



**CRIMINAL JUSTICE INFORMATION SERVICES (CJIS)**

**ELECTRONIC BIOMETRIC TRANSMISSION  
SPECIFICATION (EBTS)**

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## CHANGE HISTORY 1995-1999

- A. CJIS-RS-0010 (V4), August 24, 1995 - This version incorporates RFCs, 787, 842, 850, 877, 896, 898, and 906
- B. CJIS-RS-0010 (V5), June 6, 1997 - This version release is a single-sided document and will be managed as such hereafter. This version incorporates the following RFCs:

- 870R2 Latent Search: need to develop a concept of operations, need to define/verify the requirement for the service provider to cancel searches and need to develop overall resource utilization concept, specification and flow requirements to segments: Sections 3.4.1.5, 3.4.1.6, 3.4.2, 3.11, 3.11.1, 3.11.1.1, 3.11.1.2, 3.11.1.3, 3.11.1.4, App.C: CFS, ETC, NCR, PEN, PRI, QDD, QUE, RIX, ROR, RSR, Table E-9, E-10, E-24, E-25, E-26, E-27, E-28, E-29
- 935 Modify IAFIS message A1003, A3026, and E1003 to include additional fields to support transmit of electronic rap sheet. Sections 3.1, 3.1.1.1, 3.1.1.11, App. C: ERS, RAP, SCO, Table D-11.
- 938 Modify EFTS standard to include new Type-10 image record and 3 Type-2 records. Sections 1.2, 3.1.1.1, 3.1.1.2, 3.10, 3.10.1, 3.10.1.1, 3.10.1.2, 3.10.1.3, 3.10.2, 3.10.2.1, 3.10.2.2, Table I-1, I-2, I-3, I-4, J-1, App. K.
- 944 Change the EFTS to define three non-operational environments - training, test and development. Sections App. B: 1.04 (TOT), Table B-1.
- 946 Modify EFTS records Type 10 TOT=PHO, Type 2 TOT=PDR,PRR, CPD,CPR. All records had field "IDC" added to them.
- 960 Extends the period of time from (7 to 14 days) for latent specialists and external users to confirm permanent addition to the unsolved latent fingerprint. Section 3.3.1.1,3.5, 3.5.1.2, 3.5.1.5
- 961 Provides latent service providers with the capability to solve latent cases. Section Appendix F, 5.0
- 1021 Added Elements FGN and MSC. Changed the following EFTS Type-2 Records: LSR-changed occurrence of CIN and CIX from 100 to 5, added elements DOB, HGT, WGT, CRI, ERS, NOTE, Deleted the following elements, AGR, HTR, WTR, EAD, OCP, RES; NAR - added element CRI; SRL - added elements FGN, MSC, NCR. Section Appendix C, Appendix E.
- 1023 Changes to PAT, Addition of AMP. Deleted the NCIC and the PAT from selected TOTs. Added AMP to selected TOTs. Section Appendices C, D, and E.
- 1029 Redefined error messages based on usage, ERRA for administrative transaction errors, ERRT for ten-print transaction errors, ERRI for image transaction errors, and ERRL for latent transaction errors. Each group of transactions requires different data output when errors are encountered. The current EFTS lists 3 of these messages with the same name and a fourth error message for administrative

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messages was added. Customizing the messages this way will decrease response time when an error is encountered. Sections 3.1, 3.1.1.12, 3.2.1.4, 3.3, 3.3.1.8, 3.4, 3.4.1.4, 3.5, 3.5.1.7, 3.6, 3.6.1.1, 3.6.1.4, 3.7, 3.7.1.3, 3.8, 3.11, 3.11.1.5, Appendices D & E.

1025R2 Updated text to include SRE and CRN. Added Civil Record Number (CRN). Section 3.1.1.11, Appendices C and D.

C. CJIS-RS-0010 (V6R2), March 1998 - This version has come about in three stages. A V6 Working Draft was produced in August, 1997 and was reviewed at a *User Technical Review* on August 26, 1997. Subsequent comments were incorporated as revision 1 of this working draft and distributed on September 30, 1997 as Version 6, Revision 1 (Working Draft). Comments were received against revision 1 and were incorporated into an official V6R2 dated March 1998.

C.1 V6WD, August 1997 - This Version 6 Working Draft incorporates the following RCFs:

- 1024R2 Removed range AGR, WTR, HTR, DPR and DOS from ten-print transactions. Added TAA to criminal ten-print transactions and CRI to all transactions requiring a response. Added PRI and case-ID extensions CIX LCX to latent transactions. Deleted the MIR as a separate transaction (subsumed into IRQ). Added latent requirements. Added placeholder for Type-7 and Type-9 records.
- 1035R3 Modified latent, and remote ten-print search requirements. Added CRI, FGP, NCR, and ULF to latent search records. Added fields and field edit specifications to Type-7 record. Modified MRC set definition for Type-9 record.
- 1051R3 Modified SRE (response) requirements to cover incomplete responses when dealing with NFF states.
- 1069R1 Added Appendix K describing the new NIST Type-10 (photo) record. Removed old Appendix J, which formerly contained the interim Type-10 definition. Added DOS to photo transactions, CPR, CPD PDR, and PRR. Added DOS to PRR and PDR.
- 1070R1 Modified unsolved latent transactions. Replaced ULNC transaction with UULD. Defined and added ASCN field to unsolved latent file maintenance transitions.
- 1074R1 Corrected error response text to recognize four distinct error types. Modified ERRI definition.
- 1078R1 Modified requirements for latent penetration query, latent cognizant query, and latent search status and modification query. Modified corresponding responses. Added ASCN to these queries for reference to prior search submissions. Removed SCO, OCA, ROR, RIX and QUE fields.
- 1080R1 Modified T9TRANS definition to include AFV.

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- 1087R1 Established maximum sizes for fingerprint images.
- 1099R1 Established T2ISR, (Image Summary Response) transaction.

In addition to the RFCs listed above, the Version 6 Working Draft (V6WD) incorporates the following noteworthy general changes:

1. Data for the tables in Appendices B through K now are drawn from a database rather than being entered as text in the WordPerfect EFTS document. This database, which is built in Microsoft Access, contains application-specific functionality to generate those tables.
2. The EFTS has been reformatted to present the data in Appendices D and E in a more concise manner. Text has been judiciously added to Section 1 and Appendix D to explain and provide a guide to the new table formats.
3. Text has been added in Section 2 on the use of tagged fields and on error handling.
4. JPEG has been added as an approved compression algorithm for fingerprint images (this applies to UK's Home Office only.) The Addendum, ANSI/NIST-ITL 1a-1997 (American National Standard For Information Systems - Data Format for the Exchange of Fingerprint, Facial & SMT Information) has been incorporated into the EFTS for Type-10 Record Definitions.

Further, there have been changes in V6WD to some data elements and/or logical records which are not due to a prior RFC. These changes were made only to correct obvious oversights/errors in an RFC or in V5 data. Detail of these numerous changes has been documented in the EFTS V6WD Comments and Dispositions document.

C.2 V6WDR1, September 30, 1997 - This revision of the working draft incorporates changes arising from the disposition of comments by attendees of the *User Technical Review* on August 26, 1997, together with changes due to comments from internal reviews of V6WD. The internal reviews have resulted in RFCs 1127R1, 1129R1, and 1130R1. While the intent of these was to change the IAFIS MDD, they have affected some EFTS data. All such changes have been captured in the EFTS V6 Comment Dispositions document.

C.3 V6R2, March 1998 - RFC 1168R1 incorporates changes arising from ISS comments against V6WDR1 and IAFIS/SEU activities to make engineering data consistent between the EFTS and IAFIS' Message Data Dictionary (MDD). These internal reviews have also resulted in some of the content of RFC 1149R1. While the intent of this RFC has been to correct the MDD, some changes also have affected the EFTS, and have been incorporated into V6R2.

The following changes are noteworthy:

1. Every set using CRI now allows up to three instances of it. This provides a means to handle intermediate routing from the State Ident Bureau to the Local Booking Station where necessary. Additional instance of the CRI can be used as the States wish to support Applicant Submissions and other such needs.
2. Text in the body of the EFTS (especially Sections 3 and Appendix C) now states more clearly the intent and use of transactions and elements.
3. An Appendix L has been added that collects EFTS-wide summary tables for reference by developers. Currently, two types of tables have been put into this Appendix. The first is a set of two tables listing first in Alphabetic order, then in Tag order every EFTS element.

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The second is a set of two tables, the first listing recordset requirements for each submission, the second listing recordset requirements for each possible response to each submission.

4. EFTS specifications for elements and sets are now consistent with the IAFIS's MDD, now providing the same interface information to IAFIS segment developers and to the EFTS development community. These changes to Version 6 Revision 2 EFTS data, which are the results of a maturing IAFIS design, provide the robustness in the communication interface needed to support the user community's automation of ten-print submissions.
- D. CJIS-RS-0010 (V7), January 29, 1999 - This version incorporates several important revisions. New Type-9 records are defined for ten-print and latent features searches. Latent transactions are revised. Several appendices are revised to provide references that were noted as lacking, and organization of some material has been changed to make it more accessible than in previous versions. The following provides more detail:
- 1195R2 Added these to Appendix C. Made PAT mandatory in ten-print features search. Added RCD1, RCD2 to TPFS, TPIS, LFFS, LFIS, LPNQ. Added optional FGP to LPNQ. Remove IMA from LFFS
- 1200R2 Defined new Native Mode Searches for the EFTS. Replaced old T9TRANS (Table J-1) recordset with T9TRANS\_L (Table J-1) for latent searches and T9TRANS\_T (Table J-2) for ten-print searches. Completely replaced Appendix J as a result. Added Reference Note Table (Table J-3) to Appendix J.
- 1213R1 Major Revision to EFTS. Incorporated IAFIS View Review Errata affecting EFTS. Incorporated changes to Latent Transactions per November 15, 1998 EFTS Users Meeting. Incorporated various changes based upon user comments from NY, SC, CA, User Meeting Minutes, AFIS (Lockheed Martin, Orlando FL) EFIPS (Lockheed Martin, OakRidge TN), FBI Latent Fingerprint Section (Steve Meagher) and IAFIS System Engineering Unit. The following general revisions are of interest:
1. Replaced entire Appendix J.
  2. Revised Appendix L, replacing reference tables cross-referencing element IDs and tag numbers, and tables listing recordsets by transaction type.
  3. Added detail to error codes in Appendix M.
  4. Reorganized Reference Note Tables, distributing notes to appendices in which they are referenced.
  5. Added discussion on ORI vice CRI use.
  6. Added discussion of User Defined fields and edit restrictions to same.
  7. Revised discussion of IAFIS error handling.
  8. Revised descriptions of latent and native-mode search transactions.

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Version/ Revision	Description of Change	QA Approval	Date
7.1	<p>Includes the following December 2004 APB-approved changes:</p> <p><b>SPCR 16354</b> Update the EFTS to provide clarification for the CRI Field</p> <p><b>SPCR 16439</b> Update the EFTS to standardize the Reason Fingerprinted field per recommendations by IS issue 3A</p> <p><b>SPCR 17129</b> Update EFTS Section 3.1 Electronic Ten-Print Submission with change made under PI903/PI801</p> <p><b>SPCR 17819t</b> Update EFTS to include new STOT =NFAP for FTTTF – Flight School</p> <p><b>SPCR 17954</b> Add TPRS to Table A-1 priorities for EFTS.</p> <p><b>SPCR 19656a</b> IISS Requests Modifications to EFTS: Update Appendix C with NCIC Code Manual Reference Changes within Fields 2.021 CTZ, 2.044 GEO, 2.020 POB; Update Appendix C <u>definition of Field 2.073 CRI</u>; <u>Update Appendix C with clarification of definition Field 2.042 MIL</u>; Update Appendix C <u>to clarify definition of TSR 2.043</u> to support National Child Protection Act of 1993; Update Appendices C &amp; D CSL reference to indicate CPL as mandatory field; Update Appendix C <u>to remove references to Fields 2.055 SLE and SSD 2.054</u>; Update Appendix B to remove references <u>to Test transactions</u>.</p> <p><b>SPCR 19656b</b> PDS Requests Modifications to the Current EFTS: Replace Appendix F and G with updates from the National Fingerprint-Based Applicant Check (N-FACS) Study, April 5, 2004; Update Appendix B <u>to clarify definition of Field 1.09 TCN</u>; Update Section 3.2.1.5 -with notation that TPRS is limited usage TOT; Update Appendix C <u>with clarification of Field 2.009 OCA length</u>; Change document version to V7.1.</p> <p><b>SPCR 19656c</b> IIETF Requests Modifications to EFTS: Updates to Section 3.1, 3.1.1, 3.1.2, Appendix D, and Acronyms to add TOT NFAP; Update to Sections 3.2, 3.2.1, Appendix A, Appendix D, and Acronyms to add TOT TPRS; Add Type-14 references to Section 3.1.2 and new Appendix N to Capture Type 14 specifications.</p> <p><b>SPCR 19656d</b> – WIN State Comments and ITMS final edits. Includes: updates for all ANSI/NIST-ITL references; addition of new Change History Page; inclusion of all Appendices TABLES that were previously “placeholder only”; document formatting for double-sided printing; and other minor typographical and/or editorial corrections. New CJIS document number assigned to the document. Kept the 7.1 revision number.</p>	T. Chevront	6/15/2005

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The Appendices of this document contain all the information needed regarding a particular type of electronic transaction when communicating with the FBI. Definitions for transaction types can be found in Section 3. Appendix A briefly presents priorities for each transaction type. Appendix B is the field list for Type-1 records. Appendix C contains the definitions of fields used for the Type-2 records. Type-2 field lists can be found in Appendix D for ten-print transactions, and in Appendix E for Latent searches and submissions. Appendix F gives IAFIS Image Quality Specifications for fingerprint scanners, both for traditional rolled prints and "Identification Flats," and printers, and gives Fast Track Certification procedures. Appendix G is currently Reserved for Future Use. Appendix H presents the Type-7 logical record field list, including descriptors and edit specifications. Appendix I presents Type-2 Record layouts for Image retrieval and maintenance transactions. Appendix J gives the Type-9 logical record field list, including descriptors and edit specifications. Appendix K details the Type-10 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 provides a complete cross-reference of elements and their tag numbers, and lists logical record requirements for each EBTS transaction type. Appendix M contains error message details. Appendix N provides definition descriptors and field edits of Type 14 records for Civil Background Checks using flat impressions.

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For example, to obtain information for sending a Criminal Ten-Print 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.

For reference, definitions of the remaining ANSI/NIST logical record types (11 through 17 and 99) are included in Appendix O.

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## SECTION 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 non-criminal justice agencies.

Historically fingerprint cards were physically transported and processed; therefore, substantial delays were recognized in the identification cycle. The IAFIS was developed to support the paperless submission of fingerprint information. This improved the speed and accuracy of the fingerprint identification process and eliminated the need for contributing agencies to create and transport paper fingerprint cards to the FBI.

In support of the development of the IAFIS and in accordance with the recommendations of the NCIC Advisory Policy Board (APB) (currently known as the CJIS APB) Identification Services Subcommittee, the FBI has developed a standard for electronically encoding and transmitting fingerprint image, identification, and arrest data. This standard was established in conjunction with the National Institute of Standards and Technology (NIST) and the fingerprint identification community. This specification is the American National Standards Institute (ANSI) standard entitled the “Data Format for the Interchange of Fingerprint, Facial, and Other Biometric Information” (ANSI/NIST-ITL).

The original intent of the ANSI 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 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. Later revisions to this standard have added information regarding additional biometric modes of identification, such as palm, facial, and iris recognition.

While the aforementioned ANSI standard provides the guidelines for the exchange of biometric information between various Federal, state, local, tribal, and international systems, the FBI’s Electronic Biometric Transmission Specification (EBTS) defines requirements that agencies must adhere to when electronically communicating with the FBI’s IAFIS. The FBI EBTS and its future revisions will inherit the basic requirements for Logical Records set forth in the ANSI standard. However, the FBI-specific requirements for the ANSI/NIST implementation of Logical Records Type-2, Type-7, Type-9, Type-10, Type-14, Type-15 and other record types are contained in the EBTS.

The FBI CJIS Division is moving toward a system that will contain a complete biometric and biographic profile of the subject records in its databases. It is also the FBI’s intent to move toward a capability that will facilitate multi-modal biometric searching of its databases. Though

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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 multi-modal biometric search capability.

The EBTS defines the interface between IAFIS and the FBI user communities' biometric systems. Any changes to the data fields or formats within the EBTS must honor previously published protocols to ensure these biometric systems are not adversely affected. Since IAFIS and other biometric systems were developed independently, a process has been established which provides for coordinated enhancements within the various systems while maintaining reliable interoperability. This process is based on the tagged field structure defined in the ANSI/NIST ITL standard and corresponding business rules. These business rules establish field definitions that cannot change over time or from system to system. If a change is needed, a new field is defined and assigned a new tag number. The new field cannot be made mandatory without special consideration of impacts to legacy systems and consensus of IAFIS stakeholders. New fields typically enhance 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.

The scope of the 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 most recent update of the ANSI/NIST-ITL 1-2000 standard includes new record types to facilitate data sharing for new biometric modalities. The FBI EBTS will integrate biometric data in accordance with the ANSI/NIST standard. 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, thus providing a basic level of interoperability and harmonization with the ANSI 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).

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

## 1.2 Contents of Specification

While the ANSI standard referenced in Section 1.1 will allow all AFISs and related systems to communicate, the purpose of this document is to specify certain requirements to which agencies must adhere to communicate electronically with the FBI's IAFIS. IAFIS has three segments: (1) Identification, Tasking and Networking (ITN/FBI), (2) Automated Fingerprint Identification System (AFIS/FBI), and (3) the Interstate Identification Index (III/FBI). III/FBI electronic communications do not include fingerprints, and the requirements

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¶ However, because fingerprint cards must be physically transported and processed, substantial delays are introduced into the identification cycle. To improve the speed and accuracy of the fingerprint identification process and eliminate the need for contributing agencies to create and mail paper fingerprint cards to the Federal Bureau of Investigation (FBI) for processing, the FBI Criminal Justice Information Services (CJIS) Division is developing an Integrated Automated Fingerprint Identification System (IAFIS) that will support the paperless submission of fingerprint records.¶

¶ In support of the development of the IAFIS and in accordance with the recommendations of the National Crime Information Center (NCIC) Advisory Policy Board (APB) Identification Services Subcommittee, the FBI has developed in conjunction with the National Institute of Standards and Technology (NIST), and the fingerprint identification community, a standard for electronically encoding and transmitting fingerprint image, identification, and arrest data. This standard is comprised of an American National Standards Institute (ANSI) standard entitled "Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tatoo (SMT) Information" (ANSI/NIST-ITL 1-2000).¶

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are contained in appropriate NCIC manuals. This specification covers the remainder of the IAFIS electronic transmissions involving fingerprints, palprints, photographs, iris, and other types of biometric data. The basic requirements for Logical Records Type-1, Type-2, Type-4, Type-7, Type-9, Type-10, Type-14, Type-15 and Type-17 set forth in the ANSI 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-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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## 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 Types 3-8.

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The first field in all tagged-field records shall be labeled as field "1" and contain the length in bytes of the record. The second field shall be labeled as field "2" and contain the image designation character. The remaining textual fields may occur in any order and contain the information as described for that particular numbered field. 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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For the binary image Type-3, Type-4, Type-5, Type-6, and Type-8 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.

## 1.3 Change Control

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The Electronic Biometric Transmission Specification (EBTS) defines the interface between IAFIS and the States', Tribals', 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 States' and OFO's systems are not adversely affected. Since IAFIS and the States' OFO's systems were developed independently, a process has been established which provides for coordinated enhancements within the various systems while

maintaining reliable interoperability. This process is based on the tagged field structure defined in the 2000 ANSI standard, and a few “business rules.” The rules state simply that field definitions cannot change over time or from system to system. 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.

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## 1.4 Tagged Fields

### 1.4.1 Interpretation of Tags

In the construction and interpretation of the logical record, the tag number should not be taken as having a fixed number of digits. For example, in this version of the standard, Type-2 logical record field tags are always shown as having three decimals between the decimal point and colon (2.NNN:data...). However, in future versions, Type-2 field tag numbers may be 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.

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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 Ident Bureau could add the State Identification Number (SID) to the end of a Type-2 record created at the booking station. (This is less restrictive than the ANSI Standard’s language.) 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.

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### 1.4.2 Use of Separator Characters

Separator characters may best be understood by considering them necessary for what follows, not what precedes them. Thus, when a tagged field includes subfields<sup>1</sup> (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.

Per NIST, successive separator characters now **may** be used with no intervening blank or other character when a subfield is missing. In Type-2 records, IAFIS recognizes the following

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<sup>1</sup> The EBTS’ use of the term *subfield* is synonymous with the term *information item* found in the ANSI Standard.

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 IAFIS to validate each subfield in a grouped field to see whether it contains valid data or merely a blank. This will keep invalid data out of IAFIS databases.

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## 1.5 Error Handling

Error processing takes on two primary forms within IAFIS. 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. Transactions lacking mandatory data, or that are incomplete in referenced content, are rejected. All mandatory data and all optional data fields are edit checked for length and type of data included. Optional data failing this validation check are ignored. Mandatory data that fail this validation check are passed to a 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.

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

In the interpretation of the logical record, tags that are not defined for the requested transaction are to be ignored; their inclusion is not to be considered an error. This rule makes it possible to use a single transmission format, for example, to control both intrastate and interstate transmissions.

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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, 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 recordset (e.g., NAM is missing in T2CAR) 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;

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- 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., IAFIS internal errors are not listed).

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## 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 FBI, 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 FBI 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 FBI 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 FBI rejected the first submission of a user-fee transaction (which the submitter is entitled to resubmit one time free of charge if the rejection was due to poor quality fingerprint images), the user would place this number in the TCR field of the resubmitted transaction to enable the FBI to verify the user's authorization to resubmit at no-charge.

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## 1.7 Data Storage in the IAFIS Database

Data that is submitted in IAFIS transactions may or may not be stored in a table in the IAFIS database. Data that is 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 that is stored in IAFIS is 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 (in *case* only) 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 IAFIS. We develop this scenario by examining how an electronic submission might be formed by a contributor and passed to IAFIS 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.

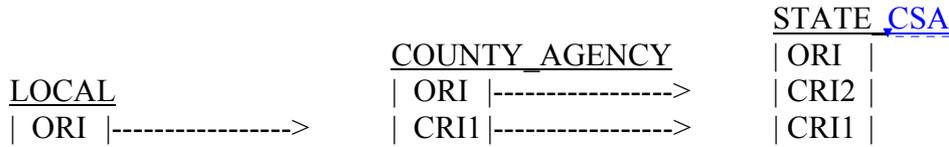
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Assume a print is obtained by a local agency, passed to a county agency for processing and subsequently to the CJIS State Authority (CSA) for transmission to the FBI. In such a case the transmission of ORIs and CRIs might appear as follows:

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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 or the Internet. 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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## SECTION 2 SCOPE

This document specifies the file and record content, format, and data codes necessary for the exchange of fingerprint, palmpoint, facial and iris information between Federal, State and local users and the FBI. It provides a description of all requests and responses associated with electronic fingerprint and other identification services. These services include the following:

1. Ten-Print Fingerprint Services
2. Latent Fingerprint Services
3. Fingerprint Image Services
4. Palmpoint Services
5. Photo Services
6. Facial Recognition Services
7. Iris Recognition Services
8. RAP-Back Services
9. Other Biometric Services

Ten-print fingerprint services can be accessed through electronic ten-print submissions and remote searches. Electronic submissions involve processing and evaluation judgments by FBI personnel. Remote searches are transactions that interface with automated equipment without human intervention by FBI personnel. Ten-print fingerprint services also include requests to update current fingerprint images. Latent fingerprint services are comprised of electronic latent submissions handled by FBI latent examiners and automatic remote searches of the FBI databases. Finally, image requests are used to solicit fingerprint images stored by the FBI. All transactions and messages are compliant with the ANSI standard for exchange of fingerprint information.

The scope of the EBTS has been expanded over previous versions to include additional biometric modes of identification (e.g., facial and iris recognition) in recognition of the rapidly developing biometric identification industry. The most recent update to the ANSI/NIST-ITL 1-2006 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 standard. IAFIS will provide identification services for these biometric identification modalities in the near future.

Section 3 gives a description of the seven types of fingerprint transactions in the electronic environment. It also establishes error messages, specific compression algorithms for the exchange of fingerprint image information, and image quality assurance methods. Appendix A establishes the priorities of incoming transactions. Appendix B includes Field Edit Specifications and a sample field list for the Type-1 record. Appendix C contains the Descriptors and Field Edit Specifications for the Type-2 records. Appendix D summarizes Ten-Print transactions, listing in more detail the Criminal Ten-Print Answer Required (CAR) and Search Results, Electronic (SRE) transactions.

Appendix E summarizes Type-2 records for Latent transactions. Appendix F provides the image quality specifications for IAFIS equipment. Appendix G is Reserved for Future Use.

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Appendix H is the Field Edit Specifications and a sample field list for Type-7 records. Appendix I includes Type-2 record samples of each Image Type of Transaction. Appendix J includes Field Edit Specifications and a sample field list for the Type-9 record.

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Appendix K includes Field Edit Specifications and sample field lists for the Type-2 (Photo) and the Type-10 records, which are defined in the ANSI/NIST-ITL 1-2000 [Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo \(SMT\) Information](#). The ANSI/NIST-ITL 1-2000 defines a standard for transmitting mugshots. [Appendix K also gives considerable detail concerning photos and Type-2 descriptor information for Scars, Marks, and Tattoos](#). Appendix L provides cross-references, both by name and by ID, for all elements, Type-1 through Type-10, and also provides a summary of recordset requirements for submission and response TOTs. Appendix M is a listing of Error Messages that might be received in response to a submission. [Appendix N provides definition descriptors and field edits of Type 14 records for Civil Background Checks using flat impressions](#).

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[Appendix AC is a listing of Acronyms and Abbreviations used in this document.](#)

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## SECTION 3 DESCRIPTION OF OPERATIONAL CONCEPTS

The FBI CJS Division will process the following seven types of fingerprint and four photo transactions from the four main service areas in its electronic environment:

### Ten-Print Services

Electronic Ten-Print Submissions  
Remote Ten-Print Searches  
Electronic Disposition Submissions

### Latent Services

Electronic Latent Submissions  
Remote Latent Searches  
Latent Image Maintenance Requests  
Special Latent Cognizant Files  
Best Practices for the Exchange of Latent Identification Services

### Image Services

Remote Requests for Fingerprint Images  
Electronic Requests to Upgrade Fingerprint Images  
Remote requests for fingerprint features records to accompany images

### Palmprint Services

Palmprint Enrollment Request  
Palmprint Search Request  
Palmprint Search Response

### Photo Services

~~Criminal~~ Subject Photo Request  
~~Criminal~~ Subject Photo Delete Request  
~~Criminal~~ Subject Photo Response  
~~Criminal~~ Subject Photo Delete Response

### Facial Recognition Services

Facial Recognition Search Request  
Facial Recognition Search Response

### Iris Recognition Services

Iris Recognition Search Request  
Iris Recognition Search Response

### RAP-Back Services

RAP-Back Enrollment Request  
RAP-Back Record Hit Notification  
RAP-Back Delete Flag Request  
RAP-Back Annual Verification

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... Palmprint Search Response (future capability)¶

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Other Biometric Services  
CBEFF Type-99 records

Details of the individual types of transaction are provided in the paragraphs below

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### 3.1 Electronic Ten-print Submissions

The processing flow for criminal ten-print electronic submissions is illustrated in Figure 1, “Electronic Ten-Print Submission.” These submissions will originate from live-scan booking terminals or card scanners at either the federal, state or local level. Local submissions may be processed by a local AFIS and electronically transmitted to a state identification bureau for processing. If an 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 is to be forwarded to the FBI. The processing flow for a civil ten-print electronic submission is similar to the criminal ten-print 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.

