Style Definition: TOC 3

Department of Justice
Federal Bureau of Investigation

CRIMINAL JUSTICE INFORMATION SERVICES (CJIS)

ELECTRONIC BIOMETRIC TRANSMISSION SPECIFICATION (EBTS)

May 13~~rch 25~~, 2011

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IAFIS-DOC-01078-9.2 ~~Draft~~

CHANGE HISTORY SECTION

Version/ Revision	Revision Date	Description Of Change	QA Approved	Date
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 CJIS/IAFIS. • Expanding definitions for new services to be offered by NGI. 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 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		

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		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: ○ FVR 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: ○ ERRR • Removed the following TOTs due to duplication: ○ ERRI Appendix F: • Corrected wording for the addition of the new section for Mobile ID. • Added language concerning grandfathering of SAP level 10 and 20 acquisition devices procured for RISC pilot • New devices procured after January 1, 2012 will be subjected to minimum SAP level 30 requirement Appendix J: • Added XML encoding namespaces for Type-9 fields. Appendix L: • Correct number of records expected for different transactions. • Reorganized Tables L-3 & L-4 to		

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		allow for more modalities along with breaking them into more tables for easy 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 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: ○ SII, 2.2023 – Supplementary Identity Information initially used for RPISR TOT ○ HTI, 2.2024 – Hit Type Indicator initially used for UHN TOT • Updated element descriptions to reflect NGI Increment 2 design: ○ ACN, 2.071 - Action to be		

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		Taken ○ CRI, 2.073 - Controlling Agency Identifier ○ ERS, 2.075 - Electronic Rap Sheet ○ NOT, 2.088 - Note Field ○ RAP, 2.070 - Request for Electronic Rap Sheet ○ SRF, 2.059 - Search Results Findings • Included definition for missing element: ○ SLE, 2.055 – Custody or Supervisory Literal ○ ITD. 2.058 – Image Record Type Desired • Updated definitions: ○ TSR, 2.043 – Type of Search Requested • Added DoD's definition of GeoLocator as Future Capability for Mobile ID 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.		

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		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		
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		

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		(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: 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: • 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:		

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		• Removed Error Codes no longer being used:
		  ○ L0069, S0006, W0009, & W0010
		
		Appendix AC:
		• Added new acronyms:
		  ○ CIDN, EHRR, EQER, EQHR, & EQRR
		• Updated acronym name:
		  ○ 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: 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: NCIC 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~~s~~ and palmprint~~s~~ images.
- Appendix AC: Acronyms.

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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.

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Historically fingerprint cards were physically transported and processed; therefore, substantial delays ~~were recognized~~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 ~~IAFIS is enhanced and~~ 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.

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In support of the development of the CJIS/NGI and in accordance with the recommendations of the 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 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. ~~This specification~~ standard ~~is the American National Standards Institute (ANSI) standard titled the "Data Format for the Interchange of Fingerprint, Facial, and Other Biometric Information" (ANSI/NIST-ITL 1-2007).~~

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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 ~~1-2000~~ standard (ANSI/NIST-ITL 1-2007) includes new record types to facilitate data sharing for ~~new~~ additional biometric modalities~~. This latest version of the ANSI/NIST-ITL standard~~, and has added information regarding additional biometric modes ~~of identification~~, such as palm, facial, and iris recognition.

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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's EBTS defines requirements to which agencies must adhere when electronically communicating with the CJIS Division. The FBI'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 -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 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 CJIS IAFIS system. This will allow the FBI to move toward a capability that will facilitate multimodal biometric searching of its databases. Though fingerprints will continue to be the FBI's primary mode of identification for the near future, the FBI 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, CJIS will be introducing the use of Web Services and an XML schema. The XML schema will be briefly introduced in this standard and further expanded in the appendices.

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The scope of this EBTS has been expanded over previous versions to include additional biometric modalities (e.g., palmprint, facial, and iris) in recognition of the rapidly developing biometric identification industry. The FBI EBTS will integrate biometric data in accordance with the ANSI/NIST-ITL ~~1-2007 Standard Part 1~~. Additionally, a logical record Type-99 was created to contain and exchange biometric data that is not supported by other ANSI/NIST-ITL logical record types (e.g., voice records), thus providing a basic level of interoperability and harmonization with the ANSI International Committee for Information Technology Standards (INCITS) biometric image interchange formats. This is accomplished by using a basic record structure that is conformant with INCITS 398-2005, the Common Biometric Exchange Formats Framework (CBEFF) and a biometric data block specification registered with the International Biometrics Industry Association (IBIA).

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~~The Type-99 logical record type was created for "exotic" biometric data types and should not be used for existing ANSI/NIST-ITL data types. NGI will provide investigation services for many of these evolving biometric modalities at some time in the future.~~

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1.2 Contents of Specification

While the ANSI/NIST-ITL standard referenced in Section 1.1 will allow different AFIS systems to communicate, the purpose of this document is to specify certain requirements to which agencies must adhere to communicate electronically with the CJIS IAFIS. Currently IAFIS has six segments:

(1) Identification, Tasking, and Networking (ITN/FBI) – provides workflow management of tenprint, document, and latent print processing, as well as the storage and retrieval of fingerprint images,

(2) Automated Fingerprint Identification System (AFIS/FBI) – stores the fingerprint feature vector used during the searches of the FBI fingerprint repository for matches to tenprint and latent fingerprint submissions,

(3) Interstate Identification Index (III/FBI) – provides subject search, computerized identity history, ~~and~~ along with photo storage and retrieval,

(4) Electronic Fingerprint Conversion (EFCON) – the ~~'front-end'~~ interface for the CJIS IAFIS which ~~and~~ checks submissions to ensure compliance with the CJIS specifications outlined in this document,

(5) IAFIS Data Warehouse (IDWH) – supports CJIS Division management and staff by collecting, maintaining, and storing archive data supplied by EFCON, ITN, III, and AFIS along with providing User Fee Billing activity, and

(6) Interim Data Sharing Model (iDSM) – the first significant multi-directional milestone for the interoperability effort, establishing the platform and process necessary to increase the biometric and limited biographic data shared between DOJ and DHS.

As we transition from IAFIS to NGI, these segments will be replaced with six core user services. These user services are explained in detail in section 2.

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~~This specification covers the CJIS electronic transmissions involving fingerprints, palmprints, photographs, iris, and other future types of biometric data. The basic requirements for 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 (Supplemental Fingerprint and Palmprint Images), Type-14 (Flat 'Civil' Fingerprint Images), Type-15 (Palmprint Images), Type-17 (Iris Images), and Type-99 set forth in the ANSI/NIST-ITL standard are also applicable to transmissions to the FBI. However, the FBI specific requirements for the contents and format of logical records Type-2, Type-7, Type-9, Type-10, Type-13, Type-14, Type-15, and Type-17, as well as for any special requirements for the other record types, are contained in this specification.~~

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1.2.1 File Format

A file shall contain one or more logical records pertaining to a single subject. The data in the Type-1 record shall always be recorded in variable-length fields using the 7-bit American National Standard Code for Information Interchange (ASCII) as described in ANSI X3.4 1986 and Annex A. For purposes of compatibility, the eighth (leftmost) bit shall contain a value of zero.

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The text or character data in the Type-2, Type-9, and tagged-field records will normally be recorded using the 7-bit ASCII code in variable-length fields with specified upper limits on the size of the fields. For data interchange between non-English-speaking agencies, character sets other than 7-bit ASCII may be used in textual fields contained in the Type-2, Type-9, and tagged-field records. UTF-8 is the preferred method of storing textual data that cannot be represented as 7-bit ASCII. This method supports international character sets for all user-defined fields in all record types. By definition, UTF-8 and other international character exchange methods are not applicable to record Type-1 and Type-7. For XML transactions, UTF-8 is generally the preferred format.

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The first field in the native~~all~~ 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 shall be labeled as field "2". ~~I~~ In the Type-1 record and~~this field~~ 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.

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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 ~~is~~ laid out in the appendices of this standard.

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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. 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 binary information.

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 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 ~~1-2007~~ standard and a few "business rules." The rules simply state that field definitions cannot change over time or from system to system. Each system, CJIS, state and OFO, are assigned a range of field tag numbers that they 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.~~If a change is needed, a new field is defined and assigned a new tag number.~~ 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".[1]

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.

~~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.~~

[1] ANSI/NIST-ITL 2007

1.4.2 Use of Separator Characters

Separator characters are used in the native encoding and 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[2] (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, 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 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 CJIS databases.

1.5 Error Handling

Error processing takes on two primary forms within CJIS: ~~. These are~~ 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 ~~edit checked~~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

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

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 not be saved, nor returned to the contributor on responses sent from CJIS. For XML encoding, ~~these~~the fields that are included in the State Defined Fields element (SDF) will be ignored by 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. ~~Rejection will occur, however, when missing or incorrect data would frustrate 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., 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 also places its own internal identifier for that transaction (the ICN, or IAFIS 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.

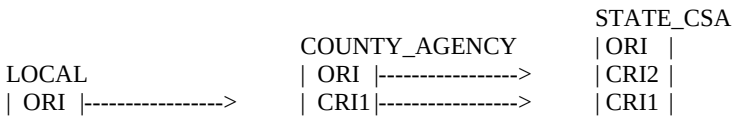
1.7 Data Storage in the CJIS Database

Data submitted in CJIS transactions may or may not be stored in the 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's response to the submission and is returned verbatim to the user. Data stored at 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 CJIS. We develop this scenario by examining how an electronic submission might be formed by a contributor and passed to 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 CJIS Systems Agency (CSA) for transmission to the FBI. In such a case, the transmission of ORIs and CRIs might appear as follows:



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, the local ORI is retained as CRI1, the county ORI is entered as CRI2, and the ORI of the state CSA is entered in the ORI field. The transaction is then forwarded to the FBI via the CJIS WAN. CRI1, the local ORI, is then used as the authority for action and thus retains 'ownership' of the transaction. Then, only CRI1 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 CRI2. The county agency, in turn, would route the response to the local agency as appropriate.

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1.9 Specific Changes to This Version

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As IAFIS evolves into NGI, legacy transactions will be enhanced along with the additions of Web Services for the new services being offered. Some of the latest improvements include:

- Allowing palmprints along with supplemental fingerprints and palmprints to be associated with identities in the CJIS database. Supplemental fingerprints and palmprints are being defined as those different parts of the entire joint images and tips. These definitions are being added to the Type-14 description.
- A more complete description of the Type-15 will be added for clarity.
- Allowing for searching of the palmprints along with supplemental fingerprints and palmprints via the Type-13 using the enhanced TOT of LFIS/LFFS (use of the position code, descriptions and coordinates).
- Include XML schema portion of the EBTS as an annex to this document along with adding the XML tag names where applicable.
- All new services added will utilize the Type-13, Type-14, and Type-15 record types in place of the traditional Type-4 and Type-7, but CJIS will continue to accept these record types to support legacy functionality.

1.10 Reference Documents

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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

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 modes of investigation (e.g., facial, iris recognition) in recognition of the rapidly developing biometric identification industry. Significant efforts have been made to note those EBTS specifications which do not clearly delineate between the functionality within CJIS that is currently available to the CJIS user 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 ~~1-2007~~ standard includes new record types to provide for the sharing of data for these new biometric modalities. The FBI will accept biometric data for these new types of records in accordance with the ANSI/NIST-ITL standard. CJIS will provide identification services for these biometric identification modalities in the future as NGI gradually replaces IAFIS. CJIS/IAFIS provides identification services for fingerprints along with investigation services for fingerprints while CJIS/NGI will include investigation services using other biometrics along with others listed below.

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 (SCN)). The NGI System will refer to this new identity as a Universal Control Number (UCN). The 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. It provides a description of all requests and responses associated with the electronic fingerprint identification service and other services. As 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 CJIS repository. Electronic submissions may involve processing and evaluation judgments by FBI personnel. Searches are performed by automated equipment without human intervention by FBI personnel. The results of the search may require FBI 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 submission handled by FBI latent examiners along with cascaded searches of the Unsolved Latent Fingerprint (ULF) and the Special Population Cognizant (SPC) File for a positive identification. The remaining Latent Investigative submissions 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. Also included in this section are the TOTs that are used exclusively by the Card Scanning Service.

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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 (i.e., photo, palm, iris, supplemental fingerprint and palmprint) 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. 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 Rap Back Status and Audit Trail information.

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.

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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, 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).

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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

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*
  - ~~Palmprint Search Request*~~
  - ~~Supplemental Fingerprint and Palmprint 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*
Biometric Delete*
Biometric Decision*
Identity File Maintenance Submissions*
Disposition Submission Maintenance Submissions*
Rap Back Services*
External Link Updates*

~~**Other Biometric Services ***~~

~~CBEFF Type-99 records*~~

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* 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. 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 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. 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 for processing under Federal and/or state statutory authority.

If no identification is made, the data will be forwarded via the CJIS WAN to the FBI for processing by CJIS. Transmitted data will be automatically edited, and a search will be conducted of the FBI's fingerprint files utilizing the subject search function along with the features search capabilities. The identification of fingerprint images of any viable file candidates may be verified by an FBI fingerprint examiner. Electronic responses[3] from CJIS to the contributor will be electronically routed via the 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). Responses to submissions or searches by OFOs, tribal, or international agencies will be transmitted directly to the submitting agencies.

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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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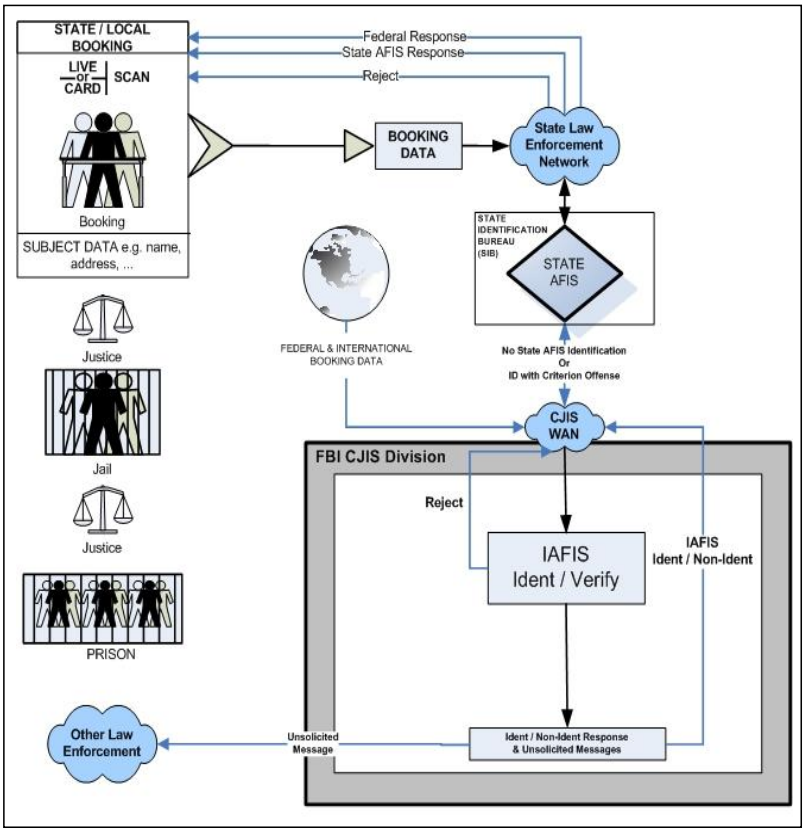
[3] Established procedures for sending unsolicited messages to State Identification Bureaus in response to fingerprint cards from Interstate Identification Index (III) participating states will not be affected.

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 turnaround times 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

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along with a set of up to 4 photos of the subject. In the future, contributors will be able to optionally include any supplemental fingerprint and palmprint information on these submissions. The biographical data and fingerprint images are used to determine potential candidates with criminal records at the FBI. The information with a retained submission will be added to an existing record, if idented, or will create a new record, if non-idented. If a non-retain submission is ~~non~~Non-ident, no information will be retained in the FBI databases. 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.

In the future, cascaded searches of marked Special Population Cognizant (SPC) Files may be issued along with submissions of a simultaneous search 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. 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:

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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 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 UserFee Expedite
NFUF	Non-Federal Applicant User Fee
MAP	Miscellaneous Applicant Civil
DEK	Known Deceased
DEU	Unknown Deceased
MPR	Missing Person
AMN	Amnesia Victim

The FBI'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. 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 those candidates are then compared with those in the submission and an identification or non-identification decision is determined. When the Retention Code is set to "Y", the identified criminal record is updated and other biometrics included in the submission are added to the file. A response is returned to the contributor. The response will always contain the Ident/Non-Ident decision and may contain the electronic identity history, if requested.

In the future, contributors will be able to request a simultaneous search of other repositories from external systems with these submissions. Contributors will enter the appropriate values for the desired destination in the Name of Designated Repository (2.098 NDR) field in the Type-2 record.

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."

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3.1.1.3 Criminal Fingerprint Direct Route (CPDR)

This transaction is a criminal arrest fingerprint submission that will be directly routed to a CJIS internal log application for special processing. The submission contains ten rolled and four plain

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impressions and arrest data. It is identical to the CAR request described above with the inclusion of a mandatory TSR field. CJIS will ensure the required EBTS fields and a Type of Search Requested (TSR) of "C" are present; otherwise, the submission will be rejected. If the TSR of "C" is present and the TOT is 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.

In the future, contributors will have the ability to request a simultaneous search of other external systems on these criminal submissions. Contributors will enter the appropriate values for the desired destination in the Name of Designated Repository (2.098 NDR) field in the Type-2 record.

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

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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 the urgent criminal or civil submissions. Internal FBI 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.

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In the future, contributors will have the ability to request a simultaneous search of other ~~-~~external systems on these criminal submissions. Contributors will enter the appropriate values for the desired destination in the Name of Designated Repository (2.098 NDR) field in the Type-2 record.

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3.1.1.5 Departmental Order Channeling Electronic (DOCE)

~~———~~This transaction deals with "~~-~~Individuals ~~seeking~~ Seeking ~~their~~ Their ~~own~~ Own ~~identity~~ Identity ~~history~~ History ~~record~~ Record ~~pursuant~~ Pursuant to DO 556-73."~~-~~ The Channeling Agencies will be responsible for the verification/ authentication of the individual requesting the identity history information from CJIS. The FBI will only accept the submissions and process them as current electronic, non-retained civil transactions from 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. An electronic response should be sent to the Channeling Agency indicating Ident, Non-ident, or rejection. A rapsheet will be returned if the response is Ident.

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. The data included on the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y." 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 has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable. When the FBI completes processing, it will print a Non-Ident, Ident, or Reject response report and mail it to the requestor.

Note: EMUF is a limited-use TOT that requires coordination with FBI 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 with the biographic descriptor data. Or it can contain three identification flat impressions and biographic descriptor data. The biometric data included on the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y." 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).

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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. The biometric data included on the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y." 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 has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable.

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3.1.1.9 Federal No Charge Direct Route (FNDR)

This transaction is an applicant fingerprint card submission from a federal agency that will be directly routed to a 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 biometric data included on the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y." The FNDR is similar to the FANC transaction with the addition of a mandatory TSR field. 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 other than CPDR, NNDR, or FNDR, the submission will be rejected.

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

3.1.1.10 Non-Federal No Charge Direct Route (NNDR)

This transaction is an applicant fingerprint card submission from a non-federal agency that will be directly routed to a 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 biometric data included on the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y." The NNDR is similar to the FANC transaction with the addition of a mandatory TSR field. 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 other than NNDR, FNDR, or CPDR, the submission will be rejected.

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

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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. The biometric data included in the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y." 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 has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable.

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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. The biometric data included on the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y." 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 has rejected. Such resubmissions are allowed only when the fingerprint image quality of the original submission was unacceptable.

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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. The biometric data included on the submission will be added to the CJIS repository if the retention field (2.005 RET) is set to "Y."

3.1.1.15 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. If the fingerprints are determined to be identical to those of a subject in the FBI's criminal files, the subject's FBI record will be marked as deceased. The ICO field in this submission may be filled with the text "DECEASED."

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3.1.1.16 Unknown Deceased (DEU)

This transaction is submitted with fingerprints taken from an individual who was deceased at that time but whose identity was not known to the contributor. The submission contains either ten rolled and four plain impressions or three identification flat impressions. If the fingerprints are determined to be identical to those of a subject in the FBI's criminal files, the subject's FBI 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 criminal file when no identification results, in order to be identified with missing person's reports.

3.1.1.17 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. Their submission causes a search of the FBI files and may result in the placement of a "stop" in FBI automated files to create the possibility of a future fingerprint submission (of any type) hitting against the original set of fingerprints and establishing 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 criminal file 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".

3.1.1.18 Amnesia Victim (AMN)

These noncriminal submissions pertain to persons known to have amnesia who are unaware of their own identity. The submission contains ten rolled and four plain impressions or three identification flat impressions. The submission causes a search of the FBI files and may result in the placement of a "stop" in FBI automated files to create the possibility of a future fingerprint submission (of any type) hitting against the original set of fingerprints and establishing 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 criminal file 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".

~~3.1.1.19 Supplemental Fingerprint and Palmprint Collection in Conjunction with Tenprint Submissions (Future Capability)~~

~~In the future, Tenprint Identification submissions may also include FBI approved palmprint and supplemental finger/palmprint cards (previously referred to as Major Case Print Collections). Best practices for this collection of prints are defined as one FBI Standard Fingerprint Card, two FBI Standard Palmprint Cards, and two FBI Standard Supplemental Finger/Palmprint Cards, for a total of five cards per subject. ANSI/NIST-ITL 1-2007 provides the finger position codes and maximum image sizes. The FGP field of the Type-14 image record shall contain "19" from Table 12 of the ANSI/NIST-ITL 1-2007 finger position code & maximum image dimensions, indicating Major Case Prints. The FBI Standard Tenprint Card, FD-249, is represented below in Figure 2 (reverse not shown).~~

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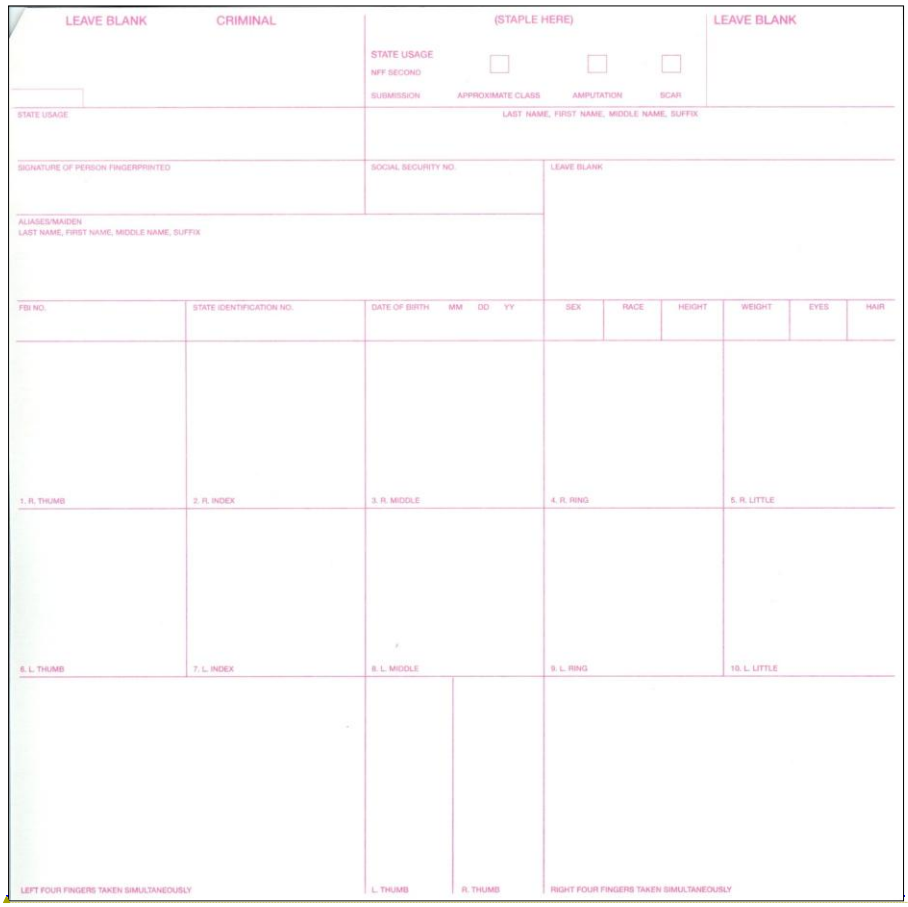
~~Figure 2 FBI Standard Fingerprint Card (FD-249)~~



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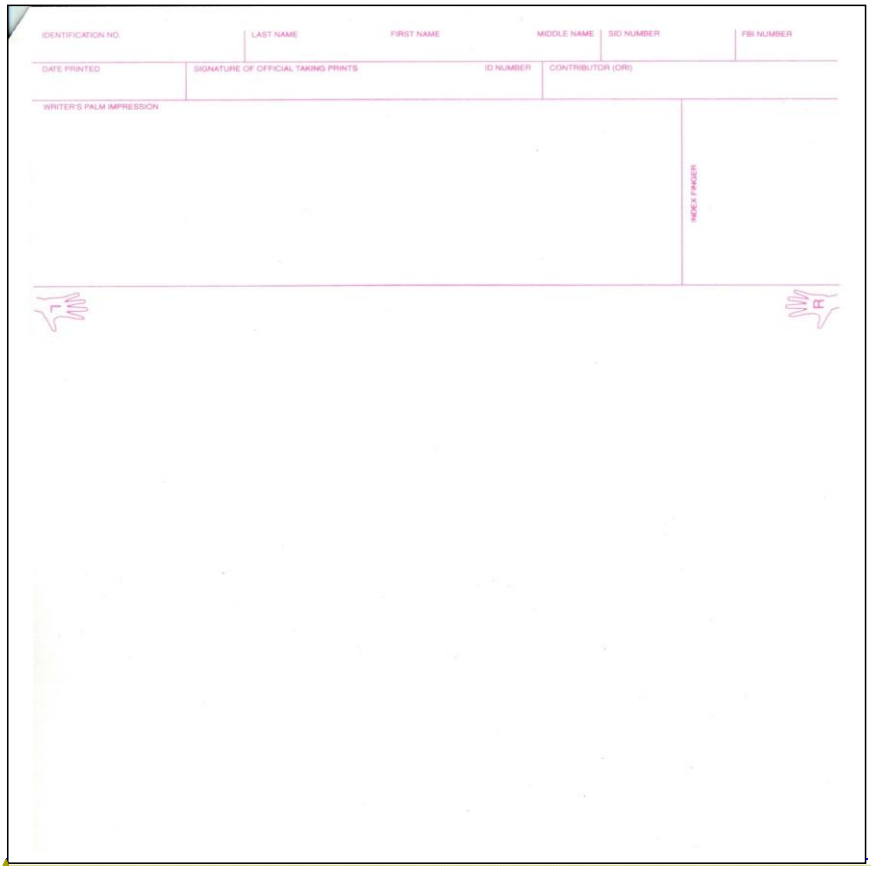
~~Figure 3 and Figure 4 contain the front and reverse sides of the FBI Standard Palmprint Card, FD-884.~~

~~Figure 3 FBI Standard Palmprint Card (FD-884) Front~~



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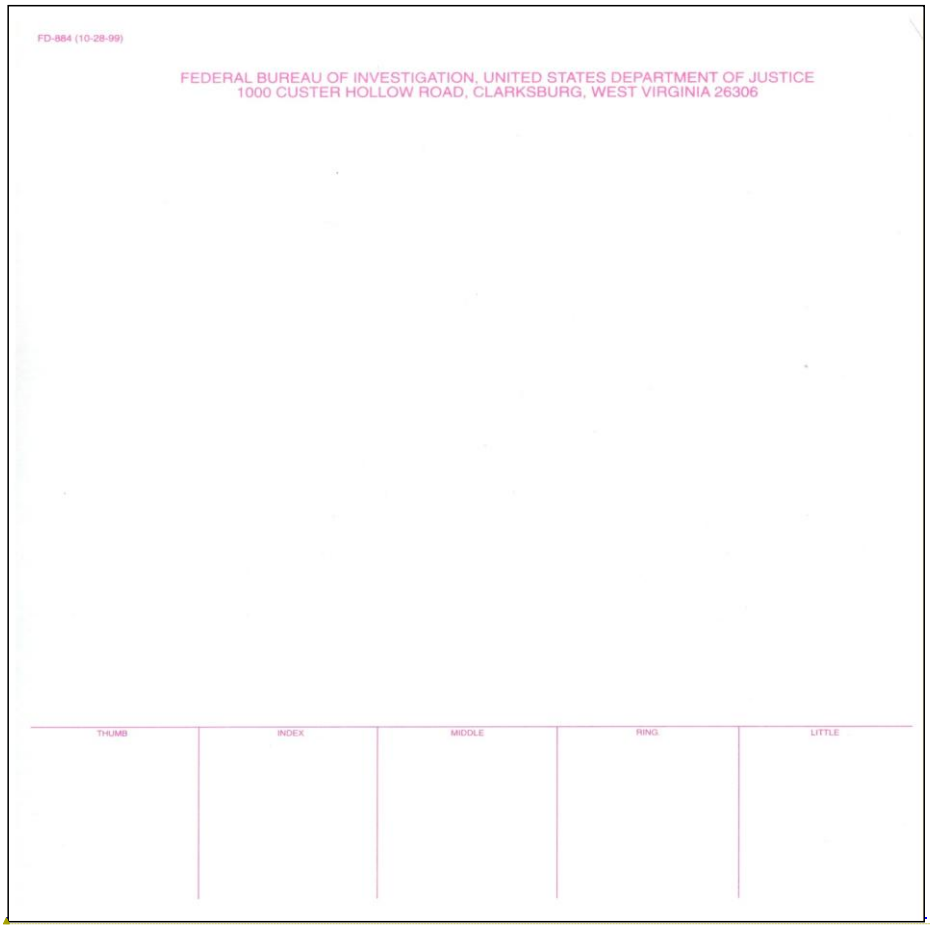
~~Figure 4 FBI Standard Palmprint Card (FD-884) Reverse~~



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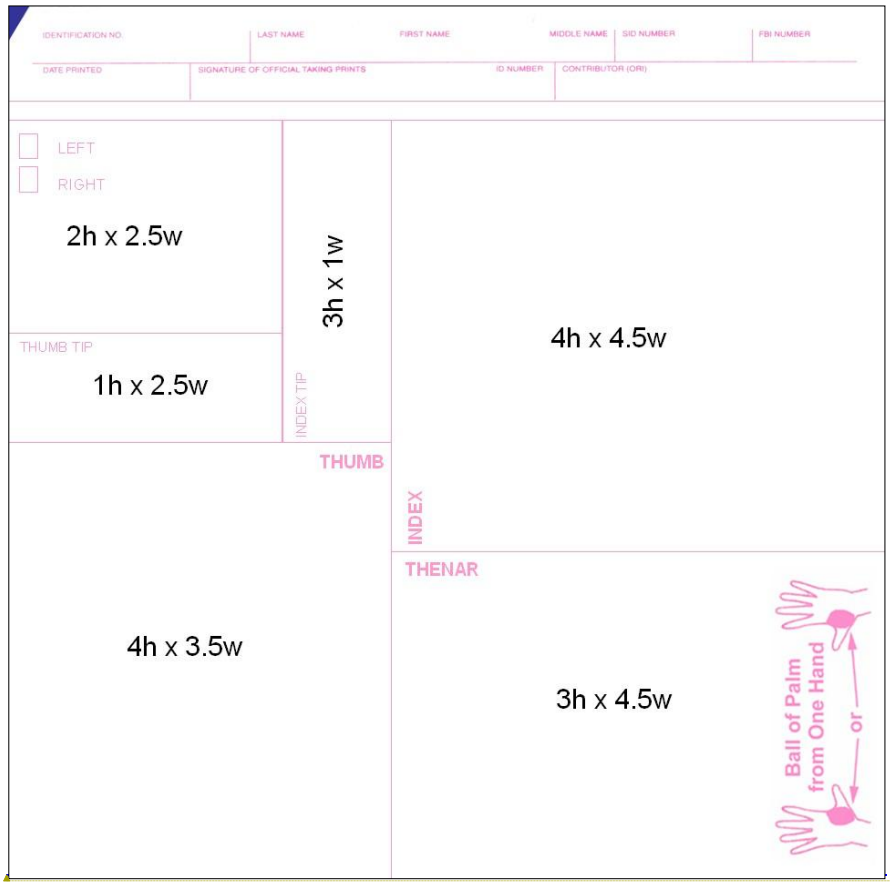
~~Figure 5 and Figure 6 illustrate the newly defined FBI Standard Supplemental Finger/Palmprint Cards, FD-884a. It will contain additional areas of friction ridge capture, including joint prints (distal, medial, and proximal), rolled finger tips, and rolled thenar area for each hand as shown in the images below.~~

~~Figure 5 New FBI Standard Supplemental Finger/Palmprint Card (FD-884a) - Front~~



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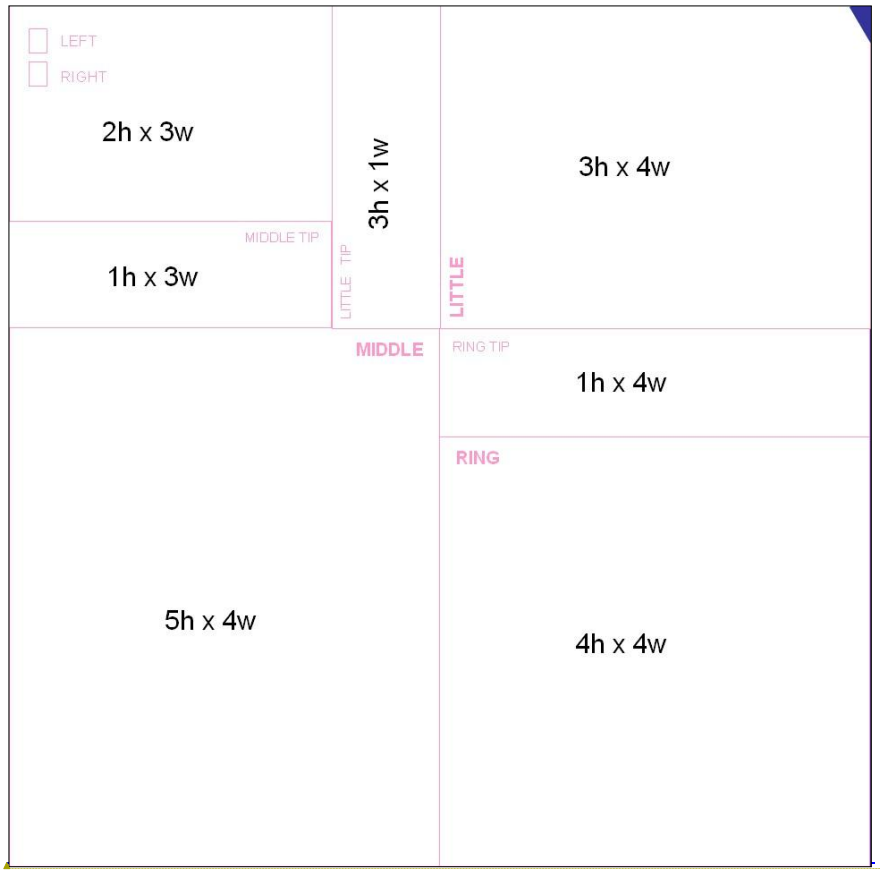
~~Figure 6 New FBI Standard Supplemental Finger/Palmprint Card (FD-884a) - Reverse~~



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~~The table below lists the print codes to be used in the Type-13 and -14 records.~~

~~Table 3-1 Print Codes~~

~~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.~~

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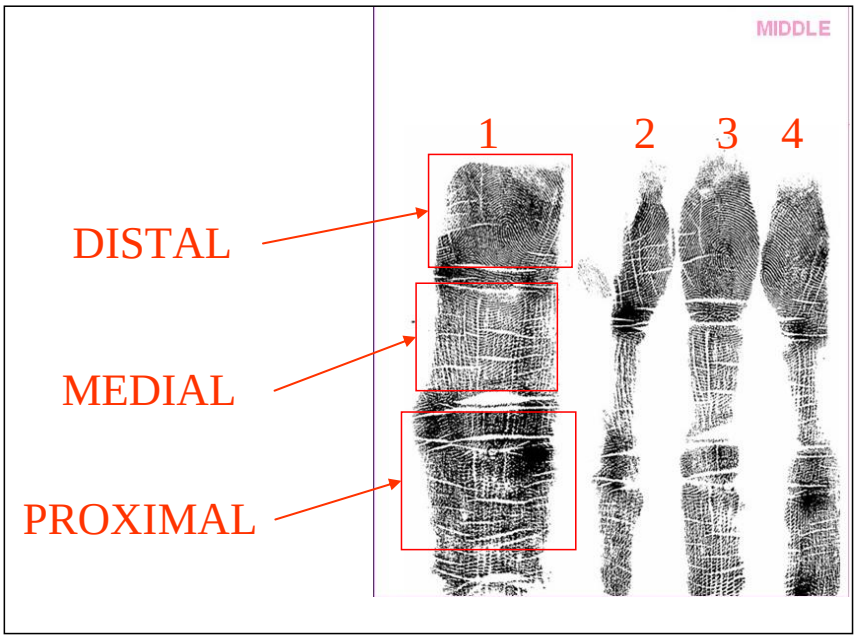
~~Figure 7 Distal, Medial and Proximal Joints~~



~~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.~~

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~~3.1.1.20~~3.1.1.19 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 prenotification; monitoring criminal activity, disposition activity, civil activity (if authorized), external system activity; designating to not receive within state triggered events; and listing additional ORIs to receive Rap Back Notifications.

~~3.1.1.21~~3.1.1.20 External Fingerprint Identification Search (Future Capability)

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

~~3.1.1.22~~3.1.1.21 Submission Results — Electronic (SRE)

This transaction is returned by the FBI in response to tenprint submissions. The response will always contain the Ident/Non-Ident decision and will contain the electronic identity history if requested. Table 3-2 describes which NAM, FBI number, and SID are returned in the SRE for Criminal, Civil and Humanitarian submissions, ~~and~~ for both Non-Ident and Ident 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 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 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 completes processing, it will print a Non-Ident or Ident response report and mail it to the requestor.

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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 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-

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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	
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 SRE will contain Special Table Data (STD). For example, this would be included in a Non-Ident Report (NIDR) if a Universal Control Number (UCN) was submitted. It would be included in an Ident Report (IDRR) if a submitted UCN did not match

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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~~3.1.1.22 Tenprint Transaction Error (ERRT)

These submissions are returned by the FBI 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 error messages are detailed in Appendix M.

3.1.2 Latent Fingerprint Identification Submissions~~Latent Fingerprint Identification Submissions~~

The Electronic Latent Fingerprint Identification submission to the FBI will originate from the FBI Field Office having legal jurisdiction of the case. This submission, as differentiated from latent investigation~~ve~~ searches, are strictly for the purpose of submitting crime scene information to the FBI 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). In the future, these submissions will include cascading searches of the Unsolved Latent File and 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.

There are several types of electronic latent fingerprint identification submissions that will be accepted by the FBI. 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 latent submissions:

TOT	TRANSACTION
LFS	Latent Fingerprint Image Submission

The FBI'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

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3.1.2.1 Latent Fingerprint Image(s) Submission (LFS)

A Latent Fingerprint Image Submission is intended primarily for the purpose of executing an AFIS search and is to be used by FBI Field Offices not able to extract CJIS-compatible minutiae. The latent fingerprint images are transmitted along with the search criteria by the originator. FBI CJIS Latent fingerprint specialists will perform comparisons of the search latent fingerprint image(s) against the candidate(s) selected and make the Ident/~~non~~Non-Ident decision(s). The Ident/~~non~~Non-Ident decision(s) will be transmitted as a response (i.e., LSR). The latent search image(s) may be stored in the Unsolved Latent File if requested in the submission by the originator independent of the results of the search. In the future, the NDR field will be used to specify recommended repositories for the latent Service Provider to search when processing the case.

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 identification or non-identification decision and, if the LFS results in an identification, it returns a name, FBI number or UCN, and full set of 14 tenprint images of the identified subject. In the future, Palmprint images and Supplemental Fingerprint and Palmprint images will also be ~~able to be~~searched and returned. The existing image type field, IMT, will be added to the TOT to specify the biometric set type that is included in the response. A new field will be added to the LSR to uniquely identify the biometric set (e.g. Fingerprint, Palmprint, or Supplemental Fingerprint and Palmprint) being returned. The Print Position Descriptors field used in the ANSI/NIST Type-14 record will be~~is~~ added to the Type-2 record to allow users to reference EJI or Tip image set~~s~~ for the specific matched image~~fingers~~.

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3.1.2.3 Latent Transaction Error (ERRL)

This transaction is returned by the FBI 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 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 Suspected Terrorists, Sexual Offender Registry Subjects, and other persons of special interest. In the future, this rapid

search functionality will also include searching the criminal repository by authorized agencies. In the future, these transactions will initiate~~cluding~~ cascading searches of the ULF and marked Special Population Cognizant (SPC) Files after a Rapid Search response has been provided to the Authorized Contributor.

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

TOT	TRANSACTION
RPIS	Rapid Fingerprint Identification Search Submission

The FBI'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 to perform the rapid fingerprint search of the FBI's RISC. 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 submission contains two to ten rolled or a set of one to three identification flat impressions with a total of at least two fingers along with biographic descriptor data. The transaction allows the user to request a photo or full Identity History Summary as optional return elements. In the future, RPIS will support a limited range of repositories that are appropriate for RPIS searches. ~~the NDR field will be used to specify designated repositories to be searched.~~

Note: RPIS is a limited-use TOT that requires coordination with FBI 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; 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 possible 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~~ 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 ~~Supplementary Identity Information (~~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. ~~The Supplementary Identity Information (SII) field may include information not within the scope of the Identity History Summary.~~ 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.

3.1.4 International Terrorist Identification Submissions (Future Capability)

The 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 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 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 prior to use.

The response will follow multi-tiered dissemination rules for ITF. These rules consist of: 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 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 ~~Fingerprint Identification~~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 ~~Fingerprint Identification~~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

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will be done between 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 record along with adding the disposition data to the new record. When an identification is made, the disposition submission data which matches the existing FBI record arrest data will be added to the record and will be disseminable in responses from the FBI. 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 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 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.

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3.1.6 CJIS Card Scanning Service Submissions

With the initiation of the IAFIS services, all submitting agencies had the opportunity to submit electronic fingerprint identification requests. However, not all agencies had the capability or capacity to submit electronic requests. Therefore, the need to convert hard copy fingerprint card receipts into electronic submissions to IAFIS is being handled by the Card Scanning Service. This service converts current hard copy tenprints, palmprints, photographs, and foreign national fingerprint cards into electronic records that are submitted to CJIS. The hard copy card is to contain tenprint images necessary for the IAFIS identification process. Each hard copy tenprint card will contain 14 valid EBTS Type-4 images consisting of the ten rolled-image blocks and the four plain-image blocks. The following transactions are those used by the Card Scanning Service to submit electronic records to CJIS. They use the same organization and restrictions as those applied to other tenprint identification submissions. The field edit specifications for these submissions can be found in Appendix C.

The following are the TOTs for these submissions along with their corresponding tenprint TOT:

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TOT	Tenprint TOT	TRANSACTION
CARC	CAR	Criminal Tenprint Submission (Answer Required)
CNAC	CNA	Criminal Tenprint Submission (No Answer Necessary)
DEKC	DEK	Known Deceased

TOT	Tenprint TOT	TRANSACTION
FNCC	FANC	Federal Applicant (No Charge)
FUFC	FAUF	Federal Applicant User Fee
MAPC	MAP	Miscellaneous Applicant Civil
NFFC	NFUF	Non-Federal Applicant User Fee
NFDP	NFUF	Non-Federal Applicant User Fee – Direct Payment
CPNC	CPNU	Criminal Fingerprint Non-Urgent Submission (Future Capability)

The FBI'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

3.1.6.1 Criminal Tenprint CSS Submission (Answer Required) (CARC)

This transaction is similar to the CAR in that the requester desires that a response be returned. The response will be returned to the Card Scanning Center which will then respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the CAR in Appendix D.

3.1.6.2 Criminal Tenprint CSS Submission (No Answer Required) (CNAC)

This transaction is similar to the CNA in that the submitting agency desires no response from the FBI and leaves the "reply desired" block unmarked. Generally, used to inform the FBI that a known subject has committed a new offense and to update the FBI records. An acknowledgement response will be returned to the Card Scanning Center. The fields for this TOT are exactly the same as those listed for the CNA in Appendix D.

3.1.6.3 Known Deceased CSS Submission (DEKC)

This transaction is similar to the DEK in that a deceased subject whose identity is known to the submitting agency and to update FBI records. The response will be returned to the Card Scanning Center which will respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the DEK in Appendix D.

3.1.6.4 Federal Applicant CSS Submission (FNCC)

This transaction is similar to the FANC in that the submission is in connection with criminal justice and law enforcement employment with the Federal Government (e.g., FBI, US Park Police, Federal Judicial). The response will be returned to the Card Scanning Center which will respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the FANC in Appendix D.

3.1.6.5 Federal Applicant CSS Submission (FUFC)

This transaction is similar to the FAUF in that the submission is from any branch of the U.S. military, in connection with an enlistment or consideration for Officer Candidate School. This transaction may also be submitted from federal agencies in connection with (noncriminal justice) employment, security updates, or contract personnel. The response will be returned to the Card Scanning Center which will respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the FAUF in Appendix D.

3.1.6.6 Miscellaneous Applicant Civil CSS Submission (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. The response will be returned to the Card Scanning Center which will respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the MAP in Appendix D.

3.1.6.7 Non-Federal Applicant CSS Submission (User Fee) (NFFC)

This transaction is similar to the NFUF in that it is used for noncriminal justice and licensing purposes under federal (e.g., National Child Protection Act of 1993), state, or local statutes which fall under the authority of Public Law 92-544, and are approved by the U.S. Attorney General. They are also used by local and state agencies, federal and state banking institutions, and regulatory agencies (e.g., stock exchanges, bankers' associations, securities dealers, Nuclear Regulatory Commission, Securities and Exchange Commission, racing or gaming control boards). These were intended to ascertain whether individuals who have applied for employment have any past criminal histories. All billing is handled via the user fee billing system from IAFIS. The response will be returned to the Card Scanning Center which will respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the NFUF in Appendix D.

