302	FINGER, PALM, PLANTAR POSITION
FQM	9.316	FRICTION RIDGE QUALITY METRIC
FSP	9.303	FEATURE SET PROFILE
GCA	7.008	GRAYSCALE COMPRESSION ALGORITHM
GEO	2.044	GEOGRAPHICAL AREA OF SEARCH
GEO	10.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
GEO	13.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
GEO	14.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
GEO	15.998	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
GEO_CORD	2.2026	GEOGRAPHIC COORDINATE LOCATION (Future Capability)
GEO_TIME	2.2025	GEOGRAPHIC COORDINATE DATE TIME STAMP (Future Capability)
GMT	1.014	GREENWICH MEAN TIME
HAI	2.032	HAIR COLOR

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
HAS	10.996	HASH
HAS	13.996	HASH
HAS	14.996	HASH
HAS	15.996	HASH
HGT	2.027	HEIGHT
HLL	7.006	HORIZONTAL LINE LENGTH
HLL	10.006	HORIZONTAL LINE LENGTH
HLL	13.006	HORIZONTAL LINE LENGTH
HLL	14.006	HORIZONTAL LINE LENGTH
HLL	15.006	HORIZONTAL LINE LENGTH
HPS	13.009	HORIZONTAL PIXEL SCALE
HPS	14.009	HORIZONTAL PIXEL SCALE
HPS	15.009	HORIZONTAL PIXEL SCALE
HTI	2.2024	HIT TYPE INDICATOR
HTR	2.028	HEIGHT RANGE
ICO	2.056	IDENTIFICATION COMMENTS
IDC	2.002	INFORMATION DESIGNATION CHARACTER
IDC	7.002	INFORMATION DESIGNATION CHARACTER
IDC	9.002	INFORMATION DESIGNATION CHARACTER
IDC	10.002	INFORMATION DESIGNATION CHARACTER
IDC	13.002	INFORMATION DESIGNATION CHARACTER
IDC	14.002	INFORMATION DESIGNATION CHARACTER
IDC	15.002	INFORMATION DESIGNATION CHARACTER
IDC	2.2033J*	INFORMATION DESIGNATION CHARACTER
IFS	2.2021	IDENTIFICATION FIREARMS SALES (Future Capability)
IIR	2.2012	IRIS IMAGES REQUESTED (Future Capability)
IMA	2.067	IMAGE CAPTURE EQUIPMENT
IMG	7.009	IMAGE DATA
IMP	7.003	IMPRESSION TYPE
IMP	9.003	IMPRESSION TYPE
IMP	13.003	IMPRESSION TYPE
IMP	14.003	IMPRESSION TYPE
IMP	15.003	IMPRESSION TYPE
IMT	2.062	IMAGE TYPE
IMT	10.003	IMAGE TYPE
IMT	2.2028B*	IMAGE TYPE
IMT	2.2032E*	IMAGE TYPE DISEMINATED
IMT	2.2033D*	IMAGE TYPE
INR	9.341	INCIPIENT RIDGES
ISC	14.200	IMAGE SOURCE CODE (NGI Increment 3)
ISC	15.200	IMAGE SOURCE CODE (NGI Increment 3)
ISR	7.005	IMAGE SCANNING RESOLUTION
ITX	10.044	IMAGE TRANSFORM
LAF	10.019	LIGHTING ARTFACTS
LATD	2.2026A*	LATITUDE DEGREE (Future Capability)
LATM	2.2026B*	LATITUDE MINUTE (Future Capability)
LATS	2.2026C*	LATITUDE SECOND (Future Capability)
LCD	13.005	LATENT CAPTURE DATE
LEN	1.001	LOGICAL RECORD LENGTH
LEN	2.001	LOGICAL RECORD LENGTH
LEN	7.001	LOGICAL RECORD LENGTH
LEN	9.001	LOGICAL RECORD LENGTH
LEN	10.001	LOGICAL RECORD LENGTH

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
LEN	13.001	LOGICAL RECORD LENGTH
LEN	14.001	LOGICAL RECORD LENGTH
LEN	15.001	LOGICAL RECORD LENGTH
LMT	9.356	LATENT MATRIX
LOND	2.2026D*	LONGITUDE DEGREE (Future Capability)
LONM	2.2026E*	LONGITUDE MINUTE (Future Capability)
LONS	2.2026F*	LONGITUDE SECOND (Future Capability)
LPM	9.352	LATENT PROCESSING METHOD
LQI	9.357	LOCAL QUALITY ISSUES
LQM	13.024	LATENT QUALITY METRIC
LSB	9.355	LATENT SUBSTRATE
MAK	2.067A*	ORIGINATING FINGERPRINT READING SYSTEM MAKE (MAK)
MAT	9.023	MINUTIAE AND RIDGE COUNT DATA
MFD	9.350	METHOD OF FEATURE DETECTION
MIL	2.042	MILITARY CODE
MIN	9.331	MINUTIAE
MMS	10.904	MAKE/MODEL/SERIAL NUMBER
MMS	13.904	MAKE/MODEL/SERIAL NUMBER
MMS	14.904	MAKE/MODEL/SERIAL NUMBER
MMS	15.904	MAKE/MODEL/SERIAL NUMBER
MNU	2.017	MISCELLANEOUS IDENTIFICATION NUMBER
MODL	2.067B*	ORIGINATING FINGERPRINT READING SYSTEM MODEL (MODL)
MRA	9.332	MINUTIAE RIDGE COUNT ALGORITHM
MRC	9.333	MINUTIAE RIDGE COUNTS
MSC	2.089	MATCHSCORE
MSC	2.2033G*	MATCH SCORE
MSG	2.060	STATUS/ERROR MESSAGE
NAM	2.018	NAME
NAM	2.064B*	NAME (NAM)
NAM	2.2033B*	MASTER NAME
NAM1	2.2001	NAME-ONE (Future Capability)
NAM2	2.2002	NAME-TWO (Future Capability)
NAM3	2.2003	NAME-THREE (Future Capability)
NAM4	2.2004	NAME-FOUR (Future Capability)
NAM5	2.2005	NAME-FIVE (Future Capability)
NCLD	9.348	NO CEASES PRESENT
NCOR	9.325	NO CORES PRESENT
NCR	2.079	NUMBER OF CANDIDATES' IMAGES RETURNED
NDEL	9.326	NO DELTAS PRESENT
NDIS	9.327	NO DISTINCTIVE FEATURES PRESENT
NDOT	9.346	NO DOTS PRESENT
NDR	2.098	NAME OF DESIGNATED REPOSITORY
NDR	2.2033I*	NAME OF DESIGNATED REPOSITORY
NINR	9.347	NO INCIPIENT RIDGES PRESENT
NIR	2.201	NUMBER OF IMAGES REQUESTED
NMIN	9.334	NO MINUTIA PRESENT
NMN	9.015	NUMBER OF MINUTIAE
NOT	2.088	NOTE FIELD
NOT	2.2033K*	NOTE FIELD
NPOR	9.344	NO PORES PRESENT
NQM	14.022	NIST QUALITY METRIC
NREF	9.349	NO RIDGE EDGE FEATURES PRESENT
NSR	1.011	NATIVE SCANNING RESOLUTION

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
NTR	1.012	NOMINAL TRANSMITTING RESOLUTION
OCA	2.009	ORIGINATING AGENCY CASE NUMBER
OCC	10.045	OCCLUSIONS
OCP	2.040	OCCUPATION
ODD	9.176	OTHER FEATURE SET OWNER OR DEVELOPER
OFC	2.053	OFFENSE CATEGORY
ORI	1.008	ORIGINATING AGENCY IDENTIFIER
ORI	2.2032A*	ORIGINATING AGENCY IDENTIFIER
ORN	9.020	ORIENTATION UNCERTAINTY
ORT	9.301	ORIENTATION
PAG	9.177	OTHER FEATURE SETS - PROCESSING ALGORITHM
PAS	10.023	PHOTO ACQUISITION SOURCE
PAT	2.034	PATTERN LEVEL CLASSIFICATIONS
PAT	9.307	PATTERN CLASSIFICATION
PATCL	2.034B*	PATTERN CLASSIFICATION CODE (PATCL)
PCD	15.005	PALMPRINT CAPTURE DATE
PEN	2.078	PENETRATION QUERY RESPONSE
PGS	9.317	POSSIBLE GROWTH OR SHRINKAGE
PHD	10.005	PHOTO DATE
FGP	9.315	POSSIBLE LATERAL REVERSAL
POA	10.021	POSE OFFSET ANGLE
POB	2.020	PLACE OF BIRTH
POR	9.345	PORES
POS	10.020	SUBJECT POSE
PPC	13.015	PRINT POSITION COORDINATES
PPC	14.015	PRINT POSITION COORDINATES
PPD	2.203	PRINT POSITION DESCRIPTOR
PPD	14.014	PRINT POSITION DESCIPTORS
PPD	2.2028E*	PRINT POSITION DESCRIPTOR
PPD	2.2032G*	PRINT POSITION DESCRIPTION
PPD	2.2033F*	PRINT POSITION DESCRIPTOR
PQM	15.024	PALMPRINT QUALITY METRIC
PRI	2.076	PRIORITY
PRY	1.006	TRANSACTION PRIORITY
PXS	10.022	PHOTO DESCRIPTION
RAC	2.025	RACE
RAP	2.070	REQUEST FOR ELECTRONIC RAP SHEET
RCC	9.335	RIDGE COUNT CONFIDENCE
RCD1	2.091	RIDGE CORE DELTA ONE FOR SUBPATTERN CLASSIFICATION
RCD2	2.092	RIDGE CORE DELTA TWO FOR SUBPATTERN CLASSIFICATION
RCN1	2.091B*	RIDGE COUNT NUMBER 1 (RCN1)
RCN2	2.092B*	RIDGE COUNT NUMBER 2 (RCN2)
REC	2.082	RESPONSE CODE
REF	9.343	RIDGE EDGE FEATURES
RES	2.041	RESIDENCE OF PERSON FINGERPRINTED
RET	2.005	RETENTION CODE
RFF	9.311	RIDGE FLOW MAP FORMAT
RFM	9.310	RIDGE FLOW MAP
RFP	2.037	REASON FINGERPRINTED
RFR	2.095	REQUEST FEATURES RECORD
ROI	9.300	REGION OF INTEREST
ROV	9.018	REGION OF VALUE
RPR	2.096	REQUEST PHOTO RECORD

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
RPS	9.373	RIDGE PATH SEGMENTS
RQF	9.309	RIDGE QUALITY MAP FORMAT
RQM	9.308	RIDGE QUALITY MAP
RSC	2.2102	REASON SUPERVISION CANCELLED
RSR	2.065	REPOSITORY STATISTICS RESPONSE
RSV	10.901	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	13.901	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	14.901	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	15.901	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	10.034 – 10.037	Reserved for future use by ANSI/NIST-ITL
RSV	10.046 - 10.199	Reserved for future use by ANSI/NIST-ITL
RSV	10.905 – 10.994	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	13.025 - 13.199	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	13.905 – 13.994	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	14.032- 14.199	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	14.905 – 14.994	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	15.031 - 15.199	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	15.905 – 15.994	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
RSV	9.026 - 9.030	RESERVED FOR FBI IAFIS FEATURE SET
RSV	9.031 - 9.055	RESERVED FOR COGENT FEATURE SET
RSV	9.056 - 9.070	RESERVED FOR MOTOROLA FEATURE SET
RSV	9.071 - 9.099	RESERVED FOR SAGEM MORPPHO FEATURE SET
RSV	9.100 - 9.125	RESERVED FOR NEC FEATURE SET
RSV	9.125 - 9.150	RESERVED FOR MI-378 FIELDS
RSV	9.151 - 9.175	RESERVED FOR IDENTIX FEATURE SET
RSV	9.180 - 9.225	OTHER FEATURE SET DEFINED FIELDS
RSV	9.226 - 9.299	Reserved for future use by ANSI/NIST-ITL
RSV	9.304 - 9.306	Reserved for future use by ANSI/NIST-ITL
RSV	9.318 - 9.319	Reserved for future use by ANSI/NIST-ITL
RSV	9.328 - 9.330	Reserved for future use by ANSI/NIST-ITL
RSV	9.336 - 9.339	Reserved for future use by ANSI/NIST-ITL

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
RSV	9.358 - 9.359	Reserved for future use by ANSI/NIST-ITL
RSV	9.363 - 9.371	Reserved for future use by ANSI/NIST-ITL
RSV	9.374 - 9.399	Reserved for future use by ANSI/NIST-ITL
RWF	9.313	RIDGE WAVELENGTH MAP FORMAT
RWM	9.312	RIDGE WAVELENGTH MAP
SAN	2.099	STATE ARREST NUMBER (Future Capability)
SAP	10.013	SUBJECT ACQUISITION PROFILE
SCNA	2.086	AFIS SEGMENT CONTROL NUMBER
SCO	2.007	SEND COPY TO
SDOB	2.2007	SUBMITTED DATE OF BIRTH (Future Capability)
SEAL	2.2019	SEAL ARREST FLAG (Future Capability)
SEC	10.027	SUBJECT EYE COLOR
SED	2.2100	CUSTODY OR SUPERVISORY END DATE
SEG	14.021	FINGERPRINT SEGMENT POSITION(S)
SERNO	2.067C*	ORIGINATING FINGERPRINT READING SYSTEM SERIAL NUMBER (SERNO)
SEX	2.024	SEX
SHC	10.028	SUBJECT HAIR COLOR
SHPS	10.016	SCAN HORIZONTAL PIXEL SCALE
SHPS	13.016	SCANNED HORIZONTAL PIXEL SCALE
SHPS	14.016	SCAN HOR PIXEL SCALE
SHPS	15.016	SCAN HOR PIXEL SCALE
SID	2.015	STATE IDENTIFICATION NUMBER
SII	2.2023	SUPPLEMENTARY IDENTITY INFORMATION
SIM	9.372	SKELETONIZED IMAGE
SLC	10.008	SCALE UNITS
SLC	13.008	SCALE UNITS
SLC	14.008	SCALE UNITS
SLC	15.008	SCALE UNITS
SLE	2.055	CUSTODY OR SUPERVISORY STATUS LITERAL
SMD	10.042	SMT DESCRIPTORS
SMS	10.041	SCAR/MARK/TATTOO SIZE
SMT	2.026	SCARS, MARKS, AND TATTOOS
SMT	10.040	NCIC DESIGNATION CODE
SNAM	2.2008	SUBMITTED NAME (Future Capability)
SOC	2.016	SOCIAL SECURITY ACCOUNT NUMBER
SOD	9.178	OTHER VENDOR SETS - SYSTEM OR DEVICE
SOR	10.997	SOURCE REPRESENTATION
SOR	13.997	SOURCE REPRESENTATION
SOR	14.997	SOURCE REPRESENTATION
SOR	15.997	SOURCE REPRESENTATION
SPA	10.025	SUBJECT POSE ANGLES
SPCN	2.093	SPECIAL POPULATION COGNIZANT FILE NUMBER (Future Capability)
SPD	13.014	SEARCH POSITION DESCRIPTORS
SQM	14.023	SEGMENTATION QUALITY METRIC
SQS	10.024	SUBJECT QUALITY SCORES
SRA	2.2104	SUPERVISED RELEASE DATE
SRC	10.004	SOURCE AGENCY/ORI
SRC	13.004	SOURCE AGENCY/ORI
SRC	14.004	SOURCE AGENCY/ORI
SRC	15.004	SOURCE AGENCY/ORI

Table L-1 Complete Element Cross-Reference List by Element ID

Element ID	EBTS Tag Number	Element Name
SRF	2.059	SEARCH RESULTS FINDINGS
SSD	2.054	CUSTODY OR SUPERVISORY STATUS - START DATE
SST	2.2101	SUPERVISED STATUS TYPE
STT	2.2103	SUPERVISION TRANSFERRED TO
SVPS	10.017	SCAN VERTICAL PIXEL SCALE
SVPS	13.017	SCANNED VERTICAL PIXEL SCALE
SVPS	14.017	SCAN VERT PIXEL SCALE
SVPS	15.017	SCAN VERT PIXEL SCALE
SXS	10.026	SUBJECT FACIAL DESCRIPTION
T10	10.039	TYPE-10 REFERENCE NUMBER
TAA	2.087	TREAT AS ADULT
TCN	1.009	TRANSACTION CONTROL NUMBER
TCR	1.010	TRANSACTION CONTROL REFERENCE
THPS	10.009	TRANSMITTED HORIZONTAL PIXEL SCALE
TMC	10.031	TIERED MARKUP COLLECTION
TOT	1.004	TYPE OF TRANSACTION
TOT	2.2032C*	TOT OF DISSEMINATION
TRV	9.314	TONAL REVERSAL
TSR	2.043	TYPE OF SEARCH REQUESTED
TVPS	10.010	TRANSMITTED VERTICAL PIXEL SCALE
UCN	2.064A*	UNIVERSAL CONTROL (UCN) NUMBER
UCN	2.2033A*	FBI NUMBER/UCN
UDF	10.200-10.900	USER-DEFINED FIELDS
UDF	13.200-13.900	USER-DEFINED FIELDS
UDF	14.201-14.900	USER-DEFINED FIELDS
UDF	15.201-15.900	USER-DEFINED FIELDS
ULF	2.083	UNSOLVED LATENT FILE
ULR	2.2034	UNSOLVED LATENT RETAINED
VER	1.002	VERSION
VLL	7.007	VERTICAL LINE LENGTH
VLL	10.007	VERTICAL LINE LENGTH
VLL	13.007	VERTICAL LINE LENGTH
VLL	14.007	VERTICAL LINE LENGTH
VLL	15.007	VERTICAL LINE LENGTH
VPS	13.010	VERTICAL PIXEL SCALE
VPS	14.010	VERTICAL PIXEL SCALE
VPS	15.010	VERTICAL PIXEL SCALE
WGT	2.029	WEIGHT
WTR	2.030	WEIGHT RANGE