Figure 1 Electronic Ten-Print Submission

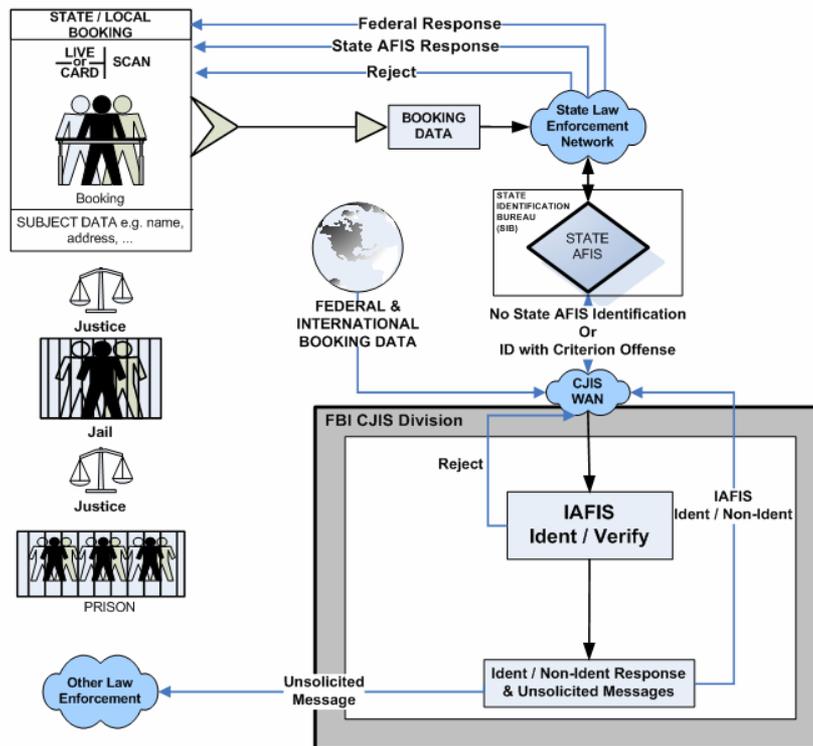


Figure 1 Electronic Ten-Print Submission IAFIS-DOC-01078-7.1

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If no identification is made, the data will be forwarded via the CJIS WAN to the FBI for processing by IAFIS. Transmitted data will be automatically edited and a search will be conducted of the FBI's fingerprint files, utilizing the III segment's subject search and the AFIS segment's features search capabilities. The identification of fingerprint images of any viable file candidates will be verified by at least one FBI fingerprint examiner. Electronic responses<sup>2</sup> from IAFIS to the contributor will be electronically routed via the CJIS WAN through the State Identification Bureau (the ORI). Subsequent routing to the arresting agency is made by the State Ident Bureau using the CRI. Additional copies are routed by the State Ident Bureau 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 Other Federal Organizations, Tribal or International agencies will be transmitted directly to the submitting agencies.

Electronic criminal transactions will have a nominal 15 minute turnaround within IAFIS. Exceptional cases, upon agreement with the FBI, will be provided rapid responses ranging from 10 seconds to 10 minutes. Civil transactions, and card-based transactions, once received, will receive processing dependent upon the priority of the Types of Transaction, ranging from 15 minutes to days. The turnaround times, by type of transaction, are specified in Appendix A.

There are several types of ten-print electronic 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 that is used with each transaction. The following are the TOTs for ten-print submissions:

<u>TOT</u>	<u>TRANSACTION</u>
CAR	Criminal Ten-Print Submission (Answer Required)
CNA	Criminal Ten-Print Submission (No Answer Necessary)
<u>CPDR</u>	<u>Criminal Fingerprint Card Direct Route</u>
<u>CPNU</u>	<u>Criminal Fingerprint Card Processing Non-Urgent</u>
<u>DSPE</u>	<u>Electronic Disposition Reporting</u>
<u>FANC</u>	<u>Federal Applicant (No Charge)</u>
<u>FAUF</u>	<u>Federal Applicant User Fee</u>
<u>FNDR</u>	<u>Federal No Charge Direct Route</u>
<u>FIDO</u>	<u>Freedom of Information Departmental Order</u>
<u>NNDR</u>	<u>Non-Federal No Charge Direct Route</u>
<u>NFAP</u>	<u>Non-Federal Advanced Payment</u>
<u>NFUF</u>	<u>Non-Federal Applicant User Fee</u>
MAP	Miscellaneous Applicant Civil
DEK	Known Deceased
DEU	Unknown Deceased
MPR	Missing Person

<sup>2</sup> 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.

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

<u>TOT</u>	<u>RESPONSE TRANSACTION</u>
SRE	Submission Results - Electronic
<a href="#">DSPR</a>	<a href="#">Disposition Response</a>
ERRT	Ten-Print Transaction Error

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### 3.1.1 Type of Transaction Definitions

#### 3.1.1.1 Criminal Ten-Print 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, as well as information relative to an arrest or to custody or supervisory status. Optionally, these transactions may include palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. 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 ASL and 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. The criminal records are updated (if the Retention Code is set to "Y") the photos are added to the file and a response is returned to the contributor. The response will always contain the Ident/Non-Ident decision, and will contain the electronic rap sheet if requested. Table D-1 gives the logical record layout for the CAR TOT.

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[For Criminal Submissions requesting a simultaneous search of other repositories, 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.](#)

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#### 3.1.1.2 Criminal Ten-Print 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, and optionally palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. Processing is also identical 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". The CNA TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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For Criminal Submissions requesting a simultaneous search of other repositories, 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.

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### **3.1.1.3 Criminal Fingerprint Card Direct Route (CPDR)**

This transaction is a criminal arrest fingerprint submission that will be directly routed to a CJIS internal log application for processing. The submission contains ten rolled and four plain impressions, arrest data, and optionally an unlimited number of photos of the subject, and optional palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. It is identical to the CAR request described above with the inclusion of a mandatory TSR field. IAFIS will ensure the required Electronic Biometric Transmission Specification (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. The CPDR TOT is summarized in Table D3.

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For Criminal Submissions requesting a simultaneous search of other repositories, 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.

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

### **3.1.1.4 Criminal Fingerprint Card 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, arrest data, and optional palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. Processing is identical to the CAR request described above except instead of receiving a two-hour response, the response due time is set to thirty days 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. The CPNU TOT is summarized in Table D3.

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For Criminal Submissions requesting a simultaneous search of other repositories, 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.

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### 3.1.1.5 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 either ten rolled and four plain impressions or three identification flat impressions, biographic descriptor data, and optionally palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. The palmprint and iris images and the photos are allowed only 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). The FANC TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.1.1.6 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 (OCS); and (2) federal agencies in connection with employment, security updates, or contract personnel. The submission contains either ten rolled and four plain impressions or three identification flat impressions (see Appendix N), biographic descriptor data, and optionally palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. The palmprint and iris images and the photos are allowed only if the retention field (2.005 RET) is set to "Y." The FAUF TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1. See also 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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### 3.1.1.7 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 either ten rolled and four plain impressions or three identification flat impressions, biographic descriptor data, and optionally palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. The palmprint and iris images and the photos are allowed only 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. IAFIS will ensure the required Electronic Biometric Transmission Specification (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. The FNDR TOT is summarized in Table D3. Note: FNDR is a limited-use TOT that requires coordination with FBI prior to use.

### 3.1.1.8 Freedom of Information Departmental Order (FIDO)

This transaction will be used to electronically submit Freedom of Information Departmental Order transactions. The submission contains either ten rolled and four plain impressions or three identification flat impressions. FIDO transactions will be submitted via the CJIS WAN by Card Scanning Services (CSS). IAFIS shall set the Retention Code for FIDO transactions to RET=N (Non Retain). The FIDO TOT is summarized in Table D3.

### 3.1.1.9 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 either ten rolled and four plain impressions or three identification flat impressions, biographic descriptor data, and optionally palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. The palmprint and iris images and the photos are allowed only 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. IAFIS will ensure the required Electronic Biometric Transmission Specification (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. The NNDR TOT is summarized in Table D3. Note: NNDR is a limited-use TOT that requires coordination with FBI prior to use.

### 3.1.1.10 Non-Federal Advanced Payment (NFAP)

These submissions are for non-criminal justice purposes in which the contributor is charged a fee in advance. The submission contains either ten rolled and four plain impressions or three identification flat impressions. Examples of the types of contributors for this TOT are as follows: 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. The NFAP TOT is summarized in Table D-3. Edit specifications for the fields NFAP uses may be found in Table C-1. See also 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.

### 3.1.1.11 Non-Federal Applicant User Fee (NFUF)

These submissions are for non-criminal justice and licensing purposes in which the contributor is charged a fee. The submission contains either ten rolled and four plain impressions or three identification flat impressions, biographic descriptor data, and optionally palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. The palmprint and iris images and the photos are allowed only 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, regulatory agencies (such as stock exchanges, bankers' associations, securities dealers, Nuclear Regulatory Commission, Securities and Exchange Commission, racing or gaming control board, etc.). Their purpose for submitting such requests is to ascertain whether individuals who have applied for licensing or employment

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**Deleted:** Currently, these transactions are processed manually using the FOIA Log with the STOT of FOID. Initially,

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**Deleted:** IAFIS will then process the FIDO transaction according to current CSS Civil Ten Print processing flows. ITN/FBI

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with their organizations have any past criminal histories. The NFUF TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1. See also 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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### 3.1.1.12 Miscellaneous Applicant Civil (MAP)

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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, biographic descriptor data, and optionally palmprint and iris images, an unlimited number of photos of the subject, and any other major case print information. The palmprint and iris images and the photos are allowed only if the retention field (2.005 RET) is set to "Y." The MAP TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.1.1.13 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, and optionally an unlimited number of photos of the subject. 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 must be filled with the text "DECEASED". The DEK TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.1.1.14 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, and optionally an unlimited number of photos of the subject. 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 to a subject on file be effected, the subject will be added to the criminal file in order to be identified with missing persons reports. A search of the Civil File will be conducted following the Criminal File search if a "Y" is placed in the CSR field. The DEU TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.1.1.15 Missing Person (MPR)

These non-criminal submissions pertain to persons reported as missing. The submission contains either ten rolled and four plain impressions or three identification flat impressions, and optionally an unlimited number of photos of the subject. 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. These subjects are added to the Criminal File. The Action to be Taken (ACN) field of the response will indicate if a “stop” has been established. The ICO field in this submission must be filled with the text “MISSING PERSON”. A search of the Civil File will be conducted following the Criminal File search if a "Y" is placed in the CSR field. The MPR TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.1.1.16 Amnesia Victim (AMN)

These non-criminal submissions pertain to persons known to have amnesia who are unaware of their own identity. The submission contains either ten rolled and four plain impressions or three identification flat impressions, and optionally an unlimited number of photos of the subject. 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. These subjects are added to the Criminal File. The ACN field of the response will indicate if a "stop" has been established. The ICO field in this submission must be filled with the text “AMNESIA VICTIM”. A search of the Civil File will be conducted following the Criminal File search if a "Y" is placed in the CSR field. The AMN TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.1.1.17 Major Case Print Collection in Conjunction with Tenprint Submissions

Ten-print submissions that also include FBI-approved palmprint and supplemental finger/palmprint cards are referred to as Major Case Print Collections (to be differentiated from Major Case Print Submissions in connection to Latent Case investigations). Best practices for a Major Case Print Collection 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 1-2006 provides the finger position codes and maximum image sizes. The FGP field of the Type-14 image record shall contain “19” from Table 12. Finger position code & maximum image dimensions, indicating Major Case Prints. The FBI Standard Ten-print Card, FD-249, is represented below (reverse not shown).

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**Figure 3.1.1.17-1 FBI Standard Fingerprint Card (FD-249)**

LEAVE BLANK		CRIMINAL		(STAPLE HERE)				LEAVE BLANK			
STATE USAGE		STATE USAGE ANY OTHERS		SUBMISSION		APPROXIMATE CLASS		AMPUTATION		SCAR	
SIGNATURE OF PERSON FINGERPRINTED		SOCIAL SECURITY NO.		LEAVE BLANK							
PLACES/PLACES		LAST NAME, FIRST NAME, MIDDLE NAME, SUFFIX		LAST NAME, FIRST NAME, MIDDLE NAME, SUFFIX							
FB NO.	STATE IDENTIFICATION NO.	DATE OF BIRTH	MM	DD	YY	SEX	RACE	HEIGHT	WEIGHT	EYES	HAIR
L R THUMB	L R INDEX	L R MIDDLE	L R RING	L R LITTLE							
L L THUMB	L L INDEX	L L MIDDLE	L L RING	L L LITTLE							
LEFT FOUR FINGERS TAKEN SEPARATELY		L THUMB	R THUMB	RIGHT FOUR FINGERS TAKEN SEPARATELY							

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The FBI Standard Palmprint Card, FD-884 is represented below.

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**Figure 3.1.17-2 FBI Standard Palmprint Card (FD884) Obverse**

IDENTIFICATION NO.	LAST NAME	FIRST NAME	MIDDLE NAME	SID NUMBER	FBI NUMBER
DATE PRINTED	SIGNATURE OF OFFICIAL TAKING PRINTS		ID NUMBER	CONTRIBUTOR (OR)	
WRITER'S PALM IMPRESSION			INDEX FINGER		
L			R		

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**Figure 3.1.1.17-3 FBI Standard Palmprint Card (FD-884) Reverse**

FD-884 (10-28-99)

FEDERAL BUREAU OF INVESTIGATION, UNITED STATES DEPARTMENT OF JUSTICE  
1000 CUSTER HOLLOW ROAD, CLARKSBURG, WEST VIRGINIA 26306

THUMB	INDEX	MIDDLE	RING	LITTLE

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The newly-defined FBI Standard Supplemental Finger/Palmprint Cards, FD-884B, 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 3.1.1.17-4 FBI Standard Supplemental Finger/Palmprint Card (FD-884B) Front**

IDENTIFICATION NO.		LAST NAME		FIRST NAME		MIDDLE NAME		SSN NUMBER		FBI NUMBER	
DATE PRINTED			SIGNATURE OF OFFICIAL TAKING PRINTS			ID NUMBER			CONTRIBUTOR (ORI)		
<input type="checkbox"/> LEFT <input type="checkbox"/> RIGHT  2h x 2.5w		3h x 1w INDEX TIP		4h x 4.5w							
THUMB TIP 1h x 2.5w											
4h x 3.5w THUMB				3h x 4.5w THENAR  Ball of Palm from One Hand or							

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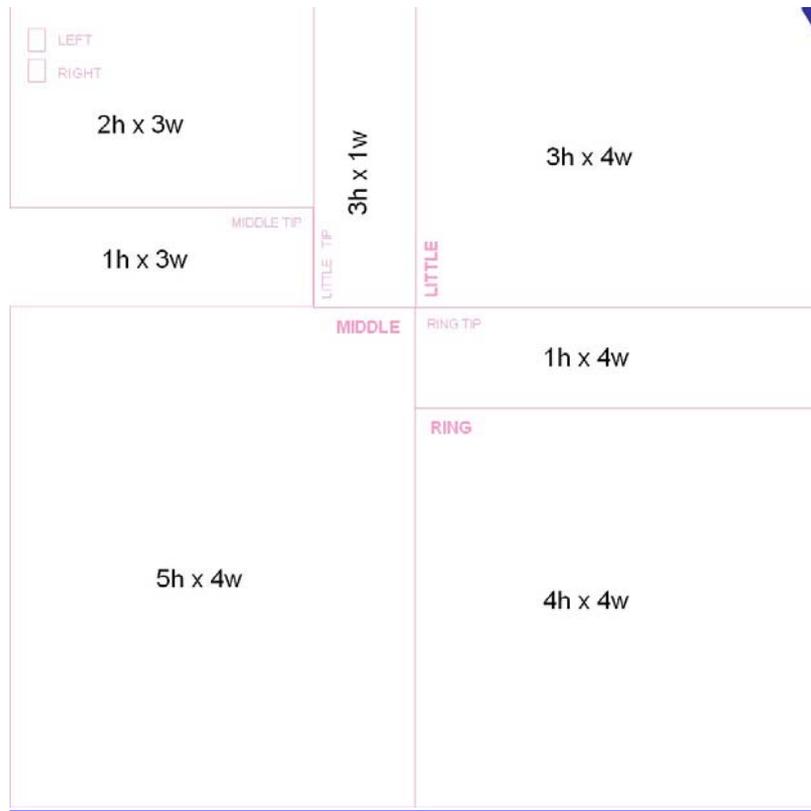
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**Figure 3.1.1.17-5 FBI Standard Supplemental Finger/Palmprint Card (FD-884B) Reverse**



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The table below lists the Major Case Print Codes to be used in the Type-13 and -14 records.

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**Major Case Print Codes**

Type of Major Case Print Image	Image Code
Entire Joint Image	EJI
Rolled Tip	TIP
Full Finger View	FV <sub>x</sub> x = {1,2,3,4}
Proximal, Distal, or Medial Segment	PRX, DST, MED

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The types of Major Case Print images are further defined as:

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- 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*

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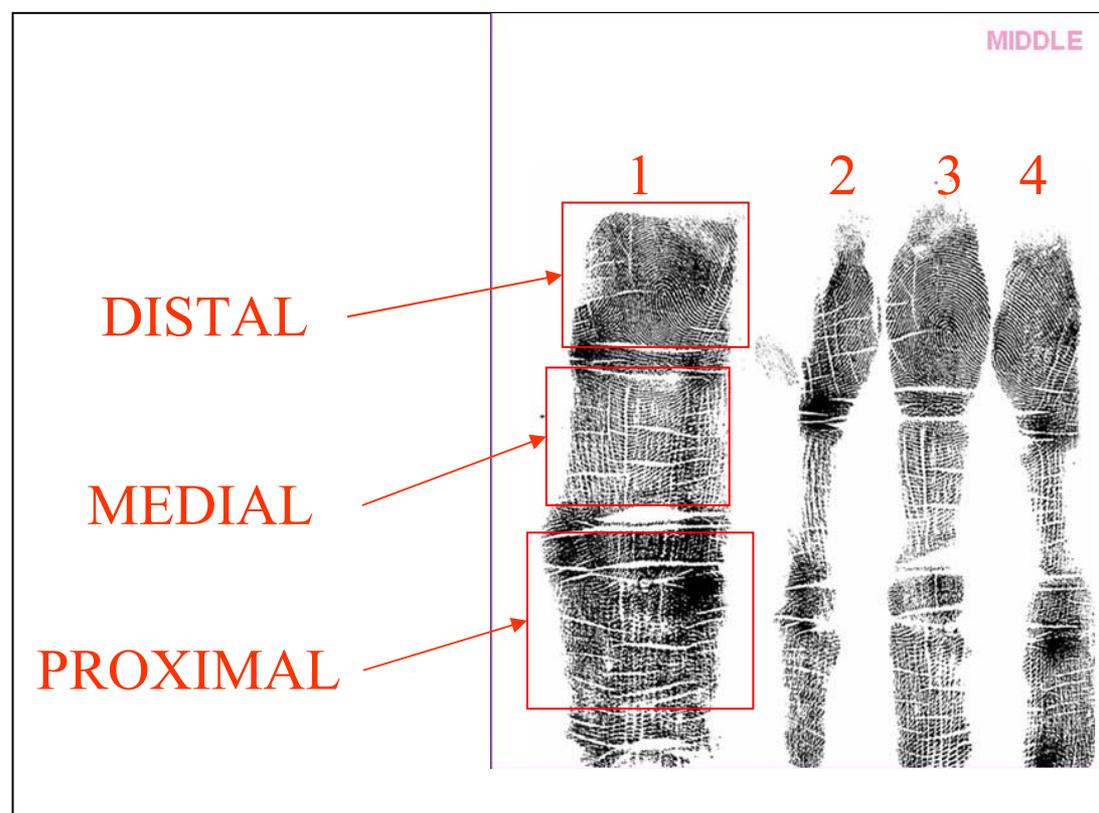
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impression is taken in one motion, similar to the taking of a rolled fingerprint impression.

- 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 (already defined by M1)
  - 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 3.1.17-6 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.

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Deleted: Definitions and descriptions of Type-13 and Type-14 records used in conjunction with Major Case Prints can be found in Appendix P.¶

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### 3.1.1.18 Electronic Disposition Reporting (DSPE)

This transaction gives the requester 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 DSPE may be used to submit from one (1) to forty (40) CSL transactions per date of arrest (DOA). The following fields are mandatory: LEN, IDC, RET, DOA, ORI, CRI, COL and CSL. The DSPE request may include optional fields of: ATN, CCN, SAN, SCO, FBI, SID, OCA, SOC, MNU, NAM, AKA, POB, CTZ, DOB, SEX, RAC, SMT, HGT, WGT, EYE, HAI, ASL, SSD, SLE, ICO, IMA, AMP and fingerprint images. If fingerprint images are included in the request, a comparison will be done to determine positive identification. Any disposition submission verified by fingerprints, any disposition submission that establishes a new FBI record or any disposition submission where submission data matches the existing FBI record will be disseminable in responses from the FBI. An electronic response will be sent to the requester.

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### 3.1.1.19 Submission Results — Electronic (SRE)

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This transaction is returned by the FBI in response to ten-print submissions. The response will always contain the Ident/Non-Ident decision, and will contain the electronic rap sheet if requested. Table 3-1 describes which NAME, FBI number and State ID (SID) are returned in the SRE for Criminal, Civil and Humanitarian submissions, and for 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 in IAFIS, 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 they complete processing, the FBI will print a Non-Ident or Ident response report and mail it to the requestor. Table D-2 gives the logical record layout for the SRE TOT. Edit specifications for the fields it uses may be found in Table C-1.

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For Criminal Submissions denoting Canada's RTID System as a search destination, the submitter will receive two SRE transactions. The first will contain the results of the IAFIS search. The second will contain the results of the Canada RTID search. The TCR field in the Type-1 header record of the second response will contain the TCN value from the Type-1 header record of the first response to enable correlation of the two responses. The Type-2 record of the second SRE will also contain the unique identifier and biographic data of a subject in the RTID repository if there is a hit.

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**Table 3-1. Values of NAM, FBI and SID Returned in the SRE**

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Type of Submission	Result	Value of Returned Field			Special Exceptions
		Name	FBI	SID	
Criminal, No FBI Submitted	Non-Ident Return	NAM Submitted	None	SID Submitted	
Criminal, No FBI Submitted	Non-Ident Retain	NAM Submitted	Master FBI	SID Submitted	
Criminal, No FBI Submitted	Ident Return	Master NAM	None	Master SID	
Criminal, No FBI Submitted	Ident Retain	Master NAM	Master FBI	Master SID	
Criminal, FBI Submitted	Non-Ident Return	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 Return	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 Return	NAM Submitted	None	None	
Civil, No FBI Submitted	Non-Ident Retain	NAM Submitted	CRN	None	
Civil, No FBI Submitted	Ident Return	Master NAM	Master FBI	Master SID	
Civil, No FBI Submitted	Ident Retain	Master NAM	Master FBI	Master SID	
Civil, FBI Submitted	Non-Ident Return	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 Return	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 an FBI number was submitted. It would be included in an Ident Report (IDRR) if a submitted FBI number did not match the FBI number in the Master File for subject. It would be included in an IDRR or NIDR, as appropriate, if the Master File FBI number was marked expunged, deleted, or consolidated.

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**3.1.1.20 Disposition Response (DSPR)**

This transaction is returned by the FBI in response to dispositional type related submissions (DSPE). The response will be based on whether the transaction is processed as submitted. The DSPR will contain an IAFIS identifying 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 reject

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listed. The response information will be contained in the Action to be Taken field (2.071 ACN). Rejections will be via the ERRT TOT (see below).

### 3.1.1.21 Ten Print Transaction Error (ERRT)

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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 Section 3.8. The ERRT TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1. Currently defined error messages are detailed in Appendix M.

### 3.1.2 Requirements for Logical Record Types

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Submissions: The types and quantities of logical records required in an electronic ten-print submission are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record

Nominally either,

- X For criminal justice purposes (e.g., CAR, CNA, CPDR, CPNU, and optionally DSPE)

14 - Type-4 or Type-14 records as follows:

- 10 Rolled Impressions
- 4 Sets of Plain Impressions

- X 0 – 12 Type-14 Major Case Print images

- X 0 – 8 Type-15 Palmprint Records

- X 0 - unlimited Type-10 Records containing photos

- X 0 – 2 Type-17 Iris image records

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Or

- X For non-criminal justice purposes (e.g., FAUF, FANC, FIDO, FNDR, NFUF, NFAP, NNDR, MAP) and with FBI coordination and authorization, Either,

14 - Type-4 or Type-14 records as follows:

- 10 Rolled Impressions
- 4 Sets of Plain Impressions

Or,

3 – Type-14 records (refer to Appendix N) as follows:

- 2 Plain Simultaneous 4 Finger Impressions
- 1 Plain Left and Right Thumb Impression

And,

X 0 – 12 Type-14 Major Case Print images

X 0 – 8 Type-15 Palmprint Records may be submitted with FAUF, FANC, FDNR, NFUF, NNDR and MAP transactions if the retention field (2.005 RET) is set to “Y”

X 0 - unlimited Type-10 Records containing photos may be submitted with AMN, DEK, DEU, MPR, FANC, FAUF, FNDR, MAP, NFAP, NFUF, and NNDR transactions if the retention field (2.005 RET) is set to “Y”.

X 0 – 2 Type-17 Iris image records may be submitted with FAUF, FANC, FDNR, NFUF, NNDR and MAP transactions if the retention field (2.005 RET) is set to “Y”.

(See Appendix C write-up of the AMP field for how to handle submissions with fewer than 10 printable fingers.)

Responses: In response to an electronic ten-print submission, the following logical records will be returned:

X 1 - Type-1 Header Record  
X 1 - Type-2 Record

### 3.2 Remote Ten-Print Searches

To conduct a remote ten-print search of the FBI’s database, the sending agency will electronically transmit fingerprint images and classification information as required by the AFIS/FBI (i.e., the AMP, when needed), or remotely extracted fingerprint characteristics. Fingerprint characteristics include classification, fingerprint features, and any other derived data required by AFIS/FBI. If the originator is a local agency, the request will go through their State identification bureau. The subsequent FBI search will be conducted automatically with no additional manual editing or processing. If candidates are identified, up to 25 candidates’ FBI numbers are returned to the transmitting agency along with fingerprint images from the highest scoring candidate. The user can request specific finger images, up to all 14 fingerprint images, via the Fingerprint Number(s) Requested (FNR) field. This process differs from electronic ten-print submission processing in that there is no manual intervention on the part of the FBI.

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 remote ten-print searches transmitted to the FBI:

<u>TOT</u>	<u>Transaction</u>
TPIS	Ten-Print Fingerprint Image Searches

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Deleted: , FANC, FAUF, FNDR, MAP, NFAP,

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TPFS	Ten-Print Fingerprint Features Searches
TPRS	Ten-Print Rap Sheet <a href="#">Request</a>
<a href="#">RPIS</a>	<a href="#">Rapid Print Image Search</a>

A hierarchical approach to ten-print searches must be adhered to ([i.e., for TPIS and TPFS](#)). Searches submitted 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](#) 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 remote ten-print searches ([TPIS/TPFS](#)) is shown in Figure 2, "Remote Ten-Print Search."