3.1.6.8 Non-Federal Applicant CSS Submission (User Fee – direct payment) (NFDP)

This transaction works the same way as the NFFC except that payment is included with the Hard Copy fingerprint card. The response will be returned to the Card Scanning Center which will respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the NFUF in Appendix D.

3.1.6.9 Criminal Fingerprint Processing Non-Urgent CSS Submission (CPNC) (Future Capability)

This transaction will work the same way as the CPNU. The response will be returned to the Card Scanning Center which will respond to the contributor accordingly. The fields for this TOT are exactly the same as those listed for the CPNU in Appendix D.

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~~s~~ result~~s~~ 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'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

3.2.1 Fingerprint Verification Submission (FVR)~~and Response (Future Capability)~~

These submissions will be used to verify the identity of a subject against a known UCN in the CJIS files. Submissions will include a quoted UCN and may include from two to ten fingerprint images, either flat or rolled. If the quoted UCN is not found, an error message (ERRT) will be returned~~, saying "Quoted UCN not found."~~ 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 I~~i~~dentity H~~h~~istory Summary, if requested, in the SRE transaction.

3.2.2 Fingerprint Verification Response – (SRE) ~~(Future Capability)~~

This transaction is returned by the FBI in response to a Fingerprint Verification request. The response will always contain the Match/No Match decision and will contain the electronic I~~i~~dentity H~~h~~istory Summary, if requested. 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.

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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 (Future Capability)

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These transactions are returned by the FBI 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.

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3.3 Information Service

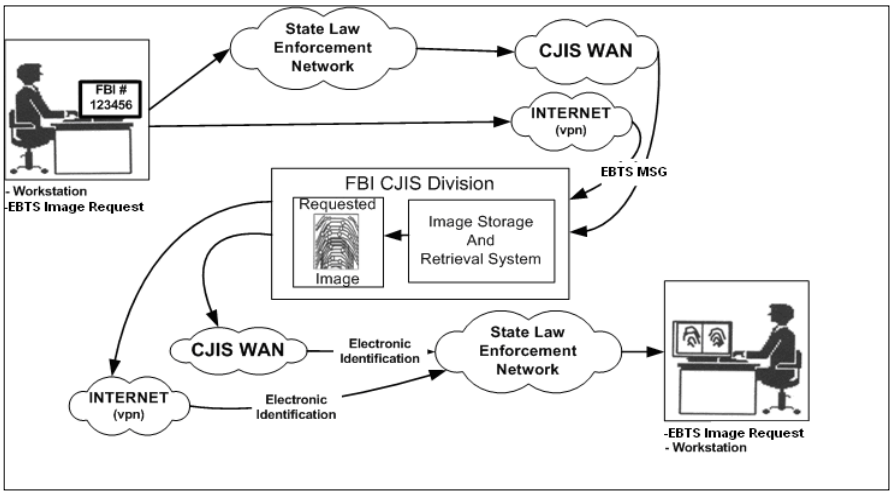
This service will provide user support of requests for specific biometric or biographic information on an individual. It allows a user to submit a request for information on an individual by specifying a unique identifier. Appendix E provides a summary of the Information Service transactions with the 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. To initiate a request for image(s) from the FBI's database, the sending agency electronically transmits the unique record identifier of the subject (i.e., FBI number or other identifier, such as UCN). Images that reside in the FBI's Unsolved Latent File may also be requested by providing the AFIS Segment Control Number (SCNA) of the latent record. In the future, the Unsolved Latent File record will also have a unique record identifier known as the UCN. This request will be routed to the FBI, processed, and returned to the requester through the CJIS WAN. If the requester is a local agency, the request and response will be ~~interfaced~~ routed via ~~with~~ the CJIS WAN through the state law enforcement network or the Internet. There will be no manual intervention on the part of the FBI.

Requests for a set of images will be submitted to the FBI under the TOT field of "IRQ" (denoting Image Request) in the Type-1 Record. The FBI'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 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'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'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 and a transaction to delete photo sets. 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'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 CJIS WAN to the FBI, processed, and returned to the requester via the same path. If the requester is a local agency, the request and response will be ~~interfaced with~~routed via the CJIS WAN through the state law enforcement network. There will be no manual intervention on the part of the FBI.

Requests for a photo set will be submitted to the FBI under the TOT field of ~~"~~CPR~~"~~ (denoting Criminal or Civil Subject Photo Request) in the Type-1 Record. The FBI'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'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 databases so a comparison can be made by the requester at user facilities or to populate the requestor's database. The requester identifies the FBI number(s) (for criminal records) of the subject(s) whose fingerprint images are being requested. In the future, the requester will be able to identify civil record number(s), or other subject identifier (e.g., UCN and/or biometric set identifier for a specific biometric set) of the subject(s) whose biometric images are being requested. Up to 1,000 subjects' records may be requested per transaction. Specific fingerprint images or the complete set may be requested. In the future, other biometrics (such as palmprints, supplemental fingerprints and palmprints, photos, and iris images) that are associated with that record may also be requested. The transaction will be processed, and requester-selected ~~fingerprint~~ images on file at the FBI 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.

~~In the future, image request transactions will indicate requests for images other than criminal tenprint fingerprints by including the appropriate value in the Name of Designated Repository (NDR) Field (see NDR 2.098 description in Appendix C) in the Type-2 record.~~

In the future, f~~F~~or an~~y~~ IRQ, the submitter of the transaction may indicate the desire for CJIS to return the Type-9 features records associated with the returned images. Also, the palmprint and supplemental fingerprint and palmprint Type-9 features will be supported for return with their associated images. The Type-9 features records may be used for comparison purposes by overlaying the features on the image records. For IRQ transactions requesting multiple sets of images, the request to return features records must apply equally to all identified sets of images. Otherwise, individual IRQ transactions must be submitted.

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In the future, new fields will be needed for IRQ to support the identity (or subject) events as well as the new friction ridge types. The Image Type (IMT) field will be used to specify which types of biometric sets are requested, the Request Features Record (RFR) field will be used to request features with images, a Biometric set identifier field will be used to identify the specific biometric set being requested, and the Print Position Descriptors field will be used to accompany the FNR field to specify which Supplemental Fingerprint and Palmprint images are being requested. ~~The Image Type (IMT) to specify which types of biometric sets are requested, Request Features Record (RFR) to request features with images, Biometric set identifier to identify the specific biometric set being requested, and Print Position Descriptors to accompany the FNR field to specify which Supplemental Fingerprint and Palmprint images are being requested.~~ If the biometric set identifier field is not present, the representative biometric set(s) are retrieved for the identity specified in the ~~FNU~~FBI/UCN field. The representative set for fingerprints will be a composite set of images, while the representative set of palmprints or supplemental fingerprint and palmprint will be the latest set of each. When multiple instances of the IMT field are present and the biometric set identifier is included for one biometric set for an event, the other biometric sets specified in the IMT field are retrieved for the same event. The FNR field will also be expanded to allow palmprint position codes (See Appendix P).

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3.3.1.2 Subject Photo Request (CPR)

This TOT enables users to retrieve a photo set from the FBI 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 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 will use the External System Photo Image Retrieval Request to obtain those photos. The external system will respond to the FBI with the External System Photo Image Request Response.

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3.3.1.4 Image Request Response (IRR)

This transaction is returned by the FBI to provide requested images on file at the FBI to the requester. Each subject record identifier number in the request having images available causes a separate response. The response will include the subject record identifier number and the requested Type-4 or Type-14 fingerprint images. The specified fingerprint images will be transmitted in the response. ~~If requested, the Type-9 features records will be included as well.~~

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In the future, the IRR response will support the return of one fingerprint, palmprint, or supplemental fingerprint and palmprint image set along with the associated biometric feature set, if requested. The FBI Number field will return the NGI UCN that may contain either the criminal FBI number (FNU) or the Civil Record Number (CRN) of the returned record. When a composite set is returned, no Biometric Set Identifier is returned in the message.

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3.3.1.5 Image Summary Response (ISR)

This transaction is returned by the FBI 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.

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In the future, new fields will be needed to inform the user of all the identities biometric sets that were returned. New fields added to the message are the Image Type (IMT) to specify the type of biometric set returned and biometric set identifier to specify the exact biometric set returned if the set is not a composite set.

3.3.1.6 Photo Request Response (PRR) and Photo Delete Response (PDR)

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Each photo request will receive a photo request response (PRR). The PDR TOT is the response for an image delete request. The two responses are handled in the same way. The transaction is returned by the FBI to indicate the condition of each request. There are two fields in this Type-2 record that give the condition of the request. If the request contains any errors that cannot be parsed, 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 Transaction Error (ERRI)

This transaction is returned by the FBI 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 (Future Capability)

These future transactions will enable users to retrieve audit trail information for their images stored in the CJIS database. This information will consist of which agency(ies) have received the specified image(s). The requester provides the subject identifier (e.g., ~~FNU or~~ UCN and/or biometric set identifier) and the biometric identifier for the images they wish the audit trail information to be returned. If the biometric set identifier is not included, then the ~~FNU (or~~ UCN~~)~~ is mandatory, and the latest biometric set is used. ~~(Note: The method of indicating the type of biometric for which the audit trail is being requested is TBD.) Up to 1000 subjects' records may be requested per transaction.~~ 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. ~~Each subject record identifier number in the request will be addressed in a separate response.~~ 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 ~~individual~~ a record identifier number~~s~~, such as an image set not being on file, will be reported in the summary response. ~~The remaining valid subject identifier numbers will result in individual responses.~~

3.3.2.1 Biometric Audit Trail Retrieval Request (Future Capability)

For each request, the submitter of the transaction shall specify which subject image audit trail~~indicate which image audit trail for the specified subject~~ that CJIS will return. The response to this request will return only the audit trail for the images owned by the submitter of the request. These transactions may include Fingerprint Audit Trail Retrieval Request, Palmprint Audit Trail Retrieval Request, Supplemental Fingerprint and Palmprint Audit Trail Request, Unsolved latent Audit Trail Request, Photo Audit Trail Retrieval Request, and Iris Audit Trail Retrieval Request. Each transaction can only request one image type audit trail for the specified subjects. If different types of image audit trails are needed, then separate requests will need to be submitted. The response to this request will be Audit Trail Retrieval Response.

~~**3.3.2.2 Unsolved Latent Audit Trail Retrieval Request (Future Capability)**~~

~~This transaction will be provided by the FBI to allow an agency to retrieve their audit trail for a specific type of biometric from the unsolved image repository. The transaction shall indicate which biometric type to be included in the audit trail response. If a specific biometric audit trail is not specified, then all biometric audit trails of the same biometric type for the unique identity will be included in the response. If different types of biometrics are needed, then separate requests will be needed. The response to this request will be Audit Trail Retrieval Response.~~

~~3.3.2.3~~3.3.2.2 Audit Trail Retrieval Response (Future Capability)

This transaction is returned by the FBI 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. The response will include the subject or latent biometric record identifier and the audit trail record for that image. The audit trail record field will be ~~is~~ new ~~to EBTS~~ and is a set of repeating subfields for the ORI that received the image, DAT (date disseminated), and TOT which disseminated the image.
~~include the subject record identifier number and the audit trail record for that image.~~

~~3.3.2.4~~3.3.2.3 Audit Trail Transaction Error (Future Capability)

This transaction is returned by the FBI 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)

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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's database, the sending agency will electronically transmit images and descriptive information as required by the AFIS/FBI (i.e., the AMP, when needed) or user-extracted characteristics. Biometric characteristics include classification, features, and any other derived data required by AFIS/FBI. 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.~~The subsequent FBI submission will be conducted automatically with no additional manual editing or processing.~~ If candidates are identified, no identification decision is made by the FBI. Instead, up to 25 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. 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:

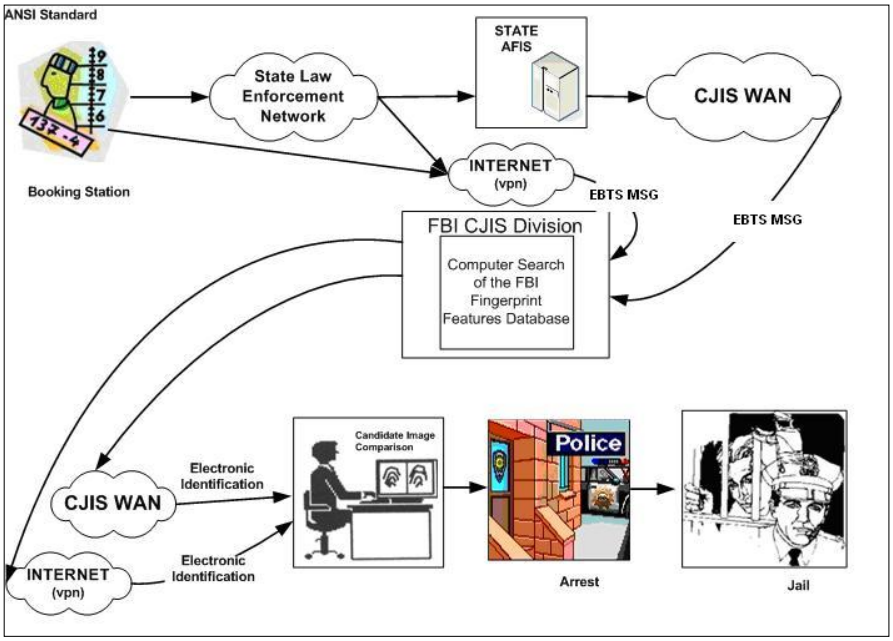
TOT	TRANSACTION
TPIS	Tenprint Fingerprint Image Searches
TPFS	Tenprint Fingerprint Features Searches
TPRS	Tenprint Rap Sheet Searches

A hierarchical approach to tenprint searches must be adhered to (i.e., for TPIS and TPFS). 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. If an identification decision is made at any of the previous levels, the Ident 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/TPFS) is shown in Figure 9, "Investigation Fingerprint Submissions."

All electronic transactions between the FBI and the originating state agency will be routed via the 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 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 candidates and their identity history, 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 required fingerprint classification information and descriptors by the originator. The Pattern Level Classification (PAT) field is to be included for every amputated or unprintable finger. The fingerprint characteristics will be automatically extracted from the image submitted. 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 Fingerprint Features Search (TPFS)

The Tenprint Fingerprint Features Search contains fingerprint characteristics, including classifications, which are extracted and transmitted by the originator along with search criteria. The search process uses this information to generate the candidate list. The response is similar to those for TPIS transactions. It should be noted that the fingerprint characteristics referred to here are the native-mode fingerprint characteristics of the FBI's AFIS; i.e., the fingerprint characteristics' data transmitted will be in a format used or accepted by AFIS/FBI. The originating agency must have the capability to extract and encode fingerprint characteristics data in the FBI native mode in order to use this TOT.

3.4.1.3 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 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 prior to use.

3.4.1.4 Search Results — Tenprint (SRT)

This transaction is returned by the FBI in response to a TPIS or TPFS request. It includes a candidate list composed of the names and UCNs of up to 25 subjects selected by AFIS/FBI 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.

3.4.1.5 Tenprint Transaction Error (ERRT)

This transaction is returned by the FBI 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 Print Investigation Submissions

Latent Print Investigation Submissions sent to the FBI will originate from the agency having legal jurisdiction of a case. These may be federal, state, or local agencies. These submissions, as differentiated from latent fingerprint identification searches in the Identification Service Section, are strictly for the purpose of submitting crime scene information to the FBI for processing in support of law enforcement investigations. 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 and palmprints. Investigation of latent cases may also generate tenprints used for comparison purposes (e.g., suspect, victim, or other personnel with authorized access to the crime scene). The sender must designate the TOT in the Type-1 record to specify which process is to be followed. The following TOTs are applicable to latent print investigation submissions to the FBI:

TOT	TRANSACTION
CFS	Comparison Fingerprint Image(s) Submission
ELR	Evaluation Latent Fingerprint Submission Request

The following are the responses to electronic latent submissions:

TOT	RESPONSE TRANSACTION
NAR	Notification of Action Response
ERRL	Latent Transaction Error

The processing flow for electronic latent transactions is illustrated in Figure 10, "Latent Print Investigation Submissions."

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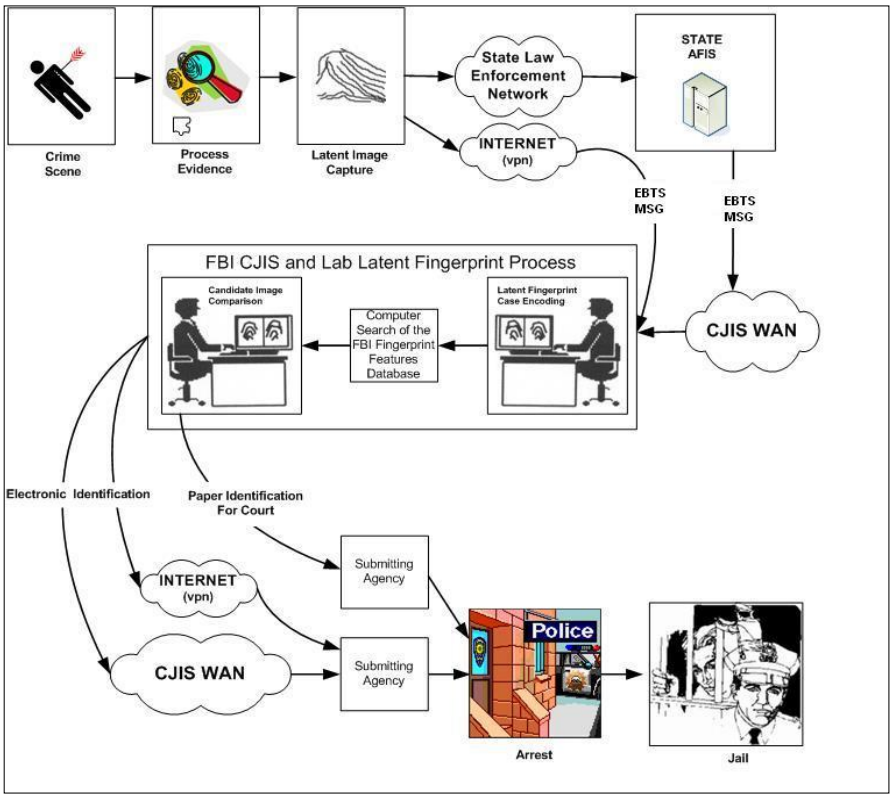
Figure 10 Latent Print Investigation Submissions



If there is an error in the submittal, an ERRL response will be returned. Search results will be returned as email attachments to the address derived from the search email using SMTP processing. The return address must be on the CJIS WAN or the LEO VPN.

The responses to ELR submissions contain a TOT of "NAR" (denoting "Notification of Action Response"). It defines the action taken based on the analysis of the submitted latent images. For an ELR submission, the NAR may indicate that a latent case will be established.

There will be no CJIS responses other than communication protocols acknowledgments for the transaction type CFS. However, a Latent Report may be generated and provided to the

contributor. NOTE: This report is not an automated report and will **not** be transmitted electronically through CJIS.

Note: As the design of NGI takes over the Latent Processing, some of the transaction processing ~~of this transaction~~ will be combined with the Latent Identification Service (LFS). Therefore in the next version of this standard, the CFS, ELR, and NAR transactions will be removed.

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A CJIS user may transmit one or more latent ~~finger~~print images or corresponding feature~~s~~ sets, assumed to be from the same subject, to be searched against the FBI's Tenprint Criminal Features Master File. This latent ~~finger~~print search request will originate from the agency having legal jurisdiction of the case (federal, state, or local). The crime scene evidence will be processed and the desired latent fingerprints will be electronically captured. To conduct a latent ~~finger~~print search, the originating agency will electronically transmit latent ~~finger~~print images and/or FBI native-mode ~~finger~~print features. These images or features may be stored in the Unsolved Latent File (ULF) through use of the ULF flag, which is included in the search request. If the ULF flag is set to "~~yes~~Yes," the submitted ~~finger~~print image(s) and/or features will be added to the ULF file (the default setting of the ULF flag is "~~no~~No"). The biographic descriptor data contained in the Type-2 records~~,~~ for LFFS and LFIS~~,~~ are used as search parameters to narrow the search penetration so that the penetration threshold is not exceeded. The same descriptors may be submitted in a separate Latent Penetration Query, prior to initiating the search, to determine the penetration.

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~~If, in~~When submitting a single latent image~~,~~ and the finger position of the image is unknown, 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 PAT 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 record, send a binary "0." If many finger guesses for a single finger search are provided, the PAT/RCD1/RCD2 fields should be entered only for the first finger guess and will be automatically duplicated by CJIS for all other finger guesses.

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In the future, the FGP field will contain one or more of the possible finger or palm positions that may match the latent image. As the investigative transactions (see LFIS and LFFS below) are enhanced to use these positions, the name will change to Latent Friction Ridge search to allow for a multitude of images to be used~~. B~~, but the TOTs will be left as they will continue to support current functionality. The decimal code number corresponding to the known or most probable finger position will be taken from the ANSI-NIST ITL ~~2007~~ Standard Finger Position Table ~~12~~ or Palmprint Position ~~the most probable palm position from Table 35 and~~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. The code "20" for "Unknown Palm" shall be used to reference every listed palmprint position.

~~In the future,~~ CJIS ~~will~~ also accepts latent searches as attachments to emails via LEO, where the file name of the attachment may correspond to information associated with the owner of the search and case information. The CJIS front-end will perform the necessary conversion within CJIS to facilitate successful completion of the search transaction (e.g., TEH1234.LFFS), and will then ensure that any response (e.g., SRL, ERRL) carries the filename corresponding to the search transaction (e.g., TEH1234.SRL). This implementation is designed to facilitate association of the response transaction with the original search (previous methodology returned all responses with a filename of EBTS.SRL, making it difficult to differentiate one response from another).

In the future, 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.

In the future, L~~l~~atent 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 Special Population Cognizant (SPC) Files (if the requesting ORI is allowed to search the requested SPC file) for this TOT. As searches from legacy users who do not choose to change their applications do not contain this field, the default behavior when this field is not present is to only search the criminal repository.

In the future, the user will be able to optionally select, in investigative searches, whether features and matched minutiae for each candidate print image are returned in the L~~l~~atent Friction Ridge search result response. The matched minutiae will reside in the Type-9 record for each candidate.

The latent fingerprint investigative search process differs from the electronic latent print submissions, described above, in that there will be no human intervention on the part of the FBI. These searches are automated with no effort by an examiner. The sender must designate the TOT to specify which process is to be followed. The following list of TOTs is applicable to latent friction ridge searches transmitted to the FBI:

TOT	TRANSACTION
LFIS	Latent Friction Ridge Image(s) Searches
LFFS	Latent Friction Ridge Features Searches
LPNQ	Latent Penetration Query

A hierarchical approach to AFIS searches must be adhered to. Transactions generated by local agencies must be processed by the local AFIS (if available) and electronically transmitted to a state AFIS (if available) before submitting a search to the FBI. If an identification decision

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is made as a result of processing at any of the previous levels, there will be no further processing of the request at a higher level.

In addition to the search related transactions, a latent candidate comparison response is also provided. The CJIS Division has a requirement to collect statistics regarding system performance in order to ensure the CJIS system is performing at its peak accuracy. The Biometric Decision is the transaction that will be generated by contributors to inform CJIS of the results of their latent search results comparisons of candidates in the SRL response. These results will fall into the categories of Ident (I), Non-Ident (N), or Pending (P). The Biometric Decision transaction is sent to CJIS immediately upon completion of the comparison process when authorized by the user.

All electronic transactions between the FBI and the originating agency will be routed via the CJIS WAN.

The following are the potential responses to latent fingerprint transactions:

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

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 (up to the Number of Candidate Images Requested (NCR)) ~~finger~~print image(s) of the ~~finger~~image(s) that potentially matche~~d~~s the latent print. If the latent search included more than one finger, the finger image corresponding to the highest matched score will be returned with each candidate. The search parameters must limit the search to no more than 30 percent of the population of the file being searched. A Latent Penetration Query 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. Any search request for the criminal repository that does not include sufficient search parameters to limit the search to 30 percent file penetration will result in a Latent Transaction Error (ERRL) response. The response will include the (two digit) percentage of the repository penetration determined from the submitted parameters in the Status/Error Message (MSG) field of the Type-2 record. Detection of errors will also cause a Latent Transaction Error (ERRL) response.

The ULM may be a delayed response to an LFFS or LFIS (Appendix J, Table J-4). If a tenprint submission made after an LFFS or LFIS that has added a latent ~~finger~~print image to the Unsolved Latent File matches that latent print, a ULM will be sent to the latent print contributor.

3.4.2.1 Comparison Fingerprint Image(s) Submission (CFS) (For use by FBI only)

This TOT provides for the transmission of tenprint fingerprint images or other known prints from individual(s) who could have caused the latent impressions associated with a case. The CFS is intended solely for internal FBI use. The comparison prints may consist of the following:

1. Suspect known prints
2. Victim known prints
3. Known prints from individuals being compared for purposes of elimination
4. Other individuals involved in the case

The submittal may include all the fingerprints normally enclosed in a tenprint submittal plus optional additional prints (e.g., palmprints), if applicable. The known print images will be stored and accessible to the fingerprint specialist for comparison and analysis. Elimination prints for several individuals must be sent as individual submittals for each. No electronic response other than communication protocol acknowledgment of receipt is returned for this TOT.

As the design of NGI takes over the Latent Processing, the processing of this transaction will be combined with the Latent Identification Service (LFS). Therefore in the next version of this standard, the CFS transaction will be removed.

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3.4.2.2 Evaluation Latent Fingerprint Submission Request (ELR) (For use by FBI only)

This is a transaction to be used solely for FBI purposes, including FBI field office consultations with the LPS examiners. The contents of the submission are similar to a latent submission (*i.e.*, LFS). The transaction will result in a reply (*e.g.*, NAR) indicating the action to be taken. The action could be the establishment of a latent case, a request for additional information, or an evaluation of the case feasibility and recommendations for further actions.

As the design of NGI takes over the Latent Processing, the processing of this transaction will be combined with the Latent Identification Service (LFS). Therefore in the next version of this standard, the ELR & NAR transaction will be removed.

3.4.2.3 Notification of Action Response (NAR)

This transaction will be in response to an evaluation request (ELR). The response may include a message field (MSG) indicating the results of the evaluation or recommendations for further actions included in the Action to be Taken (ACN) field.

3.4.2.4 Latent Transaction Error (ERRL)

This transaction is returned by the FBI 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.

3.4.2.5 Latent Friction Ridge Image(s) Investigation 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. CJIS will conduct a search of criminal repository and will transmit the results to the originator. In the event that images are of insufficient quality for AFIS/FBI to be able to extract features and perform a search, CJIS will respond with a Latent Transaction Error message.

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Multiple fingerprint images may be searched if the submitter believes the images are from a single subject. Multiple images must be accompanied by a finger position for each image. Only this set of finger numbers will be searched.

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In the future, the user will be able to optionally select whether features and matched minutiae for each candidate print image are returned in the LFIS response ~~(see 3.4.2.7 below)~~. The matched minutiae will reside in the Type-9 record for each candidate.

~~If, in submitting a single latent image, the finger position of the image is unknown, 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 PAT 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 record, send a binary "0." If many finger guesses for a single finger search are provided, the PAT/RCD1/RCD2 fields should be entered only for the first finger guess and will be automatically duplicated by CJIS for all other finger guesses.~~

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~~In the future, the FGP field will contain one or more of the possible finger or palm positions that may match the latent image. As this transaction, LFIS, and the LFFS are enhanced to use these positions, the name will change to Latent Friction Ridge search to allow for a multitude of images to be used. But the TOT will be left as they will continue to support current functionality. The decimal code number corresponding to the known or most probable finger position will be taken from the ANSI-NIST ITL 2007 Standard Table 12 or the most probable palm position from Table 35 and entered as a one- or two-character ASCII subfield. Additional~~

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~~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. The code "20" for "Unknown Palm" shall be used to reference every listed palmprint position.~~

Latent friction ridge images submitted for searches may be added to the Unsolved Latent File. One or two Type-2 records may be submitted in the search message. CJIS will automatically use the descriptive data in the first Type-2 record for the search. If two Type-2 records are submitted along with the ULF flag set to "Y", the first record will be used to limit the search penetration, while the second record will be stored with the latent in the ULF to provide biographic descriptors for tenprint to latent searches.

3.4.2.6 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. The search process of the Criminal repository will be conducted and the results transmitted to the originator as described for the LFIS transaction. The friction ridge features referred to here are the native-mode friction ridge features of the FBI's AFIS; *i.e.*, the friction ridge features information transmitted will be in a format used or accepted by AFIS/FBI.

Originators may add the latent features from a features search message and, if desired, the latent friction ridge images corresponding to those features to the Unsolved Latent File. 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 in the FBI native-mode to use this TOT.

3.4.2.7 Search Results - Latent (SRL)

This transaction is returned by the FBI in response to a latent search request. It will include a candidate list composed of names and UCNs of each candidate al-ong with the corresponding friction ridge image(s) of the number of candidates specified in the NCR field of the search message using the Type-4 record. Up to 99 candidates, their match scores, and the finger positions of the images on file that matched may be included in the response. 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 AFIS Segment Control Number (SCNA) of the stored latent image.

In the future, the SRL will contain record types associated with the friction ridge data associated with the biometric position code ~~FGP~~ entries contained in the submission. Also, the user will be able to 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 matched minutiae will reside in the Type-9 record for each candidate. Besides the currently supported

criminal identifiers being returned as candidates, in the future, Civil and Unsolved Latent identifiers will also be supported. The friction ridge data returned will be expanded beyond Fingerprint to include Palmprint and Supplemental Fingerprint and Palmprint. A new field will be added to the SRL to uniquely identify the biometric set (e.g. Fingerprint, Palmprint, or Supplemental Fingerprint and Palmprint) for the image matched. This biometric set identifier coupled with the IDC field will provide traceability to the images returned. The biometric set identifier for each matched image is returned so that the recipient can request more images for the subject.

~~**3.4.2.8 Unsolved Latent Match Response (ULM)**~~

~~This transaction is issued by CJIS when a newly submitted criminal, civil, or latent friction ridge search matches an unsolved latent case previously submitted by a state, local, federal, international, or tribal agency. This transaction is an unsolicited response to the sponsor of the unsolved latent friction ridge image, not to the submitter of the criminal, civil, or latent search images. The response will include the UCN, name, personal identifiers, and friction ridge images of the subject or case and contact information (e.g., CIN/CIX, ATN) in the case of a latent search image that was matched with the unsolved latent friction ridge and the images of the unsolved latent friction ridge. Up to 10 images can be returned in this transaction when a tenprint record hits against multiple latents in the ULF stored by a multi-finger search. The "owner" of the unsolved latent case is responsible for conducting the comparison. As this transaction is a notification, and other biometrics (i.e., Palmprint and Supplemental Fingerprint and Palmprint images) will be supported by added to this transaction in the future, this is repeated in the Notification Service below.~~

~~3.4.2.9~~3.4.2.8 **Latent Penetration Query (LPNQ)**

The Latent Penetration Query allows the user to check for the percentage of the Criminal repository that will be accessed by a latent friction ridge search. The query contains the biographic or fingerprint classification search parameters that will be defined in either the LFIS or LFFS search request, except for the Type-4 or -7 image or Type-9 features records. This allows users to set the search parameters to ensure that the search does not exceed the maximum penetration allowed. Penetration tables developed by AFIS/FBI 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.

~~3.4.2.10~~3.4.2.9 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.

3.4.3 Latent Administrative Queries, Requests, and Responses

Two types of administrative requests can be solicited by the users to improve the efficiency of their latent operations. They include the Latent Repository Statistics Query (LRSQ) and the Latent Search Status and Modification Query (LSMQ). LRSQ provides the users with the statistical representation of the FBI Criminal Master File used to estimate criminal repository search penetration. The LSMQ allows users to determine the status of one friction ridge search or multiple searches previously submitted by the requester's organization. The LSMQ also allows the user to adjust priorities, search order for performing the searches, or cancel previously submitted search requests.

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

TOT	TRANSACTION
LRSQ	Latent Repository Statistics Query
LSMQ	Latent Search Status and Modification Query

The following are the responses to the above transactions:

TOT	RESPONSE TRANSACTION
LRSR	Latent Repository Statistics Response
LSMR	Latent Search Status and Modification 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 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 Search Status and Modification Query (LSMQ)

The LSMQ requests the status of one or more previously submitted latent friction ridge searches, requests the priority or order of searches be changed, or requests searches be canceled. Status and ~~midification~~modification requests can be performed only for searches that are owned by the querying state. Reprioritization cannot be requested in the same message as either reordering or cancellation of searches and should be requested if needed before reordering or cancellation. Reordering of searches in the queue is accomplished only within each priority grouping. If the same message is used to both reorder and cancel searches, the entire reorder operation will be performed first, followed by the canceling operation. Therefore, if the canceled search date/time stamp is desired to be retained and exchanged with another search, the canceled search must be listed with the reordered searches as well as in the field listing searches to be canceled. To determine the current status of searches, the user will submit the case number(s) and extension(s) of the friction ridge search(es). CJIS response will include the AFIS segment process control number (SCNA) of the referenced search(es) and the estimated time(s) to complete the search(es).

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For LSMQ information on multiple searches, the requester can define the depth of the query to be at the state level (defined as "S" in Field 2.004 (Query Depth of Detail (QDD)); it will include all ORIs, all associated case numbers, and all associated case extension numbers. The request can also be at the ORI level (defined as "O") including all case numbers and associated extensions for a particular ORI or at the case level (defined as "C") including the case number and all associated extensions. The response will include the segment control numbers and estimated times to complete for all requested submittals. This transaction can also be used to change the priority of previously submitted searches (see definition of PRI in Appendix C). This request will list the segment control numbers of the searches (determined by previous status query) and their new priorities. In addition, the LSMQ provides the capability to change the order in which the requested searches are processed. A modified rank order of these searches is submitted by including the SCNA of each search in the order in which they are to be searched. AFIS/FBI will reorganize its queue for the requester for all searches that have not been completed or not currently being processed (i.e., only those searches still pending). Finally, the LSMQ provides the capability to cancel a previously submitted search request by including in the Cancel Friction Ridge Search field the SCNA of any search to be canceled.

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As the design of NGI takes over the Latent Processing, the processing of this transaction will not be included as the increased response times will make it impossible to receive an accurate report. Therefore in the next version of this standard, the LSMQ & LSMR transaction will be removed.

3.4.3.3 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.

In the future, the file in the RSR field will contain the filter parameters used to filter searches of the NGI repository, which differ from the fields returned by IAFIS to filter searches of the IAFIS Criminal Master File.

3.4.3.4 Latent Search Status and Modification Response (LSMR)

The Latent Search Status and Modification Response will provide the users with the list of previously submitted searches ranked in order for processing and their associated priorities in response to the request. A search already in progress will not be preempted. The LSMR will include the SCNA of the referenced search(es) and the estimated time to complete the search(es). The LSMR will also provide notification that CJIS has processed the cancellations. The SCNA of each search canceled will be returned in the CFS field.

3.4.3.5 Administrative Transaction Error (ERRA)

This transaction is returned by the FBI 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 accepting other biometrics in conjunction with Tenprint Fingerprint Identification Submissions and enrollment of other biometrics, in the future, CJIS/FBI will accept biometric investigation submissions other then fingerprints as search engines become available.~~In addition to the FBI accepting biometrics in conjunction with Tenprint Fingerprint Identification Submissions and enrollment of biometrics, in the future CJIS/FBI will accept biometric investigation submissions as search engines 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.

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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 Palmprint Investigation Search Request (Future Capability)~~

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

~~3.4.4.2.1 Palmprint Image Search Request (Future Capability)~~

~~FBI AFIS/FBI will extract the palmprint features from the transmitted images to perform the search. The search of the designated repository will be conducted and the results transmitted to the originator. Originators may add the palm print images from the search message into the Unsolved Palmprint File, if desired.~~

3.4.4.2.2 Palmprint Feature Search Request (Future Capability)

The palmprint features are extracted and transmitted along with the search criteria by the originator. The search process of the designated repository will be conducted and the results transmitted to the originator. The palmprint features referred to here are the native-mode palmprint features of the FBI's NGI; i.e., the palmprint features information transmitted will be in a format used or accepted by the FBI.

Originators may add the palmprint features from a features search message and, if desired, the palmprint images corresponding to those features, into the Unsolved Palmprint File. The originating agency must have the capability to extract and encode the features in the FBI native-mode in order to use this TOT.

3.4.4.3 Supplemental Fingerprint and Palmprint Investigation Search Request (Future Capability)

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

3.4.4.3.1 Supplemental Fingerprint and Palmprint Image Search Request (Future Capability)

FBI AFIS will extract the features from the transmitted images to perform the search. The search of the designated repository will be conducted and the results transmitted to the originator. Originators may add the images from the search message into the Supplemental Fingerprint and Palmprint File, if desired.

3.4.4.3.2 Supplemental Fingerprint and Palmprint Feature Search Request (Future Capability)

The features are extracted and transmitted along with the search criteria by the originator. The search process of the designated repository will be conducted and the results transmitted to the originator. The features referred to here are the native-mode features of the FBI's AFIS; i.e., the features information transmitted will be in a format used or accepted by the FBI.

Originators may add the features from a features search message and, if desired, the images corresponding to those features, into the Supplemental Fingerprint and Palmprint File.

~~The originating agency must have the capability to extract and encode the features in the FBI native mode in order to use this TOT.~~

~~3.4.4.4~~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 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

~~One of the main Biographic Investigation Submission elements is a subject search of the FBI/III database, which is represented by TOT External Query History Request (EQHR).~~

~~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 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.~~

~~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)~~

~~This transaction consists of a Type-1 record (header information) followed by a Type-2 record (transaction descriptive, demographic and biographic information). See Appendix B for details of Type-1 records and Appendix C for details of Type-2 records.~~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:

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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) ~~and Responses (EHRR, EQRR, ERRR & EQER)~~

The External Query History Request (EQHR) ~~TOT~~ submission requires that the subject's name, place~~date~~ of birth, ~~race~~ and date of birth~~gender~~ to 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~~place of birth~~ 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 I~~i~~dentity H~~h~~istory Summary~~sheet~~ 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.

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3.4.5.5 External Reject Request Response (ERRR)

When the result of the External Query History Request contains candidate(s) where the ~~I~~Identity ~~h~~History Summary~~sheet~~ is not available, the External Reject Request 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 sheets 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 I~~i~~dentity H~~h~~istory Summary~~sheet~~ electronically.~~The contributor will receive a hardcopy of the identity history sheet in the mail when it is available.~~

~~See Table D-3 for a complete list of all mandatory and optional data.~~

~~The response to this biographic search (EQHR) will indicate one of the following:~~

- ~~X a summary report (EQRR) with no candidates which means no records were found that matched the submitted criteria, or~~

- ~~a summary report (EQRR) with a list of up to twenty candidates followed by separate messages (EHRR). Each of these separate messages contains an identity history sheet for a candidate returned in the summary report. All candidates are based solely on descriptive data. A biometric match is required to make a positive identification.~~

- ~~X A summary report (EQRR) with a list of candidates followed by separate messages (EHRR) and/or a message (ERRR) indicating that an electronic version of the identity history sheet for a candidate is not available.~~

~~The EQHR, EQRR, EHRR~~ ERRR ~~and EQER TOTs are summarized in the Summary Field Lists for Biometric and Biographic Investigative Transactions Table D-3. Edit specifications for the fields they use are found in Table C-1.~~

~~The "2.018:NAM", "2.022:DOB", "2.024:SEX", "2.025:RAC" submitted to the IAFIS in the EQHR are returned to the contributor in the EQRR.~~

~~The FBI's response to this submission that contained errors, such as missing mandatory information or invalid contents, will use the EQER TOT. The response includes a message element (MSG) indicating the type(s) of error encountered. Error responses are described in the Error Message Format Section.~~

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~~Errors encountered while producing an identity history sheet (EHRR) will produce an error response using the ERRR TOT. The response includes a message element (MSG) indicating the type(s) of error encountered.~~

~~A large number of records for persons born before 1956 are not automated. When a request for the identity history sheet is made for one of these manual records, a response will be returned using the ERRR TOT. The response includes a message element (MSG) indicating the status of the record. The contributor will receive a hardcopy of the identity history sheet in the mail.~~

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.

3.5.1 Unsolved Biometric Match (ULM)

An Unsolved Biometric Match Notification contains an unsolved biometric file (ULF) match notification. These notifications are sent to the owners of the unsolved biometric when newly submitted criminal, civil, or latent friction ridge search matches an unsolved latent case image. Currently, the IAFIS/NGI system returns these notifications for fingerprints. The response will include the UCN along with biographic identifiers associated with the subject that matched the unsolved latent image. Up to 14 images can be returned in this transaction whena tenprint record hits against latent images in the ULF. The "owner" of the unsolved latent case is responsbile In the future, other biometrics (i.e., Palmprint and Supplemental Fingerprints and Palmprints) will be included in these notifications along with the use of this notification for a decision made against an image in the unsolved repository. Currently the CIN, CIX, LCN, LCX, 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, and DPR fields are associated with the identity 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's Unsolved Latent files because the FBI did not receive an Unsolved Latent Add Confirm Request (ULAC) transaction for that record within the fourteen days allowed, or because the Unsolved Latent File (ULF) (or a particular subfile of the ULF) contained the maximum number of allowable records when an attempt was made to add a record, and the record deleted was 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.

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 will determine the type of notification agencies will receive. The FBI 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.

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3.5.5 Rap Back Subscription Renewal Notification (Future Capability)

The FBI 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 CJIS record.

3.5.6 Unsolicited Hit Notification (UHN ~~– Future Capability~~)

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.

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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)

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

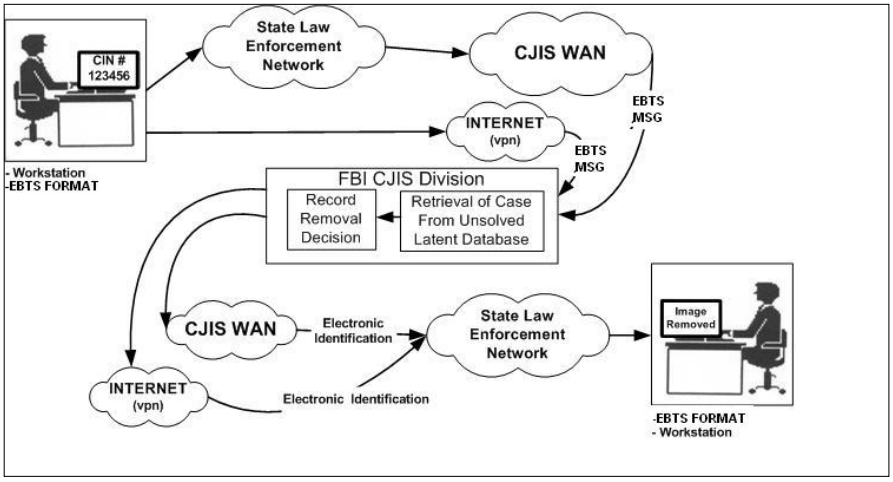
3.6 Data Management Service

This new service will provide users with the ability to manage data within CJIS. It allows users to add, delete, and modify data contained in 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), or an Unsolved Latent Add Confirm Request (ULAC). 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:

TOT	TRANSACTION
ULD	Unsolved Latent Record Delete Request
ULAC	Unsolved Latent Add Confirm Request

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

TOT	RESPONSE TRANSACTION
ULAR	Unsolved Latent Add Confirm Response
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's Unsolved Latent files. 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.

3.6.1.2 Unsolved Latent Add Confirm Request (ULAC)

This TOT is used to request that unsolved latent file records be semi-permanently added (since the ULF is a FIFO) to the FBI's Unsolved Latent files. This TOT must be received within 14 days of receipt of the CJIS response to a LFIS or LFFS transaction (SRL). If a set of unsolved latent images were added from a multi-finger latent search, the ULAC applies to the entire set of images added.

As the design of NGI takes over the Latent Processing, the processing of this transaction will not be included as the concept of having a 'temporary' or 'semi-permanent' add to the ULF is being eliminated. Therefore in the next version of this standard, the ULAC & ULAR transaction will be removed.

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3.6.1.3 Unsolved Latent Add Confirm Response (ULAR)

This transaction is used to provide confirmation that an unsolved latent file record has been permanently added to the FBI's Unsolved Latent files.

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As the design of NGI takes over the Latent Processing, the processing of this transaction will not be included as the concept of having a 'temporary' or 'semi-permanent' add to the ULF is being eliminated. Therefore in the next version of this standard, the ULAC & ULAR transaction will be removed.

3.6.1.4 Unsolved Latent Delete Response (ULDR)

This transaction is used to indicate that a record has been deleted from the FBI's Unsolved Latent files in response to a ULD message.

3.6.1.5 Latent Transaction Error (ERRL)

This transaction is returned by the FBI 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

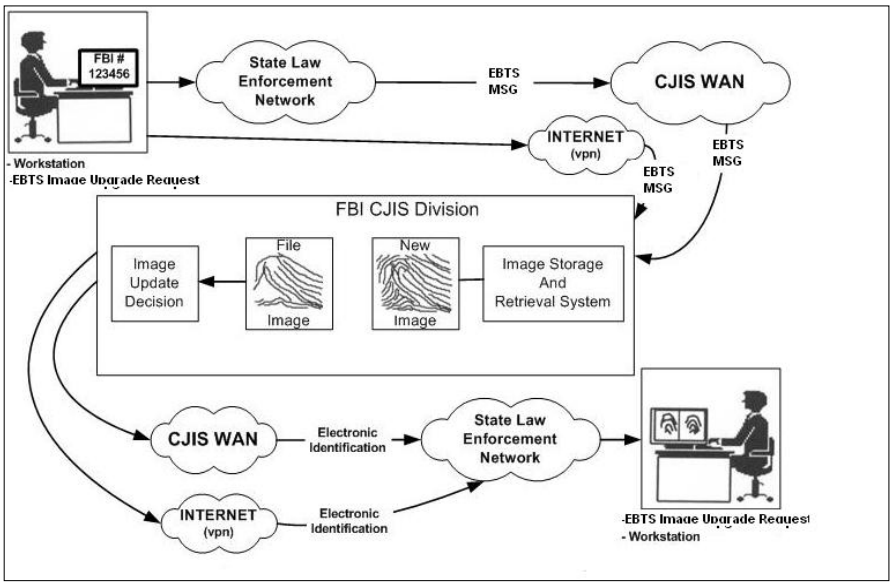
Fingerprint image update transactions are to be used particularly by states participating in the National Fingerprint File (NFF) when they obtain fingerprints from subjects already on file that are of substantially better quality or include different characteristics than the existing ones (e.g., a new scar). The new fingerprints are submitted to the FBI for evaluation and inclusion in the FBI 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 FBI will determine whether to update the master fingerprint images. The processing flow for electronic requests to upgrade fingerprint images is illustrated in Figure 12.