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
1.001	LEN	LOGICAL RECORD LENGTH
1.002	VER	VERSION
1.003	CNT	FILE CONTENT
1.004	TOT	TYPE OF TRANSACTION
1.005	DAT	DATE
1.006	PRY	TRANSACTION PRIORITY
1.007	DAI	DESTINATION AGENCY IDENTIFIER
1.008	ORI	ORIGINATING AGENCY IDENTIFIER
1.009	TCN	TRANSACTION CONTROL NUMBER
1.010	TCR	TRANSACTION CONTROL REFERENCE
1.011	NSR	NATIVE SCANNING RESOLUTION
1.012	NTR	NOMINAL TRANSMITTING RESOLUTION
1.013	DOM	DOMAIN NAME
1.014	GMT	GREENWICH MEAN TIME
1.015	DCS	DIRECTORY OF CHARACTER SETS
2.001	LEN	LOGICAL RECORD LENGTH
2.002	IDC	INFORMATION DESIGNATION CHARACTER
2.003	FFN	FBI FILE NUMBER
2.005	RET	RETENTION CODE
2.006	ATN	ATTENTION INDICATOR
2.007	SCO	SEND COPY TO
2.009	OCA	ORIGINATING AGENCY CASE NUMBER
2.010	CIN	CONTRIBUTOR CASE IDENTIFIER NUMBER
2.010A*	CIN_PRE	CONTRIBUTOR CASE PREFIX (CIN_PRE)
2.010B*	CIN_ID	CONTRIBUTOR CASE ID (CIN_ID)
2.011	CIX	CONTRIBUTOR CASE IDENTIFIER EXTENSION
2.014	FBI	FBI NUMBER
2.015	SID	STATE IDENTIFICATION NUMBER
2.016	SOC	SOCIAL SECURITY ACCOUNT NUMBER
2.017	MNU	MISCELLANEOUS IDENTIFICATION NUMBER
2.018	NAM	NAME
2.019	AKA	ALIASES
2.020	POB	PLACE OF BIRTH
2.021	CTZ	COUNTRY OF CITIZENSHIP
2.022	DOB	DATE OF BIRTH
2.023	AGR	AGE RANGE
2.024	SEX	SEX
2.025	RAC	RACE
2.026	SMT	SCARS, MARKS, AND TATTOOS
2.027	HGT	HEIGHT
2.028	HTR	HEIGHT RANGE
2.029	WGT	WEIGHT
2.030	WTR	WEIGHT RANGE
2.031	EYE	COLOR EYES
2.032	HAI	HAIR COLOR
2.033	FPC	NCIC FINGERPRINT CLASSIFICATION
2.034	PAT	PATTERN LEVEL CLASSIFICATIONS
2.034A*	FGP	FINGER NUMBER (FGP)
2.034B*	PATCL	PATTERN CLASSIFICATION CODE (PATCL)
2.037	RFP	REASON FINGERPRINTED
2.038	DPR	DATE PRINTED
2.039	EAD	EMPLOYER AND ADDRESS

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
2.040	OCP	OCCUPATION
2.041	RES	RESIDENCE OF PERSON FINGERPRINTED
2.042	MIL	MILITARY CODE
2.043	TSR	TYPE OF SEARCH REQUESTED
2.044	GEO	GEOGRAPHICAL AREA OF SEARCH
2.045	DOA	DATE OF ARREST
2.046	DOS	DATE OF ARREST-SUFFIX
2.047	ASL	ARREST SEGMENT LITERAL
2.047A*	DOO	DATE OF OFFENSE (DOO)
2.047B*	AOL	ARREST OFFENSE LITERAL (AOL)
2.048	CSR	CIVIL SEARCH REQUESTED INDICATOR
2.049	EID	EMPLOYEE IDENTIFICATION NUMBER
2.051	CSL	COURT SEGMENT LITERAL
2.051A*	CDD	COURT DISPOSITION DATE (CDD)
2.051B*	COL	COURT OFFENSE LITERAL (COL)
2.051C*	CPL	OTHER COURT SENTENCE PROVISION LITERAL (CPL)
2.052	*tbd	REQUEST FOR RAP BACK SERVICE (FUTURE CAPABILITY)
2.053	OFC	OFFENSE CATEGORY
2.054	SSD	CUSTODY OR SUPERVISORY STATUS - START DATE
2.055	SLE	CUSTODY OR SUPERVISORY STATUS LITERAL
2.056	ICO	IDENTIFICATION COMMENTS
2.057	FNR	FINGER NUMBER(S) REQUESTED
2.059	SRF	SEARCH RESULTS FINDINGS
2.060	MSG	STATUS/ERROR MESSAGE
2.061	CST	CASE TITLE
2.062	IMT	IMAGE TYPE
2.064	CAN	CANDIDATE LIST
2.064A*	UCN	UNIVERSAL CONTROL (UCN) NUMBER
2.064B*	NAM	NAME (NAM)
2.065	RSR	REPOSITORY STATISTICS RESPONSE
2.067	IMA	IMAGE CAPTURE EQUIPMENT
2.067A*	MAK	ORIGINATING FINGERPRINT READING SYSTEM MAKE (MAK)
2.067B*	MODL	ORIGINATING FINGERPRINT READING SYSTEM MODEL (MODL)
2.067C*	SERNO	ORIGINATING FINGERPRINT READING SYSTEM SERIAL NUMBER (SERNO)
2.070	RAP	REQUEST FOR ELECTRONIC RAP SHEET
2.071	ACN	ACTION TO BE TAKEN
2.072	FIU	FINGERPRINT IMAGE(S) UPDATED
2.073	CRI	CONTROLLING AGENCY IDENTIFIER
2.074	FGP	FINGER POSITION
2.075	ERS	ELECTRONIC RAP SHEET
2.076	PRI	PRIORITY
2.078	PEN	PENETRATION QUERY RESPONSE
2.079	NCR	NUMBER OF CANDIDATES' IMAGES RETURNED
2.080	EXP	RESPONSE EXPLANATION
2.082	REC	RESPONSE CODE
2.083	ULF	UNSOLVED LATENT FILE
2.084	AMP	AMPUTATED OR BANDAGED
2.084A*	FGP	FINGER NUMBER (FGP)
2.084B*	AMPCD	AMPUTATED OR BANDAGED CODE (AMPCD)
2.085	CRN	CIVIL RECORD NUMBER
2.086	SCNA	AFIS SEGMENT CONTROL NUMBER
2.087	TAA	TREAT AS ADULT
2.088	NOT	NOTE FIELD

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
2.089	MSC	MATCHSCORE
2.091	RCD1	RIDGE CORE DELTA ONE FOR SUBPATTERN CLASSIFICATION
2.091A*	FGP	FINGER NUMBER (FGP)
2.091B*	RCN1	RIDGE COUNT NUMBER 1 (RCN1)
2.092	RCD2	RIDGE CORE DELTA TWO FOR SUBPATTERN CLASSIFICATION
2.092A*	FGP	FINGER NUMBER (FGP)
2.092B*	RCN2	RIDGE COUNT NUMBER 2 (RCN2)
2.093	SPCN	SPECIAL POPULATION COGNIZANT FILE NUMBER (Future Capability)
2.094	CCN	COURT CASE NUMBER (Future Capability)
2.095	RFR	REQUEST FEATURES RECORD
2.096	RPR	REQUEST PHOTO RECORD
2.098	NDR	NAME OF DESIGNATED REPOSITORY
2.099	SAN	STATE ARREST NUMBER (Future Capability)
2.2001	NAM1	NAME-ONE (Future Capability)
2.2002	NAM2	NAME-TWO (Future Capability)
2.2003	NAM3	NAME-THREE (Future Capability)
2.2004	NAM4	NAME-FOUR (Future Capability)
2.2005	NAM5	NAME-FIVE (Future Capability)
2.2006	CSF	CASCADED SEARCH FLAG (Future Capability)
2.2007	SDOB	SUBMITTED DATE OF BIRTH (Future Capability)
2.2008	SNAM	SUBMITTED NAME (Future Capability)
2.2010	NIR	NUMBER OF IMAGES REQUESTED
2.2011	*tbd	RAP BACK VERIFICATION STATUS (Future Capability)
2.2012	IIR	IRIS IMAGES REQUESTED (Future Capability)
2.2013	DMI	DISPOSITION MAINTENANCE INDICATOR (Future Capability)
2.2014	*tbd	RAP BACK ELIGIBILITY (Future Capability)
2.2015	*tbd	RAP BACK EXPIRATION DATE (Future Capability)
2.2016	DNAF	DNA FLAG (Future Capability)
2.2017	DORI	DNA LOCATION (Future Capability)
2.2018	DNAC	DNA IN CODIS FLAG (Future Capability)
2.2019	SEAL	SEAL ARREST FLAG (Future Capability)
2.2020	*tbd	RAP BACK RECIPIENT (Future Capability)
2.2021	IFS	IDENTIFICATION FIREARMS SALES (Future Capability)
2.2022	CIDN	CONTRIBUTOR ASSIGNED IDENTIFICATION NUMBER
2.2023	SII	SUPPLEMENTARY IDENTITY INFORMATION
2.2024	HTI	HIT TYPE INDICATOR
2.2025	GEO_TIME	GEOGRAPHIC COORDINATE DATE TIME STAMP (Future Capability)
2.2026	GEO_CORD	GEOGRAPHIC COORDINATE LOCATION (Future Capability)
2 2026A*	LATD	LATITUDE DEGREE (Future Capability)
2.2026B*	LATM	LATITUDE MINUTE (Future Capability)
2.2026C*	LATS	LATITUDE SECOND (Future Capability)
2.2026D*	LOND	LONGITUDE DEGREE (Future Capability)
2.2026E*	LONM	LONGITUDE MINUTE (Future Capability)
2.2026F*	LONS	LONGITUDE SECOND (Future Capability)
2.2027	DATUM_ID	GEOGRAPHIC COORDINATE DATUM (Future Capability)
2.2028	BID	BIOMETRIC IMAGE DESCRIPTION
2.2028A*	FBI/UCN	FBI NUMBER/UCN
2.2028B*	IMT	IMAGE TYPE
2.2028C*	BSI	BIOMETRIC SET IDENTIFIER
2.2028D*	FNR	FINGER NUMBER REQUESTED
2.2028E*	PPD	PRINT POSITION DESCRIPTOR
2.2029	BSI	BIOMETRIC SET IDENTIFIER
2.2030	PPD	PRINT POSITION DESCRIPTOR

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
2.2030A*	FGP	FRICTION RIDGE GENERALIZED POSITION
2.2030B*	FIC	FINGER IMAGE CODE
2.2031	BIA	BIOMETRIC IMAGE AVAILABLE
2.2032	ATR	AUDIT TRAIL RECORD
2.2032A*	ORI	ORIGINATING AGENCY IDENTIFIER
2.2032B*	DAT	DATE OF DISSEMINATION
2.2032C*	TOT	TOT OF DISSEMINATION
2.2032D*	BSI	BIOMETRIC SET IDENTIFIER DISSEMINATED
2.2032E*	IMT	IMAGE TYPE DISEMINATED
2.2032F*	FNR	FRICTION RIDGE POSITION REQUESTED
2.2032G*	PPD	PRINT POSITION DESCRIPTION
2.2033	CNL	CANDIDATE INVESTIGATIVE LIST
2.2033A*	UCN	FBI NUMBER/UCN
2.2033B*	NAM	MASTER NAME
2.2033C*	BSI	BIOMETRIC SET IDENTIFIER
2.2033D*	IMT	IMAGE TYPE
2.2033E*	FGP	FRICTION RIDGE GENERALIZED POSITION
2.2033F*	PPD	PRINT POSITION DESCRIPTOR
2.2033G*	MSC	MATCH SCORE
2.2033H*	BIA	BIOMETRIC IMAGE AVAILABLE
2.2033I*	NDR	NAME OF DESIGNATED REPOSITORY
2.2033J*	IDC	INFORMATION DESIGNATION CHARACTER
2.2033K*	NOT	NOTE FIELD
2.2034	ULR	UNSOLVED LATENT RETAINED
2.2035	EVI	EVENT IDENTIFIER (Future Capability)
2.2100	SED	CUSTODY OR SUPERVISORY STATUS END DATE
2.2101	SST	SUPERVISED STATUS TYPE
2.2102	RSC	REASON SUPERVISION CANCELLED
2.2103	STT	SUPERVION TRANSFERRED TO
2.2104	SRA	SUPERVISED RELEASE ACTION
7.001	LEN	LOGICAL RECORD LENGTH
7.002	IDC	INFORMATION DESIGNATION CHARACTER
7.003	IMP	IMPRESSION TYPE
7.004	FGP	FINGER POSITION
7.005	ISR	IMAGE SCANNING RESOLUTION
7.006	HLL	HORIZONTAL LINE LENGTH
7.007	VLL	VERTICAL LINE LENGTH
7.008	GCA	GRAYSCALE COMPRESSION ALGORITHM
7.009	IMG	IMAGE DATA
9.001	LEN	LOGICAL RECORD LENGTH
9.002	IDC	INFORMATION DESIGNATION CHARACTER
9.003	IMP	IMPRESSION TYPE
9.004	FMT	MINUTIAE FORMAT
9.014	FGN	FINGER NUMBER
9.015	NMN	NUMBER OF MINUTIAE
9.016	FCP	FINGERPRINT CHARACTERIZATION PROCESS
9.017	APC	AFIS/FBI PATTERN CLASSIFICATION
9.018	ROV	REGION OF VALUE
9.019	COF	COORDINATE OFFSETS
9.020	ORN	ORIENTATION UNCERTAINTY
9.021	CRA	CORE ATTRIBUTES

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
9.022	DLA	DELTA ATTRIBUTES
9.023	MAT	MINUTIAE AND RIDGE COUNT DATA
9.024	CHQ	CHARACTERIZATION QUALITY
9.025	CLQ	CLASSIFIER QUALITY
9.026 - 9.030	RSV	RESERVED FOR FBI IAFIS FEATURE SET
9.031 - 9.055	RSV	RESERVED FOR COGENT FEATURE SET
9.056 - 9.070	RSV	RESERVED FOR MOTOROLA FEATURE SET
9.071 - 9.099	RSV	RESERVED FOR SAGEM MORPPHO FEATURE SET
9.100 - 9.125	RSV	RESERVED FOR NEC FEATURE SET
9.125 - 9.150	RSV	RESERVED FOR MI-378 FIELDS
9.151 - 9.175	RSV	RESERVED FOR IDENTIX FEATURE SET
9.176	ODD	OTHER FEATURE SET OWNER OR DEVELOPER
9.177	PAG	OTHER FEATURE SETS - PROCESSING ALGORITHM
9.178	SOD	OTHER VENDOR SETS - SYSTEM OR DEVICE
9.179	DTX	OTHER FEATURE SETS – CONTACT INFORMATION AND DESCRIPTIVE TEXT
9.180 - 9.225	RSV	OTHER FEATURE SET DEFINED FIELDS
9.226 - 9.299	RSV	Reserved for future use by ANSI/NIST-ITL
9.300	ROI	REGION OF INTEREST
9.301	ORT	ORIENTATION
9.302	FPP	FINGER, PALM, PLANTAR POSITION
9.303	FSP	FEATURE SET PROFILE
9.304 - 9.306	RSV	Reserved for future use by ANSI/NIST-ITL
9.307	PAT	PATTERN CLASSIFICATION
9.308	RQM	RIDGE QUALITY MAP
9.309	RQF	RIDGE QUALITY MAP FORMAT
9.310	RFM	RIDGE FLOW MAP
9.311	RFF	RIDGE FLOW MAP FORMAT
9.312	RWM	RIDGE WAVELENGTH MAP
9.313	RWF	RIDGE WAVELENGTH MAP FORMAT
9.314	TRV	TONAL REVERSAL
9.315	PLR	POSSIBLE LATERAL REVERSAL
9.316	FQM	FRICTION RIDGE QUALITY METRIC
9.317	PGS	POSSIBLE GROWTH OR SHRINKAGE
9.318 - 9.319	RSV	Reserved for future use by ANSI/NIST-ITL
9.320	COR	CORES
9.321	DEL	DELTAS
9.322	CDR	CORE-DELTA RIDGE COUNTS
9.323	CPR	CENTER POINT OF REFERENCE
9.324	DIS	DISTINCTIVE FEATURES
9.325	NCOR	NO CORES PRESENT
9.326	NDEL	NO DELTAS PRESENT

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
9.327	NDIS	NO DISTINCTIVE FEATURES PRESENT
9.328 - 9.330	RSV	Reserved for future use by ANSI/NIST-ITL
9.331	MIN	MINUTIAE
9.332	MRA	MINUTIAE RIDGE COUNT ALGORITHM
9.333	MRC	MINUTIAE RIDGE COUNTS
9.334	NMIN	NO MINUTIA PRESENT
9.335	RCC	RIDGE COUNT CONFIDENCE
9.336 - 9.339	RSV	Reserved for future use by ANSI/NIST-ITL
9.340	DOT	DOTS
9.341	INR	INCIPIENT RIDGES
9.342	CLD	CREASES AND LINEAR DISCONTINUITIES
9.343	REF	RIDGE EDGE FEATURES
9.344	NPOR	NO PORES PRESENT
9.345	POR	PORES
9.346	NDOT	NO DOTS PRESENT
9.347	NINR	NO INCIPIENT RIDGES PRESENT
9.348	NCLD	NO CEASES PRESENT
9.349	NREF	NO RIDGE EDGE FEATURES PRESENT
9.350	MFD	METHOD OF FEATURE DETECTION
9.351	COM	COMMENT
9.352	LPM	LATENT PROCESSING METHOD
9.353	EAA	EXAMINER ANALYSIS ASSESSMENT
9.354	EOF	EVIDENCE OF FRAUD
9.355	LSB	LATENT SUBSTRATE
9.356	LMT	LATENT MATRIX
9.357	LQI	LOCAL QUALITY ISSUES
9.358 - 9.359	RSV	Reserved for future use by ANSI/NIST-ITL
9.360	AOC	AREA OF CORRESPONDENCE
9.361	CPF	CORRESPONDING POINTS OR FEATURES
9.362	ECD	EXAMINER COMPARISON DETERMINATION
9.363 - 9.371	RSV	Reserved for future use by ANSI/NIST-ITL
9.372	SIM	SKELETONIZED IMAGE
9.373	RPS	RIDGE PATH SEGMENTS
9.374 - 9.399	RSV	Reserved for future use by ANSI/NIST-ITL
10.001	LEN	LOGICAL RECORD LENGTH
10.002	IDC	INFORMATION DESIGNATION CHARACTER
10.003	IMT	IMAGE TYPE
10.004	SRC	SOURCE AGENCY/ORI
10.005	PHD	PHOTO DATE
10.006	HLL	HORIZONTAL LINE LENGTH
10.007	VLL	VERTICAL LINE LENGTH
10.008	SLC	SCALE UNITS
10.009	THPS	TRANSMITTED HORIZONTAL PIXEL SCALE
10.010	TVPS	TRANSMITTED VERTICAL PIXEL SCALE
10.011	CGA	COMPRESSION ALGORITHM
10.012	CSP	COLOR SPACE
10.013	SAP	SUBJECT ACQUISITION PROFILE

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
10.014	FIP	FACE IMAGE BOUNDING BOX COORDINATES IN FULL IMAGE
10.015	FPFI	FACE IMAGE PATH COORDINATES IN FULL IMAGE
10.016	SHPS	SCAN HORIZONTAL PIXEL SCALE
10.017	SVPS	SCAN VERTICAL PIXEL SCALE
10.018	DIST	DISTORATION
10.019	LAF	LIGHTING ARTFACTS
10.020	POS	SUBJECT POSE
10.021	POA	POSE OFFSET ANGLE
10.022	PXS	PHOTO DESCRIPTION
10.023	PAS	PHOTO ACQUISITION SOURCE
10.024	SQS	SUBJECT QUALITY SCORES
10.025	SPA	SUBJECT POSE ANGLES
10.026	SXS	SUBJECT FACIAL DESCRIPTION
10.027	SEC	SUBJECT EYE COLOR
10.028	SHC	SUBJECT HAIR COLOR
10.029	FFP	2D FACIAL FEATURE POINTS
10.030	DMM	DEVICE MONITORING MODE
10.031	TMC	TIERED MARKUP COLLECTION
10.032	3DF	3D FACIAL FEATURE POINTS
10.033	FEC	FEATURE CONTOURS
10.034 – 10.037	RSV	Reserved for future use by ANSI/NIST-ITL
10.038	COM	COMMENT
10.039	T10	TYPE-10 REFERENCE NUMBER
10.040	SMT	NCIC DESIGNATION CODE
10.041	SMS	SCAR/MARK/TATTOO SIZE
10.042	SMD	SMT DESCRIPTORS
10.043	COL	TATTOO COLORS
10.044	ITX	IMAGE TRANSFORM
10.045	OCC	OCCLUSIONS
10.046 - 10.199	RSV	Reserved for future use by ANSI/NIST-ITL
10.200- 10.900	UDF	USER-DEFINED FIELDS
10.901	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
10.902	ANN	ANNOTATED INFORMATION
10.903	DUI	DEVICE UNIQUE IDENTIFIER
10.904	MMS	MAKE/MODEL/SERIAL NUMBER
10.905 – 10.994	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
10.995	ASC	ASSOCIATED CONTEXT
10.996	HAS	HASH
10.997	SOR	SOURCE REPRESENTATION
10.998	GEO	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
10.999	DAT	IMAGE DATA
13.001	LEN	LOGICAL RECORD LENGTH
13.002	IDC	INFORMATION DESIGNATION CHARACTER
13.003	IMP	IMPRESSION TYPE
13.004	SRC	SOURCE AGENCY/ORI
13.005	LCD	LATENT CAPTURE DATE
13.006	HLL	HORIZONTAL LINE LENGTH
13.007	VLL	VERTICAL LINE LENGTH