All electronic transactions between the FBI and the originating state agency will be routed via the CJIS WAN [or the Internet](#). State and local agencies must handle the continuance of these transactions among themselves through the state network. [For Other Federal Organizations, Tribal or International agencies, routing of search and response will be via their connection to the CJIS WAN or the Internet.](#)

The following are the potential responses to remote ten-print fingerprint searches:

<u>TOT</u>	<u>RESPONSE TRANSACTION</u>
SRT	Search Result - Ten-print
ERRT	Ten-Print Transaction Error
<a href="#">TPRR</a>	<a href="#">Ten-print Rap Sheet Response</a>
<a href="#">RPISR</a>	<a href="#">Rapid Print Image Search Response</a>

The response to a valid remote ten-print search 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 Ten-print Rap Sheet Response will contain candidates and their criminal history, but no fingerprint images. The Rapid Print Image Search Response will return an SRF value corresponding to the match results of the ten-print search \(i.e., Red, Yellow or Green\). Similarly to the Ten-print Rap Sheet Response, the Rapid Print Image Search Response will return criminal history \(and the most recent full frontal photo if requested and on file\) for a Red or Yellow response. Additionally, further information describing the SRF value will be provided to the contributor in the Action to be Taken \(ACN\) field of the response. No fingerprint images will be returned for either the Ten-print Rap Sheet Response or the Rapid Print Image Search Response.](#)

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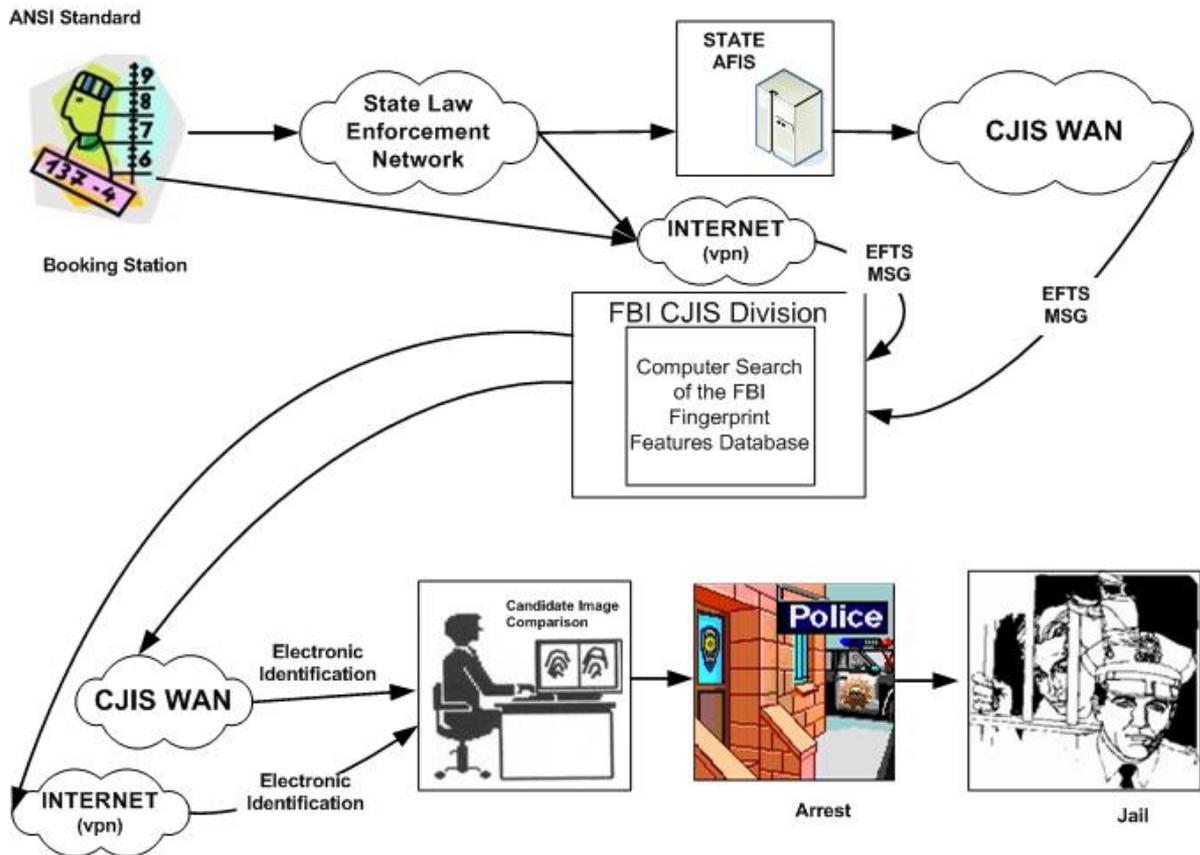


Figure 2 - Remote Ten-Print Search

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 Figure 2 Remote Ten-Print Search

### 3.2.1 Type of Transaction Definitions

#### 3.2.1.1 Ten-Print Fingerprint Image Searches (TPIS)

The ten-print fingerprint images are transmitted along with any required fingerprint classification information and descriptors by the originator. The PAT field is to be included for every amputated or unprintable finger. The fingerprint characteristics will be automatically extracted from the image 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 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. The TPIS TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.2.1.2 Ten-Print Fingerprint Features Search (TPFS)

The fingerprint characteristics, including classification, 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. The TPFS TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

(Note: 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.)

### 3.2.1.3 Search Results — Ten-Print (SRT)

This transaction is returned by the FBI in response to a remote ten-print search request. It includes a candidate list comprised of the names and FBI numbers of up to 25 subjects selected by AFIS/FBI as potential matches to the fingerprint images or features that were submitted. The fingerprint image(s) 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. The SRT TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

### 3.2.1.4 Ten-Print 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 Section 3.8. The ERRT TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1.

### 3.2.1.5 Ten-Print Rap Sheet Searches (TPRS)

The ten-print fingerprint images are transmitted along with any required fingerprint classification information and descriptors by the originator. 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 response consists of rap sheets for up to the top twenty candidates. Images are not returned as part of this process. The TPRS TOT is summarized in Table D-3. Edit specifications for the fields it uses may be found in Table C-1. Note: TPRS is a limited-use TOT that requires coordination with [FBI](#) prior to use.

### 3.2.1.6 Rapid Print Image Search (RPIS)

[This transaction is provided by the FBI to enable rapid remote fingerprint searches implemented as part of the FBI's Enhanced Terrorist Identification Service \(ETIS\). ETIS](#)

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provides the capability to perform a rapid fingerprint search (with from 2 to ten fingerprint images) against a special file containing the most wanted individuals, including, among others, identified terrorists, wanted aliens, or other international subjects identified as a threat to the United States. This transaction will also provide rapid criminal justice background checks for visa applicants. As such, two separate TOTs are provided: Rapid Print Image Search (RPIS) transactions will provide a 10 second or less response to searches from authorized agencies; the response transaction (RPISR) consists of a Red/Yellow/Green light indicator corresponding to the match results against IAFIS ten-print repositories. Red light indicates a hit has been made against an identified threat subject. A green light indicates there was no hit. A yellow light indicates a need for further investigation. As stated in paragraph 3.2, for a red or yellow light response, a criminal history will be returned for any candidates (similar to TPRR), as well as the most recent full frontal photo if requested, on file and disseminable. Additionally, further information describing the SRF value will be provided to the contributor in the Action to be Taken (ACN) field of the response. The RPIS TOT is summarized in Table D-3. Edit specifications for the fields used may be found in Table C-1. Note: RPIS is a limited-use TOT that requires coordination with FBI prior to use.

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### 3.2.2 Requirements for Logical Record Types

Input: The types and quantities of logical records required to submit a remote ten-print search are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record
- X 1 to 10 - Type-4 or Type-14 Fingerprint Image Records or Type-9 Fingerprint Features Records containing rolled impressions or features.

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Response: In response to a remote ten-print search request, the following logical records will be returned:

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- X 1 - Type-1 Header Record
- X 1 - Type-2 Record
- X 0 to 14 - Type-4 or Type-14 Fingerprint Image Records containing the requested fingerprint images of the first candidate (TPIS and TPFS only).
- X 0 – 1 Type-10 record containing the most recent full frontal photo of the number one candidate if requested, on file and disseminable (RPISR only).

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The remaining candidates' fingerprints may be retrieved via a remote request for fingerprint image transaction (see IRQ in paragraph 3.6.1.1).

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### 3.3 Electronic Submission of Latent Prints

Electronic latent print submissions to the FBI will originate from the agency having legal jurisdiction of the case, federal, state or local. These submissions, as differentiated from remote latent searches (see Section 3.4), 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, palm prints, toe prints, and footprints. Investigation of latent cases may also generate ten-prints used for comparison purposes (e.g., suspect, victim, 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 electronic latent print submissions to the FBI:

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<u>TOT</u>	<u>TRANSACTION</u>
LFS	Latent Fingerprint Image(s) Submission
CFS	Comparison Fingerprint Image(s) Submission
MCS	Major Case Image(s) Submission
ELR	Evaluation Latent Fingerprint Submission Request

The processing flow for electronic latent transactions is illustrated in Figure 3, "Electronic Latent Submission."

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The following are the responses to electronic latent submissions:

<u>TOT</u>	<u>RESPONSE TRANSACTION</u>
LSR	Latent Submission Results
NAR	Notification of Action Response
ERRL	Latent Transaction Error

¶ All electronic transactions between the FBI and the originating 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.¶

The FBI's response to a latent fingerprint image submission (i.e., LFS) contains a TOT of "LSR" (denoting "Latent Submission — Results") in the Type-1 Record. It includes the identification of a subject with matching fingerprints or a non-identification decision. If the response to an LFS transaction is a non-identification, the latent case may be stored in the Unsolved Latent File. If there is an error in the submittal, an ERRL response will be returned.

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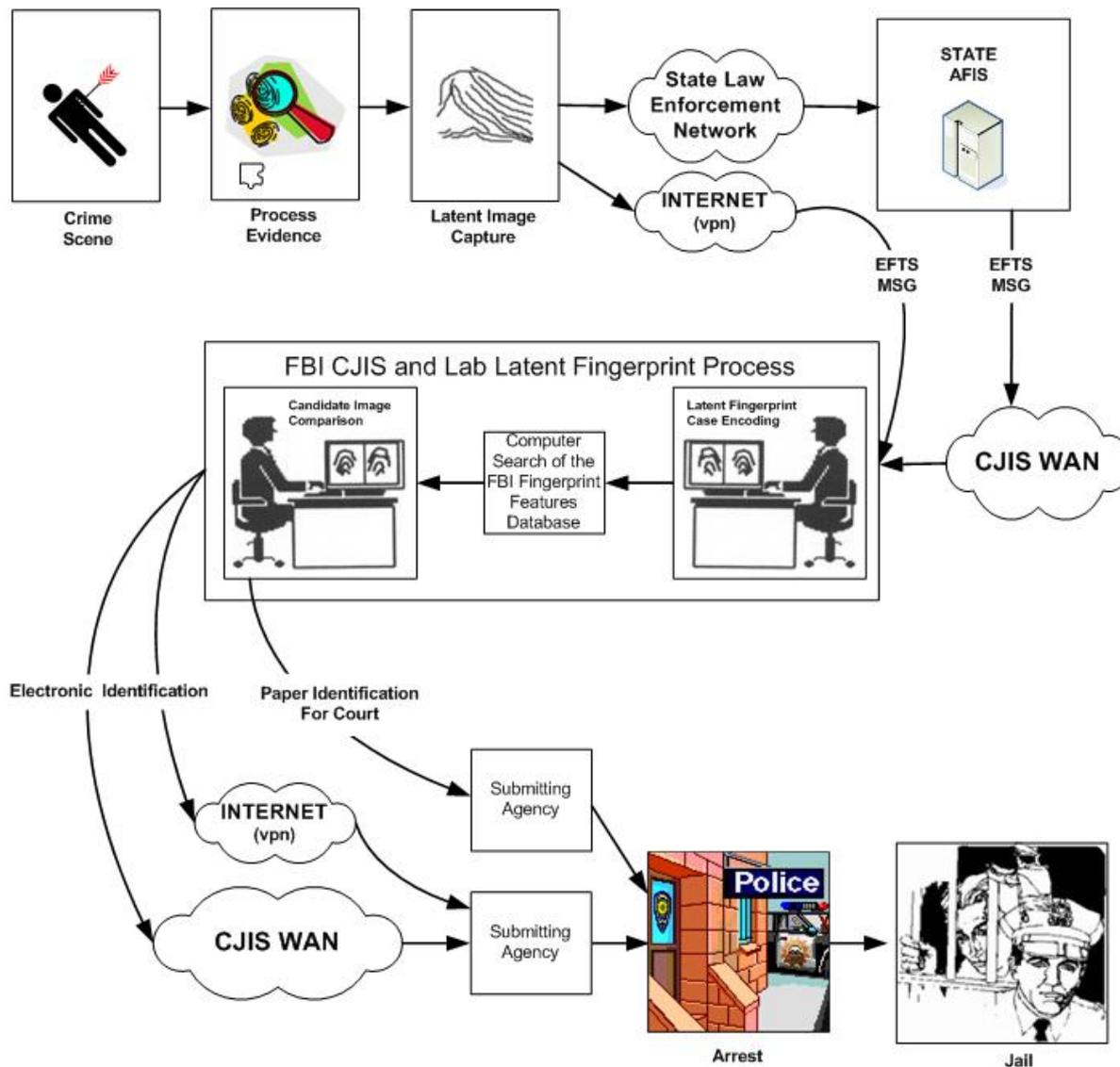


Figure 3 – Electronic Latent Submission

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 IAFIS responses other than communication protocols acknowledgments for the transaction types CFS and MCS. 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 IAFIS.

### 3.3.1 Type of Transaction Definitions

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 Figure 3 Electronic Latent Submission¶

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### 3.3.1.1 Latent Fingerprint Image(s) Submission (LFS)

A Latent Fingerprint Image Submission is intended solely for the purpose of executing an AFIS search, and is to be used by state, local, or other Federal agencies not able to extract IAFIS-compatible minutiae. The latent fingerprint images are transmitted along with the search criteria by the originator. Latent fingerprint specialists will perform comparisons of the search latent fingerprint image(s) against the candidate(s) selected and make the Ident/non-Ident decision(s). The Ident/non-Ident decision(s) will be transmitted as a response (i.e., LSR), including the name and FBI Number of the identified subject. The LSR will include the full set of fourteen ten-print images if an identification has been made. The latent search image(s) will be stored in the Unsolved Latent File if requested in the submission by the originator. The LFS TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

**Deleted:** Multiple fingerprint images may be submitted if the submitter believes the images are from a single subject. Multiple images also must be accompanied by a finger number for each image. Only this set of finger numbers will be searched. The FBI latent fingerprint specialists will execute a preliminary search (penetration query) to determine if the

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**Deleted:** If the search results in a non-Ident, the addition of the latent image to the Unsolved Latent File will be confirmed.

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

This TOT provides for the transmission of ten-print 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 ten-print submittal plus optional additional prints (e.g., palm prints), 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. The CFS TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

### 3.3.1.3 Major Case Image(s) Submission (MCS) (For use by FBI only)

This TOT provides for the submittal of fingerprints normally enclosed in a ten-print submittal plus additional images of the extreme tips, sides, and lower joints of the fingers, and surface and extreme sides of palms for possible use in comparisons for a case. The MCS is intended solely for internal FBI use in conjunction with a Latent Print Unit investigation. The submitted prints will be added to the Major Case Image File. In addition, the ten-prints may be searched against the criminal fingerprint databases, and providing that all required data is submitted, it may be used to establish a new record in the criminal subject databases or to update existing records on the subject. No electronic response other than communication protocol acknowledgment of receipt is returned for this TOT. The MCS TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.3.1.4 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 LFPS 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. The ELR TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.3.1.5 Latent Submission Results (LSR)

This transaction is in response to a latent fingerprint submission (LFS transactions). 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, and full set of fourteen ten-print images of the identified subject. The LSR TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

### 3.3.1.6 Notification of Action Response (NAR)

This transaction will be in response to an evaluation request (ELR transaction). 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 field (ACN). The NAR TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.3.1.8 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 Section 3.8. The ERRL TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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## 3.3.2 Requirements for Logical Record Types

Submission: The types and quantities of logical records required in electronic latent submissions and requests are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record

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- X 1 to 14 - Type-4 [or Type-13](#) Fingerprint Image Records. (1 to 10 records for latent submissions, 14 records for comparison ten-print fingerprint submissions, or an optional set of 14 images for major case submissions), or
- X 1 or more - Type-7 records containing miscellaneous (e.g., palm prints as part of a CFS or MCS) or high resolution (greater than 500 dpi) latent images. The LFS and ELR submissions are limited to 10 Type-7 [or Type-13](#) records. The MCS may have more than 10.

Response: In response to a latent submission (LFS), the following logical records will be returned (in the LSR):

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record
- X 0 to 14 - Type-4 [or Type-14](#) Fingerprint Image Records, containing the ten-print fingerprint images corresponding to the finger of positions of the submitted latent images. (optional for LSR responses at the discretion of the originator)

### 3.4 Remote Latent Fingerprint Searches

An IAFIS user may transmit one or more latent fingerprint images or corresponding features sets, assumed to be from the same subject, to be searched against the FBI's Ten-Print Criminal Features Master File (a Latent Cognizant search). This remote latent fingerprint search request will originate from the agency having legal jurisdiction of the case, either federal, state or local. The crime scene evidence will be processed and the desired latent fingerprints will be electronically captured. To conduct a remote latent fingerprint search, the originating agency will electronically transmit latent fingerprint images and/or FBI native-mode fingerprint 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," the submitted fingerprint image(s) and/or features will be added to the ULF file (the default setting of the ULF flag is "no"). The [biographic](#) descriptor data contained in the Type-2 records, T2LFFS and T2LFIS, 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.

[IAFIS will accept remote latent searches as attachments to emails, where the file name of the attachment may correspond to information associated with the owner of the search and case information. The IAFIS front-end \(EFCON\) will perform the necessary conversion within IAFIS 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 \(previous methodology returned all responses with a filename of EBTS.SRL, making it difficult to differentiate one response from another\).](#)

[For remote latent searches requesting a simultaneous search of other repositories, such as Canada's Real-Time ID System or DHS IDENT, submitters will enter the appropriate values for](#)

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[the desired destination in the Name of Designated Repository \(2.098 NDR\) field in the Type-2 record.](#)

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The remote latent fingerprint search process differs from the electronic latent submissions in that there will be no human intervention on the part of the FBI. The sender must designate the TOT to specify which process is to be followed. The following list of TOTs is applicable to remote latent fingerprint searches transmitted to the FBI:

<u>TOT</u>	<u>TRANSACTION</u>
LFIS	Latent Fingerprint Image(s) Searches
LFFS	Latent Fingerprint Features Searches
LPNQ	Latent Penetration Query
<u>LSIR</u>	<u>Latent Search IDENT Response</u>

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 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 FBI CJIS Division has a requirement to collect statistics regarding system performance in order 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). The LSIR transaction is sent to IAFIS 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 or the internet.

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The following are the potential responses to remote latent fingerprint transactions:

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

The response to a valid remote 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 NCR) fingerprint image(s) of the finger(s) that potentially matches the latent fingerprint. If the remote latent search included more than one finger, the image corresponding to the highest matched score for each candidate will be returned. The search parameters must limit the search to no

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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 latent cognizant repository that does not include sufficient search parameters to limit the search to 30 percent 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 L, Table L-4). If a ten-print submission made after an LFFS or LFIS that has added a latent fingerprint image to the Unsolved Latent File matches that latent print, a ULM will be sent to the latent print contributor.

The processing flow for remote latent fingerprint image transactions is illustrated in Figure 4, "Remote Latent Search".

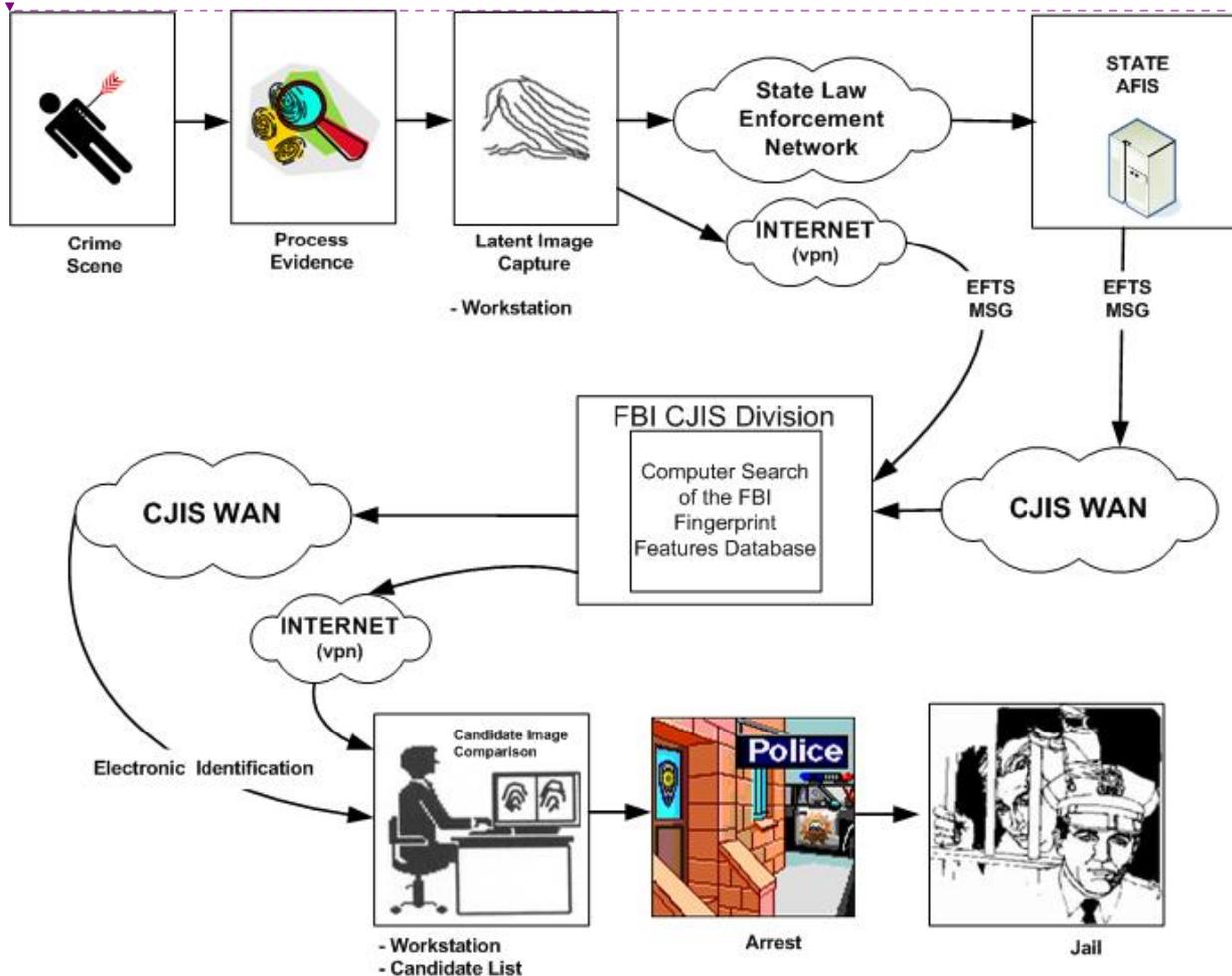


Figure 4 Remote Latent Search

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### 3.4.1 Type of Transaction Definitions

#### 3.4.1.1 Latent Fingerprint Image(s) Search (LFIS)

The latent fingerprint image(s) are transmitted along with the search criteria by the originator. The fingerprint features will be automatically extracted from the images with no human intervention. There will be no manual editing of fingerprint characteristics. IAFIS will conduct a search of the Latent Cognizant 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, IAFIS will respond with a Latent Transaction Error message.

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.

If, in submitting a single latent image, the finger position of the image is unknown, submitter may use the PAT (2.034) and FGP (2.074) fields and the FGN field of the Type-7 [or Type-13](#) 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 FGN field of the Type-7 [or Type-13](#) 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 IAFIS for all other finger guesses.

Latent fingerprints submitted for remote searches may be added to the Unsolved Latent File as discussed in Paragraph 3.3.1.1. One or two Type-2 records may be submitted in the search message. IAFIS will automatically use the descriptive data in the first Type-2 record for the search. If originators desire to store descriptive data with the unsolved latent that is different from that provided for the purpose of limiting the search penetration of the Latent Cognizant repository, they may include a second Type-2 record. In either case, the first Type-2 received with the ULF flag set to "Y" will be used to add descriptors to the Unsolved Latent File.

The LFIS TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

#### 3.4.1.2 Latent Fingerprint Features Search (LFFS)

The latent fingerprint features are extracted and transmitted along with the search criteria by the originator. The search process of the Latent Cognizant repository will be conducted and the results transmitted to the originator as described for the LFIS transaction. The fingerprint features referred to here are the native-mode fingerprint features of the FBI's AFIS; i.e., the fingerprint 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 fingerprint images corresponding to those features, to the Unsolved Latent File as

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described in Paragraph 3.4.1.1 above. 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 fingerprint features in the FBI native-mode in order to use this TOT. The LFFS TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

### 3.4.1.3 Search Results - Latent (SRL)

This transaction is returned by the FBI in response to a remote latent search request. It will include a candidate list comprised of names and FBI numbers of each candidate and the corresponding fingerprint image(s) of the number of candidates specified in the NCR field of the search message. 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 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. The SRL TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.4.1.4 Unsolved Latent Match Response (ULM)

This transaction is issued by IAFIS when a newly submitted criminal, civil or latent fingerprint 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 fingerprint, not to the submitter of the criminal, civil or latent search images. The response will include the FBI number (if criminal transaction), name, personal identifiers, and fingerprint 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 fingerprint and the images of the unsolved latent fingerprint. Up to 10 images can be returned in this transaction when a ten-print 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. The ULM TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.4.1.5 Latent Penetration Query (LPNQ)

The Latent Penetration Query allows the user to receive a percentage of the Latent Cognizant repository that will be accessed by a latent fingerprint search. The query contains the 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 will allow setting the search parameters to ensure that the maximum penetration allowed is not exceeded. 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. The LPNQ TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.4.1.6 Latent Penetration Query Response (LPNR)

The response to a penetration query will contain the estimated size for the repository search based on the transaction defined characteristics. The response will indicate the percent penetration to allow further refinement of the search criteria. The LPNR TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

### 3.4.1.7 Latent Search Ident Response (LSIR)

This transaction provides an indication to the FBI's IAFIS of the comparison results from latent candidates contained in an SRL response message. The comparison results are classified as Ident (I), Non-Ident (N), or Pending (P). 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. Edit specifications for the fields contained in the LSIR may be found in Table C-1, while the LSIR transaction is summarized in Table E-2. SRF for LSIR transactions will contain "IDENT," "Non-IDENT," or "PENDING."

### 3.4.1.8 Transaction Error (ERRL)

This transaction is returned by the FBI to indicate a transaction error. It includes a message field (MSG) in dictating the type of error detected. Error responses are described in Section 3.8. The ERL TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

## 3.4.2 Requirements for Logical Record Types

Requests: The types and quantities of logical records required to submit a remote latent search request are as follows:

- X 1 - Type-1 Header Record
- X 1 to 2 - Type-2 Record
- X 1 to 10 - Type-4, Type-7, [Type-13](#), or Type-9 Record each containing the image of a latent fingerprint, or the native-mode characteristics of a latent fingerprint. (Type-4, Type-7 and [Type-13](#) records may not be combined in any single search message. However, Type-4, Type-7 or [Type-13](#) records may accompany Type-9 records in a features search message.)

Note: The Latent Penetration Query (LPNQ) and Latent Search IDENT Response (LSIR) do not require the Type-4, [Type-7](#), [Type-13](#) or Type-9 submission.

Response: In response to a remote latent search, the following logical records will be returned:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record

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- X 0 - NCR Type-4 [or Type-14](#) Fingerprint Image Records, where NCR is the maximum number of candidate images the user has specified in the search message (see Appendix C regarding the NCR field - 2.079). The actual number of images returned may be fewer than NCR if fewer candidates resulted in the search. For example, if user submits three fingers to be searched against the repository, specifying NCR of 7 and only 5 candidates are returned, the user will receive 5 images: the top-scoring finger from each candidate. The image of the top-scoring latent match score fingers will be returned.

The remaining candidates' fingerprints may be retrieved via a remote request for fingerprint image transaction (i.e., IRQ).

For the Latent Penetration Query Response, the penetration data will be in the Type-2 record. [There is no response from the FBI to an LSIR transaction.](#)

For the Unsolved Latent Match (ULM),

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record
- X 1 - 10 - Type-4 [or Type-14](#) record (containing the image(s) of the candidate's finger that matched the latent print) and 0 - 10 Type-4, [Type-7 or Type-13](#) records (containing the latent image from the Unsolved Latent File, if it exists in IAFIS).