TOT	**TRANSACTION**
FIS	Fingerprint Image Submission

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 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, or when it is determined there are new fingerprint characteristics such as scars or amputations. The transaction submits the new fingerprints to the FBI for evaluation and possible inclusion in the FBI files. All 14 fingerprints, rolled and plain, must be accounted for to verify the identification and confirm fingerprint positions. In the future, FIS will support the submission of Palmprint image sets and Supplemental Fingerprint and Palmprint image sets. Users are 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 biometric set identifier field is added to the Type-2 record to allow the user to specify a biometric set from a prior event for~~to~~ assignment to the new image set~~s to~~. Users will be allowed to submit multiple image sets in the same message.

3.6.2.2 Fingerprint Image Submission Response (FISR)

This transaction is returned by the FBI 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 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 ~~can~~ 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.

3.6.3.1 Biometric Enrollment Transactions

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 CJIS standards for searches to allow them to be stored in the Special Population Cognizant (SPC) repositories. 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 CJIS standards for searches, an error response (ERRT) 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. CJIS will respond with a Direct Latent

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Enrollment Response transaction to show successful receipt and storage of the images into the specified SPC. If CJIS encounters an error associated with this action, an error response (ERRT) will be returned to the user.

3.6.3.1.3 Direct Supplemental Fingerprint and Palmprint Enrollment Request (Future Capability)

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

3.6.3.1.5 Direct Palmprint Enrollment (Future Capability)

In the future, the FBI will allow law enforcement agencies to enroll palmprints associated with previously enrolled tenprint records by using the Direct Palmprint Enrollment request. An agency must have an MOU in place with the FBI prior to sending transactions that do not have

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fingerprint images attached. The palmprint images will be stored in an CJIS database for future searching capability. To provide complete assurance that the palmprints are being associated with the proper records, in addition to providing the UCN of the existing record, submissions may be accompanied by electronic tenprint fingerprint images for verification. CJIS will respond with a Direct Palmprint Enrollment Response transaction to show successful receipt and storage of the palmprint images. If the submitted fingerprints do not match the given UCN, an error response (ERRT) will be returned to the user. If the quality of the palmprint images being enrolled satisfies palmprint searching thresholds, FBI will cascade a search of the ULF and 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 prior to sending transactions that do not have fingerprint images attached. The iris images will be stored in a 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. CJIS will respond with a~~n~~ 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 (ERRT) will be returned to the user.

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3.6.3.2 Biometric Deletion Transactions

3.6.3.2.1 Biometric Delete Request (Future Capability)

In the future, t~~T~~his ~~is a new~~ transaction allows~~ing~~ the user to request a deletion of a specific biometric set. The transaction supports full Palmprint Deletion, Supplemental Print Deletion, and Fingerprint Deletion from the ULF and SPC files. This transaction will support additional deletions in the future as needs arise. Only the owner of the~~a~~ record~~'s owner can~~ will be able to request its deletion. The requestor will specify the repository(ies) and the appropriate identifier(s) of the image(s) to be removed.

3.6.3.2.2 Biometric Delete Response (Future Capability)

In the future, t~~T~~his ~~new~~ transaction is ~~a successful response~~ returned when a successful~~from the~~ Biometric Delete Request was completed~~message~~. If any permission or processing errors are encountered, an error transaction is returned, so receipt of the Biometric Delete Response indicates the requested delete was successful.

~~3.6.3.2.1 Fingerprint Delete Request (Future Capability)~~

~~To allow for the modification of fingerprint images in the Unsolved Fingerprint, RISC, and Special Population Cognizant files, the user can submit these transactions to remove the fingerprint data from those repositories. The requestor, who must be the owner of the image, will specify the repository and the UCN associated with the fingerprint images to be removed. If the request contains any errors, the response code (REC) will be set to "N". This response will be returned including the reason for the rejection in a Response Explanation field (EXP).~~

~~3.6.3.2.2 Supplemental Fingerprint and Palmprint Deletion Request (Future Capability)~~

~~This transaction enables users to delete a specific supplemental fingerprint and palmprint set associated with a specified subject and/or event. Only owners of that print set may delete it. The requester specifies the UCN number of the subject and, optionally, event specific data (DOA). If the request contains any errors, the response code (REC) will be set to "N". This response will be returned including the reason for the rejection in a Response Explanation field (EXP).~~

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 Palmprint Delete Request (Future Capability)~~

~~This transaction enables users to delete a specific palmprint set associated with a specified subject and/or event. Only owners of that palmprint may delete it. The requester specifies the UCN number of the subject and, optionally, event specific data (DOA). If the request contains any errors, the response code (REC) will be set to "N". This response will be returned including the reason for the rejection in a Response Explanation field (EXP).~~

~~3.6.3.2.5 Iris Delete Request (Future Capability)~~

~~This transaction enables users to delete a specific iris image associated with a specified subject and/or event. Only owners of that iris image may delete it. The requester specifies the UCN number of the subject and, optionally, event specific data (DOA). If the request contains~~

~~any errors, the response code (REC) will be set to "N". This response will be returned including the reason for the rejection in a Response Explanation field (EXP).~~

~~3.6.3.2.6~~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 (Future Capability)

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 ~~UCN~~ 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 fingerprint is made against an image in the unsolved file, that image will be removed from the unsolved file. These biometric decisions can be for fingerprints, latent fingerprints, unsolved photos, palmprints, or iris ~~images using the Fingerprint Decision Submission, Latent Decision Submission, Photo Decision Submission, Palmprint Decision Submission, Iris Decision Submission, and Supplemental Fingerprint and Palmprint Decision Submission~~. When a decision is made pending an arrest, the record will be marked to allow for notification to the agency making the decision of any action made on this record.

3.6.3.4 Biometric Decision Response (Future Capability)

In the future, t~~T~~his ~~is new TOT~~transaction is returned when a successful ~~response returned from the~~ Biometric Decision Submission was completed~~message~~. If any permission or processing errors are encountered, an error ~~TOT~~transaction is returned. Therefore, ~~so~~ receipt of the Biometric Decision Response indicates the decision submission was successful.

~~3.6.3.3.1 Latent Search Ident Response () (Future Capability)~~

~~The FBI CJIS Division has a requirement to collect statistics regarding system performance to ensure IAFIS is performing at its peak accuracy. The Latent Search Ident Response (LSIR) is the transaction by which users will inform IAFIS of the results of their latent search results comparisons of candidates in the SRL response. These results will fall into the categories of Ident (I), Non-Ident (N), or Pending (P). This transaction is sent to IAFIS immediately upon completion of the comparison process when authorized by the user.~~

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~~This transaction provides an indication to the FBI's IAFIS of the comparison results from latent candidates contained in an SRL response message. In addition, information will be provided to indicate the transaction number of the original search and response, as well as which candidate from the SRL matched the search image, if any. SRF for latent decision transactions will contain "IDENT," "Non-IDENT," or "PENDING."~~

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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 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 to send External File Maintenance Submissions to External Systems and receive a response from the External Systems.

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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. This functionality includes the electronic update and deletion of disposition data. An electronic response (DSPR) will be sent to the requestor.

3.6.6 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 prenotification 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 will be required prior to Rap Back enrollment.

3.6.6.1 Rap Back Record Enrollment (Future Capability)

For existing individual with fingerprints on file with the FBI, 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).

3.6.6.2 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.

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3.6.7 External System Link Maintenance Submissions (Future Capability)

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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 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. CJIS error handling capabilities will be an evolutionary product. In its initial version, CJIS recognized and dealt with several hundred identified error conditions. Future updates to the CJIS system will develop improved capabilities that support off-nominal or error conditions.

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 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)
- Image Transaction Error Response (ERRI)
- Administrative Transaction Error Response (ERRA)
- External Query History Error Response (EQER)

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

3.8 Other Biometric Services (Future Capability)

In the future, the FBI, in consonance with the 2007 revision of the ANSI/NIST-ITL 1-2000 standard, will provide the users of its databases the capability to submit biometric data for which there is not yet an identified ANSI/NIST-ITL record type specifically designated. The revised standard defines the Type-99 record as the Common Biometric Exchange File Format (CBEFF).

The Type-99 tagged-field logical record shall contain and be used to exchange biometric data that are not supported by other ANSI/NIST-ITL logical records. These data are exchanged in a format that conforms to INCITS 398-2005, the Common Biometric Exchange File Format.

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The CBEFF-conformant Biometric Information Record (BIR) used by the Type-99 logical record includes a common header and a Biometric Data Block (BDB). Two mandatory fields in the CBEFF header are Format Owner and Format Type. The Format Owner field denotes the vendor, standards body, working group, or industry consortium that has defined the format of the biometric data (the data contained in the BDB). A CBEFF requirement is that format owners register with the IBIA for an assigned identifier of the format owner. The values used in the Format Type field are assigned by the format owner and represent a specific BDB format as specified by the format owner. This may be a non-standard, unpublished data format or a data format that has been standardized by an industry group, consortium, or standards body. It is the combined CBEFF Format Owner/Format Type value that uniquely identifies the BDB format.

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The Type-99 logical record provides the CBEFF fields necessary for users to send, receive, and interpret biometric data in any registered BDB format (with the exception of biometric data that are exchanged using the other logical records in this standard). The format of the data in the BDB field is identified by the field's BDB Format Owner and BDB Format Type as described by the CBEFF standard. The record layout of the ANSI/NIST-ITL 1-2007 Type-99 record is shown below.

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Table 3-~~3~~ 4 Type-99 CBEFF Biometric Data Record Layout

Ident	Cond Code	Field Number	Field Name	Char Type	Field size per occurrence min	max	Occur count min	max	Max byte count
LEN	M	99.001	LOGICAL RECORD LENGTH	N	4	8	1	1	15
IDC	M	99.002	IMAGE DESIGNATION CHARACTER	N	2	5	1	1	12
RSV	-	99.003	RESERVED FOR FUTURE INCLUSION	--	--	--	--	--	--
SRC	M	99.004	SOURCE AGENCY / ORI	AN	10	36	1	1	43
TCD	M	99.005	BIOMETRIC CAPTURE DATE	N	9	9	1	1	16
RSV	-	99.006 99.099	RESERVED FOR FUTURE INCLUSION	--	--	--	--	--	--
HDV	M	99.100	CBEFF HEADER VERSION	N	5	5	1	1	12
BTY	M	99.101	BIOMETRIC TYPE	N	9	9	1	1	16
BDQ	O	99.102	BIOMETRIC DATA QUALITY	ANS	9	36	0	1	43
BFO	M	99.103	BDB FORMAT OWNER	AN	5	5	1	1	12
BFT	M	99.104	BDB FORMAT TYPE	AN	5	5	1	1	12
RSV	-	99.105 99.199	RESERVED FOR FUTURE INCLUSION	--	--	--	--	--	--
UDF	O	99.200 99.998	USER-DEFINED FIELDS	--	--	--	--	--	--
BDB	M	99.999	BIOMETRIC DATA	B	2	--	1	1	--

This ANSI/NIST-ITL 1-2007 layout describes the data contained in each of the fields for the Type-99 logical record. Within a Type-99 logical record, entries shall be provided in numbered fields. It is required that the first two fields of the record are ordered, and the field containing the CBEFF-formatted binary data shall be the last physical field in the record. For each field of the Type-99 record, the table below lists the "condition code" as being mandatory "M" or optional "O," the field number, the field name, character type, field size, and occurrence limits. Based on a three-digit field number, the maximum byte count size for the field is given in the last column. As more digits are used for the field number, the maximum byte count will also increase. The two entries in the "field size per occurrence" include all character separators used in the field. The "maximum byte count" includes the field number, the information, and all the character separators including the $^{G}_{S}$ character.

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3.9 Other Special Requirements for Communicating With CJIS

3.9.1 Electronic Fingerprint Images

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

3.9.2 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'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 CJIS.

The FBI 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 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 type-1 (WSQ20) with a nominal compression ratio of 15-to-1 and Type-10 photo images to be compressed with compression algorithm type-2 (JPEG). IAFIS will accept ~~Fingerprint~~ 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. ~~must be transcoded down to 500 ppi WSQ files in accordance with the Profile for 1000ppi Fingerprint compression Version 1.1 (http://www.mitre.org/work/tech_papers/tech_papers_04/lepley_fingerprint/lepley_fingerprint.pdf).~~ The table will be updated when new algorithms are approved by the FBI.

Table 3-~~4~~ 5 Compression Algorithm Values

Compression Algorithm	Binary Value	ASCII Code
None used (Uncompressed)	0	NONE
Wavelet Scalar Quantization (WSQ) FBI Revision 2.0	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

3.9.3 Fingerprint Image Quality Specifications

The IAFIS Image Quality Specifications are provided in Appendix F.

3.9.4 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, 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-~~5~~ 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, 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~~, and Type-99 Common Biometric Exchange File Format (CBEFF) biometric data record~~. At this time, the 1,000 ppi image will be converted to 500 ppi for CJIS processing and the system will return any subsequent images at 500 ppi. When CJIS begins processing 1,000 ppi under NGI, the stored images will then be resubmitted into NGI.~~When CJIS begins processing 1,000 ppi under NGI, the stored images will then be incorporated back into the CJIS.~~ Therefore, agencies are encouraged to submit 1,000 ppi images for CJIS storage and collection purposes. The actual processing of 1,000 ppi images is a future capability associated with the FBI's Next Generation Identification (NGI) Program.

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														•

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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
		hard-copy													•	
		remote searches													•	
		humanitarian													•	
RISC Rapid Search, no Identity info						•										
RISC Rapid Search, Identity info							•									
Comparison Fingerprint Image(s) Submission*															•	
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								•								
Latent Search Status and Modification Query								•								
Subject Searches* (Criminal)					•											
Subject History Retrieval Requests (Criminal or Civil)					•											

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

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Table A-2: Future NGI Maximum Transaction Response Times ~~Requirements~~ 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-2 Future 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																•
RISC Rapid Search, no Identity info				•													
RISC Rapid Search, Identity info					•												
International Terrorist Identification Search										•							
International Terrorist File										•							
Fingerprint Investigation Search	high					•											
	routine						•										
	low										•						
Fingerprint 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														•		

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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
Latent Audit Trail Retrieval										•							
External Latent Print Search (generate)										•							
III Subject Search	•																
Biographic Investigation 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 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 Search													•				

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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
Supplemental Fingerprint & Palmprint Maintenance										•							
Cascaded Supplemental Fingerprint & Palmprint Search															•		
Rap Back Subscription List Retrieval										•							
Rap Back Enrollment										•							
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-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.

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	

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SERVICE	TOT	DESCRIPTION	TRANSACTION
	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	~~TBD~~FVR	Fingerprint Verification ~~Submission~~Request	Fingerprint Verification Request
Information Services	IRQ	Biometric Image/Feature Retrieval Submission	Biometric (Fingerprint, Photo, Iris, etc.) Image Retrieval
	CPR	Subject Photo Request	Photo Set Retrieval
	TBD	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
	TBD	Palmprint Audit Trail Retrieval	Palmprint Audit Trail Retrieval
	TBD	Iris Audit Trail Retrieval	Iris Audit Trail Retrieval
	TBD	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
	TPFS	Tenprint Fingerprint Feature Search	
	TPRS	Tenprint Fingerprint Rap Sheet Search	
	LPNQ	Latent Penetration Query	Latent Search
	LFIS	Latent ~~Fingerprint~~ Friction Ridge Image Search	
	LFFS	Latent ~~Fingerprint~~ Friction Ridge Feature Search	
	LSMQ	Latent Search Status and Modification Query	
	LRSQ	Latent Repository Statistics Query	
	CFS	Comparison Fingerprint Image Submission	
	ELR	Evaluation Latent Fingerprint Submission Request	
	TBD	Text-Based Facial Photo Search	Text-Based Facial Photo Search

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SERVICE	TOT	DESCRIPTION	TRANSACTION
	TBD	Text-Based SMT Photo Search	Text-Based SMT Photo Search
	TBD	Facial Recognition Search	Facial Recognition Search
	TBD	Palmprint Image Search	Palmprint Search
	TBD	Palmprint Feature Search	
	TBD	Supplemental Fingerprint and Palmprint Image Search	Supplemental Fingerprint & Palmprint Search
	TBD	Supplemental Fingerprint and Palmprint Feature Search	
	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
	ULAC	Unsolved Latent File Add Confirm	Fingerprint Maintenance
	ULD	Unsolved Latent Record Delete	
	CPR	Photo Set Retrieval Request	Subject Photo Request
	CPD	IPS Original Photo Delete Request	Photo Maintenance
	PPE	Direct Palmprint Enrollment	Palmprint Maintenance
	IIE	Direct Iris Data Enrollment	Iris Maintenance
	TBD	Direct Rap Back Enrollment	Rap Back Maintenance
	TBD	Rap Back Maintenance	
	TBD	Fingerprint Deletion	Fingerprint Maintenance
	TBD	Fingerprint Decision	
	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	Fingerprint Maintenance
	TBD	Direct Fingerprint Enrollment	
	TBD	Direct Latent Enrollment	
	TBD	Latent Decision	
	TBD	Direct Photo Enrollment	Photo Maintenance

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SERVICE	TOT	DESCRIPTION	TRANSACTION
	TBD	Photo Decision	
	TBD	Palmprint Deletion	Palmprint Maintenance
	TBD	Palmprint Decision	
	TBD	Direct Supplemental Fingerprint and Palmprint Enrollment	Supplemental Fingerprint & Palmprint Maintenance
	TBD	Supplemental Fingerprint and Palmprint Deletion	
	TBD	Supplemental Fingerprint and Palmprint Decision	
	TBD	Iris Data Deletion	Iris Maintenance
	TBD	Iris Decision	
	TBD	Rap Back Subscription Renewal	Rap Back Maintenance
	TBD	External System Link Maintenance	Link Maintenance from external
	TBD	External System Linked Record Activity	

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*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.

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

The following paragraphs describe the data contained in the fields for the Type-1 logical 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 $^{U}_{S}$ separator; multiple subfields shall be separated by the $^{R}_{S}$ separator; and information fields shall be separated by the $^{G}_{S}$ separator. Immediately following the last information field in the Type-1 logical record, an $^{F}_{S}$ separator character shall be used to separate it from the next logical record. Table B-2 summarizes the content of each of the fields in the Type-1 record. The field sizes do not account for any separator characters. The max byte count does account for any separator characters, $^{R}_{S}$ and $^{U}_{S}$ separators for multiple fields for an element and $^{G}_{S}$ separator used for the end of the element marker. The information in this appendix has been taken directly from the ANSI/NIST-ITL Standard~~, *Data Format for the Interchange of Fingerprint, Facial & Scar Mark & Tattoo (SMT) Information (ANSI/NIST-ITL 1-2007)*~~. Any information that is underlined is an FBI-specific requirement.

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

CNT 1.003 – File content. ***<ansi-nist:TransactionContentSummary>***

This **mandatory** field shall list each of the logical records in the logical file by record type. It also specifies the order in which the remaining logical records shall appear in the logical file. It shall consist of one or more subfields. Each subfield shall contain two information items describing a single logical record found in the current logical file. The subfields shall be entered in the same order in which the logical records shall be transmitted. When more than one subfield is used, the $^{R}_{S}$ separator character shall be entered between the subfields. With the addition of the Type-10 record, the first information item of each subfield may now be a one- or two-digit integer (giving the logical record type). The remaining edit specifications pertaining to CNT are unchanged.

The first subfield shall relate to this Type-1 transaction record. The first information item within this subfield shall be the single character indicating that this is a Type-1 record consisting of header information (the numeral "1" selected from the ANSI/NIST-ITL Standard Table 4).

The second information item of this subfield shall be the sum of the Type-2 plus Type-3 plus Type-4 plus Type-5 plus Type-6 plus Type-7 plus Type-8 plus Type-9 plus Type-10 plus Type-13 plus Type-14 plus Type-15 plus Type-17 plus Type-99 records contained in this logical file. This number is also equal to the count of the remaining subfields of Field 1.03. The $^{U}_{S}$ separator character shall be entered between the first and second information items.

The remaining subfields of Field 1.03 pertaining to Type-2, Type-3, Type-4, Type-5, Type-6, Type-7, Type-8, Type-9, Type-10, Type-13, Type-14, Type-17, and Type-99 records contained in the file shall each be composed of two information items. The first information item shall be one or two characters chosen from the ANSI/NIST-ITL Standard Table 4, which

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states the record type. The second information item shall be the IDC associated with the logical record pertaining to that subfield. The IDC shall be a positive integer equal to or greater than zero. The US character shall be used to separate the two information items. (Only Type-1, Type-2, Type-4, Type-7, Type-9, Type-10, Type-13, Type-14, Type-15, Type-16, Type-17, and Type-99 records will be accepted by the FBI.)

DAI 1.007 – Destination Agency Identifier. ***<ansi-nist:TransactionDestinationOrganization>***

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This **mandatory** field shall contain the identifier of the administration or organization designated to receive the transmission. The size and data content of this field shall be defined by the user and be in accordance with the receiving agency. This field shall be a nine-byte alphanumeric field.

DAT 1.005 – Date. ***<ansi-nist:TransactionDate>***

This **mandatory** field shall contain the date that the transaction was submitted. The date of submission shall not exceed the current date except when the submission originates from an international contributor located in a time zone that is 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 one day forward (24 hours) to accommodate the variance between international time zones.

For native encoding, the date shall appear as an eight-digit number in the format CCYYMMDD. 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 in the month. For example, 19920601 represents June 1, 1992.

For XML encoding, the date is shown as CCYY-MM-DD. For example, <nc:Date>1992-06-01</nc:Date> represents June 1, 1992.

DCS 1.015 – Directory of Character Sets. ~~,~~ ***<ansi-nist:TransactionCharacterSetDirectory>***

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This optional field is a directory or list of character sets other than 7-bit ASCII that may appear within this transaction. This field shall contain one or more subfields, each with three information items. The first information item is the three-character identifier for the character set index number that references an associated character set throughout the transaction file. The second information item shall be the common name for the character set associated with that index number. The optional third information item is the specific version of the character set used. In the case of the use of UTF-8, the third optional information item can be used to hold the specific version of the character set used with UTF-8 so that the display terminal can be switched to the correct font family. The table below is copied from the ANSI/NIST-ITL standard and lists the reserved named character sets and their associated three-character index numbers. The US character shall separate the first information item from the second and the second from the third. The RS separator character shall be used between the subfields.

Directory of Character Sets

Character Set Index	Character Set Name	Description
000	ASCII	7-bit English (Default)
001	ASCII	8-bit Latin
002	UNICODE	16-bit
003	UTF-8	8-bit
004-127	----------	Reserved for ANSI/NIST future use
128-999	----------	User-defined character sets

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

This optional 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 for the field shall be the North American Domain implementation and shall appear as "1.013:NORAM{US}{GS}".

~~**DAT 1.005 – Date.** This **mandatory** field shall contain the date that the transaction was initiated. The date shall appear as an eight-digit number in the format CCYYMMDD. 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 in the month. For example, 19920601 represents June 1, 1992. The date of submission shall not exceed the current date except when the submission originates from an international contributor located in a time zone that is 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 one day forward (24 hours) to accommodate the variance between international time zones.~~

GMT 1.014 – Greenwich Mean Time. ***<ansi-nist:TransactionUTCDate>***

This optional field provides a mechanism for expressing the date and time in terms of universal Greenwich Mean Time (GMT) units. If used, the GMT field contains the universal date that will be in addition to the local date contained in Field 1.005 (DAT). 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. For native encoding, ~~It~~ it is represented as "CCYYMMDDHHMMSSZ," a 15-character string that concludes with a "Z." For 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

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"MM" the minute, and the "SS" represents the seconds. The complete date shall not exceed the current date.

LEN 1.001 – Logical Record Length.
This **mandatory** ASCII field shall contain the total count of the number of bytes in this Type-1 logical record. Field 1.001 shall begin with "1.001:" followed by the length of the record including every character of every field contained in the record and the information separators. The number of characters added to the record by the LEN field itself shall be included in calculating the value of LEN.

NSR 1.011 – Native Scanning Resolution. ***<ansi-nist:NativeScanningResolutionValue>***

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This **mandatory** field shall specify the nominal scanning resolution of the AFIS or other image capture device supported by the originator of the transmission. This field permits the recipient of this transaction to send response data at a transmitting resolution tailored to the NSR (if it is able to do so) or to the minimum scanning resolution. This field shall contain five bytes specifying the native scanning resolution in pixels per millimeter. The resolution shall be expressed as two numeric characters followed by a decimal point and two more numeric characters (*e.g.*, 20.00). This field is needed because the interchange of fingerprint information between systems of the same manufacturer may, in some instances, be more efficiently done at a transmitting resolution equal to the native scanning resolution of the system rather than at the minimum scanning resolution specified in this standard. This field currently applies only to ~~fingerprint image data~~ Type-4 and Type-7 records. In the future, this field will be used for other biometric image record information. For those logical files that do not contain fingerprint image records, this field shall be set to '00.00'.

NTR 1.012 – Nominal Transmitting Resolution.
<ansi-nist:NominalTransmittingResolutionValue>
This **mandatory** field shall specify the nominal transmitting resolution for the image or images being transmitted. This field shall contain five bytes specifying the transmitting resolution in pixels per millimeter. The resolution shall be expressed as two numeric characters followed by a decimal point and two more numeric characters (*e.g.*, 20.00). The transmitting resolution shall be within the range specified by the transmitting resolution requirement. This field currently applies only to Type-4 and Type-7 records~~fingerprint image data~~. In the future, this field will be used for other biometric image record information. For those logical files that do not contain fingerprint image records, this field shall be set to '00.00'.

ORI 1.008 – Originating Agency Identifier.
<ansi-nist:TransactionOriginatingOrganization>

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This **mandatory** field shall contain the identifier of the administration or organization originating the transaction. The size and data content of this field shall be defined by the user and be in accordance with criteria specified by the receiving agency. For EBTS purposes, this field shall be a nine-byte alphanumeric field. The first two characters shall be a valid POB code, and the entire ORI shall validate to an NCIC-authorized ORI. **Note:** In a submission to the FBI, the submitting agency (usually the CJIS Systems Agency (CSA)) is the **ORI** and the FBI is the **DAI**, while the FBI's response to the submission will show the FBI as the **ORI** and the submitting agency as the **DAI**. (See also Appendix C for the definition of **CRI**.)

PRY 1.006 – Transaction Priority. ***<ansi-nist:TransactionPriorityValue>***

When this optional field is used, it shall contain a single information character to designate the urgency with which a response is desired. The values shall range from 1 to 4, with "1" denoting the highest priority. The default value shall be "4" if no value is indicated. In the future, this field will be expanded to include the values 5 to 9. Please note, the priority field for latent search transactions is PRI 2.076.

TCN 1.009 – Transaction Control Number. ***<ansi-nist:TransactionControlIdentification>***

This **mandatory** field shall contain the Transaction Control Number as assigned by the originating agency. A unique control identifier shall be assigned to each transaction. For any transaction that requires a response, the respondent shall refer to this identifier in communicating with the originating agency. This field shall be a 10- to 40-byte alphanumeric-special (ANS) field.

TCR 1.010 – Transaction Control Reference.
<ansi-nist:TransactionControlReferenceIdentification>

This field shall be used in responses only to refer to the Transaction Control Number of a previous transaction involving an inquiry or other action that required a response. This field is **mandatory** for such responses. This field shall be a 10- to 40-byte alphanumeric-special (ANS) field.

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:" and must be between seven and nine characters, including the prefix.

VER 1.002 – Version Number. ***<ansi-nist:TransactionMajorVersionValue>***

This **mandatory** four-byte ASCII field shall be used to specify the version number of the ANSI/NIST-ITL Standard for Information Systems, ANSI/NIST-ITL 1-2007, *Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo (SMT) Information*, implemented by the software or system creating the file. The format of this field shall consist of four numeric characters. The first two characters shall specify the major version number. The last two characters shall be used to specify the minor revision number. The initial revision number for a version shall be "00." The original 1986 standard would be considered the first version or "0100." The entry in this field for this 1993 approved standard shall be "0200." With the addition of the Type-10 logical record by the Addendum to the ANSI/NIST-ITL Standard, *Data Format for the Interchange of Fingerprint, Facial, & SMT Information (ANSI/NIST-ITL 1a-1997)*, the entry in this field shall be "0201." For transactions compliant with the ANSI/NIST-

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ITL 1-2007, the version shall be “0400.” The XML encoding for this field breaks the information into separate major and minor version number fields.

Table B-1 Field List for Type-1 (Transaction) Logical Records

Identifier	Condition	Field No.	Field Name	Character Type	Field Size per Occurrence (not including Character Separators)		Occurrences		Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.		
LEN	M	1.001	LOGICAL RECORD LENGTH	N	2	3	1	1	1.001:230<GS>	
VER	M	1.002	VERSION	N	4	4	1	1	1.002:0400<GS>	
CNT	M	1.003	FILE CONTENT	N	4	6	2	8	1.003:1<US>15<RS>2<US>00<RS>4<US>01<RS>4<US>02<RS>4<US>03<RS>4<US>04<RS>4<US>05<RS>4<US>06<RS>4<US>07<RS>4<US>08<RS>4<US>09<RS>4<US>10<RS>4<US>11<RS>4<US>12<RS>4<US>13<RS>4<US>14<GS>	
TOT	M	1.004	TYPE OF TRANSACTION	A	3	5	1	1	1.004:CAR<GS>	
DAT	M	1.005	DATE	N	8	8	1	1	1.005:20080327<GS>	
PRY	O	1.006	TRANSACTION PRIORITY	N	1	2	0	1	1.006:1<GS>	
DAI	M	1.007	DESTINATION AGENCY	AN	9	9	1	1	1.007:DCFBIWA6Z<GS>	
ORI	M	1.008	ORIGINATING AGENCY IDENTIFIER	AN	9	9	1	1	1.008:NY0303000<GS>	
TCN	M	1.009	TRANSACTION CONTROL NUMBER	ANS	10	40	1	1	1.009:1234567890<GS>	Any printable 7-bit ASCII character is allowed.
TCR	O	1.010	TRANSACTION CONTROL REFERENCE	ANS	10	40	0	1	1.010:1234567890<GS>	Any printable 7-bit ASCII character is allowed.
NSR	M	1.011	NATIVE SCANNING RESOLUTION	NS	5	5	1	1	1.011:20.00<GS>	Period allowed.
NTR	M	1.012	NOMINAL TRANSMITTING RESOLUTION	NS	5	5	1	1	1.012:20.00<GS>	Period allowed.
DOM	O	1.013	DOMAIN NAME	AN	*	*	0	1	1.013:NORAM<US><GS>	
GMT	O	1.014	GREENWICH MEAN TIME	AN	15	15	0	1	1.014:20061025132400Z<GS>	
DCS	O	1.015	DIRECTORY OF CHARACTER SETS	ANS	*	*	0	*	1.015:003<US>UTF-8<US>8-bit<FS>	

* No limits defined. Under the Condition column: O = optional; M = mandatory; C = conditional; see notes. Under the character type column: A = alpha; B = binary; N = numeric; S = special characters.

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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. ~~The max byte count does account for any separator characters, RS and US separators for multiple fields for an element and GS separator used for the end of the element marker.~~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 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 ~~this~~ the data dictionary section. If the contributor supplies data in any of these fields in a submission or search, th~~os~~e data will be returned in the corresponding response.

The RAP, RET, REC, TAA, and ULF are examples of flag fields taking values 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.

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1.1 Date Fields

Date fields are in accordance with that requirement. 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.

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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:DomainDefinedDescriptiveText> with a user-defined structure. EBTS provides the substitution element <ebts:DomainDefinedDescriptiveFields> to represent the EBTS Type-2 Record. The ANSI/NIST-ITL 2-2008 standard also provides for inclusion of user-specific data (e.g., for use in intrastate transactions) by creating the abstract type element <itl:OtherDescriptiveText>. 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 on transactions submitted to CJIS/FBI.

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

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Structurally, elements with multiple data items that are natively represented as a single concatenated string are instead placed separate fields. For example, and 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

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<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:

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.

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2.0 Data Dictionary

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

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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, c~~C~~ommas, hyphens, ampersands, slashes, number signs, and blanks are all allowed as special characters.

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

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This field will be used to give ~~An~~ an estimated age range may be entered using a pair of two-digit age numbers. For the native encoding of this field, t~~T~~he 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.

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

This 3-to-30 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 $^{R}_{S}$ 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~~ or ampersand~~, 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 ~~grouped~~ repeating field contains information about amputated or bandaged fingerprints in an EBTS submission. It is composed of two subfields:~~,~~

- -Finger Position (FGP)~~), and~~
- 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~~. Finger positions 11-15 should only be used when no 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, t~~T~~he two-character finger position code is followed by the $^{U}_{S}$ separator and the amputated or bandaged code. Each set of~~Multiple~~ fingers/amp codes shall be separated by the $^{R}_{S}$ separator. ~~This field is to be used any time there are fewer than ten printable fingers in a tenprint submission. 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 be used for all missing or no image provided for fingerprints in the submission that AFIS should ignore and not include in the matching process.~~ Two characters represent each finger number as follows:

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Finger Position	FGP
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
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.

The following is a list of allowable indicators for the AMPCD:

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

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

2.084:03$^{U}_{S}$XX$^{R}_{S}$09$^{U}_{S}$UP$^{G}_{S}$

ASL 2.047 – Arrest Segment Literal. ***<j:Arrest>***

This field is made up of the following subfields:

- Date of Offense (DOO) ~~and the~~
- 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 ahead of~~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.~~Edit checks will accept the local date as valid up to 24 hours to~~

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~~accommodate the variance between international time zones.~~ Up to 40 occurrences of the ASL are allowed.

For the native encoding format, ~~e~~Each occurrence of the ASL shall be separated by the $^{R}_{S}$ separator character. The DOO shall be separated from the AOL by the $^{U}_{S}$ separator character. A DOO is prohibited without a corresponding AOL offense. If a DOO is not present, a $^{U}_{S}$ character separator shall still be used.

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

2.047:19940915$^{U}_{S}$DUI$^{R}_{S}$19940920$^{U}_{S}$POSSESSION OF FIREARMS$^{G}_{S}$

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.

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) ~~and~~
- Name (NAM)

For native encoding, each field will be separated by a $^{U}_{S}$ 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 $^{R}_{S}$ 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.

CCN 2.094 – Court Case Number. ***<j:CourtEventSequenceID>*** **(Future Capability)**

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~~ Bblanks are not permitted. ~~A CCN must not begin with a blank.~~

CFS 2.077 – Cancel Friction Ridge Search. ***<ebts:TransactionCancelFingerprintSearchID>***

This field will contain the information required to cancel a latent friction ridge search previously submitted to CJIS. This field will contain unique identifier numbers (AFIS/FBI uses the AFIS Segment Process Control Number) for all searches to be canceled. The response to this request will contain the same information for all searches that were canceled. Only searches that are still pending will be canceled (searches completed or in-progress may not be canceled).

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Note: As the design of NGI takes over the Latent Processing, the LSMQ & LSMR transactions will not be included as the increased response times will make it impossible to receive an accurate report. Therefore in the next version of this standard, this field will be retired.

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."), followed by
- the US separator and 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.

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 Ident 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

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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. (Future Capability)
<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. ***<j:~~ArrestCharge~~ChargeDisposition>***

The CSL field is made up of the following subfields ~~Court Disposition Date (CDD), the Court Offense Literal (COL), and the Other Court Sentence Provision Literal (CPL).~~

- 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 $^{R}_{S}$ separator character. A CDD (if available), followed by a COL, followed by a CPL, each separated by a $^{U}_{S}$ separator character must be present for each occurrence of the CSL field. If the CDD is not available, a $^{U}_{S}$ separator character alone shall be used immediately after the field tag or preceding $^{R}_{S}$ separator character. The COL ~~and CPL are~~is ~~always~~ 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.

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

2.051:19940930$^{U}_{S}$DUI$^{U}_{S}$5 DAYS JAIL, PAY COURT COSTS$^{R}_{S}$19940930$^{U}_{S}$POSSESSION OF FIREARMS$^{U}_{S}$10 DAYS JAIL, PAY COURT COSTS, 50^{G}_{S}$

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

2.051:$^{U}_{S}$DUI$^{U}_{S}$5 DAYS JAIL, PAY COURT COSTS$^{R}_{S}$19940930$^{U}_{S}$POSSESSION OF FIREARMS$^{U}_{S}$10 DAYS JAIL, PAY COURT COSTS, 50^{G}_{S}$

~~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.~~

CSR 2.048 – Civil Search Requested Indicator.
<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. ***<ebts:CaseTitleText>***

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

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> **(Future Capability)**

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. Possible values for the Datum subfield:

Datum ID	Description
AIRY	Airy
AUST	Australian
BES	Bessel 1841
BESN	Bessel 1841 (Nambia)
CLK66	Clarke 1866
CLK80	Clarke 1880

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Datum ID	Description
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 Indicator.
<ebts:TransactionDispositionMaintenanceCode> **(Future Capability)**

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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. The following chart represents the valid DMI Codes:

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.

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DNAC 2.2018 – DNA in CODIS Flag *<ebts:BinaryCODISAvailableIndicator>* (Future Capability).

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>* (Future Capability).

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.

DOA 2.045 – Date of Arrest. *<nc:ActivityDate>*

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/>).~~If DOB is completely unknown, enter as 00000000.~~ 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-ident 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:OrganizationIdentification>* (Future Capability).

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

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the request. Edit checks will accept the local date as valid up to 24 hours forward to accommodate the variance between international time zones.

EAD 2.039 - Employer and Address. ***<nc:Employer> <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 Number. ***<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 ~~the~~ 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.

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 Color	Code
Black	BLK
Blue	BLU
Brown	BRO
Gray	GRY

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Eye Color	Code
Green	GRN
Hazel	HAZ
Maroon	MAR
Multicolored	MUL
Pink	PNK
Unknown	XXX

FBI 2.014 – FBI Number. ***<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.

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 ~~LFPS~~ 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:FingerPositionCode>***

This field is used for latent submissions and searches and contains the fingerprint position code of the latent print(s) submitted. The following table is the finger position and code table:

Finger Position	Code
Unknown or "ALL"	00
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

If more than one finger is submitted with native encoding, then the codes will be separated by the $^{R}_{S}$ 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).

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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 12, "Finger Position Code," in Section 11 of the ANSI NIST-ITL 1-2007. Up to 13 individual finger numbers may be listed. For native encoding, each finger number will be separated from one another by the $^{U}_{S}$ 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 for 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 12, "Finger Position Code," in Section 11 of the ANSI/NIST-ITL 1-2007. Up to 13 individual finger image numbers may be listed. For native encoding, each finger numbers shall be separated from one another by the $^{R}_{S}$ 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^{R}_{S} 02^{R}_{S} ... $^{R}_{S}10^{G}_{S}$.

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. Two characters represent each finger as follows:

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

The following patterns may be placed in the positions identified in the above table:

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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

The NCIC FPC for a set of fingerprints made up of all ulnar loops in native encoding might read:

2.033:12101116141109111713$^{G}_{S}$

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

2.033:12XX11CO14115906Cl13$^{G}_{S}$

For XML encoding, only the two-character NCIC FPC Code value is necessary.

* 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.

Refer to the NCIC Code Manual, 4-28, for the FPC Field for Unidentified Persons.

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

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This field indicates the geographic area to be searched. The appropriate two letter abbreviation shall be used as listed in Part IV of the NCIC State and Country Data Code Table found in Appendix O. Each GEO shall be separated from the next by the $^{R}_{S}$ separator character. If inclusion of all 50 states is desired, this field shall remain blank.

GEO_CORD 2.2026 – Geographic Coordinate Locator.
<ebts:RecordBiometricCaptureGeoLocation> **(Future Capability)**

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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.

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Geographic Coordinate Latitude Degree and Coordinate Longitude Degree subfields are mandatory. For the native encoding, if~~If~~ any other subfield is not available, a US~~<US>~~ separator character alone shall be used immediately after the preceding US~~<US>~~ separator character.

The subfields are defined as outlined below:

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	Longitude Degree	NS	1	10	Period, Plus, Hyphen
LONM	Longitude Minute	NS	1	8	Period
LONS	Longitude Second	NS	1	8	Period

GEO_TIME 2.2025 - Geographic Coordinate Date Time Stamp.
<ansi-nist:TransactionUTCDate> **(Future Capability)**

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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>***

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

Hair Color	Code
Bald	BAL
Black	BLK
Blond or Strawberry	BLN
Blue	BLU
Brown	BRO
Gray or Partially Gray	GRY
Green	GRN

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Hair Color	Code
Orange	ONG
Pink	PNK
Purple	PLE
Red or Auburn	RED
Sandy	SDY
Unknown	XXX
White	WHI

HGT 2.027 – Height. ***<nc:PersonHeightMeasure> <nc:MeasurePointValue> <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 are entered in the nc:MeasureUnitText field. In the native encoding, ~~i~~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> <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 ~~If a range of height is given, it shall be expressed as two three-character values formatted as described for mnemonic HGT, indicating the shortest and tallest heights of the subject. 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.