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
13.008	SLC	SCALE UNITS
13.009	HPS	HORIZONTAL PIXEL SCALE
13.010	VPS	VERTICAL PIXEL SCALE
13.011	CGA	COMPRESSION ALGORITHM
13.012	BPX	BITS PER PIXEL
13.013	FGP	FINGER/PALM POSITION
13.014	SPD	SEARCH POSITION DESCRIPTORS
13.015	PPC	PRINT POSITION COORDINATES
13.016	SHPS	SCANNED HORIZONTAL PIXEL SCALE
13.017	SVPS	SCANNED VERTICAL PIXEL SCALE
13.020	COM	COMMENT
13.024	LQM	LATENT QUALITY METRIC
13.025 - 13.199	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
13.200- 13.900	UDF	USER-DEFINED FIELDS
13.901	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
13.902	ANN	ANNOTATED INFORMATION
13.903	DUI	DEVICE UNIQUE IDENTIFIER
13.904	MMS	MAKE/MODEL/SERIAL NUMBER
13.905 – 13.994	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
13.995	ASC	ASSOCIATED CONTEXT
13.996	HAS	HASH
13.997	SOR	SOURCE REPRESENTATION
13.998	GEO	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
13.999	DAT	IMAGE DATA
14.001	LEN	LOGICAL RECORD LENGTH
14.002	IDC	INFORMATION DESIGNATION CHARACTER
14.003	IMP	IMPRESSION TYPE
14.004	SRC	SOURCE AGENCY/ORI
14.005	FCD	FINGERPRINT CAPTURE DATE
14.006	HLL	HORIZONTAL LINE LENGTH
14.007	VLL	VERTICAL LINE LENGTH
14.008	SLC	SCALE UNITS
14.009	HPS	HORIZONTAL PIXEL SCALE
14.010	VPS	VERTICAL PIXEL SCALE
14.011	CGA	COMPRESSION ALGORITHM
14.012	BPX	BITS PER PIXEL
14.013	FGP	FINGER POSITION
14.014	PPD	PRINT POSITION DESCIPTORS
14.015	PPC	PRINT POSITION COORDINATES
14.016	SHPS	SCAN HOR PIXEL SCALE
14.017	SVPS	SCAN VERT PIXEL SCALE
14.020	COM	COMMENT
14.021	SEG	FINGERPRINT SEGMENT POSITION(S)
14.022	NQM	NIST QUALITY METRIC
14.023	SQM	SEGMENTATION QUALITY METRIC
14.024	AFM	ALTERNATE FINGERPRINT QUALITY METRIC
14.030	DMM	DEVICE MONITORING MODE
14.031	FAP	SUBJECT ACQUISITION PROFILE – FINGERPRINT

Table L-2 Complete Element Cross-Reference List by Tag Number

EBTS Tag Number	Element ID	Element Name
14.032-14.199	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
14.200	ISC	IMAGE SOURCE CODE
14.201-14.900	UDF	USER-DEFINED FIELDS
14.901	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
14.902	ANN	ANNOTATED INFORMATION
14.903	DUI	DEVICE UNIQUE IDENTIFIER
14.904	MMS	MAKE/MODEL/SERIAL NUMBER
14.905 – 14.994	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
14.995	ASC	ASSOCIATED CONTEXT
14.996	HAS	HASH
14.997	SOR	SOURCE REPRESENTATION
14.998	GEO	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
14.999	DAT	IMAGE DATA
15.001	LEN	LOGICAL RECORD LENGTH
15.002	IDC	INFORMATION DESIGNATION CHARACTER
15.003	IMP	IMPRESSION TYPE
15.004	SRC	SOURCE AGENCY/ORI
15.005	PCD	PALMPRINT CAPTURE DATE
15.006	HLL	HORIZONTAL LINE LENGTH
15.007	VLL	VERTICAL LINE LENGTH
15.008	SLC	SCALE UNITS
15.009	HPS	HORIZONTAL PIXEL SCALE
15.010	VPS	VERTICAL PIXEL SCALE
15.011	CGA	COMPRESSION ALGORITHM
15.012	BPX	BITS PER PIXEL
15.013	FGP	FRICTION RIDGE POSITION
15.016	SHPS	SCAN HOR PIXEL SCALE
15.017	SVPS	SCAN VERT PIXEL SCALE
15.020	COM	COMMENT
15.024	PQM	PALMPRINT QUALITY METRIC
15.030	DMM	DEVICE MONITORING MODE
15.031 - 15.199	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
15.200	ISC	IMAGE SOURCE CODE
15.201-15.900	UDF	USER-DEFINED FIELDS
15.901	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
15.902	ANN	ANNOTATED INFORMATION
15.903	DUI	DEVICE UNIQUE IDENTIFIER
15.904	MMS	MAKE/MODEL/SERIAL NUMBER
15.905 – 15.994	RSV	RESERVED FOR FUTURE DEFINITION by ANSI/NIST-ITL only
15.995	ASC	ASSOCIATED CONTEXT
15.996	HAS	HASH
15.997	SOR	SOURCE REPRESENTATION
15.998	GEO	GEOGRAPHIC SAMPLE ACQUISITION LOCATION
15.999	DAT	IMAGE DATA

Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	Searching / TOT	T1	T2	T4[1]	T7	T9[4]	T10	T13	T14[5]	T15[2]	T17[2]
Identification Service Transactions											
Tenprint Fingerprint Identification Submissions											
CRIMINAL TENPRINT SUBMISSION - ANSWER REQUIRED	CAR	1	1	0-14	0-2	0	0-25		0-20	0-10	0-2
CRIMINAL TENPRINT SUBMISSION - NO ANSWER REQUIRED	CNA	1	1	0-14	0-2	0	0-25		0-20	0-10	0-2
CRIMINAL FINGERPRINT DIRECT ROUTE	CPDR	1	1	0-14	0	0	0-25		0-20	0-10	0-2
CRIMINAL FINGERPRINT PROCESSING NON-URGENT	CPNU	1	1	0-14	0-2	0	0-25		0-20	0-10	0-2
DEPARTMENTAL ORDER CHANNELING ELECTRONIC	DOCE	1	1	0-14	0-2	0	0		0-23	0-10	0-2
ELECTRONIC IN/MANUAL OUT USER FEE	EMUF	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
FEDERAL APPLICANT - NO CHARGE	FANC	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
FEDERAL APPLICANT - USER FEE	FAUF	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
FEDERAL NO-CHARGE DIRECT ROUTE	FNDR	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
NON-FEDERAL NO-CHARGE DIRECT ROUTE	NNDR	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
NON-FEDERAL ADVANCED PAYMENT	NFAP	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
NON-FEDERAL USER FEE EXPEDITE	NFUE	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
NON-FEDERAL APPLICANT USER FEE	NFUF	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
MISCELLANEOUS APPLICANT – CIVIL	MAP	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
KNOWN DECEASED	DEK	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
UNKNOWN DECEASED	DEU	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
MISSING PERSON	MPR	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
AMNESIA VICTIM	AMN	1	1	0-14	0-2	0	0-25		0-23	0-10	0-2
RAP BACK INDIRECT ENROLLMENT REQUESTS *(Future Capability)*											
EXTERNAL FINGERPRINT IDENTIFICATION SEARCH *(Future Capability)*											
Latent Fingerprint Identification Submissions											
LATENT FINGERPRINT IMAGE SUBMISSION[4, 3]	LFS	1	1	0-14	0-10	0	0	0-10	0-14	0-10	0
Rapid Fingerprint Identification Submissions											
RAPID FINGERPRINT IDENTIFICATION SEARCH[3]	RPIS	1	1	0-14	0	0	0		0-14	0	0
International Terrorist Fingerprint Identification Submissions											
INTERNATIONAL TERRORIST IDENTIFICATION SUBMISSION & RESPONSE *(Future Capability)*											
INTERNATIONAL TERRORIST FILE REQUEST *(Future Capability)*											
Disposition Fingerprint Identification Submissions											
ELECTRONIC FINGERPRINT DISPOSITION SUBMISSION *(Future Capability)*	FDSP	1	1	0	0	0	0	0	0	0	0
Verification Service Transactions											
FINGERPRINT VERIFICATION REQUEST[3]	FVR	1	1	0-14	0	0	0	0	0-14	0	0
Information Service Transactions											
Biometric Image Retrieval Submissions											
BIOMETRIC IMAGE/FEATURE RETREIVAL	IRQ	1	1	0	0	0	0	0	0	0	0
SUBJECT PHOTO REQUEST	CPR	1	1	0	0	0	0	0	0	0	0
Biometric Audit Trail Retrieval Submissions											
BIOMETRIC AUDIT TRAIL RETRIEVAL	BATQ	1	1	0	0	0	0	0	0	0	0
UNSOLVED LATENT AUDIT TRAIL RETRIEVAL	BATQ	1	1	0	0	0	0	0	0	0	0

Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	Searching / TOT	T1	T2	T4[1]	T7	T9[4]	T10	T13	T14[5]	T15[2]	T17[2]
Rap Back Information Retrieval Submissions (Future Capability)											
RAP BACK SUBSCRIPTION LIST *(Future Capability)*											
RAP BACK IDENTITY HISTORY SUMMARY REQUEST *(Future Capability)*											
Investigation Service Transactions											
Tenprint Fingerprint Investigative Searches											
TENPRINT FINGERPRINT IMAGE SEARCH[3]	TPIS	1	1	0-14	0	0	0	0	0-14	0	0
TENPRINT RAPSHEET REQUEST[3]	TPRS	1	1	0-14	0	0	0	0	0-14	0	0
Latent Print Investigation Submissions											
LATENT FRICTION RIDGE IMAGE SEARCH[4]	LFIS	1	1-2	0-10	0-10	0	0	0-10	0	0	0
LATENT FRICTION RIDGE FEATURES SEARCH	LFFS	1	1-2	0-10	0-10	1-10	0	0-10	0	0	0
LATENT PENETRATION QUERY	LPNQ	1	1	0	0	0	0	0	0	0	0
Latent Administrative Query Transactions											
LATENT REPOSITORY STATISTICS QUERY	LRSQ	1	1	0	0	0	0	0	0	0	0
Biometric Investigation Submissions											
PHOTO INVESTIGATION SEARCH *(Future Capability)*											
IRIS INVESTIGATION SEARCH *(Future Capability)*											
Biographic Investigation Submissions											
EXTERNAL QUERY HISTORY REQUEST	EQHR	1	1	0	0	0	0	0	0	0	0
Data Management Service Transactions											
Latent Image File Maintenance Submissions											
UNSOLVED LATENT RECORD DELETE REQUEST	ULD	1	1	0	0	0	0	0	0	0	0
Biometric Image Submissions											
BIOMETRIC IMAGE SUBMISSION	FIS	1	1	0-14	0	0	0	0	0-34	0-10	0
Biometric File Maintenance Submissions											
Biometric Enrollment Request											
FINGERPRINT ENROLLMENT REQUEST *(Future Capability)*											
SUPPLEMENTAL FINGERPRINT AND PALMPRINT ENROLLMENT REQUEST	FIS	1	1	0-14	0	0	0	0	1-54	1-8	0
PHOTO ENROLLMENT REQUEST *(Future Capability)*											
PALMPRINT ENROLLMENT REQUEST	FIS	1	1	0-14	0	0	0	0	1-54	1-8	0
IRIS ENROLLMENT REQUEST *(Future Capability)*											
Biometric Deletion Requests											
FINGERPRINT DELETE REQUEST *(Future Capability)*											
SUPPLEMENTAL FINGERPRINT AND PALMPRINT DELETE REQUEST	BDEL	1	1	0	0	0	0	0	0	0	0
SUBJECT PHOTO DELETE REQUEST	CPD	1	1	0	0	0	0	0	0	0	0
PALMPRINT DELETE REQUEST	BDEL	1	1	0	0	0	0	0	0	0	0
IRIS DELETE REQUEST *(Future Capability)*											
CIVIL RECORD DELETE REQUEST *(Future Capability)*											

Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	Searching / TOT	T1	T2	T4[1]	T7	T9[4]	T10	T13	T14[5]	T15[2]	T17[2]
Biometric Decision Requests											
BIOMETRIC DECISION REQUEST	BDEC	1	1	0	0	0	0	0	0	0	0
Identity File Maintenance Submissions											
INTERNATIONAL TERRORIST FILE MAINTENANCE REQUEST *(Future Capability)*											
EXTERNAL FILE MAINTENANCE REQUEST *(Future Capability)*											
Disposition File Maintenance Submissions (Future Capability)											
DISPOSITION FILE MAINTENANCE REQUEST *(Future Capability)*	DSPE	1	1	0	0	0	0	0	0	0	0
Rap Back File Maintenance Submissions (Future Capability)											
RAP BACK RECORD ENROLLMENT *(Future Capability)*											
RAP BACK MAINTENANCE REQUEST *(Future Capability)*											
External Link File Maintenance Submissions											
EXTERNAL LINK FILE MAINTENANCE REQUEST *(Future Capability)*											
Supervised Release Notification Request (Future Capability)											
SUPERVISED RELEASE NOTIFICATION REQUEST *(Future Capability)*	SRNR	1	1	0	0	0	0	0	0	0	0

[1] For tenprint submissions, the number of Type-4 images is normally 14 (10 rolled and 4 flat) and the number of Type-14 images is normally 3 flat images. When fewer images are sent, the AMP field of the accompanyingType-2 must account for all missing images.

[2] Type-15 images apply for Palmprint Enrollment and Major Case Print Collections in conjunction with tenprint submissions. Type-17 images apply for Iris Image Enrollment.

[3] Latent transactions should contain at least one image, whether a Type-4/14 or 7/13.

[4] For Type-9, LFFS are used for searching only.

[5] For the Type-14, the images associated with the tenprint card source are used for searching and enrollment while the remaining images will be enrolled as secondary supplemental images.

Table L-4 Record Set Requirements Summary by Type of Response

Transaction	TOT	T1	T2	T4*	T7	T9	T10	T13	T14*	T15**	T17
Identification Service Responses											
RAPID FINGERPRINT IDENTIFICATION SEARCH RESPONSE INTERNATIONAL TERRORIST FILE RESPONSE (Future Capability)	RPISR	1	1-2	0	0	0	0	0-2	0	0	0
SUBMISSION RESULTS - ELECTRONIC	SRE	1	1	0	0	0	0	1	0	0	0
LATENT SUBMISSION RESULTS	LSR	1	1	0	0	0	0	0	0	0	0
TENPRINT TRANSACTION ERROR	ERRT	1	1	0	0	0	0	0	0	0	0
DISPOSITION RESPONSE (Future Capability)	DSPR										
Verification Service Responses											
SUBMISSION RESULTS – ELECTRONIC	SRE	1	1	0	0	0	0	0	0	0	0
Information Service Responses											
BIOMETRIC AUDIT TRAIL RETRIEVAL RESPONSE	BATR	1	1	0	0	0	0	0	0	0	0
IMAGE REQUEST RESPONSE	IRR	1	1	0-14	0-10	0	0	0-10	0-34	0-10	0
IMAGE SUMMARY RESPONSE	ISR	1	1	0	0	0	0	0	0	0	0
IMAGE TRANSACTION ERROR	ERRI	1	1	0	0	0	0	0	0	0	0
PHOTO REQUEST RESPONSE	PRR	1	1	0	0	0	0	0-4	0	0	0
Investigative Services Responses											
SEARCH RESULTS - TENPRINT	SRT	1	1	0-14	0	0	0	0	0-14	0	0
TENPRINT TRANSACTION ERROR	ERRT	1	1	0	0	0	0	0	0	0	0
TENPRINT RAPSHEET RESPONSE	TPRR	1	1	0	0	0	0	0	0	0	0
SEARCH RESULTS - LATENT	SRL	1	1	0-20	0-20	0-30	0	0-20	0-20	0-20	0
LATENT PENETRATION RESPONSE	LPNR	1	1	0	0	0	0	0	0	0	0
LATENT TRANSACTION ERROR	ERRL	1	1	0	0	0	0	0	0	0	0
LATENT REPOSITORY STATISTICS QUERY	LRSR	1	1	0	0	0	0	0	0	0	0
ELECTRONIC HISTORY REQUEST RESPONSE	EHRR	1	1	0	0	0	0	0	0	0	0
EXTERNAL QUERY HISTORY REQUEST RESPONSE - SUMMARY	EQRR	1	1	0	0	0	0	0	0	0	0
EXTERNAL QUERY HISTORY ERROR RESPONSE	EQER	1	1	0	0	0	0	0	0	0	0
TRANSACTION ERROR (ELECTRONIC RESPONSE)	ERRR	1	1	0	0	0	0	0	0	0	0
Notification Service Responses											
UNSOLVED LATENT MATCH RESPONSE	ULM	1	1	0-14	0-10	0	0	0-10	0-20	0-10	0
UNSOLICITED UNSOLVED LATENT DELETE	UULD	1	1	0	0	0	0	0	0	0	0
SPECIAL POPULATION COGNIZANT NOTIFICATION (Future Capability)											
RAP BACK ACTIVITY NOTIFICATION (Future Capability)											
RAP BACK RENEWAL NOTIFICATION (Future Capability)											
UNSOLICITED HIT NOTIFICATION	UHN	1	1	0	0	0	0	0	0	0	0
EXTERNAL LINK RECORD ACTIVITY NOTIFICATION (Future Capability)											
EXTERNAL LINK FAILURE NOTIFICATION (Future Capability)											

Table L-4 Record Set Requirements Summary by Type of Response

Transaction	TOT	T1	T2	T4*	T7	T9	T10	T13	T14*	T15**	T17
Data Management Service Responses											
PHOTO DELETE RESPONSE	PDR	1	1	0	0	0	0	0	0	0	0
BIOMETRIC DECISION RESPONSE	BDECR	1	1	0	0	0	0	0	0	0	0
UNSOLVED LATENT RECORD DELETE RESPONSE	ULDR	1	1	0	0	0	0	0	0	0	0
UNSOLICITED UNSOLVED LATENT DELETE	UULD	1	1	0	0	0	0	0	0	0	0
ADMINISTRATIVE TRANSACTION ERROR	ERRA	1	1	0	0	0	0	0	0	0	0
BIOMETRIC DELETE RESPONS	BDELR	1	1	0	0	0	0	0	0	0	0
FINGERPRINT IMAGE SUBMISSION RESPONSE	FISR	1	1	0	0	0	0	0	0	0	0
IDENTITY FILE MAINTENANCE SUBMISSION *(Future Capability)*											

* Type-4 images is normally 14 and the number of Type-14 images is normally 3, for tenprint submissins. Type-2 AMP field must account for all missing images when fewer images are sent.