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### [3.5 Latent File Maintenance Requests](#)

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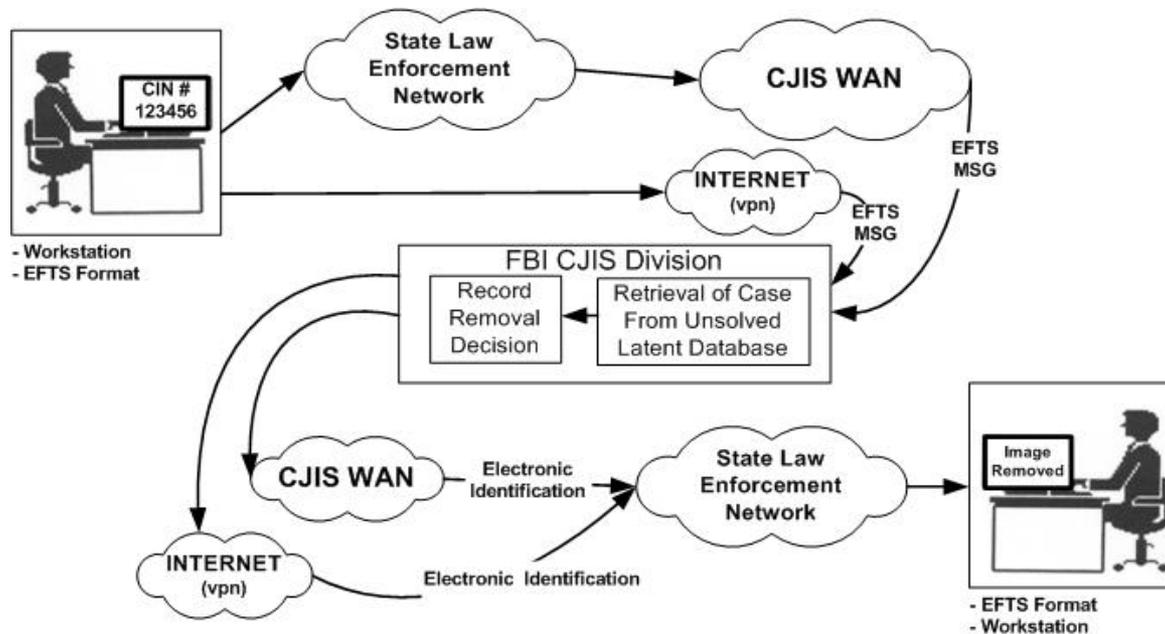
An IAFIS user will transmit file maintenance messages to specify transactions related to the unsolved latent file; specifically, an Unsolved Latent Record Delete Request (ULD), or an Unsolved Latent Add Confirm Request (ULAC). The processing flow for electronic requests to delete unsolved latent fingerprint records is illustrated in Figure 5, "Electronic Requests to Delete Unsolved Latent Fingerprint Records."

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 Figure 5 Electronic Requests to Delete  
 Unsolved Latent Fingerprint Records

Figure 5 - Electronic Requests to Delete Unsolved Latent Fingerprint Records

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

<u>TOT</u>	<u>TRANSACTION</u>
ULD	Unsolved Latent Record Delete Request
ULAC	Unsolved Latent Add Confirm Request

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

<u>TOT</u>	<u>RESPONSE TRANSACTION</u>
ULAR	Unsolved Latent Add Confirm Response
ULDR	Unsolved Latent Delete Response
UULD	Unsolicited Unsolved Latent Delete
ERRL	Latent Transaction Error

### 3.5.1 Type of Transaction Definitions

#### 3.5.1.1 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

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search, the ULD applies to the entire set of images added. The ULD TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### **3.5.1.2 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 fourteen days of receipt of the IAFIS response to a LFIS or LFFS transaction. 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. The ULAC TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### **3.5.1.3 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. The ULAR TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### **3.5.1.4 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. The ULDR TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### **3.5.1.5 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. The UULD TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### **3.5.1.6 Reserved**

### **3.5.1.7 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 Section 3.8. The ERRL TOT is summarized in Table E-1. Edit specifications for the fields it uses may be found in Table C-1.

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### 3.5.2 Requirements for Logical Record Types

Request: The types and quantities of logical records required to submit an electronic request to perform maintenance in the Unsolved Latent Fingerprint file records are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record.

Response: The response to an electronic request to perform maintenance in the Unsolved Latent Fingerprint file records will include the following logical records:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record.

### 3.6 Remote Requests For Fingerprint Images

Remote fingerprint image services include a transaction for requesting fingerprint images on file at the FBI and to request updates of existing images (see Section 3.7, *Electronic Request to Update Fingerprint Images*).

To initiate a remote request for fingerprint 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 Universal Control Number, or UCN*). Fingerprint 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. This request will be routed to the FBI, processed, and returned to the requester through the CJIS WAN or the Internet. If the requester is a local agency, the request and response will be interfaced 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.

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Remote requests for a set of fingerprint images will be submitted to the FBI under the TOT of "IRQ" (denoting Fingerprint 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 remote image requests is illustrated in Figure 6, "Remote Fingerprint Image Request."

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After completing the image retrievals and responses of a multiple set request, the FBI will respond with a Fingerprint Image Response Summary listing all requested FBI numbers and their response status. The FBI's response will contain a TOT of "ISR" in the Type-1 Record.

The following TOTs are applicable for remote requests for fingerprint images:

<u>TOT</u>	<u>TRANSACTION</u>
IRQ	Fingerprint Image Request

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The FBI's response to remote requests for fingerprint images is as follows:

<u>TOT</u>	<u>RESPONSE TRANSACTION</u>
IRR	Fingerprint Image Request Response
ISR	Fingerprint Image Response Summary
ERRI	Image Transaction Error

### 3.6.1 Type of Transaction Definitions

#### 3.6.1.1 Fingerprint Image Request (IRQ)

This transaction enables users to retrieve ten-print images from the FBI Ten-print Fingerprint [Repository](#), so a comparison can be made by the requester at remote facilities. The requester identifies the FBI Number(s) [\(for criminal records\), civil record number\(s\) or other subject identifier \(e.g., Universal Control Number, UCN\)](#) of the subject(s) whose prints are being requested. Up to 1000 subjects' ten-print fingerprint [records](#) may be requested per transaction. Specific fingerprint images or the complete set may 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 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 Response Summary (ISR). The remaining valid [subject identifier](#) numbers will result in individual IRR responses. The Logical Record Layout for the IRQ TOT is given in Table I-1.

[For any IRQ, the submitter of the transaction may indicate the desire for IAFIS to return the Type-9 features records associated with the returned 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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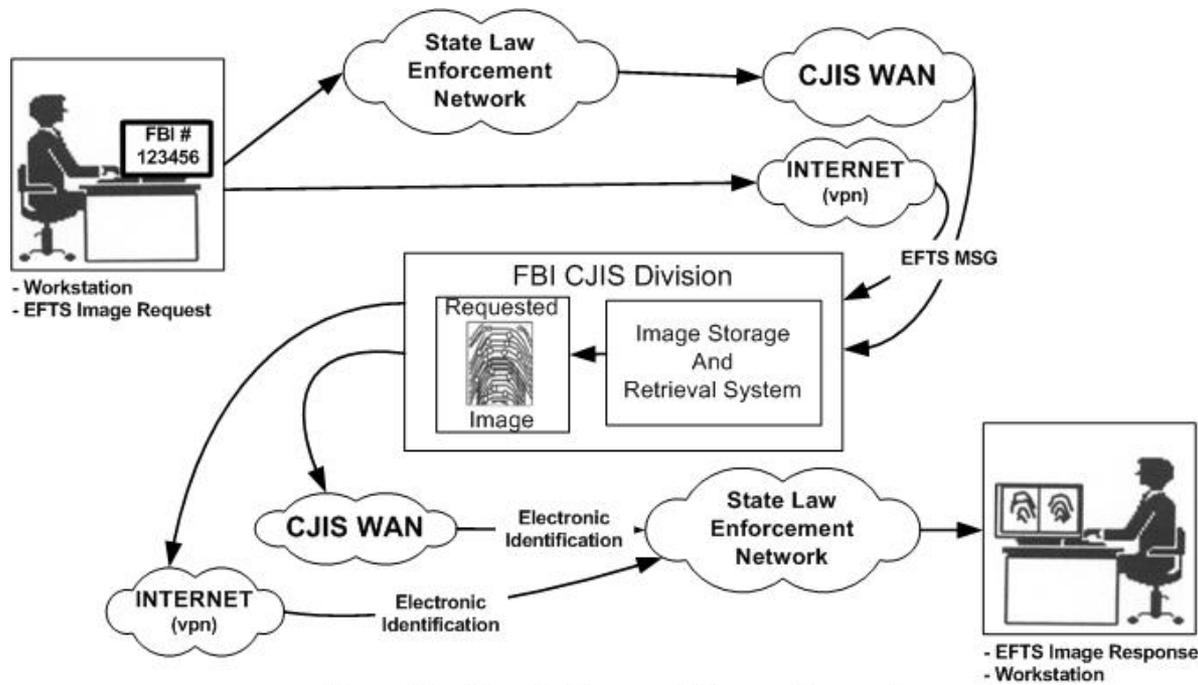


Figure 6 – Remote Fingerprint Image Request

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Figure 6 Remote Fingerprint Image Request

### 3.6.1.2 Reserved

### 3.6.1.3 Fingerprint Image Request Response (IRR)

This transaction is returned by the FBI to provide requested fingerprint 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.](#) The Logical Record Layout for the IRR TOT is given in Table I-2.

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### 3.6.1.4 Fingerprint Image Response Summary (ISR)

         This transaction is returned by the FBI to summarize the results of the image request processing. Each [subject record identifier](#) number in the original request (e.g., UCN or FNU) is listed, along with its related process status. Status may be image request success, invalid [subject record identifier](#) number, or requested image(s) not on file. The Logical Record Layout for the ISR TOT is given in Table I-6.

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The current IAFIS implementation will drop from the list [any candidate for which there is no image](#), and will not generate any external error condition, although there is an internal indicator that there may be an out-of-sync condition. The response process is not interrupted and there is currently no other indication of such a problem in the messaging. The only external indication that an out-of-sync condition exists is that the list of returned images differs from the request.

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### 3.6.1.5 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 Section 3.8. The Logical Record Layout for the ERRI TOT is given in Table I-3.

### 3.6.2 Requirements for Logical Record Types

Request: The types and quantities of logical records required to submit a remote fingerprint image request are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record.

Response: The response to a remote fingerprint image request will include the following logical records:

- X 1 - Type-2
- X 1 to 14 - Type-4 [or Type-14](#) Fingerprint Image Records in the IRR transaction only.
- [0 – 14 Type-9 features records corresponding to the requested images.](#)

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### 3.7 Electronic Requests To Upgrade Fingerprint Images

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 7, “Electronic Requests to Upgrade Fingerprint Images.”

The FBI’s responses to fingerprint image submissions will provide upgrade results or indicate an error as follows:

<u>TOT</u>	<u>TRANSACTION</u>
FIS	Fingerprint Image Submission

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<u>TOT</u>	<u>RESPONSE TRANSACTION</u>
FISR	Fingerprint Image Submission Response
ERRI	Image Transaction Error

### 3.7.1 Type of Transaction Definitions

#### 3.7.1.1 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 a 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. The Logical Record Layout for the FIS TOT is given in Table I-4.

#### 3.7.1.2 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. The Logical Record Layout for the FISR TOT is given in Table I-5.

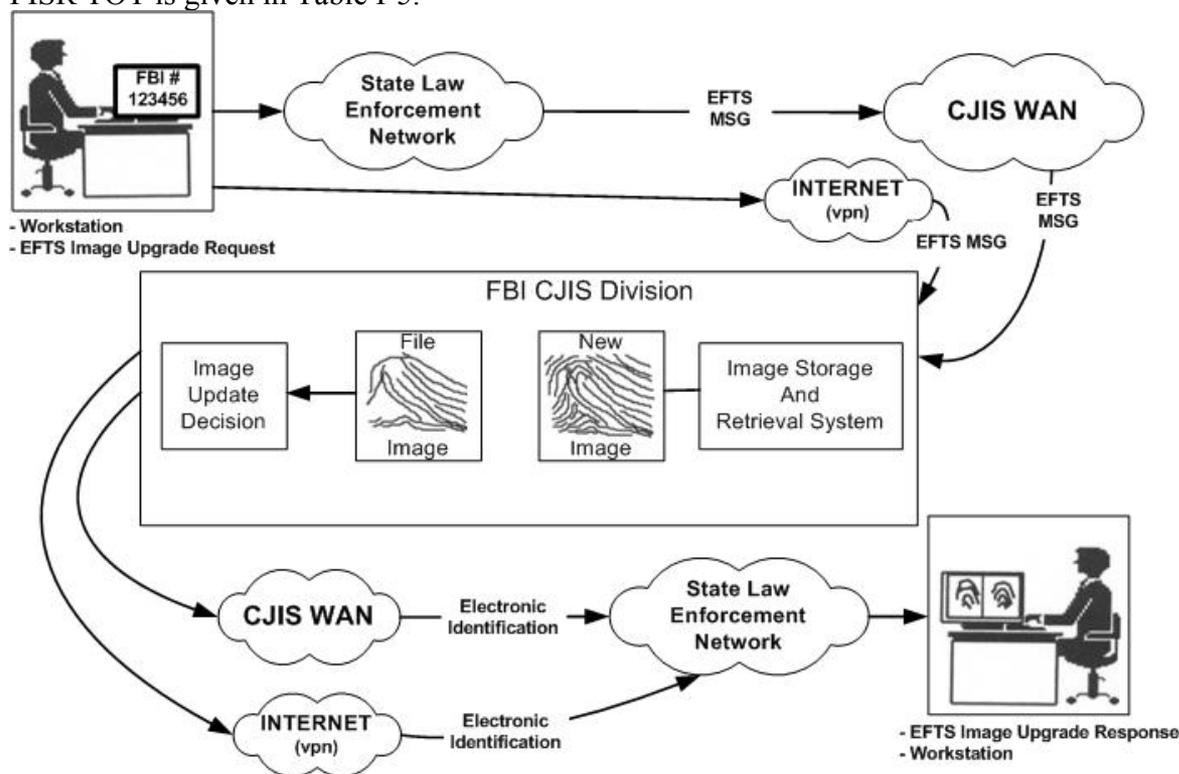


Figure 7 - Electronic Requests to Upgrade Fingerprint Images

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### 3.7.1.3 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 Section 3.8. The Logical Record Layout for the ERRI (Images) TOT is given in Table I-3.

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### 3.7.2 Requirements for Logical Record Types

Submission: The types and quantities of logical records required to submit an electronic request to update fingerprint images are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record
- X 14 - Type-4 or Type-14 Fingerprint Image Records.

Response: The response to an electronic request to update fingerprint images will include the following logical records:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record.

### 3.8 Error Message Format

When a transmission is rejected because data field(s) does not pass internal editing criteria, an error response will be transmitted back to the submitting agency. Each reason(s) for rejection will be detailed in the Status/Message (MSG) field. Up to eleven 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 contained invalid data, the field tag and first 30 characters of the data in the invalid field will be returned.

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Errors in incoming transactions can be derived of many sources. IAFIS error handling capabilities will be an evolutionary product. In its initial version, IAFIS will recognize and deal with several hundred identified error conditions. Future versions of IAFIS will develop improved capabilities that support off-nominal or error conditions.

IAFIS will validate all incoming data prior to its use within the system. That is, all received and parsable 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 in error, then an attempt will be made to correct the value manually. If any optional data are in error, the data will be ignored.

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The error response will be included in the ERRT, ERRA, [ERRI](#) or ERRL transaction as appropriate. The following is a non-inclusive list of the type of error messages:

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

The following are four unique types of error responses:

- X Ten-print Error Response (ERRT)
- X Latent Error Response (ERRL)
- X Image Error Response (ERRI)
- X Administrative Error Response (ERRA)

Appendix M contains further details on contents of the MSG field for error conditions whose handlers have been designed to date.

### 3.9 Other Special Requirements [for Communicating With IAFIS](#)

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#### 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 1-2000, American National Standard For Information Systems - Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tatum (SMT) Information,” dated July 27, 2000.

#### 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.

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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's Home Office in submitting fingerprint images to IAFIS.

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The FBI is responsible for maintaining a registry of approved compression algorithms and assigning a value to each. 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 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 Type-4 ten-print images to be compressed with compression algorithm type 1 (WSQ), with a nominal compression ratio of 15-to-1, and Type-10 photo images to be compressed with compression algorithm type 2 (JPEG). The table will be updated when new algorithms are approved by the FBI.

Table 3-2 Compression Algorithm Values

Compression Algorithm	Binary Value	ASCII Code
None used (Uncompressed)	0	NONE
Wavelet Scalar Quantization (WSQ) FBI Revision 2.0	1	WSQ
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

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### 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. To accommodate live-scan equipment, where the platen size can exceed these measurements, IAFIS 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.

- Deleted: IAFIS will enforce an upper limit on a Type-4 or Type-14 (i.e., Ten-Print image) record: any submissions with any Type-4 or Type-14 image record larger than 200 kBytes will be rejected by IAFIS.\*\*\*Is this file size still valid?
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**Table 3-3 Maximum Sizes for Fingerprint<sup>3</sup>**

Fingerprint	Width pixels (inches)	Height pixels (inches)
Rolled Impression Fingers 1 – 10	800 (1.6)	750 (1.5)
Plain Thumb Impression	500 (1.0)	<del>1500 (3.0)</del>
4 Finger Plain Impressions	1600 (3.2)	<del>1500 (3.0)</del>

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**3.10 Electronic Subject Photo Services**

Electronic photo services include a transaction for requesting criminal or civil photo sets on file at the FBI and a transaction to delete photo sets.

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To initiate a request for a photo set from the FBI’s database, the sending agency electronically transmits the subject record identifier (which can be an FBI number or universal control number), and optionally a DOA for criminal records of the subject. This request will be routed by way of the CJIS WAN or the Internet 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 the CJIS WAN through the state law enforcement network or the Internet. There will be no manual intervention on the part of the FBI.

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Remote requests for a photo set will be submitted to the FBI under the TOT 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.

Remote requests for the deletion of Criminal or Civil Subject Photo Sets are initiated through the CJIS WAN or the Internet and returned through the same path. The request will be submitted to the FBI under the TOT of “CPD” (denoting Criminal or Civil Subject Photo Image Delete Request) in the Type-1 Record. The FBI’s response will contain a TOT of “PDR” in the Type-1 Record.

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

<u>TOT</u>	<u>TRANSACTION</u>
CPR	<u>Subject Photo Request</u>
CPD	<u>Subject Photo Delete Request</u>

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<sup>3</sup> Regarding acceptable image sizes, scanner systems/devices installed prior to the EFTS V6R2 publication date are grandfathered.

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

<u>TOT</u>	<u>RESPONSE TRANSACTION</u>
PRR	Photo Request Response
PDR	Photo Delete Response

### 3.10.1 Type of Transaction Definitions

#### 3.10.1.1 Subject Photo Request (CPR)

This TOT of "CPR" transaction enables users to retrieve a [criminal or civil](#) photo set from the FBI [Repository](#). Each set of photos comprises from 1 to 10 photos of a subject posed from different views [and/or Scars/Marks/Tattoos](#). Each photo set [for a criminal record \(identified by an FBI number\)](#) is linked to the subject by the Date of Arrest (DOA). [Photo sets for civil subjects are linked simply to the subject record identifier, and the most recent set of photos will be returned.](#) The transaction will be processed, and 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". This Response (PRR) will be returned including the reason for the rejection in a Response Explanation field (EXP). Table K-1 is the Logical Record Layout for the CPR TOT.

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#### 3.10.1.2 Subject Photo Delete Request (CPD)

This TOT of "CPD" 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 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). Table K-2 is the Logical Record Layout for the CPD TOT.

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#### 3.10.1.3 Photo Responses

There are responses for each of the requests. The TOT of "PRR" is a response for a retrieve request and the TOT of "PDR" is the response for the 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: IAFIS will return an FBI=0000000; CRI=xxxxxxxx; REC="N"; and a Response Explanation field, EXP= the translated message code of the first detected error. Tables K-3 and K-4 are the Logical Record Layouts for the "PRR" and "PDR" TOTs.

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### 3.10.2 Requirements for Logical Record Types

#### 3.10.2.1 Photo Request

Request: The types and quantities of logical records required to submit a subject photo request are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record. If the DOA is not supplied, the photo set with the latest "Date photo taken" will be sent.

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Response: The response to a subject photo request will include the following logical records:

- X 1 - Type-1 Header Record
- X 1 - Type-2 (TOT=PRR) Record
- X 1 to 10 - Type-10 Image Records.

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#### 3.10.2.2 Photo Delete Request

Request: The types and quantities of logical records required to submit a subject photo delete request are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record.

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Response: The response to a subject photo delete request will include the following logical records:

- X 1 - Type-1 Header Record
- X 1 - Type-2 (TOT=PDR) Record.

Deleted: In addition to the requests above, an administrative latent candidate comparison response is also provided. The FBI CJIS Division has a requirement to collect statistics regarding system performance in order 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 Uncertain (U). The LSIR transaction is to sent to IAFIS immediately upon completion of the comparison process. Remote latent software provided by the FBI will be enhanced to automatically send this administrative transaction in the background with no additional burden being placed on the user.

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### 3.11 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 Latent Cognizant Repository search penetration. The LSMQ will allow the users to determine the status of one fingerprint search or multiple searches previously submitted by the requestor's organization. The LSMQ also allows the user to adjust priorities or search order for performing the searches, or to cancel previously submitted search requests.

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

<u>TOT</u>	<u>TRANSACTION</u>
LRSQ	Latent Repository Statistics Query
LSMQ	Latent Search Status and Modification Query

The following are the responses to the above transactions:

<u>TOT</u>	<u>IAFIS RESPONSE TRANSACTION</u>
LRSR	Latent Repository Statistics Response
LSMR	Latent Search Status and Modification Response
ERRA	Administrative Error Response

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### 3.11.1 Type of Transaction Definitions

#### 3.11.1.1 Latent Repository Statistics Query (LRSQ)

The LRSQ requests the current statistics used to estimate the penetration of the Latent Cognizant 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 defined in Section 3.4.1.6, above. The LRSQ TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

#### 3.11.1.2 Latent Search Status and Modification Query (LSMQ)

The LSMQ requests the status of one or multiple previously submitted latent fingerprint searches, requests the priority or order of searches be changed, or requests searches be canceled. 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. 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 fingerprint search(es). The IAFIS 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). The LSMQ TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

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)) in Table E-27); 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

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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 requestor 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 the Cancel Fingerprint Search field the SCNA of any search to be canceled.

### 3.11.1.3 Latent Repository Statistics Response (LRSR)

LRSR to the LRSQ will provide the users the data required to update the statistical representation used to estimate the repository penetration of a latent search. The LRSR TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### 3.11.1.4 Latent Search Status and Modification Response (LSMR)

The LSMR 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 AFIS segment control number(s) (SCNA) of the referenced search(es) and the estimated time to complete the search(es).

The LSMR will also provide notification that IAFIS has processed the cancellations. The SCNA of each search canceled will be returned in the CFS field. The LSMR TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### 3.11.1.5 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 Section 3.8. The ERRA (Administrative) TOT is summarized in Table E-2. Edit specifications for the fields it uses may be found in Table C-1.

### 3.11.2 Requirements for Logical Record Types

Request: The types and quantities of logical records required to submit a latent administrative query are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record.

Response: The response to a latent administrative query will include the following logical records:

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**3.11.1.6 Latent Search Ident Response (LSIR)¶**  
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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. The comparison results are classified as Ident (I), Non-Ident (N), or Uncertain (U). 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. Edit specifications for the fields contained in the LSIR may be found in Table C-1, while the LSIR transaction is summarized in Table E-2. SRF for LSIR transactions will contain "IDENT," "Non-IDENT," or "PENDING."¶

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- X 1 - Type-1 Header Record
- X 1 - Type-2 Record

### 3.12 Special Latent Cognizant Files

A service provided to Other Federal Organizations (OFOs), or other agencies with special needs by agreement with the FBI, is that of creation and maintenance of small ten-print repositories (or less if ten prints not available) suitable for searching by either ten-prints or latent images known as Special Latent Cognizant (SLC) Files. Future capability will include submission of photos enabling facial recognition searches. These SLC Files can be specific to a particular case or subject set (e.g., gang or terrorist related), or can be generic agency files consisting of employee records. Additionally, these files can be either temporary (i.e., for the duration of the case only), or permanent. The number of files per agency and maximum size of each file are subject to coordination with the FBI, the default being 1 file per agency with a maximum size of 100,000 records.

While ownership of SLC Files is restricted to Federal organizations, access (searching) to these files can be granted to other than Federal agencies in emergency situations. Coordination with the FBI CJIS Division and the Federal owner of the SLC File are required.

Submitting searches against the SLC Files is accomplished by means of the remote ten-print (TPIS, TPFS) or remote latent (LFIS, LFFS) search TOTs by indicating the destination SLC File in the NDR field. Searches from ORIs not authorized access to the SLC Files will be rejected.

The following Types of Transactions (TOTs) are included in the Special Latent File function descriptions:

<u>TOT</u>	<u>TRANSACTION</u>
<u>SLCA</u>	<u>Special Latent Cognizant File Add</u>
<u>SLCD</u>	<u>Special Latent Cognizant File Delete</u>
<u>SLCM</u>	<u>Special Latent Cognizant File Modify</u>

The following are the responses to the above transactions:

<u>TOT</u>	<u>IAFIS RESPONSE TRANSACTION</u>
<u>SLCAC</u>	<u>Special Latent Cognizant File Add Confirm</u>
<u>SLCDC</u>	<u>Special Latent Cognizant File Delete Confirm</u>
<u>SLCMC</u>	<u>Special Latent Cognizant File Modify Confirm</u>

#### 3.12.1 Special Latent Cognizant File Creation

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Creation by OFOs or other agencies of their SLC files is a manual process accomplished through coordination with the FBI. Information such as the agency ORI, SLC File coordinator, employee identification (EID) for anyone granted search, add, delete or modify privileges, and which privileges are to be granted, must be provided in advance of file creation. Upon creation, the agency will be notified of the SLC File number corresponding to that file. The file number will be used to populate the Name of Designated Repository (NDR) field when performing searching or maintenance transactions against that file. These transactions are described below.

### **3.12.2 Type of Transaction Definitions**

#### **3.12.2.1 Special Latent Cognizant File Record Add (SLCA)**

This transaction (SLCA) allows SLC File owners to populate their files by submitting ten-print records. These records can be added to the SLC File in one of two ways: 1) ten-print fingerprint records, including subject biographic descriptor information, may be submitted to be added to the file; or 2) an FBI number or other FBI-associated subject record identifier may be provided in the Type-2 record, and the associated images on file with the FBI will be added to the destination SLC File. The response to this add transaction will be an SLC Add Confirm (SLCAC) response, containing an SLC File record identifier (SLCN). Additionally, the TCR in the Type-1 header will contain the TCN of the original transaction.

SLC File owners may, through use of a special flag field (Cascaded Search Flag – CSF), indicate that certain records of interest be subjected to cascaded searches from the Criminal and Civil Files. In addition to the normal response to the submitter of the search record, an additional response transaction will be sent to the owner of the SLC for candidate image comparison if the search record hits a flagged record in the SLC File.

#### **3.12.2.2 Special Latent Cognizant File Record Delete (SLCD)**

This transaction (SLCD) allows SLC File owners to delete records from their existing SLC File. The EID in the Type-2 record must contain the identification of an employee with privileges to delete records. If the EID is not authorized to delete records, the transaction will be rejected. The record to be deleted will be identified with the SLCN of the designated record. Up to 100 SLCNs may be contained in a single delete transaction. The response to this delete transaction will be an SLC Delete Confirm (SLCDC) response. The response will contain any record identifiers that could not be deleted (e.g., record does not exist in this file).