For the XML encoding, there will be two subfields defined for the minimum and maximum range. Example follows:

```
<!-- HTR 2.028 -->
    <nc:PersonHeightMeasure>
      <nc:MeasureRangeValue>
        <nc:RangeMinimumValue/>
        <nc:RangeMaximumValue/>
      </nc:MeasureRangeValue>
      <nc:MeasureUnitText/>
    </nc:PersonHeightMeasure>
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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.

IFS 2.2021 – Identification Firearms Sales ***<j:PersonFirearmSalesDisqualifiedCode>*** **(Future Capability).**

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. The following is a list of allowable indicators:

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>*** **(Future Capability).**

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.

~~. It is a grouped field composed of three subfields: the Make (MAK), Model (MODL), and Serial Number (SERNO) of the acquisition device separated by the US separator character.~~

IMT 2.062 – Image Type. ***<ebts:RecordLatentImageCategoryCode>***

This field identifies the type of image (*e.g.*, palmprints, toe prints) included in an electronic submittal. The following is a list of IMT values to be used in an electronic latent submittal to identify the Type-7 or Type-13 record(s) present:

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Image Type	Value
Fingerprint	1
Lower Joint	2
Palmprint	3
Toe Print	4
Foot Print	5

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'.

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

This field is an 11-byte alphanumeric/special assigned by the FBI LFPS and used for record-keeping purposes. Although the field is optional, it is imperative that the user transmits this number if it is known.

LCX 2.013 – Latent Case Number Extension. *<ebts:FBILatentCaseNumberExtension>* ~~(Future Capability to require five characters)~~

Defines extensions assigned by the FBI for each submission related to a Latent Case Number. The LCX shall be a ~~four~~five-digit extension starting with "~~0001~~00000" for the first submission and incrementing by one for each subsequent submission. The LCX shall be used only in conjunction with LCN.

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 following table shall be entered in this field to indicate which branch of the United States Military submitted the enlistment transaction.

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

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

The subject's ~~If there are any~~ miscellaneous identification numbers~~, they~~ shall be entered in this field.

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For native encoding, t~~T~~he 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 $^{R}_{S}$ 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 following 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 following table (such as driver's license) shall not be entered. Only U.S. passport numbers shall be entered; foreign numbers shall be ignored. ~~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 $^{R}_{S}$ separator character.~~

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
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

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Unsolicited Unsolved Latent Delete transaction will contain the reason for the deletion of a record. For native encoding, e~~E~~ach message will be separated by the $^{R}_{S}$ 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:

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

NAM1 2.2001 – Name-One. ***<~~ebts~~nc:PersonSur~~Extended~~Name>*** **(Future Capability)**

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 a last~~given~~ name (or surname) for a culture using three names (*e.g.*, Smith~~Brian~~) or an only name used in a single name culture (*e.g.*, Mohammed). The maximum length of the NAM1 field is 50 characters.

NAM2 2.2002 – Name-Two. ***<~~ebts~~nc:PersonGiven~~Extended~~Name>*** **(Future Capability)**

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 could be the given~~middle~~ name for a culture using three names (*e.g.*, David) or the second of a string of four or five names. The maximum length of the NAM2 field is 50 characters.

NAM3 2.2003 – Name-Three. ***<~~ebts~~nc:PersonMiddle~~Extended~~Name>*** **(Future Capability)**

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~~last~~ name ~~(or surname) for a culture using three names~~ (*e.g.*, Michael~~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 NAM3 field is 50 characters.

NAM4 2.2004 – Name-Four. ***<ebts:PersonTribal~~Extended~~Name>*** **(Future Capability)**

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

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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:PersonCulturalExtendedName>*** **(Future Capability)** 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 / Images Returned.
<ebts:TransactionImagesRequestedQuantity>

This field 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. For EQRR, this field identifies the number of Identity ~~history~~ History Summary Sheets that will be returned in response to an EQHR. The maximum value of NCR is currently 20.

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 $^{R}_{S}$ separator. The following values are acceptable for NDR.

NDR Value	File Name
1	Criminal Master File Records
2	Civil Records
3	Unsolved Latent File
4	Major Case File Records
5	Latent Image File Records
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	International Terrorist File (ITF) Participants
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)

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NDR Value	File Name
15	RISC Persons of Special Interest (Other)
16 – 19	Reserved for Future Use
20 - 50	Reserved for Department of Defense
51 - 100	Reserved for Future Use
101-125	FBI Special Population Cognizant Files
126-135	Other Federal Organization Special Population Cognizant Files

NIR 2.2010 – Number of Images Requested. *<ebts:RecordImagesRequestedQuantity>* **(Future Capability)**

This optional field is 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, 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 IDENT 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)~~, and~~

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- Pattern Classification Code (PATCL),

PAT shall consist of ~~displayed as the~~ two-character finger position code followed by the $^{U}_{S}$ ~~separator and 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, ~~i~~If multiple pattern types are used for reference for the same finger, they shall be separated from each other by the $^{U}_{S}$ separator. Multiple fingers shall be separated by the $^{R}_{S}$ 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.

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

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

2.034:01$^{U}_{S}$WU$^{R}_{S}$02$^{U}_{S}$LS$^{R}_{S}$03$^{U}_{S}$LS$^{R}_{S}$04$^{U}_{S}$LS$^{R}_{S}$05$^{U}_{S}$LS$^{R}_{S}$06$^{U}_{S}$RS$^{R}_{S}$07$^{U}_{S}$RS$^{R}_{S}$08$^{U}_{S}$LS$^{R}_{S}$09$^{U}_{S}$RS$^{R}_{S}$10$^{U}_{S}$RS$^{G}_{S}$

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

2.034:01$^{U}_{S}$RS$^{U}_{S}$WU$^{U}_{S}$AU$^{R}_{S}$02$^{U}_{S}$RS$^{U}_{S}$AU$^{U}_{S}$WU$^{R}_{S}$03$^{U}_{S}$WU$^{R}_{S}$04$^{U}_{S}$RS$^{R}_{S}$05$^{U}_{S}$WU$^{R}_{S}$06$^{U}_{S}$LS$^{R}_{S}$
07$^{U}_{S}$WU$^{R}_{S}$08$^{U}_{S}$AU$^{R}_{S}$09$^{U}_{S}$AU$^{R}_{S}$10$^{U}_{S}$WU$^{U}_{S}$AU$^{G}_{S}$

The following is an XML representation of a single finger, with a FGP, FPC, PAT, and RCN1 &2

```
<!--PAT 2.034 / RCD1 2.091 /RCD2 2.092 -->
<ebts:FingerprintImageFinger>
<!--FGP 2.074 / 2.034A / 2.091A / 2.092A-->
<ansi-nist:FingerPositionCode>1</ansi-nist:FingerPositionCode>
<!--FPC 2.033-->

<ebts:NCICFingerprintClassificationCode>PI</ebts:NCICFingerprintClassificationCode>
<ebts:RidgeCoreDelta>
<!--PATCL 2.034B -->

<ebts:FingerprintPatternClassificationCode>WU</ebts:FingerprintPatternClassificationCode>
<!--RCN1 2.091B-->
<ansi-nist:RidgeCountValue>13</ansi-nist:RidgeCountValue>
<!--RCN2 2.092B-->
<ansi-nist:RidgeCountValue>10</ansi-nist:RidgeCountValue>
</ebts:RidgeCoreDelta>
</ebts:FingerprintImageFinger>
```

If you wanted to guess the finger positions as 3 and 8, it would look like this:

```
<!--PAT 2.034 / RCD1 2.091 /RCD2 2.092 -->
<ebts:FingerprintImageFinger>
<!--FGP 2.074 / 2.034A / 2.091A / 2.092A-->
<ansi-nist:FingerPositionCode>0</ansi-nist:FingerPositionCode>
<ansi-nist:FingerPositionCode>3</ansi-nist:FingerPositionCode>
<ansi-nist:FingerPositionCode>8</ansi-nist:FingerPositionCode>
<!--FPC 2.033-->
<ebts:NCICFingerprintClassificationCode>
PI
</ebts:NCICFingerprintClassificationCode>
<ebts:RidgeCoreDelta>
<!--PATCL 2.034B -->
<ebts:FingerprintPatternClassificationCode>
WU
</ebts:FingerprintPatternClassificationCode>
<!--RCN1 2.091B-->
<ansi-nist:RidgeCountValue>13</ansi-nist:RidgeCountValue>
```

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<!--RCN2 2.092B-->
<ansi-nist:RidgeCountValue>10</ansi-nist:RidgeCountValue>
</ebts:RidgeCoreDelta>
</ebts:FingerprintImageFinger>

PEN 2.078 – Penetration Query Response. ***<ebts:TransactionPenetrationQueryResponsePercent>***

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 that will be searched given the input parameters.

PHT 2.036 – "Photo Available" Indicator. ***<ebts:PersonDigitalImageAvailableIndicator>***

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.

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 the NCIC State and Country Data Code Table found in Appendix O. The criteria listed below shall also be considered when assigning POB.

If the following condition exists:	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.

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

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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. CJIS will not interrupt searches in progress upon receipt of higher priority searches.

PTD 2.063 – Person Type Designator. *<ebts:PersonTypeDesignatorCode>*

This field is used in the submittal of comparison fingerprints, and it indicates that the fingerprints belong to a victim, suspect, individual with legitimate access to the object, or other individuals involved in the latent case. The following codes will be used.

Code	Designation
S	Suspect
V	Victim
E	Elimination
O	Other

PTY 2.2009 – Photo Type. *<ansi-nist:ImageCategoryCode>* **(Future Capability)**

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.

QDD 2.004 – Query Depth of Detail. *<ebts:TransactionQueryDepthCode>*

This field is used to define the scope of the Latent Queue Management Query. The defined levels can be at the state level (S), at the ORI level (O), or at the Case level (C).

Note: As the design of NGI takes over the Latent Processing, the LSMQ & LSMR transactions will not be included as the increased response times will make it impossible to receive an accurate report. Therefore in the next version of this standard, this field will be retired.

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

This field is used to indicate the race of the subject. Use the predominant race code from the following 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	I

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If Subject Is	Enter Code
tribal affiliation or community recognition	
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 Ident was made and an NIDR if the submission resulted in a Non-Ident. 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>*** **(Future Capability)** 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.

2.052 – Rap Back Request. ***<ebts:RecordRapBackRequestCode>*** **(Future Capability)**

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>*** ~~***<nc:IdentificationID>***~~ **(Future Capability)**

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>*** **(Future Capability)**

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: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**~~),~~ ~~and~~
- Ridge Count Number 1 (**RCN1**)~~.~~

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For the native encoding, t~~T~~he 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 Subpattern Classification.
<ansi-nist:RidgeCountValue>

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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)~~, and~~
- Ridge Count Number 2 (RCN2)~~.~~

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For native encoding, t~~T~~he 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~~not present in the namespace~~.

———The following native encoding is a list of acceptable CJIS pattern level fingerprint classifications and the allowable ridge count ranges for each.

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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

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 US14 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 RS07 US XX RS 09 USAU USLSGS
2.091:01 US 9  US 9  US 0  RS 07 US 0  RS 09 US 0  US8 GS
2.092:01 US 0  US 11 US 0  RS 07 US 0  RS 09 US 0  US0 GS
```

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

Natively, this~~A~~ one-byte alpha field ~~with~~ 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 ~~complete~~ subject's complete address location.

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

This is an alpha field indicating whether the arrest information submitted as a part of a transaction (either electronic or hard copy) is to be retained as a permanent part of the FBI's Criminal Master File. Submit a "Y" for yes or an "N" for no. For Civil submissions, RET is

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used to indicate whether the civil submission is to be retained in the civil files. In the case where a Criminal Ident was made against the Criminal File in a Civil Submission (irrespective of the value of RET), under some conditions the record is retained as a Civil Cycle in that Criminal record. For XML encoding, this field is represented as a Boolean value.

2.2015 – Rap Back Expiration Date ***<ebts:RecordRapBackExpirationDate>*** ~~***<nc:Date>***~~ **(Future Capability).**
This optional field is assigned to the Rap Back Service. As a Future Capability, this field tag remains, but the acronym could change as NGI further develops.

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. For MAP submissions, agencies must indicate "Criminal Justice Employment" or "Law Enforcement" in this field or the submission will be rejected.

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.

RFR 2.095 – Request Features Record ***<ebts:RecordFeaturesRequestIndicator>*** **(Future Capability).**

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 via an IRQ transaction. The features record can then be ~~overlayed~~overlaid on the image for comparison purposes. A features record 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.

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RSR 2.065 – Repository Statistics Response. ***<ebts:TransactionRepositoryResponse>***

This field contains a file generated by the AFIS that provides the 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 32,000 bytes of alphanumeric-special (ANS) data. ~~The~~ This fi~~l~~eld ~~has~~ contains three subfields~~containing:~~

- ~~(1) a parameter~~ Parameter name~~,~~
- ~~(2) a p~~Parameter ~~value~~Value~~; and~~
- ~~(3)~~ the fraction of the file having that value of the parameter.

In the native encoding formatting, t~~T~~he fields are TAB delimited. NEWLINE characters separate records. A period character is used as a decimal point in the Fraction field. As a native encoding~~an~~ example, the record EYE<TAB>BLUE<TAB>0.321<NEWLINE> indicates that the parameter EYE having the value BLU occurs in 32.1% of the subjects on file.

SAN 2.099 – State Arrest Number. ***<j:ArrestSequenceID>*** **(Future Capability)**

This field contains a unique arrest number assigned by the state to a criminal subject.~~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 a number used by AFIS/FBI to allow tracking of or reference to specific transactions. 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. It is also used to refer to transactions that contained searches for the purpose of status queries, modifications, or cancellations.

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 $^{U}_{S}$ or $^{R}_{S}$ 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.

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SDOB 2.2007 – Submitted Date of Birth. *<ebts:PersonSubmittedBirthDate>* (Future Capability)

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>* (Future Capability).

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.

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

This field is used to report the gender of the subject. The entry is a single character selected from the following 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

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. *<j:ArrestRelease>* *<nc:ActivityStatus>*

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.

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SMT 2.026 – Scars, Marks and Tattoos. ***<nc:PersonPhysicalFeature>***
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>*** **(Future Capability)**

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:RecordSpecialPopulationCognizantFile~~ld~~Identification **(Future Capability)**

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

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

This field is used in responses to submissions and contains a single character. For Tenprint Identification searches, ~~An~~ an "I" shall be used to indicate that an identification has been made, and an "N" shall be used to indicate that no identification has been made. For ~~latent~~ Latent ~~comparison results feedback~~Identification searches, in addition to "I" or "N," a pending comparison result will be indicated with a "P." For ~~RPISR TOT~~RISC Rapid Searches, the SRF field will contain the following: "R" for red, "Y" for yellow, or "G" for green. For Verification requests, an "M" shall be used to indicate that a match has been made, and an "X" shall be used to indicate that no match has been made. For the UHN TOT, this field will contain "R" (red) for high confidence matches and may contain "Y" (yellow) for potential matches in the future.

SSD 2.054 – Custody or Supervisory Status Start Date. ***<j:ArrestRelease>*** ***<nc:ActivityDate>***

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.

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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 as follows.

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.

UCN 2.081 – Universal Control Number ***<ebts:PersonUCNIdentification>*** **(Future Capability).**

This conditional alphanumeric text field is used to identify the record with which the photo(s) or images being requested is (are) associated, to identify candidates in a candidate list, or otherwise identify individual subject records. If the record requested is other than a criminal record (*i.e.*, civil record), this field is **mandatory**. Can be used with CPR and IRQ transactions to identify either criminal or civil records. As NGI evolves, this field will be used for new and updated criminal and civil numbers (FNU and CRN).

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, omit the field. For XML encoding, this field is represented as a Boolean value.

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).

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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).

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

Identifier	Field Number	Field Name	Character	Field Size[4] (not including Character Separators) Min	Field Size[4] (not including Character Separators) Max	Occurrence Count Min	Occurrence Count Max	Example	Comments/Special Characters
LEN	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	2.001:909<GS>	
IDC	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	2.002:00<GS>	
FFN	2.003	FBI FILE NUMBER	N	10	10	0	1	2.003:2537597861<GS>	
QDD	2.004	QUERY DEPTH OF DETAIL	A	1	1	0	1	2.004:O<GS>	
RET	2.005	RETENTION CODE	A	1	1	1	1	2.005:Y<GS>	
ATN	2.006	ATTENTION INDICATOR	ANS	3	30	0	1	2.006:SA J Q DOE,RM 11867<GS>	Any printable 7-bit ASCII character with the exception of the period is allowed.
SCO	2.007	SEND COPY TO	ANS	9	19	0	9	2.007:NY030025P<GS>	Any printable 7-bit ASCII character is allowed.
OCA	2.009	ORIGINATING AGENCY CASE NUMBER	ANS	1	20	0	1	2.009:Q880312465<GS>	Any printable 7-bit ASCII character is allowed.
CIN	2.010	CONTRIBUTOR CASE IDENTIFIER NUMBER	SET			1	5	2.010:INCIDENT NUMBER<US>1963BRT715<GS>	Any printable 7-bit ASCII character is allowed.
CIN_PRE	2.010A*	CONTRIBUTOR CASE PREFIX (CIN_PRE)	ANS	1	24				
CIN_ID	2.010B*	CONTRIBUTOR CASE ID (CIN_ID)	ANS	1	24				
CIX	2.011	CONTRIBUTOR CASE IDENTIFIER EXTENSION	N	2	4	1	5	2.011:23<GS>	
LCN	2.012	FBI LATENT CASE NUMBER	ANS	11	11	1	1	2.012:MX-12345678<GS>	First two characters may be AN, followed by a hyphen. Remaining characters are AN
LCX	2.013	FBI LATENT CASE EXTENSION	N	45	45	1	1	2.013:00001<GS>	(Future Capability for five character requirement)
FBI	2.014	FBI NUMBER	AN	1	9	0	5	2.014:62760NY12<GS>	
SID	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	0	1	2.015:NY12345678<GS>	NY, OR, and PA may use a hyphen in the last position
SOC	2.016	SOCIAL SECURITY ACCOUNT NUMBER	N	9	9	0	4	2.016:220565855<GS>	
MNU	2.017	MISCELLANEOUS IDENTIFICATION NUMBER	ANS	4	15	0	4	2.017:PP-1234567890P<GS>	A hyphen is allowed as a special character
NAM	2.018	NAME	AS	3	30	1	1	2.018:JONES,ANTHONY P<GS>	Commas, hyphens and blanks are all allowed as special characters.
AKA	2.019	ALIASES	AS	3	30	0	10	2.019:JONES,TONY<RS>JONES,A P<GS>	Hyphens, commas, and blanks are all allowed as special characters.
POB	2.020	PLACE OF BIRTH	A	2	2	1	1	2.020:VA<GS>	
CTZ	2.021	COUNTRY OF CITIZENSHIP	A	2	2	0	1	2.021:US<GS>	
DOB	2.022	DATE OF BIRTH	N	8	8	0	1	2.022:19790815<GS>	
AGR	2.023	AGE RANGE	N	4	4	0	1	2.023:1619<GS>	Estimated age range entered using a pair of two digit numbers
SEX	2.024	SEX	A	1	1	1	1	2.024:M<GS>	
RAC	2.025	RACE	A	1	1	1	1	2.025:W<GS>	
SMT	2.026	SCARS, MARKS, AND TATTOOS	A	3	10	0	10	2.026:MISS L TOE<GS>	Blanks are allowed as special characters.
HGT	2.027	HEIGHT	AN	3	3	1	1	2.027:601<GS>	
HTR	2.028	HEIGHT RANGE	AN	6	6	0	1	2.028:508603<GS>	
WGT	2.029	WEIGHT	N	3	3	1	1	2.029:182<GS>	
WTR	2.030	WEIGHT RANGE	N	6	6	0	1	2.030:175190<GS>	
EYE	2.031	COLOR EYES	A	3	3	1	1	2.031:BLU<GS>	

[4] Field size includes only the number of bytes for the value in the field.

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

Identifier	Field Number	Field Name	Character	Field Size[4] (not including Character Separators) Min	Field Size[4] (not including Character Separators) Max	Occurrence Count Min	Occurrence Count Max	Example	Comments/Special Characters
HAI	2.032	HAIR COLOR	A	3	3	1	1	2.032:BRO<GS>	
FPC	2.033	NCIC FINGERPRINT CLASSIFICATION	AN	20	20	0	1	2.033:AAXXP158PMXM62POTTDI<GS>	
PAT	2.034	PATTERN LEVEL CLASSIFICATIONS	SET			0	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>	
FGP	2.034A*	FINGER NUMBER (FGP)	N	2	2	1	1		
PATCL	2.034B*	PATTERN CLASSIFICATION CODE (PATCL)	A	2	2	1	1		
PPA	2.035	PALM PRINTS AVAILABLE INDICATOR	A	1	1	0	1	2.035:Y<GS>	
PHT	2.036	PHOTO AVAILABLE INDICATOR	A	1	1	0	1	2.036:Y<GS>	
RFP	2.037	REASON FINGERPRINTED	ANS	1	75	1	1	2.037:CONSIDERING FOR EMPLOYMENT<GS>	Commas, blanks, dashes, hyphens, and slashes are all allowed as special characters
DPR	2.038	DATE PRINTED	N	8	8	1	1	2.038:19950324<GS>	
EAD	2.039	EMPLOYER AND ADDRESS	ANS	1	120	0	1	2.039:ACE CONSTRUCTION COMPANY,327 MAPLE AVE, BUFFALO,NY<GS>	Any printable 7-bit ASCII character is allowed.
OCP	2.040	OCCUPATION	ANS	1	50	0	1	2.040:PLUMBER<GS>	Any printable 7-bit ASCII character is allowed.
RES	2.041	RESIDENCE OF PERSON FINGERPRINTED	ANS	1	120	0	1	2.041:5021 OAK LEAF DRIVE, BUFFALO NY, USA., ~~19970925~~14221<GS>	Any printable 7-bit ASCII character is allowed.
MIL	2.042	MILITARY CODE	A	1	1	0	1	2.042:M<GS>	
TSR	2.043	TYPE OF SEARCH REQUESTED	A	1	1	0	1	2.043:P<GS>	
GEO	2.044	GEOGRAPHICAL AREA OF SEARCH	A	2	2	0	5	2:044:MD<GS>	
DOA	2.045	DATE OF ARREST	N	8	8	1	1	2.045:19950324<GS>	
DOS	2.046	DATE OF ARREST-SUFFIX	A	1	1	0	1	2.046:L<GS>	
ASL	2.047	ARREST SEGMENT LITERAL	SET			1	40	2.047:DUI<RS>19940920<US>POSSESSION OF FIREARMS<GS>	Any printable 7-bit ASCII character is allowed.
DOO	2.047A*	DATE OF OFFENSE (DOO)	N	8	8	0	1		
AOL	2.047B*	ARREST OFFENSE LITERAL (AOL)	ANS	1	300	1	1		Any printable 7-bit ASCII character is allowed.
CSR	2.048	CIVIL SEARCH REQUESTED INDICATOR	A	1	1	0	1	2.048:Y<GS>	
EID	2.049	EMPLOYEE IDENTIFICATION NUMBER	AN	1	10	0	1	2.049:USSS123456<GS>	
CSL	2.051	COURT SEGMENT LITERAL	SET			0	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.
CDD	2.051A*	COURT DISPOSITION DATE (CDD)	N	8	8	0	1		
COL	2.051B*	COURT OFFENSE LITERAL (COL)	ANS	1	300	1	1		Any printable 7-bit ASCII character is allowed.
CPL	2.051C*	OTHER COURT SENTENCE PROVISION LITERAL (CPL)	ANS	1	300	0	1		Any printable 7-bit ASCII character is allowed.
*tbd	2.052	REQUEST FOR RAP BACK SERVICE	N	1	1	0	1	2.052:1<GS>	
OFC	2.053	OFFENSE CATEGORY	N	1	1	0	1	2.053:1<GS>	
SSD	2.054	CUSTODY OR SUPERVISORY STATUS - START DATE	N	8	8	0	1	2.054:19940930<GS>	

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

Identifier	Field Number	Field Name	Character	Field Size[4] (not including Character Separators) Min	Field Size[4] (not including Character Separators) Max	Occurrence Count Min	Occurrence Count Max	Example	Comments/Special Characters
SLE	2.055	CUSTODY OR SUPERVISORY STATUS LITERAL	ANS	1	300	0	1	2.055:RELEASED BY COURT ORDER,19940930<GS>	Any printable 7-bit ASCII character is allowed. . First character must not be blank.
ICO	2.056	IDENTIFICATION COMMENTS	ANS	1	50	0	1	2.056:ARMED AND DANGEROUS<GS>	Any printable 7-bit ASCII character is allowed.
FNR	2.057	FINGER NUMBER(S) REQUESTED	N	2	2	0	13	2.057:01<RS>06<RS>10<GS>	
SRF	2.059	SEARCH RESULTS FINDINGS	A	1	1	1	1	2.059:N<GS>	
MSG	2.060	STATUS/ERROR MESSAGE	ANS	1	300	1	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.
CST	2.061	CASE TITLE	ANS	1	50	1	1	2.061:ARMED ROBBERY FIRST COUNTY<GS>	Any printable 7-bit ASCII character is allowed.
IMT	2.062	IMAGE TYPE (IF TYPE -7 or 13 IMAGES)	N	1	2	1	10	2.062:1<RS>2<RS>3<RS>4<RS>5<GS>	
PTD	2.063	PERSON TYPE DESIGNATOR	A	1	1	1	1	2.063:S<GS>	
CAN	2.064	CANDIDATE LIST	SET			0	99[5]	2.064:273849CA2<US>BROWN,JOHN D<RS>83625NY<US>COLLINS,TERRY G<GS>	Commas, hyphens, or blanks are all allowed as special characters.
UCN	2.064A*	UNIVERSAL CONTROL (UCN) NUMBER	AN	1	9				
NAM	2.064B*	NAME (NAM)	AS	3	30				Commas, hyphens, or blanks are all allowed as special characters.
RSR	2.065	REPOSITORY STATISTICS RESPONSE	ANS	1	32,000	1	1	2.065:(ASCII TEXT DATA)<GS>	Period (as decimal point), Tab (as field delimiter), Newline (as record separator
IMA	2.067	IMAGE CAPTURE EQUIPMENT	SET			0	1	2.067:DBI<US>1134<US>12345<GS>	Any printable 7-bit ASCII character is allowed.
MAK	2.067A*	ORIGINATING FINGERPRINT READING SYSTEM MAKE (MAK)	ANS	1	25	1	1		Any printable 7-bit ASCII character is allowed.
MODL	2.067B*	ORIGINATING FINGERPRINT READING SYSTEM MODEL (MODL)	ANS	1	25	1	1		Any printable 7-bit ASCII character is allowed.
SERNO	2.067C*	ORIGINATING FINGERPRINT READING SYSTEM SERIAL NUMBER (SERNO)	ANS	1	50	1	1		Any printable 7-bit ASCII character is allowed.
ITD	2.058	IMAGE RECORD TYPE DESIRED	N	1	1	0	1	2.058:4<GS>	
ETC	2.069	ESTIMATED TIME TO COMPLETE	N	1	4	0	200	2.069:6270<GS>	
RAP	2.070	REQUEST FOR ELECTRONIC RAP SHEET	A	1	1	0	1	2.070:Y<GS>	
ACN	2.071	ACTION TO BE TAKEN	ANS	0	300	0	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.
FIU	2.072	FINGERPRINT IMAGE(S) UPDATED	AN	1	2	1	3	2.072:01<RS>02<RS>05<RS>07<RS>08<RS>11<RS>13<GS>	
CRI	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	9	9	1	3	2.073:NY0303000<GS>	
FGP	2.074	FINGER POSITION	N	2	2	0	10	2.074:01<RS>02<RS>03<RS>04<RS>05<RS>06<RS>07<RS>08<RS>09<RS>10<GS>	

[5] Tenprint transactions have a limit of 25 and Latent transactions have a limit of 100

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

Identifier	Field Number	Field Name	Character	Field Size[4] (not including Character Separators) Min	Field Size[4] (not including Character Separators) Max	Occurrence Count Min	Occurrence Count Max	Example	Comments/Special Characters
ERS	2.075	ELECTRONIC RAP SHEET	ANS	4	200,000	0	1	2.075:<rap sheet example here><GS>	Any printable 7-bit ASCII character is allowed.
PRI	2.076	PRIORITY	N	1	1	1	200	2.076:1<GS>	
CFS	2.077	CANCEL FRICTION RIDGE SEARCH	N	1	10	0	200	2.077:3124<GS>	
PEN	2.078	PENETRATION QUERY RESPONSE	N	2	2	1	1	2.078:10<GS>	
NCR	2.079	NUMBER OF CANDIDATES' IMAGES RETURNED	N	1	2	0	1	2.079:10<GS>	
EXP	2.080	RESPONSE EXPLANATION	ANS	1	50	0	1	2.080:PHOTO NOT FOUND FOR SPECIFIED DOA DOS<GS>	Any printable 7-bit ASCII character is allowed.
UCN	2.081	UNIVERSAL CONTROL NUMBER **(Future Capability)**	AN	9	9	0	1	2.081: 410530890<GS>	
REC	2.082	RESPONSE CODE	A	1	1	1	1	2.082:Y<GS>	
ULF	2.083	UNSOLVED LATENT FILE	A	1	1	0	1	2.083:Y<FS>	
AMP	2.084	AMPUTATED OR BANDAGED	SET			0	~~9~~13	2.084:03<US>XX<RS>09<US>UP<GS>	
FGP	2.084A*	FINGER NUMBER (FGP)	N	2	2	~~1~~	~~1~~13		
AMPCD	2.084B*	AMPUTATED OR BANDAGED CODE (AMPCD)	A	2	2	~~1~~	~~1~~13		SR can only be entered by an ITN/FBI Service Provider
CRN	2.085	CIVIL RECORD NUMBER	AN	9	9	0	1	2.085:V12345678<GS>	
SCNA	2.086	AFIS SEGMENT CONTROL NUMBER	N	1	10	0	200	2.086:3124<GS>	
TAA	2.087	TREAT AS ADULT	A	1	1	0	1	2.087:Y<GS>	
NOT	2.088	NOTE FIELD	ANS	1	1,000	0	1	2.088:NOTE<GS>	Any printable 7-bit ASCII character is allowed.
MSC	2.089	MATCHSCORE	N	1	6	0	99	2.089:1200<GS>	
RCD1	2.091	RIDGE CORE DELTA ONE FOR SUBPATTERN CLASSIFICATION	SET			~~0~~10	~~1~~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>	
FGP	2.091A*	FINGER NUMBER (FGP)	N	2	2	1	~~10~~1		
RCN1	2.091B*	RIDGE COUNT NUMBER 1 (RCN1)	N	1	2	1	~~10~~1		
RCD2	2.092	RIDGE CORE DELTA TWO FOR SUBPATTERN CLASSIFICATION	SET			0	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>	
FGP	2.092A*	FINGER NUMBER (FGP)	N	2	2	1	1		
RCN2	2.092B*	RIDGE COUNT NUMBER 2 (RCN2)	N	1	2	1	1		
SPCN	2.093	SPECIAL POPULATION COGNIZANT FILE NUMBER **(Future Capability)**	AN	3	20	0	100	2.093:SLC1031234<GS>	
CCN	2.094	COURT CASE NUMBER **(Future Capability)**	ANS	1	20	0	1	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.
RFR	2.095	REQUEST FEATURES RECORD **(Future Capability)**	A	1	1	0	1	2.095:Y<GS>	
RPR	2.096	REQUEST PHOTO RECORD	A	1	1	0	1	2.096:Y<GS>	
NDR	2.098	NAME OF DESIGNATED REPOSITORY	N	1	3	0	4	2.098:1<GS>	

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

Identifier	Field Number	Field Name	Character	Field Size[4] (not including Character Separators) Min	Field Size[4] (not including Character Separators) Max	Occurrence Count Min	Occurrence Count Max	Example	Comments/Special Characters
SAN	2.099	STATE ARREST NUMBER **(Future Capability)**	ANS	0	20	0	1	2.099:NY123456789<GS>	Any printable 7-bit ASCII character is allowed. except period (.). Embedded blanks not permitted. Must not begin with blank.
NAM1	2.2001	NAME-ONE **(Future Capability)**	AS	1	50	0	1	2.2001:BRIAN<GS>	Any 7-bit non-Ctrl character
NAM2	2.2002	NAME-TWO **(Future Capability)**	AS	1	50	0	1	2.2002:DAVID<GS>	Any 7-bit non-Ctrl character
NAM3	2.2003	NAME-THREE **(Future Capability)**	AS	1	50	0	1	2.2003:SMITH<GS>	Any 7-bit non-Ctrl character
NAM4	2.2004	NAME-FOUR **(Future Capability)**	AS	1	50	0	1	2.2004:MAHFOUZ<GS>	Any 7-bit non-Ctrl character
NAM5	2.2005	NAME-FIVE **(Future Capability)**	AS	1	50	0	1	2.2005:al ARABI<GS>	Any 7-bit non-Ctrl character
CSF	2.2006	CASCADED SEARCH FLAG **(Future Capability)**	A	2	2	0	1	2.2006:CR<GS>	
SDOB	2.2007	SUBMITTED DATE OF BIRTH **(Future Capability)**	N	8	8	0	1	2.2007:10470123<GS>	
SNAM	2.2008	SUBMITTED NAME **(Future Capability)**	AS	3	30	0	1	2.2008:JONES, ANTHONY P<GS>	Commas, hyphens and blanks are all allowed as special characters.
PTY	2.2009	PHOTO TYPE **(Future Capability)**	N	1	1	0	1	2.2009:1<GS>	
NIR	2.2010	NUMBER OF IMAGES REQUESTED **(Future Capability)**	N	0	2	0	1	2.2010:2<GS>	
*tbd	2.2011	RAP BACK VERIFICATION STATUS **(Future Capability)**	A	1	1	0	1	2.2011 :Y<GS>	
IIR	2.2012	IRIS IMAGES REQUESTED **(Future Capability)**	N	1	1	0	1	2.2012:0<GS>	
DMI	2.2013	DISPOSITION MAINTENANCE INDICATOR **(Future Capability)**	A	1	1	0	1	2.2013:A<GS>	
*tbd	2.2014	RAP BACK ELIGIBILITY **(Future Capability)**	A	1	1	0	1	2.2014:Y<GS>	
*tbd	2.2015	RAP BACK EXPIRATION DATE **(Future Capability)**	N	8	8	0	1	2.2015:20100101<GS>	
DNAF	2.2016	DNA FLAG **(Future Capability)**	A	1	1	0	1	2.2016:N<GS>	
DORI	2.2017	DNA LOCATION **(Future Capability)**	AN	9	9	0	1	2.2017:TX9876543<GS>	
DNAC	2.2018	DNA IN CODIS FLAG **(Future Capability)**	N	1	1	0	1	2.2018:Y<FS>	
SEAL	2.2019	SEAL ARREST FLAG **(Future Capability)**	A	1	1	0	1	2.2019:N<GS>	
*tbd	2.2020	RAP BACK RECIPIENT **(Future Capability)**	ANS	9	9	0	3	2.2020:NY0303000<GS>	
IFS	2.2021	IDENTIFICATION FIREARMS SALES **(Future Capability)**	A	1	1	0	1	2.2021:D<GS>	
CIDN	2.2022	CONTRIBUTOR ASSIGNED IDENTIFICATION NUMBER	AN	10	10	0	1	2.2022:CINR12345<GS>	
SII	2.2023	SUPPLEMENTARY IDENTITY INFORMATION	ANS	4	10,000	0	1	2.2023:<sample SII content><GS>	Any printable 7-bit ASCII character is allowed.
HTI	2.2024	HIT TYPE INDICATOR	A	1	10	0	1	2.2024:RISC<GS>	
GEO_TIME	2.2025	GEOGRAPHIC COORDINATE DATE TIME STAMP (Future Capability)	AN	15	15	0	1	2.305:201002041400500z<GS>	
GEO_CORD	2.2026	GEOGRAPHIC COORDINATE LOCATION (Future Capability)	SET			0	1	2.306:43<US>02<US>55<US>123<US>14<US>35<GS>	
LATD	2. 2026A	LATITUDE DEGREE	NS	1	9	1	1		Period, Plus, Hyphen
LATM	2. 2026B	LATITUDE MINUTE	NS	1	8	0	1		Period
LATS	2. 2026C	LATITUDE SECOND	NS	1	8	0	1		Period
LOND	2. 2026D	LONGITUDE DEGREE	NS	1	10	1	1		Period, Plus, Hyphen
LONM	2. 2026E	LONGITUDE MINUTE	NS	1	8	0	1		Period
LONS	2. 2026F	LONGITUDE SECOND	NS	1	8	0	1		Period
DATUM_ID	2. 2027	GEOGRAPHIC COORDINATE DATUM (Future Capability)	ANS	4	13	0	1	2.307:AIRY<GS>	Slash, Hyphen

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Table C-2 Type-2 Record Hierarchical Model for XML Encoding			
Element Tag	**XML Representation**	**Min**	**Max**
	<itl:PackageDescriptiveTextRecord>	1	*
RCC	<ansi-nist:RecordCategoryCode>	1	1
IDC 2.002	<ansi-nist:ImageReferenceIdentification>	1	1
	<nc:IdentificationID>		
	<itl:UserDefinedDescriptiveText>	1	1
	<ebts:DomainDefinedDescriptiveFields>	1	1
RET 2.005	<ansi-nist:RecordRetentionIndicator>	1	1
SCO 2.007	<ansi-nist:RecordForwardOrganizations>	0	1
	<nc:OrganizationIdentification>	1	9
	<nc:IdentificationID>		
RAP 2.070	<ansi-nist:RecordRapSheetRequestIndicator>	0	1
ATN 2.006	<nc:CaveatText>	0	1
IMT 2.062	<ebts:RecordLatentImageCategoryCode>	0	10
IMA 2.067	<ebts:RecordImageCaptureDetail>	0	1
MAK 2.067A	<ansi-nist:CaptureDeviceMakeText>	1	1
MODL 2.067B	<ansi-nist:CaptureDeviceModelText>	1	1
SERNO 2.067C	<ansi-nist:CaptureDeviceSerialNumberText>	1	1
*PTY 2.2009	<ansi-nist:ImageCategoryCode>	0	1
	<ebts:RecordBiometricCaptureGeoLocation>	0	1
*GEO_TIME 2.2025	<ansi-nist:TransactionUTCDate>	1	1
	<nc:DateTime>		
*GEO_CORD 2.2026	<nc:GeographicCoordinateLatitude>	1	1
*LATD 2.2026A	<nc:LatitudeDegreeValue>	1	1
*LATM 2.2026B	<nc:LatitudeMinuteValue>	0	1
*LATS 2.2026C	<nc:LatitudeSecondValue>	0	1
	<nc:GeographicCoordinateLongitude>	1	1
*LOND 2.2026D	<nc:LongitudeDegreeValue>	1	1
*LONM 2.2026E	<nc:LongitudeMinuteValue>	0	1
*LONS 2.2026F	<nc:LongitudeSecondValue>	0	1

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*DATUM_ID 2.2027	<ebts:GeographicCoordinateDatumCode>	1	1
NDR 2.098	<ebts:RecordFBIRepositoryCode>	0	4
ITD 2.058	<ebts:RecordImageRecordCategoryRequestCode>	0	1
*NIR 2.2010	<ebts:RecordImagesRequestedQuantity>	0	1
*IIR 2.2012	<ebts:RecordIrisImagesRequestedCode>	0	1
*CSF 2.2006	<ebts:RecordCascadedSearchCode>	0	1
*RFR 2.095	<ebts:RecordFeaturesRequestIndicator>	0	1
RPR 2.096	<ebts:RecordPhotoRequestIndicator>	0	1
*TBD 2.2014	<ebts:RecordRapBackEligibilityIndicator>	0	1
*TBD 2.2015	<ebts:RecordRapBackExpirationDate>	0	1
	<nc:Date>		
*TBD 2.2020	<ebts:RecordRapBackOwnerOrganization>	0	3
	<nc:OrganizationIdentification>	1	1
	<nc:IdentificationID>		
*TBD 2.052	<ebts:RecordRapBackRequestCode>	0	1
*TBD 2.2011	<ebts:RecordRapBackVerificationIndicator>	0	1
*SPCN 2.093	<ebts:RecordSpecialPopulationCognizantFileIdentification>	0	100
	<nc:IdentificationID>		
	<ebts:RecordTransactionData>	0	1
MIL 2.042	<ansi-nist:TransactionSubmissionMilitaryCode>	0	1
EID 2.049	<ansi-nist:TransactionUserIdentification>	0	1
	<nc:IdentificationID>		
CFS 2.077	<ebts:TransactionCancelFingerprintSearchID>	0	200
CSR 2.048	<ebts:TransactionCivilSearchRequestIndicator>	0	1
NOT 2.088	<ebts:TransactionDescriptionText>	0	1
*DMI 2.2013	<ebts:TransactionDispositionMaintenanceCode>	0	1
ETC 2.069	<ebts:TransactionEstimatedCompletionMinutesQuantity>	0	200
	<ebts:TransactionFingerprintImagesRequested>	0	1
FNR 2.057	<ansi-nist:FingerPositionCode>	1	13
	<ebts:TransactionFingerprintImagesUpdated>	0	1
FIU 2.072	<ansi-nist:FingerPositionCode>	1	13
NCR 2.079	<ebts:TransactionImagesRequestedQuantity>	0	1
QDD 2.004	<ebts:TransactionQueryDepthCode>	0	1

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	<ebts:TransactionResponseData>	0	1
HTI 2.2024	<ebts:TransactionHitCategoryCode>	0	1
EXP 2.080	<ansi-nist:TransactionReasonText>	0	1
ACN 2.071	<ebts:TransactionActionText>	0	1
	<ebts:TransactionCandidateList>	0	1
CAN 2.064	<ebts:Candidate>	1	99
	<ebts:PersonName>	1	1
NAM 2.064B	<nc:PersonGivenName>		
	<nc:PersonMiddleName>		
	<nc:PersonSurName>		
FNU 2.064A	<ebts:PersonUCNIdentification>	1	1
	<nc:IdentificationID>		
MSC 2.089	<ebts:CandidateMatchScoreValue>	1	1
FGP 2.074	<ansi-nist:FingerPositionCode>	0	1
	<ansi-nist:ImageReferenceIdentification>	0	1
	<nc:IdentificationID>		
PEN 2.078	<ebts:TransactionPenetrationQueryResponsePercent>	0	1
RSR 2.065	<ebts:TransactionRepositoryResponse>	0	1
	<ebts:TransactionRepositoryResponseRecord>	0	*
	<ebts:RepositoryParameterPercent>	1	1
	<ebts:RepositoryParameterText>	1	1
	<ebts:RepositoryParameterValueText>	1	1
REC 2.082	<ebts:TransactionResponseIndicator>	0	1
SRF 2.059	<ebts:TransactionSearchResultsCode>	0	1
MSG 2.060	<ebts:TransactionStatusText>	0	11
SII 2.2023	<ebts:TransactionSupplementaryIdentityInformationText>	0	1
ERS 2.075	<ebts:TransactionElectronicRapSheetText>	0	1
GEO 2.044	<ebts:TransactionSearchAreaCode>	0	5
PRI 2.076	<ebts:TransactionSearchPriorityCode>	0	200
TSR 2.043	<ebts:TransactionSearchRequestCategoryCode>	0	1
ULF 2.083	<ebts:TransactionUnsolvedLatentFileIndicator>	0	1
	<ebts:RecordActivity>	0	1

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DOA 2.045	<nc:ActivityDate>	0	1
	<nc:Date>		
RFP 2.037	<nc:ActivityReasonText>	0	1
OCA 2.009	<nc:CaseTrackingID>	0	1
ICO 2.056	<j:SubjectOffenderNoticeText>	0	1
ASL 2.047	<j:Arrest>	0	40
DOO 2.047A	<nc:ActivityDate>	0	1
	<nc:Date>		
AOL 2.047B	<ebts:ChargeText>	1	1
CSL 2.051	<j:ArrestCharge>	0	1
	<j:ChargeDisposition>		
	<j:ChargeDispositionCondition>		
COL 2.051B	<ebts:ChargeText>	1	1
CDD 2.051A	<nc:ConditionSetDate>	0	1
	<nc:Date>		
CPL 2.051C	<j:ChargeDispositionOtherText>	0	1
	<j:ArrestRelease>	0	1
SSD 2.054	<nc:ActivityDate>	1	1
	<nc:Date>		
SLE 2.055	<nc:ActivityStatus>	1	1
	<nc:StatusText>	1	1
*SAN 2.099	<j:ArrestSequenceID>	0	1
	<nc:IdentificationID>		
*CCN 2.094	<j:CourtEventSequenceID>	0	1
	<nc:IdentificationID>		
DOS 2.046	<ebts:ArrestDateSuffixText>	0	1
*SEAL 2.2019	<ebts:ArrestSealIndicator>	0	1
CRI 2.073	<ebts:RecordControllingAgency>	0	3
	<nc:OrganizationIdentification>		
	<nc:IdentificationID>		
SCNA 2.086	<ebts:AFISSegmentControlID>	0	200
CST 2.061	<nc:CaseTitleText>	0	1
CRN 2.085	<ebts:CivilRecordIdentification>	0	1

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	<nc:IdentificationID>		
CIN 2.010	<ebts:ContributorCaseIdentificationNumber>	0	200
CIN_PRE 2.010A	<ebts:ContributorCasePrefixIdentification>	1	1
	<nc:IdentificationCategoryText>		
CIN_ID 2.010B	<ebts:ContributorCaseIdentification>	1	1
	<nc:IdentificationID>		
CIX 2.011	<ebts:ContributorCaseExtensionIdentification>	1	1
	<nc:IdentificationID>		
FFN 2.003	<ebts:FBIFileNumber>	0	1
	<nc:IdentificationID>		
	<ebts:FBILatentCaseIdentification>	0	1
LCN 2.012	<ebts:FBILatentCaseNumber>	1	1
	<nc:IdentificationID>		
LCX 2.013	<ebts:FBILatentCaseNumberExtension>	1	1
	<nc:IdentificationID>		
CIDN 2.2022	<ebts:ContributorAssignedIdentificationNumber>	0	1
	<nc:IdentificationID>		
OFC 2.053	<ebts:OffenseCategoryCode>	0	1
	<ebts:RecordSubject>	0	1
AGR 2.023	<nc:PersonAgeMeasure>	0	1
	<nc:MeasureRangeValue>		
	<nc:RangeMinimumValue>		
	<nc:RangeMaximumValue>		
AKA 2.019	<ebts:PersonAlternateName>	0	10
	<nc:PersonGivenName>		
	<nc:PersonMiddleName>		
	<nc:PersonSurName>		
DOB 2.022	<nc:PersonBirthDate>	0	5
	<nc:Date>		
CTZ 2.021	<ebts:PersonCitizenshipCode>	0	1
EYE 2.031	<nc:PersonEyeColorCode>	0	1
HAI 2.032	<ebts:PersonHairColorCode>	0	1

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HGT 2.027	<nc:PersonHeightMeasure>	0	1
	<nc:MeasurePointValue>		
	<nc:MeasureUnitText>		
HTR 2.028	<nc:PersonHeightMeasure>	0	1
	<nc:MeasureRangeValue>		
	<nc:RangeMinimumValue>		
	<nc:RangeMaximumValue>		
	<nc:MeasureUnitText>		
NAM 2.018	<ebts:PersonName>	0	1
NAM3 2.2003	<nc:PersonGivenName>		
NAM2 2.2002	<nc:PersonMiddleName>		
NAM1 2.2001	<nc:PersonSurName>		
NAM4 2.2004	<ebts:PersonTribalName>		
NAM5 2.2005	<ebts:PersonCulturalName>		
MNU 2.017	<nc:PersonOtherIdentification>	0	4
	<nc:IdentificationID>	1	1
	<ebts:PersonIDCategoryCode>	1	1
SMT 2.026	<nc:PersonPhysicalFeature>	0	1
	<nc:PhysicalFeatureCategoryCode>	0	10
RAC 2.025	<nc:PersonRaceCode>	0	1
SEX 2.024	<ebts:PersonSexCode>	0	1
SOC 2.016	<nc:PersonSSNIdentification>	0	4
	<nc:IdentificationID>		
SID 2.015	<nc:PersonStateIdentification>	0	1000
	<nc:IdentificationID>		
	<nc:IdentificationCategoryText>		
WGT 2.029	<nc:PersonWeightMeasure>	0	1
	<nc:MeasurePointValue>		
WTR 2.030	<nc:PersonWeightMeasure>	0	1
	<nc:MeasureRangeValue>		
	<nc:RangeMinimumValue>		
	<nc:RangeMaximumValue>		
*DORI 2.2017	<nc:BiometricRepositoryOrganization>	0	1

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	<nc:OrganizationIdentification>		
	<nc:IdentificationID>		
POB 2.020	<ebts:PersonBirthPlaceCode>	0	1
*SDOB 2.2007	<ebts:PersonSubmittedBirthDate>	0	1
	<nc:Date>		
*SNAM 2.2008	<ebts:PersonSubmittedName>	0	1
	<nc:PersonGivenName>		
	<nc:PersonMiddleName>		
	<nc:PersonSurName>		
*UCN 2.081	<ebts:PersonUCNIdentification>	0	1
	<nc:IdentificationID>		
FBI 2.014	<j:PersonFBIIdentification>	0	1000
	<nc:IdentificationID>		
*IFS 2.2021	<j:PersonFirearmSalesDisqualifiedCode>	0	1
PTD 2.063	<ebts:PersonTypeDesignatorCode>	0	1
TAA 2.087	<ebts:PersonAdultTreatmentIndicator>	0	1
PHT 2.036	<ebts:PersonDigitalImageAvailableIndicator>	0	1
PPA 2.035	<ebts:PalmPrintAvailableIndicator>	0	1
*DNAF 2.2016	<ebts:PersonDNAAvailableIndicator>	0	1
*DNAC 2.2018	<ebts:BinaryCODISAvailableIndicator>	0	1
	<ebts:PersonFingerprintSet>		
DPR 2.038	<nc:BiometricCaptureDate>	0	1
	<nc:Date>		
AMP 2.084	<itl:FingerprintImageFingerMissing>	0	9
FGP 2.084A	<ansi-nist:FingerPositionCode>		
AMPCD 2.084B	<itl:FingerMissingCode>		
PAT 2.034 / RCD1 2.091 /RCD2 2.092	<ebts:FingerprintImageFinger>	0	10
FGP 2.074 / 2.034A / 2.091A / 2.092A	<ansi-nist:FingerPositionCode>	1	10
FPC 2.033	<ebts:NCICFingerprintClassificationCode>	0	1
	<ebts:RidgeCoreDelta>	1	3
PATCL 2.034B	<ebts:FingerprintPatternClassificationCode>	1	1
RCN1 2.091B	<ansi-nist:RidgeCountValue>	0	1

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RCN2 2.092B	<ansi-nist:RidgeCountValue>	0	1
RES 2.041	<ebts:ResidenceLocation>	0	1
	<nc:LocationAddress>		
	<nc:StructuredAddress>		
	<nc:LocationStreet>		
	<nc:StreetNumberText>		
	<nc:StreetName>		
	<nc:LocationCityName>		
	<nc:LocationStateNCICLSTACode>		
	<nc:LocationPostalCode>		
EAD 2.039	<nc:Employer>	0	1
	<nc:EntityOrganization>		
	<nc:OrganizationName>		
OCP 2.040	<nc:EmployeeOccupationText>	0	1
EAD 2.039	<nc:EmploymentLocation>	0	1
	<nc:LocationAddress>		
	<nc:StructuredAddress>		
	<nc:LocationStreet>		
	<nc:StreetNumberText>		
	<nc:StreetName>		
	<nc:LocationCityName>		
	<nc:LocationStateNCICLSTACode>		
	<nc:LocationPostalCode>		
SDF	<ebts:StateDefinedFields>	0	1

* FUTURE CAPABILTIES

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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 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 Table D

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) pertaining to the use of that field in the record.

Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 1 of 2)

(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	DSPE	DSPR	EMUF	ERRT	FANC	FAUF	FDSP	FNDR	FVR
2001 LEN	1	1	1	1	1	1	1	1			1	1	1	1		1	1
2002 IDC	1	1	1	1	1	1	1	1			1	1	1	1		1	1
2005 RET	1	1	1[1]	1	1	1	1	1			1		1	1		1	1
2006 ATN	1	1		1	1	1	1	1			1	1	1	1		1	1
2007 SCO	9	9		9	9	9	9	9			9	9	9	9		9	9
2009 OCA	1	1	1	1	1	1	1	1			1	1	1	1		1	1
2014 FBI		5[5]	5[5]	5[5]	5[5]	5		5			5	5	5	5		5	1
2015 SID		1[6]	1[6]	1[6]	1[6]	1		1			1	1					1
2016 SOC		4	4	4	4	4		4			4		4	4		4	4
2017 MNU	4	4	4	4	4	4	4	4			4	4	4[3]	4[3]		4[3]	4
2018 NAM	1[4]	1	1	1	1	1	1[4]	1			1		1	1		1	1
2019 AKA		10	10	10	10	10		10			10		10	10		10	10
2020 POB		1	1	1	1	1		1			1		1	1		1	1
2021 CTZ	1	1	1	1	1	1	1	1			1		1	1		1	1
2022 DOB	5[4]	5	5	5	5	5	5[4]	5			5		5	5		5	5
2024 SEX	1	1	1	1	1	1	1	1			1		1	1		1	1
2025 RAC	1	1	1	1	1	1	1	1			1		1	1		1	1
2026 SMT	10	10	10	10	10	10	10	10			10		10	10		10	10
2027 HGT	1	1	1	1	1	1	1	1			1		1	1		1	1
2029 WGT	1	1	1	1	1	1	1	1			1		1	1		1	1
2031 EYE	1	1	1	1	1	1	1	1			1		1	1		1	1
2032 HAI	1	1	1	1	1	1	1	1			1		1	1		1	1
2033 FPC																	
2034 PAT																	
2035 PPA		1	1	1	1												
2036 PHT		1	1	1	1												
2037 RFP								1			1		1	1		1	
2038 DPR	1					1	1	1			1		1	1		1	1

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Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	DSPE	DSPR	EMUF	ERRT	FANC	FAUF	FDSP	FNDR	FVR
2039 EAD		1	1	1	1	1		1			1		1	1		1	
2040 OCP		1	1	1	1			1			1		1	1		1	
2041 RES	1	1	1	1	1	1	1	1			1		1	1		1	
2042 MIL											1		1	1		1	1
2043 TSR				1	1			1			1					1	1
2045 DOA		1	1	1	1												
2047 ASL		40[2]	40[2]	40[2]	40[2]												
2048 CSR	1						1										
2051 CSL		40	40	40	40												
2052 *tbd																	
2054 SSD		1	1	1	1												
2055 SLE		1[9]	1[9]	1[9]	1[9]												
2056 ICO	1	1	1	1	1	1	1										1
2057 FNR																	
2059 SRF																	
2060 MSG												11					
2064 CAN																	
2067 IMA	1	1	1	1	1	1	1	1			1		1	1		1	1
2070 RAP	1	1		1	1	1	1	1			1		1	1		1	1
2071 ACN	1																
2073 CRI	3	3	3	3	3	3	3	3			3	3	3	3		3	3
2074 FGP																	
2075 ERS																	
2079 NCR																	
2081 UCN																	
2084 AMP	1[7]	1[7]	1[7]	1[7]	1[7]	1[7]	1[7]	1[7]			1[7]		1[7]	1[7]		1[7]	1[7]
2085 CRN																	
2087 TAA		1	1	1	1												

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Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	DSPE	DSPR	EMUF	ERRT	FANC	FAUF	FDSP	FNDR	FVR
2091 RCD1																	
2092 RCD2																	
2094 CCN																	
2098 NDR																	
2099 SAN																	
22001 NAM1																	
22002 NAM2																	
22003 NAM3																	
22004 NAM4																	
22005 NAM5																	
22006 CSF																	
22007 SDOB																	
22008 SNAM																	
22011 *tbd																	
22013 DMI																	
22014 *tbd																	
22015 *tbd																	
22016 DNAF																	
22017 DORI																	
22018 DNAC																	
22019 SEAL																	
22020 tbd																	
22021 IFS																	
22022 CIDN																	
22023 SII																	
22024HTI																	
22025 CEO_TIME																	
22026 CEO_CORD																	

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Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DOCE	DSPE	DSPR	EMUF	ERRT	FANC	FAUF	FDSP	FNDR	FVR
22027 DATUM_ID																	

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Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 2 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR	RPIS	RPISR	SRE
2.001 LEN	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
2.003 FFN	1	1									
2.005 RET			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
2.009 OCA			1	1	1	1	1	1	1	1	1
2.010 CIN	5	5									
2.011 CIX	5	5									
2.012 LCN	1	1									
2.013 LCX	1	1									
2.014 FBI		1[10]	5		5	5	5	5		2	1[8]
2.015 SID		5[10]	1		1	1	1				1
2.016 SOC		4[11]	4	4	4	4	4	4			
2.017 MNU	4	4[11]	4	4	4	4	4	4[3]			
2.018 NAM		1[10]	1	1	1	1	1	1		1	1
2.019 AKA		10[11]	10	10	10	10	10	10			
2.020 POB	1	1[10]	1	1	1	1	1	1		1	
2.021 CTZ		1[11]	1	1	1	1	1	1			
2.022 DOB		5[11]	5	5	5	5	5	5			
2.023 AGR	1										
2.024 SEX	1	1[11]	1	1	1	1	1	1			
2.025 RAC	1	1[11]	1	1	1	1	1	1			
2.026 SMT	10	10[11]	10	10	10	10	10	10			
2.027 HGT		1[11]	1	1	1	1	1	1			
2.028 HTR	1										
2.029 WGT		1[11]	1	1	1	1	1	1			

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Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 2 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR	RPIS	RPISR	SRE
2.030 WTR	1										
2.031 EYE	1	1[11]	1	1	1	1	1	1			
2.032 HAI	1	1[11]	1	1	1	1	1	1			
2.033 FPC		1									
2.034 PAT	1	1[11]									
2.035 PPA		1									
2.036 PHT		1									
2.037 RFP			1		1	1	1	1			
2.038 DPR		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			
2.043 TSR					1	1	1	1			
2.044 GEO	5										
2.045 DOA											
2.047 ASL	40[3]										
2.048 CSR				1							
2.051 CSL											
2.052 *tbd											
2.053 OFC	1										
2.054 SSD											
2.055 SLE											
2.056 ICO				1							
2.057 FNR											
2.058 ITD	1										
2.059 SRF		1								1	1
2.060 MSG		1								1	

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Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 2 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR	RPIS	RPISR	SRE
2.061 CST	1	1									
2.062 IMT	10										
2.064 CAN											
2.067 IMA	1		1	1	1	1	1	1	1	1	
2.070 RAP	1		1	1	1	1	1	1	1		
2.071 ACN		1		1						1	
2.073 CRI	3	3	3	3	3	3	3	3	3	3	3
2.074 FGP	10	10									
2.075 ERS		1								1	1
2.076 PRI	1										
2.081 UCN											
2.083 ULF	1										
2.084 AMP			1[7]	1[7]	1[7]	1[7]	1[7]	1[7]			
2.085 CRN											1[8]
2.087 TAA											1
2.088 NOT	1									1	
2.091 RCD1											
2.092 RCD2											
2.094 CCN											
2.096 RPR									1		
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											

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Table D-1 Summary Field Lists for Identification and Verification Transactions (Part 2 of 2) (Maximum Occurrences of Each Element for Each Logical Record Type)											
Tag Elem	LFS	LSR	MAP	MPR	NFAP	NFUE	NFUF	NNDR	RPIS	RPISR	SRE
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											
2.2023 SII										1	

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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-Ident with RET = "N"). FBI number will be returned for any submission resulting in an Ident against the Criminal File or when a Non-Ident results in an add to the Criminal File. CRN will be returned when a submission results in a Non-Ident 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 Ident has been made and subject criminal history was requested in submission.

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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 Tables

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.

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	CFS	CPR	EHRR	ELR	EQER	EQHR	EQRR	ERRA	~~ERRI~~	ERRL	ERRR	IRQ	IRR	ISR	LFFS	LFIS	LPNQ
2.001 LEN	1	1	1	1	1	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	1	1	1	1	1
2.003 FFN	1[1]			1[1]						1							
2.004 QDD																	
2.005 RET	1																
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	9	9	9	
2.009 OCA																	
2.010 CIN	5			5						5					1	1	1
2.011 CIX	5			5						5					1	1	1
2.012 LCN	1			1						1					1	1	
2.013 LCX	1			1						1					1	1	
2.014 FBI	1	1	1			1	20		~~1~~		1	1,000	1	1,000			
2.015 SID	1								~~1~~				1	1,000			
2.016 SOC	4					1											
2.017 MNU	4			4		4				4							
2.018 NAM	1					1	1						1				
2.019 AKA	10					10											

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	CFS	CPR	EHRR	ELR	EQER	EQHR	EQRR	ERRA	~~ERRI~~	ERRL	ERRR	IRQ	IRR	ISR	LFFS	LFIS	LPNQ
2.020 POB	1					1									1	1	1
2.021 CTZ	1					1											
2.022 DOB	5					1	1										
2.023 AGR															1	1	1
2.024 SEX	1					1	1								1	1	1
2.025 RAC	1					1	1								1	1	1
2.026 SMT	10					10									10	10	10
2.027 HGT	1					1											
2.028 HTR															1	1	1
2.029 WGT	1					1											
2.030 WTR															1	1	1
2.031 EYE	1					1									1	1	1
2.032 HAI	1					1									1	1	1
2.033 FPC																	
2.034 PAT	1														1	1	1
2.035 PPA	1												1				
2.036 PHT	1												1				
2.037 RFP																	
2.038 DPR	1			1													

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	CFS	CPR	EHRR	ELR	EQER	EQHR	EQRR	ERRA	~~ERRI~~	ERRL	ERRR	IRQ	IRR	ISR	LFFS	LFIS	LPNQ
2.039 EAD	1																
2.040 OCP	1																
2.041 RES	1																
2.042 MIL	1			1		1											
2.044 GEO				5											5	5	5
2.045 DOA	1[3]	1		1													
2.046 DOS	1	1		1													
2.047 ASL	40			40[2]													
2.049 ID																	
2.051 CSL	40[6]																
2.053 OFC	1			1													
2.054 SSD	1																
2.055 SLE	1[6]																
2.056 ICO	1[3]																
2.057 FNR												13					
2.059 SRF																	
2.060 MSG					11			11	~~11~~	11	11						
2.061 CST	1			1						1							
2.062 IMT	10			10													

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	CFS	CPR	EHRR	ELR	EQER	EQHR	EQRR	ERRA	~~ERRI~~	ERRL	ERRR	IRQ	IRR	ISR	LFFS	LFIS	LPNQ
2.063 PTD	1																
2.064 CAN																	
2.065 RSR																	
2.067 IMA	1			1												1	
2.069 ETC																	
2.070 RAP	1			1		1											
2.071 ACN																	
2.073 CRI	3	3	1	3	1	1	1	3	~~3~~	3	1	3	3	3	3	3	3
2.074 FGP				1											10	10	10
2.075 ERS			1														
2.076 PRI															1	1	
2.077 CFS																	
2.078 PEN																	
2.079 NCR							1								1	1	
2.083 ULF															1	1	
2.084 AMP													1				
2.086 SCNA																	
2.088 NOT	1			1													
2.089 MSC																	

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 1 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	CFS	CPR	EHRR	ELR	EQER	EQHR	EQRR	ERRA	~~ERRI~~	ERRL	ERRR	IRQ	IRR	ISR	LFFS	LFIS	LPNQ
2.091 RCD1															1	1	1
2.092 RCD2															1	1	1
2.093 SPCN																	
2.095 RFR																	
2.098 NDR																	
2.2006 CSF																	
2.2022 CIDN			1		1	1	1				1						
2.2024 HTI																	

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 2 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	LPNR	LRSQ	LRSR	LSMQ	LSMR	NAR	PRR	SRL	SRT	TPFS	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.001 LEN	1	1	1	1	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	1	1	1	1
2.003 FFN						1[1]										
2.004 QDD				1	1											
2.005 RET																
2.006 ATN	1	1	1	1	1	1	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		
2.010 CIN	1			200[5]	200	5		1							1	1
2.011 CIX	1			200[5]	200	5		1							1	1
2.012 LCN						1		1[4]							1	1
2.013 LCX						1		1[4]							1	1
2.014 FBI							1							1	1	
2.015 SID										1	1					
2.016 SOC										4	4					
2.017 MNU						4				4	4	1				
2.018 NAM										1	1				1	
2.019 AKA										10	10				10	
2.020 POB										1	1				1	
2.021 CTZ										1	1				1	
2.022 DOB										5	5				5	
2.023 AGR																

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 2 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	LPNR	LRSQ	LRSR	LSMQ	LSMR	NAR	PRR	SRL	SRT	TPFS	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.024 SEX										1	1	1			1	
2.025 RAC										1	1				1	
2.026 SMT										10	10				10	
2.027 HGT										1	1				1	
2.028 HTR																
2.029 WGT										1	1				1	
2.030 WTR																
2.031 EYE										1	1				1	
2.032 HAI										1	1				1	
2.033 FPC																
2.034 PAT										1	1[4]	1[4]				
2.035 PPA										1	1				1	
2.036 PHT										1	1				1	
2.037 RFP																
2.038 DPR														1	1	
2.039 EAD									1	1	1	1	1			
2.040 OCP									1	1	1	1	1			
2.041 RES									1	1	1	1	1			
2.042 MIL																
2.044 GEO																
2.045 DOA							1									
2.046 DOS							1									

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 2 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	LPNR	LRSQ	LRSR	LSMQ	LSMR	NAR	PRR	SRL	SRT	TPFS	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.047 ASL																
2.049 EID																
2.051 CSL																
2.053 OFC																
2.054 SSD																
2.055 SLE																
2.056 ICO																
2.057 FNR										13	13					
2.059 SRF														1		
2.060 MSG						1									1	11
2.061 CST						1										
2.062 IMT																
2.063 PTD																
2.064 CAN								99	25							
2.065 RSR			1													
2.067 IMA																
2.069 ETC					200											
2.070 RAP												1				
2.071 ACN						1										
2.073 CRI	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3
2.074 FGP								99							10	
2.075 ERS													1			

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Table E-1 Summary Field Lists for Investigation, Information, and Notification Transactions (Part 2 of 2)
(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	LPNR	LRSQ	LRSR	LSMQ	LSMR	NAR	PRR	SRL	SRT	TPFS	TPIS	TPRS	TPRR	UHN	ULM	UULD
2.076 PRI				200	200											
2.077 CFS				200	200											
2.078 PEN	1															
2.079 NCR								1								
2.080 EXP							1									
2.082 REC							1									
2.083 ULF								1								
2.084 AMP									1							
2.086 SCNA				200	200			1							1	1
2.088 NOT														1		
2.089 MSC								99								
2.091 RCD1										1	1					
2.092 RCD2										1	1					
2.093 SPCN																
2.098 NDR																
2.2022 CIDN																
2.2024 HTI														1		

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APPENDIX E REFERENCE NOTES

1. If the originator of this TOT is the FBI, then the field is mandatory.
2. The AOL field for this TOT is optional. If provided, the DOO portion of this field is optional, but should be provided if known.
3. Mandatory whenever comparison fingerprints are of a subject.
4. If known, mandatory to enter.
5. Either CIN/CIX or SCNA is mandatory if QDD = "C."
6. ASL must be included where submission includes CSL. CSL and ASL must be included where submission includes SLE.

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APPENDIX F - CJIS IMAGE QUALITY SPECIFICATIONS

1.0 Scope and Purpose

These specifications apply to: (1) systems that scan and capture fingerprints[6] 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 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. 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 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~~s~~ 2 for fingerprint ~~and~~ scanners, Section 3 for fingerprint identification flat~~scanner~~s, Section 4 for fingerprint printers, ~~and~~ 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 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.

[6] The term "fingerprint" in this appendix may also include palmprint, whole hand print, or a print from other parts of the human body.

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2.0 Fingerprint 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.

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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.

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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.

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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.

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).

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Background:
All targets used in 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 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.

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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.

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This measurement procedure is also used to verify the ppi resolution requirement given in Section 2.0 of this appendix.

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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.

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2.3 Spatial Frequency Response

Requirements:
The spatial frequency response shall be measured using a continuous tone sine wave target denoted as Modulation Transfer Function (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.

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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.

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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	1.05 at all frequencies
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	
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.

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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:
$CTF = 3.04105E\text{-}04 * f^2 - 7.99095E\text{-}02 * f + 1.02774$ (eq.2 -1)

1,000-ppi scanner, for f = 1.0 to 20.0 cy/mm:
$CTF = -1.85487E\text{-}05 * f^3 + 1.41666E\text{-}03 * f^2 - 5.73701E\text{-}02 * f + 1.01341$ (eq.2 - 2)

Background:
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.

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Aliasing on sine wave images or bar images may be investigated by quantitative analysis and from visual observation of the softcopy-displayed image.

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2.4 Signal-to-Noise Ratio

Requirement:
The white signal-to-noise ratio 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.

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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.

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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. 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.

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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.

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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.

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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.

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The identification flats scanner shall meet all of the requirements stated in Section 2 of this appendix as well as the following requirements.

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Requirement – Capture Protocol:
The system shall provide a simple capture protocol.

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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[7] 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 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.

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[7] 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.

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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-designated test set of digitized fingerprints and FBI-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.)

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.

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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.

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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
$D \leq 0.001$	$0.00 < X \leq 0.07$	short distance
$D \leq 0.015X$	$0.07 < X \leq 1.50$	medium distance
$D \leq 0.010X$	$4.75 < X \leq 8.00$	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."

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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.

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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.

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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.

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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.

~~NOTE: Printer margins for any printblock when printing on 8.0 x 8.0 inch card stock may not exceed 10% of the image width dimensions. For an image 1.5 inches wide, this means a margin of 0.15 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.

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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 combination 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.

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4.10.3 Bar Chart

Requirement:
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 ~~a background,~~ border~~,~~ or any other type of added surround.

Background:
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.~~The step tablet shall be printed without a background, border, or any other type of surround.~~

Background:

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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.

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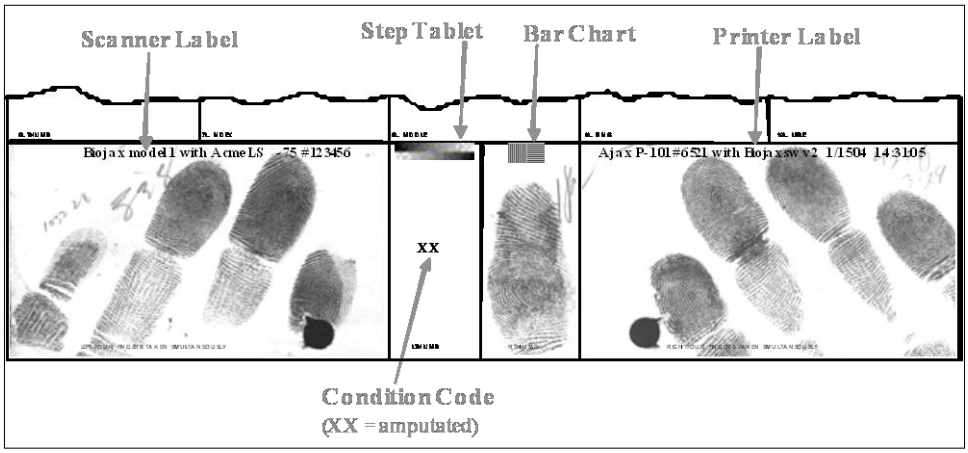
Figure F-1 Auxiliary Information Printed in Tenprint Card Format Print (Example Text)



5.0 Mobile ID

SAP 30 is for single finger sensors, while SAP 40 and above support simultaneous image capture which is faster, reduces sequence errors and produces higher quality images. For RISC participation, the FBI will require acquisition devices to meet a minimum level of SAP 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 SAP level based on their specific requirements.

The FBI is aware that devices with SAP levels 10 and 20 are currently used in conjunction with the RISC pilot. In order to enable this installed base of lower SAP devices to continue to operate, the FBI will grandfather their continued usage in RISC after the NGI RISC deployment. Any new devices acquired after January 1, 2012 will be subjected to the SAP 30 minimum requirement, even if acquired and deployed by RISC pilot agencies.

~~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 Subject Acquisition Profiles (SAP) 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 for an RPIS transaction.~~

Requirement – Image Size/Impression Type:

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For a given SAP, 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:
SAP 30 are for single finger sensors while SAP 40 and above support simultaneous image capture which is faster, reduces sequence errors and produces higher quality images. Although other SAP levels have been created, the FBI requires a minimum SAP 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 SAP level based on their specific requirements.

Table F-5 Mobile ID IQS Requirements

Subject Acquisition Profile (SAP)	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 CJIS Division reserves the right to enforce these, or any other, scanner requirements deemed necessary to meet accuracy levels established by the CJIS Division's Advisory Policy Board. NGI RISC participants should refer to the www.fbibiospecs.org IAFIS Certified Products List/Mobile ID Category for a list of mobile identification devices which have been certified by the FBI as tested and in compliance with the FBI'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 standards and that, between two products that meet FBI standards, the FBI does not recommend one over the other.

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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 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. In addition to the test data, the vendor seeking fast track certification must provide a written statement to the FBI (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.[8] 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.

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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.

[8] Except for inherent image quality changes in specific situations, e.g., when recertifying a 1000 ppi scanner at 500 ppi.

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- 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.[9]

An end user receives a certified device to be used "as is" without modification (an end-user does not need its own certification).

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Table F-6 Fast Track Certification Procedures (Common Scenarios)

Fast Track Certification	Type	Test Data to be Provided to FBI	Requirements Compliance
Livescanner	Vendor A incorporates vendor B's certified device into vendor A's value-added system. Vendor adds (or deletes) platen membrane to certified device.	Livescans from 5 subjects (10 rolls & 4 plains, each subject) Sinewave or bar target scans (target supplied by vendor) and livescans from 5 subjects (10 rolls & 4 plains, each subject).	Section 2.6 Sections 2.1, 2.3, & 2.6
Cardscanner	Vendor A incorporates vendor B's certified device into vendor A's value-added system.	a. Ten 10-print card scans (cards supplied by FBI)	Section 2.6
Cardscanner with Automatic Document Feeder (ADF)	Vendor recertifies manual card scanner for use with ADF.	b. 100 10-print card scans (cards supplied by FBI)	Section 2.6
Printer	Vendor A incorporates vendor B's certified device into vendor A's	c. Print of printer test target (target supplied by FBI)	all subsections under section 4.0 pertaining to

[9] 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.

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	value-added system.		digital test target
1000 ppi fingerprint scanner as 500 ppi fingerprint scanner	Vendor recertifies its own fingerprint scanner in alternate operating mode.	d. Cardscanner: e. Sinewave target scans (target supplied by vendor) and ten 10-print card scans (cards supplied by FBI) Livescanner: f. 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, Value-Added 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.

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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 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, MITRE Technical Report MTR050016R1, September 2008.

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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.

FGP - Finger Position. This **mandatory**, fixed-length field shall occupy the 7th through 12th bytes of a Type-7 record. It shall contain possible finger positions beginning with the least-most byte of the field (byte seven of the record). The decimal code number for the known or most probable finger position shall be taken from Table 12 "Finger Position code & maximum size" of the standard "Data Format for the Interchange of Fingerprint, Facial & Scar Mark & Tattoo (SMT) Information," ANSI/NIST-ITL 1-2007. The number shall be entered as a binary number, right justified, and left zero filled within the eight-bit byte. Up to five additional finger positions may be referenced by entering the alternate finger positions in the remaining five bytes using the same format. If fewer than five finger position references are to be used, the unused bytes shall be filled with the binary equivalent of "255." The code "0" (for unknown finger) shall be used to reference every finger position from one through ten.

GCA – Grayscale Compression Algorithm. This **mandatory**, one-byte field shall occupy the 18th byte of a Type-7 record. It shall be used to specify the type of grayscale compression algorithm used (if any). A binary "0" denotes no compression. Otherwise, the content of this byte shall be a binary representation for the number allocated to the particular compression technique used by the interchange parties. The FBI maintains a registry relating these numbers to the compression algorithms.

HLL - Horizontal Line Length. This **mandatory**, two-byte field shall occupy the 14th and 15th bytes of the Type-7 record. It shall be used to specify the number of pixels contained on a single horizontal line of the transmitted image.

IDC – Image Designation Character. This **mandatory**, one-byte binary field shall be used to identify the image data contained in this record. The IDC contained in this field shall be a binary representation of the IDC found in the file content field of the Type-1 record.

IMG – Image Data. This binary field shall contain all of the high-resolution grayscale image data. Each pixel of the uncompressed image shall be quantized to eight bits (256 gray-levels) contained in a single byte. If compression is used, the pixel data shall be compressed in accordance with the compression technique specified in the GCA field. This completes the high-resolution image description for a single image.

IMP – Impression Type. This **mandatory** one-byte field shall occupy the sixth byte of a Type-7 record. The code selected from Table 11 "Finger impression type" in the ANSI/NIST-ITL standard referenced above describes the manner by which the fingerprint image information was obtained.

ISR – Image Scanning Resolution. This **mandatory**, one-byte field shall occupy the 13th byte of a Type-7 record. It shall contain a binary value of "0" if the minimum scanning resolution is used and a "1" if the native scanning resolution is used.

LEN – Logical Record Length. This **mandatory**, four-byte binary field shall contain the length of the logical record specifying the total number of bytes, including every byte of all the fields contained in the record.

VLL – Vertical Line Length. This **mandatory**, two-byte field shall occupy the 16th and 17th bytes of the Type-7 record. It shall be used to specify the number of horizontal lines contained in the transmitted image.

Table H-1 Field List for Type-7 (Miscellaneous Image) Logical Records

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
LEN	M		LOGICAL RECORD LENGTH	B	4	4	1	1	4		
IDC	M		IMAGE 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		

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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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.

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Table I-1 Summary Field Lists for Data Management Transactions

(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag	CPD	PDR	ERRI	FIS	FISR	ULAC	ULAR	ULD	ULDR
2.001 LEN	1	1	1	1	1	1	1	1	1
2.002 IDC	1	1	1	1	1	1	1	1	1
2.003 FFN									
2.004 QDD									
2.005 RET									
2.006 ATN	1	1	1	1	1	1	1	1	1
2.007 SCO	9	9	9	9	9	9		9	
2.010 CIN						1	1	1	1
2.011 CIX						1	1	1	1
2.012 LCN						1	1	1	1
2.013 LCX						1	1	1	1
2.014 FBI	1	5	1	1	1				
2.015 SID			1	1	1				
2.016 SOC									
2.017 MNU									
2.018 NAM				1	1				
2.019 AKA									
2.020 POB									
2.021 CTZ									
2.022 DOB									
2.023 AGR									
2.024 SEX									
2.025 RAC									

Note: Shaded cells represent optional elements; Unshaded cells represent mandatory elements; Blank cells indicate the element is not used; Diagonal pattern represents FUTURE initiatives (Specific requirements for future TOTs will be developed in concert with the NGI vendor)

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Table I-1 Summary Field Lists for Data Management Transactions

(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag	CPD	PDR	ERRI	FIS	FISR	ULAC	ULAR	ULD	ULDR
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				1					
2.036 PHT									
2.037 RFP									
2.038 DPR				1					
2.039 EAD									
2.040 OCP									
2.041 RES									
2.042 MIL									
2.044 GEO									
2.045 DOA	1	1							
2.046 DOS	1	1							
2.047 ASL									
2.049 EID									
2.051 CSL									

Note: Shaded cells represent optional elements; Unshaded cells represent mandatory elements; Blank cells indicate the element is not used; Diagonal pattern represents FUTURE initiatives (Specific requirements for future TOTs will be developed in concert with the NGI vendor)

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Table I-1 Summary Field Lists for Data Management Transactions

(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag	CPD	PDR	ERRI	FIS	FISR	ULAC	ULAR	ULD	ULDR
2.053 OFC									
2.054 SSD									
2.055 SLE									
2.056 ICO									
2.057 FNR									
2.059 SRF									
2.060 MSG			11						
2.061 CST									
2.062 IMT									
2.063 PTD									
2.064 CAN									
2.065 RSR									
2.067 IMA									
2.069 ETC									
2.070 RAP									
2.071 CAN									
2.072 FIU					13				
2.073 CRI	3	3	3	3	3	3	3	3	3
2.074 FGP									
2.075 ERS									
2.076 PRI									
2.077 CFS									
2.078 PEN									

Note: Shaded cells represent optional elements; Unshaded cells represent mandatory elements; Blank cells indicate the element is not used; Diagonal pattern represents FUTURE initiatives (Specific requirements for future TOTs will be developed in concert with the NGI vendor)

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Table I-1 Summary Field Lists for Data Management Transactions

(Maximum Occurrences of Each Element for Each Logical Record Type)

Tag	CPD	PDR	ERRI	FIS	FISR	ULAC	ULAR	ULD	ULDR
2.079 NCR									
2.080 EXP		1							
2.081 UCN									
2.082 REC		1							
2.083 ULF									
2.084 AMP				1					
2.086 SCNA						1	1	1	1
2.088 NOT									
2.089 MSC									
2.091 RCD1									
2.092 RCD2									
2.095 RFR									
2.098 NDR									
2.2009 PTY									
2.2010 NIR									
2.2012 IIR									

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Note: Shaded cells represent optional elements; Unshaded cells represent mandatory elements; Blank cells indicate the element is not used; Diagonal pattern represents FUTURE initiatives (Specific requirements for future TOTs will be developed in concert with the NGI vendor)

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 fields to 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. 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.

Table J-1 ~~and J-2~~ summarizes the content ~~of each~~ of the fields in the Type-9 tenprint record ~~and~~ and Table J-2 summarizes the content of the latent record types. ~~However, the byte counts do not account for any separator characters.~~ Table J-3 gives the XML encoding representation for the Type-9 record.

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AFV 9.013 – AFIS Feature Vector. ***<nc:BinaryBase64Object>***

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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~~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.

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>***

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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 minutiae 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>***

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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>***

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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 US separator. Unused information items may be empty, but the US 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, t~~T~~he 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.

~~The first information item contains the offset to the upper left corner of a non-rotated sub-image used subsequently in image processing. The second information item contains the coordinates of the center of rotation within the sub-image about which the sub-image is rotated. The third information item contains the clockwise rotation angle (THET) in ten-thousandths of a degree resolution (*e.g.*, 072.2342) including the decimal point. The fourth information item contains 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. The fifth information item contains 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. Unused information items may be empty, but the US separators must be included.~~

CRA 9.021 – Core(s) Attribute. ***<ebts:MinutiaeFingerCoreAttributePosition>***

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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 RS separator. Each subfield contains three information items representing the attributes of each core. For native encoding, these information items will be separated by the US separator ~~representing the attributes of each core~~.

- 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

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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:MinutiaeFingerDeltaAttributePosition>***

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 ~~representing the attributes of each delta~~.

- 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.
  - The second information item of a subfield is the direction of the ridge flow upward from the delta.
  - The third information item of a subfield shall be the direction of ridge flow outward from the delta and to the left.
  - 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.

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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, t~~T~~he 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.

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

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~~Description~~	~~Code~~
~~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>*

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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 Position	Code
Unknown finger	00
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

FMT 9.004 – Minutiae Format. *<ansi-nist:MinutiaeFormatNISTStandardIndicator>*

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This one-byte field shall be used to indicate whether the remainder of the record adheres to the ANSI/NIST-ITL standard or is user-defined. This field shall contain an "S" to indicate the minutiae are formatted as specified by the ANSI/NIST-ITL standard or a "U" to indicate user-

defined, such as CJIS-defined minutiae. If the minutiae record is formatted in user-defined terms, the remaining fields of the logical record may not be applicable. The XML encoding uses a Boolean value to indicate if the record is "standard" ("true") or not ("false").

IDC 9.002 – Image Designation Character. ***<ansi-nist:ImageReferenceIdentification>***

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This two-byte field shall be used for the identification and location of the minutiae data. The IDC contained in this field shall match the IDC found in the file content field of the Type-1 record.

IMP 9.003 – Impression Type.
<ansi-nist:FingerprintImageImpressionCaptureCategoryCode>

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This one-byte binary field describes the manner by which the fingerprint image information was obtained. The allowable codes, as defined by Table 11 of the ANSI/NIST-ITL 1-2007 standard, are as follows.

Description	Code
Live-scan plain	0
Live-scan rolled	1
Non-live-scan plain	2
Non-live-scan rolled	3
Latent impression	4
Latent photo	6
Latent lift	7
Live-scan vertical swipe	8
Live-scan optical contact plain	20
Live-scan optical contact rolled	21
Live-scan non-optical contact plain	22
Live-scan non-optical contact rolled	23
Live-scan optical contactless plain	24
Live-scan optical contactless rolled	25
Live-scan non-optical contactless plain	26

Description	Code
Live-scan non-optical contactless rolled	27
Other	28
Unknown	29

LEN 9.001 – Logical Record Length.

This ASCII field shall contain the length of the logical record specifying the total number of bytes, including every character of all the fields 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.

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, sSubfields shall be separated by the $^{R}_{S}$ separator character and. All all information items within a subfield shall be separated by the $^{U}_{S}$ 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.

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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.

Description	Type
Ridge ending	A
Ridge bifurcation	B
Ridge ending or bifurcation, no distinction provided	C
Type other than ending or bifurcation	D

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.

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ORN 9.020 – Orientation Uncertainty. ***<ansi-nist:PositionUncertaintyValue>***

The orientation uncertainty is a substantial contribution for AFIS/FBI latent characterizations and is not used for tenprint searches. This one-to-three-character 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 does not provide an estimate, the default value shall be 180.

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, e~~E~~ach 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.

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Table J-1 Field List for Type-9 (Minutiae) Native-Mode Tenprint Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
LEN	M	9.001	LOGICAL RECORD LENGTH	N	2	5	1	1	12	9.001:3144<GS>	
IDC	M	9.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	9.002:02<GS>	
IMP	M	9.003	IMPRESSION TYPE	B	1	1	1	1	8	9.003:00000010<GS>	
FMT	M	9.004	MINUTIAE FORMAT	A	1	1	1	1	8	9.004:U<GS>	
AFV	C [7]	9.013	AFIS FEATURE VECTOR	B	2,048	2,048	0	1	2,055	9.013:binary data<GS>	
FGN	M	9.014	FINGER NUMBER	N	2	2	1	1	9	9.014:04<GS>	
NMN	M [8]	9.015	NUMBER OF MINUTIAE	N	2	3	1	1	10	9.015:96<GS>	
FCP	M [8]	9.016	FINGERPRINT CHARACTERIZATION PROCESS				1	1	26	9.016:AFISFBI<US>R2<US>CAV<GS>	
	M		EQUIPMENT (VEN)	A	3	12	1	1			
	M		VERSION IDENTIFIER (VID)	AN	2	2	1	1			
	M		METHOD (MET)	A	3	3	1	1			
APC	O	9.017	AFIS/FBI PATTERN CLASSIFICATION				0	3	33	9.017:LS<US>9<US>0<RS>RS<US>13	
	M		PATTERN CLASSIFICATION (APAT)	A	2	2	1	1			
	C [1]		FIRST SUBPATTERN RIDGE COUNT (RCN1)	N	1	2	0	1			
	C [1]		SECOND SUBPATTERN RIDGE COUNT (RCN2)	N	1	2	0	1			
COF	O	9.019	COORDINATE OFFSETS				0	1	51	9.019:01230444<US>04650433<US><US><US><RS>	
	M		OFFSET TO UL CORNER SUBIMAGE (XXXXYYYY)	N	8	8	1	1			

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table J-1 Field List for Type-9 (Minutiae) Native-Mode Tenprint Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
			(XYP)								
	C [2]		CENTER OF ROTATION IN SUBIMAGE (XXXXYYYY) (XYP)	N	8	8	0	1			
	C [2]		ROTATION ANGLE CW DEGREES (III.FFFF) (THET)	N	8	8	0	1			
	C [2]		ROTATION CENTER IN ROTATED SUBIMAGE (XXXXYYYY) (XYP)	N	8	8	0	1			
	C [3]		OFFSET TO UL CORNER FINAL SUBIMAGE (XXXXYYYY) (XYP)	N	8	8	0	1			
CRA	O	9.021	CORE ATTRIBUTES				0	2	42	9.021:07612387<US>265<US>0175<RS>	
	C [4]		LOCATION (XXXXYYYY) (XYM)	N	8	8	0	1			
	C [4]		DIRECTION IN DEGREES (DDD) (DID)	N	3	3	0	1			
	C [4]		POSITION UNCERTAINTY (RRRR) (PUM)	N	4	4	0	1			
DLA	O	9.022	DELTA ATTRIBUTES				0	2	58	9.022:07612387<US>078<US>210<US>	
	C [5]		LOCATION (XXXXYYYY) (XYM)	N	8	8	0	1			
	C [5]		UPWARD FLOW DIRECTION (DDD) (DID)	N	3	3	0	1			
	C [5]		LEFTWARD FLOW DIRECTION (DDD) (DID)	N	3	3	0	1			
	C [5]		RIGHTWARD FLOW	N	3	3	0	1			

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table J-1 Field List for Type-9 (Minutiae) Native-Mode Tenprint Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
	C [5]		DIRECTION (DDD) (DID) POSITION UNCERTAINTY (RRRR) (PUM)	N	4	4	0	1			
MAT	M [8]	9.023	MINUTIAE AND RIDGE COUNT DATA				1	254	19,818	9.023:001<US>XXXXYYYYTTT<US>QQ<US>A<US>NNNCC<US>NNNCC<US>NNNCC<US>NNNCC<US>NNNCC<US>NNNCC<US>NNNCC<GS>	
	M		MINUTIAE INDEX NUMBER (III) (MDX)	N	3	3	1	1			
	M		LOCATION DIRECTION (XXXXYYYY) (XYT)	N	11	11	1	1			
	~~M~~O		QUALITY MEASURE (QMS)	N	2	2	1	1			
	~~M~~O		MINUTIAE TYPE (MNT)	A	1	1	1	1			
	C[9]~~M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 0 (NNNCC) (MRO)	N	5	5	1	1			
	C[9]~~M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 1 (NNNCC) (MRO)	N	5	5	1	1			
	C[9]~~M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 2 (NNNCC) (MRO)	N	5	5	1	1			
	C[9]~~M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 3 (NNNCC) (MRO)	N	5	5	1	1			

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table J-1 Field List for Type-9 (Minutiae) Native-Mode Tenprint Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
	C[9]M		MINUTIAE INDEX AND RIDGE COUNT OCTANT 4 (NNNCC) (MRO)	N	5	5	1	1			
	C[9]M		MINUTIAE INDEX AND RIDGE COUNT OCTANT 5 (NNNCC) (MRO)	N	5	5	1	1			
	C[9]M		MINUTIAE INDEX AND RIDGE COUNT OCTANT 6 (NNNCC) (MRO)	N	5	5	1	1			
	C[9]M		MINUTIAE INDEX AND RIDGE COUNT OCTANT 7 (NNNCC) (MRO)	N	5	5	1	1			
	O		OCTANT RESIDUALS (RRRRRRRR) (RSO)	N	8	8	0	1			
CHQ	O	9.024	CHARACTERIZATION QUALITY	N	1	3	0	1	10	9.024:73<GS>	
CLQ	O	9.025	CLASSIFIER QUALITY	N	6	7	0	1	14	9.025:1.0525<GS>	

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Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

Table J-2 Field List for Type-9 (Minutiae) Native-Mode Latent Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
LEN	M	9.001	LOGICAL RECORD LENGTH	N	2	5	1	1	12	9.001:3144<GS>	
IDC	M	9.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	9.002:00<GS>	
IMP	M	9.003	IMPRESSION TYPE	B	1	1	1	1	8	9.003:00000010<GS>	
FMT	M	9.004	MINUTIAE FORMAT	A	1	1	1	1	8	9.004:U<GS>	
AFV	C [7]	9.013	AFIS FEATURE VECTOR	B	2,048	2,048	0	1	2,055	9.013:binary data<GS>	
FGN	C [6]	9.014	FINGER NUMBER	N	2	2	0	1	9	9.014:04<GS>	
NMN	M [8]	9.015	NUMBER OF MINUTIAE	N	2	3	1	1	10	9.015:17<GS>	
FCP	M [8]	9.016	FINGERPRINT CHARACTERIZATION PROCESS				1	1	26	9.016:AFISFBI<US>R2<US>CAV<GS>	
	M		EQUIPMENT (VEN)	A	3	12	1	1			
	M		VERSION IDENTIFIER (VID)	AN	2	2	1	1			
	M		METHOD (MET)	A	3	3	1	1			
APC	O	9.017	AFIS/FBI PATTERN CLASSIFICATION				0	3	33	9.017:LS<US>9<US>0<RS>RS<US>13	
	M		PATTERN CLASSIFICATION (APAT)	A	2	2	1	1			
	C [1]		FIRST SUBPATTERN RIDGE COUNT (RCN1)	N	1	2	0	1			
	C [1]		SECOND SUBPATTERN RIDGE COUNT (RCN2)	N	1	2	0	1			
ROV	O	9.018	REGION OF VALUE POLYGON				0	1	186	9.018:10160508<RS>24131016<RS>2032	
	M		VERTEX (XXXXYYYY) (XYM)	N	8	8	3	20			
COF	O	9.019	COORDINATE OFFSETS				0	1	51	9.019:01230444<US>04650433<US>	

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table J-2 Field List for Type-9 (Minutiae) Native-Mode Latent Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
	M		OFFSET TO UL CORNER SUBIMAGE (XXXXYYYY) (XYP)	N	8	8	1	1			
	C [2]		CENTER OF ROTATION IN SUBIMAGE (XXXXYYYY) (XYP)	N	8	8	0	1			
	C [2]		ROTATION ANGLE CW DEGREES (III.FFFF) (THET)	N	8	8	0	1			
	C [2]		ROTATION CENTER IN ROTATED SUBIMAGE (XXXXYYYY) (XYP)	N	8	8	0	1			
	C [3]		OFFSET TO UL CORNER FINAL SUBIMAGE (XXXXYYYY) (XYP)	N	8	8	0	1			
ORN	M [8]	9.020	ORIENTATION UNCERTAINTY	N	1	3	1	1	10	9.020:25<GS>	
CRA	O	9.021	CORE ATTRIBUTES				0	2	42	9.021:07612387<US>265<US>0175<RS>	
	C [4]		LOCATION (XXXXYYYY) (XYM)	N	8	8	0	1			
	C [4]		DIRECTION IN DEGREES (DDD) (DID)	N	3	3	0	1			
	C [4]		POSITION UNCERTAINTY (RRRR) (PUM)	N	4	4	0	1			
DLA	O	9.022	DELTA ATTRIBUTES				0	2	58	9.022:07612387<US>078<US>210<US>	
	C [5]		LOCATION (XXXXYYYY) (XYM)	N	8	8	0	1			
	C [5]		UPWARD FLOW DIRECTION	N	3	3	0	1			

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table J-2 Field List for Type-9 (Minutiae) Native-Mode Latent Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
	C [5]		(DDD) (DID) LEFTWARD FLOW DIRECTION (XXXXYYYY) (XYM)	N	3	3	0	1			
	C [5]		RIGHTWARD FLOW DIRECTION (DDD) (DID)	N	3	3	0	1			
	C [5]		POSITION UNCERTAINTY (RRR) (PUM)	N	4	4	0	1			
MAT	M [8]	9.023	MINUTIAE AND RIDGE COUNT DATA				1	254	19,818	9.023:001<US>XXXXYYYY <US>QQ	
	M		MINUTIAE INDEX NUMBER (III) (MDX)	N	3	3	1	1			
	M		LOCATION DIRECTION (XXXXYYYY) (XYT)	N	11	11	1	1			
	O~~M~~		QUALITY MEASURE (QMS)	N	2	2	1	1			
	O~~M~~		MINUTIAE TYPE (MNT)	A	1	1	1	1			
	C~~9M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 0 (NNNCC) (MRO)	N	5	5	1	1			
	C~~9M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 1 (NNNCC) (MRO)	N	5	5	1	1			
	C~~9M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 2 (NNNCC) (MRO)	N	5	5	1	1			
	C~~9M~~		MINUTIAE INDEX AND RIDGE COUNT OCTANT 3 (NNNCC) (MRO)	N	5	5	1	1			
	C~~9M~~		MINUTIAE INDEX AND RIDGE	N	5	5	1	1			

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table J-2 Field List for Type-9 (Minutiae) Native-Mode Latent Logical Record

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Including Character Separators and Field Number	Example Data	Special Characters Allowed
					Min.	Max.	Min.	Max.			
	C~~9M~~		COUNT OCTANT 4 (NNNCC) (MRO) MINUTIAE INDEX AND RIDGE COUNT OCTANT 5 (NNNCC) (MRO)	N	5	5	1	1			
	M		MINUTIAE INDEX AND RIDGE COUNT OCTANT 6 (NNNCC) (MRO)	N	5	5	1	1			
	M		MINUTIAE INDEX AND RIDGE COUNT OCTANT 7 (NNNCC) (MRO)	N	5	5	1	1			
	O		OCTANT RESIDUALS (RRRRRRRR) (RSO)	N	8	8	0	1			

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Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table J-3 Type-9 Record Hierarchical Model for XML Encoding			
Element Tag	**XML Representation**	**Min**	**Max**
	<itl:PackageMinutiaeRecord>		
RCC	<ansi-nist:RecordCategoryCode>	1	1
IDC 9.002	<ansi-nist:ImageReferenceIdentification>	1	1
	<nc:IdentificationID>		
IMP 9.003	<ansi-nist:MinutiaeImpressionCaptureCategoryCode>	1	1
FMT 9.004	<ansi-nist:MinutiaeFormatNISTStandardIndicator>	1	1
	<ebts:Minutiae>	1	1
FGN 9.014	<ansi-nist:MinutiaeFingerPositionCode>	1[10]	1
	<ebts:MinutiaeFBIStandard>	1	1
MAT 9.023	<ebts:MinutiaDetail>	1	254
MDX 9.023A	<ansi-nist:MinutiaIdentification>	1	1
	<nc:IdentificationID>		
XYT 9.023B	<ansi-nist:PositionHorizontalCoordinateValue>	1	1
	<ansi-nist:PositionVerticalCoordinateValue>	1	1
	<ansi-nist:PositionThetaAngleMeasure>	1	1
QMS 9.023C	<ansi-nist:MinutiaQualityValue>	1	1
MRO 9.023E-L	<ebts:MinutiaRidgeCount>	8	8
	<ansi-nist:RidgeCountReferenceIdentification>	1	1
	<nc:IdentificationID>		
	<ansi-nist:RidgeCountValue>	1	1
	<ebts:MinutiaOctantNumeric>	1	1
RSO 9.023M	<ebts:MinutiaOctantResidualNumeric>	0	1
MNT 9.023D	<ebts:MinutiaTypeCode>	0	1
NMN 9.015	<ansi-nist:MinutiaeQuantity>	1	1
FCP 9.016	<ebts:MinutiaeReadingSystem>	1	1
VEN 9.016A	<ansi-nist:ReadingSystemName>	1	1
VID 9.016B	<ansi-nist:ReadingSystemSubsystemIdentification>	1	1
	<nc:IdentificationID>		
MET 9.016C	<ebts:ReadingSystemCodingMethodCode>	1	1
AFV 9.013	<nc:BinaryBase64Object>	0[11]	1
COF 9.019	<ebts:MinutiaCoordinateOffsets>	0	1
XYP 9.019A	<ebts:OffsetUpperLeftCoordinates>	1	1
	<ansi-nist:PositionHorizontalCoordinateValue>	1	1
	<ansi-nist:PositionVerticalCoordinateValue>	1	1
XYP 9.019B	<ebts:OffsetCenterOfRotation>	0	1
	<ansi-nist:PositionHorizontalCoordinateValue>	1	1
	<ansi-nist:PositionVerticalCoordinateValue>	1	1

[10] Optional for Single-finger Latent Search Requests

[11] In the presence of field 9.013, only fields 9.001-9.004 are Mandatory; all other fields are optional.