** Type-15 images apply for Palmprint Enrollment and Major Case Print Collections in conjunction with tenprint submissions. Type-17 images apply for Iris Image Enrollment.

Table L-5 Transaction/Response/Error TOT Correspondence

Transaction	TOT	Response TOTs	Delayed Response TOTs	Error TOTs
Identification Service Transactions				
Tenprint Fingerprint Identification Submissions				
CRIMINAL TENPRINT SUBMISSION - ANSWER REQUIRED	CAR	SRE	ULM	ERRT
CRIMINAL TENPRINT SUBMISSION - NO ANSWER REQUIRED	CNA	None	ULM	ERRT
CRIMINAL FINGERPRINT DIRECT ROUTE	CPDR	SRE	ULM	ERRT
CRIMINAL FINGERPRINT PROCESSING NON-URGENT	CPNU	SRE	ULM	ERRT
DEPARTMENTAL ORDER CHANNELING ELECTRONIC	DOCE	SRE		ERRT
ELECTRONIC IN/MANUAL OUT USER FEE	EMUF	SRE		ERRT
FEDERAL APPLICANT - NO CHARGE	FANC	SRE		ERRT
FEDERAL APPLICANT - USER FEE	FAUF	SRE		ERRT
FEDERAL NO-CHARGE DIRECT ROUTE	FNDR	SRE		ERRT
NON-FEDERAL NO-CHARGE DIRECT ROUTE	NNDR	SRE		ERRT
NON-FEDERAL ADVANCED PAYMENT	NFAP	SRE		ERRT
NON-FEDERAL USER FEE EXPEDITE	NFUE	SRE		ERRT
NON-FEDERAL APPLICANT USER FEE	NFUF	SRE		ERRT
MISCELLANEOUS APPLICANT – CIVIL	MAP	SRE		ERRT
KNOWN DECEASED	DEK	SRE	ULM	ERRT
UNKNOWN DECEASED	DEU	SRE		ERRT
MISSING PERSON	MPR	SRE		ERRT
AMNESIA VICTIM	AMN	SRE		ERRT
RAP BACK INDIRECT ENROLLMENT REQUESTS *(Future Capability)*				
EXTERNAL FINGERPRINT IDENTIFICATION SEARCH *(Future Capability)*				
Latent Fingerprint Identification Submissions				
LATENT FINGERPRINT IMAGE SUBMISSION	LFS	LSR		ERRL
Rapid Fingerprint Identification Submissions				
RAPID FINGERPRINT IDENTIFICATION SEARCH	RPIS	RPISR	UHN	ERRT
International Terrorist Fingerprint Identification Submissions				
INTERNATIONAL TERRORIST IDENTIFICATION SUBMISSION & RESPONSE (Future Capability)				
INTERNATIONAL TERRORIST FILE REQUEST *(Future Capability)*				
Disposition Fingerprint Identification Submissions				
ELECTRONIC FINGERPRINT DISPOSITION SUBMISSION *(Future Capability)*	FDSP	DSPR		ERRT
Verification Service Transactions				
FINGERPRINT VERIFICATION REQUEST	FVR	SRE		ERRT

Table L-5 Transaction/Response/Error TOT Correspondence

Transaction	TOT	Response TOTs	Delayed Response TOTs	Error TOTs
Information Service Transactions				
Biometric Image Retrieval Submissions				
BIOMETRIC IMAGE/FEATURE RETREIVAL	IRQ	IRR	ISR	ERRI
SUBJECT PHOTO REQUEST	CPR	PRR		PRR
Biometric Audit Trail Retrieval Submissions				
BIOMETRIC AUDIT TRAIL RETRIEVAL	BATQ	BATQR		ERRI
Rap Back Information Retrieval Submissions (Future Capability)				
RAP BACK SUBSCRIPTION LIST *(Future Capability)*				
RAP BACK IDENTITY HISTORY SUMMARY REQUEST *(Future Capability)*				
Investigation Service Transactions				
Tenprint Fingerprint Investigative Searches				
TENPRINT FINGERPRINT IMAGE SEARCH	TPIS	SRT		ERRT
TENPRINT RAPSHEET REQUEST	TPRS	TPRR		ERRT
Latent Print Investigation Submissions				
LATENT FRICTION RIDGE IMAGE SEARCH	LFIS	SRL	ULM, UULD	ERRL
LATENT FRICTION RIDGE FEATURES SEARCH	LFFS	SRL	ULM, UULD	ERRL
LATENT PENETRATION QUERY	LPNQ	LPNR		ERRL
Latent Administrative Query Transactions				
LATENT REPOSITORY STATISTICS QUERY	LRSQ	LRSR		ERRA
Biometric Investigation Submissions				
PHOTO INVESTIGATION SEARCH *(Future Capability)*				
IRIS INVESTIGATION SEARCH *(Future Capability)*				
Biographic Investigation Submissions				
EXTERNAL QUERY HISTORY REQUEST	EQHR	EQRR, EHRR		EQER, ERRR
Data Management Service Transactions				
Latent Image File Maintenance Submissions				
UNSOLVED LATENT RECORD DELETE REQUEST	ULD	ULDR		ERRL
Biometric Image Submissions				
BIOMETRIC IMAGE SUBMISSION	FIS	FISR		ERRI

Table L-5 Transaction/Response/Error TOT Correspondence

Transaction	TOT	Response TOTs	Delayed Response TOTs	Error TOTs
Biometric File Maintenance Submissions				
Biometric Enrollment Request				
FINGERPRINT ENROLLMENT REQUEST *(Future Capability)*				
SUPPLEMENTAL FINGERPRINT AND PALMPRINT ENROLLMENT REQUEST	FIS	FISR		ERRA
PHOTO ENROLLMENT REQUEST *(Future Capability)*				
PALMPRINT ENROLLMENT REQUEST	FIS	FISR		ERRA
IRIS ENROLLMENT REQUEST *(Future Capability)*				
Biometric Deletion Requests				
BIOMETRIC DELETE REQUEST	BDEL	BDELR		ERRA
SUBJECT PHOTO DELETE REQUEST	CPD	PDR		PDR
CIVIL RECORD DELETE REQUEST *(Future Capability)*				
Biometric Decision Requests				
BIOMETRIC DECISION RESPONSE	BDEC	BDECR		ERRA
Identity File Maintenance Submissions				
INTERNATIONAL TERRORIST FILE MAINTENANCE REQUEST *(Future Capability)*				
EXTERNAL FILE MAINTENANCE REQUEST *(Future Capability)*				
Disposition File Maintenance Submissions (Future Capability)				
DISPOSITION FILE MAINTENANCE REQUEST *(Future Capability)*	DSPE	DSPR		ERRA
Rap Back File Maintenance Submissions (Future Capability)				
RAP BACK RECORD ENROLLMENT *(Future Capability)*				
RAP BACK MAINTENANCE REQUEST *(Future Capability)*				
External Link File Maintenance Submissions				
EXTERNAL LINK FILE MAINTENANCE REQUEST *(Future Capability)*				

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
A0001	Unauthorized ULF delete	Requested deletion from ULF not authorized.	0				
A0004	Unauthorized EBTS Transaction	Requestor is not authorized for transaction type %1.	1	TOT of incoming message			
A0008	Unauthorized ULF Add Confirm	Requested ULF Add Confirm request not authorized.	0				
A0009	Latent Search Queue Request Reject	This Latent Search Queue modification request is invalid.	0				
A0016	Unauthorized Repository Access	Requestor search of repository %1 not authorized	1	NDR			(LFIS,LFFS) -ERRL
A0017	Unauthorized Dissemination Information Access	Requestor does not own the imagery in the audit trail dissemination information request	0				(BATQ) -ERRI
A0018	Unauthorized Biometric Delete	Requested deletion of UCN %1 BSI %2 is not authorized for requestor	2	UCN	BSI		(BDEL,SP MAINT)-ERRA
E0001	Required element missing	Mandatory element %1 was not supplied in message.	1	Element Name			
E0002	Element failed validation	Element %1, with value of [%2] contains invalid data.	2	Element Name	Element Value		
E0003	Element failed validation	Element %1, with value of [%2] contains invalid data. The data may not comply with the acceptable range of values.	2	Element Name	Element Value		
E0004	EBTS record parse error	EBTS logical record type %1 containing IDC of [%2] in message does not comply with message Contents or Length field values or the record is not parseable	2	Logical Record Type	IDC value or the value -1 if the named logical record is missing or is a Type-1 record.		
E0005	EBTS field parse error	EBTS field %1 could not be parsed. Check use of separator characters and presence of all required subfields.	1	Field Tag			
E0006	Field relationship error	The value of element %1 is inconsistent with the value of element %2.	2	Element Name	Element Name		
E0012	Message Length Inconsistent	The length of the CJIS WAN message is inconsistent with the sum of the lengths of the logical records contained within it.	0				
E0013	NFS File Write Error	NFS file %1 produced a write error during file transfer %2 %3.	1-3	FILEHANDLE	Free Text	Free Text	

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
L0001	SLC Repositories Full	SPC repository %1 is at max allowed records; to add new subject, delete existing subject.	1	NDR			
L0002	Subject does not exist in Criminal or Civil File	Subject with identifier %1 does not exist in repository.	1	UCN			(FIS) - ERRA
L0003	SPC Repository does not exist	Cannot perform requested action, SPC repository %1 does not exist. Inform Segment Administrator of possible SPC File Synchronization error.	1	NDR			
L0004	File image not available	The images for subject identifier %1 are not available from repository %2.	2	UCN	NDR		
L0005	High Penetration Search Rejected	Latent search penetration estimate of %1 percent exceeds the allowable limit of %2 percent.	2	Request Percent	Authorization Cap		
L0006	Invalid image type	The supplied image(s) could not be used for characterization of subject.	0				
L0007	Features not usable	The supplied features could not be used for requested search.	0				
*L0008	Characteristics quality low	The quality of the characteristics is too low to be used.	0				
L0009	Image decompression error	Error occurred during decompression of the images.	0				
L0010	Cannot search an empty SPC repository	A search request was made against SPC repository number %1 which currently contains no subjects. To differentiate from a search with no results, this error is being returned.	1	NDR			
L0011	Subject already exists, duplicates not allowed in Criminal or Civil Files	A request was made to add subject identifier %1 to Criminal or Civil File in which the subject already exists.	1	UCN			
L0012	ULF Delete Error	An error was encountered in processing the requested deletion from the Unsolved Latent File.	0				
L0013	General Logic Error	A general logic error was detected that is not currently defined. Optional error message: %1 %2 %3.	0-3	Free Text	Free Text	Free Text	
L0014	ULF Delete Subject Missing	Cannot perform the ULF delete request for %1 because the subject is not present in the ULF.	1	SCNA			

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
L0016	Latent Search Penetration Estimate	NOTICE ONLY, NOT AN ERROR – Latent search penetration estimate is %1. Your limit is currently %2.	2	Request Percentage	Authorization Cap		
L0017	Attempt to modify SCHF with improper TYS	Attempt to change the Criminal History File with an improper TYS of %1.	1	TYS			
L0018	Latent search queue full	The requested search exceeds the allocation for your organization or state.	0				
L0019	Subject already exists, duplicate identifiers not allowed in SPC file	A request was made to add subject identifier %1 to SPC repository %2 in which the subject already exists. Subjects may NOT be duplicated within this repository.	2	UCN	NDR		
L0020	Subject does not exist in SPC file	A request was made to delete or update subject identifier %1 to SPC repository %2. The subject does not exist in this repository.	2	UCN	NDR		
L0025	SID already exists	The SID provided in the criminal ten- print submission, %1, is already associated with the subject with FBI number %2 and could not be established for a new subject.	2	SID	UCN		
L0028	Exceeded ICO maximum length	Cannot add data because the maximum length of ICO field would be exceeded. There are only %1 characters remaining in the ICO field.	1	Number of unused bytes remaining in ICO field (ASCII representation).			
L0033	Element Entry Limit Exceeded	The requested update of this record would cause the maximum number of entries of the %1 field to be exceeded.	1	Field Name			
L0034	Existing identification comments	Cannot overwrite existing ICO.	0				
L0035	DOD prior to DOA	Date of arrest in submission is later than the date of death in subject's record.	0				
L0036	Conversion anomaly	Cannot add a conversion cycle for an NFF participating state.	0				
L0037	DOA not later than existing DOB	Date of arrest in submission is prior to existing date of birth in the subject's record.	0				
L0038	SID already exists from NFF state	Cannot establish new SID %1 for this subject because your state has already established SID %2 for this subject.	2	SID from submission	Existing SID		

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
L0046	TPTP Notify Error	AFIS Search number %1 or candidate number %2 cannot be associated with previous search.	2	SCNA	UCN		
L0047	ULF Add Confirm Error	Cannot perform the ULF add confirm request for %1 because the subject is not present in the ULF.	1	SCNA			
L0057	Improper Finger Specified	Latent searches cannot process %1 possible finger positions for %2 supplied search fingers.	2	FGN_CNT	AFV_CNT		
L0058	UCN and NDR format incompatible	The designated repository (%1) does not correlate to the provided record format number (%2).	2	NDR	UCN		
L0059	Duplicate fingers	Ten finger information supplied for field %1 (%2) is incorrect.	2	Name of field	Field Value		
L0079	Invalid SID	The SID %1 failed III edit check.	1	SID value			
L0109	Poor Image Quality	The quality of the images is too poor to permit processing.	0				
L0111	Image Sequence Error	Submitted tenprint finger images are out of sequence.	0				
L0113	Non-serious charge	This submission references an arrest charge representing a non-criterion offense.	0				
L0114	TOT/Submission Data Error	The Type of Transaction is inconsistent with the Reason Fingerprinted.	0				
L0115	Other QC Error	A QC error has occurred.	0				
*L0116	Fingerprint Pattern Quality Error	Fingerprint pattern(s) not discernible	0				
*L0117	Fingerprint Pattern Area Error	Insufficient pattern area(s) recorded for identification purposes	0				
*L0118	ITN Image Quality/Sequence Error	Erroneous or incomplete fingerprint(s) on images: fingers or hands out of sequence, printed twice, missing, and no reason given.	0				
L0119	Charge listed needs literal translation	The charge listed in the submission requires that a literal translation be provided.	0				
L0122	No SPC Add	Unable to complete SPC Add for identifier %1 in repository %2 and user %3.	3	UCN	NDR	EID	
L0123	No SPC Delete	Unable to complete SPC Delete for identifier %1 in repository %2 and user %3.	3	UCN	NDR	EID	

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
L0124	Unacceptable Criteria	The submission does not meet latent acceptance criteria.					
L0125	Invalid ORI	This ORI, %1, is not present in the CCA file.	1	ORI value from Maintenance Request			
L0126	Invalid CRI	This CRI, %1, is not present in the CCA file.	1	CRI value from Maintenance Request			
L0128	Missing SRE	This file maintenance request must contain a value for SRE.	0				
L0131	Required element missing	Mandatory element %1 was omitted from message.	1	Element Name			
L0132	STOT/NDR Discrepancy	The STOT, %1, for this request is not consistent with placing the images in the %2 file.	2	STOT value	Name of the target file (NDR)		
L0133	Fingerprint Image Submission Non-ident	The subject of this Fingerprint Image Submission contains UCN %1, which is not contained in the FBI Subject Criminal History files.	1	UCN			
L0141	STOT/RET Discrepancy	Retention code must equal Y for an STOT of CNA.	0				
L0142	SLC Copy Failed	SLC Copy failed: %1 %2 %3.	0-3	Free Text	Free Text	Free Text	
L0143	AFIS Storage Full for SLC Repository	SLC repository %1 is at max allotted storage capacity within AFIS; to add new subject, delete existing subject or contact the ITN Segment Administrator to allot more storage capacity.	1	NDR			
L0144	Field Relationship Error	The value of element %1 is inconsistent with the value of element %2.	2	Element Name	Element Name		
L0147	Contributor has remote capability	The contributing state has remote capability.	0				
L0148	Poor Latent Image Quality	The image quality is not adequate for conducting an AFIS search.	0				
L0149	Bad Search Criteria	The descriptive search criteria is not adequate or is incomplete.	0				
L0150	Unassigned FBI Number	Subject %1 may be in the FBI manual files, but does not exist in the Subject Criminal History File.	1	UCN			
L0151	Photo Not Available	Photo Not Available	0				

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
L0152	Photo Action on Improper AUD Code	CJIS cannot retrieve or delete the cited photo because the associated record is purged, expunged, not automated, deceased, or deleted.	0				
L0153	Photo Action on AUD C Record	CJIS cannot retrieve or delete the cited photo with FBI %1 because it has been consolidated with FBI %2.	2	UCN	UCN		
L0154	Improper Positions Specified	Multi-Latent investigative searches cannot process non-finger position codes.	0				
L0155	The palm image orientation is bad	The palm image orientation is too poor to permit processing	0				
L0156	The supplemental image orientation is bad	The supplemental image orientation is too poor to permit processing	0				
L0157	Failure in segmenting image	Failure in segmenting image	0				
L0158	Failure in validating secondary biometrics with fingerprints on file	Failure in validating secondary biometrics with fingerprints on file	0				
L0159	The palmprint imagery is incomplete	The palmprint imagery is incomplete	0				
L0160	The supplemental imagery is incomplete	The supplemental imagery is incomplete	0				
L0161	Invalid UCN for Delete operation	Deletion Request with invalid UCN %1	1	UCN			
L0162	Secondary Biometric Delete Error	Unable to delete biometric of type %1, biometric set identifier %2 for identifier %3	1	IMT	BSI	UCN	
L0163	Secondary Biometric Enrollment Error	Unable to enroll biometric of type %1 for identifier %2	2	IMT	UCN		
L0164	Enrollment Request without Fingerprints (no MOU)	Enrollment Request without Fingerprints (no MOU)	0				
L0165	Fingerprint and Secondary Biometric Enrollment Failed Validation	Unable to enroll Fingerprints, secondary biometric enrollment was not attempted.	0				(FIS, TPIdent) - ERRA,ERR
L0166	Enrollment Failure due to1-to-1 Fingerprint Verification	Enrollment failure,Fingerprints failed 1-to-1 verification with Fingerprints on file	0				(FIS) - ERRA
M0001	Unsolved Record Status	Unsolved record removed from unsolved repository					BDECR
M0002	Unsolved Record Status	Unsolved record retained in unsolved					BDECR
M0003	Unsolved Record Status	Unsolved record retained, requestor not owner					BDECR
M0004	Unsolved Record Status	Unsolved record retained, probe is unsolved					BDECR

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
M0005	Unauthorized Repository Access	Requestor search of repository %1 not authorized	1	NDR(s) (each applicable NDR value is listed separated by commas)			SRL, SRT
M0006	Mix of Known and Unsolved Records	Request contains mix of Known and Unsolved records for search, the Unsolved records in repository %1 were not searched	1	NDR			SRL, SRT
M0007	Mix of Known and Unsolved Records	Request contains mix of Known and Unsolved records for search, the Known records in repository %1 were not searched	1	NDR			SRL, SRT
M0008	Caveat for Returning Matched Minutiae	This match was made using information beyond feature data	0				SRL
M0009	Audit Trail Incomplete	Only latest 100 image disseminations are included, contact CJIS customer service for further audit information, or further limit the biometric audit trail request and resubmit.	0				BATR
M0010	Additional Biometric Sets were deleted besides what is reported	The maximum number of deleted biometric sets for reporting has been exceeded, contact CJIS customer service for the remainder of the deleted records.	0				BDELR
M0011	Biometric Sample Quality Below Threshold	The %1 biometric for UCN %2 and BSI %3 has been enrolled but the biometric quality fails to meet NGI Minimum Image Quality Standards	3	IMT	UCN	BSI	FISR, SRE
M0012	Biometric Sample Failed Validation	The %1 biometric for UCN %2 has failed validation with Fingerprints on file and was not enrolled	2	IMT	UCN		FISR, SRE
M0013	Enrollment Request without Fingerprints (no MOU)	The %1 biometric enrollment request had no accompanying Fingerprints (no MOU)	1	IMT			FISR
M0014	Photo not Available	The requested photo is not available	0				RPISR

Table M-1 Transaction Error Messages

Code	Message Title	Description	Count	Insert #1	Insert #2	Insert #3	EBTS TOT
M0015	Tier 2 Contact information	"need to determine what INC2 is providing, and provide same (unless wrong)" "may need new ebts fields for contact and contact phone #" Need to determine all response TOTs that may contain tier 2 contact info"	2	TBD1	TBD2		SRE

APPENDIX N - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-14 LOGICAL RECORDS

This appendix presents the descriptors and field specifications for Type-14 logical records, defined by ANSI-NIST-ITL as a Variable Resolution Fingerprint Image Record. In the past, only 4-4-2 slap impressions were allowed in the Type-14. NGI has expanded the use of the Type-14 to include available images as described in the ANSI/NIST-ITL. These new images consist of fingerprints (rolled and plain) and supplemental palmprints and fingerprint images. Therefore it is necessary to add a new user-defined field to indicate the image set to which the image being transmitted belongs (e.g., are the rolled fingerprint impressions from a tenprint card or a palmprint card). The new user-defined field, Image Source, is defined below. See Appendix P for a complete definition of each of the image sets. As NGI will be accepting images as defined in the ANSI/NIST-ITL, refer to the ANSI/NIST-ITL for complete definitions of the fields that are allowed in the Type-14. NGI will restrict the valid values for Friction Ridge Generalized Position, FGP, 14.013, to 1 – 15, 19, and 40 – 50.