#### **3.12.2.3 Special Latent Cognizant File Record Modify (SLCM)**

In the case an existing SLC File record needs to be modified (e.g., better fingerprint images are available or additional sets of images need to be appended), this transaction (SLCM) allows SLC File owners to submit a set of ten-print images to replace the existing images or append new sets of images. Each set of images will be identified by the date captured. The record to be updated will be identified by means of the SLCN. Additional biographic descriptor data may be submitted in consonance with the ten-print images (e.g., AMP or other descriptors).

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The response to this modify transaction will be an SLC Modify Confirm (SLCMC) response indicating successful modification of the record. A reject will occur if the SLCN does not match an existing record in that SLC File.

### 3.12.3 Requirements for Logical Record Types

Request: The types and quantities of logical records required to submit a Special Latent Cognizant File transaction are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record.
- X 0-10 Type-4 or Type 14 fingerprint images (for SLCA and SLCM TOTs)
- X 0-unlimited Type-10 Photo records
- X 0 – 2 Type-17 Iris Image Records

Response: The response to a Special Latent Cognizant File transaction will include the following logical records:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record

### 3.13 Palmprint Services

In addition to the FBI accepting palmprints in conjunction with Major Case Print Collections (See Section 3.1.1.17), IAFIS also will accept legacy palmprint cards for previously enrolled ten-print submissions unassociated with a particular arrest cycle at the time of their submission. Palmprint Enrollment may be performed at any time, but each transaction must be for a single subject. To ensure that the palmprint records are associated with the proper tenprint record in IAFIS, the concurrent submission of a tenprint card is mandatory. The functionality provided at this time includes only for storage of palmprint images. In the future, a search capability against the palmprint database will also be provided. The specific criteria for Palmprint Enrollment are detailed in the following paragraphs.

#### 3.13.1 Type of Transaction Definitions

##### 3.13.1.1 Palmprint Enrollment (PPE)

The FBI will provide law enforcement agencies to enroll palmprints associated with previously enrolled ten-print records. In order to provide complete assurance that the palmprints are being enrolled with the proper record, in addition to providing the FBI number of the existing record, submissions must also be accompanied by electronic ten-print fingerprint images for verification. Only one record may be updated with palmprints for each transaction. Palmprint images may be submitted for additional records by submitting additional transactions. The response to this enrollment transaction will be a Palmprint Enrollment Request response (PPR).

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Edit specifications for the fields contained in the PPE may be found in Table C-1, while the PPE and PPR transactions are summarized in Table D-3.

### **3.13.2 Requirements for Logical Record Types**

Request: The types and quantities of logical records required to submit a Palmprint Enrollment Request transaction are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record
- X 0 - 10 Type-4 or Type 14 fingerprint images (less than ten only for amputations/ bandaged/unable to print)
- X 1 – 8 Type-15 Palmprint Records

Response: The response to a Palmprint Enrollment Request transaction will include the following logical records:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record

### **3.14 Facial Recognition Services (Reserved for future use)**

### **3.15 Iris Recognition Services**

The IAFIS Iris Recognition Service will, for the near term, allow authorized users to enroll Iris images for subjects of interest, whether in conjunction with a criminal arrest or in relation to a terrorist investigation. Iris images not submitted with a normal ten-print transaction may be submitted for enrollment via a separately provided transaction (see 3.15.1 below). Searches against the IAFIS Iris image database will be provided by the FBI at some time in the near future.

#### **3.15.1 Type of Transaction Definitions**

##### **3.15.1.1 Iris Image Enrollment (IIE)**

As stated above, Iris images may be submitted separately from a normal ten-print transaction by using the Iris Image Enrollment (IIE) request. In order to provide complete assurance that the iris images are being enrolled with the proper record, in addition to providing the FBI number of the existing record, submissions must also be accompanied by electronic ten-print fingerprint images for verification. The IRIS images will be stored in an IAFIS database for future searching capability. IAFIS will respond with an Iris Image Enrollment Response (IIER) transaction to show successful receipt and storage of the Iris images. Edit specifications for the fields contained in the IIE may be found in Table C-1, while the IIE and IIER transactions are summarized in Table D-3.

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### 3.15.2 Requirements for Logical Record Types

Request: The types and quantities of logical records required to submit an Iris Image Enrollment Request transaction are as follows:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record
- X 0 - 10 Type-4 or Type 14 fingerprint images
- X 0 - 2 Type-17 Iris Image Records

Response: The response to an Iris Image Enrollment Request transaction will include the following logical records:

- X 1 - Type-1 Header Record
- X 1 - Type-2 Record

### 3.16 RAP-Back Services

This service will allow authorized users the ability to enroll an individual and subscribe to “RAP-Back” so the authorized agency will receive notification of any subsequent criminal activity involving that individual. If not legally prohibited, this service will also allow authorized users the ability to receive notification when subsequent civil cycles are added to an individual’s record. The “RAP-Back” service will include subscription registration and maintenance (i.e., registering and unregistering), status checking, criminal activity detection, response generation, transmission/routing, and billing.

#### 3.16.1 RAP-Back Services Requests

Requests for RAP-Back Services will be facilitated through use of the optional RAP-Back Request (2.052 RBR) Field in the Type-2 record for criminal and civil submissions regarding subjects the submitting agency desires the FBI to retain and monitor. Prior coordination with FBI is required for use of this field. When the RBR field is included in the transaction, the value in the retention field (2.005 RET) must also be “Y.” If RET is populated with “N,” the transaction will be rejected via the ERRT transaction. The RBR field values will be as follows: “1” requests monitoring for criminal activity; “2” requests monitoring for civil activity; “3” requests monitoring for both criminal and civil activity.

#### 3.16.2 Type of Transaction Definitions

##### 3.16.2.1 RAP-Back Hit Notification (RBHN)

In the event that an arrest record matches that of a subject with an active RAP-Back monitoring flag, a RAP-Back Hit Notification (RBHN) will be sent to the requesting agency of record. The RBHN TOT is summarized in Table D-3. Edit specifications for the fields used may be found in Table C-1.

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#### 3.16.2.2 RAP-Back Flag Delete Request (Rbfd)

Agencies may request that a RAP-Back flag for a subject be deleted, resulting in a discontinuation of RAP-Back monitoring, by submitting a RAP-Back Flag Delete (Rbfd) request. The Subject Record Identifier is a mandatory field. The response to a Rbfd request will be a RAP-Back Delete Response (Rbdr) transaction. Failed requests (e.g., Subject Record Identifier does not exist) will be handled via the ERRT transaction. The Rbfd and Rbdr TOTs are summarized in Table D-3. Edit specifications for the fields used may be found in Table C-1.

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#### 3.16.2.3 RAP-Back Verification Request (Rbv)

The RAP-Back status of every subject for which monitoring has been requested will be validated on an annual basis. The FBI will send a RAP-Back Annual Verification (Rbv) request to the submitting agency (or agencies) of record for each RAP-Back subject (as indicated by ORI in the RBRO field). Each submitting agency will return a RAP-Back Verification Response (RBVR) for each subject. A negative response will result in the deletion of the RAP-Back monitoring flag, and transmission of a Rbdr transaction by the FBI. The Rbv and RBVR TOTs are summarized in Table D-3. Edit specifications for the fields used may be found in Table C-1.

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#### 3.16.2.4 RAP-Back Maintenance Request (Rbm)

It is acknowledged that agencies desiring notification of a RAP-Back hit (for either criminal or civil purposes) may change subsequent to original request for RAP-Back monitoring. Therefore, this transaction provides the capability to change (i.e., add, delete or replace) the ORIs to be notified of a positive hit. The RAP-Back Maintenance Request (Rbm) will be used to provide a revised RAP-Back Record Owner (RBRO) field that will replace the previous ownership of record for a particular subject in the database (the default value of RBRO will be recorded as the value in the CRI field if not otherwise indicated in the original RAP-Back Request). The response to the Rbm transaction will be a RAP-Back Maintenance Response (RBMR). Failed requests (e.g., Subject Record Identifier does not exist) will be handled via the ERRT transaction. The Rbm and RBMR TOTs are summarized in Table D-3. Edit specifications for the fields used may be found in Table C-1.

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### 3.16.3 Requirements for Logical Record Types

Request: The types and quantities of logical records required to submit a RAP-Back Request transaction are as follows:

X 1 - Type-1 Header Record

X 1 - Type-2 Record

X 0 - 10 Type-4 or Type 14 fingerprint images

Response: The response to a RAP-Back Request transaction will include the following logical records:

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X 1 - Type-1 Header Record  
X 1 - Type-2 Record

### 3.17 Other Biometric Services

The FBI, in consonance with the 2006 revision of the ANSI/NIST-ITL 1-2000 standard, will provide the users of its databases to submit biometric data for which there is not yet an identified ANSI/NIST record type specifically designated. The revised standard defines the Type-99 record as the Common Biometric Exchange Formats Framework (CBEFF).

The Type-99 tagged-field logical record shall contain and be used to exchange biometric data that is not supported by other ANSI/NIST-ITL logical records but does conform to data format standards developed by the INCITS M1 Biometrics committee and may be used with a format that conforms to INCITS 398-2005, the Common Biometric Exchange Formats Framework (CBEFF).

A CBEFF compliant Biometric Information Record (BIR) used by the Type-99 logical record is based on 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. 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 which is exchanged using the other logical records in this standard). The data carried in the Biometric Data field (99.999) is the BDB. The format of that data is identified by the field's BDB Format Owner and BDB Format Type as described by the CBEFF standard.

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The following paragraphs describe 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, Table 37 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 “GS” character. Annex L provides an example of the use of the Type-99 record.

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**Type-99 CBEFF biometric data record layout**

Ident	Cond Code	Field Number	Field Name	Char Type	Field size per occurrence		Occur count		Max byte count
					min	max	min	max	
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	--

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## APPENDIX A TRANSACTION PRIORITIES

Incoming electronic transactions to IAFIS must have a means to identify the required priority. The ANSI standard establishes nine priority levels in the Transaction Priority (PRY) field of the Type-1 record. The EBTS will use this field to identify the relative processing priority of incoming transactions (Level 1 is highest priority). The assignment of priorities will be as follows:

**Table A-1. Priorities**

<u>Level 1 – Rapid</u>	<u>Level 2 – Urgent Criminal?</u>	<u>Level 3 – High Civil<sup>9</sup></u>	<u>Level 4 – Routine Criminal</u>	<u>Level 5 – Secondary Criminal</u>	<u>Level 6 – Routine Civil<sup>3</sup></u>	<u>Level 7 – Non-Urgent<sup>9</sup></u>	<u>Level 8 – Extended<sup>9</sup></u>	<u>Level 9 – Delayed Non-Urgent</u>
<u>10 second avg response</u>	<u>2 minute avg response</u>	<u>15 minute avg response</u>	<u>15 minute avg response</u>	<u>2 hour avg response</u>	<u>24 hour avg response</u>	<u>Next business day</u>	<u>5 business days</u>	<u>30 day avg response</u>
<u>RPIS<sup>8</sup></u>	<u>TPIS</u>	<u>CPDR?</u>	<u>CAR</u>	<u>FIS<sup>2</sup></u>	<u>IRQ<sup>5</sup></u>	<u>CPD</u>	<u>CPDR?</u>	<u>CPNU</u>
	<u>TPFS</u>	<u>NFAP<sup>7</sup></u>	<u>CNA</u>	<u>IRQ<sup>5</sup></u>	<u>CPDR?</u>	<u>CPR</u>	<u>NFAP<sup>7</sup></u>	
	<u>TPRS<sup>7</sup></u>	<u>FANC</u>	<u>AMN</u>	<u>CFS<sup>4</sup></u>	<u>NFAP<sup>7</sup></u>	<u>IRQ<sup>6</sup></u>	<u>FANC</u>	
		<u>FAUF</u>	<u>DEK</u>	<u>ELR<sup>4</sup></u>	<u>FANC</u>	<u>IIE</u>	<u>FAUF</u>	
		<u>FIDO</u>	<u>DEU</u>	<u>LFIS<sup>4</sup></u>	<u>FAUF</u>	<u>FNDR</u>	<u>FIDO</u>	
		<u>NFUF</u>	<u>MPR</u>	<u>LFFS<sup>4</sup></u>	<u>FIDO</u>	<u>NNDR</u>	<u>NFUF</u>	
		<u>MAP</u>		<u>LFS<sup>4</sup></u>	<u>NFUF</u>	<u>DSPE</u>	<u>MAP</u>	
				<u>LPNQ</u>	<u>MAP</u>	<u>RBFD</u>		
				<u>LRSQ</u>		<u>RBM</u>		
				<u>LSMQ</u>		<u>PPE</u>		
				<u>MCS<sup>4</sup></u>				
				<u>SLCA</u>				
				<u>SLCD</u>				
				<u>SLCM</u>				
				<u>ULAC</u>				
				<u>ULD</u>				

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Level 1 - ¶ Urgent ... [9]

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1 Reserved.

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2 Ten-print fingerprint data files shall be updated within 2 hours of the update decision.

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3 Default value for Civil transactions will be set to Level 6 – Routine if not specified by the originator.

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4 Latent submission responses and latent remote search responses shall be transmitted within 1 day after initiation of search on IAFIS. Latent responses (i.e., LSR, NAR, ULM) for electronic submissions and remote responses (i.e., SLR) will be transmitted for the latent searches shown above.

5 The response time for retrieval of 100 fingerprint images or less shall not exceed one day. The response is transmitted in individual messages.

6 The response time for retrieval of 101 to 1000 fingerprint image sets may exceed 24 hours. The response is transmitted in individual messages.

7. For limited use. The response time shall be two minutes or less from time of receipt by IAFIS for 90 per cent, and three minutes for 100 per cent.

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8. \*The response time for the RPIS transactions shall not exceed an average of ten seconds (measured from the time received at the CJIS WAN or the Internet to the time sent back through the CJIS WAN or the Internet).

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9. The Priority for Civil TOTs will be set by the submission originator. Use of Priority 3 High Civil must be requested and approved by the FBI.

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\*The RPIS transactions are the only submissions initially received by IAFIS ETIS.

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Reassignment of priorities may be made based on workload conditions and special processing requests. Reassignment has no effect if IAFIS is not busy. An example of a valid reassignment would be a Criminal Ten-Print Submission (No Answer Necessary) transaction that is normally a 24-hour turnaround but can be reassigned (or submitted at higher priority) to Level 3 because the contributor is not affected. Additionally, urgent Level 2's may be received, in which case they are reassigned to Level 1, for such cases as certain AMN or special unknown deceased.

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**APPENDIX B**

**DESCRIPTORS AND FIELD EDIT SPECIFICATIONS  
FOR TYPE-1 LOGICAL RECORDS**

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The following paragraphs describe the data contained in fields for the Type-1 logical record. Each 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  $\frac{U}{S}$  separator, multiple subfields shall be separated by the  $\frac{R}{S}$  separator, and information fields shall be separated by the  $\frac{G}{S}$  separator. Immediately following the last information field in the Type-1 logical record, an  $\frac{F}{S}$  separator character shall be used to separate it from the next logical record. The information in this Appendix has been taken directly from the ANSI Standard, *Data Format for the Interchange of Fingerprint, Facial & Scar Mark & Tattoo (SMT) Information (ANSI/NIST-ITL 1-2000)*. Any information that is underlined is the FBI-specific requirements.

**CNT 1.003 - File content.** 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 RS 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 Standard Table 1).

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 records contained in this logical file. This number is also equal to the count of the remaining subfields of Field 1.03. The  $\frac{U}{S}$  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 and Type-10 records contained in the file shall each be comprised of two information items. The first information item shall be one or two characters chosen from one of the following: the ANSI Standard Table 1 that 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  $\frac{U}{S}$  character shall be used to separate the two information items. (Only Type-1, Type-2, Type-4, Type-7, Type-9 and Type-10 records will be accepted by the FBI.)

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**DAI 1.007 - Destination Agency Identifier.** 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.

**DCS 1.015 – Directory of Character Sets.** 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. **Table 9** lists the reserved named character sets and their associated 3-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**

<u>Character Set Index</u>	<u>Character set name</u>	<u>Description</u>
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

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**DOM 1.013 - Domain Name.** 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 on the IAFIS will accept the local date as valid up to 1 day forward (24 hours), in order to accommodate the variance between international time zones.

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**GMT 1.014 - Greenwich Mean Time.** 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. It is represented as "CCYYMMDDHHMMSSZ", a 15-character string that is the concatenation of the date with the GMT and concludes with a "Z". 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 tens and units values of the day of the month, the "HH" characters represent the hour, the "MM" the minute, and the "SS" represents the second. The complete date shall not exceed the current date.

**Deleted:** The date shall appear as eight digits 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 tens and units values of the day in the month. For example, 19920601 represents June 1, 1992. 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 1.01 shall begin with "1.01:", 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.** 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 respond 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 applies only to fingerprint image data. For those logical files that contain only Type-10 image records, this field shall be set to "00.00".

**NTR 1.012 - Nominal transmitting Resolution.** 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 applies only to fingerprint image data. For those logical files that contain only Type-10 image records, this field shall be set to "00.00".

**ORI 1.008 - Originating Agency Identifier.** 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-

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authorized ORI. **Note:** In a submission to the FBI, the submitting agency (usually the [CJS State Authority, or 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**).

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**PRY 1.006 - Transaction Priority.** When this 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 9, with "1" denoting the highest priority. The default value shall be "9" if no value is indicated.

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**TCN 1.009 - Transaction Control Number.** 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 ten-to-forty byte alphanumeric-special (ANS) field.

**TCR 1.010 - Transaction Control Reference.** 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 ten-to-forty byte alphanumeric-special (ANS) field.

**TOT 1.004 - Type of Transaction.** This **mandatory** field shall contain an identifier, designating the type of transaction and subsequent processing that this logical file should be given.

**VER 1.002 - Version Number.** This **mandatory** four-byte ASCII field shall be used to specify the version number of the ANSI Standard for Information Systems, ANSI/NIST-ITL 1-2000, *Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tatoo (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 entry in this field for this 1993 approved standard shall be "0200". The original 1986 standard would be considered the first version or "0100". With the addition of the Type-10 logical record by the Addendum to the ANSI Standard, *Data Format for the Interchange of Fingerprint, Facial & SMT Information (ANSI/NIST-ITL 1a-1997)*, the entry in this field shall be "0201."

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**TABLE B-1. FIELD LIST FOR TYPE-1 (TRANSACTION) LOGICAL RECORDS**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		NUMBER	CHARACTER SET
					MIN.	MAX.	MIN.	MAX.		
LEN	M	1.001	LOGICAL RECORD LENGTH	N	2	3	1	1	9	1.01:230<GS>
VER	M	1.002	VERSION	N	4	4	1	1	10	1.02:0200<GS>
CNT	M	1.003	FILE CONTENT	N	9	48	1	1	54	1.03:1<US>15<RS>00<RS>4<US>01<1US>02<RS>4<US>03<RS>4<US>04<US>05<RS>4<US>06<RS>07<RS>4<US>08<US>09<RS>4<US>S>4<US>11<RS>4<2<RS>S>14<
TOT	M	1.004	TYPE OF TRANSACTION	A	3	5	1	1	11	1.04:C
DAT	M	1.005	DATE	N	8	8	1	1	14	1.05:19
PRY	O	1.006	TRANSACTION PRIORITY	N	1	1	0	1	7	1.06:16
DAI	M	1.007	DESTINATION AGENCY IDENTIFIER	AN	9	9	1	1	15	1.07:D
ORI	M	1.008	ORIGINATING AGENCY IDENTIFIER	AN	9	9	1	1	15	1.08:N
TCN	M	1.009	TRANSACTION CONTROL NUMBER	ANS	10	40	1	1	46	1.09:12
TCR	O	1.010	TRANSACTION CONTROL REFERENCE	ANS	10	40	0	1	46	1.10:12
NSR	M	1.011	NATIVE SCANNING RESOLUTION	NS	5	5	1	1	11	1.01:20 . NS . 5 . 5 . 1 . 1 . 11 . 1.11:20.00<GS> . Period¶ . RESOLUTION¶
NTR	M	1.012	NOMINAL TRANSMITTING RESOLUTION	NS	5	5	1	1	11	1.12:20 Deleted: NTR . M . 1.12 . NOMINAL . NS . 5 . 5 . 1 . 1 . 11 . 1.12:20.00<FS> . Period¶ . TRANSMITTING ¶ . RESOLUTION
DOM	O	1.013	DOMAIN NAME	AN	*	*	1	1	*	1.013:N
GMT	O	1.014	GREENWICH MEAN TIME	N	16	16	1	1	22	1.014:2
DCS	O	1.015	DIRECTORY OF CHARACTER SETS	AN	*	*	1	*	*	1.015:0

\* 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 Character.

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. NS . 5 . 5 . 1 . 1 . 11 . 1.12:20.00<FS>  
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## APPENDIX C

### DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-2 LOGICAL RECORDS

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#### 1.0 User-Defined Data

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 IAFIS 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, which the FBI treats as being user-defined: ATN, SCO, OCA, SID, OCP, EAD, RES, CRI, IMA, 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. Occasional other restrictions are specified as required in this data dictionary. If the contributor supplies data in any of these fields in a submission or search, that data will be returned in the corresponding response.

The RAP, RET, REC, TAA, and ULF are 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.

#### 1.2 Date Fields

EBTS transactions will be Y2K compliant. Date fields are in accordance with that requirement. In general, the format for date fields is the following:

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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)

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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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## 2.0 Data Dictionary

**ACN 2.071 - ACTION TO BE TAKEN.** 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 ten-print responses. In response to Rapid Print Image Searches (RPIS), additional information will be provided regarding Red or Yellow values in the SRF field. This field will also be used to indicate action taken by the FBI in response to electronic document (e.g., disposition) submissions. Commas, hyphens, ampersands, slashes, number signs, and blanks are all allowed as special characters.

**AGR 2.023 - AGE RANGE.** An estimated age range may be entered using a pair of two-digit numbers. The first two digits shall represent the minimum age, and the second two the maximum. There shall be no separator character used between the ages.

**AKA 2.019 - ALIASES.** This 3-to-30 alpha-numeric special (ANS) field contains alias names of the subject. Up to ten aliases may be provided, separated from one another by the <sup>R</sup><sub>S</sub> 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:

1. Minimum length is three bytes in the following sequence: alpha or ampersand, comma, alpha.
2. A comma must be followed by the minimum of one alpha character.
3. Blank before or after comma is invalid.
4. 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.** This grouped field contains information about amputated or bandaged fingerprints in an EBTS submission. It is comprised of two subfields, Finger Number (**FGP**), and Amputated Or Bandaged Code (**AMPCD**). The two-character finger position code is followed by the <sup>U</sup><sub>S</sub> separator and the amputated or bandaged code. Multiple fingers shall be separated by the <sup>R</sup><sub>S</sub> separator. This field is to be used anytime there are fewer than ten printable fingers in a ten-print submission. A partially scarred finger should be printed. If the forwarding agency is not sure of the reason a finger's image is missing (for example, when the arresting agency did not specify a reason in its submission to the State Ident Bureau), the "UP" code should be used.

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Two characters represent each finger number as follows:

<u>Finger Position</u>	<u>FGP</u>
Right thumb	01
Right index	02
Right middle	03
Right ring	04

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Right little	05
Left thumb	06
Left index	07
Left middle	08
Left ring	09
Left little	10

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

<u>Descriptor</u>	<u>AMPCD</u>
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](#).

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2.084:03<sub>S</sub><sup>U</sup>XX<sub>S</sub><sup>R</sup>09<sub>S</sub><sup>U</sup>UP<sub>S</sub><sup>G</sup>

**ASL 2.047- ARREST SEGMENT LITERAL.** This field is made up of the Date of Offense (DOO) and the Arrest Offense Literal (AOL). The AOL is 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 date (DOO), if available. The DOO shall appear as an eight-digit number as specified in Section 1.2 of this Appendix. The DOO shall not exceed the current date, except when the submission originates from an international contributor located in a time zone earlier than the Eastern Time Zone. This date field shall contain the local date for the region submitting the request. Edit checks on the IAFIS will accept the local date as valid up to 1 day forward (24 hours), in order to accommodate the variance between international time zones. Up to 40 occurrences of the ASL are allowed. Each occurrence of the ASL shall be separated by the <sup>R</sup><sub>S</sub> separator character. The DOO shall be separated from the AOL by the <sup>U</sup><sub>S</sub> separator character. A DOO is prohibited without a corresponding AOL offense. If a DOO is not present, a <sup>U</sup><sub>S</sub> character separator shall still be used.

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

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2.047:19940915<sub>S</sub><sup>U</sup>DUI<sub>S</sub><sup>R</sup>19940920<sub>S</sub><sup>U</sup>POSSESSION OF FIREARMS<sub>S</sub><sup>G</sup>

**ATN 2.006 - "ATTENTION" INDICATOR.** 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.** This grouped field shall contain a candidate list. It is comprised of two subfields: [Universal Control Number \(UCN\)](#), and Name (NAM), separated by a <sup>U</sup><sub>S</sub> separator, will be provided for each candidate in the list. Commas, hyphens and blanks are

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allowed in the NAM subfield, as specified in the NCIC Code Manual. Each Universal Control Number and name set shall be separated from the next by the <sup>R</sup> separator character.  
Note: The UCN can contain an FBI number (FNU) if appropriate for that record.

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CCN 2.094 – COURT CASE NUMBER. Unique number assigned by the state or federal court system to identify a specific court event occurrence in a subject criminal history record. The CCN is an optional element that may assist in matching the submitted disposition data to the correct court cycle. If present in the submission, this field should be returned in the response. Any printable 7-bit ASCII character with the exception of a period (.) is acceptable. Embedded blanks are not permitted. CCN must not begin with a blank.

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**CFS 2.077 - CANCEL FINGERPRINT SEARCH.** This field will contain the information required to cancel a latent FP search previously submitted to IAFIS. 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 which are still pending will be canceled (searches completed or in-progress may not be canceled).

**CIN 2.010 - CONTRIBUTOR CASE IDENTIFIER NUMBER.** 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 <sup>U</sup> separator and the Contributor Case Identifier subfield (**CIN\_ID**) of up to 24 characters.

**CIX 2.011 - CONTRIBUTOR CASE IDENTIFIER EXTENSION.** 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.** 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 State Authority, 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. If in a Civil transaction there is a criminal IDENT against the subject and the first instance of the submitted CRI is not an authorized ORI, the ORI of the State Ident 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**.) 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

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agency is located, and the entire CRI shall validate to an NCIC-authorized ORI. For Federal agencies, the first two characters should coincide with its respective headquarters or office ORI. If an agency is submitting for an entity outside of its respective state, the channeling agency need only ensure that submitted CRIs represent valid ORIs that have been added to the IAFIS Computerized Contributor Address file.

**CRN 2.085 - CIVIL RECORD NUMBER.** A unique identifier assigned to each Civil Subject Record.

**CSF 2.476 – CASCADED SEARCH FLAG.** This two-digit alpha field is used to flag a Special Latent Cognizant 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 SLC File for candidate image comparison.

**CSL 2.051 - COURT SEGMENT LITERAL.** The CSL field is made up of the Court Disposition Date (CDD), the Court Offense Literal (COL), and the Other Court Sentence Provision Literal (CPL). The 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 1.2 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 on the IAFIS will accept the local date as valid up to 1 day forward (24 hours), in order to accommodate the variance between international time zones.

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The 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 CPL contains free-text information on sentence provisions. Up to 40 occurrences of the CSL are allowed. Each occurrence of the CSL shall be separated by the <sup>R</sup> separator character. A CDD (if available), followed by a COL, followed by a CPL each separated by a <sup>U</sup> separator character must be present for each occurrence of the CSL field. If the CDD is not available, a <sup>U</sup> separator character alone shall be used immediately after the field tag or preceding <sup>R</sup> separator character. The COL and CPL are always mandatory. When a provision (CPL) is included, then the date the provision was made (CDD) may optionally be given.