~~Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.~~

~~Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.~~

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Table J-3 Type-9 Record Hierarchical Model for XML Encoding			
Element Tag	**XML Representation**	**Min**	**Max**
THET 9.019C	<ansi-nist:PositionThetaAngleMeasure>	0	1
XYP 9.019D	<ebts:OffsetTranslatedCenterOfRotation>	0	1
	<ansi-nist:PositionHorizontalCoordinateValue>	1	1
	<ansi-nist:PositionVerticalCoordinateValue>	1	1
XYP 9.019E	<ebts:OffsetTranslatedUpperLeftCoordinates>	0	1
	<ansi-nist:PositionHorizontalCoordinateValue>	1	1
	<ansi-nist:PositionVerticalCoordinateValue>	1	1
ROV 9.018	<ebts:MinutiaPolygonalVerticesPositions>	0	1
	<itl:PositionPolygonVertex>	3	8
	<ansi-nist:PositionHorizontalCoordinateValue>	1	1
	<ansi-nist:PositionVerticalCoordinateValue>	1	1
CRA 9.021	<ebts:MinutiaeFingerCoreAttributePosition>	0	2
DID 9.021B	<ansi-nist:PositionDirectionDegreeValue>	0	1
XYM 9.021A	<ansi-nist:PositionHorizontalCoordinateValue>	0	1
PUM 9.021C	<ansi-nist:PositionUncertaintyValue>	0	1
XYM 9.021A	<ansi-nist:PositionVerticalCoordinateValue>	0	1
DLA 9.022	<ebts:MinutiaeFingerDeltaAttributePosition>	0	2
DID 9.022B	<ansi-nist:PositionDirectionDegreeValue>	0	1
DID 9.022C	<ansi-nist:PositionDirectionDegreeValue>	0	1
DID 9.022D	<ansi-nist:PositionDirectionDegreeValue>	0	1
XYM 9.022A	<ansi-nist:PositionHorizontalCoordinateValue>	0	1
PUM 9.022E	<ansi-nist:PositionUncertaintyValue>	0	1
XYM 9.022A	<ansi-nist:PositionVerticalCoordinateValue>	0	1
APC 9.017	<ebts:MinutiaeFingerPattern>	0	3
APAT 9.017A	<ebts:FingerprintPatternClassificationCode>	1	1
RCN1 9.017B	<ansi-nist:RidgeCountValue>	0	1
RCN2 9.017C	<ansi-nist:RidgeCountValue>	0	1
CHQ 9.024	<ebts:MinutiaCharacterizationQualityValue>	0	1
CLQ 9.025	<ebts:MinutiaClassifierQualityValue>	0	1
ORN 9.020	<ansi-nist:PositionUncertaintyValue>	1[12]	1

[12] Mandatory for Latent Records Only.

~~Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.~~

~~Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.~~

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APPENDIX J REFERENCE NOTES

1. If tagged field 9.017 "APC" is present, at least one pattern classification must be provided. Up to two additional reference classes may be provided for a maximum of three total possible patterns.

2. If no rotation has been applied, the second, third, and fourth information item positions may be empty, but the intervening $^{U}_{S}$ separators must remain.

3. If no second sub-image is generated, the fifth information item position may be empty.

4. Maximum of two cores reported. If only one core, the first subfield shall be terminated with the $^{G}_{S}$ separator instead of the $^{R}_{S}$ separator, and the second subfield shall be deleted.

5. Maximum of two deltas reported. If only one delta, the first subfield shall be terminated with the $^{G}_{S}$ separator instead of the $^{R}_{S}$ separator, and the second subfield shall be deleted.

6. Mandatory only for multiple-finger latent search request to specify the finger characterized herein.

7. Tagged field 9.04='U' indicates that a Native Mode AFIS/FBI format is being provided in this Type-9 record. If the AFV field (9.013) is not present, the following ANSI/NIST-ITL standard Type-9 record will be parsed for sufficient features information. The Type-9 in Table J-1 defines the ANSI/NIST-ITL standard logical record sequence for a native mode tenprint search request. "9.001:" + LEN + <GS> + "9.002:" + IDC + <GS> + "9.003:" + IMP + <GS> + "9.004:" + FMT + (<GS> + "9.013:" + AFV) + <GS> + "9.014:" + FGN + <GS> + "9.015:" + NMN + <GS> + "9.016:" + FCP + (<GS> + "9.017:" + APC) + (<GS> + "9.019:" + COF) + <GS> + "9.021:" + CRA + <GS> + "9.022:" + DLA + <GS> + "9.023:" + MAT + (<GS> + "9.024:" + CHQ) + (<GS> + "9.025:" + CLQ) + <FS>. The Type-9 in Table J-2 defines the ANSI/NIST-ITL standard logical record sequence for a remote native mode latent search request. "9.001:" + LEN + <GS> + "9.002:" + IDC + <GS> + "9.003:" + IMP + <GS> + "9.004:" + FMT + (<GS> + "9.013:" + AFV) + <GS> + "9.014:" + FGN + <GS> + "9.015:" + NMN + <GS> + "9.016:" + FCP + (<GS> + "9.017:" + APC) + (<GS> + "9.018:" + ROV) + (<GS> + "9.019:" + COF) + <GS> + "9.020:" + ORN + <GS> + "9.021:" + CRA + <GS> + "9.022:" + DLA + <GS> + "9.023:" + MAT + <FS>.

8. This field is optional if the feature vector, field 9.013, has been provided.

9. This field is required when special values for missing or omitted data is specified.

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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. Appendix K provides the SMT Type-10 image record field descriptions. ~~However, the byte counts do not always account for any separator characters.~~ For complete description of the Type-10 record fields, see ANSI/NIST-ITL 1-2007.

~~Notes:~~ 1. DOA must be present to obtain a specific set of photos, otherwise the latest set of photos will be sent.

2. CRI field required only for a photo delete request.

3. Response code will contain a value to indicate the condition of the request "Y" for successful, "N" for rejected.

4. DOA must be present to request a delete action.

5. FBI is mandatory in the Type-2 record if the photo requested is associated with a criminal record.

6. UCN is mandatory in the Type-2 record if the photo requested is associated with other than a criminal record (*e.g.*, civil record), but optionally may contain an FBI number.

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Table K-1 Field List for Type-10 (Subject Photo) Logical Records

Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Incl. Field Number	Example Data
					Min.	Max.	Min.	Max.		
LEN	M	10.001	LOGICAL RECORD LENGTH	N	4	8	1	1	15	10.001:909<GS>
IDC	M	10.002	IMAGE DESIGNATION CHARACTER	N	2	5	1	1	12	10.002:0200<GS>
IMT	M	10.003	IMAGE TYPE	A	5	7	1	1	14	10.003:FACE<GS>
SRC	M	10.004	SOURCE AGENCY/ORI	AN	10	36	1	1	43	10.004:NY0303000S<GS>
PHD	M	10.005	PHOTO DATE	N	9	9	1	1	16	10.005:19960201<GS>
HLL	M	10.006	HORIZONTAL LINE LENGTH	N	4	5	1	1	12	10.006:480<GS>
VLL	M	10.007	VERTICAL LINE LENGTH	N	4	5	1	1	12	10.007:600<GS>
SLC	M	10.008	SCALE UNITS	N	2	2	1	1	9	10.008:0<GS>
HPS	M	10.009	HORIZONTAL PIXEL SCALE	N	2	5	1	1	12	10.009:01<GS>
VPS	M	10.010	VERTICAL PIXEL SCALE	N	2	5	1	1	12	10.010:01<GS>
CGA	M	10.011	COMPRESSION ALGORITHM	AN	4	6	1	1	13	10.011:JPEGB<GS>
CSP	M	10.012	COLOR SPACE	A	4	5	1	1	12	10.012:YCC<GS>
SAP [2]	C [2]	10.013	SUBJECT ACQUISITION PROFILE	N	2	4	1	1	11	10.013:11<GS>
SHPS [2]	O	10.016	SCAN HORIZONTAL PIXEL SCALE	N	2	5	0	1	12	10.016:<GS>
SVPS [2]	O	10.017	SCAN VERTICAL PIXEL SCALE	N	2	5	0	1	12	10.017:<GS>
POS	O	10.020	SUBJECT POSE	A	2	2	0	1	9	10.020:L<GS>
POA	O	10.021	POSE OFFSET ANGLE	N	2	5	0	1	12	10.021:45<GS>
PXS	O	10.022	PHOTO DESCRIPTION	A	4	21	0	9	196	10.022:GLASSES<GS>
PAS [2]	O	10.023	PHOTO ACQUISITION SOURCE	A	7	15	0	1	22	10.023:<GS>
SQS [2]	O	10.024	SUBJECT QUALITY SCORE	N	10	35	0	9	322	10.024:<GS>
SPA [2]	O	10.025	SUBJECT POSE ANGLES	N	9	23	0	1	30	10.025:<GS>
SXS [2]	O	10.026	SUBJECT FACIAL DESCRIPTION	A	6	21	0	50	1,057	10.026:<GS>
SEC [2]	O	10.027	SUBJECT EYE COLOR	A	4	4	0	1	11	10.027:<GS>
SHC [2]	O	10.028	SUBJECT HAIR COLOR	A	4	8	0	2	23	10.028:<GS>
SFP [2]	O	10.029	SUBJECT FEATURE POINTS	N	10	18	0	88	1,591	10.028:<GS>
DMM [2]	O	10.030	DEVICE MONITORING MODE	A	8	11	0	1	18	10.030:<GS>
		10.031 – 10.039	Reserved for future use							
SMT [2]	C [1]	10.040	NCIC DESIGNATION CODE	A	4	11	1	3	40	10.040:XXXXXX<GS>
SMS [2]	O	10.041	SCAR/MARK/TATTOO SIZE	N	4	6	0	1	13	10.041:20<US>40<GS>
SMD [2]	O	10.042	SMT DESCRIPTORS	AN	16	51	0	9	466	10.042:TATTOO<US>SYMBOL<US>GANG<US>MS13<GS>

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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Table K-1 Field List for Type-10 (Subject Photo) Logical Records										
Identifier	Condition	Field No.	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Max. No. of Bytes Incl. Field Number	Example Data
					Min.	Max.	Min.	Max.		
COL [2]	O	10.043	COLORS PRESENT	A	4	21	0	9	196	10.043:BLACK<GS>
		10.044 - 10.199	Reserved for future use							
		10.200 – 10.998	Reserved for user defined fields							
DAT	M	10.999	IMAGE DATA	B	2	5,000,000	1	1	5,000,008	10.999:image data<FS>

Under the Condition column: O = optional; M = mandatory; C = conditional, see notes.
Under the Character Type column: A = alpha; B = binary; N = numeric; S = special characters.

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APPENDIX K REFERENCE NOTES

1. SMT (NCIC designation code) is mandatory if the image type is SMT. The Subject Acquisition Profile (SAP) is a mandatory ASCII text field when field 10.003 contains "FACE".
2. SAP values of 40 and above are preferred by IAFIS/NGI for facial photo enrollment. ~~Source:~~See ANSI/NIST-ITL ~~1 2007~~for more definition.

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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 and TPFS 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
ACN	2.071	ACTION TO BE TAKEN
AFM	14.024	ALTERNATE FINGERPRINT QUALITY METRIC
AFV	9.013	AFIS FEATURE VECTOR
AGR	2.023	AGE RANGE
AKA	2.019	ALIASES
AMP	2.084	AMPUTATED OR BANDAGED
AMPCD	2.084B*	AMPUTATED OR BANDAGED CODE
AOL	2.047B*	ARREST OFFENSE LITERAL
APAT	9.017A*	PATTERN CLASSIFICATION
APC	9.017	AFIS/FBI PATTERN CLASSIFICATION
ASL	2.047	ARREST SEGMENT LITERAL
ATN	2.006	"ATTENTION" INDICATOR
BCD	99.005	BIOMETRIC CAPTURE DATE
BDB	99.999	BIOMETRIC DATA BLOCK
BDQ	99.102	BIOMETRIC DATA QUALITY
BFO	99.103	BDB FORMAT OWNER
BFT	99.104	BIOMETRIC FORMAT TYPE
BPX	13.012	BITS PER PIXEL
BPX	14.012	BITS PER PIXEL
BPX	15.012	BITS PER PIXEL
BPX	16.012	BITS PER PIXEL
BPX	17.012	BITS PER PIXEL
BTY	99.101	BIOMETRIC TYPE
CAN	2.064	CANDIDATE LIST
CCN	2.094	COURT CASE NUMBER
CDD	2.051A*	COURT DISPOSITION DATE
CFS	2.077	CANCEL FRICTION RIDGE SEARCH
CGA	10.011	COMPRESSION ALGORITHM
CGA	13.011	COMPRESSION ALGORITHM
CGA	14.011	COMPRESSION ALGORITHM
CGA	15.011	COMPRESSION ALGORITHM
CGA	16.011	COMPRESSION ALGORITHM
CGA	17.011	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

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Element ID	EBTS Tag Number	Element Name
CIN_PRE	2.010A*	CONTRIBUTOR CASE PREFIX
CIX	2.011	CONTRIBUTOR CASE IDENTIFIER EXTENSION
CLQ	9.025	CLASSIFIER QUALITY
CNT	1.003	FILE CONTENT
COF	9.019	COORDINATE OFFSETS
COL	2.051B*	COURT OFFENSE LITERAL
COL	10.043	COLORS PRESENT
COM	13.020	COMMENT
COM	14.020	COMMENT
COM	15.020	COMMENT
COM	16.020	COMMENT
CPL	2.051C*	OTHER COURT SENTENCE PROVISION LITERAL
CRA	9.021	CORE ATTRIBUTES
CRI	2.073	CONTROLLING AGENCY IDENTIFIER
CRN	2.085	CIVIL RECORD NUMBER
CSF	2.2006	CASCADED SEARCH FLAG
CSL	2.051	COURT SEGMENT LITERAL
CSP	10.012	COLOR SPACE
CSP	16.013	COLOR SPACE
CSP	17.013	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	13.999	IMAGE DATA
DAT	10.999	IMAGE DATA
DAT	14.999	IMAGE DATA
DAT	15.999	IMAGE DATA
DAT	16.999	IMAGE DATA
DATUM_ID	2. 2027	GEOGRAPHIC COORDINATE DATUM
DCS	1.015	DIRECTORY OF CHARACTER SETS
DID	9.021B*	DIRECTION IN DEGREES (DDD)
DID	9.022B*	UPWARD FLOW DIRECTION (DDD)
DID	9.022C*	LEFTWARD FLOW DIRECTION (DDD)
DID	9.022D*	RIGHTWARD FLOW DIRECTION (DDD)
DLA	9.022	DELTA ATTRIBUTES
DMI	2.2013	DISPOSITION MAINTENANCE INDICATOR

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Element ID	EBTS Tag Number	Element Name
DMM	10.030	DEVICE MONITORING MODE
DMM	14.030	DEVICE MONITORING MODE
DMM	15.030	DEVICE MONITORING MODE
DMM	16.030	DEVICE MONITORING MODE
DMM	17.030	DEVICE MONITORING MODE
DNAC	2.2018	DNA CODIS FLAG
DNAF	2.2016	DNA FLAG
DOA	2.045	DATE OF ARREST
DOB	2.022	DATE OF BIRTH
DOM	1.013	DOMAIN NAME
DOO	2.047A*	DATE OF OFFENSE
DORI	2.2017	DNA LOCATION
DOS	2.046	DATE OF ARREST-SUFFIX
DPR	2.038	DATE PRINTED
DUI	17.017	DEVICE UNIQUE IDENTIFIER
EAD	2.039	EMPLOYER AND ADDRESS
ECL	17.020	EYE COLOR
EID	2.049	EMPLOYEE IDENTIFICATION NUMBER
ERS	2.075	ELECTRONIC RAP SHEET
ETC	2.069	ESTIMATED TIME TO COMPLETE
EXP	2.080	RESPONSE EXPLANATION
EYE	2.031	COLOR EYES
FBI	2.014	FBI NUMBER
FCD	14.005	FINGERPRINT CAPTURE DATE
FCP	9.016	FINGERPRINT CHARACTERIZATION PROCESS
FFN	2.003	FBI FILE NUMBER
FGN	9.014	FINGER NUMBER
FGP	2.034A*	FINGER NUMBER
FGP	2.084A*	FINGER NUMBER
FGP	2.091A*	FINGER NUMBER
FGP	2.092A*	FINGER NUMBER
FGP	2.074	FINGER POSITION
FGP	7.004	FINGER POSITION
FGP	9.006	FINGER POSITION
FGP	13.013	FINGER/PALM POSITION
FGP	14.013	FINGER POSITION
FID	17.003	FEATURE IDENTIFIER
FIU	2.072	FINGERPRINT IMAGE(S) UPDATED
FMT	9.004	MINUTIAE FORMAT
FNR	2.057	FINGER NUMBER(S) REQUESTED

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Element ID	EBTS Tag Number	Element Name
FNU	2.064A*	FBI NUMBER
FPC	2.033	NCIC FINGERPRINT CLASSIFICATION
FPC	9.007	FINGERPRINT PATTERN CLASSIFICATION
GCA	7.008	GRAYSCALE COMPRESSION ALGORITHM
GEO	2.044	GEOGRAPHICAL AREA OF SEARCH
GEO_CORD	2. 2026	GEOGRAPHIC COORDINATE LOCATOR
GEO_TIME	2. 2025	GEOGRAPHIC COORDINATE DATE TIME STAMP
GMT	1.014	GREENWICH MEAN TIME
GUI	17.018	GLOBAL UNIQUE IDENTIFIER
HAI	2.032	HAIR COLOR
HDV	99.100	CBEFF HEADER VERSION
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
HLL	16.006	HORIZONTAL LINE LENGTH
HLL	17.006	HORIZONTAL LINE LENGTH
HPS	10.009	HORIZONTAL PIXEL SCALE
HPS	13.009	HORIZONTAL PIXEL SCALE
HPS	14.009	HORIZONTAL PIXEL SCALE
HPS	15.009	HORIZONTAL PIXEL SCALE
HPS	16.009	HORIZONTAL PIXEL SCALE
HPS	17.009	HORIZONTAL PIXEL SCALE
HTI	2.2024	HIT TYPE INDICATOR
HTR	2.028	HEIGHT RANGE
ICO	2.056	IDENTIFICATION COMMENTS
IDC	2.002	IMAGE DESIGNATION CHARACTER
IDC	7.002	IMAGE DESIGNATION CHARACTER
IDC	9.002	IMAGE DESIGNATION CHARACTER
IDC	10.002	IMAGE DESIGNATION CHARACTER
IDC	13.002	IMAGE DESIGNATION CHARACTER
IDC	14.002	IMAGE DESIGNATION CHARACTER
IDC	15.002	IMAGE DESIGNATION CHARACTER
IDC	16.002	IMAGE DESIGNATION CHARACTER
IDC	17.002	IMAGE DESIGNATION CHARACTER
IDC	99.002	IMAGE DESIGNATION CHARACTER
IFS	2.2021	IDENTIFICATION FIREARMS SALES
IID	17.999	IRIS IMAGE DATA

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Element ID	EBTS Tag Number	Element Name
IIR	2.2012	IRIS IMAGES REQUESTED
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 (IF TYPE -7 IMAGES)
IMT	10.003	IMAGE TYPE
IPC	17.016	IMAGE PROPERTY CODE
IQS	17.024	IMAGE QUALITY SCORE
IRD	17.005	IRIS CAPTURE DATE
ISR	7.005	IMAGE SCANNING RESOLUTION
ITD	2.058	IMAGE RECORD TYPE DESIRED
LATD	2.2026A*	LATITUDE DEGREE
LATM	2. 2026B*	LATITUDE MINUTE
LATS	2. 2026C*	LATITUDE SECOND
LCD	13.005	LATENT CAPTURE DATE
LCN	2.012	FBI LATENT CASE NUMBER
LCX	2.013	FBI LATENT CASE EXTENSION
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
LEN	13.001	LOGICAL RECORD LENGTH
LEN	14.001	LOGICAL RECORD LENGTH
LEN	15.001	LOGICAL RECORD LENGTH
LEN	16.001	LOGICAL RECORD LENGTH
LEN	17.001	LOGICAL RECORD LENGTH
LEN	99.001	LOGICAL RECORD LENGTH
LOND	2. 2026D*	LONGITUDE DEGREE
LONM	2. 2026E*	LONGITUDE MINUTE
LONS	2. 2026F*	LONGITUDESECOND
LQM	13.024	LATENT QUALITY METRIC
MAK	2.067A*	ORIGINATING FINGERPRINT READING SYSTEM MAKE
MAT	9.023	MINUTIAE AND RIDGE COUNT DATA

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Element ID	EBTS Tag Number	Element Name
MDX	9.023A*	MINUTIAE INDEX NUMBER (III)
MET	9.016C*	METHOD
MIL	2.042	MILITARY CODE
MMS	17.019	MAKE/MODEL/SERIAL NUMBER
MNT	9.023D*	MINUTIA TYPE
MNU	2.017	MISCELLANEOUS IDENTIFICATION NUMBER
MODL	2.067B*	ORIGINATING FINGERPRINT READING SYSTEM MODEL
MRO	9.023E*	MINUTIA INDEX AND RIDGE COUNT OCTANT 0 (NNNCC)
MRO	9.023F*	MINUTIA INDEX AND RIDGE COUNT OCTANT 1 (NNNCC)
MRO	9.023G*	MINUTIA INDEX AND RIDGE COUNT OCTANT 2 (NNNCC)
MRO	9.023H*	MINUTIA INDEX AND RIDGE COUNT OCTANT 3 (NNNCC)
MRO	9.023I*	MINUTIA INDEX AND RIDGE COUNT OCTANT 4 (NNNCC)
MRO	9.023J*	MINUTIA INDEX AND RIDGE COUNT OCTANT 5 (NNNCC)
MRO	9.023K*	MINUTIA INDEX AND RIDGE COUNT OCTANT 6 (NNNCC)
MRO	9.023L*	MINUTIA INDEX AND RIDGE COUNT OCTANT 7 (NNNCC)
MSC	2.089	MATCH SCORE
MSG	2.060	STATUS/ERROR MESSAGE
NAM	2.064B*	NAME
NAM	2.018	NAME
NAM1	2.2001	NAME-ONE
NAM2	2.2002	NAME-TWO
NAM3	2.2003	NAME-THREE
NAM4	2.2004	NAME-FOUR
NAM5	2.2005	NAME-FIVE
NCR	2.079	NUMBER OF CANDIDATES / IMAGES RETURNED
NDR	2.098	NAME OF DESIGNATED REPOSITORY
NIR	2.2010	NUMBER OF IMAGES REQUESTED
NMN	9.015	NUMBER OF MINUTIAE
NOT	2.088	NOTE FIELD
NQM	14.022	NIST QUALITY METRIC
NSR	1.011	NATIVE SCANNING RESOLUTION
NTR	1.012	NOMINAL TRANSMITTING RESOLUTION
OCA	2.009	ORIGINATING AGENCY CASE NUMBER

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Element ID	EBTS Tag Number	Element Name
OCP	2.040	OCCUPATION
OFC	2.053	OFFENSE CATEGORY
ORI	1.008	ORIGINATING AGENCY IDENTIFIER
ORN	9.020	ORIENTATION UNCERTAINTY
PAS	10.023	PHOTO ACQUISITION SOURCE
PAT	2.034	PATTERN LEVEL CLASSIFICATIONS
PATCL	2.034B*	PATTERN CLASSIFICATION CODE
PCD	15.005	PALMPRINT CAPTURE DATE
PEN	2.078	PENETRATION QUERY RESPONSE
PHD	10.005	PHOTO DATE
PHT	2.036	"PHOTO AVAILABLE" INDICATOR
PLP	15.013	PALMPRINT POSITION
POA	10.021	POSE OFFSET ANGLE
POB	2.020	PLACE OF BIRTH
POS	10.020	SUBJECT POSE
PPA	2.035	"PALMPRINTS AVAILABLE" INDICATOR
PPC	13.015	PRINT POSITION COORDINATES
PPC	14.015	PRINT POSITION COORDINATES
PPD	14.014	PRINT POSITION DECSRIPTORS
PQM	15.024	PALMPRINT QUALITY METRIC
PRI	2.076	PRIORITY
PRY	1.006	TRANSACTION PRIORITY
PTD	2.063	PERSON TYPE DESIGNATOR
PTY	2.2009	PHOTO TYPE
PUM	9.021C*	POSITION UNCERTAINTY (RRRR)
PUM	9.022E*	POSITION UNCERTAINTY (RRRR)
PXS	10.022	PHOTO DESCRIPTION
QDD	2.004	QUERY DEPTH OF DETAIL
QMS	9.023C*	QUALITY MEASURE
RAC	2.025	RACE
RAE	17.014	ROTATION ANGLE OF EYE
RAP	2.070	REQUEST FOR ELECTRONIC RAP SHEET
RAU	17.015	ROTATION UNCERTAINTY
*tbd	2.052	RAP BACK REQUEST
*tbd	2.2014	RAP BACK ELIGIBILITY
*tbd	2.2015	RAP BACK EXPIRATION DATE

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Element ID	EBTS Tag Number	Element Name
*tbd	2.2011	RAP BACK VERIFICATION STATUS
*tbd	2.2020	RAP BACK RECIPIENT
RCD1	2.091	RIDGE CORE DELTA ONE FOR SUBPATTERN
RCD2	2.092	RIDGE CORE DELTA TWO FOR SUBPATTERN
RCN1	2.091B*	RIDGE COUNT NUMBER 1
RCN1	9.017B*	FIRST SUBPATTERN RIDGE COUNT
RCN2	2.092B*	RIDGE COUNT NUMBER 2
RCN2	9.017C*	SECOND SUBPATTERN RIDGE COUNT
REC	2.082	RESPONSE CODE
RES	2.041	RESIDENCE OF PERSON FINGERPRINTED
RET	2.005	RETENTION CODE
RFP	2.037	REASON FINGERPRINTED
RFR	2.095	REQUEST FEATURES RECORD
ROV	9.018	REGION OF VALUE POLYGON
RPR	2.096	REQUEST PHOTO RECORD
RSO	9.023M*	OCTANT RESIDUALS (RRRRRRRR)
RSR	2.065	REPOSITORY STATISTICS RESPONSE
SAN	2.099	STATE ARREST NUMBER
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
SEAL	2.2019	SEAL ARREST FLAG
SEC	10.027	SUBJECT EYE COLOR
SEG	14.021	FINGERPRINT SEGMENT POSITION(S)
SERNO	2.067C*	ORIGINATING FINGERPRINT READING SYSTEM SERIAL
SEX	2.024	SEX
SFP	10.029	SUBJECT FEATURE POINTS
SHC	10.028	SUBJECT HAIR COLOR
SHPS	13.016	SCANNED HORIZONTAL SCALE
SHPS	14.016	SCAN HOR PIXEL SCALE
SHPS	15.016	SCAN HOR PIXEL SCALE
SHPS	16.016	SCAN HOR PIXEL SCALE
SID	2.015	STATE IDENTIFICATION NUMBER
SII	2.2023	SUPPLEMENTARY IDENTITY INFORMATION
SLC	10.008	SCALE UNITS
SLC	13.008	SCALE UNITS
SLC	14.008	SCALE UNITS
SLC	15.008	SCALE UNITS

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Element ID	EBTS Tag Number	Element Name
SLC	16.008	SCALE UNITS
SLC	17.008	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
SOC	2.016	SOCIAL SECURITY ACCOUNT NUMBER
SPA	10.025	SUBJECT POSE ANGLES
SPCN	2.093	SPECIAL POPULATION COGNIZANT FILE NUMBER
SPD	13.014	SEARCH POSITION DESCRIPTORS
SQM	14.023	SEGMENTATION QUALITY METRIC
SQS	10.024	SUBJECT QUALITY SCORE
SRC	10.004	SOURCE AGENCY/ORI
SRC	13.004	SOURCE AGENCY/ORI
SRC	14.004	SOURCE AGENCY/ORI
SRC	15.004	SOURCE AGENCY/ORI
SRC	16.004	SOURCE AGENCY/ORI
SRC	17.004	SOURCE AGENCY/ORI
SRC	99.004	SOURCE AGENCY/ORI
SRF	2.059	SEARCH RESULTS FINDINGS
SSD	2.054	CUSTODY OR SUPERVISORY STATUS - START DATE
SVPS	13.017	SCANNED VERTICAL PIXEL SCALE
SVPS	14.017	SCAN VERT PIXEL SCALE
SVPS	15.017	SCAN VERT PIXEL SCALE
SVPS	16.017	SCAN VERT PIXEL SCALE
SXS	10.026	SUBJECT FACIAL DESCRIPTION
TAA	2.087	TREAT AS ADULT
TCN	1.009	TRANSACTION CONTROL NUMBER
TCR	1.010	TRANSACTION CONTROL REFERENCE
THET	9.019C*	ROTATION ANGLE CW DEGREES (III.FFFF)
TOT	1.004	TYPE OF TRANSACTION
TSR	2.043	TYPE OF SEARCH REQUESTED
UCN	2.081	UNIVERSAL CONTROL NUMBER
UDI	16.003	USER-DEFINED IMAGE
ULF	2.083	UNSOLVED LATENT FILE
UTD	16.005	USER-DEFINED TESTING DATE
VEN	9.016A*	EQUIPMENT
VER	1.002	VERSION

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Element ID	EBTS Tag Number	Element Name
VID	9.016B*	VERSION IDENTIFIER
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
VLL	16.007	VERTICAL LINE LENGTH
VLL	17.007	VERTICAL LINE LENGTH
VPS	10.010	VERTICAL PIXEL SCALE
VPS	13.010	VERTICAL PIXEL SCALE
VPS	14.010	VERTICAL PIXEL SCALE
VPS	15.010	VERTICAL PIXEL SCALE
VPS	16.010	VERTICAL PIXEL SCALE
VPS	17.010	VERTICAL PIXEL SCALE
WGT	2.029	WEIGHT
WTR	2.030	WEIGHT RANGE
XYM	9.018A*	VERTEX (XXXXYYYY)
XYM	9.021A*	LOCATION (XXXXYYYY)
XYM	9.022A*	LOCATION (XXXXYYYY)
XYP	9.019A*	OFFSET TO UL CORNER SUBIMAGE (XXXXYYYY)
XYP	9.019B*	CENTER OF ROTATION IN SUBIMAGE (XXXXYYYY)
XYP	9.019D*	ROTATION CENTER IN ROTATED SUBIMAGE (XXXXYYYY)
XYP	9.019E*	OFFSET TO UL CORNER FINAL SUBIMAGE (XXXXYYYY)
XYT	9.023B*	LOCATION DIRECTION (XXXXYYYY)

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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	IMAGE DESIGNATION CHARACTER
2.003	FFN	FBI FILE NUMBER
2.004	QDD	QUERY DEPTH OF DETAIL
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
2.010B*	CIN_ID	CONTRIBUTOR CASE ID
2.011	CIX	CONTRIBUTOR CASE IDENTIFIER EXTENSION
2.012	LCN	FBI LATENT CASE NUMBER
2.013	LCX	FBI LATENT CASE 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

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EBTS Tag Number	Element ID	Element Name
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
2.034B*	PATCL	PATTERN CLASSIFICATION CODE
2.035	PPA	"PALMPRINTS AVAILABLE" INDICATOR
2.036	PHT	"PHOTO AVAILABLE" INDICATOR
2.037	RFP	REASON FINGERPRINTED
2.038	DPR	DATE PRINTED
2.039	EAD	EMPLOYER AND ADDRESS
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
2.047B*	AOL	ARREST OFFENSE LITERAL
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
2.051B*	COL	COURT OFFENSE LITERAL
2.051C*	CPL	OTHER COURT SENTENCE PROVISION LITERAL
2.052	*tbd	RAP BACK REQUEST
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

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EBTS Tag Number	Element ID	Element Name
2.058	ITD	IMAGE RECORD TYPE DESIRED
2.059	SRF	SEARCH RESULTS FINDINGS
2.060	MSG	STATUS/ERROR MESSAGE
2.061	CST	CASE TITLE
2.062	IMT	IMAGE TYPE (IF TYPE -7 IMAGES)
2.063	PTD	PERSON TYPE DESIGNATOR
2.064	CAN	CANDIDATE LIST
2.064A*	FNU	FBI NUMBER
2.064B*	NAM	NAME
2.065	RSR	REPOSITORY STATISTICS RESPONSE
2.067	IMA	IMAGE CAPTURE EQUIPMENT
2.067A*	MAK	ORIGINATING FINGERPRINT READING SYSTEM MAKE
2.067B*	MODL	ORIGINATING FINGERPRINT READING SYSTEM MODEL
2.067C*	SERNO	ORIGINATING FINGERPRINT READING SYSTEM SERIAL
2.069	ETC	ESTIMATED TIME TO COMPLETE
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
2.077	CFS	CANCEL FRICTION RIDGE SEARCH
2.078	PEN	PENETRATION QUERY RESPONSE
2.079	NCR	NUMBER OF CANDIDATES / IMAGES RETURNED
2.080	EXP	RESPONSE EXPLANATION
2.081	UCN	UNIVERSAL CONTROL NUMBER
2.082	REC	RESPONSE CODE
2.083	ULF	UNSOLVED LATENT FILE
2.084	AMP	AMPUTATED OR BANDAGED
2.084A*	FGP	FINGER NUMBER
2.084B*	AMPCD	AMPUTATED OR BANDAGED CODE
2.085	CRN	CIVIL RECORD NUMBER
2.086	SCNA	AFIS SEGMENT CONTROL NUMBER
2.087	TAA	TREAT AS ADULT
2.088	NOT	NOTE FIELD
2.089	MSC	MATCH SCORE
2.091	RCD1	RIDGE CORE DELTA ONE FOR SUBPATTERN
2.091A*	FGP	FINGER NUMBER
2.091B*	RCN1	RIDGE COUNT NUMBER 1
2.092	RCD2	RIDGE CORE DELTA TWO FOR SUBPATTERN

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EBTS Tag Number	Element ID	Element Name
2.092A*	FGP	FINGER NUMBER
2.092B*	RCN2	RIDGE COUNT NUMBER 2
2.093	SPCN	SPECIAL POPULATION COGNIZANT FILE NUMBER
2.094	CCN	COURT CASE NUMBER
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
2.2001	NAM1	NAME-ONE
2.2002	NAM2	NAME-TWO
2.2003	NAM3	NAME-THREE
2.2004	NAM4	NAME-FOUR
2.2005	NAM5	NAME-FIVE
2.2006	CSF	CASCADED SEARCH FLAG
2.2007	SDOB	SUBMITTED DATE OF BIRTH
2.2008	SNAM	SUBMITTED NAME
2.2009	PTY	PHOTO TYPE
2.2010	NIR	NUMBER OF IMAGES REQUESTED
2.2011	*tbd	RAP BACK VERIFICATION STATUS
2.2012	IIR	IRIS IMAGES REQUESTED
2.2013	DMI	DISPOSITION MAINTENANCE INDICATOR
2.2014	*tbd	RAP BACK ELIGIBILITY
2.2015	*tbd	RAP BACK EXPIRATION DATE
2.2016	DNAF	DNA FLAG
2.2017	DORI	DNA LOCATION
2.2018	DNAC	DNA CODIS FLAG
2.2019	SEAL	SEAL ARREST FLAG
2.2020	*tbd	RAP BACK RECIPIENT
2.2021	IFS	IDENTIFICATION FIREARMS SALES
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
2.2026	GEO-CORD	GEOGRAPHIC COORDINATE LOCATOR
2.2026A*	LATD	LATITUDE DEGREE
2. 2026B*	LATM	LATITUDE MINUTE
2. 2026C*	LATS	LATITUDE SECOND
2. 2026D*	LOND	LONGITUDE DEGREE
2.2026E*	LONM	LONGITUDE MINUTE
2. 2026F*	LONS	LONGITUDE SECOND
2.2027	DATUM_ID	GEOGRAPHIC COORDINAT E DATUM

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EBTS Tag Number	Element ID	Element Name
7.001	LEN	LOGICAL RECORD LENGTH
7.002	IDC	IMAGE 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	IMAGE DESIGNATION CHARACTER
9.003	IMP	IMPRESSION TYPE
9.004	FMT	MINUTIAE FORMAT
9.006	FGP	FINGER POSITION
9.007	FPC	FINGERPRINT PATTERN CLASSIFICATION
9.013	AFV	AFIS FEATURE VECTOR
9.014	FGN	FINGER NUMBER
9.015	NMN	NUMBER OF MINUTIAE
9.016	FCP	FINGERPRINT CHARACTERIZATION PROCESS
9.016A*	VEN	EQUIPMENT
9.016B*	VID	VERSION IDENTIFIER
9.016C*	MET	METHOD
9.017	APC	AFIS/FBI PATTERN CLASSIFICATION
9.017A*	APAT	PATTERN CLASSIFICATION
9.017B*	RCN1	FIRST SUBPATTERN RIDGE COUNT
9.017C*	RCN2	SECOND SUBPATTERN RIDGE COUNT

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EBTS Tag Number	Element ID	Element Name
9.018	ROV	REGION OF VALUE POLYGON
9.018A*	XYM	VERTEX (XXXXYYYY)
9.019	COF	COORDINATE OFFSETS
9.019A*	XYP	OFFSET TO UL CORNER SUBIMAGE (XXXXYYYY)
9.019B*	XYP	CENTER OF ROTATION IN SUBIMAGE (XXXXYYYY)
9.019C*	THET	ROTATION ANGLE CW DEGREES (III.FFFF)
9.019D*	XYP	ROTATION CENTER IN ROTATED SUBIMAGE (XXXXYYYY)
9.019E*	XYP	OFFSET TO UL CORNER FINAL SUBIMAGE (XXXXYYYY)
9.020	ORN	ORIENTATION UNCERTAINTY
9.021	CRA	CORE ATTRIBUTES
9.021A*	XYM	LOCATION (XXXXYYYY)
9.021B*	DID	DIRECTION IN DEGREES (DDD)
9.021C*	PUM	POSITION UNCERTAINTY (RRRR)
9.022	DLA	DELTA ATTRIBUTES
9.022A*	XYM	LOCATION (XXXXYYYY)
9.022B*	DID	UPWARD FLOW DIRECTION (DDD)
9.022C*	DID	LEFTWARD FLOW DIRECTION (DDD)
9.022D*	DID	RIGHTWARD FLOW DIRECTION (DDD)
9.022E*	PUM	POSITION UNCERTAINTY (RRRR)
9.023	MAT	MINUTIAE AND RIDGE COUNT DATA
9.023A*	MDX	MINUTIAE INDEX NUMBER (III)
9.023B*	XYT	LOCATION DIRECTION (XXXXYYYY)
9.023C*	QMS	QUALITY MEASURE
9.023D*	MNT	MINUTIA TYPE
9.023E*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 0 (NNNCC)
9.023F*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 1 (NNNCC)
9.023G*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 2 (NNNCC)
9.023H*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 3 (NNNCC)
9.023I*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 4 (NNNCC)
9.023J*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 5 (NNNCC)
9.023K*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 6 (NNNCC)
9.023L*	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 7 (NNNCC)
9.023M*	RSO	OCTANT RESIDUALS (RRRRRRRR)
9.024	CHQ	CHARACTERIZATION QUALITY
9.025	CLQ	CLASSIFIER QUALITY
10.001	LEN	LOGICAL RECORD LENGTH
10.002	IDC	IMAGE DESIGNATION CHARACTER
10.003	IMT	IMAGE TYPE
10.004	SRC	SOURCE AGENCY/ORI
10.005	PHD	PHOTO DATE

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EBTS Tag Number	Element ID	Element Name
10.006	HLL	HORIZONTAL LINE LENGTH
10.007	VLL	VERTICAL LINE LENGTH
10.008	SLC	SCALE UNITS
10.009	HPS	HORIZONTAL PIXEL SCALE
10.010	VPS	VERTICAL PIXEL SCALE
10.011	CGA	COMPRESSION ALGORITHM
10.013	SAP	SUBJECT ACQUISITION PROFILE
10.012	CSP	COLOR SPACE
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 SCORE
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	SFP	SUBJECT FEATURE POINTS
10.030	DMM	DEVICE MONITORING MODE
10.040	SMT	NCIC DESIGNATION CODE
10.041	SMS	SCAR/MARK/TATTOO SIZE
10.042	SMD	SMT DESCRIPTORS
10.043	COL	COLORS PRESENT
10.999	DAT	IMAGE DATA
13.001	LEN	LOGICAL RECORD LENGTH
13.002	IDC	IMAGE 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
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

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EBTS Tag Number	Element ID	Element Name
13.017	SVPS	SCANNED VERTICAL PIXEL SCALE
13.020	COM	COMMENT
13.024	LQM	LATENT QUALITY METRIC
13.999	DAT	IMAGE DATA
14.001	LEN	LOGICAL RECORD LENGTH
14.002	IDC	IMAGE 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
14.999	DAT	IMAGE DATA
15.001	LEN	LOGICAL RECORD LENGTH
15.002	IDC	IMAGE 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

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EBTS Tag Number	Element ID	Element Name
15.012	BPX	BITS PER PIXEL
15.013	PLP	PALMPRINT 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
15.999	DAT	IMAGE DATA
16.001	LEN	LOGICAL RECORD LENGTH
16.002	IDC	IMAGE DESIGNATION CHARACTER
16.003	UDI	USER-DEFINED IMAGE
16.004	SRC	SOURCE AGENCY/ORI
16.005	UTD	USER-DEFINED TESTING DATE
16.006	HLL	HORIZONTAL LINE LENGTH
16.007	VLL	VERTICAL LINE LENGTH
16.008	SLC	SCALE UNITS
16.009	HPS	HORIZONTAL PIXEL SCALE
16.010	VPS	VERTICAL PIXEL SCALE
16.011	CGA	COMPRESSION ALGORITHM
16.012	BPX	BITS PER PIXEL
16.013	CSP	COLOR SPACE
16.016	SHPS	SCAN HOR PIXEL SCALE
16.017	SVPS	SCAN VERT PIXEL SCALE
16.020	COM	COMMENT
16.030	DMM	DEVICE MONITORING MODE
16.999	DAT	IMAGE DATA
17.001	LEN	LOGICAL RECORD LENGTH
17.002	IDC	IMAGE DESIGNATION CHARACTER
17.003	FID	FEATURE IDENTIFIER
17.004	SRC	SOURCE AGENCY/ORI
17.005	IRD	IRIS CAPTURE DATE
17.006	HLL	HORIZONTAL LINE LENGTH
17.007	VLL	VERTICAL LINE LENGTH
17.008	SLC	SCALE UNITS
17.009	HPS	HORIZONTAL PIXEL SCALE
17.010	VPS	VERTICAL PIXEL SCALE
17.011	CGA	COMPRESSION ALGORITHM
17.012	BPX	BITS PER PIXEL
17.013	CSP	COLOR SPACE