Type-14 Data Dictionary

The T-14 Data Dictionary for this appendix only includes those fields that have been constrained by NGI/CJIS functionality. All other fields defined in the ANSI/NIST-ITL will be used as defined in that standard.

ISC **14.200** Image Source Code.   *< ebts:ImageSourceCode>*

This optional numeric field indicates to which source the included image belongs. This field allows images from multiple biometric sets that use the same Record Type to be distinguishable.

ISC Code Values

Image Source	Value
Tenprint Fingerprint Set	1
Palmprint Set – Front of Card (including fingers on front)	2
Palmprint Set – Fingers on Back of Card	3
Supplemental Print Set	4

Two different values are used for the Palmprint card to distinguish between the index finger image on the front of the card and the index finger that is part of the set of five finger images on the back of the card. Livescan palm capture should use value 2 and is not expected to contain any finger images.

SLC **14.008 Scale Units.**   *<biom:ImageScaleUnitsCode>*

This field will be used to define image sampling frequency (pixel density). A value of "1" shall indicate pixels per inch. A value of "2" shall indicate pixels per centimeter. A value of "0" in this field indicates that no scale is provided, and NGI will reject transactions containing this value.

FGP **14.013 Friction Ridge Generalized Position.** *<ansi-nist:FingerPositionCode>*

This mandatory field indicates which friction ridge position is to be associated with the attached image of this record. NGI will restrict the valid values for Friction Ridge Generalized Position, FGP, 14.013, to 1 – 15, 19, and 40 – 50. When the value of '19' is present, then PPD, 14.014, and PPC, 14.015, must be present.

Type-14 Data Dictionary

PPD 14.014 Print Position Descriptors. *<ansi-nist:FingerprintImageMajorCasePrint>*

This field is mandatory when FGP, 14.013, is '19'.

This field will consist of two mandatory information items:

- The first is the probable integer finger position code (0-10) taken from finger position table.

- The second information item is the code taken from Table P-1, found in Appendix P, to indicate the portion of the EJI or tip image that is a part of the transaction.

PPC 14.015 Print Position Coordinates. *<ansi-nist:MajorCasePrintSegmentOffset>*

This field is mandatory when FGP, 14.013, is '19'.

This field contains repeating sets of offsets to the locations for each of the full finger views within an EJI, and/or segments within a finger view. This field shall consist of six (6) mandatory information items to describe the type of image and its location within an EJI.

The first information item is the code for the full finger view, values 'FV1' to 'FV4', or the rolled finger tip, 'TIP'.

The second information item is used to identify the location of a segment within a full finger view stated in the first information item: 'PRX', 'DST', or 'MED' for the proximal, distal, or medial segment. If the bounding box will be representing a full

The third information item contains the left horizontal offset in pixels to the left edge of the bounding box relative to the origin position of the upper left corner of the image.

The fourth information item contains the right horizontal offset in pixels to the right edge of the bounding box relative to the origin position of the upper left corner of the image.

The fifth information item contains the top vertical offset (pixel counts down) to the top of The bounding box.

The sixth information item contains the bottom vertical offset in pixels from the upper left corner of the image down to the bottom of the bounding box.

The maximum occurrences of this field is 12. For EJI images, all finger segment (i.e. distal, medial, proximal) coordinates for all available finger views must be specified within the Type-14 record. Using this provided information, the finger views will be calculated at enrollment time as the rectangles encapsulating all segments from a particular finger view. This obviates the need for the contributor to explicitly specify the finger view coordinates. Please note that an EJI image from a thumb only has two segments - distal and proximal.

APPENDIX O - POB Code Table

Appendix O contains the codes for Place of Birth (POB 2.020) and Citizenship (CTZ 2.021) fields. The 'CTZ' contains an asterisk,'*', for those codes that are valid for usage in the CTZ 2.021 field. All codes are valid for usage in the POB 2.020 field. The "DATE AHEAD FLAG" indicates those codes where the Date of Birth (DOB 2.022) may be a day ahead of North America time zone.

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
AA	*	Albania	
AB		Alberta (Canadian Province)	
AD	*	Andorra	
AE		Anguilla	
AF	*	Afghanistan	*
AG		Aguascalientes (Mexican State)	
AH		Ashmore/Cartier Islands	
AI	*	Antigua and Barbuda (formerly Antigua)	
AJ	*	Aruba	
AK		Alaska	
AL		Alabama	
AM		American Samoa (Islands)	
AN	*	Algeria	
AO	*	Angola	
AP	*	Armenia	
AQ	*	Azores Islands	
AR		Arkansas	
AS	*	Australia	*
AT	*	Argentina	*
AU	*	Austria	*
AV	*	Azerbaijan	
AX		Apache Tribe	
AZ		Arizona	
BA		Baja California (Northern Section) (Mexican State)	
BB	*	Barbados	*
BC		British Columbia (Canadian Province)	
BD	*	Bahamas, The	*
BE	*	Bahrain (Bahrein)	
BF		Bassas Da India	
BG	*	Belgium	*
BH	*	Belize (British Honduras)	
BI	*	Burundi	
BJ		Baja California (Southern Section) (Mexican State)	
BK		Baker Island	
BL	*	Bangladesh	
BM		Bermuda	
BN	*	Bhutan	
BO		British Indian Ocean Territory	
BP	*	Bosnia (Hercegovenia, for Reference only)	
BQ		Bouvet Island	
BR	*	Burma	*

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
BS	*	British Solomon Islands(Solomon Islands)	
BT	*	Botswana	
BU	*	Bulgaria	
BV	*	Bolivia	*
BW	*	Balearic Islands	
BX	*	Brunei	
BY	*	Belarus	
BZ	*	Brazil	*
CA		California	
CB	*	Colombia	
CC	*	Cuba	
CD	*	Canada	
CE		Campeche (Mexican State)	
CF	*	Chad	
CG		Caroline Islands	
CH		Chihuahua (Mexican Border State)	
CI		Chiapas (Mexican State)	
CJ	*	Cambodia (Kampuchea)	
CL		Colima (Mexican State)	
CM	*	Cameroon	
CO		Colorado	
CP		Cayman Islands	
CQ	*	Chile	*
CR	*	Costa Rica	
CS	*	Cyprus	*
CT		Connecticut	
CU		Coahuila (Mexican State)	
CV	*	Cape Verde Islands	
CW	*	Central African Republic	
CY	*	Ceylon (now Sri Lanka)	
CZ		Canal Zone (United States)	
DA		Cheyenne & Arapaho Tribes	
DB		Clipperton Island	
DC		Dist of Columbia	
DD		Cocos (Keeling) Islands	
DE		Delaware	
DF		Distrito Federal (Mexico, D.F.)	
DG	*	Comoros, Fed Islamic Rep	
DH	*	Benin (formerly Dahomey)	
DI	*	Cook Islands	
DJ		Coral Sea Islands	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
DK	*	Denmark	*
DL		Devils Lake Sioux Tribe	
DM	*	Dominica	
DN	*	Djibouti	
DO		Durango (Mexican State)	
DQ		Ak Chin Indian Community of Maricopa Indian Rsvn, AZ	
DP		Comanche Nation	
DR	*	Dominican Rep	*
DS		Miami Tribe	
DT		Muscogee (Creek Tribe)	
DV		Seneca-Cayuga Tribes	
DW		Citizen Potawatomi Nation	
DX		Alabama-Coushatta Tribes of TX	
DY		Alabama-Quassarte Tribal Town, OK	
DZ		Arapahoe Tribe of the Wind River Rsvn, WY	
EA		Aroostook Band of Micmac Indians of ME	
EB		Bay Mills Indian Community, MI	
EC		Blackfeet Tribe of the Blackfeet Indian Rsvn of MT	
ED		Burns Paiute Tribe of the Burns Paiute Indian Colony of OR	
EE		Absentee Shawnee	
EF		Cayuga Nation of NY	
EG		Cheyenne River Sioux Tribe of the Cheyenne River Rsvn, SD	
EH		Chickasaw Nation, OK	
EI		Chippewa-Cree Indians of the Rocky Boy's Rsvn MT	
EJ		Chitimacha Tribe of LA	
EK	*	Equatorial Guinea	
EL	*	El Salvador	
EN	*	England	*
EO	*	Ethiopia	
EP		Cocopah Tribe of AZ	
EQ		Coeur D'Alene Tribe of the Coeur D'Alene Rsvn, ID	
ER		Europa Island	
ES	*	Estonia	
ET	*	Eritrea	
EU	*	Ecuador	
EV		Colorado River Indian Tribe of CO River Indian Rsvn, AZ&CA	
EW		Confederated Tribes of the Chehalis Rsvn, WA	
EX		Confederated Tribes of the Colville Rsvn, WA	
EY	*	Egypt	*
EZ	*	Czech Republic	
FA		Falkland Islands	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
FB		Confederated Tribes of the Goshute RSVN, NV and UT	
FC		Fond du Lac	
FD	*	Finland	
FE		Confederated Tribes of the Umatilla Rsvn, OR	
FF		Confederated Tribes of the Warm Springs Rsvn of OR	
FG		French Guiana	
FH		Coushatta Tribe of LA	
FJ	*	Fiji Islands	
FK		Crow Creek Sioux Tribe of the Crow Creek Rsvn, SD	
FL		Florida	
FM		Crow Tribe of MT	
FN	*	France	*
FO	*	Faroe Islands	
FP	*	French Polynesia	
FQ		Eastern Band of Cherokee Indians of NC	
FR	*	Fr Southrn/Antartic Land	
FS	*	Fed States of Micronesia	
FT		Eastern Shosone Tribe WY	
FU		Ely Shosone Tribe of NV	
FV		Paiute-Shosone Tribe of the Fallon Rsvn and Colony, NV	
FX		Sac and Fox	
FY		Fort Belknap Indian Community of Fort Belknap Rsvn of MT	
FZ		Fort McDowell Yavapai Nation, AZ	
GA		Georgia	
GB	*	Gabon	
GC	*	Greece	*
GD	*	Georgia/Gruzinskaya	
GE	*	Germany (Also see EM and WG)	*
GF		Guernsey	
GG	*	Ghana	
GI	*	Guinea	
GJ	*	Grenada	
GK	*	Gambia	
GM		Guam	*
GN	*	Greenland	
GO		Glorioso Islands	
GP		Guadeloupe	
GQ		Fort Mojave Indian Tribe of AZ, CA & NV	
GR		Guerrero (Mexican State)	
GS	*	S Georgia/S Sandwich Isl	
GT	*	Guatemala	

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Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
GU		Guanajuato (Mexican State)	
GV		Assiniboine and Sioux Tribes of Fort Peck Indian Rsvn, MT	
GX		Gila River Indian Community of Gila River Indian Rsvn, AZ	
GY	*	Guyana (Includes French Guiana)	
GZ	*	Gaza	
HB		Grand Traverse Band of Ottawa and Chippewa Indians, MI	
HD	*	Honduras	
HE		Heard Isl/McDonald Isl	
HF		Hannahville Indian Community, MI	
HG		Havasupai Tribe if the Havasupai Rsvn, AZ	
HI		Hawaii	
HJ		Hoh Indian Tribe of the Hoh Indian Rsvn, WA	
HK	*	Hong Kong	*
HL		Hidalgo (Mexican State)	
HM		Hopi Tribe of Arizona	
HN	*	New Hebrides (now Vanuata)	
HO		Howland Island	
HP		Hualapai Indian Tribe of Hualapai Indian Rsvn, AZ	
HQ		Iowa Tribe of KS & NB	
HR		Christmas Island	
HS		Saint Helena	
HT	*	Haiti	
HU	*	Hungary	
HW		Jamestown S'Klallam Tribe of WA	
HX		Jena Band Choctaw Indians, LA	
HZ		Jicarilla Apache Nation, NM	
IA		Iowa	
IB		Man, Isle of	
IC	*	Iceland	
ID		Idaho	
IE	*	Ireland	
IF		Kaibab Band of Paiute Indians of the Kaibab Indian Rsvn, AZ	
IG		Kalispel Indian Community of Kalispel Indian Rsvn WA	
IH		Kaw Nation, OK	
II	*	India	*
IK		Keweenaw Bay Indian Community, MI	
IL		Illinois	
IM		Madeira Islands	
IN		Indiana	
IO	*	Indonesia	
IQ	*	Iraq	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
IR	*	Iran	
IS	*	Israel	
IT	*	Italy	*
IU	*	Niue	
IV		Kickapoo Tribe of Indians of the Kickapoo Rsvn in KS	
IW		Iowa Tribe	
IX		Menominee Indian Nation	
IY	*	Cote dIvoire (Ivory Coast)	
IZ		Kotenai Tribe of ID	
JA	*	Japan	*
JB		Lac Vieux Desert Band of Lake Superior Chippewa Indians, MI	
JD		Little River Band of Ottawa Indians, MI	
JE		Jersey	
JF		Little Traverse Bay Bands of Odawa Indians, MI	
JG		Lovelock Paiute Tribe of the Lovelock Indian Colony, NV	
JH		Lower Brule Sioux Tribe of the Lower Elwha Rsvn, WA	
JI		Johnston Island	
JJ		Lower Elwha Tribal Community of the Lower Elwha Rsvn, WA	
JK		Lummi Tribe of the Lummi Rsvn, WA	
JL		Jalisco (Mexican State)	
JM	*	Jamaica	*
JN		Jan Mayen	
JO	*	Jordan	
JP		Makah Indian Tribe of the Makah Indian Rsvn, WA	
JQ		Mashantucket Pequot Tribe of CT	
JR		Jarvis Island	
JS		Match-E-Be-Nash-She-Wish Band of Pottawatomie Indians of MI	
JT		Mescalero Apache Tribe of the Mescalero Rsvn, NM	
JU	*	Juan de Nova Island	
JV		Metlakatla Indian Community, Annette Island AK	
JW		Miccosukee Tribe of Indians, FL	
JX		Missisippi Band of Choctaw Indians	
JY		Muckleshoot Indian Tribe of the Muckleshoot Rsvn, WA	
JZ		Narragansett Indian Tribe of RI	
KB	*	Gilbert Islands (now Kiribati)	
KC	*	Croatia	
KD		Navajo Nation, AZ, NM and UT	
KE	*	Kenya	
KF		Nez Perce Tribe, ID (Frmrly Listed Nez Perce Tribe of ID)	
KG		Nisqually Indian Tribe of the Nisqually Rsvn, WA	
KH	*	Manahiki Island	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
KI		Kingman Reef	
KJ		Nooksack Indian Tribe of Washington	
KK		Kickapoo Tribe	
KL		Northern Cheyenne Tribe of the North. Chey. Indian Rsvn, MT	
KM		Nottawaseppi Huron Band of Potawatomie, MI- Frmr Hur. Pot., Inc.	
KN	*	North Korea	*
KO	*	South Korea	*
KP		Shakopee	
KQ		Ohkay Owingeh, NM (Foremerly the Pueblo of San Juan	
KS		Kansas	
KT	*	Kazakhstan	
KU	*	Kuwait	
KV	*	Kosovo	
KW		Kiowa	
KX		Omaha Tribe of NB	
KY		Kentucky	
KZ	*	Kyrgyzstan	
LA		Louisiana	
LB	*	Liberia	
LC		Mille Lacs	
LD	*	Moldova	
LE	*	Lesotho	
LF	*	Slovakia	
LG		Onondaga Nation of NY	
LH	*	Lithuania (Rep of the USSR)	
LI	*	Liechtenstein	
LJ		Pascua Yaqui Tribe of AZ	
LK		Passamaquoddy Tribe of ME	
LL		Leech Lake Band of Chippewa	
LM		Penobscot Tribe of ME	
LN	*	Lebanon	
LO	*	Slovenia	
LP		Lac du Flambeau	
LQ		Poarch Band of Creek Indians of AL	
LR		Pokagon Band of Potawatomi Indians, MI & IN	
LS	*	Laos	*
LT	*	Latvia (Rep of the USSR)	
LU	*	Saint Lucia	
LV		Port Gamble of Indian Community of the Port Gamble Rsvn, WA	
LW		Prairie Band of Potawatomi Nation, KS	
LX	*	Luxembourg	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
LY	*	Libya	
LZ		Pueblo of Acoma, NM	
MA		Massachusetts	
MB		Manitoba (Canadian Province)	
MC		Michoacan (Mexican State)	
MD		Maryland	
ME		Maine	
MF	*	Malawi	
MG	*	Mongolia	
MH		Marshall Islands	
MI		Michigan	
MJ	*	Monaco	
MK		Mariana Islands (U.S. Trust Territory-U.S.)	
ML	*	Mali	
MM	*	Mexico	
MN		Minnesota	
MO		Missouri	
MP	*	Madagascar (included in Malagasy Republic)	
MQ	*	Morocco	
MR		Morelos (Mexican State)	
MS		Mississippi	
MT		Montana	
MU	*	Mauritania	
MV	*	Maldives	
MW		Midway Islands	
MX		Mexico (Mexican State)	
MY	*	Malta	
MZ	*	Malaysia	*
NA		Nayarit (Mexican State)	
NB		Nebraska	
NC		North Carolina	
ND		North Dakota	
NE	*	Holland (Netherlands)	*
NF	*	Newfoundland (Includes Labrador; Canadian Province)	
NG	*	Nigeria	*
NH		New Hampshire	
NI		Northern Ireland	
NJ		New Jersey	
NK		New Brunswick (Canadian Province)	
NL		Nuevo Leon (Mexican State)	
NM		New Mexico	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
NN	*	Niger	
NO	*	New Guinea (now Papua New Guinea)	
NP	*	Nepal	
NQ		New Caledonia	
NR	*	Nauru	
NS		Nova Scotia (Canadian Province)	
NT		Northwest Territories (Canadian Admin. Division)	
NU	*	Nicaragua	
NV		Nevada	
NW	*	Norway	
NX	*	Bonaire (Netherlands Antilles)	
NY		New York	
NZ	*	New Zealand	
OA		Oaxaca (Mexican State)	
OB		Pueblo of Cochiti, NM	
OC	*	Macao (Macau)	
OD		Pueblo of Isleta, NM	
OE		Pueblo of Jemez, NM	
OF		Norfolk Island	
OG		Osage Nation	
OH		Ohio	
OI		Okinawa	
OJ		Pueblo of of Laguna, NM	
OK		Oklahoma	
OL		Pueblo of Nambe, NM	
OM	*	Oman	
ON		Ontario (Canadian Province)	
OO		Otoe-Missouria Tribe	
OP		Pueblo of Picuris, NM	
OQ		Pueblo of San Felipe, NM	
OR		Oregon	
OS		Oglala Sioux	
OT		Oneida Tribe of Indians of Wisconsin	
OU		Pueblo of San Ildefonso, NM	
OV		Pueblo of Sandia, NM	
OW		Pueblo of Santa Ana, NM	
OX		Pueblo of Santa Clara, NM	
OY		Kewa Pueblo. NM (Formerly Pueblo of Santa Domingo, NM)	
OZ		Oneida Nation of NY	
PA		Pennsylvania	
PB		Puebla (Mexican State)	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
PC		Pitcairn, Henderson, Ducie, and Oeno Island	
PD	*	Republic of Palau	
PE		Prince Edward Island (Canadian Province)	
PF	*	Paracel Islands	
PG	*	Guinea-Bissau (formerly Portuguese Guinea)	
PH		Pueblo of Taos, NM	
PI	*	Philippines	*
PJ		Pueblo of Tesuque, NM	
PK	*	Pakistan	*
PL		Palmyra Atoll	
PM	*	Panama	
PN		Ponca Tribe	
PO	*	Poland	
PP		Pueblo of Zia, NM	
PQ		Quebec (Canadian Province)	
PR	*	Puerto Rico	*
PS		St Pierre and Miquelon	
PT	*	Portugal	
PU	*	Peru	
PV	*	Paraguay	*
PW		Pawnee Tribe	
PX		Pueblo of Zuni, NM	
PY		Puyallup Tribe of the Puyallup Rsvn, WA	
PZ		Pyramid Lake Paiute Tribe of the Pyramid Lake Rsvn, NV	
QA	*	Qatar	
QB		Quechan Tribe of the Fort Yuma Indian Rsvn CA & AZ	
QC		Quileute Tribe of the Quileute Rsvn, WA	
QD		Quinault Tribe of the Quinault Rsvn, WA	
QE		Reno-Sparks Indian Colony, NV	
QF		Rosebud Sioux Tribe of the Rosebud Indian Rsvn, SD	
QG		Sac and Fox Nation of Missouri in KS and NB	
QH		Sac and Fox Tribe of the MS in IA	
QI		Saginaw Chippewa Indian Tribe of MI	
QJ		St Regis Mohawk Tribe, NY- Frmr St Reg. Band Mohawk Indians	
QK		Salt River Pima-Maricopa Indian Comm. Of Salt River Rsvn, AZ	
QL		Samish Indian Tribe, WA	
QM		San Carlos Apache Tribe of the San Carlos Rsvn, AZ	
QN		Santee Sioux Nation, NB	
QO		Sauk- Suiattle Indian Tribe of WA	
QP		Sault Sainte Maire Tribe of Chippewa Indians of MI	
QQ		Seminole Tribe of FL-Dan, Big Cyp, Brghtn, Hllywd & Tmp Rsvns	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
QR		Quintana Roo (Mexican State)	
QS		Seneca Nation of New York	
QT		Shoalwater Bay Tribe of the Shoalwater Bay Indian Rsvn, WA	
QU		Queretaro (Mexican State)	
QV		Shosone-Bannock Tribes of the Fort Hall Rsvn of ID	
QW		Shosone-Paiute Tribes of the Duck Valley Rsvn of NV	
QX		Sisseton-Wahpeton Oyate of the Lake Traverse Rsvn, SD	
QY		Skokomish Indian Tribe of the Skokomish Rsvn, WA	
QZ		Skull Valley Band of Goshute Indians of UT	
RA	*	Russia	
RB	*	Republic of Congo, Brazzaville	
RC	*	Peoples Republic of China	*
RD		Snoqualmie Tribe, WA	
RE		Reunion	
RF		Russian Federation	*
RG		Gibraltar	
RH	*	Rhodesia (now Zimbabwe)	
RI		Rhode Island	
RJ		Southern Ute Indian Tribe of CO	
RK		Spirit Lake Tribe of the Spokane Rsvn, WA	
RL		Red Lake	
RM		Spokane Tribe of the Spokane Rsvn, WA	
RN		Squaxin Island Tribe of Squaxin Island Rsvn, WA	
RO		Standing Rock Sioux Tribe of North&South Dakota	
RP		Summit Lake Paiute Tribe of NV	
RQ		Suquamish Indian Tribe of the Port Madison Rsvn, WA	
RR		Montserrat	
RS	*	Spanish Sahara (now Western Sahara)	
RT		Swinomish Indians of the Swinomish Rsvn, WA	
RU	*	Romania/Rumania	
RV	*	Socialist Republic of Vietnam	*
RW	*	Rwanda	
RX		Te-Moak Tribe of W. Shosone Indians of NV	
RY	*	Republic of Yemen	
RZ		Three Affiliated Tribes of the Fort Berthold Rsvn, ND	
SA	*	Sierra Leone	
SB	*	Saudi Arabia	
SC		South Carolina	
SD		South Dakota	
SE	*	Seychelles	
SF	*	South Africa	*