The following is an example of the CSL with multiple occurrences:

2.051:19940930<sup>U</sup>DUI<sup>U</sup>5 DAYS JAIL, PAY COURT COSTS<sup>R</sup>19940930<sup>U</sup>POSSESSION OF FIREARMS<sup>U</sup>10 DAYS JAIL, PAY COURT COSTS, \$50<sup>G</sup>

The following is an example of the CSL when the first of two CDDs was not available:

2.051:<sup>U</sup>DUI<sup>U</sup>5 DAYS JAIL, PAY COURT COSTS<sup>R</sup>19940930<sup>U</sup>POSSESSION OF FIREARMS<sup>U</sup>10 DAYS JAIL, PAY COURT COSTS, \$50<sup>G</sup>

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When submitting a custody Ten-print, use this field for custody information. In the event that there is no arrest information available when submitting a custody Ten-print, 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 Ten-print submissions.

**CSR 2.048 - CIVIL SEARCH REQUESTED INDICATOR.** This field shall contain a "Y" if a search of the Civil File is desired at the completion of Criminal File search.

**CST 2.061 - CASE TITLE.** 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.** This field contains the name of the country of which the subject is a citizen. Entry must be a valid country code from Code Table POB in Part IV of the NCIC State and Country Data Code Table.

**DOA 2.045 - DATE OF ARREST.** This field contains the date of arrest. The date shall appear as an eight-digit number in the same format as specified as specified in Section 1.2 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 on the IAFIS will accept the local date as valid up to 1 day forward (24 hours), in order to accommodate the variance between international time zones.

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**DOB 2.022 - DATE OF BIRTH.** This field contains the date of birth. It is entered as an eight-digit number in the same format as specified as specified in Section 1.2 of this Appendix. DOB is completely unknown, enter as 00000000. Partial DOBs are not allowed. DOB shall not exceed date of submission after Time-Zone adjustment.

**DOS 2.046 - DATE OF ARREST - SUFFIX.** 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.** This field contains the date that the subject was fingerprinted. The format shall be the same as that specified as specified in Section 1.2 of this Appendix. DPR shall not exceed date of submission, except when the submission originates from an international contributor located in a time zone earlier than the Eastern Time Zone. This date field shall contain the local date for the region submitting the request. Edit checks on the IAFIS will accept the local date as valid up to 1 day forward (24 hours), in order to accommodate the variance between international time zones.

**EAD 2.039- EMPLOYER AND ADDRESS.** 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.

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**EID 2.049- EMPLOYEE IDENTIFICATION NUMBER.** This field contains the employee identification number (e.g., user ID) for Federal agency employees granted privileges relating to Special Latent Cognizant (SLC) File searching or maintenance. Maintenance privileges include adding records, updating records, deleting record, or appending additional sets of fingerprint images to an existing SLC record.

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**ERS 2.075 - ELECTRONIC RAP SHEET.** This field shall contain the electronic rap sheet. The electronic rap sheet is an electronic copy of the Identification Record Report (IDRR) or the Non-Identification Response (NIDR) as are done today. The electronic rap sheet shall consist of lines with a maximum of 74 characters per line (text of 72 plus 2 line control characters).

**ETC 2.069 - ESTIMATED TIME TO COMPLETE.** 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.** This field is free-form text to elaborate on the RESPONSE CODE field.

**EYE 2.031- COLOR EYES.** For this field, the three-letter code from the following table is used to indicate the subject's color of eyes.

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

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**FBI - 2.014 FBI NUMBER.** 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 (see Section 3.6).

**FFN - 2.003 FBI FILE NUMBER.** 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 record keeping purposes, it is imperative that the remote user transmit this number if it is known.

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**FGP 2.074 - FINGER POSITION.** This field is used for latent submissions and remote searches and contains the fingerprint position code of the latent print(s) submitted. The following table is the finger position and code table:

<u>Finger Position</u>	<u>Code</u>
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 then the codes will be separated by the § character separator. For remote 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).

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**FIU 2.072 - FINGERPRINT IMAGE(S) UPDATED.** 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 6, "Finger Position Code", in Section 10 of "ANSI NIST-ITL 1-2000." Up to 13 individual finger numbers may be listed, separated from one another by the § 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.

**FNR 2.057- FINGER NUMBER(S) REQUESTED.** 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 5, "Finger Position Code", in Section 10 of "ANSI NIST-ITL 1-2000." Up to 13 individual finger image numbers may be listed, separated from one another by the § separator. If all 14 ten-print images are desired, 00 is shown instead of individual finger numbers. For transactions which allow only the ten rolled fingerprint images, when all ten images are desired, list each one separately, as 01<sup>R</sup> 02<sup>R</sup> ... 10<sup>G</sup>.

**FPC 2.033 - NCIC FINGERPRINT CLASSIFICATION.** If available, the NCIC fingerprint classification will be returned in the FBI's responses to latent submissions.

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The NCIC FPC is comprised of 20 characters. Two characters represent each finger as follows:

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<u>Positions</u>	<u>Finger</u>
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 codes apply:

<u>Pattern Type</u>	<u>Pattern Subgroup</u>	<u>NCIC FPC Code</u>
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	DI
	Meeting	DM
Outer	DO	

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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 might read:

2.033:12101116141109111713<sup>G</sup><sub>S</sub>

A combination of loops and whorls with an amputated right index finger might read:

2.033:12XX11CO14115906CI13<sup>G</sup><sub>S</sub>

\* 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 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 since the location of finger or fingers missing/amputated is not indicated.

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\*\*\* 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 Criminal History file.

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

**GEO 2.044 - GEOGRAPHIC AREA OF SEARCH.** This field indicates the geographic area to be searched. Entry may be any valid code from Code Table POB in Part VI of the NCIC State and Country Data Code Table. Each GEO shall be separated from the next by the <sup>R</sup><sub>S</sub> separator character. If inclusion of all 50 states is desired, this field shall remain blank.

**HAI 2.032 - HAIR COLOR.** In this field, the three-letter code from the following table is used to indicate the subject's color of hair.

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

**HGT 2.027 - HEIGHT.** 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. 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. Heights outside this range will be clamped at these limits.

**HTR 2.028 - HEIGHT RANGE.** 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. Heights outside this range will be clamped at these limits.

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**ICQ 2.056 - IDENTIFICATION COMMENTS.** 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.** 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.

**IMA 2.067 - IMAGE CAPTURE EQUIPMENT.** This free text field is used to log the make, model, and serial number of the equipment used to acquire images. It is a grouped field, comprised of three subfields: the Make (**MAK**), Model (**MODL**), and Serial Number (**SERNO**) of the acquisition device, separated by the  $\text{U}$  separator character.

**IMT 2.062 - IMAGE TYPE.** This field identifies the type of image (e.g., palm prints, 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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Fingerprint	1
Lower Joint	2
Palm Print	3
Toe Print	4
Foot Print	5

**LCN 2.012 - FBI LATENT CASE NUMBER.** 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 remote user transmits this number if it is known.

**LCX 2.013 - LATENT CASE NUMBER EXTENSION.** Defines extensions assigned by the FBI for each submission related to a Latent Case Number. The LCX shall be a four digit extension starting with "0001" 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.** 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.

<u>Military Branch</u>	<u>Code</u>
Army	A
Air Force	F
Navy	N
Marines	M
Coast Guard	G

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**MNU 2.017 - MISCELLANEOUS IDENTIFICATION NUMBER.** If there are any miscellaneous identification numbers, they shall be entered in this field. The format of the data shall be a two-letter identifying code, followed by a hyphen (-), followed by 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 § separator character.

<u>Identifying Agency</u>	<u>Code</u>
Air Force Serial Number	AF
<u>Non-Immigrant Admission Number</u>	<u>AN</u>

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<u>Alien Registration Number</u>	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
<u>Originating Agency Police or Identification Number</u>	<u>OA</u>
<u>Personal Identification Number (State Issued Only)</u>	<u>PI</u>
Passport Number (U.S. Only)	PP
Port Security Card Number	PS
Selective Service Number	SS
Veterans Administration Claim Number	VA

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**MSC 2.089 - MATCHSCORE.** This field defines the match score of a fingerprint from AFIS for a candidate list response.

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**MSG 2.060 - STATUS/ERROR MESSAGE.** This free-text field will contain reason, status or error messages that are generated as a result of the processing of a transaction and will be sent back to the submitter. For example, an Unsolicited Unsolved Latent Delete transaction will contain the reason for the deletion of a record. Each message will be separated by the  $\frac{R}{S}$  separator character.

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**NAM 2.018 - NAME.** This alpha-special field contains the name(s) of the subject. The 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 all allowed as special characters. Numerics are not allowed. Special values of NAM, to be entered in cases where the subject's name is not known, are:

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

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**NAM1 2.471 - NAME-ONE.** This alpha 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 names fields provide the ability to identify subjects cross-culturally by simply passing as many names as are required to identify a

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subject in the order that subject's name appears. NAM1 could represent a given name (e.g., 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 2.472 – NAME-TWO.** This alpha 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 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 2.473 – NAME-THREE.** This alpha 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 last name (or surname) for a culture using three names (e.g., Smith), or the third of a string of four or five names, possibly to indicate tribal, village, or parentage information. The maximum length of the NAM3 field is 50 characters.

**NAM4 2.474 – NAME-FOUR.** This alpha character field is the fourth of five name fields (see NAM1) specifically to facilitate the communication of long names in excess of the number of characters provided for by other name field definitions. This field could be the fourth name for a culture using four or five names (i.e., 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 2.475 – NAME-FIVE.** This alpha 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 (i.e., 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.** 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. The maximum value of NCR is currently 20.

**NDR 2.098 – NAME OF DESIGNATED REPOSITORY.** This field contains the numerical designation of the repository(ies) to be searched. Repository numbers are assigned by the FBI 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 will be separated by the <RS> separator. The following values are acceptable for NDR:

Table of NDR Values	
NDR Value	File Name
<u>1</u>	<u>Criminal Master File Records</u>
<u>2</u>	<u>Civil Records</u>

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<a href="#">3</a>	<a href="#">Unsolved Latent File</a>
<a href="#">4</a>	<a href="#">Major Case File Records</a>
<a href="#">5</a>	<a href="#">Latent Image File Records</a>
<a href="#">6</a>	<a href="#">Enhanced Terrorist Identification Service (ETIS) Records</a>
<a href="#">7</a>	<a href="#">Canada Real Time Identification (RTID)</a>
<a href="#">8</a>	<a href="#">Army Biometric Information System (ABIS)</a>
<a href="#">9-100</a>	<a href="#">Reserved for Future Use</a>
<a href="#">101-125</a>	<a href="#">FBI Special Latent Cognizant Files</a>
<a href="#">126-135</a>	<a href="#">Other Federal Organization Special Latent Cognizant Files</a>

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**NOT 2.088 - NOTE FIELD.** This free-text field is used to provide additional information regarding electronic latent submissions. [For latent search IDENT results feedback \(LSIR\), the NOTE 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 \(e.g., case related identifiers or point of contact information\).](#)

**OCA 2.009 - ORIGINATING AGENCY CASE NUMBER.** This field contains the one to twenty character Originating Agency Case Identifier (OCA) that has been assigned by the originating agency. This alphanumeric-special (ANS) field may contain any printable 7-bit ASCII character with the exception of the period (“.”). OCA must not begin with a blank.

**OCP 2.040 - OCCUPATION.** 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.** This field shall contain a “1” for a crime categorized as personal, a “2” for one categorized as property, and a “3” for one categorized as both.

**PAT 2.034 - PATTERN LEVEL CLASSIFICATIONS.** This grouped field contains information about the finger(s) pattern types. It is comprised of two subfields, Finger Number (FGP), and Pattern Classification Code (PATCL), [displayed as the two-character finger position code followed by the <sup>U</sup> 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. If multiple pattern types are used for reference for the same finger, they shall be separated from each other by the <sup>U</sup> separator. Multiple fingers shall be separated by the <sup>R</sup> 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).

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Two characters represent each finger as follows:

<u>Finger Position</u>	<u>Code</u>
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

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

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<u>Pattern</u>	<u>Code</u>
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 an example of the Pattern Level Classification field with only one pattern per finger:

2.034:01<sup>U</sup>WU<sup>R</sup>02<sup>U</sup>LS<sup>R</sup>03<sup>U</sup>LS<sup>R</sup>04<sup>U</sup>LS<sup>R</sup>05<sup>U</sup>LS<sup>R</sup>06<sup>U</sup>RS<sup>R</sup>07<sup>U</sup>RS<sup>R</sup>08<sup>U</sup>LS<sup>R</sup>09<sup>U</sup>RS<sup>R</sup>10<sup>U</sup>RS<sup>G</sup>

The following is an example of the Pattern Level Classification field with extra pattern references for some of the fingers:

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2.034:01<sup>U</sup>RS<sup>U</sup>WU<sup>U</sup>AU<sup>R</sup>02<sup>U</sup>RS<sup>U</sup>AU<sup>U</sup>WU<sup>R</sup>03<sup>U</sup>WU<sup>R</sup>04<sup>U</sup>RS<sup>R</sup>05<sup>U</sup>WU<sup>R</sup>06<sup>U</sup>LS<sup>R</sup>07<sup>U</sup>WU<sup>R</sup>08<sup>U</sup>AU<sup>R</sup>09<sup>U</sup>AU<sup>R</sup>10<sup>U</sup>WU<sup>U</sup>AU<sup>G</sup>

**PEN 2.078 - PENETRATION QUERY RESPONSE.** 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.

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**PHT 2.036 - "PHOTO AVAILABLE" INDICATOR.** If a photograph of the subject is available, this field shall contain a "Y"; otherwise, the field shall be omitted.

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**POB 2.020 - PLACE OF BIRTH.** The subject's place of birth shall be entered in this field. Indicate in this POB field the state (Mexican, United States), territorial possession, province (Canadian), or country of birth. The appropriate two-letter abbreviation shall be used as listed in Part IV of the NCIC State and Country Data Code Table. The criteria listed below shall also be considered when assigning POB:

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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 - "PALM PRINTS AVAILABLE" INDICATOR.** If palm prints are available, this field shall contain a "Y"; otherwise, the field shall be omitted.

**PRI 2.076 - PRIORITY.** This field shall indicate the priority of a latent search (from 1 to 3, with 1 the highest priority). The priority levels will generally correspond to the following crime types in descending order of priority:

- X Homicide, rape, and special circumstances
- X Kidnap, assault, and robbery
- X Arson, drugs, personal crimes, and property crimes

Federal agencies will determine their own priority schemes. No additional validation of priorities will be provided. IAFIS will not interrupt searches in progress upon receipt of higher priority searches.

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**PTD 2.063 - PERSON TYPE DESIGNATOR.** 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:

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<u>Code</u>	<u>Designation</u>
S	Suspect
V	Victim
E	Elimination
O	Other

**QDD 2.004 - QUERY DEPTH OF DETAIL.** 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").

**RAC 2.025 - RACE.** This field is used to indicate the race of the subject. Use the predominant race code from the following table:

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

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**RAP 2.070 - REQUEST FOR ELECTRONIC RAP SHEET.** The purpose of this field is to allow the contributors to optionally request an electronic rap sheet of the suspect. That rap sheet will be an IDRR if an Ident was made, and an NIDR if the submission resulted in a Non-Ident. A "Y" indicates that a rap sheet is desired and an omitted field or an "N" indicates that no electronic rap sheet should be returned with the response.

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**RBR 2.052 - RAP-BACK REQUEST.** This optional field in criminal and civil background submissions is used to request that the FBI retain and monitor for criminal activity the submitted subject information. Presence of this field indicates the desire of the submitting agency for FBI retention, monitoring, and reporting of this subject's record. The RBR field values will be as follows: "1" requests monitoring for criminal activity; "2" requests monitoring for civil activity;

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“3” requests monitoring for both criminal and civil activity. If a submission satisfying the requested monitoring criteria matches the subject’s record, the agency that requested the RAP-Back service will receive a RAP-Back Hit Notification.

**BRO 2.058 – RAP-BACK RECORD OWNER.** This field is used to indicate the owner of a RAP-Back subject record to receive the RAP-Back Hit Notification in the event of a criminal or civil hit. The default value for this field will be the ORI number provided in the CRI field of the original ten-print submission. A total of three (3) ORIs may be provided in this field.

**RCD1 2.091 - Ridge Core Delta One for Subpattern Classification.** This grouped field contains information about the finger(s) ridge counts and is used for Remote Native Mode Searches in conjunction with the Pattern Level Classification (PAT - 2.034). It is comprised of two subfields, Finger Number (**FGP**), and Ridge Count Number 1 (**RCN1**). The two-character finger position code as specified for the related Pattern Level Classification (PAT) is followed by the § 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 § separator. Multiple fingers, if provided, shall be separated by the § separator.

**RCD2 2.092 - Ridge Core Delta Two for Subpattern Classification.** This grouped field contains information about the finger(s) ridge counts and is used for Remote Native Mode Searches in conjunction with the Pattern Level Classification (PAT - 2.034). It is comprised of two subfields, Finger Number (**FGP**), and Ridge Count Number 2 (**RCN2**). The two-character finger position code as specified for the related Pattern Level Classification (PAT) is followed by the § 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, then they shall be separated from each other by the § separator. Multiple fingers, if provided, shall be separated by the § 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.

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

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<u>Pattern</u>	<u>Code</u>	<u>Ridge Count 1</u>	<u>Ridge Count 2</u>
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

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The following 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 U WU      R 02 U LS      R 03 U AU      R 04 U XX ... R 10 U WU  G
           S S      S S      S S      S S      S S      S S      S S
2.091:01 U 9      R 02 U 4      R 03 U 0      R 04 U 0      ... R 10 U 14  G
           S S      S S      S S      S S      S S      S S      S S
2.092:01 U 7      R 02 U 0      R 03 U 0      R 04 U 0      ... R 10 U 21  G
           S S      S S      S S      S S      S S      S S      S S

```

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 U RS U WU U AU R 07 U XX R 09 U AU U LS G
           S S S S S S S S S S S S S S S S S S
2.091:01 U 9 U 9 U 0 R 07 U 0 R 09 U 0 U 8 G
           S S S S S S S S S S S S S S S S S
2.092:01 U 0 U 11 U 0 R 07 U 0 R 09 U 0 U 0 G
           S S S S S S S S S S S S S S S S

```

**REC 2.082 - RESPONSE CODE.** A one-byte alpha field with allowable values of “Y” or “N”. 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”.

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**RES 2.041 - RESIDENCE OF PERSON FINGERPRINTED.** 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.

**RET 2.005 - RETENTION CODE.** 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, an “N” for no. For Civil submissions, RET is 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.

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**RFP 2.037 – REASON FINGERPRINTED.** 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 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

*Agencies must contact the FBI to use this option.*

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**RFR 2.095 – REQUEST FEATURES RECORD.** This one-character Alpha field is used to indicate a user’s desire to have IAFIS return a Type-9 features record associated with an image requested via an IRQ transaction. The features record can then be 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.”

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**RPR 2.096 – REQUEST PHOTO RECORD.** This one-character alpha field is used to indicate a user’s desire to have IAFIS return a Type-10 photo record if one is on file and disseminable. This field is used in conjunction with a Rapid Image Search transaction (RPIS).

**RSR 2.065 - REPOSITORY STATISTICS RESPONSE.** 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 32000 bytes of alphanumeric-special (ANS) data. The file has three fields containing: (1) a parameter name, (2) a parameter value; and (3) the fraction of the file having that value of the parameter. The fields are TAB delimited. NEWLINE characters separate records. A period character is used as a decimal point in the Fraction field. As 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.** 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.

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**SCNA 2.086 - AFIS SEGMENT CONTROL NUMBER.** This field contains a number used by AFIS/FBI to allow tracking of or reference to specific transactions. It is used, for example, to

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indicate the index number for individual records in the IAFIS Unsolved Latent File in the response to a Remote 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.** The purpose of this 9-to-19 character alphanumeric-special (ANS) field is to indicate that additional electronic responses need to be forwarded to agencies other than the contributor by the state identification bureau. The first nine characters shall be alphanumeric and shall contain the NCIC-assigned Originating Agency Identifier (ORI) for an agency who is to receive a copy of the response. At the option of the transmitting agency, the ORI may be expanded to a size of 19 characters, with 10 characters of alphanumeric-special

(ANS) data appended to the end to assist in proper routing of the responses. However, no <US> or <RS> separator may be used between the ORI and routing extension (use any printable ASCII special character (e.g., a slash) as a separator). Upon receiving an electronic response, the state identification bureau will forward a copy of the electronic response to each agency listed in the "SEND COPY TO" block.

**SDOB 2.477 – SUBMITTED DATE OF BIRTH.** 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.

**SEX 2.024- SEX.** This field is used to report the gender of the subject. The entry is a single character selected from the following table:

<u>If Following Condition Exists</u>	<u>Enter Code</u>
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.** This field contains any known state identification number. The format is the standard two-character abbreviation of the state name, followed by the number. Embedded blanks are not permitted. SIDs from NY, OR, or PA may contain a hyphen in the last position. The SID returned in a response is dependent upon the search results (see Section 3.6).

**SLCN 2.093 – SPECIAL LATENT COGNIZANT NUMBER.** This field contains the identification number for a record in a Special Latent Cognizant File.

**SMT 2.026 - SCARS, MARKS AND TATTOOS.** 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.

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**SNAM 2.478 – SUBMITTED NAME.** A name as provided in a submission that is determined to be different than the name of record of an identified subject.

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**SOC 2.016 - SOCIAL SECURITY ACCOUNT NUMBER.** 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.

**SRF 2.059 - SEARCH RESULTS FINDINGS.** This field is used in responses to submissions and contains a single character. 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 comparison results feedback, in addition to “I” or “N”, a Pending comparison result will be indicated with a “P.” For RPIS TOT, the SRF field will contain the following: R for Red, Y for Yellow or G for Green.

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**SSD 2.054 - CUSTODY OR SUPERVISORY STATUS START DATE.** 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 1.2 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 IAFIS will accept the local date as valid up to 1 day forward (24 hours), in order to accommodate the variance between international time zones. If custody data are submitted, all custody fields (SSD, OCA and SLE) must be present.

**TAA 2.087 - TREAT AS ADULT.** 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. The TAA returned in a response is the same as the one submitted.

**TSR 2.043 - TYPE OF SEARCH REQUESTED.** 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 FAUF and NFUF transactions as follows.

Type of Record	Code	Applicable Type of Transaction
Pre-commission candidate record with fingerprints	P	FAUF/NFUF
Civil submission in support of the National Child Protection Act of 1993	V	NFUF*

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\* When submitting fingerprints using 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.

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UCN 2.081 – UNIVERSAL CONTROL NUMBER. This conditional alphanumeric text field is used to identify the record with which the photo(s) or images being requested is(are) associated. If the record requested is other than a criminal record (i.e., civil record), this field is mandatory in the CPR and IRQ transactions.

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ULF 2.083 - UNSOLVED LATENT FILE. This one-character alpha field is used to designate whether a latent image or features record in search should be added to the Unsolved Latent File. Submit a “Y” for yes. For a no, omit the field.

WGT 2.029 - WEIGHT. 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.

WTR 2.030 - WEIGHT RANGE. If a range of weight is given, it shall be expressed as two 3-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	Field Name	Character	Minimum	Maximum	Example
Special Characters	Number	Type	Field Size	Field Size	
ACN SUBMIT TO	2.071 ACTION TO BE TAKEN Commas, hyphens,	ANS	0	300	2.071:IF NON-IDENT, UNSOLVED LATENT ampersands, slashes,
FILE<GS> number					
AGR	2.023 AGE RANGE	N	4	4	2.023:1619<GS>
AKA	2.019 ALIASES	ANS	3	30	2.019:JONES,
TONY<RS>JONES, A P<GS>		Hyphens, commas, and			
AMP	2.084 AMPUTATED OR BANDAGED	SET			
2.084:03<US>XX<RS>09<US>UP<FS>					
	FINGER NUMBER (FGP)	N	2	2	
	AMPUTATED OR BANDAGED CODE (AMPCD)	A	2	2	
ASL	2.047 ARREST SEGMENT LITERAL	SET			
2.047:DUI<RS>19940920<US>POSSESSION		Any printable 7-bit ASCII			OF FIREARMS<GS>
	DATE OF OFFENSE (DOO)	N	8	8	
	ARREST OFFENSE LITERAL (AOL)	ANS	1	300	
ATN	2.006 "ATTENTION" INDICATOR	ANS	3	30	2.006:SA J Q DOE, RM
11867<GS>	Any printable 7-bit ASCII				
CAN	2.064 CANDIDATE LIST	SET			
2.064:273849CA2<US>BROWN,JOHN		Commas, hyphens, or blanks			D<RS>83625NY<US>C are all allowed as special G<GS>
OLLINS,TERRY					
	UNIVERSAL CONTROL (UCN) NUMBER	AN	9	9	
	NAME (NAM)	AS	3	30	

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CCN 2.094 COURT CASE NUMBER ANS 0 20  
2.094:NY123456789<GS> Any printable 7-bit ASCII

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Under the character type column: A = Alpha; B = Binary; N = Numeric; S = Special Characters

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SEARCH . N . 1 . 10 . 2.077:3124<GS>  
CIN . 2.010 . CONTRIBUTOR CASE  
IDENTIFIER . SET . 2.010:INCIDENT  
. Any printable 7-bit ascii  
. NUMBER . NUMBER<US>1963BRT  
715<GS> . character is allowed.  
. CONTRIBUTOR CASE PREFIX  
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(CIN\_ID) . ANS . 1 . 24

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**TABLE C-1. FIELD EDIT SPECIFICATIONS FOR TYPE-2 ELEMENTS**

**Identifier Field Field Name Character Minimum Maximum Example**

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Identifier	Field Number	Field Name	Character Type	Minimum	Maximum	Example
CFS	2.077	CANCEL FP SEARCH	N	1	10	2.077:3124<GS>
CIN	2.010	CONTRIBUTOR CASE IDENTIFIER NUMBER	SET			2.010:INCIDENT
		NUMBER<US>1963BRT715<GS>				character is allowed.
		CONTRIBUTOR CASE PREFIX (CIN_PRE)	ANS	1	24	
		CONTRIBUTOR CASE ID (CIN_ID)	ANS	1	24	
CIX	2.011	CONTRIBUTOR CASE IDENTIFIER EXTENSION	N	2	4	2.011:23<GS>
CRI	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	2.073:NY0303000<GS>
CRN	2.085	CIVIL RECORD NUMBER	AN	9	9	2.085:V12345678<FS>
CSL	2.051	COURT SEGMENT LITERAL	SET			
		2.051:19940930<US>DUI<US>5 DAYS JAIL, S>POSSESSION OF DAYS JAIL, PAY COURT	Any printable 7-bit ASCII			PAY COURT COSTS<RS>19940930<U FIREARMS<US>10 COSTS, \$50<GS>
		COURT DISPOSITION DATE (CDD)	N	8	8	
		COURT OFFENSE LITERAL (COL)	ANS	1	300	
		OTHER COURT SENTENCE PROVISION LITERAL (CPL)	ANS	1	300	
CSF	2.476	CASCADED SEARCH FLAG	A	2	2	2.476:CR<GS>
CSR	2.048	CIVIL SEARCH REQUESTED INDICATOR	A	1	1	2.048:Y<GS>
CST	2.061	CASE TITLE	ANS	1	50	2.061:ARMED ROBBERY FIRST
		Any printable 7-bit ASCII				COUNTY<GS>
CTZ	2.021	COUNTRY OF CITIZENSHIP	A	2	2	2.021:US<GS>
DOA	2.045	DATE OF ARREST	N	8	8	2.045:19950324<GS>
DOB	2.022	DATE OF BIRTH	N	8	8	2.022:19770825<GS>
DOS	2.046	DATE OF ARREST-SUFFIX	A	1	1	2.046:L<GS>
DPR	2.038	DATE PRINTED	N	8	8	2.038:19950324<GS>
EAD	2.039	EMPLOYER AND ADDRESS	ANS	1	120	2.039:ACE
		CONSTRUCTION COMPANY,327	Any printable 7-bit ASCII			MAPLE AVE, character is allowed.
		BUFFALO,NY<GS>				

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Deleted: ERS . 2.075 . ELECTRONIC RAP SHEET . ANS . 4 . 200000 . 2.075:<rap sheet example here><GS> . Any printable 7-bit ascii