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EBTS Tag Number	Element ID	Element Name
17.014	RAE	ROTATION ANGLE OF EYE
17.015	RAU	ROTATION UNCERTAINTY
17.016	IPC	IMAGE PROPERTY CODE
17.017	DUI	DEVICE UNIQUE IDENTIFIER
17.018	GUI	GLOBAL UNIQUE IDENTIFIER
17.019	MMS	MAKE/MODEL/SERIAL NUMBER
17.020	ECL	EYE COLOR
17.024	IQS	IMAGE QUALITY SCORE
17.030	DMM	DEVICE MONITORING MODE
17.999	IID	IRIS IMAGE DATA
99.001	LEN	LOGICAL RECORD LENGTH
99.002	IDC	IMAGE DESIGNATION CHARACTER
99.003	RSV	RESERVED FOR FUTURE INCLUSION
99.004	SRC	SOURCE AGENCY/ORI
99.005	BCD	BIOMETRIC CAPTURE DATE
99.006-99.099	RSV	RESERVED FOR FUTURE INCLUSION
99.100	HDV	CBEFF HEADER VERSION
99.101	BTY	BIOMETRIC TYPE
99.102	BDQ	BIOMETRIC DATA QUALITY
99.103	BFO	BDB FORMAT OWNER
99.104	BFT	BIOMETRIC FORMAT TYPE
99.105-99.199	RSV	RESERVED FOR FUTURE INCLUSION
99.999	BDB	BIOMETRIC DATA BLOCK

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Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	TOT	Searching / Enrollment						Enrollment				
		T1	T2	T4*	T14*	T7	T13	T9	T10	T14**	T15**	T17
Identification Service Transactions												
Tenprint Fingerprint Identification Submissions												
CRIMINAL TENPRINT SUBMISSION - ANSWER REQUIRED	CAR	1	1	0-14	0	0-2		0	0-4	0-20	0-8	0-2
CRIMINAL TENPRINT SUBMISSION - NO ANSWER REQUIRED	CNA	1	1	0-14	0	0-2		0	0-4	0-20	0-8	0-2
CRIMINAL FINGERPRINT DIRECT ROUTE	CPDR	1	1	0-14	0	0		0	0-4	0-20	0-8	0-2
CRIMINAL FINGERPRINT PROCESSING NON-URGENT	CPNU	1	1	0-14	0	0-2		0	0-4	0-20	0-8	0-2
DEPARTMENTAL ORDER CHANNELING ELECTRONIC	DOCE	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
ELECTRONIC IN/MANUAL OUT USER FEE	EMUF	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
FEDERAL APPLICANT - NO CHARGE	FANC	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
FEDERAL APPLICANT - USER FEE	FAUF	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
FEDERAL NO-CHARGE DIRECT ROUTE	FNDR	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
NON-FEDERAL NO-CHARGE DIRECT ROUTE	NNDR	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
NON-FEDERAL ADVANCED PAYMENT	NFAP	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
NON-FEDERAL USER FEE EXPEDITE	NFUE	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
NON-FEDERAL APPLICANT USER FEE	NFUF	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
MISCELLANEOUS APPLICANT – CIVIL	MAP	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
KNOWN DECEASED	DEK	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
UNKNOWN DECEASED	DEU	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
MISSING PERSON	MPR	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
AMNESIA VICTIM	AMN	1	1	0-14	0-3	0-2		0	0-4	0-20	0-8	0-2
RAP BACK INDIRECT ENROLLMENT REQUESTS *(Future Capability)*												
EXTERNAL FINGERPRINT IDENTIFICATION SEARCH *(Future Capability)*												
Latent Fingerprint Identification Submissions												
LATENT FINGERPRINT IMAGE SUBMISSION****	LFS	1	1	0-10	0-10	0-10	0-10	0	0	0	0-8	0
Rapid Fingerprint Identification Submissions												
RAPID FINGERPRINT IDENTIFICATION SEARCH***	RPIS	1	1	0-10	0-10	0		0	0	0	0	0

* For tenprint submissions, the number of Type-4 images is normally 14 and the number of Type-14 images is normally 3. When fewer images are sent, the AMP field of the accompanyingType-2 must account for all missing images. **** 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. ***These delayed responses are notifications to record owners triggered by actions associated with these transactions. ****Latent transactions should contain at least one image, whether a Type-4/14 or 7/13.**

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Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	TOT	Searching / Enrollment						Enrollment				
		T1	T2	T4*	T14*	T7	T13	T9	T10	T14**	T15**	T17
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~~	~~0-14~~	~~0-14~~	~~0~~		~~0~~	~~0~~		~~0~~	~~0~~
Verification Service Transactions												
FINGERPRINT VERIFICATION ~~REPORT~~REQUEST	FVR	1	1	2-14	0	0	0	0	0	0	0	0
Information Service Transactions												
Biometric Image Retrieval Submissions												
BIOMETRIC IMAGE/FEATURE RETREIVAL	IRQ	1	1	0	0	0	0	0	0	0	0	0
SUBJECT PHOTO REQUEST	CPR	1	1	0	0	0	0	0	0	0	0	0
Biometric Audit Trail Retrieval Submissions (Future Capability)												
BIOMETRIC AUDIT TRAIL RETRIEVAL *(Future Capability)*												
UNSOLVED LATENT AUDIT TRAIL RETRIEVAL *(Future Capability)*												

* For tenprint submissions, the number of Type-4 images is normally 14 and the number of Type-14 images is normally 3. When fewer images are sent, the AMP field of the accompanyingType-2 must account for all missing images. **** 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. ***These delayed responses are notifications to record owners triggered by actions associated with these transactions. ****Latent transactions should contain at least one image, whether a Type-4/14 or 7/13.**

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Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	TOT	Searching / Enrollment						Enrollment				
		T1	T2	T4*	T14 *	T7	T13	T9	T10	T14* *	T15* *	T17
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	1	1	1-10	0	0	0	0	0	0	0	0
TENPRINT FINGERPRINT FEATURES SEARCH	TPFS	1	1	0	0	0	0	1-10	0	0	0	0
TENPRINT RAPSHEET REQUEST	TPRS	1	1	1-10	0	0	0	0	0	0	0	0
Latent Print Investigation Submissions												
COMPARISON FINGERPRINT IMAGE SUBMISSION	CFS	1	1	1-14	0	0-10	0	0	0	0	0	0
EVALUATION LATENT FINGERPRINT IMAGE SUBMISSION****	ELR	1	1	0-10	0	0-10	0	0	0	0	0	0
LATENT FRICTION RIDGE IMAGE SEARCH****	LFIS	1	1-2	0-10	0-10	0-10	0-10	0	0	0	0	0
LATENT FRICTION RIDGE FEATURES SEARCH	LFFS	1	1-2	0-10	0-10	0-10	0-10	1-10	0	0	0	0
LATENT PENETRATION QUERY	LPNQ	1	1	0	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	0
LATENT SEARCH STATUS AND MODIFICATIONS QUERY	LSMQ	1	1	0	0	0	0	0	0	0	0	0
Biometric Investigation Submissions												
PHOTO INVESTIGATION SEARCH *(Future Capability)*												
PALMPRINT INVESTIGATION SEARCH *(Future Capability)*												
SUPPLEMENTAL FINGERPRINT AND PALMPRINT 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	0

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Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	TOT	Searching / Enrollment T1	T2	T4*	T14*	T7	T13	Enrollment T9	T10	T14*	T15*	T17
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	0
UNSOLVED LATENT ADD CONFIRM REQUEST	ULAC	1	1	0	0	0	0	0	0	0	0	0
Biometric Image Submissions												
BIOMETRIC IMAGE SUBMISSION	FIS	1	1	0-14	0-14	0	0	0	0	0-20	0-8	0
Biometric File Maintenance Submissions												
Biometric Enrollment Request												
FINGERPRINT ENROLLMENT REQUEST *(Future Capability)*												
SUPPLEMENTAL FINGERPRINT AND PALMPRINT ENROLLMENT REQUEST *(Future Capability)*												
PHOTO ENROLLMENT REQUEST *(Future Capability)*												
PALMPRINT ENROLLMENT REQUEST *(Future Capability)*												
IRIS ENROLLMENT REQUEST *(Future Capability)*												
Biometric Deletion Requests												
FINGERPRINT DELETE REQUEST *(Future Capability)*												
SUPPLEMENTAL FINGERPRINT AND PALMPRINT DELETE REQUEST *(Future Capability)*												
SUBJECT PHOTO DELETE REQUEST	CPD	1	1	0	0	0	0	0	0	0	0	0
PALMPRINT DELETE REQUEST *(Future Capability)*												
IRIS DELETE REQUEST *(Future Capability)*												
CIVIL RECORD DELETE REQUEST *(Future Capability)*												
Biometric Decision Requests												
LATENT ~~SEARCH IDENT~~DECISION ~~RESPONSE~~ REQUEST *(Future Capability)*												
Identity File Maintenance Submissions												

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Table L-3 Record Set Requirements Summary by Type of Transaction

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Transaction	TOT	Searching / Enrollment T1	T2	T4*	T14*	T7	T13	Enrollment T9	T10	T14**	T15**	T17
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											
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)*												

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~~Table L-3 Record Set Requirements Summary by Type of Transaction~~

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~~Transaction~~	~~TOT~~	~~T1~~	~~T2~~	~~T4*/14~~	~~T7/13~~	~~T9~~	~~T10~~	~~T15/17**~~	~~Normal Response~~	~~Delayed Response***~~	~~Error Response~~
~~**Identification Service Transactions**~~											
~~*Tenprint Fingerprint Identification Submissions*~~											
~~CRIMINAL TENPRINT SUBMISSION - ANSWER REQUIRED~~	~~CAR~~	~~1~~	~~1~~	~~1-14~~	~~0-2~~	~~0~~	~~0-4~~	~~0-8/0-2~~	~~SRE~~	~~ULM~~	~~ERRT~~
~~CRIMINAL TENPRINT SUBMISSION - NO ANSWER REQUIRED~~	~~CNA~~	~~1~~	~~1~~	~~1-14~~	~~0-2~~	~~0~~	~~0-4~~	~~0-8/0-2~~	~~None~~	~~ULM~~	~~ERRT~~
~~CRIMINAL FINGERPRINT DIRECT ROUTE~~	~~CPDR~~	~~1~~	~~1~~	~~1-14~~	~~0~~	~~0~~	~~0-4~~	~~0-8/0-2~~	~~SRE~~	~~ULM~~	~~ERRT~~
~~CRIMINAL FINGERPRINT PROCESSING NON-URGENT~~	~~CPNU~~	~~1~~	~~1~~	~~1-14~~	~~0-2~~	~~0~~	~~0-4~~	~~0-8/0-2~~	~~SRE~~	~~ULM~~	~~ERRT~~

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Table L-3 Record Set Requirements Summary by Type of Transaction

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Transaction	TOT	Searching / Enrollment						Enrollment				
		T1	T2	T4*	T14*	T7	T13	T9	T10	T14**	T15**	T17
DEPARTMENTAL ORDER CHANNELING ELECTRONIC	DOCE	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
ELECTRONIC IN/MANUAL OUT USER FEE	EMUF	1	1	1-14	0-2	0	0-4	0-8/0-2	None			ERRT
FEDERAL APPLICANT - NO CHARGE	FANC	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
FEDERAL APPLICANT - USER FEE	FAUF	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
FEDERAL NO CHARGE DIRECT ROUTE	FNDR	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
NON-FEDERAL NO CHARGE DIRECT ROUTE	NNDR	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
NON-FEDERAL ADVANCED PAYMENT	NFAP	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
NON-FEDERAL USER FEE EXPEDITE	NFUE	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
NON-FEDERAL APPLICANT USER FEE	NFUF	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
MISCELLANEOUS APPLICANT – CIVIL	MAP	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
KNOWN DECEASED	DEK	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE		ULM	ERRT
UNKNOWN DECEASED	DEU	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
MISSING PERSON	MPR	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
AMNESIA VICTIM	AMN	1	1	1-14	0-2	0	0-4	0-8/0-2	SRE			ERRT
RAP BACK INDIRECT ENROLLMENT REQUESTS *(Future Capability)*												
EXTERNAL FINGERPRINT IDENTIFICATION SEARCH *(Future Capability)*												
Latent Fingerprint Identification Submissions												
LATENT FINGERPRINT IMAGE SUBMISSION****	LFS	1	1	0-10	0-10	0	0	0/0	LSR			ERRL
Rapid Fingerprint Identification Submissions												
RAPID FINGERPRINT IDENTIFICATION SEARCH	RPIS	1	1	2-10	0	0	0	0	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												

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Table L-3 Record Set Requirements Summary by Type of Transaction

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Transaction	TOT	Searching / Enrollment T1	T2	T4*	T14*	T7	T13	Enrollment T9	T10	T14**	T15**	T17
ELECTRONIC FINGERPRINT DISPOSITION SUBMISSION *(Future Capability)*	FDSP	1	1	1-14	0	0	0	0	DSPR			ERRT
Verification Service Transactions												
FINGERPRINT VERIFICATION REPORT Request *(Future Capability)*	FVR	1	1	2-14	0	0	0	0/0	SRE			ERRT
Information Service Transactions												
Biometric Image Retrieval Submissions												
BIOMETRIC IMAGE/FEATURE RETREIVAL	IRQ	1	1	0	0	0	0	0/0	IRR		ISR	ERRI
SUBJECT PHOTO REQUEST	CPR	1	1	0	0	0	0	0/0	PRR			PRR
Biometric Audit Trail Retrieval Submissions (Future Capability)												
BIOMETRIC AUDIT TRAIL RETRIEVAL *(Future Capability)*												
UNSOLVED LATENT AUDIT TRAIL RETRIEVAL *(Future Capability)*												
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	1	1	2-10	0	0	0	0/0	SRT			ERRT
TENPRINT FINGERPRINT FEATURES SEARCH	TPFS	1	1	0	0	2-10	0	0/0	SRT			ERRT
TENPRINT RAPSHEET REQUEST	TPRS	1	1	1-14	0	0	0	0/0	TPRR			ERRT
Latent Print Investigation Submissions												
COMPARISON FINGERPRINT IMAGE SUBMISSION	CFS	1	1	1-14	0-10	0	0	0/0	None			ERRL

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Table L-3 Record Set Requirements Summary by Type of Transaction

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Transaction	TOT	Searching / Enrollment						Enrollment				
		T1	T2	T4*	T14*	T7	T13	T9	T10	T14**	T15**	T17
-EVALUATION LATENT FINGERPRINT IMAGE SUBMISSION****	ELR	1	1	0-10	0-10	0	0	0/0	NAR			ERRL
-LATENT FRICTION RIDGE IMAGE SEARCH****	LFIS	1	1-2	0-10	0-10	0	0	0/0	SRL		ULM, UULD	ERRL
-LATENT FRICTION RIDGE FEATURES SEARCH	LFFS	1	1-2	0-10	0-10	1-10	0	0/0	SRL		ULM, UULD	ERRL
-LATENT PENETRATION QUERY	LPNQ	1	1	0	0	0	0	0/0	LPNR			ERRL
Latent Administrative Query Transactions												
-LATENT REPOSITORY STATISTICS QUERY	LRSQ	1	1	0	0	0	0	0/0	LRSR			ERRA
-LATENT SEARCH STATUS AND MODIFICATIONS QUERY	LSMQ	1	1	0	0	0	0	0/0	LSMR			ERRA
Biometric Investigation Submissions												
-PHOTO INVESTIGATION SEARCH *(Future Capability)*												
-PALMPRINT INVESTIGATION SEARCH *(Future Capability)*												
-SUPPLEMENTAL FINGERPRINT AND PALMPRINT INVESTIGATION SEARCH *(Future Capability)*												
-IRIS INVESTIGATION SEARCH *(Future Capability)*												
Biographic Investigation Submissions												
-EXTERNAL QUERY HISTORY REQUEST	EQHR	1	1	0	0	0	0	0	EQRR, EHRR			EQER
Data Management Service Transactions												
Latent Image File Maintenance Submissions												
-UNSOLVED LATENT RECORD DELETE REQUEST	ULD	1	1	0	0	0	0	0/0	ULDR			ERRL
-UNSOLVED LATENT ADD CONFIRM REQUEST	ULAC	1	1	0	0	0	0	0/0	ULAR			ERRL
Fingerprint Image Submissions												
-FINGERPRINT IMAGE SUBMISSION	FIS	1	1	1-14	0	0	0	0/0	FISR			ERRI
Biometric File Maintenance Submissions												
Biometric Enrollment Request												
FINGERPRINT ENROLLMENT REQUEST *(Future Capability)*												

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Table L-3 Record Set Requirements Summary by Type of Transaction

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Transaction	TOT	Searching / Enrollment T1	T2	T4*	T14*	T7	T13	Enrollment T9	T10	T14**	T15**	T17
SUPPLEMENTAL FINGERPRINT AND PALMPRINT ENROLLMENT REQUEST *(Future Capability)*												
PHOTO ENROLLMENT REQUEST *(Future Capability)*												
PALMPRINT ENROLLMENT REQUEST *(Future Capability)*												
IRIS ENROLLMENT REQUEST *(Future Capability)*												
Biometric Deletion Requests												
FINGERPRINT DELETE REQUEST *(Future Capability)*												
SUPPLEMENTAL FINGERPRINT AND PALMPRINT DELETE REQUEST *(Future Capability)*												
SUBJECT PHOTO DELETE REQUEST	CPD	1	1	0	0	0	0	0/0	PDR			PDR
PALMPRINT DELETE REQUEST *(Future Capability)*												
IRIS DELETE REQUEST *(Future Capability)*												
CIVIL RECORD DELETE REQUEST *(Future Capability)*												
Biometric Decision Requests												
LATENT SEARCH IDENT RESPONSE												
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			
Rap Back File Maintenance Submissions (Future Capability)												
RAP BACK RECORD ENROLLMENT *(Future Capability)*												
RAP BACK MAINTENANCE REQUEST *(Future*												

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Table L-3 Record Set Requirements Summary by Type of Transaction

Transaction	TOT	Searching / Enrollment						Enrollment				
		T1	T2	T4*	T14*	T7	T13	T9	T10	T14**	T15**	T17
~~*Capability)*~~ ~~*External Link File Maintenance Submissions*~~ ~~EXTERNAL LINK FILE MAINTENANCE REQUEST~~ ~~*(Future Capability)*~~												

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~~Table L-4 Record Set Requirements Summary by Type of Response~~

Table L-4 Record Set Requirements Summary by Type of Response

Transaction	TOT	T1	T2	T4*	T14*	T7	T13	T9	T10	T15**	T17
Identification Services Responses											
RAPID FINGERPRINT IDENTIFICATION SEARCH RESPONSE	RPISR	1	1-2	0	0	0	0	0	0-2	0	0
INTERNATIONAL TERRORIST FILE RESPONSE *(Future Capability)*											
SUBMISSION RESULTS - ELECTRONIC	SRE	1	1	0	0	0	0	0	1	0	0
LATENT SUBMISSION RESULTS	LSR	1	1	0-14	0-14	0	0	0	0	0	0
LATENT TRANSACTION ERROR	ERRL	1	1	0	0	0	0	0	0	0	0
SUBMISSION RESULTS - ELECTRONIC	SRE	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	~~1~~	~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
Verification Services Responses											
SUBMISSION RESULTS – ELECTRONIC	SRE	1	1	0	0	0	0	0	0	0	0
Information Services Responses											
IMAGE REQUEST RESPONSE	IRR	1	1	0-14	0-14	0-10	0-10	0-14	0	0	0
IMAGE SUMMARY RESPONSE	ISR	1	1	0	0	0	0	0	0	0	0
PHOTO REQUEST RESPONSE	PRR	1	1	0	0	0	0	0	0-4	0	0
Investigative Services Responses											
SEARCH RESULTS - TENPRINT	SRT	1	1	0-14	0-14	0	0	0	0	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
NOTIFICATION OF ACTION RESPONSE	NAR	1	1	0	0	0	0	0	0	0	0
SEARCH RESULTS - LATENT	SRL	1	1	0-NCR	0-NCR	0	0	0	0	0	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
UNSOLICITED UNSOLVED LATENT DELETE	UULD	1	1	0	0	0	0	0	0	0	0

* For tenprint submissions, the number of Type-4 images is normally 14 and the number of Type-14 images is normally 3. When fewer images are sent, the AMP field of the accompanyingType-2 must account for all missing images. **** 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. ***These delayed responses are notifications to record owners triggered by actions associated with these transactions. ****Latent transactions should contain at least one image, whether a Type-4/14 or 7/13.**

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Table L-4 Record Set Requirements Summary by Type of Response

Transaction	TOT	T1	T2	T4*	T14*	T7	T13	T9	T10	T15**	T17
LATENT REPOSITORY STATISTICS QUERY	LRSR	1	1	0	0	0	0	0	0	0	0
LATENT SEARCH STATUS AND MODIFICATION	LSMR	1	1	0	0	0	0	0	0	0	0
ADMINISTRATIVE TRANSACTION ERROR	ERRA	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	1-10	1-10	0-10	0-10	0	0	0	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 *(Future Capability)*	UHN	1	1	0	0	0	0	0	0	0	0
EXTERNAL LINK RECORD ACTIVITY NOTIFICATION *(Future Capability)*											
EXTERNAL LINK FAILURE NOTIFICATION *(Future Capability)*											
Data Management Services Responses											
PHOTO DELETE RESPONSE	PDR	1	1	0	0	0	0	0	0	0	0
LATENT SEARCH IDENT RESPONSE											
UNSOLVED LATENT RECORD DELETE RESPONSE	ULDR	1	1	0	0	0	0	0	0	0	0
UNSOLVED LATENT ADD CONFIRM RESPONSE	ULAR	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
LATENT TRANSACTION ERROR	ERRL	1	1	0	0	0	0	0	0	0	0
IMAGE TRANSACTION ERROR	ERRI	1	1	0	0	0	0	0	0	0	0
BIOMETRIC FILE MAINTENANCE SUBMISSIONS *(Future Capability)*											
FINGERPRINT IMAGE SUBMISSION RESPONSE	FISR	1	1	0	0	0	0	0	0	0	0
IDENTITY FILE MAINTENANCE SUBMISSION *(Future Capability)*											

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Table L-4 Record Set Requirements Summary by Type of Response

Name of Transaction	Response Types: Normal	Delayed***	Error	T1	T2	T4* /14	T7 /13	T9	T10	T15 /17**	Request TOTs
Identification Services Responses											
RAPID FINGERPRINT IDENTIFICATION SEARCH RESPONSE	RPISR		ERRT	1	1-2	0	0	0	0-2	0	RPIS
INTERNATIONAL TERRORIST FILE RESPONSE *(Future Capability)*			ERRT								
SUBMISSION RESULTS - ELECTRONIC	SRE	SRE		1	1	0	0	0	1	0	CAR CPNU, CPDR
LATENT SUBMISSION RESULTS	LSR			1	1	0-14	0	0	0	0	LFS
LATENT TRANSACTION ERROR	ERRL			1	1	0	0	0	0	0	LFS
SUBMISSION RESULTS - ELECTRONIC	SRE	SRE		1	1	0	0	0	0	0	DOCE, FANC, FAUF, NFUF, MAP, NFAP, FNDR, NNDR, DEK, DEU, MPR, AMN, NFUE
TENPRINT TRANSACTION ERROR	ERRT			1	1	0	0	0	0	0	All the above
DISPOSITION RESPONSE *(Future Capability)*	DSPR		ERRT	1	1	0	0	0	0	0	FDSP, DSPE
Verification Services Responses											
SUBMISSION RESULTS – ELECTRONIC *(Future Capability)*	SRE	SRE		1	1	0	0	0	1	0	
Information Services Responses											
IMAGE REQUEST RESPONSE	IRR			1	1	0-14	0-1	0-14	0	0	IRQ
IMAGE SUMMARY RESPONSE	ISR			1	1	0	0	0	0	0	IRQ
PHOTO REQUEST RESPONSE	PRR		PRR	1	1	0	0	0	1-4	0	CPR
Investigative Services Responses											
SEARCH RESULTS - TENPRINT	SRT			1	1	0-14	0	0	0	0	TPIS, TPFS
TENPRINT TRANSACTION ERROR	ERRT			1	1	0	0	0	0	0	TPIS, TPFS
TENPRINT RAPSHEET RESPONSE	TPRR		ERRT	1	1	0	0	0	0	0	TPRS
NOTIFICATION OF ACTION RESPONSE	NAR			1	1	0	0	0	0	0	ELR
SEARCH RESULTS - LATENT	SRL			1	1	0-NCR	0	0	0	0	LFIS, LFFS
LATENT PENETRATION RESPONSE	LPNR			1	1	0	0	0	0	0	LPNQ
LATENT TRANSACTION ERROR	ERRL			1	1	0	0	0	0	0	LFIS, LFFS, LPNQ, ELR
UNSOLICITED UNSOLVED LATENT DELETE	UULD			1	1	0	0	0	0	0	LFIS, LFFS
LATENT REPOSITORY STATISTICS QUERY	LRSR			1	1	0	0	0	0	0	LRSQ

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Table L-4 Record Set Requirements Summary by Type of Response

Name of Transaction	Response Types: Normal	Delayed***	Error	T1	T2	T4* /14	T7 /13	T9	T10	T15 /17**	Request TOTs
LATENT SEARCH STATUS AND MODIFICATION	LSMR			1	1	0	0	0	0	0	LSMQ
ADMINISTRATIVE TRANSACTION ERROR	ERRA			1	1	0	0	0	0	0	LRSQ, LSMQ
ELECTRONIC HISTORY REQUEST RESPONSE	EHRR			1	1	0	0	0	0	0	EQHR
EXTERNAL QUERY HISTORY REQUEST RESPONSE - SUMMARY	EQRR			1	1	0	0	0	0	0	EQHR
EXTERNAL QUERY HISTORY ERROR RESPONSE	EQER			1	1	0	0	0	0	0	EQHR
Notification Service Responses											
UNSOLVED LATENT MATCH RESPONSE	ULM			1	1	1-10	0-10	0	0	0	CAR, CNA, CPNU, CPDR, DEK, MAP, LFIS, LFFS
UNSOLICITED UNSOLVED LATENT DELETE	UULD			1	1	0	0	0	0	0	LFS, LFIS, LFFS
SPECIAL POPULATION COGNIZANT NOTIFICATION *(Future Capability)*											
RAP BACK ACTIVITY NOTIFICATION *(Future Capability)*											
RAP BACK RENEWAL NOTIFICATION *(Future Capability)*											
UNSOLICITED HIT NOTIFICATION *(Future Capability)*	UHN			1	1	0	0	0	0	0	RPIS
EXTERNAL LINK RECORD ACTIVITY NOTIFICATION *(Future Capability)*											
EXTERNAL LINK FAILURE NOTIFICATION *(Future Capability)*											
Data Management Services Responses											
PHOTO DELETE RESPONSE	PDR		PDR	1	1	0	0	0	0	0	CPD
LATENT SEARCH IDENT RESPONSE				1	1	0	0	0	0	0	LFIS, LFFS, ULM
UNSOLVED LATENT RECORD DELETE RESPONSE	ULDR			1	1	0	0	0	0	0	ULD
UNSOLVED LATENT ADD CONFIRM RESPONSE	ULAR			1	1	0	0	0	0	0	ULAC
UNSOLICITED UNSOLVED LATENT DELETE	UULD			1	1	0	0	0	0	0	ULAC
LATENT TRANSACTION ERROR	ERRL			1	1	0	0	0	0	0	ULD, ULAC
IMAGE TRANSACTION ERROR	ERRI			1	1	0	0	0	0	0	IRQ, FIS
BIOMETRIC FILE MAINTENANCE SUBMISSIONS *(Future Capability)*											
FINGERPRINT IMAGE SUBMISSION RESPONSE	FISR			1	1	0	0	0	0	0	FIS
IDENTITY FILE MAINTENANCE SUBMISSION											

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Table L-4 Record Set Requirements Summary by Type of Response

Name of Transaction (Future Capability)	Response Types										Request TOTs
	Normal	Delayed***	Error	T1	T2	T4* /14	T7 /13	T9	T10	T15 /17**	

* For tenprint submissions, the number of Type-4 images is normally 14 and the number of Type-14 images is normally 3. When fewer images are sent, the AMP field of the accompanyingType-2 must account for all missing images. **** 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. ***These delayed responses are notifications to record owners triggered by actions associated with these transactions. ****Latent transactions should contain at least one image, whether a Type-4/14 or 7/13.**

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Table L-5 Transaction/Response/Error TOT Correspondence

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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

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Table L-5 Transaction/Response/Error TOT Correspondence

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Transaction	TOT	Response TOTs	Delayed Response TOTs	Error TOTs
Verification Service Transactions				
FINGERPRINT VERIFICATION REPORT	FVR	SRE		ERRT
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 (Future Capability)				
BIOMETRIC AUDIT TRAIL RETRIEVAL *(Future Capability)*				
UNSOLVED LATENT AUDIT TRAIL RETRIEVAL *(Future Capability)*				
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 FINGERPRINT FEATURES SEARCH	TPFS	SRT		ERRT
TENPRINT RAPSHEET REQUEST	TPRS	TPRR		ERRT
Latent Print Investigation Submissions				
COMPARISON FINGERPRINT IMAGE SUBMISSION	CFS	None		ERRL
EVALUATION LATENT FINGERPRINT IMAGE SUBMISSION****	ELR	NAR		ERRL
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
LATENT SEARCH STATUS AND MODIFICATIONS QUERY	LSMQ	LSMR		ERRA
Biometric Investigation Submissions				
PHOTO INVESTIGATION SEARCH *(Future Capability)*				
PALMPRINT INVESTIGATION SEARCH *(Future Capability)*				

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Table L-5 Transaction/Response/Error TOT Correspondence

Transaction	TOT	Response TOTs	Delayed Response TOTs	Error TOTs
SUPPLEMENTAL FINGERPRINT AND PALMPRINT 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
UNSOLVED LATENT ADD CONFIRM REQUEST	ULAC	ULAR		ERRL
Biometric Image Submissions				
BIOMETRIC IMAGE SUBMISSION	FIS	FISR		ERRI
Biometric File Maintenance Submissions				
Biometric Enrollment Request				
FINGERPRINT ENROLLMENT REQUEST *(Future Capability)*				
SUPPLEMENTAL FINGERPRINT AND PALMPRINT ENROLLMENT REQUEST *(Future Capability)*				
PHOTO ENROLLMENT REQUEST *(Future Capability)*				
PALMPRINT ENROLLMENT REQUEST *(Future Capability)*				
IRIS ENROLLMENT REQUEST *(Future Capability)*				
Biometric Deletion Requests				
FINGERPRINT DELETE REQUEST *(Future Capability)*				
SUPPLEMENTAL FINGERPRINT AND PALMPRINT DELETE REQUEST *(Future Capability)*				
SUBJECT PHOTO DELETE REQUEST	CPD	PDR		PDR
PALMPRINT DELETE REQUEST *(Future Capability)*				
IRIS DELETE REQUEST *(Future Capability)*				
CIVIL RECORD DELETE REQUEST *(Future Capability)*				
Biometric Decision Requests				
LATENT SEARCH IDENT RESPONSE				
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

* For tenprint submissions, the number of Type-4 images is normally 14 and the number of Type-14 images is normally 3. When fewer images are sent, the AMP field of the accompanyingType-2 must account for all missing images. **** 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. ***These delayed responses are notifications to record owners triggered by actions associated with these transactions. ****Latent transactions should contain at least one image, whether a Type-4/14 or 7/13.**

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Table L-5 Transaction/Response/Error TOT Correspondence

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Transaction	TOT	Response TOTs	Delayed Response TOTs	Error TOTs
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)*				

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* For tenprint submissions, the number of Type-4 images is normally 14 and the number of Type-14 images is normally 3. When fewer images are sent, the AMP field of the accompanyingType-2 must account for all missing images. **** 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. *****These delayed responses are notifications to record owners triggered by actions associated with these transactions. ******Latent transactions should contain at least one image, whether a Type-4/14 or 7/13.**

APPENDIX M - TRANSACTION ERROR MESSAGES

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Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
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.	~~1~~0	~~SCNA~~		
A0009	Latent Search Queue Request Reject	This Latent Search Queue modification request is invalid.	0			
~~A0016~~	~~Requested Photo Not Available~~	~~Photo requested in conjunction with Image Request is not available for %1~~	~~1~~	~~UCN~~		
~~A0017~~	~~Quoted UCN Not Found~~	~~Quoted UCN 1% not found in database~~	~~1~~	~~UCN~~		
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	
E0007	NFS File not available	NFS file %1 not available for transfer.	1	FILEHANDLE		
E0008	NFS File Read Error	NFS file %1 produced a read error during file transfer. Check for proper format. %2 %3	1-3	FILEHANDLE	Free Text	Free Text
E0009	NFS File ICN Error	NFS File ICN does not match the ICN provided in the request message.	0			
E0010	Too Few FNUs for FST	Only one FNU, %1, was supplied for Restore FNU File Synchronization with FST %2.	2	FNU	FST	

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
E0011	Too many FNUs for FST	More than one FNU was supplied for Restore FNU File Synchronization with FST %1.	1	FST		
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
H0001	Required header element missing	Mandatory element %1 was not supplied in message header.	1	Element Name		
H0002	Header element failed validation	Header element %1, with value of [%2] contains invalid data.	2	Element Name	Element Value	
H0003	Header element failed validation	Header 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	
L0001	SLC Repositories Full	SLC 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		
L0003	SLC Repository does not exist	Cannot perform requested action, SLC repository %1 does not exist. Inform Segment Administrator of possible SLC 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 fingerprint images.	0			
L0010	Cannot search an empty SLC repository	A search request was made against SLC repository number %1 which currently contains no subjects. To differentiate from a search with no results, this error is being returned.	1	NDR		

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
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		
L0015	Attempt to remove last arrest, court, or custody component	An attempt has been made to remove the last %1 from subject record %2.	2	Field Name	FNU	
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 SLC file	A request was made to add subject identifier %1 to SLC 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 SLC file	A request was made to delete or update subject identifier %1 to SLC repository %2. The subject does not exist in this repository.	2	UCN	NDR	
L0021	Restorability Mismatch	FNU %1 with restorability code of FST %2 does not match that provided in message.	2	FNU	RST value of FNU	
L0022	FNU Not Restorable	FNU %1 has not undergone a restorable action.	1	FNU		
L0023	SID required	NFF participants must provide a SID on a criminal retain tenprint submission.	0			
L0024	SID already exists for NFF submission	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 NFF subject.	2	SID	FNU	

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
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	FNU	
L0026	PUR not allowed for subject	Purpose code not allowed for subject %1.	1	FNU		
L0027	SPCs not allowed	A manual record cannot be established with additional SPC codes.	0			
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).		
L0029	Invalid update of subject with AUD C	Cannot update subject record %1 because it contains an AUD=C.	1	FNU		
L0030	Invalid update of subject with AUD T	Cannot update subject record %1 because it contains an AUD=T	1	FNU		
L0031	Invalid update of subject record	Cannot update subject record %1 because of its AUD value.	1	FNU		
L0032	Duplicate DOA and DOS	Cannot update subject's record because DOA %1 and corresponding DOS already exist. Refer to FBI Number %2.	2	DOA	FNU	
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	
L0039	Purpose Code Required	Purpose code is required to modify this record.	0			
L0040	No Matching DOA/DOS	There is no matching DOA/DOS in the subject's record.	0			
L0041	Cannot Update Due to Inactive Data	The subject’s cycle cannot be updated due to inactive record status.	0			

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
L0042	No Matching Court Data	Matching court data does not exist.	0			
L0043	No Corresponding Court Count	Cannot add supplemental court data – there is no corresponding court count.	0			
L0044	No Update Of NFF Record	Cannot update NFF record.	0			
L0045	Data Already On File	Cannot update this cycle - data already exist in record.	0			
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		
L0049	No Matching Data Found	No data found to match input value %1 with record value %2.	2	Name of field	field value	
L0050	Invalid Request for Segment Type	This maintenance request cannot be applied because of the SGT value contained in the record.	0			
L0051	Cycle is not sealed.	Cannot apply unseal request because cycle has not previously been sealed.	0			
L0052	Submitter is not Authorized to Update Record	Requestor is not authorized to perform the requested file maintenance action.	0			
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	
L0060	Death is already recorded for this subject	An indication that this subject is deceased is currently present in this record.	0			
L0061	Non-matching DOB	DOB on submission document does not match DOB in record.	0			
L0062	Reference Element Name Mismatch	The element %1 provided for reference in this maintenance request is not present in this record.	1	Name of Field		
L0063	Existing Data Condition	Data cannot be added to this field, %1, because data is already present.	1	Name of Field		
L0064	Duplicate Data Condition	An attempt to add or modify data that duplicates existing data in field %1	1	Name of Field		

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
L0065	SID/ORI Mismatch	The SID in the maintenance request is not consistent with the ORI in the arrest.	0			
L0066	SID/Pointer Mismatch	The SID in the maintenance request does not match the state pointer in the MF-IDENTIFICATION-DATA set.	0			
L0067	Illegal Add to AUD N Record	An attempt has been made to add data to a deceased record.	0			
L0068	Illegal Add to Non-AUD N Record	An attempt has been made to post microform data to a record containing an AUD other than N.	0			
L0069	Reserved					
L0070	Illegal Sequence Count	A request has been made for a value in %1 that is not the next available after %2 in the sequence.	2	Filed Name	Current last value	
L0071	Illegal Delete Request for AUD W Record	A request has been made for deletion of data from a field other than ANA from an AUD W record.	0			
L0072	No Match for Data	Cannot match data in field %1 in this maintenance request with any data in field %2 the record.	2	Field Name	Field Name	
L0073	Cannot Delete SID	Cannot delete SID because record contains a matching state pointer.	0			
L0074	Illegal Request to Delete Primary Data	Cannot delete primary data while secondary data are still present.	0			
L0075	Illegal Request to Remove Custody Data	Attempt has been made to remove a custody segment while corresponding arrest data remain.	0			
L0076	Illegal SCH Modification Request	An SCH Modification Request has attempted to perform a maintenance action against a record awaiting expungement.	0			
L0077	Invalid Modify Request Because of Code Value Set	Cannot modify field %1 because of the value of %2 code contained in record.	2	Field Name	Either AUD or SGT	
L0078	Field Value Mismatch	Cannot find match in the database for %1 containing value %2.	2	Field Name	Field Value	
L0079	Invalid SID	The SID %1 failed III edit check.	1	SID value		
L0080	Pointer/Data Mismatch	Cannot update data associated with active state pointer because of mismatch with %1 field.	1	Field Name		
L0081	Attempt to Modify Empty Field	A maintenance request has been made against empty field %1.	1	Field Name		

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
L0089	Year of Birth out of range	The year of birth in the maintenance request is not within 10 years of the DOB(s) contained in the subject.	0			
L0090	No Name Match	The name in the maintenance request does not match any name contained in the indicated subject.	0			
L0091	NIC Number Match	The maintenance request contains a NIC number already contained in the SCH.	0			
L0092	DOW Matches DOB	The DOW contained in the maintenance request matches a DOB in the subject record.	0			
L0099	CBL/DCA Error	An attempt has been made to add a CBL without a related DCA in either the request message or the SCH record.	0			
L0100	Court Segment Data Error	This maintenance request must include CCT, CON, COL, and CPL.	0			
L0101	Pointer/Date Mismatch	A request has been made to modify either %1 or %2 that would result in a DPE greater than the DDE.	2	DDE	DPE	
L0103	Photo SPF 'E' Error	A request has been made to either set or remove SPF of 'E' that would be inconsistent with the state of CRIMINAL-SUBJECT-PHOTO-DATA.	0			
L0107	Incomplete SCT	A request has been made that is missing a required element from set SCT.	0			
L0109	Poor Image Quality	The quality of the fingerprint images is too poor to permit processing.	0			
L0110	MRD Merge Failure	Tenprint submission failed to merge with MRD data.	0			
L0111	Image Sequence Error	Submitted tenprint finger images are out of sequence.	0			
L0112	No statutory authority	The agency indicated by the ORI or CRI in this submission is not authorized to request this service.	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			

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
*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			
L0120	Invalid update of subject with AUD N	Cannot update subject record %1 because AUD = N.	1	FNU		
L0121	Invalid update of subject with AUD M	Cannot update record %1 because this record is currently contained in the manual file. Record must be converted.	1	FNU		
L0122	No SLC Add	Unable to complete SLC Add for identifier %1 in repository %2 and user %3.	3	UCN	NDR	EID
L0123	No SLC Delete	Unable to complete SLC Delete for identifier %1 in repository %2 and user %3.	3	UCN	NDR	EID
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		
L0127	Invalid SCT	This file maintenance request contained an SCT with an invalid ORI of %1.	1	ORI value from Maintenance Request		
L0128	Missing SRE	This file maintenance request must contain a value for SRE.	0			
L0129	Missing PUR code	Subject record contains sealed data – this request for an IDRR requires a PUR code.	0			
L0130	File Maintenance element error	This file maintenance request contains invalid data, %1, in the field %2.	2	Field value from Maintenance Request	Field	
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)	

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
L0133	Fingerprint Image Submission Non-ident	The subject of this Fingerprint Image Submission contains FNU %1, which is not contained in the FBI Subject Criminal History files.	1	FNU		
L0134	Ad Hoc Subject Search String Syntax Error	The submitted search string text contains a syntax error. The attachment includes the portion of the string up to the error, shown here: %1	1	The expanded query string up to point of error		
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	
L0145	Invalid Ad Hoc Search Criterion	The Service Provider is not authorized to perform the type of Ad Hoc Subject Search requested, or the query contains a restricted term. Contact the ITN Segment Administrator to determine corrective action.	0			
L0146	SLC File Not Offline	COPY ALL SLC failed. To copy an entire SLC file, the source and destination SLC files must be offline. Contact the AFIS Segment Administrator to take the file(s) offline.	0			
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	FNU		
L0151	Photo Not Available	Photo Not Available	0			
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			

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
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	FNU	FNU	
R0001	Queue Full	A message queue is temporarily full.	0			
R0002	Undefined Segment Error	Internal segment error; retry message.	0			
R0003	Service Unavailable	The requested Tuxedo service %1 is not currently available.	1	SERV value		
S0001	Cannot match the response with a request	A response message type %1 indicating CJIS transaction %2, with SCN2 = %3, could not be associated with its request.	3	MTY	ICN	SCN2
S0002	General segment error	A general segment error was detected that is not currently defined. Optional error message: %1 %2%3.	0-3	Free Text	Free Text	Free Text
S0003	Invalid Environment	The message environment does not match the current environment.	0			
S0004	Transaction in Progress	A repeated message was received for which the transaction has already been started	0			
S0005	Tenprint Search Notification Error	An error occurred during the routing and reporting of AFIS tenprint search notification.	0			
S0006	Reserved					
S0007	Repository Statistics Error	The repository statistics file is corrupted or unavailable.	0			
S0008	AFV Checksum Error	The Checksum provided with the AFV is wrong. Check for encoding or transmission error.	0			
W0001	Reserved for AFIS					
W0002	Manual Arrest Records	The Criminal History of subject %1 is contained in the FBI manual files.	1	FNU		
W0003	Unassigned FBI Number	Subject %1 may be in the FBI manual files, but does not exist in the Criminal History Files.	1	FNU		
W0004	Existing Post-Consolidation Information in Record	The consolidated record with kept FBI number %1 that was restored to unconsolidated records had information entered since the consolidation.	1	FBK		
W0005	Route to Wants	Route the document to Wants.	0			

Table M-1 Transaction Error Messages

Code	Error Condition	MDD Error Description	Count	Insert #1	Insert #2	Insert #3
W0006	AUD T Subject	Requested service involves an AUD T subject. Route transaction to Special Stops for review prior to further action.	0			
W0007	Ident Status Warning	Response for this submission may be non- Ident because this SCH record contains non-disseminable data.	0			
W0008	Sealed Record Ident Status Warning	Response for this submission included an NFF subject and may be a non-Ident because the record is sealed.	0			
W0009	Reserved					
W0010	Reserved					

APPENDIX N - DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-14 LOGICAL RECORDS

This section presents the descriptors and field specifications for Type-14 logical records, defined by ANSI-NIST-ITL 1-2007 as a Variable Resolution Fingerprint Image Record. When sending flat fingerprint impressions only, they are to be contained in one to three Type-14 image records. Two of the image records contain the left and right simultaneous four finger impressions, and the third contains the two thumbs. If none of the fingers contained in a particular image are present, i.e. due to amputation or bandaging of an entire hand or both thumbs, this image record will be omitted from the transmission. Currently, IAFIS accepts only 13, 14, & 15, but in the future those codes will be expanded to use ~~table~~ Table N-1.Offsets to the locations of image segments containing the individual fingers are included with the image records. The following definitions are taken from the ANSI standard, Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information (ANSI/NIST-ITL 2007). These fields define the NIST Fingerprint Image Quality (NFIQ) metric, alternate image quality metrics, and metrics for predicting the correctness of the segmentation. Table N-2 summarizes the content of each field in the Type-14 record. However, the byte counts do not account for any separator characters.

AMP 14.018 - Amputated or Bandaged. This optional ASCII field shall specify if one or more fingers are amputated or bandaged. This field shall consist of one subfield for each amputated or missing finger. Each subfield shall contain two information items separated by the $^{U}_{S}$ separator. The first item is the finger number between one and ten as chosen from Table 12 in the ANSI-NIST-ITL 1-2007 Standard. The second item is the amputated or bandaged code (AMPCD). The following is a list of allowable indicators for the AMPCD:

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

Multiple finger positions shall be separated by the $^{R}_{S}$ separator. This field is to be used anytime there are fewer than expected printable fingers in a submission (e.g., less than four in a left or right slap or less than two in the two-thumb slap). A partially scarred finger should be printed.

BPX 14.012 – Bits Per Pixel. This **mandatory** ASCII field shall contain the number of bits used to represent a pixel. This field shall contain an entry of 8 for normal grayscale values of 0 to 255.

CGA 14.011 – Compression Algorithm. This **mandatory** ASCII field shall specify the algorithm used to compress grayscale images. An entry of ""NONE" in this field indicates that the data contained in this record are uncompressed. For those images that are to be compressed, this field shall contain ""WSQ20" the preferred method for the compression of tenprint-fingerprint images.

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COM 14.020 – Comment. This optional field may be used to insert comments or other ASCII text information with the tenprint image data.

DAT 14.999 – Image Data. This field shall contain all of the data from a captured tenprint image. It shall always be assigned field number 999 and must be the last physical field in the record. For example, 14.999: is followed by image data in a binary representation. Each pixel of uncompressed grayscale data shall be quantized to eight bits (256 gray-levels) contained in a single byte. If compression is used, the pixel data shall be compressed in accordance with the compression technique specified in the CGA field.

DMM 14.030 – Device Monitoring Mode. This optional field provides information describing the level of human monitoring for the image capture device. This field will contain an entry from Table 27 of ANSI/NIST-ITL 1-2007 to indicate the monitoring mode of the biometric sample capture device.