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
SG	*	Senegal	
SH	*	San Marino	
SI		Sinaloa (Mexican State)	
SJ	*	South-Wst Africa (Namibia)	
SK		Seminole Nation	
SL		San Luis Potosi (Mexican State)	
SM	*	Somalia	
SN		Saskatchewan (Canadian Province)	
SO		Sonora (Mexican State)	
SP	*	Spain	*
SQ	*	Sweden	
SR	*	Singapore	*
SS	*	Scotland	
SU	*	Sudan	
SV		Svalbard	
SW	*	Swaziland	
SX	*	Soviet Union (USSR)	
SY	*	Syria	
SZ	*	Switzerland	*
TA		Tamaulipas (Mexican State)	
TB		Tabasco (Mexican State)	
TC	*	Trucial States (now United Arab Emirates)	
TD		Trust Territory of Pacific Islands	
TE	*	Spratly Islands	
TF	*	Tuamontu Archipelago	
TG	*	Tonga	
TH	*	Thailand	*
TJ	*	Tajikistan	
TK		Tokelau	
TL		Tlaxcala (Mexican State)	
TM		Tromelin Island	
TN		Tennessee	
TO	*	Togo	
TP	*	Sao Tome and Principe	
TQ	*	Tongareva	
TR	*	Turks and Caicos Islands	
TS	*	Nevis and Saint Christopher Kitts	
TT	*	Trinidad / Tobago	*
TU	*	Tunisia	
TV	*	Ellice Islands (now Tuvalu)	
TW	*	Taiwan, Republic of China	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
TX		Texas	
TY	*	Turkey	*
TZ	*	Tanzania, United Republic of	
UB		Tohono O'OOdham Nation of AZ	
UC		Turtle Mt Bnd of Chipewa	
UD		Tonawanda Band of Seneca Indians of NY	
UE		Tonkawa Tribe of Indians of OK	
UF		Tonto Apache Tribe of AZ	
UG	*	Uganda	
UH		Tulalip Tribes of the Tulalip Rsvn, WA	
UI		Yunica-Biloxi Indian Tribe of LA	
UJ		Tuscarora Nation of NY	
UK	*	Ukraine	
UL		Upper Skagit Indian Tribe of WA	
UM	*	Mauritius	
UN	*	United Kingdom	*
UO		Ute Indian Tribe of the Uintah & Ouray Rsvn, UT	
UP		Ute Mountain Tribe of the Ute Mountain Rsvn, CO, NM & UT	
UQ		Walker River Paiute Tribe of the Walker River Rsvn, NV	
UR	*	Turkmenistan	
US	*	United States	*
UT		Utah	
UU		Wampanoaq Tribe of Gay Head (Aquinnah) of MA	
UV	*	Burkina Faso/Upper Volta	
UW		Washoe Tribe of NV&CA-Carson, Drsslrvll,Woodfrds, Stewrt, Wash	
UX		White Mountain Apache Tribe of the Ft Apache Rsvn, AZ	
UY	*	Uruguay	
UZ	*	Uzbekistan	*
VA		Virginia	
VB		British Virgin Islands	
VC		Veracruz (Mexican State)	
VD		Winnebago Tribe of NB	
VE		Wyandotte Nation, OK	
VF		Vakama Nation, OK	
VG		Yakton Sioux Tribe of SD	
VH		Yavapai-Apache Nation of the Camp Verde Indian Rsvn, AZ	
VI		U S Virgin Islands	*
VJ		Yavapai-Prescott Tribe of the Yavapai Rsvn, AZ	
VK		Yerington Paiute Tribe of Yerington Colony&Cambell Rnch, NV	
VL		Navassa Island	
VO		Yomba Shosone Tribe of the Yomba Rsvn, NV	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
VP		Catawba Indian Nation, SC (AKA Catawba Tribe of SC)	
VQ		Confederated Salish&Kootenai Tribes of the Flathead Rsvn, MT	
VR		Conf. Tribes of the Coos, Lower Umpqua and Siuslaw Indians of OR	
VT		Vermont	
VU		Confederated Tribes of the Grand Ronde Community of OR	
VV	*	St. Vincent and the Grenadines	
VW		Confederated Tribes of Siletz Indians-OR(Conf. Tribes Siletz Rsvn)	
VX		Confederated Tribes & Bands of the Yakama Nation, WA	
VY		Vatican City	
VZ	*	Venezuela	*
WA		Washington	
WB	*	West Bank	
WC		Coquille Tribe of OR	
WD		Wyandotte Tribe	
WE		White Earth	
WF		Wallis and Futuna	
WH		Cow Creek Band of Umpqua Indians of OR	
WI		Wisconsin	
WJ		Cowlitz Indian TRIBE< WA	
WK		Wake Island	
WL	*	Wales	
WM		Duckwater Shosone Tribe of the Duckwater Rsvn, NV	
WN	*	West Indies	
WO		Forest County Potawatomi Community of WI	
WP		Fort McDermitt Paiute& Shosone Tribes of F.M. Indians Rsvn, NV & OR	
WQ		Fort Sill Apache Tribe of OK	
WR		Houlton Band of Maliseet Indians of ME	
WS	*	Western Samoa	
WT		Wichita Tribe	
WU		Kickapoo Traditional Tribe of TX	
WV		West Virginia	
WX		Klamath Tribes, OR	
WY		Wyoming	
WZ		Lac Courte Oreilles Band of Lake Superior Chippewa Indians, WI	
XA	*	Serbia	
XB	*	Montenegro	
XC		Bad River Band of Lake Superior Tribe of Chippewa Indians	
XD		Caddo Tribe	
XE		Cherokee Nation	

Table O-1 POB Code Table

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
XF		Delaware Nation	
XG		Eastern Shawnee Tribe	
XH		Modoc Tribe	
XI		Ottawa Tribe	
XJ		Peoria Tribe	
XK		Quapaw Tribe	
XL		United Keetoowah Band of Cherokee Indians	
XM		Western Delaware Tribe	
XN		Nunavut (Canadian Territory)	
XO		Grand Portage Band of Lake Superior Chippewa	
XP		Bois Forte Band of Chippewa	
XQ		Delaware Tribe of OK	
XR		Las Vegas Tribe of Paiute Indians of Las Vegas Indian Clny, NV	
XS		Lower Sioux Indian Community in the State of MN	
XT		Mashpee Wampanoag Tribe of MA	
XU		Minnesota Chippewa Tribe, MN	
XV		Moapa Band of Paiute Indians of NV	
XW		Mohegan Indian Tribe of CT	
XX	*	Unknown	
XZ		Paiute Indian Tribe of UT	
YB		Ponca Tribe of NB	
YC		Prairie Band of Potawatomi Nation, KS	
YD		Prairie Island Indian Community in the State of MN	
YF		Pueblo of Pojoaque, NM	
YG	*	Yugoslavia	
YH		Red Cliff Band of Lake Superior Chippewa Indians WI	
YO	*	Mayotte	
YT		Yukon (Canadian Territory)	
YU		Yucatan (Mexican State)	
YY	*	Unlisted cntry (Any foreign country not included in the list)	
YZ		Northwestern Band of Shosoni Nation of UT (Washakie)	
ZA		Zacatecas (Mexican State)	
ZB	*	Martinique	
ZC	*	Suriname	
ZD	*	Macedonia	
ZE		Kialegee Tribe Town, OK	
ZI	*	Canary Islands	
ZM	*	Zambia	
ZO	*	Mozambique	
ZR	*	Congo Kinshasa (now Zaire)	

APPENDIX P - SPECIFICATIONS FOR TRANSMITTING PALMPRINTS AND SUPPLEMENTAL FINGERPRINTS

This appendix presents transmission specifications for Type-14 & Type-15 logical records. The Type-14 image records contain variable resolution supplemental fingerprint image data and the Type-15 image records contain variable resolution palmprint image data together with fixed and user-defined textual information fields pertinent to the digitized image. The scanning resolution is not specified for these record types. However, in all cases the scanning resolution used to capture the supplemental and a palmprint image shall be at least as great as the minimum scanning resolution of 19.69 ppmm (500 ppi) as specified in Section 3.8.4 of this main document

When submitting supplemental fingerprints and palmprints to CJIS in the Type-14 record, the EJI image should contain at least the full FV1 or FV3 image along with the corresponding coordinates to be used in the verification process of the fingerprints submitted. "Best Practice" for submitting supplemental fingerprints would be to submit the complete EJI image that includes FV1, FV2, FV3, and FV4 as defined in Table P-1 and Figure 6. The complete description of the Type-14 record fields can be found in the ANSI/NIST-ITL standard.

Because not all friction ridge areas of the hand have overlap with the distal segment of the fingers (i.e., writer's palm, interdigital, thenar, lower palm, hypothenar), it is not possible for CJIS to positively verify that these friction ridge areas correspond to the associated identity. CJIS will attempt to segment the distal area of applicable palm and supplemental prints (i.e. full palm, upper palm, joints) that can be compared to the subject fingerprints. If segmentation is successful and the subsequent 1:1 verification fails, then all palm and supplemental records submitted within the transaction will be rejected as possibly being from the incorrect subject. If the distal segmentation is not possible, CJIS will enroll the submitted palm and/or supplemental prints without having performed 1:1 verification, based on the assumption that the contributing agency is confident that the palm and/or supplemental prints correspond with the identity associated with the fingerprints.

"Best Practice" for submitting palmprints in the Type-15 record will include either:
1. two full palmprints with the corresponding two writer's palms, or
2. an upper and lower palm from each hand with the corresponding two writer's palms.

When submitting palmprints, the submission could also include rolled thenar, hypothenar, and grasp from each hand. The expectation with the receipt of known-subject palmprints is that the submitting agency has verified the palmprint and/or supplemental with the subject's corresponding fingerprints. The complete description of the Type-15 record fields can be found in Appendix Q.

The entire area of the full palm is defined as that area extending from the carpal delta area to the tips of the fingers and can be represented as one or two scanned images. If two images are used to represent the full palm, the lower image shall extend from the carpal delta area to the top of the interdigital area (third finger joint) and shall include the thenar, and hypothenar areas of the palm. The upper image shall extend from the bottom of the interdigital area to the upper tips of

the fingers. This provides an adequate amount of overlap between the two images to facilitate subject verification. By matching the ridge structure and details contained in the common interdigital area, an examiner can confidently state that both images came from the same palm.

Tenprint Identification submissions may include palmprint and supplemental fingerprint and palmprint cards. When submitting to the FBI as hard-copies, best practices for this collection of prints are defined as one FBI Standard Fingerprint Card FD-249 or FD-258 (Figure P-1), two FBI Standard Palmprint Cards PD-884 (Figure P-2 and P-3), and two FBI Standard Supplemental Finger/Palmprint Cards PD-884a (Figure P-4 and P-5), for a total of five cards per subject. In order to clarify expected orientation within each designated field, the FD-884 and FD-884a were minimally revised on July 2, 2010, to ensure that a 'tips toward text' capture is apparent and consistently utilized. While the FBI CJIS Division will no longer routinely accept hard-copy biometric submissions after April 15, 2012, the standard card equivalents are noted here for users that continue to use the FBI standard cards to support capture/scanning within their individual programs. ANSI/NIST-ITL provides the friction ridge generalized codes (FGP) and maximum image sizes, see Table P-2.

Major Case Print Collection

FBI defines the Major Case Print Collection as a complete set of friction ridge exemplars that include:

- Ten rolled fingerprints (Type-4 for 500ppi or Type-14 for 1000ppi and above as captured on an FD-249 or FD-258)
- Standard four finger slaps for right and left hand in a Type-4/Type-14 record (FGP = 13 & 14 as captured on an FD-249 or FD-258)
- Individual thumb slaps for right and left hand in a Type-4/Type-14 record (FGP = 11 & 12 as captured on an FD-249 or FD-258)
- Tips of each finger in a Type-14 record (FGP = 19, Print Position Descriptors [14.014] = 'TIP' as captured on an FD-884a)
- Entire joint image for each finger in a Type-14 record (FGP = 19, Print Position Descriptors [14.014] = 'EJI' as captured on an FD-884a)
  - Rolled joint, flat left, center, and right full finger for each finger in a Type-14 record (FGP = 19, Print Position Descriptors [14.014] = 'FV1' & 'FV2' & 'FV3' & 'FV4')
- Rolled Thenar for each hand in a Type-15 record (FGP = 32 & 25 as captured on an FD-884a)
- Full Palm for each hand in a Type-15 record (FGP = 21 & 23 as captured on an FD-884)
- Writer's Palm for each hand in a Type-15 record (FGP = 22 & 24 as captured on an FD-884)
- Five rolled fingerprints for each hand (Type-4 for 500ppi or Type-14 for 1000ppi and above as captured on an FD-884)

Fingerprint Image Sets

A full Tenprint Fingerprint image set consists of one of the following four options:

- 14 Type-4 Fingerprint image records (from the FD-249 or FD-258 card or a scanned equivalent)
    - Ten Rolled Fingerprint images
    - Two Four Finger Slap Fingerprint images
    - Two Flat Thumb Fingerprint images
- 3 Type-14 Fingerprint image records (identification flat images)
    - Two Four Finger Slap Fingerprint images
    - One Two-Thumb Slap Fingerprint image
- 13 Type-14 Fingerprint image records (Introduced for RPIS)
    - Ten Rolled or Ten Flat Fingerprint images
    - Two Four Finger Slap Fingerprint images
    - One Two-Thumb Slap Fingerprint image
- 14 Type-14 Fingerprint image records (Introduced for RPIS)
    - Ten Rolled or Ten Flat Fingerprint images
    - Two Four Finger Slap Fingerprint images
    - Two Flat Thumb Fingerprint images

IAFIS supports Fingerprint Image Sets 1 and 2, where NGI supports all four Fingerprint image sets defined above. To be considered a full Tenprint set, all images must be present or a designation that each missing finger is either amputated or unprintable is required. CJIS prefers that contributors submit 1000ppi images with the Type-14.