Deleted: ETC . 2.069 . ESTIMATED TIME TO COMPLETE . N . 1 . 4 . 2.069:6270<GS>

Deleted: EXP . 2.080 . RESPONSE EXPLANATION . ANS . 1 . 50 . 2.080:P HOTO NOT FOUND FOR SPECIFIED . Any printable 7-bit ascii

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Under the character type column: A = Alpha; B = Binary; N = Numeric; S = Special Characters

**TABLE C-1. FIELD EDIT SPECIFICATIONS FOR TYPE-2 ELEMENTS**

Identifier	Field Number	Field Name	Character Type	Minimum Field Size	Maximum Field Size	Example
ERS	2.049	EMPLOYEE IDENTIFICATION NUMBER	AN	1	10	2.049:USSS123456<GS>
ERS	2.075	ELECTRONIC RAP SHEET	ANS	4	200000	2.075:<rap sheet example here><GS>
ETC	2.069	ESTIMATED TIME TO COMPLETE	N	1	4	2.069:6270<GS>
EXP	2.080	RESPONSE EXPLANATION	ANS	1	50	2.080:PHOTO NOT FOUND FOR SPECIFIED DOA DOS<GS>
EYE	2.031	COLOR EYES	A	3	3	2.031:BLU<GS>
FBI	2.014	FBI NUMBER	AN	1	9	2.014:62760NY12<GS>
FFN	2.003	FBI FILE NUMBER	N	10	10	2.003:2537597861<GS>
FGP	2.074	FINGER POSITION	N	2	2	2.074:01<RS>02<RS>03<RS>04<RS>05<RS>06<RS>07<RS>08<RS>09<RS>10<GS>
FIU	2.072	FINGERPRINT IMAGE(S) UPDATED	AN	1	2	2.072:01<RS>02<RS>05<RS>07<RS>08<RS>11<RS>13<GS>
FNR	2.057	FINGER NUMBER(S) REQUESTED	N	2	2	2.057:01<RS>06<RS>10<GS>
FPC	2.033	NCIC FINGERPRINT CLASSIFICATION	AN	20	20	2.033:AAXXP158PMXM62POTTDI<GS>
GEO	2.044	GEOGRAPHICAL AREA OF SEARCH	A	2	2	2.044:MD<GS>
HAI	2.032	HAIR COLOR	A	3	3	2.032:BRO<GS>
HGT	2.027	HEIGHT	AN	3	3	2.027:601<GS>
HTR	2.028	HEIGHT RANGE	AN	6	6	2.028:508603<GS>
ICO	2.056	IDENTIFICATION COMMENTS	ANS	1	50	2.056:ARMED AND DANGEROUS<GS>
IDC	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	2.002:00<GS>
IMA	2.067	IMAGE CAPTURE EQUIPMENT	SET			2.067:DBI<US>1134<US>12345<GS>
		ORIGINATING FINGERPRINT READING SYSTEM MAKE (MAK)	ANS	1	25	
		ORIGINATING FINGERPRINT READING SYSTEM MODEL (MODL)	ANS	1	25	

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Deleted: ¶ . READING SYSTEM SERIAL . character is allowed¶ . NUMBER (SERNO)

Deleted: IMT . 2.062 . IMAGE TYPE (IF TYPE -7 IMAGES) . N . 1 . 2 . 2.062:1<RS>2<RS>3<RS>4<RS>5<GS>¶ LCN 2.012 FBI LATENT CASE NUMBER . ANS . 11 . 2.012:MX-12345678<GS> . First two characters may be ¶ . AN, followed by a hyphen. ¶ . Remaining characters are AN¶

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Under the character type column: A = Alpha; B = Binary; N = Numeric; S = Special Characters

**TABLE C-1. FIELD EDIT SPECIFICATIONS FOR TYPE-2 ELEMENTS**

Identifier	Field Number	Field Name	Character Type	Minimum	Maximum	Example
		ORIGINATING FINGERPRINT READING SYSTEM SERIAL NUMBER (SERNO)	ANS	1	50	
IMT	2.062	IMAGE TYPE (IF TYPE -7 IMAGES)	N	1	2	2.062:1<RS>2<RS>3<RS>4<RS>5<GS>
LCN	2.012	FBI LATENT CASE NUMBER	ANS	11	11	2.012:MX-12345678<GS> First two characters may be
LCX	2.013	FBI LATENT CASE EXTENSION	N	4	4	2.013:0001<GS>
LEN	2.001	LOGICAL RECORD LENGTH	N	2	7	2.001:909<GS>
MIL	2.042	MILITARY CODE	A	1	1	2.042:M<GS>
MNU	2.017	MISCELLANEOUS IDENTIFICATION	ANS	4	15	2.017:PP-1234567890P<GS> A hyphen is allowed as a NUMBER
MSC	2.089	MATCHSCORE	N	1	6	2.089:1200<GS>
MSG	2.060	STATUS/ERROR MESSAGE	ANS	1	300	2.060:MATCH MADE AGAINST SUBJECTS
		05/01/94. PLEASE STATE IF MATCH				FINGERPRINTS ON character is allowed. NOTIFY SUBMITTING RESULTS<GS>
NAM	2.018	NAME	AS	3	30	2.018:JONES, ANTHONY P<GS> Commas, hyphens and
NAM1	2.471	NAME-ONE	AS	1	50	2.471:BRIAN<GS>
NAM2	2.472	NAME-TWO	AS	1	50	2.472:DAVID<GS>
NAM3	2.473	NAME-THREE	AS	1	50	2.473:SMITH<GS>
NAM4	2.474	NAME-FOUR	AS	1	50	2.474:MAHFOUZ<GS>
NAM5	2.475	NAME-FIVE	AS	1	50	2.475:al ARABI<GS>
NCR	2.079	NUMBER OF CANDIDATE'S IMAGES RETURNED	N	1	2	2.079:10<GS>
NDR	2.098	NAME OF DESIGNATED REPOSITORY	N	1	3	2.098:1<GS>
NOT	2.088	NOTE FIELD	ANS	1	1000	2.088:NOTE<GS>

Under the character type column: A = Alpha; B = Binary; N = Numeric; S = Special Characters

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Deleted: ¶ . NUMBER . character with the exception ¶ . of the period is allowed.¶ OCP 2.040 OCCUPATION .ANS 1 . 50 2.040:PLUMBER<GS> . Any printable 7-bit ASCII

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Deleted: OFC 2.053 OFFENSE CATEGORY . N 1 1 2.053:1<GS>¶ PAT 2.034 PATTERN LEVEL . SET . 2.034:01<US>WU<RS>02<US>LS<RS>03<US>¶ . CLASSIFICATIONS .>LS<RS>04<US>S>LS<RS>05<US>LS<RS>06<US>US<RS>07<US>RS<RS>08<US>LS<RS>0¶ . 9<US>RS<RS>10<US>RS<G [ ... [10]

**TABLE C-1. FIELD EDIT SPECIFICATIONS FOR TYPE-2 ELEMENTS**

Identifier	Field Number	Field Name	Character Type	Minimum	Maximum	Example
OCA	2.009	ORIGINATING AGENCY CASE NUMBER	ANS	1	20	2.009:Q880312465<GS>

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OCP	2.040	OCCUPATION	ANS	1	50	2.040:PLUMBER<GS>
OFC	2.053	OFFENSE CATEGORY	N	1	1	2.053:1<GS>
PAT	2.034	PATTERN LEVEL	SET			
	2.034:01<US>WU<RS>02<US>LS<RS>03<US>	CLASSIFICATIONS				
		>LS<RS>04<US>LS<RS>05<US>LS<RS>06<				
						US>RS<RS>07<US>RS<
						9<US>RS<RS>10<US>R
						S<GS>
		FINGER NUMBER (FGP)	N	2	2	
		PATTERN CLASSIFICATION CODE (PATCL)	A	2	2	
PEN	2.078	PENETRATION QUERY RESPONSE	N	2	2	2.078:10<FS>
PHT	2.036	"PHOTO AVAILABLE" INDICATOR	A	1	1	2.036:Y<GS>
POB	2.020	PLACE OF BIRTH	A	2	2	2.020:VA<GS>
PPA	2.035	"PALM PRINTS AVAILABLE" INDICATOR	A	1	1	2.035:Y<GS>
PRI	2.076	PRIORITY	N	1	1	2.076:1<GS>
PTD	2.063	PERSON TYPE DESIGNATOR	A	1	1	2.063:S<GS>
QDD	2.004	QUERY DEPTH OF DETAIL	A	1	1	2.004:O<GS>
RAC	2.025	RACE	A	1	1	2.025:W<GS>
RAP	2.070	REQUEST FOR ELECTRONIC RAP SHEET	A	1	1	2.070:Y<GS>
RBR	2.052	REQUEST FOR RAP-BACK SERVICE	N	1	1	2.052:1<GS>
RBRO	2.058	RAP-BACK RECORD OWNER	ANS	1	9	2.058:NY0303000<GS>
RCD1	2.091	RIDGE CORE DELTA ONE FOR	SET			
	2.091:01<US>13<RS>02<US>6<RS>03<US>11	SUBPATTERN CLASSIFICATION				
		<RS>04<US>10<RS>05<US>11<RS>06<US>1				
						1<RS>07<US>12<RS>08
						<US>10<RS>09<US>
						13<RS>10<US>11<GS>

Under the character type column: A = Alpha; B = Binary; N = Numeric; S = Special Characters

### TABLE C-1. FIELD EDIT SPECIFICATIONS FOR TYPE-2 ELEMENTS

Identifier	Field Number	Field Name	Character Type	Minimum Field Size	Maximum Field Size	Example
		FINGER NUMBER (FGP)	N	2	2	
		RIDGE COUNT NUMBER 1 (RCN1)	N	1	2	
RCD2	2.092	RIDGE CORE DELTA TWO FOR	SET			
	2.092:01<US>10<RS>02<US>0<RS>03<US>0<	SUBPATTERN CLASSIFICATION				
		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>1
						0<US>0<GS>
		FINGER NUMBER (FGP)	N	2	2	
		RIDGE COUNT NUMBER 2 (RCN2)	N	1	2	

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RIDGE COUNT NUMBER 1 (RCN1) . N . 1 . 2

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FINGER NUMBER (FGP) . N . 2 . 2  
RIDGE COUNT NUMBER 2 (RCN2) . N . 1 . 2  
REC 2.082 . RESPONSE CODE . A . 1 . 1 . 2.082:Y<FS>  
RES 2.041 . RESIDENCE OF PERSON . ANS 1 . 120 . 2.041:5021 OAK LEAF DRIVE, BUFFALO NY, . Any printable 7-bit ascii  
FINGERPRINTED . USA., 19970925<GS> . character is allowed.  
RET 2.005 . RETENTION CODE . A . 1 . 1 . 2.005:Y<GS>  
RFP 2.037 . REASON FINGERPRINTED ANS 1 75 2.037 . CONSIDERING FOR . Commas, blanks, dashes,  
EMPLOYMENT<GS> . hyphens, and slashes are all  
allowed as special characters.

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RESPONSE . Tab (as field delimiter),  
Newline (as record separator)  
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REC	2.082	RESPONSE CODE	A	1	1	2.082:Y<FS>
RES	2.041	RESIDENCE OF PERSON	ANS	1	120	2.041:5021 OAK LEAF
DRIVE, BUFFALO NY,		Any printable 7-bit ASCII				
FINGERPRINTED						USA., 19970925<GS>
RET	2.005	RETENTION CODE	A	1	1	2.005:Y<GS>
RFP	2.037	REASON FINGERPRINTED	ANS	1	75	2.037:CONSIDERING
FOR		Commas, blanks, dashes,				EMPLOYMENT<GS>

RFR	2.095	REQUEST FEATURES RECORD	A	1	1	2.095:Y<GS>
RPR	2.096	REQUEST PHOTO RECORD	A	1	1	2.096:Y<GS>

RSR	2.065	REPOSITORY STATISTICS	ANS	1	32000	2.065:(ASCII TEXT
DATA)<GS>		Period (as decimal point),				RESPONSE

SAN	2.099	STATE ARREST NUMBER	ANS	0	20	2.099:NY123456789
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SCNA	2.086	AFIS SEGMENT CONTROL NUMBER	N	1	10	2.086:3124<FS>
SCO	2.007	SEND COPY TO	ANS	9	19	2.007:NY030025P<GS>
SDOB	2.477	SUBMITTED DATE OF BIRTH	N	8	8	2.477:10470123<GS>

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 SID . 2.015 . STATE IDENTIFICATION NUMBER . ANS . 3 . 10 . 2.015:NY1234 5678<GS> . NY, OR, and PA may use a ¶ . hyphen in the last position

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 . . . NUMBER

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**TABLE C-1. FIELD EDIT SPECIFICATIONS FOR TYPE-2 ELEMENTS**

Identifier	Field Number	Field Name	Character Type	Minimum Field Size	Maximum Field Size	Example
	<b>Special Characters</b>					
SEX	2.024	SEX	A	1	1	2.024:M<GS>
SID	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	2.015:NY12345678<GS>
SLCN	2.093	SPECIAL LATENT COGNIZANT NUMBER	AN	9	9	2.093:SLC1031234<GS>
SMT	2.026	SCARS, MARKS, AND TATTOOS	AS	3	10	2.026:MISS L
TOE	2.026	SCARS, MARKS, AND TATTOOS	AS	3	10	2.026:MISS L
SNAM	2.478	SUBMITTED NAME	AS	3	30	2.478:JONES, ANTHONY P<GS>
SLE	2.055	CUSTODY OR SUPERVISORY	ANS	1	300	2.055:RELEASED BY COURT
SOC	2.016	SOCIAL SECURITY ACCOUNT NUMBER	N	9	9	2.016:220565855<GS>
SRF	2.059	SEARCH RESULTS FINDINGS	A	1	1	2.059:N<GS>
SSD	2.054	CUSTODY OR SUPERVISORY STATUS - START DATE	N	8	8	2.054:19940930<GS>
TAA	2.087	TREAT AS ADULT	A	1	1	2.087:Y<FS>
TSR	2.043	TYPE OF SEARCH REQUESTED	A	1	1	2.043:P<GS>
UCN	2.081	UNIVERSAL CONTROL NUMBER	AN	9	9	2.081:410530890<GS>
ULF	2.083	UNSOLVED LATENT FILE	A	1	1	2.083:Y<FS>
WGT	2.029	WEIGHT	N	3	3	2.029:182<GS>
WTR	2.030	WEIGHT RANGE	N	6	6	2.030:175190<GS>

Under the character type column: A = Alpha; B = Binary; N = Numeric; S = Special Characters

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SLE 2.055 CUSTODY OR SUPERVISORY  
ANS 1 300 2.055:RELEASED BY COURT  
Any printable 7-bit ASCII

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STATUS LITERAL ORDER,19940930<GS>  
character is allowed. First ¶  
character must not be blank.¶  
SMT 2.026 SCARS, MARKS, AND TATTOOS AS 3 10 2.026:MISS L  
TOE<RS>TAT RF ARM<GS> Blanks are allowed as special ¶  
characters.¶

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N 9 9 2.016:220565855<GS>¶  
NUMBER¶

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SSD 2.054 CUSTODY OR SUPERVISORY  
N 8 8 2.054:19940930<GS>¶  
STATUS - START DATE¶  
TAA 2.087 TREAT AS ADULT A 1 1 2.087:Y<FS>¶  
TSR 2.043 TYPE OF SEARCH REQUESTED A 1 1 2.043:P<GS>¶  
ULF 2.083 UNSOLVED LATENT FILE A 1 1 2.083:Y<FS>¶  
WGT 2.029 WEIGHT N 3 3 2.029:182<GS>¶  
WTR 2.030 WEIGHT RANGE N 6 6 2.030:175190<GS>¶

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## APPENDIX D

### LOGICAL RECORD LAYOUTS FOR TYPE-TWO (TEN-PRINT)

#### 1.0 INTRODUCTION

Appendix D presents logical record layouts for Ten-Print transactions. The CAR and SRE transactions are presented in detail by Tables D-1 and D-2, respectively. Table D-3 is a summary representation of all Ten-Print transactions. Notes for Tables D-1 through D-3 are given in Table D-4. For detailed specifications of individual fields of these recordsets, see Appendix C.

#### 2.0 INTERPRETATION OF TABLE D-3

Table D-3 summarizes what formerly required 15 tables in Appendix 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. In all cases, the minimum number of occurrences for a mandatory field is one, and zero for an optional field. Finally, the superscripts in the upper left-hand corner of the cell is a reference to any note ([see Appendix D Reference Notes following Table D-3](#)) pertaining to the use of that field in the record.

**NOTE:** The remarks about the interpretation of Table D-3 also apply to Table E-1 and E-2.

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**TABLE D-1. FIELD LIST FOR TEN-PRINT, ANSWER-REQUIRED (CAR) TRANSACTION**

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IDENTIFIER EXAMPLE DATA	CONDITION SPECIAL	FIELD NUMBER CHARACTERS	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER BYTES INCLUDING CHARACTERS	EXAMPLE DATA
					MIN. SEPARATORS	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:909<GS>
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:00<GS>
RET	M	2.005	RETENTION CODE	A	1	1	1	1	8	2.005:Y<GS>
ATN	O	2.006	"ATTENTION" INDICATOR	ANS	3	30	0	1	37	2.006:SA J Q DOE, 11867
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P<
OCA	O	2.009	ORIGINATING AGENCY CASE NUMBER	ANS	1	20	0	1	27	2.009:Q880312465<
FBI	O <sup>5</sup>	2.014	FBI NUMBER	AN	1	9	0	5	56	2.014:6
SID	O <sup>6</sup>	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	0	1	17	2.015:3
SOC	O	2.016	SOCIAL SECURITY ACCOUNT NUMBER	N	9	9	0	4	46	2.016:220565855<C
MNU	O	2.017	MISCELLANEOUS IDENTIFICATION NUMBER	ANS	4	15	0	4	70	2.017:PP-12345678<
NAM	M	2.018	NAME	AS	3	30	1	1	37	2.018:JONES, ANT P<GS>
AKA	O	2.019	ALIASES	ANS	3	30	0	10	316	2.019:JONES, TONY<RS>:JONES P<GS>
POB	M	2.020	PLACE OF BIRTH	A	2	2	1	1	9	2.020:V

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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 D-1. FIELD LIST FOR TEN-PRINT, ANSWER-REQUIRED (CAR) TRANSACTION**

IDENTIFIER EXAMPLE DATA	CONDITION SPECIAL	FIELD NUMBER CHARACTERS	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER BYTES INCLUDING CHARACTERS	EXAMPLE DATA
					MIN. SEPARATORS	MAX.	MIN.	MAX.		

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**TABLE D-1. FIELD LIST FOR TEN-PRINT, ANSWER-REQUIRED (CAR) TRANSACTION**

IDENTIFIER OF	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD
					MIN.	MAX.	MIN.	MAX.	
ASL	M	2.047	ARREST SEGMENT LITERAL				1	40	12406
	O		DATE OF OFFENSE (DOO)	N	8	8	0	1	
	M		ARREST OFFENSE LITERAL (AOL)	ANS	1	300	1	1	
CSL	O	2.051	COURT SEGMENT LITERAL				0	40	24446
	O		COURT DISPOSITION DATE (CDD)	N	8	8	0	1	
	M		COURT OFFENSE LITERAL (COL)	ANS	1	300	1	1	
	M		OTHER COURT SENTENCE PROVISION LITERAL (CPL)	ANS	1	300	0	1	
SSD	O	2.054	CUSTODY OR SUPERVISORY STATUS - START DATE	N	8	8	0	1	15
SLE	O	2.055	CUSTODY OR SUPERVISORY STATUS	ANS	1	300	0	1	307
ICO	O	2.056	IDENTIFICATION COMMENTS	ANS	1	50	0	1	57

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 D-1. FIELD LIST FOR TEN-PRINT, ANSWER-REQUIRED (CAR) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD
					MIN.	MAX.	MIN.	MAX.	

										NUMBER
IMA	O	2.067	IMAGE CAPTURE EQUIPMENT		0	1	109	2.067:DBI<US>113	12345	Deleted: ascii
	M		ORIGINATING FINGERPRINT READING SYSTEM MAKE (MAK)	ANS	1	25	1	1		Formatted: Line spacing: 1.5 lines
	M		ORIGINATING FINGERPRINT READING SYSTEM MODEL (MODL)	ANS	1	25	1	1		Deleted: ¶
RAP	O	2.070	REQUEST FOR ELECTRONIC RAP SHEET	A	1	1	0	1	8	2.070:Y
CRI	M	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	1	3	36	2.073:N
AMP	C <sup>7</sup>	2.084	AMPUTATED OR BANDAGED				0	9	60	2.084:0
	M		FINGER NUMBER (FGP)	N	2	2	1	1		US>UP
	M		AMPUTATED OR BANDAGED CODE (AMPCD)	A	2	2	1	1		
TAA	O	2.087	TREAT AS ADULT	A	1	1	0	1	8	2.087:Y
NDR	O	2.098	NAME OF DESIGNATED REPOSITORY	N	1	3	0	4	22	2.098:Y
RBR	O	2.052	REQUEST RAP-BACK SERVICE	N	1	1	0	1	8	2.052:Y
RBRO	O	2.058	RAP-BACK RECORD OWNER	ANS	1	9	0	3	35	2.058:N
SAN	O	2.099	STATE ARREST NUMBER	ANS	1	20	0	1	27	2.099:Y
CCN	O	2.094	COURT CASE NUMBER	ANS	1	20	0	1	27	2.094:Y

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 D-1. FIELD LIST FOR TEN-PRINT, ANSWER-REQUIRED (CAR) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER
					MIN	MAX	MIN	MAX	
NAM1	O	2.471	NAME-ONE	ANS	1	50	1	1	57
NAM2	O	2.472	NAME-TWO	ANS	1	50	1	1	57
NAM3	O	2.473	NAME-THREE	ANS	1	50	1	1	57
NAM4	O	2.474	NAME-FOUR	ANS	1	50	1	1	57
NAM5	O	2.475	NAME-FIVE	ANS	1	50	1	1	57

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**TABLE D-2. FIELD LIST FOR TEN-PRINT RESPONSE, ELECTRONIC (SRE) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER
					MIN.	MAX.	MIN.	MAX.	
ACN	O	2.071	ACTION TO BE TAKEN	ANS	0	300	0	1	307
CRI	M	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	1	3	36
ERS	O	2.075	ELECTRONIC RAP SHEET	ANS	4	200000	0	1	200007
CRN	O <sup>8</sup>	2.085	CIVIL RECORD NUMBER	AN	9	9	0	1	16
TAA	O	2.087	TREAT AS ADULT	A	1	1	0	1	8
RBRO	O	2.058	RAP-BACK RECORD OWNER	ANS	1	9	0	3	35
UCN	O	2.081	UNIVERSAL CONTROL NUMBER	AN	9	9	0	1	16
NDR	O	2.098	NAME OF DESIGNATED	N	1	3	1	10	37
SAN	O	2.099	STATE ARREST NUMBER	ANS	1	20	0	1	27
CCN	O	2.094	COURT CASE NUMBER	ANS	1	20	0	1	27
NAM1	O	2.471	NAME-ONE	ANS	1	50	1	1	57
NAM2	O	2.472	NAME-TWO	ANS	1	50	1	1	57
NAM3	O	2.473	NAME-THREE	ANS	1	50	1	1	57
NAM4	O	2.474	NAME-FOUR	ANS	1	50	1	1	57
NAM5	O	2.475	NAME-FIVE	ANS	1	50	1	1	57
SDOB	O	2.477	SUBMITTED DATE OF BIRTH	N	8	8	1	1	15
SNAM	O	2.478	SUBMITTED NAME	AS	3	30	1	1	37

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 D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS**

**Part 1 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)**

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DSPE	DSPR	ERRT	FANC	FAUF	FIDO	FNDR	IIE	IER
2.001 LEN	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
2.005	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1

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**TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS**

**Part 1 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)**

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DSPE	DSPR	ERRT	FANC	FAUF	FIDO	FNDR	IIE	IER
2.027 HGT	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
2.029 WGT	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
2.031 EYE	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
2.032 HAI	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
2.034 PAT									1							1
2.035 PPA		1	1	1	1				1							1
2.036 PHT		1	1	1	1				1							1
2.037 RFP									1		1	1	1	1	1	1
2.038 DPR	1					1	1		1		1	1	1	1	1	1
2.039 EAD		1	1	1	1	1			1		1	1	1	1	1	1
2.040 OCP		1	1	1	1				1		1	1	1	1	1	1
2.041 RES	1	1	1	1	1	1	1		1		1	1	1	1	1	1
2.042 MIL									1		1	1	1	1	1	1
2.043 TSR				1	1				1			1	1	1	1	1
2.045 DOA		1	1	1	1			1							1	1
2.047 ASL		2 40	2 40	2 40	2 40				1							1
2.048 CSR	1						1		1							1
2.051 CSL		40	40	40	40			40								1

NOTE: Shaded cells represent optional elements  
 Unshaded cells represent mandatory elements  
 Blank cells indicate the element is not used

**TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS**

**Part 1 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)**

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DSPE	DSPR	ERRT	FANC	FAUF	FIDO	FNDR	IFE	IFE
2.054 SSD		1	1	1	1			1								
2.055 SLE		1	1	1	1			1								
2.056 ICO	1	1	1	1	1	1	1	1								
2.057 FNR								1								
2.059 SRF								1								
2.060 MSG										11						
2.064 CAN								1								
2.067 IMA	1	1	1	1	1	1	1	1			1	1	1	1		
2.070 RAP	1	1		1	1	1	1	1			1	1	1	1		
2.071ACN								1								
2.073 CRI	3	3	3	3	3	3	3	3		3	3	3	3	3		
2.075 ERS								1								
2.084 AMP	7	7	7	7	7	7	7	7			7	7	7	7	7	7
2.085 CRN								1								
2.087 TAA		1	1	1	1			1								
2.091 RCD1								1								
2.092 RCD2								1								
2.098 NDR		4	4	4	4			1								
2.052 RBR		1		1	1						1	1		1		
2.058 RBRO		3		3	3						3	3		3		
2.081 UCN																

NOTE: Shaded cells represent optional elements. Unshaded cells represent mandatory elements. Blank cells indicate the element is not used

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**TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT  
TRANSACTIONS**

**Part 1 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)**

Tag Elem	AMN	CAR	CNA	CPDR	CPNU	DEK	DEU	DSPE	DSPR	ERRT	FANC	FAUF	TIDO
<a href="#">2.099 SAN</a>		1	1					1	1				
<a href="#">2.094 CCN</a>		1	1					1	1				
<a href="#">2.471 NAM1</a>		1	1					1	1	1			
<a href="#">2.472 NAM2</a>		1	1					1	1	1			
<a href="#">2.473 NAM3</a>		1	1					1	1	1			
<a href="#">2.474 NAM4</a>		1	1					1	1	1			
<a href="#">2.475 NAM5</a>		1	1					1	1	1			
<a href="#">2.476 CSE</a>													
<a href="#">2.477 SDOB</a>													
<a href="#">2.478 SNAM</a>													

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**TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS**