Table 27 Device Monitoring Modes

Condition	Description
ASSISTED	Person available to provide assistance to subject submitting the biometric
OBSERVED	Person present to observe operation of the device but provides no assistance
UNATTENDED	No one present to observe or provide assistance
UNKNOWN	No information is known

FCD 14.005 – Fingerprint Capture Date. This mandatory ASCII field (formerly named "Tenprint Capture Date" (TCD)) shall contain the date that the fingerprint image contained in the record was captured. The date shall appear as eight digits in the format *CCYYMMDD*. The *CCYY* characters shall represent the year the image was captured; the *MM* characters shall be the tens and units values of the month; and the *DD* characters shall be the tens and units values of the day in the month. For example, 20040229 represents February 29, 2004. The complete date must be a legitimate date.

FGP 14.013 – Finger Position. This **mandatory** tagged field shall contain finger position code that matches the tenprint image. The decimal code number corresponding to the known or most probable finger position shall be taken from Table N-1 and entered as a one- or two-character ASCII subfield (see ANS/NIST-ITL 1-2007 Tables 12, 12 and 35 for possible finger/palm position indicator codes). Table N-1 also lists the maximum image area that can be transmitted for each of the 14 possible finger positions. Currently, IAFIS accepts only 13, 14, & 15, but in the future those codes will be expanded to use this table.

Table N-1 Finger Position Code & Maximum Size

Finger Position	Finger Code	Width (mm)	Width (in)	Length (mm)	Length (in)
Unknown	0	40.6	1.6	38.1	1.5

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Finger Position	Finger Code	Width (mm)	Width (in)	Length (mm)	Length (in)
Right thumb	1	40.6	1.6	38.1	1.5
Right index finger	2	40.6	1.6	38.1	1.5
Right middle finger	3	40.6	1.6	38.1	1.5
Right ring finger	4	40.6	1.6	38.1	1.5
Right little finger	5	40.6	1.6	38.1	1.5
Left thumb	6	40.6	1.6	38.1	1.5
Left index finger	7	40.6	1.6	38.1	1.5
Left middle finger	8	40.6	1.6	38.1	1.5
Left ring finger	9	40.6	1.6	38.1	1.5
Left little finger	10	40.6	1.6	38.1	1.5
Plain right thumb	11	25.4	1.0	50.8	2.0
Plain left thumb	12	25.4	1.0	50.8	2.0
Plain right four fingers	13	81.3	3.2	76.2	3.0
Plain left four fingers	14	81.3	3.2	76.2	3.0
Left and Right thumbs	15	81.3	3.2	76.2	3.0
EJI or Tip	19	114	4.5	127	5.0

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Note: Finger codes 15 and 19 apply to tagged-field fingerprint image records.

FQM 14.024 –Fingerprint Quality Metric. This ASCII field is used to specify one or more different metrics of fingerprint image quality score data for the image stored in this record. The meaning attributed to this metric must be defined and interpreted by the producer of the scoring algorithm or by the person or system used to assign the metric to the fingerprint image. The metric may be a predictor of AFIS matcher accuracy performance or a different metric to indicate a value associated with the quality of the fingerprint image for a particular function.

This field may contain one or more subfields, each consisting of four information items separated by the US separator character. The first information item is the finger number as chosen from Table 12 in the ANSI-NIST ITL 2007 Standard. The other three items identify a quality score and the algorithm used to create the quality score. This information is useful to enable the recipient of the quality score to differentiate between quality scores generated by different algorithms and adjust for any differences in processing or analysis as necessary.

1. The second information item shall be a quantitative expression of the predicted matching performance of the biometric sample. This item contains the ASCII representation of the integer image quality score between 0 and 100 assigned to the image data by a quality algorithm. Higher values indicate better quality. An entry of "255" shall indicate a failed attempt to calculate a quality score. An entry of "254" shall indicate that no attempt to calculate a quality score was made. The use of additional values to convey other information should be harmonized with ISO/IEC 19794 standards.

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2. The third information item shall specify the integer value that is the ID of the vendor of the quality algorithm used to calculate the quality score. The IBIA shall maintain the Vendor Registry, which will map the value in this field to a registered organization.

3. The fourth information item shall specify a numeric product code assigned by the vendor of the quality algorithm, which may be registered with the IBIA, but registration is not required. It indicates which of the vendor's algorithms was used in the calculation of the quality score. This field contains the ASCII representation of the integer product code and should be within the range 1 to 65,535.

This subfield is repeated for each finger image and quality algorithm used, separated by the $^{R}_{S}$ character separator.

NOTE: If the FQM field is used to express a NIST Fingerprint Image Quality (NFIQ) score, the following formula should be used to calculate the proper FQM value:

FQM = (5-NFIQ) * 25

This results in an NFIQ value of 1 being mapped to 100, and an NFIQ value of 5 being mapped to 0. For the product ID code, use '377D'.

HLL 14.006 – Horizontal Line Length. This **mandatory** ASCII field shall contain the number of pixels contained on a single horizontal line of the transmitted image.

HPS 14.009 – Horizontal Pixel Scale. This **mandatory** ASCII field shall specify the integer pixel density used in the horizontal direction providing the SLC contains a "1" or a "2." Otherwise, it indicates the horizontal component of the pixel aspect ratio.

IDC 14.002 – Image Designation Character. This **mandatory** ASCII field shall be used to identify the tenprint-fingerprint image contained in the record. This IDC shall match the IDC found in the file content (CNT) field of the Type-1 record.

IMP 14.003 – Impression Type. This **mandatory** one- or two-byte ASCII field shall indicate the manner by which the tenprint image information was obtained. The appropriate code (0-29) selected from Table 11 of the ANSI/NIST-ITL 1-2007 standard shall be entered in this field.

LEN 14.001 – Logical Record Length. This **mandatory** ASCII field shall contain the total count of the number of bytes in the Type-14 logical record. Field 14.001 shall specify the length of the record, including every character of every field contained in the record, and the information separators.

NQM 14.022 – NIST Quality Metric. This **mandatory** ASCII field shall contain the image quality scores for the individual fingers. Each finger score is defined by the FINGER NUMBER and the QUALITY SCORE separated by the $^{U}_{S}$ separator. Individual finger quality definitions are

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separated by the $^{R}_{S}$ separator. This field will be accepted for legacy users only. All new CJIS users will be required to populate the Fingerprint Quality Metric field (14.024 FQM).

PPC 14.015 – Print Position Coordinates. If finger position code "19" appears in field 14.013, this field contains offsets to the locations for the bounding box of the EJI, each of the full finger views, or segments within the EJI. When used, this field shall consist of six (6) mandatory information items to describe the type or portion of the image and its location within an entire joint image. The first information item is the number of the full finger view with values of "FV1" through "FV4". Values of "FV1" to "FV4" specify the bounding coordinates for each full finger view. The second information item is used to identify the location of a segment within a full finger view. It will contain the not applicable code "NA" if the image portion refers to a full finger view or to the entire joint image locations. It shall contain "PRX", "DST", "MED" for a proximal, distal, or medial segment. The next four information items are the horizontal and vertical offsets relative to the origin positioned in the upper left corner of the image. The horizontal offsets (X) are the pixel counts to the right, and the vertical offsets (Y) are the pixel counts down. The location of the image portion is defined by the sequence of X coordinates (LEFT, RIGHT) and the Y coordinates (TOP, BOTTOM), of its bounding box. For the case of a fingertip, the first information item shall be "TIP", and the second information item shall be "NA". The next four information items are the horizontal and vertical offsets as defined above. The six information items within the field are separated by five "US" separators. This information will describe either the location of the entire joint image, one full finger view, or segment. Individual full finger or segment definitions may be repeated as subfields separated by the "RS" separator.

PPD 14.014 – Print Position Descriptors. This ASCII field shall be present if and only if the finger position code "19" appears in Field 14.013. This field shall consist of two mandatory information items. The first is the probable decimal finger position code (0-10) taken from Table N-1 (reproduced from ANSI/NIST-ITL 1-2007 Table 12). The second information item is the code taken from Table ~~3~~P-1 (reproduced from ANSI/NIST-ITL Table 32) to indicate the portion of the EJI or tip image that is stored as a single image in the database. There may be up to 17 such images for a single finger. Images of full-length fingers use codes FV1 through FV4 as defined in Table ~~3~~P-1. Figure 7 is an illustration of the Entire Joint Image for a middle finger with each of the full finger views and constituent parts identified.

SEG 14.021 – Finger Segment Position(s). This optional ASCII field (**mandatory** when images contain simultaneous flat impressions) shall contain offsets to the locations of image segments containing the individual fingers within the image. The offsets are relative to the origin (0,0), which is in the upper left corner of the image. The horizontal offsets (X) are the pixel counts to the right, and the vertical offsets (Y) are the pixel counts down. A finger segment is defined by the FINGER NUMBER, the X coordinates (LEFT, RIGHT), and the Y coordinates (TOP, BOTTOM) of its bounding box. The five information items within a finger segment definition are separated by the $^{U}_{S}$ separator. Individual finger segment definitions are separated by the $^{R}_{S}$ separator.

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SHPS 14.016 – Scanned Horizontal Pixel Scale. This optional ASCII field shall specify the horizontal pixel density used for the scanning of the original impression providing the SLC field contains ~~a~~ a"_"1" or "_"2." Otherwise, it indicates the horizontal component of the pixel aspect ratio.

SVPS 14.017 – Scanned Vertical Pixel Scale. This optional ASCII field shall specify the vertical pixel density used for the scanning of the original impression providing the SLC field contains a "1" or a "_"2." Otherwise, it indicates the vertical component of the pixel aspect ratio.

SLC 14.008 – Scale Units. This **mandatory** ASCII field shall specify the units used to describe the image sampling frequency (pixel density). A "_"1" in this field indicates pixels per inch; a "_"2" indicates pixels per centimeter. A "_"0" in this field indicates no scale is given. For this case, the quotient of HPS/VPS gives the pixel aspect ratio.

SQM 14.023 – Segmentation Quality Metric. This optional ASCII field provides a measure of estimated correctness regarding the accuracy of the location of the segmented finger within the right or left four fingers or two thumbs slap image. For each segmented finger, this field shall contain four information items separated by the $_{\text{U}}^{\text{S}}$ separator character. The first information item is the finger number between one and ten as chosen from Table 12 in the ANSI/NIST-ITL 1-2007 Standard. The other three items identify a quality score and the algorithm used to create the quality score. This information is useful to enable the recipient of the quality score to differentiate between quality scores generated by different algorithms and adjust for any differences in processing or analysis as necessary.

1. The second information item shall be a measure of estimated correctness regarding the accuracy of the location of the segmented finger. This item contains the ASCII representation of the integer image quality score between 0 and 100 assigned to the image data by a quality algorithm. Higher values indicate better quality. An entry ~~of~~ of "_"255" shall indicate a failed attempt to calculate a quality score. An entry of "_"254" shall indicate that no attempt to calculate a quality score was made. The use of additional values to convey other information should be harmonized with ISO/IEC 19794 standards.

2. The third information item shall specify the integer value that is the ID of the vendor of the quality algorithm used to calculate the quality score. The IBIA shall maintain the Vendor Registry of CBEFF Biometric Organizations that will map the value in this field to a registered organization.

3. The fourth information item shall specify a numeric product code assigned by the vendor of the quality algorithm, which may be registered with the IBIA, but registration is not required. It indicates which of the vendor's algorithms was used in the calculation of the quality score. This field contains the ASCII representation of the integer product code and should be within the range 1 to 65,535. This subfield is repeated for each segmented finger whose coordinates appear in field 14.021.

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The $^{R}_{S}$ character separates each set of four information items. For the case where more than one segmentation algorithm is applied to a multi-finger plain image, the set of segmentation information items for each finger shall be ordered corresponding to the entries in field 14.021.

SRC 14.004 – Source Agency. This **mandatory** ASCII field shall contain the identification of the administration or organization that originally captured the tenprint image contained in the record. Normally, the ORI of the agency that captured the image will be contained in this field. The SRC may contain up to 43 identifying characters. The data content of this field shall be defined by the user and be in accordance with the receiving agency.

VLL 14.007 – Vertical Line Length. This **mandatory** ASCII field shall contain the number of horizontal lines contained in the transmitted image.

VPS 14.010 – Vertical Pixel Scale. This **mandatory** ASCII field shall specify the integer pixel density used in the vertical direction providing the SLC contains a "1" or a "2." Otherwise, it indicates the vertical component of the pixel aspect ratio.

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Table N-2 Field List for Flats Civil Check Type-14 Record

Identifier	Condition	Field Number	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Maximum Number of Bytes …	Example Data
					Min	Max	Min	Max		
LEN	M	14.001	LOGICAL REC LENGTH	N	4	8	1	1	15	14.001:40164<GS>
IDC	M	14.002	IMAGE DESIGNATION CHAR	N	2	5	1	1	12	14.002:01<GS>
IMP	M	14003	IMPRESSION TYPE	A	2	3	1	1	10	14.003:0<GS>
SRC	M	14.004	SOURCE AGENCY/ORI	AN	10	21	1	1	28	14.004:CA0000001<GS>
FCD	M	14.005	FINGERPRINT CAPTURE DATE	N	9	9	1	1	16	14:005:20040227<GS>
HLL	M	14.006	HORIZONTAL LINE LENGTH	N	4	5	1	1	12	14:006:1600<GS>
VLL	M	14.007	VERTICAL LINE LENGTH	N	4	5	1	1	12	14:007:1450<GS>
SLC	M	14.008	SCALE UNITS	N	2	2	1	1	9	14.008:1<GS>
HPS	M	14.009	HORIZONTAL PIXEL SCALE	N	2	5	1	1	12	14:009:500<GS>
VPS	M	14.010	VERTICAL PIXEL SCALE	N	2	5	1	1	12	14:010:500<GS>
CGA	M	14.011	COMPRESSION ALGORITHM	AN	4	6	1	1	13	14:011:1<GS>
BPX	M	14.012	BITS PER PIXEL	N	2	3	1	1	10	14:012:8<GS>
FGP	M	14.013	FINGER POSITION CODE	N	2	2	1	6	25	14.013:13<GS>
PPD	O	14.014	PRINT POSITION DECSRIPTORS	AN	~~64~~	~~75~~	0	1	14	14.014:<GS>
PPC	O	14.015	PRINT POSITION COORDINATES	AN	15	28	0	12	343	14.015:<GS>
SHPS	O	14.016	SCAN HOR PIXEL SCALE	N	2	5	0	1	12	14.016:<GS>
SVPS	O	14.017	SCAN VER PIXEL SCALE	N	2	5	0	1	12	14.017:<GS>
AMP	O M M	14.018	AMPUTATED OR BANDAGED FGP	AN N A	5 1 2	6 2 2	0 1 1	4 1 1	31	14.018:04<US>UP<GS>

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Table N-2 Field List for Flats Civil Check Type-14 Record

Identifier	Condition	Field Number	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Maximum Number of Bytes …	Example Data
					Min	Max	Min	Max		
			AMPCD							
RSV	O	14.019	RESERVED FOR FUTURE DEFINITION	--	--	--	--	--	--	--
COM	O	14.020	COMMENT	AN	2	128	0	1	135	14.020:<GS>
SEG	O	14.021	SEGMENT POSITION		10	23	0	*	*	14.021:10<US>3<US>352<US>725<US>1265<RS>
	M		FINGER NUMBER	N	1	2	1	1		9<US>375<US>750<US>175<US>765<RS>
	M		LEFT	N	1	4	1	1		8<US>800<US>1150<US>5<US>581<RS>
	M		RIGHT	N	1	4	1	1		7<US>1200<US>1598<US>274<US>801<GS>
	M		TOP	N	1	4	1	1		
	M		BOTTOM							
NQM	O*	14.022	NIST QUALITY METRIC				2	4	58	14.022:10<US>6<RS>9<US>4<RS>8<US>3<RS>7<US>3<GS>
	0		FINGER NUMBER	N	1	2	1	1		
	0		QUALITY SCORE	N	1	2	1	1		
SQM	O	14.023	SEGMENTATION QUALITY METRIC	N	16	76	0	*	*	14.023:10<US>75<US>IBIA VENDOR ID#<US>VENDOR QUALITY ALGORITHM ID<GS>
	M		FGP	N	1	2	2	4		
	M			N	1	3	1	1		

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Table N-2 Field List for Flats Civil Check Type-14 Record

Identifier	Condition	Field Number	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Maximum Number of Bytes …	Example Data
					Min	Max	Min	Max		
	M		ACCURACY	A	4	4	1	1		
	M		VENDOR ID	N	1	5	1	1		
			ALGORITHM ID							
FQM	M[1]	14.024	FINGERPRINT QUALITY METRIC	N	16	76	0	*	*	14.024:10<US>255<US>IBIA VENDOR ID<US>VENDOR ALGORITHM ID #<GS>
	M			N	1	2	2	4		
	M		FGP	N	1	3	1	1		
	M		ACCURACY	A	4	4	1	1		
	M		VENDOR ID	N	1	5	1	1		
			ALGORITHM ID							
RSV		14.025-14.029	RESERVED FOR FUTURE DEFINITION	--	--	--	--	--	--	
DMM	O	14.030	DEVICE MONITORING MODE	A	8	11	0	1	18	14.030:ASSISTED<GS>
RSV		14.031-14.199	RESERVED FOR FUTURE DEFINITION	--	--	--	--	--	--	
UDF	O	14.200-14.998	USER-DEFINED FIELDS	--	--	--	--	--	--	
DAT	M	14.999	IMAGE DATA	B	2	--	1	1	--	14.999:<IMAGE DATA COMPRESSED@ 15:1> <FS>

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APPENDIX N NOTES

1. NQM (14.022) is accepted for legacy users only. New CJIS users are required to populate the Fingerprint Quality Metric field (14.024 FQM). Eventually, all users will be required to use 14.024 instead of 14.022.

2. SEG (14.021) is conditional depending on the value of FGP (14.013).

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APPENDIX O - NCIC POB Code Table

Appendix O contains the NCIC codes for Place of Birth (POB 2.020) and Citizenship (CTZ 2.021) fields. The 'CTZ' contains an ~~asterick~~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.

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	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
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	*
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	*

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
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	
DK	*	Denmark	*
DL		Devils Lake Sioux Tribe	
DM	*	Dominica	
DN	*	Djibouti	
DO		Durango (Mexican State)	
DP		Comanche Nation	
DR	*	Dominican Rep	*
DS		Miami Tribe	
DT		Muscogee (Creek Tribe)	
DV		Seneca-Cayuga Tribes	
DW		Citizen Potawatomi Nation	
EE		Absentee Shawnee	
EK	*	Equatorial Guinea	
EL	*	El Salvador	
EN	*	England	*
EO	*	Ethiopia	
ER		Europa Island	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
ES	*	Estonia	
ET		Eretria	
EU	*	Ecuador	
EY	*	Egypt	*
EZ	*	Czech Republic	
FA		Falkland Islands	
FC		Fond du Lac	
FD	*	Finland	
FG		French Guiana	
FJ	*	Fiji Islands	
FL		Florida	
FN	*	France	*
FO	*	Faroe Islands	
FP	*	French Polynesia	
FR	*	Fr Southrn/Antartic Land	
FS	*	Fed States of Micronesia	
FX		Sac and Fox	
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	
GR		Guerrero (Mexican State)	
GS	*	S Georgia/S Sandwich Isl	
GT	*	Guatemala	
GU		Guanajuato (Mexican State)	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
GY	*	Guyana (Includes French Guiana)	
GZ	*	Gaza	
HD	*	Honduras	
HE		Heard Isl/McDonald Isl	
HI		Hawaii	
HK	*	Hong Kong	*
HL		Hidalgo (Mexican State)	
HN	*	New Hebrides (now Vanuata)	
HO		Howland Island	
HR		Christmas Island	
HS		Saint Helena	
HT	*	Haiti	
HU	*	Hungary	
IA		Iowa	
IB		Man, Isle of	
IC	*	Iceland	
ID		Idaho	
IE	*	Ireland	
II	*	India	*
IL		Illinois	
IM		Madeira Islands	
IN		Indiana	
IO	*	Indonesia	
IQ	*	Iraq	
IR	*	Iran	
IS	*	Israel	
IT	*	Italy	*
IU	*	Niue	
IW		Iowa Tribe	
IX		Menominee Indian Nation	
IY	*	Cote dIvoire (Ivory Coast)	
JA	*	Japan	*
JE		Jersey	
JI		Johnston Island	
JL		Jalisco (Mexican State)	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
JM	*	Jamaica	*
JN		Jan Mayen	
JO	*	Jordan	
JR		Jarvis Island	
JU	*	Juan de Nova Island	
KB	*	Gilbert Islands (now Kiribati)	
KC	*	Croatia	
KE	*	Kenya	
KH	*	Manahiki Island	
KI		Kingman Reef	
KK		Kickapoo Tribe	
KN	*	North Korea	*
KO	*	South Korea	*
KP		Shakopee	
KS		Kansas	
KT	*	Kazakhstan	
KU	*	Kuwait	
KV	*	Kosovo	
KW		Kiowa	
KY		Kentucky	
KZ	*	Kyrgyzstan	
LA		Louisiana	
LB	*	Liberia	
LC		Mille Lacs	
LD	*	Moldova	
LE	*	Lesotho	
LF	*	Slovakia	
LH	*	Lithuania (Rep of the USSR)	
LI	*	Liechtenstein	
LL		Leech Lake Band of Chippewa	
LN	*	Lebanon	
LO	*	Slovenia	
LP		Lac du Flambeau	
LS	*	Laos	*
LT	*	Latvia (Rep of the USSR)	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
LU	*	Saint Lucia	
LX	*	Luxembourg	
LY	*	Libya	
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)	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
NG	*	Nigeria	*
NH		New Hampshire	
NI		Northern Ireland	
NJ		New Jersey	
NK		New Brunswick (Canadian Province)	
NL		Nuevo Leon (Mexican State)	
NM		New Mexico	
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)	
OC	*	Macao (Macau)	
OF		Norfolk Island	
OG		Osage Nation	
OH		Ohio	
OI		Okinawa	
OK		Oklahoma	
OM	*	Oman	
ON		Ontario (Canadian Province)	
OO		Otoe-Missouria Tribe	
OR		Oregon	
OS		Oglala Sioux	
OT		Oneida Tribe of Indians of Wisconsin	
PA		Pennsylvania	
PB		Puebla (Mexican State)	

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)	
PI	*	Philippines	*
PK	*	Pakistan	*
PL		Palmyra Atoll	
PM	*	Panama	
PN		Ponca Tribe	
PO	*	Poland	
PQ		Quebec (Canadian Province)	
PR	*	Puerto Rico	*
PS		St Pierre and Miquelon	
PT	*	Portugal	
PU	*	Peru	
PV	*	Paraguay	*
PW		Pawnee Tribe	
QA	*	Qatar	
QR		Quintana Roo (Mexican State)	
QU		Queretaro (Mexican State)	
RA	*	Russia	
RB	*	Republic of Congo, Brazzaville	
RC	*	Peoples Republic of China	*
RE		Reunion	
RF		Russian Federation	*
RG		Gibraltar	
RH	*	Rhodesia (now Zimbabwe)	
RI		Rhode Island	
RL		Red Lake	
RR		Montserrat	
RS	*	Spanish Sahara (now Western Sahara)	
RU	*	Romania/Rumania	
RV	*	Socialist Republic of Vietnam	*
RW	*	Rwanda	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
RY	*	Republic of Yemen	
SA	*	Sierra Leone	
SB	*	Saudi Arabia	
SC		South Carolina	
SD		South Dakota	
SE	*	Seychelles	
SF	*	South Africa	*
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	
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	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
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	
TX		Texas	
TY	*	Turkey	*
TZ	*	Tanzania, United Republic of	
UC		Turtle Mt Bnd of Chipewa	
UG	*	Uganda	
UK	*	Ukraine	
UM	*	Mauritius	
UN	*	United Kingdom	*
UR	*	Turkmenistan	
US	*	United States	*
UT		Utah	
UV	*	Burkina Faso/Upper Volta	
UY	*	Uruguay	
UZ	*	Uzbekistan	*
VA		Virginia	
VB		British Virgin Islands	
VC		Veracruz (Mexican State)	
VI		U S Virgin Islands	*
VL		Navassa Island	
VT		Vermont	
VV	*	St. Vincent and the Grenadines	
VY		Vatican City	
VZ	*	Venezuela	*

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
WA		Washington	
WB	*	West Bank	
WD		Wyandotte Tribe	
WE		White Earth	
WF		Wallis and Futuna	
WI		Wisconsin	
WK		Wake Island	
WL	*	Wales	
WN	*	West Indies	
WS	*	Western Samoa	
WT		Wichita Tribe	
WV		West Virginia	
WY		Wyoming	
XA	*	Serbia	
XB	*	Montenegro	
XC		Bad River Band of Lake Superior Tribe of Chippewa Indians	
XD		Caddo Tribe	
XE		Cherokee Nation	
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	
XX	*	Unknown	
YG	*	Yugoslavia	
YO	*	Mayotte	
YT		Yukon (Canadian Territory)	
YU		Yucatan (Mexican State)	
YY	*	Unlisted cntry (Any foreign country not included in	

CODE	CTZ	DESCRIPTION	DATE AHEAD FLAG
		the list)	
ZA		Zacatecas (Mexican State)	
ZB	*	Martinique	
ZC	*	Suriname	
ZD	*	Macedonia	
ZI	*	Canary Islands	
ZM	*	Zambia	
ZO	*	Mozambique	
ZR	*	Congo Kinshasa (now Zaire)	

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APPENDIX P - SPECIFICATIONS FOR TRANSMITTING PALMPRINTS AND SUPPLEMENTAL FINGERPRINTS

This appendix presents the transmitting ~~descriptors and field~~ specifications for Ttypes 14 & 15 logical records. The Ttype-14 image records ~~shall~~ contain variable resolution supplemental fingerprint image data and the Ttype-15 image records ~~shall~~ 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 3.9.2 of this main document.

When submitting supplemental fingerprints and palmprints to CJIS in the Ttype-14 record, the EJI image should contain the full FV1 or FV3 image along with the corresponding coordinates will be used in the verification process to 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 Ttype-14 record fields can be found in Appendix N.

"Best Practice" for submitting palmprints in the Ttype-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 complete description of the Ttype-15 record fields can be found in the ANSI/NIST-ITL.

The entire area of the full palm is defined as that area extending from the wrist bracelet 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 wrist bracelet 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 FBI-approved palmprint and supplemental fingerprint and palmprint cards. Best practices for this collection of prints are defined as one FBI Standard Fingerprint Card (Figure P-1 ~~below~~), two FBI Standard Palmprint Cards (Figure P-2 and P-3 ~~below~~), and two FBI Standard Supplemental Finger/Palmprint Cards (Figure P-4 and P-5 ~~below~~), for a total of five cards per subject. ANSI/NIST-ITL provides the finger position codes (FGP), the palmprint position codes (PLP), and maximum image sizes.

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)
- Standard four finger slaps for right and left hand in a Type-4/Type-14 record (FGP = 13 & 14)
- Individual thumb slaps for right and left hand in a Type-4/Type-14 record (FGP = 11 & 12)
- Tips of each finger in a Type-14 record (FGP = 19, Print Position Descriptors [14.014] = 'TIP')
- Entire joint image for each finger in a Type-14 record (FGP = 19, Print Position Descriptors [14.014] = 'EJI')
- Rolled join, flat left, center, and right full finger for each finger in a Type-14 record (FGP = 19, Print Position Descriptors [14.014] = 'EJI/FV1' & 'EJI/FV2' & 'EJI/FV3' & 'EJI/FV4')
- Rolled Thenar for each hand in a Type-15 record (PLP = 32 & 25)
- Full Palm for each hand in a Type-15 record (PLP = 21 & 23)
- Writer's Palm for each hand in a Type-15 record (PLP = 22 & 24)

Figure P-1 FBI Standard Fingerprint Card (FD-249)

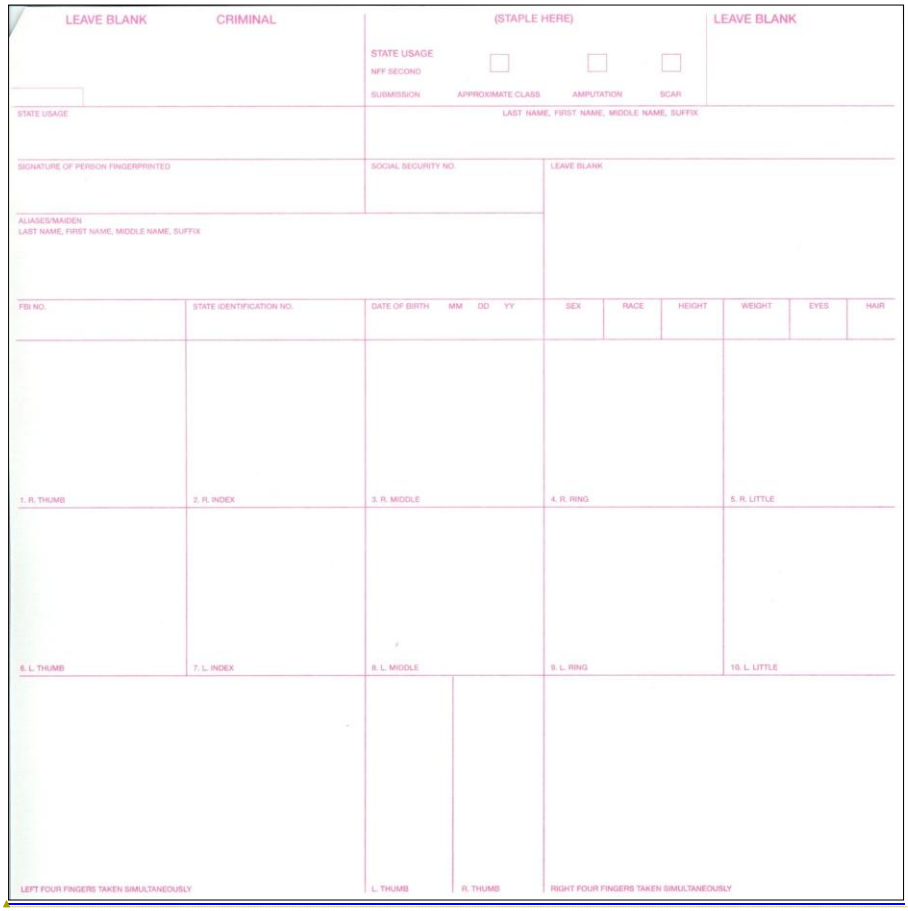

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Figure 2 and 3 contain the front and reverse sides of the FBI Standard Palmprint Card, FD-884.

Figure P-2 FBI Standard Palmprint Card (FD-884) Front

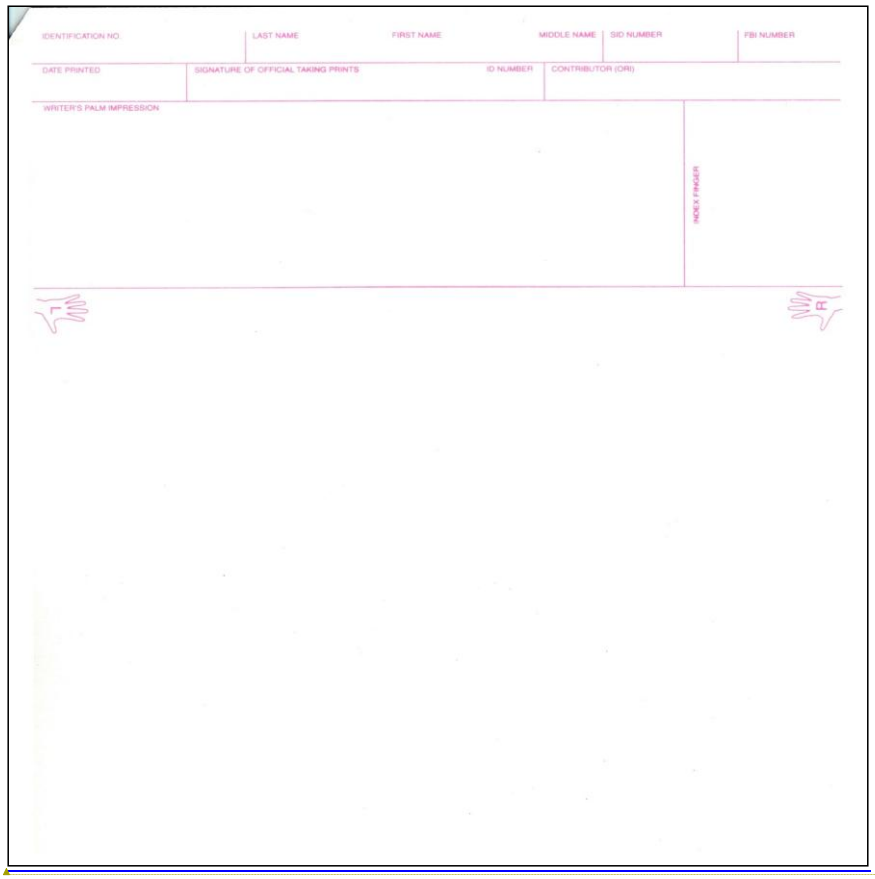

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Figure P-3 FBI Standard Palmprint Card (FD-884) Reverse

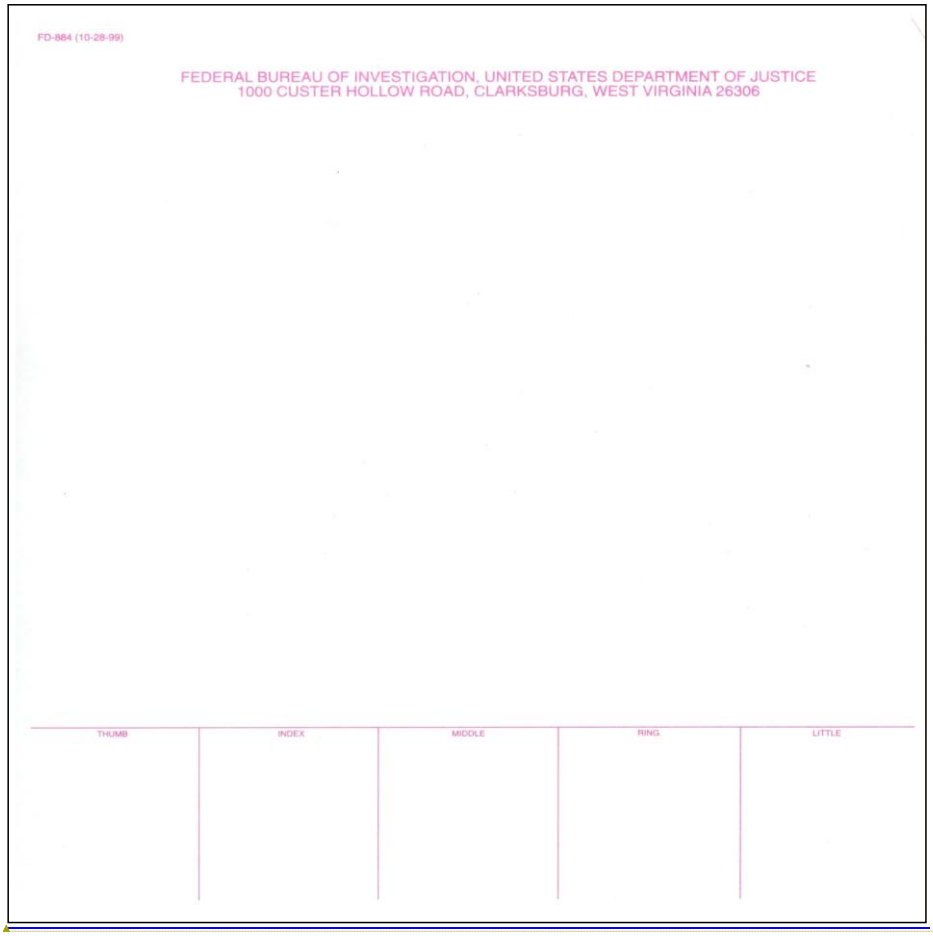

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Figure 4 and 5 illustrate the newly defined FBI Standard Supplemental Finger/Palmprint Cards, FD-884a. It will contain additional areas of friction ridge capture, including joint prints (distal, medial, and proximal), rolled finger tips, and rolled thenar area for each hand as shown in the images below.

Figure P-4 New FBI Standard Supplemental Finger/Palmprint Card (FD-884a) - Front

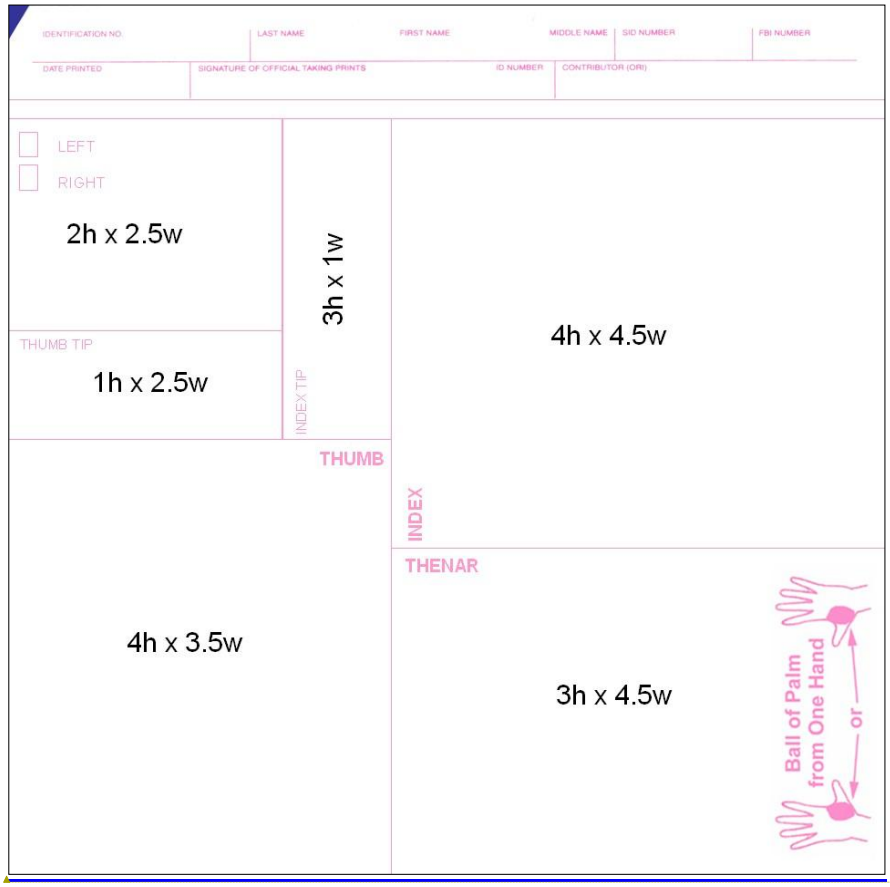

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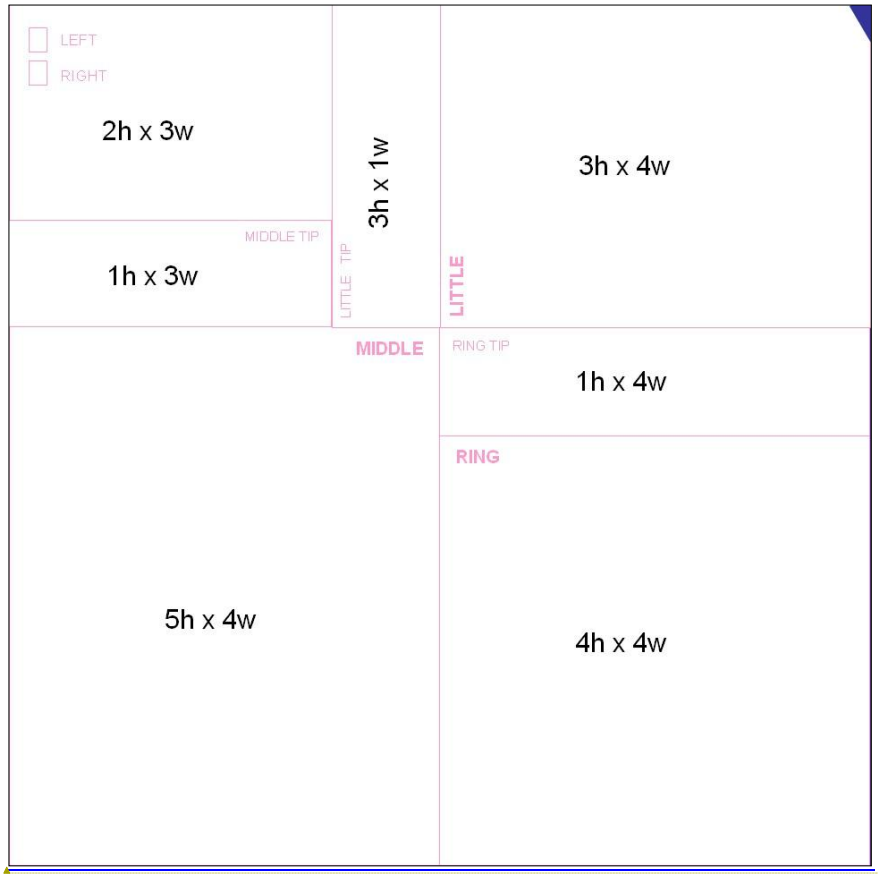
Figure P-5 New FBI Standard Supplemental Finger/Palmprint Card (FD-884a) - Reverse



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The table below lists the print codes to be used in the Type-13 and -14 records.

Table P-1 Print Codes

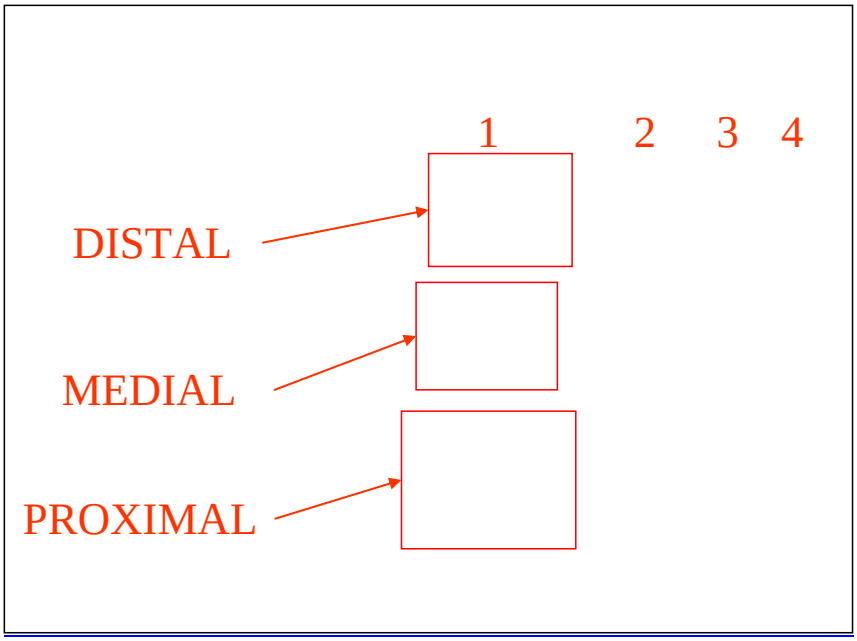
Type of Print Image	Image Code
Entire Joint Image	EJI
Rolled Tip	TIP
Full Finger Rolled View	FV1
Full Finger Plain Image – left side	FV2
Full Finger Plain Image – center	FV3
Full Finger Plain Image – right side	FV4
Proximal, Distal, or Medial Segment	PRX, DST, MED

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.

APPENDIX AC - ACRONYMS

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
ASCII	American Standard Code for Information Interchange
ASL	Arrest Segment Literal
ATN	"Attention" Indicator
AU	Arch, Type Not Designated
BCD	Biometric Capture Date
BDB	Biometric Data Block
BDQ	Biometric Data Quality
BF	Bureau Fugitive Index Number
BFO	BDB Format Owner
BFT	BDB Format Type
BIR	Biometric Information Record
BPX	Bits per pixel
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
CFS	Comparison Fingerprint Image Submission or Cancel Friction Ridge Search
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)
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
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
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	Electronic Disposition Reporting
DSPR	Disposition Response
DST	Distal
DUI	Device Unique Identifier
EAD	Employer and Address
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
ELR	Evaluation Latent Fingerprint Submission Request
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
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 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
FS	File Separator – indicates the record is complete (end of file)
FVR	Fingerprint Verification ~~Report~~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	Image 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
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
LCN	Latent Case Number
LCX	Latent Case Number Extension
LFFS	Latent ~~Fingerprint~~ Friction Ridge Features Search
LFIS	Latent ~~Fingerprint~~ Friction Ridge Image~~(s)~~ Search
LFS	Latent Fingerprint Image(s) Submission
LFMR	Latent File Maintenance Response
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
LSMQ	Latent Search Status and Modification Query
LSMR	Latent Search Status and Modification Response
LSR	Latent Submission Results
MAK	Make
MAP	Miscellaneous Applicant Civil
MC	Marine Corps Serial Number
MCL	Major Case Latent
MCP	Major Case Print
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
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

NAR	Notification of Action Response
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
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
PLP	Palmprint Position
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
PTD	Person Type Designator
PTY	Photo Type
PUM	Position Uncertainty
PXS	Photo Description
QDD	Query Depth of Detail
QMS	Quality Measure
RAC	Race
RAE	Rotation Angle of Eye
RAP	Request for Electronic Rap Sheet
RAU	Rotation Uncertainty
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
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
SEG	Fingerprint Segment Position(s)
SERNO	Serial Number
SEX	Sex
SFP	Subject Feature Points
SHC	Subject Hair Color
SHPS	Scan Horizontal Pixel Scale
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
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
STD	Special Table Data
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
TIP	Rolled Tip
TOT	Type of Transaction
TPFS	Tenprint Fingerprint Features Search
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
ULAC	Unsolved Latent Add Confirm Request
ULAR	Unsolved Latent Add Confirm Response
ULD	Unsolved Latent Record Delete Request
ULDR	Unsolved Latent Delete Response
ULF	Unsolved Latent File
ULM	Unsolved Latent Match Response
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
XML	eXtensible Markup Language
XO	Central Pocket – Accidental Whorl – Outer
XXX	Unknown