Palmprint Image Sets

A Palmprint image set consists of all of the image blocks from an FD-884 card or a scanned equivalent. Each FD-884 card has images for one hand, so a Palmprint image set with images for both hands contains:

1-8 Type-15 Palmprint image records
- One Writer's Palm image from each hand
- Either
    - One Full Palm image from each hand
  Or
    - One Upper Palm image and one Lower Palm image from each hand
  Or
    - One Palm Thenar Area image, one Palm Hypothenar Area image, and one Palm Interdigital Area image from each hand

0-12 Type-14 Fingerprint image records
- Five individual finger images from the back of the FD-884 card from each hand
- One individual index finger image from the front of the FD-884 card from each hand

At least one palm image must be given but as the fingerprint images are optional, no amputation or unprintable flags are needed for these records. Although the Type-14 Fingerprint Images will be accepted by NGI, they are reserved as a future capability, and will not be used for searching or enrollment at this time.

Supplemental Print Image Sets

A Supplemental Print image set consists of all of the image blocks from an FD-884a card or a scanned equivalent. Each FD-884a card has images for one hand, so a Supplemental Print image set with images for both hands contains:

0-20 Type-14 Fingerprint image records
- 5 Entire Joint Image (EJI) Fingerprint images from each hand
- 5 Finger Tip Fingerprint images from each hand
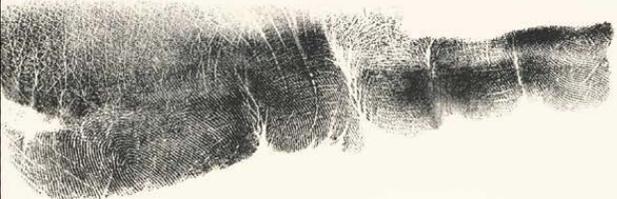
0-2 Type-15 Palmprint image records
- 1 Thenar Region Palmprint image from each hand

While both finger and palm are listed as optional, at least one image must be given to be accepted. With optional fingerprint images, no amputation or unprintable flags are needed for these records. Similarly, each EJI image can contain four different impressions of each finger as defined in EBTS, but there is no requirement for EJI images to contain all or any one of the fingerprint impressions.
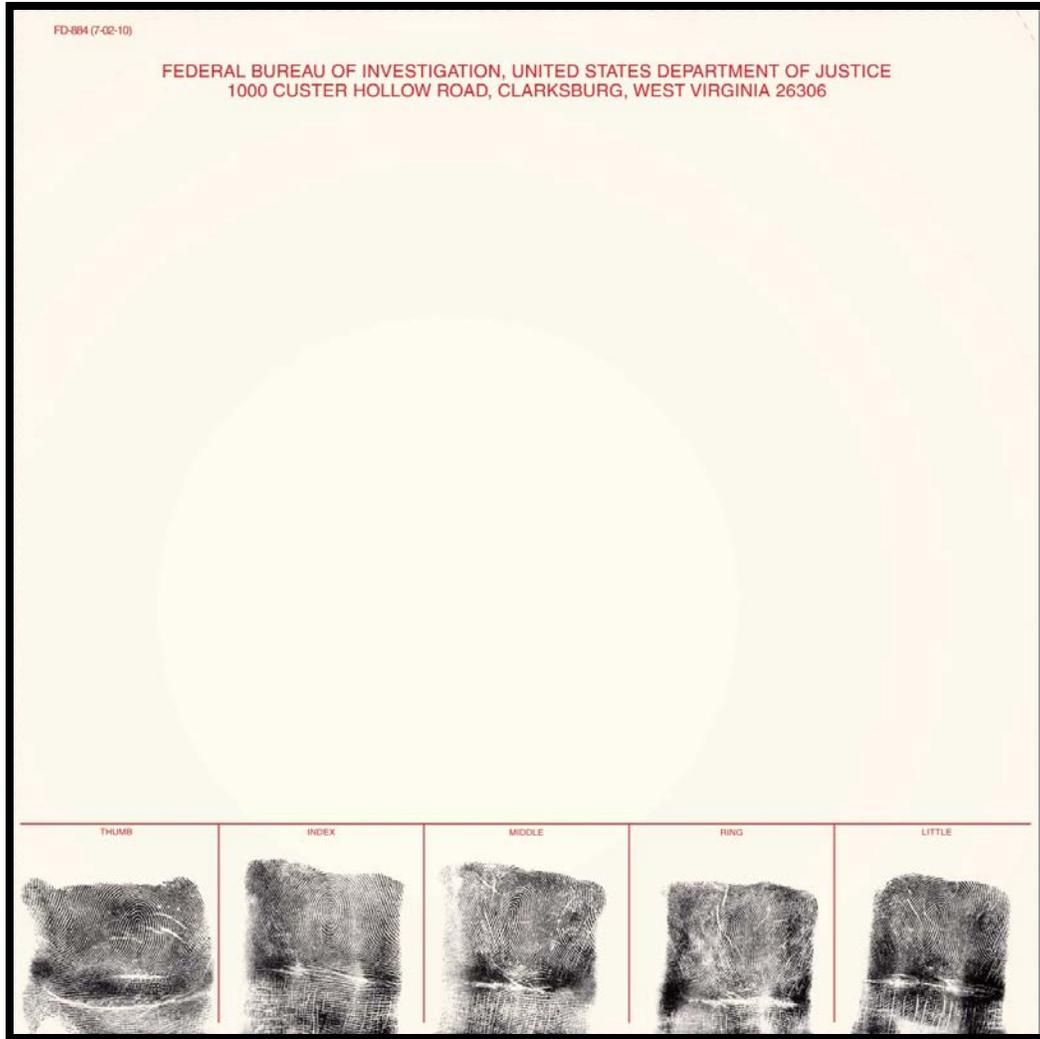
Figure P-1 FBI Standard Fingerprint Card (FD-249)

Figure P-2 and P-3 contain the front and reverse sides of the FBI Standard Palmprint Card, FD-884.

Figure P-2 FBI Standard Palmprint Card (FD-884) Front

Figure P-3 FBI Standard Palmprint Card (FD-884) Reverse

Figure P-4 and P-5 illustrate the FBI Standard Supplemental Finger/Palmprint Cards, FD-884a. It contains additional areas of friction ridge capture, including joint prints (distal, medial, and proximal), rolled finger tips, and rolled thenar area for each hand as shown in the images below.

Figure P-4 New FBI Standard Supplemental Finger/Palmprint Card (FD-884a) - Front

Figure P-5 New FBI Standard Supplemental Finger/Palmprint Card (FD-884a) - Reverse

The table below lists the print codes to be used in the Type-13 and -14 records.

Table P-1 Print Position Descriptor Code Table

Type of Print Image	Image Code
Entire Joint Image	EJI
Rolled Tip	TIP
Full Finger Rolled View	FV1
Full Finger Plain Image – left side	FV2
Full Finger Plain Image – center	FV3
Full Finger Plain Image – right side	FV4
Proximal, Distal, or Medial Segment	PRX, DST, MED

The types of print images are further defined as:

- Joint Prints (later broken down into distal, medial, and proximal)
  - Rolled Joint Print: a single recording of the friction ridge skin on the distal, medial (except thumbs), and proximal areas of each finger. This type of impression is taken in one motion, similar to the taking of a rolled fingerprint impression.
- Rolled Tips
  - A single recording of the friction ridge skin on the tip of the end joint of a finger. This type of impression is taken by placing the end joint of the finger on one side and rolling the finger across the tip such that the fingernail is in constant contact (or near constant contact) with the sheet of paper until the other side of the finger is reached.
- Rolled Thenar
  - The large cushion of the palm located at the base of the thumb opposite of the Writer's Palm or Hypothenar.

The rolled joint segments are labeled in the image below, where image 1 is the rolled middle finger, 2 and 4 are the pressed sides of the middle finger, and 3 is the pressed surface of the middle finger.
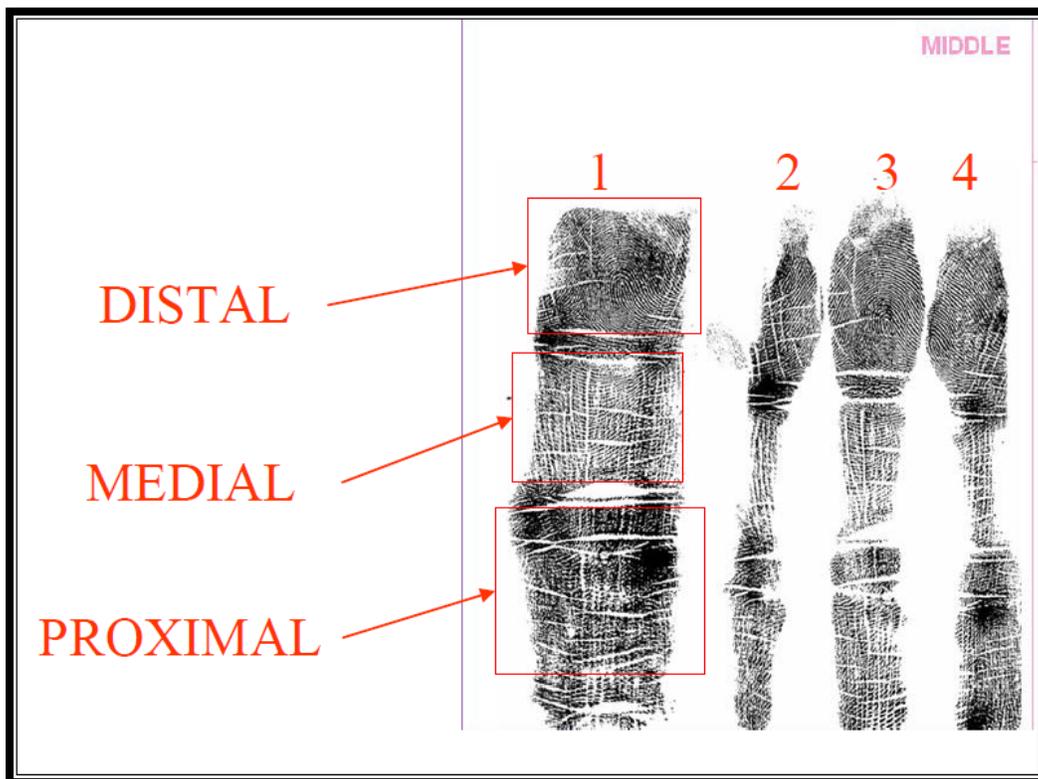
Figure P-6 Distal, Medial and Proximal Joints

The image records of the entire joint image (EJI) are contained in Type-14 records. Offsets to the locations of image segments containing the full finger view, proximal, distal, or medial areas are included with the image records further defined in the Type-14 record field specifications.
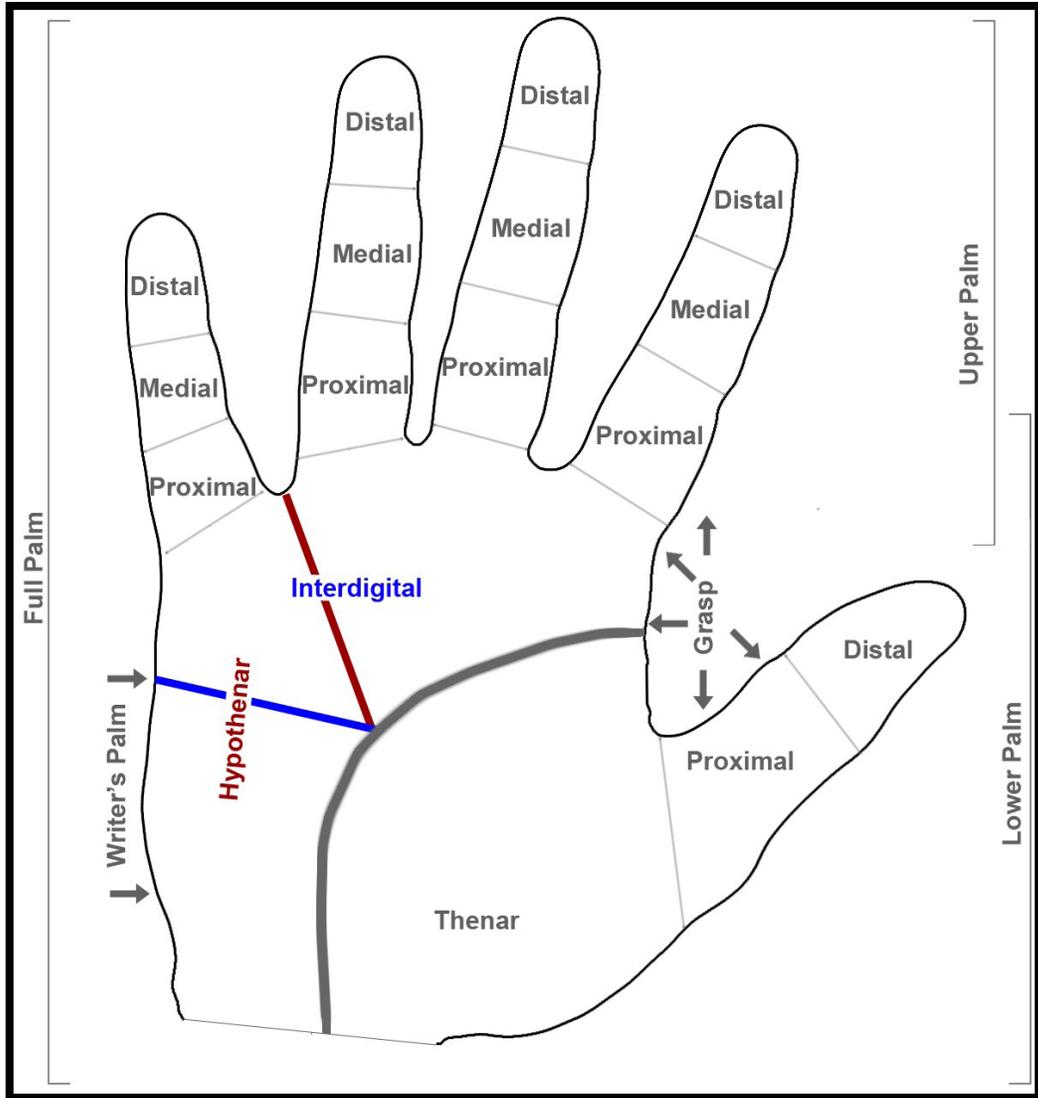
Figure P-7 Finger and Palm Segment Positions

Table P-2 Friction Ridge Generalized Position Codes

Position/Portion **	Type	Record Type	Code	Max Width (mm)	(in)	Max Length (mm)	(in)
Unknown Finger, Search 0 – 17	U	9, 13	0	40.6	1.6	38.1	1.5
Right thumb	F/M	4, 9, 13, 14	1	40.6	1.6	38.1	1.5
Right index finger	F/M	4, 9, 13, 14	2	40.6	1.6	38.1	1.5
Right middle finger	F/M	4, 9, 13, 14	3	40.6	1.6	38.1	1.5
Right ring finger	F/M	4, 9, 13, 14	4	40.6	1.6	38.1	1.5
Right little finger	F/M	4, 9, 13, 14	5	40.6	1.6	38.1	1.5
Left thumb	F/M	4, 9, 13, 14	6	40.6	1.6	38.1	1.5
Left index finger	F/M	4, 9, 13, 14	7	40.6	1.6	38.1	1.5
Left middle finger	F/M	4, 9, 13, 14	8	40.6	1.6	38.1	1.5
Left ring finger	F/M	4, 9, 13, 14	9	40.6	1.6	38.1	1.5
Left little finger	F/M	4, 9, 13, 14	10	40.6	1.6	38.1	1.5
Plain right thumb	F/M	4, 9, 13, 14	11	25.4	1	50.8	2
Plain left thumb	F/M	4, 9, 13, 14	12	25.4	1	50.8	2
Plain right four fingers	F/M	4, 9, 13, 14	13	81.3	3.2	76.2	3
Plain left four fingers	F/M	4, 9, 13, 14	14	81.3	3.2	76.2	3
Left and Right thumbs	F/M	4, 9, 13, 14	15	81.3	3.2	76.2	3
Right Extra Digit	F/M	9, 13, 14	16	40.6	1.6	38.1	1.5
Left Extra Digit	F/M	9. 13. 14	17	40.6	1.6	38.1	1.5
Unknown Friction Ridge, search all possible codes	U	9, 13	18	139.7	5.5	213	8.5
EJI or Tip	S	9, 13, 14	19	114	4.5	127	5
Unknown Palm, Searching 21 - 38	U	9, 13	20	139.7	5.5	203.2	8
Right Full Palm	P	9, 13, 15	21	139.7	5.5	203.2	8
Right Writer's Palm	P	9, 13, 15	22	44.5	1.8	127	5
Left Full Palm	P	9, 13, 15	23	139.7	5.5	203.2	8
Left Writer's Palm	P	9, 13, 15	24	44.5	1.8	127	5
Right Lower Palm	P	9, 13, 15	25	139.7	5.5	139.7	5.5
Right Upper Palm	P	9, 13, 15	26	139.7	5.5	139.7	5.5
Left Lower Palm	P	9, 13, 15	27	139.7	5.5	139.7	5.5
Left Upper Palm	P	9, 13, 15	28	139.7	5.5	139.7	5.5
Right Other *(Unknown Right hand) Searching Right hands between 21 – 38*	U	9, 13	29	139.7	5.5	203.2	8
Left Other *(Unknown Left hand) Searching Left hands between 21 - 38*	U	9, 13	30	139.7	5.5	203.2	8

Table P-2 Friction Ridge Generalized Position Codes

Position/Portion **	Type	Record Type	Code	Max Width (mm)	(in)	Max Length (mm)	(in)
Right Interdigital	P	9, 13, 15	31	139.7	5.5	76.2	3
Right Thenar	P	9, 13, 15	32	76.2	3	114.3	4.5
Right Hypothenar	P	9, 13, 15	33	76.2	3	114.3	4.5
Left Interdigital	P	9, 13, 15	34	139.7	5.5	76.2	3
Left Thenar	P	9, 13, 15	35	76.2	3	114.3	4.5
Left Hypothenar	P	9, 13, 15	36	76.2	3	114.3	4.5
Right Grasp	P	9, 13, 15	37	139.7	5.5	203.2	8
Left Grasp	P	9, 13, 15	38	139.7	5.5	203.2	8
Right Carpal Delta Area	P	9. 13. 15	81	139.7	5.5	114.3	4.5
Left Carpal Delta Area	P	9, 13, 15	82	139.7	5.5	114.3	4.5
Right full palm, including writer's palm	P	9, 13, 15	83	139.7	5.5	114.3	4.5
Left full palm, including writer's palm	P	9, 13, 15	84	139.7	5.5	114.3	4.5
Right index/middle	M	14	40	40.6	1.6	38.1	1.5
Right middle/ring	M	14	41	40.6	1.6	38.1	1.5
Right ring/little	M	14	42	40.6	1.6	38.1	1.5
Left index/middle	M	14	43	40.6	1.6	38.1	1.5
Left middle/ring	M	14	44	40.6	1.6	38.1	1.5
Left ring/little	M	14	45	40.6	1.6	38.1	1.5
Right index/Left index	M	14	46	40.6	1.6	38.1	1.5
Right index/middle/ring	M	14	47	63.5	2.5	38.1	1.5
Right middle/ring/little	M	14	48	63.5	2.5	38.1	1.5
Left index/middle/ring	M	14	49	63.5	2.5	38.1	1.5
Left middle/ring/little	M	14	50	63.5	2.5	38.1	1.5

F – Fingerprint

M – Mobile ID

P – Palmprint

S – Supplemental Print

U – Unknown Print

** Shaded rows are considered 'Future Capability'.

APPENDIX Q - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-15 LOGICAL RECORDS

This section presents the descriptors and field specifications for Type-15 logical records, defined by ANSI-NIST-ITL as a Palm Print Image Record. NGI has expanded the use of the Type-15 to include available palmprint and supplemental fingerprint and palmprint images as described in the ANSI/NIST-ITL. To aid in identifying which image set the image on this record type belongs, a new user-defined field to indicate the image set to which the image being transmitted belongs (e.g., is the image from the supplemental card or a palmprint card). The new user-defined field, Image Source, is defined below. See Appendix P for a complete definition of each of the image sets. As NGI will be accepting images as defined in the ANSI/NIST-ITL, refer to the ANSI/NIST-ITL for complete definitions of the fields that are allowed in the Type-15.

Type-15 Data Dictionary

The T15 Data Dictionary for this appendix only includes those fields that have been constrained by NGI/CJIS functionality. All other fields defined in the ANSI/NIST-ITL will be used as defined in that standard.

ISC   **15.200** Image Source Code.   *<ebts:ImageSourceCode>*

This optional numeric field indicates to which source the included image belongs. This field allows images from multiple biometric sets that use the same Record Type to be distinguishable.

ISC Code Values

Image Source	Value
Tenprint Fingerprint Set	1
Palmprint Set – Front of Card (including fingers on front)	2
Palmprint Set – Fingers on Back of Card	3
Supplemental Print Set	4

Two different values are used for the Palmprint card to distinguish between the index finger image on the front of the card and the index finger that is part of the set of five finger images on the back of the card. Livescan palm capture should use value 2 and is not expected to contain any finger images.

SLC **15.008** **Scale Units.**   *<biom:ImageScaleUnitsCode>*

This field will be used to define image sampling frequency (pixel density). A value of "1" shall indicate pixels per inch. A value of "2" shall indicate pixels per centimeter. A value of "0" in this field indicates that no scale is provided, and NGI will reject transactions containing this value.

APPENDIX R - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-13 LOGICAL RECORDS

This appendix presents the descriptors and field specifications for Type-13 logical records, defined by ANSI-NIST-ITL as a Friction Ridge Latent Image Record. NGI will use this record type to accept various latent, unknown images at 1000 ppi from users for the purpose of investigative searching of different repositories. As NGI will be accepting images as defined in the ANSI/NIST-ITL, refer to the ANSI/NIST-ITL for the complete definition of the Type-13 fields.

Type-13 Data Dictionary

The T13 Data Dictionary for this appendix only includes those fields that have been constrained by NGI/CJIS functionality. All other fields defined in the ANSI/NIST-ITL will be used as defined in that standard.

SLC   **13.008**   Scale Units   *<biom:ImageScaleUnitsCode>*

This field will be used to define image sampling frequency (pixel density). A value of "1" shall indicate pixels per inch. A value of "2" shall indicate pixels per centimeter. A value of "0" in this field indicates that no scale is provided, and NGI will reject transactions containing this value.

APPENDIX AC - ACRONYMS

Acronym	Description
AA	Plain Arch
ABIS	DoD Automated Biometric Identification System
AC	Approximate Finger Class
ACN	Action to be Taken
AF	Air Force Serial Number
AFIS	Automated Fingerprint Identification System
AFM	Alternate Fingerprint Quality Metric
AFV	AFIS Feature Vector
AGR	Age Range
AKA	Aliases
AMN	Amnesia Victim
AMP	Amputated or Bandaged
AMPCD	Amputated or Bandaged Code
AN	Non-Immigrant Admission Number
ANS	Alphanumeric Special
ANSI	American National Standards Institute
AOL	Arrest Offense Literal
APAT	Pattern Classification
APB	Advisory Policy Board
AR	Alien Registration Number
AS	Air National Guard Serial Number, Army Serial Number, or National Guard Serial Number
ATR	Audit Trail Record
ASCII	American Standard Code for Information Interchange
ASL	Arrest Segment Literal
ATN	"Attention" Indicator
AU	Arch, Type Not Designated
BATQ	Biometric Audit Trail Query Request
BATR	Biometric Audit Trail Response
BCD	Biometric Capture Date
BDB	Biometric Data Block
BDEC	Biometric Decision Submission
BDECR	Biometric Decision Response
BDEL	Biometric Delete Request
BDELR	Biometric Delete Response
BDQ	Biometric Data Quality
BF	Bureau Fugitive Index Number

APPENDIX AC - ACRONYMS

Acronym	Description
BFO	BDB Format Owner
BFT	BDB Format Type
BIA	Biometric Image Available
BID	Biometric Image Description
BIR	Biometric Information Record
BPX	Bits per pixel
BSI	Biometric Set Identifier
BTY	Biometric Type
CAN	Candidate List
CAR	Criminal Tenprint Submission (Answer Required)
CBEFF	Common Biometric Exchange File Format
CCN	Court Case Number
CDD	Court Disposition Date
CG	Coast Guard Serial Number
CHQ	Characterization Quality
CI	Criminal File
CI	Central Pocket – Loop Whorl – Inner
CI	Canadian Social Insurance Number
CIDN	Contributor Assigned Identification Number
CIN	Contributor Case Identifier Number
CIX	Contributor Case Identifier Extension
CJIS	Criminal Justice Information Services
CLQ	Classifier Quality
CM	Central Pocket – Loop Whorl – Meeting
CNA	Criminal Tenprint Submission (No Answer Necessary)
CNL	Candidate Investigative List
CNT	File Content
CO	Central Pocket – Loop Whorl – Outer
COF	Coordinate Offsets
COM	Comment
COTS	Commercial Off-the-Shelf
CPD	Criminal Subject Photo Delete Request
CPDR	Criminal Fingerprint Direct Route
CPL	Other Court Sentence Provision Literal
CPNU	Criminal Fingerprint Processing Non-Urgent
CPR	Criminal Subject Photo Request

APPENDIX AC - ACRONYMS

Acronym	Description
CR	Criminal File
CRA	Core(s) Attributes
CRI	Controlling Agency Identifier
CRN	Civil Record Number
CSA	CJIS Systems Agency
CSF	Cascaded Search Flag
CSL	Court Segment Literal
CSN	Candidate Sequence Number
CSP	Color Space
CSR	Civil Search Requested
CST	Case Title
CTF	Contrast Transfer Function
CTZ	Country of Citizenship
DAI	Destination Agency Identifier
DAT	Date of Dissemination
DCS	Directory of Character Sets
DEK	Known Deceased
DEU	Unknown Deceased
DHS	Department of Homeland Security
DI	Central Pocket – Double Loop Whorl – Inner
DLA	Delta(s) Attributes
DM	Central Pocket – Double Loop Whorl – Meeting
DMI	Disposition Maintenance Indicator
DMM	Device Monitoring Mode
DO	Central Pocket – Double Loop Whorl – Outer
DOA	Date of Arrest
DOCE	Departmental Order Channeling Electronic
DOM	Domain Name
DOO	Date of Offense
DOS	Date of Arrest – Suffix
DPR	Date Printed
DSPE	Disposition File Maintenance Submissions
DSPR	Disposition Response
DST	Distal
DUI	Device Unique Identifier
EAD	Employer and Address

APPENDIX AC - ACRONYMS

Acronym	Description
EBTS	Electronic Biometric Transmission Specification (started with version 8 of this document)
ECL	Eye Color
EFTS	Electronic Fingerprint Transmission Specification (ended with version 7.1 of this document)
EHRR	Electronic History Request Response – Individual Identity History Subject Sheets
EID	Employee Identification Number
EJI	Entire Joint Image
EMUF	Electronic (In)/Manual (Out) User Fee
EQER	External Query History Error Response
EQHR	External Query History Request
EQRR	External Query History Request Response – Summary
ERRA	Administrative Transaction Error
ERRI	Image Transaction Error
ERRL	Latent Transaction Error
ERRT	Tenprint Transaction Error
ERS	Electronic Rap Sheet
ETC	Estimated Time to Complete
EXP	Response Explanation
EYE	Color Eyes
EVI	Event Identifier
FANC	Federal Applicant (No Charge)
FAUF	Federal Applicant User Fee
FBI	Federal Bureau of Investigation
FCP	Fingerprint Characterization Process
FDSP	Electronic Fingerprint Disposition Submission
FFN	FBI File Number
FGN	Finger Number
FGP	Finger/Palmprint Position
FID	Feature Identifier
FIS	Fingerprint Image Submission
FISR	Fingerprint Image Submission Response
FIU	Fingerprint Image(s) Updated
FMT	Minutiae Format
FNDR	Federal No-Charge Direct Route
FNR	Finger Number(s) Requested
FNU	FBI Number
FP	Fingerprint

APPENDIX AC - ACRONYMS

Acronym	Description
FS	File Separator – indicates the record is complete (end of file)
FVR	Fingerprint Verification Request
FV*x*	Full Finger View (*x* = a number)
GCA	Grayscale Compression Algorithm
GEO	Geographic Area of Search
GMT	Greenwich Mean Time
GS	Group Separator – indicates a new field is to follow
GUI	Global Unique Identifier
HAI	Hair Color
HDV	CBEFF Header Version
HGT	Height
HLL	Horizontal Line Length
HPS	Horizontal Pixel Scale
HTI	Hit Type Indicator
HTR	Height Range
HW	Hardware
IAFIS	Integrated Automated Fingerprint Identification System
IBIA	International Biometrics Industry Association
ICN	IAFIS Control Number
ICO	Identification Comments
ID	Identity or Identification
IDC	Information Designation Character
IHS	Identity History Summary
IID	Iris Image Data
IIE	Iris Image Enrollment
IIER	Iris Image Enrollment Request Response
III	Interstate Identification Index
IIR	Iris Images Requested
IMA	Image Capture Equipment
IMG	Image Data
IMP	Impression Type
IMT	Image Type
INCITS	International Committee for Information Technology Standards
IO	Identification Order Number
IPC	Image Property Code
IQM	Image Quality Metric

APPENDIX AC - ACRONYMS

Acronym	Description
IQS	Image Quality Score
IRD	Iris Capture Date
IRQ	Biometric Image/Feature Retrieval Submission
IRR	Fingerprint Image Request Response
ISO	International Organization for Standardization
ISR	Image Summary Response
ITL	Information Technology Laboratory
ITN	Identification, Tasking, and Networking
ITF	International Terrorist File
ITFR	International Terrorist File Request Response
JPEG	Joint Photographic Experts Group
LCD	Latent Capture Date
LFFS	Latent Friction Ridge Features Search
LFIS	Latent Friction Ridge Image Search
LFS	Latent Fingerprint Image(s) Submission
LPNQ	Latent Penetration Query
LPNR	Latent Penetration Query Response
LPU	Latent Print Unit
LRSQ	Latent Repository Statistics Query
LRSR	Latent Repository Statistics Response
LS	Left Slant Loop
LSR	Latent Submission Results
MAK	Make
MAP	Miscellaneous Applicant Civil
MC	Marine Corps Serial Number
MD	Mariner's Document or Identification Number
MDD	Message Data Dictionary
MDX	Minutiae Identification Index
MED	Medial
MET	Method
MFC	Message Field Code
MIL	Military Code
MIN	Minutiae
MMS	Make/Model/Serial Number
MNC	Maximum Number of Candidates
MNT	Minutiae Type Designation

APPENDIX AC - ACRONYMS

Acronym	Description
MNU	Miscellaneous Identification Number
MODL	Model
MP	RCMP Identification of Fingerprint Section Number
MPR	Missing Person
MPS	Major Case Print Segment
MRC	Minutiae and Ridge Count Data
MSG	Message [or] Status/Error Message (appears both ways)
MTD	Minutiae Type Designation
MTF	Modular Transfer Function or Modulation Transfer Function (appears both ways)
NA	National Agency Case Number
NAM	Name
NCIC	National Crime Information Center
NCR	Number of Candidates / Images Returned
NDR	Name of Designated Repository
N-FACS	National Fingerprint-Based Applicant Check Study
NFAP	Non-Federal Advanced Payment
NFF	National Fingerprint File
NFIQ	NIST Fingerprint Image Quality
NFUE	Non-Federal User-fee Expedite
NFUF	Non‑Federal Applicant User Fee
NIR	Number of Images Requested
NIST	National Institute of Standards and Technology
NMN	Number of Minutiae
NNDR	Non-Federal No-Charge Direct Route
NOT	Note Field
NRC	Number of Required Candidates
NS	Navy Serial Number
NSR	Native Scanning Resolution
NTR	Nominal Transmitting Resolution
OA	Originating Agency Police or Identification Number
OCA	Originating Agency Case Number
OCP	Occupation
OEM	Original Equipment Manufacturer
OFO	Other Federal Organizations
OFR	Originating Fingerprint Reading System
ORI	Originating Agency Identifier

APPENDIX AC - ACRONYMS

Acronym	Description
ORN	Orientation Uncertainty
PAS	Photo Acquisition Source
PAT	Pattern Level Classifications
PATCL	Pattern Classification Code
PAX	Photo Acquisition Source
PCD	Palmprint Capture Date
PDR	Photo Delete Response
PEN	Penetration Query Response
PHD	Photo Date
PHT	"Photo Available" Indicator
PI	Personal Identification Number (State Issued Only)
PI	Plain Whorl – Inner
PM	Plain Whorl – Meeting
PNG	Portable Network Graphics
PO	Plain Whorl – Outer
POA	Pose Offset Angle
POB	Place of Birth
POS	Subject Pose
PP	Passport Number (U.S. only)
PPA	Palmprints Available
PPE	Palmprint Enrollment Request
ppi	pixels per inch
PPR	Palmprint Enrollment Response
PRI	Priority
PRR	Subject Photo Request Response
PRX	Proximal
PRY	Transaction Priority
PS	Port Security Card Number
PTY	Photo Type
PUM	Position Uncertainty
PXS	Photo Description
QMS	Quality Measure
RAC	Race
RAE	Rotation Angle of Eye
RAP	Request for Electronic Rap Sheet
RAU	Rotation Uncertainty

APPENDIX AC - ACRONYMS

Acronym	Description
RCD1	Ridge Core Delta One for Subpattern Classification
RCD2	Ridge Core Delta Two for Subpattern Classification
RCN1	Ridge Count Number One
RCN2	Ridge Count Number Two
RDG	Minutiae Ridge Count Indicator
REC	Response Code
RES	Residence of Person Fingerprinted
RET	Retention Code
RFC	Request For Change
RFP	Reason Fingerprinted
RFR	Request Features Record
RISC	Repository for Individuals of Special Concern
RMS	Root Mean Squared
ROV	Region of Value
RPIS	Rapid Fingerprint Identification Search
RPISR	Rapid Fingerprint Identification Search Response
RPR	Request Photo Record
RS	Record Separator – indicates a repetition of field or group of subfields are to follow
RSC	Reason Supervision Cancelled
RSO	Octant Residuals
RSR	Repository Statistics Response
RSV	Reserved
RTID	(Canada) Real Time Identification
SAN	State Arrest Number
SAP	Subject Acquisition Profile
SCNA	AFIS Segment Control Number
SCO	Send Copy To
SDOB	Submitted Date of Birth
SEC	Subject Eye Color
SED	Custody or Supervisory Status End Date
SEG	Fingerprint Segment Position(s)
SERNO	Serial Number
SEX	Sex
SFP	Subject Feature Points
SHC	Subject Hair Color
SHPS	Scan Horizontal Pixel Scale

APPENDIX AC - ACRONYMS

Acronym	Description
SIB	State Identification Bureau
SID	State Identification Number
SII	Supplementary Identity Information
SLC	Scale Units
SLE	Custody or Supervisory Status Literal
SMD	SMT Descriptors
SMT	Scar, Mark and Tattoo
SMS	SMT Size
SNAM	Submitted Name
SOC	Social Security Account Number
SOR	Want or Sex Offender Registry
SPA	Subject Pose Angle
SPC	Special Population Cognizant Files
SPCN	Special Population Cognizant Number
SQM	Segmentation Quality Metric
SQS	Subject Quality Score
SRA	Supervised Release Action
SRC	Source Agency
SRE	Submission Results – Electronic
SRF	Search Results Findings
SRL	Search Results — Latent
SRT	Search Results — Tenprint
SS	Selective Service Number
SSD	Custody or Supervisory Status Start Date
SST	Supervised Status Type
STD	Special Table Data
STT	Supervision Transferred To
SVPS	Scan Vertical Pixel Scale
SW	Software
SXS	Subject Facial Description
TAA	Treat As Adult
TBD	To Be Determined
TBR	To be Resolved
TCD	Tenprint Capture Date
TCN	Transaction Control Number
TCR	Transaction Control Reference

APPENDIX AC - ACRONYMS

Acronym	Description
TIP	Rolled Tip
TOT	Type of Transaction
TPIS	Tenprint Fingerprint Image Searches
TPRS	Tenprint Rap Sheet
TPRR	Tenprint Rap Sheet Response
TSR	Type of Search Requested
TT	Tented Arch
UC	Unclassifiable [or] Unable to Classify
UCN	Universal Control Number
UDF	User-Defined Field
UDI	User-Defined Image
UHN	Unsolicited Hit Notification
UK	United Kingdom
ULD	Unsolved Latent Record Delete Request
ULDR	Unsolved Latent Delete Response
ULF	Unsolved Latent File
ULM	Unsolved Latent Match Notification
ULR	Unsolved Latent Retained
UP	Unable to Print
US	Unit Separator – indicates another subfield is to follow
US-VISIT	U.S. Visitor and Immigrant Status Indicator Technology
UTD	User-Defined Testing Date
UULD	Unsolicited Unsolved Latent Delete
V	Version
VA	Veterans Administration Claim Number
VAR	Value-Added Reseller
VER	Version
VID	Version Identifier
VLL	Vertical Line Length
VPS	Vertical Pixel Scale
WGT	Weight
WSQ	Wavelet Scalar Quantization
WTR	Weight Range
WU	Whorl, Type Not Designated
XI	Central Pocket – Accidental Whorl – Inner
XM	Central Pocket – Accidental Whorl – Meeting

APPENDIX AC - ACRONYMS

Acronym	Description
XML	eXtensible Markup Language
XO	Central Pocket – Accidental Whorl – Outer
XXX	Unknown