**Part 2 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)**

Tag Elem	NFAP	NFUF	NNDR	PPE	PPR	RBV	RBVR	RBFD	RBHN	RBDR	RBM	RBMR	RPIS	RPISR	SRE	SRT	
2.001 <a href="#">LEN</a>	1	1	1	1	1	1							1	1	1	1	Formatted: Line spacing: 1.5 lines Formatted ... [178] Formatted Table Formatted: Line spacing: Double Formatted ... [179]
2.002 <a href="#">IDC</a>	1	1	1	1	1	1							1	1	1	1	Formatted: Line spacing: Double Formatted ... [180]
2.005 <a href="#">RET</a>	1	1	1	1	1												Formatted: Line spacing: Double Formatted ... [181]
2.006 <a href="#">ATN</a>	1	1	1	1	1	1							1	1	1	1	Formatted: Line spacing: Double Formatted ... [182]
2.007 <a href="#">SCO</a>	9	9	9	9	9	9									9	9	Formatted: Line spacing: Double Formatted Table Formatted ... [183]
2.009 <a href="#">OCA</a>	1	1	1	1	1	1							1		1	1	Formatted: Line spacing: Double Formatted ... [184]
2.014 <a href="#">FBI</a>	5	5	5	5	1	1									8	1	Formatted: Line spacing: Double Formatted ... [185]
2.015 <a href="#">SID</a>	1	1		1	1				1					1	1	1	Formatted: Line spacing: Double Formatted ... [186]
2.016 <a href="#">SOC</a>	4	4	4	4	4	4											Formatted: Line spacing: Double Formatted Table Formatted ... [187]
2.017 <a href="#">MNU</a>	4	4	4	4	4	4											Formatted: Line spacing: Double Formatted ... [188]
2.018 <a href="#">NAM</a>	1	1	1	1	1	1									1	1	Formatted: Line spacing: Double Formatted Table Formatted ... [189]
2.019 <a href="#">AKA</a>	10	10	10	10	10	10											Formatted: Line spacing: Double Formatted ... [190]
2.020 <a href="#">POB</a>	1	1	1	1	1	1											Formatted: Line spacing: Double Formatted ... [191]
2.021 <a href="#">CTZ</a>	1	1	1	1	1	1											Formatted: Line spacing: Double Formatted ... [192] Formatted ... [193]
2.022	5	5	5	1	1	1											Formatted: Tabs: 37 pt, Left Deleted: 7.1... May 2, 15 ... [194]

<a href="#">DOB</a>																				
<a href="#">2.024 SEX</a>	<a href="#">1</a>																			
<a href="#">2.025 RAC</a>	<a href="#">1</a>																			
<a href="#">2.026 SMT</a>	<a href="#">10</a>																			

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**TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS**  
**Part 2 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)**

Tag Elem	NEAP	NFUF	NNDR	PPE	PPR	RBV	RBVR	RBFD	RBHN	RBDR	RBM	RBMR	RPIS
2.027 HGT	1	1	1	1	1	1							
2.029 WGT	1	1	1	1	1	1							
2.031 EYE	1	1	1	1	1	1							
2.032 HAI	1	1	1	1	1	1							
2.034 PAT													
2.035 PPA													
2.036 PHT													
2.037 RFP	1	1	1	1	1								
2.038 DPR	1	1	1	1	1	1							
2.039 EAD	1	1	1	1	1	1							
2.040 OCP	1	1	1	1	1	1							
2.041 RES	1	1	1	1	1	1							
2.042 MIL			1	1									
2.043 TSR	1	1	1										
2.045 DOA				1					1				
2.047 ASL				1					1				
2.048 CSR				1					1				
2.051 CSL				1					1				

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## TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS

### Part 2 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)

Tag Elem	NFAP	NFUF	NNDR	PPE	PPR	RBV	RBVR	RBFD	RBHN	RBDR	RBM	RBMR	RPIS	RPISB	SRF
2.054 SSD															
2.055 SLE															
2.056 ICO															
2.057 FNR															
2.059 SRF														1	1
2.060 MSG															
2.064 CAN															
2.067 IMA	1	1	1												
2.070 RAP	1	1	1												
2.071ACN														1	1
2.073 CRI	3	3	1	3	3	3							1	1	1
2.075 ERS															
2.084 AMP	7 9	7 9	7 9	1 0	1 0										
2.085 CRN															
2.087 TAA															
2.091 RCD1															
2.092 RCD2															
2.098 NDR															
2.052 RBR	1	1	1												
2.058 RBRO	3	3	3			3	3	3	3	3					
2.081 UCN															

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**TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS**  
**Part 2 of 2 (Maximum Occurrences of Each Element for Each Logical Record Type)**

Tag Elem	NFAP	NFUF	NNDR	PPE	PPR	RBV	RBVR	RBFD	RBHN	RBDR	RBM	RBMR	RPIS					
2.099 SAN																		
2.094 CCN																		
2.096 RPR													1					
2.471 NAM1																		
2.472 NAM2																		
2.473 NAM3																		
2.474 NAM4																		
2.475 NAM5																		
2.476 CSF																		
2.477 SDOB																		
2.478 SNAM																		

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APPENDIX D REFERENCE NOTES

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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.
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 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 an Ident against a subject in the Civil file only.
9. CSL and ASL must be included where submission includes SLE.

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**TABLE D-1. FIELD LIST FOR A TYPE 2 CAR LOGICAL RECORD**

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IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES	MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DATA	
					MIN.	MAX.				
ASL	M	2.047	ARREST SEGMENT LITERAL				1	40	12406	2.047:199409151997<US>DUI<RS>190<US>POSSESSIO<FIREARMS<GS>
	O		DATE OF OFFENSE (DOO)	N	8	8	0	1		
	M		ARREST OFFENSE LITERAL (AOL)	ANS	1	300	1	1		
CSL	O	2.051	COURT SEGMENT LITERAL				0	40	24446	2.051:19940930<US<US>5 DAYS JAIL<COURT<COSTS<RS>19940<S>POSSESSIO<O<FIREARMS<US>1<DAYS JAIL, PAY<COURT COSTS, \$5
	O		COURT DISPOSITION DATE (CDD)	N	8	8	0	1		
	M		COURT OFFENSE LITERAL (COL)	ANS	1	300	1	1		
	M		OTHER COURT SENTENCE PROVISION LITERAL (CPL)	ANS	1	300	0	1		
SSD	O	2.054	CUSTODY OR SUPERVISORY STATUS START DATE	N	8	8	0	1	15	2.054:19940930<G5

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 E**

**TABLE E-1. SUMMARY FIELD LISTS FOR LATENT TRANSACTIONS**  
(Part 1 of 2)

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

Tag	Elem	LFS	CFS	MCS	ELR	LSR	NAR	ERRL	LFIS	LFFS	LPNQ	SRL	LPNR	ULM
2.001	LEN	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
2.003	FFN	1	1	1	1	1	1	1	1					
2.004	QDD													
2.005	RET		1	1										
2.006	ATN	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		
2.010	CIN	5	5	5	5	5	5	5	1	1	1	1	1	1
2.011	CIX	5	5	5	5	5	5	5	1	1	1	1	1	1
2.012	LCN	1	1	1	1	1	1	1	7	1	7	1	1	1
2.013	LCX	1	1	1	1	1	1	1	7	1	7	1	1	1
2.014	FBI		1	1		5	1							1
2.015	SID		1	1		5	5							
2.016	SOC		4	4		6	4							
2.017	MNU	4	4	4	4	6	4	4						
2.018	NAM		1	1		5	1							1
2.019	AKA		10	10		6	10							10
2.020	POB	1	1	1		5	1		1	1	1			1
2.021	CTZ		1	1		6	1							1
2.022	DOB		5	5		6	5							5
2.023	AGR	1							1	1	1			
2.024	SEX	1	1	1		6	1		1	1	1			1
2.025	RAC	1	1	1		6	1		1	1	1			1
2.026	SMT	10	10	10		6	10		10	10	10			10
2.027	HGT		1	1		6	1							1
2.028	HTR	1							1	1	1			
2.029	WGT		1	1		6	1							1
2.030	WTR	1							1	1	1			
2.031	EYE	1	1	1		6	1		1	1	1			1
2.032	HAI	1	1	1		6	1		1	1	1			1
2.033	FPC						1							
2.034	PAT	1	1	1		6	1		1	1	1			
2.035	PPA		1				1							1
2.036	PHT		1	1			1							1
2.037	RFP			1										
2.038	DPR		1	1	1	1								1
2.039	EAD		1	1										
2.040	OCP		1	1										
2.041	RES		1	1										
2.042	MIL		1	1	1									
2.044	GEO	5				5			5	5	5			
2.045	DOA		4	1	1	1								
2.046	DOS		1	1	1									
2.047	ASL	3	40	40	3	40	3	40						

NOTE: Shaded cells represent optional elements.

Unshaded cells represent mandatory elements.

Blank cells indicate the element is not used.

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**TABLE E-1. SUMMARY FIELD LISTS FOR LATENT TRANSACTIONS  
(Part 1 of 2)**

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

Tag	Elem	LFS	CFS	MCS	ELR	LSR	NAR	ERRL	LFIS	LFES	LPNQ	SRL	LPNR	ULM
2.051	CSL		<sup>10</sup> 40	<sup>10</sup> 40										
2.053	OFC	1	1	1	1									
2.054	SSD		1	1										
2.055	SLE		<sup>10</sup> 1	<sup>10</sup> 1										
2.056	ICO		<sup>4</sup> 1	1										
2.059	SRF					1								
2.060	MSG					1	1	11						1
2.061	CST	1	1	1	1	1	1	1						
2.062	IMT	10	10	10	10									
2.063	PTD	1	1											
2.064	CAN											99		
2.065	RSR													
2.067	IMA	1	1	1	1				1					
2.069	ETC													
2.070	RAP	1	1	1	1									
2.071	ACN					1	1							
2.073	CRI	3	3	3	3	3	3	3	3	3	3	3	3	3
2.074	FGP	<sup>8</sup> 10		1	<sup>8</sup> 10				<sup>8</sup> 10	<sup>8</sup> 10	10	99		<sup>8</sup> 10
2.075	ERS				1									
2.076	PRI	1							1	1				
2.077	CFS													
2.078	PEN												1	
2.079	NCR								1	1		1		
2.083	ULF	1							1	1		1		
2.086	SCNA											1		1
2.088	NOT	1	1	1	1									
2.089	MSC											99		
2.091	RCD1								1	1	1			
2.092	RCD2								1	1	1			
2.098	NDR								4	4				
2.049	EID								1	1	1			
2.093	SLCN													
2.476	CSF													

NOTE: Shaded cells represent optional elements  
Unshaded cells represent mandatory elements  
Blank cells indicate the element is not used

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**TABLE E-2. SUMMARY FIELD LISTS FOR LATENT TRANSACTIONS  
(Part 2 of 2)**

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

Tag	Elem	ULD	ULAC	ULAR	ULDR	UULD	LRSQ	LSMQ	LRSR	LSMR	ERRA	LSIR	SLCA	SLCD	SLCM
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														
2.004	QDD							1		1					
2.005	RET														
2.006	ATN	1	1	1	1	1	1	1	1	1	1				
2.007	SCO	9	9					9		9	9				
2.010	CIN	1	1	1	1	1		200		200		1			
2.011	CIX	1	1	1	1	1		200		200		1			
2.012	LCN	1	1	1	1	1						1			
2.013	LCX	1	1	1	1	1									
2.014	FBI											1			
2.015	SID														
2.016	SOC														
2.017	MNU														
2.018	NAM														
2.019	AKA														
2.020	POB														
2.021	CTZ														
2.022	DOB														
2.023	AGR														
2.024	SEX														
2.025	RAC														
2.026	SMT														
2.027	HGT														
2.028	HTR														
2.029	WGT														
2.030	WTR														
2.031	EYE														
2.032	HAI														
2.033	FPC														
2.034	PAT														
2.035	PPA														
2.036	PHT														
2.037	RFP														
2.038	DPR														
2.039	EAD														
2.040	OCP														
2.041	RES														
2.042	MIL														
2.044	GEO														
2.045	DOA														
2.046	DOS														
2.047	ASL														

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**TABLE E-2. SUMMARY FIELD LISTS FOR LATENT TRANSACTIONS  
(Part 2 of 2)**

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

Tag	Elem	ULD	ULAC	ULAR	ULDR	UULD	LRSQ	LSMQ	LRSR	LSMR	ERRA	LSIR	SLCA	SLCD	SLCM
2.051	CSL														
2.053	OFC														
2.054	SSD														
2.055	SLE														
2.056	ICO														
2.059	SRF											1			
2.060	MSG					1					11				
2.061	CST														
2.062	IMT														
2.063	PTD														
2.064	CAN														
2.065	RSR							1							
2.067	IMA														
2.069	ETC									200					
2.070	RAP														
2.071	ACN														
2.073	CRI	3	3	3	3	3	3	3	3	3	3	3			
2.074	FGP														
2.075	ERS														
2.076	PRI							200		200					
2.077	CFS							200		200					
2.078	PEN														
2.079	NCR														
2.083	ULF														
2.086	SCNA	1	1	1	1	1		200		200					
2.088	NOT											1			
2.089	MSC														
2.091	RCD1														
2.092	RCD2														
2.098	NDR												1	1	1
2.049	EID												1	1	1
2.093	SLCN												1	1	1
2.476	CSF												1	1	1

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1. If the originator of this TOT is the FBI, then field is mandatory.
2. The DOO portion of this field is optional, but should be provided if known.
3. The AOL field for this TOT is optional. If provided, the DOO portion of this field is optional, but should be provided if known.
4. Mandatory whenever comparison fingerprints are of a subject.
5. This field will be returned in the response if subject identification is made.
6. Field is optional unless Ident has been made and subject criminal history was requested in submission.
7. If known, mandatory to enter.
8. If more than one fingerprint image is submitted, this field is mandatory.
9. Either CIN/CIX or SCNA is mandatory if QDD = "C".
10. ASL must be included where submission includes CSL. CSL and ASL must be included where submission includes SLE.

11. SRF for LSIR transactions will contain "IDENT" (I), "Non-IDENT" (N), or "PENDING" (P)

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## APPENDIX F

### IAFIS IMAGE QUALITY SPECIFICATIONS

#### 1.0 SCOPE AND PURPOSE

These specifications apply to: (1) systems which scan and capture fingerprints<sup>4</sup> in digital, softcopy form, including hardcopy scanners such as ten-print 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 insuring 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: (1) 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 IAFIS 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 principle function is to produce life-size prints of digital fingerprints that have met IAFIS 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 sections 2 and 3 for fingerprint scanners, section 4 for fingerprint printers, and section 5 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.

<sup>4</sup> 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.

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 8 bits per pixel (256 gray-levels). The magnitude of "R" is either 500 pixels per inch (ppi) or 1000 ppi; a scanner may be certified at either one, or both, of these resolution levels. The scanner's true optical resolution shall be greater than or equal to R.

A scanner intended to scan standard 8.0 by 8.0 inch ten-print 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. Table 2-1 gives the preferred capture sizes, applicable to both card scan and live scan systems. Scanner capture dimensions should never be less than 90% of those given in Table 2-1, with the exception that when scanning fingerprint cards, the card form dimensions take precedence. Maximum capture sizes may be found in [EBTS] and [ANSI/NIST].

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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).

### 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 livescan 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.

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## 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% of the tested cases in each printblock measurement area and in each of the two orthogonal directions.

for 500 ppi scanner:

$$D \leq 0.0007, \quad \text{for } 0.00 < X \leq 0.07$$

$$D \leq 0.01X, \quad \text{for } 0.07 \leq X \leq 1.50$$

for 1000 ppi scanner:

$$D \leq 0.0005, \quad \text{for } 0.00 < X \leq 0.07$$

$$D \leq 0.0071X, \quad \text{for } 0.07 \leq X \leq 1.5$$

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% of the tested cases in each printblock measurement area and in each of the two orthogonal directions.

### Background:

In this section 2.2, the phrase: *multiple, parallel bar target* refers to a Ronchi target, which consists of an equal-width bar and space square wave pattern at 1.0 cy/mm, with high contrast ratio and fine edge definition. This target is also used to verify compliance with the scanner resolution requirement given in section 2.0.

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  $\pm 1.0\%$  for distances between 0.07 and 1.5 inches, and a constant  $\pm 0.0007$  inches (1/3 pixel) for distances less than or equal to 0.07 inches. The 1000 ppi requirement corresponds to a positional accuracy of  $\pm 0.71\%$  for distances between 0.07 and 1.5 inches, and a constant  $\pm 0.0005$  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.

Along-bar geometric accuracy is measured along the length of an individual Ronchi target bar in the image. For a given horizontal bar, for example, the maximum difference between bar center locations (in vertical direction), determined from bar locations measured at multiple points along a 1.5" bar segment length, is compared to the maximum allowable difference requirement (analogously for vertical bar). This requirement is to ensure that pincushion or barrel distortion over the primary area of interest, i.e., a single fingerprint, is not too large.

### 2.3 Spatial Frequency Response

#### Requirements:

The spatial frequency response shall be measured using a continuous tone sine wave target, denoted as 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 2-1, 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 2-2.

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
1	0.905	0.925
2	0.797	0.856
3	0.694	0.791
4	0.598	0.732
5	0.513	0.677
6	0.437	0.626
7	0.371	0.579
8	0.312	0.536
9	0.255	0.495
10	0.200	0.458
12		0.392
14		0.336
16		0.287
18		0.246
20		0.210

Note: Testing at 7 and 9 cy/mm is not a requirement if these frequency patterns are absent from the sine wave target.

**Table F-3. CTF Requirement Using Bar Target (Nominal Test Frequencies)**

Frequency (cy/mm)	Minimum Modulation for 500 ppi Scanner	Minimum Modulation for 1000 ppi Scanner
1.0	0.948	0.957
2.0	0.869	0.904
3.0	0.791	0.854
4.0	0.713	0.805
5.0	0.636	0.760
6.0	0.559	0.716
7.0	0.483	0.675
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

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It is not required that the bar target contain the exact frequencies listed in Table 2-2; 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 2-2.

500 ppi scanner, for  $f = 1.0$  to  $10.0$  cy/mm:

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

1000 ppi scanner, for  $f = 1.0$  to  $20.0$  cy/mm:

$$CTF = -1.85487E - 05 * f^3 + 1.41666E - 03 * f^2 - 5.73701E - 02 * f + 1.01341 \quad (\text{eq.2-2})$$

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:

$$\text{modulation} = (\text{maximum} - \text{minimum}) / (\text{maximum} + \text{minimum})$$

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:

$$MTF = \text{peak image modulation} / \text{target modulation}$$

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:

$$CTF = \text{peak image modulation} / (\text{zero frequency image modulation})$$

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 % 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.

## 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% 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. In order 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% of the average gray-levels between every two adjacent quarter-inch long rows and 99.0% 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% 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].

In order 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 % of the captured individual fingerprint images shall have a gray-scale dynamic range of at least 200 gray-levels, and at least 99.0 % 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 8 bits per pixel quantization of the gray-scale values for very low contrast fingerprints needs to more optimally represent the reduced gray-scale range of such fingerprints, but without significant saturation. The intent is to avoid excessively low contrast images without adding false detail.

Dynamic range is computed in terms of number of gray-levels present that have signal content, measuring within the fingerprint area and substantially excluding white background and card format lines, boxes, and text.

For card scanners, compliance with these dynamic range requirements will be verified using a statistically stratified sample set of fingerprint cards assembled by the FBI. 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 which have automatic document feeder mechanisms. For live scanners, compliance will be verified with sets of livescans produced by the vendor.

Requirement - Fingerprint Artifacts and Anomalies:

Artifacts or anomalies detected on the fingerprint images, which 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

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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, which 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.

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### 3.0 IDENTIFICATION FLATS

Traditional fingerprint sets contain both rolled and plain fingerprint images. The rolled impressions support the search processing and identification functions and the plain impressions are used primarily for sequence verification. Fingerprinting systems designed for “Identification Flats” civilian background checks capture a single set of plain impressions. This single set of plain impressions must support finger sequence verification, search processing, and identification.

Image quality has historically been a challenge for civil background checks. Some programs require a large number of relatively low volume capture sites, which makes training difficult. A key goal for identification flats scanners is to reduce the need for training, so that inexperienced users consistently capture quality fingerprint images.

The Identification Flats scanner shall meet all of the requirements stated in Section 2 of this Appendix F as well as the following requirements.

#### Requirement – Capture Protocol:

The system shall provide a simple capture protocol.

#### Background:

A simple capture protocol supports the inexperienced user’s ability to more consistently capture high quality fingerprints. Identification Flats collection systems will be evaluated for their ability to produce a very small rate of failure to enroll in an operational setting. Systems with a minimum capture area of 3.2 inches (width) by 2.9 inches (height), which can capture 4 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. Systems with a minimum capture area of 3.2 inches (width) by 2.9 inches (height), which capture 4 fingers simultaneously in an upright position, will be considered in compliance with the finger sequence requirements. Other capture approaches will require specific testing and documentation.

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## 4.0 FINGERPRINT PRINTER

The fingerprint printer, consisting of a printer and specialized print algorithm, must be capable of producing hardcopy images which 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<sup>5</sup> with 1200 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 principle function is to produce life-size prints of digital fingerprints that have met IAFIS format requirements, as specified in EBTS and ANSI/NIST, 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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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 1000 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.

Verification of the specific performance requirements in this section 4 of Appendix F 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 1000 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.

<sup>5</sup> 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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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.

**4.2 Gray-levels**

Requirement:

At least 16 gray-levels shall be visually distinguishable on the print.

Background:

Visual observation of the print of a digital target containing a step tablet is used to verify the 16 gray-level requirement. A higher number of gray-levels is expected to be distinguishable by appropriate computer-aided assessment of the scanned image of the print.

**4.3 Dynamic Range**

Requirement:

The printer shall have the capability to print an input digital image gray range of at least 150, 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 150, 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, then 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 following values, for at least 97% of the tested cases in each direction (vertical and horizontal):

$$D \leq 0.001, \quad \text{for } 0.00 < X \leq 0.07$$

$$D \leq 0.015X, \quad \text{for } 0.07 < X \leq 1.50$$

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where:

$$D = |Y - X|$$

X = correct distance = digital target pixels / required print resolution

Y = measured distance on print

D, X, Y are in inches

Requirement (along-line):

Straight target lines printed parallel to, or at a 45 degree angle to, the paper or card edges, shall be straight on the print, with no significant waviness, bow, or ‘staircasing’.

Background:

The across-bar requirement corresponds to a positional accuracy of  $\pm 1.5\%$  for distances greater than 0.07 inches and less than or equal to 1.5 inches, and a constant  $\pm 0.001$  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 life-size printing at 500 ppi, a 1.5% allowable error in distance, measured in inches, is equivalent to an allowable print ppi error equal to  $\pm 7.5$  ppi.

The along-line requirement can be assessed visually, aided, e.g., by a straight-edge and magnifying lens.

#### 4.5 Noise

Requirement:

For a required printer resolution of 500 ppi, the noise magnitude shall be less than 0.120 at each average print reflectance level, when noise magnitude is defined as the standard deviation of print reflectance values within an area on the print corresponding to a constant gray level on the input digital target. [Print reflectance 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:

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The printed fingerprints shall appear as dark gray-to-black ridges on a light gray-to-white background.

#### 4.7 Print Permanence

Requirement:

The printed fingerprints shall not smear or smudge with normal handling.

#### 4.8 Print Stability

Requirement:

Both the fingerprints and the card stock or paper on which they are printed shall retain their visually neutral (black, white, gray) color over time.

#### 4.9 Hazardous Materials

Requirement:

The prints shall not produce any health hazard as a result of handling. They shall not produce any noxious, annoying, or unpleasant odors when accumulated in large numbers and handled in areas having limited ventilation.

Background:

Requirements 4.7 (print permanence), 4.8 (print stability), and 4.9 (hazardous materials) are met by standard laser printers.

### 4.10 FINGERPRINT PRINTS

#### 4.10.1 Print Types Requirements

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 ten-print 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 ten-print card.

The printer shall have the capability to print a previously scanned ten-print 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.

The printer shall have the capability to print a single fingerprint, magnified up to 5 times beyond life-size, onto 8.5 by 11.0 inch plain paper.

When printing in ten-print card format onto ten-print 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 4-1 illustrates the printing of this auxiliary information; following sections 4.10.2 through 4.10.5 give the detailed requirements.

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### 4.10.2 Labels

Requirement:

When printing fingerprints in ten-print 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, 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.

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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 off-setting printblocks 6-10 from printblocks 11-14 is unacceptable because it changes the dimensions of the standard ten-print card format, and it cannot adequately accommodate fingerprints that stray across printblock boundaries.

Proper text size typically would correspond to a height of a numeral or upper case letter being in the range: 0.067 inches to 0.095 inches.

### 4.10.3 Bar Chart

Requirement:

When printing fingerprints in ten-print 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.

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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 ten-print 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 shall progressively darken from left to right and the bottom band shall 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 a background, border, or any other type of surround.

Background:

If the top band and bottom band appear 'balanced' on the print, i.e., the same mid-gray-level appears in the middle of both the top and bottom bands, then this may indicate that the printer gamma/highlight/lowlight settings are optimum.

**4.10.5 Finger Condition Codes**

Requirement:

When printing fingerprints in ten-print 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

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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, in order to support fingerprint comparisons, i.e., support 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., shall not create ridges where none existed in the input digital image.

Background:

Assessment of the requirement is performed by visual inspection of the print augmented by appropriate quantitative analysis of the scanned print.

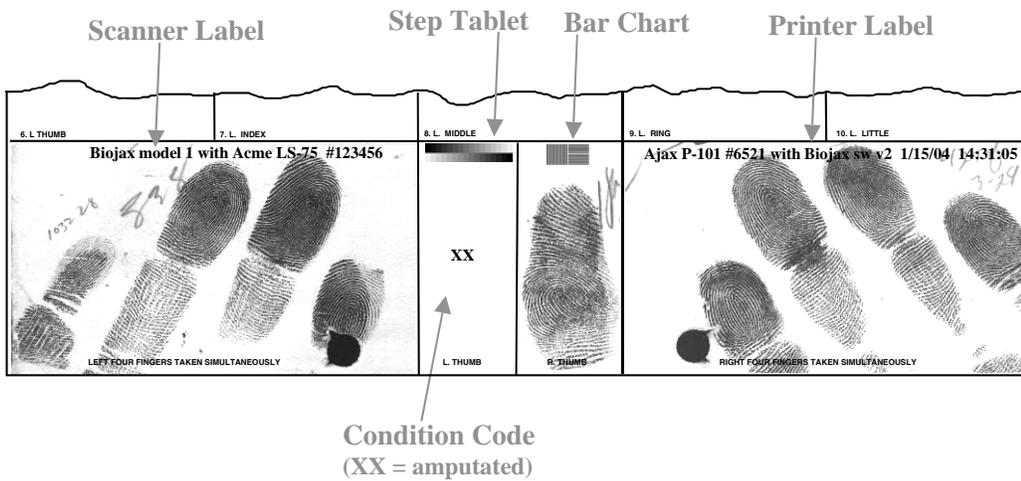


Figure 4-1 Auxiliary Information Printed in Ten-Print Card Format Print (Example Text)

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## 5. 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, for example, by 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 5-1 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 email) which affirms 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\*. 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.

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

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**Table F-5. Fast Track Certification Procedures (Common Scenarios)**

<b>Fast Track Certification</b>	<b>Type</b>	<b>Test Data to be Provided to FBI</b>	<b>Requirements Compliance</b>
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.	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	one hundred 10-print card scans (cards supplied by FBI)	section 2.6
Printer	Vendor A incorporates vendor B's certified device into vendor A's value-added system.	print of printer test target (target supplied by FBI)	all subsections under section 4.0 pertaining to digital test target
1000 ppi fingerprint scanner as 500 ppi fingerprint scanner	vendor recertifies its own fingerprint scanner in alternate operating mode	Cardscanner: Sinewave target scans (target supplied by vendor) and ten 10-print card scans (cards supplied by FBI) Livescanner: Sinewave or bar target scans (target supplied by vendor) and livescans from 5 subjects (10 rolls & 4 plains, each subject)	sections 2.1, 2.3 & 2.6

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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.
- The original recipient of a certification wishes to repack 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 it’s 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.
- An end user receives a certified device to be used ‘as is’, without modification (an end-user does not need its own certification).

**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

- | [ANSI/NIST] - National Institute of Standards and Technology's *Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo (SMT) Information*, ANSI/NIST-ITL 1-2000, NIST Special Publication 500-245. Formatted: Normal, Tabs: Not at 4.5 pt
- | [EFTS] - Federal Bureau of Investigation's *Electronic Fingerprint Transmission Specification*, FBI-CJIS-RS-0010 (Vxxxx), dated xxxxxx. Formatted: Normal, Tabs: Not at 4.5 pt
- | [TestProcedures] - Federal Bureau of Investigation's Test Procedures for Verifying IAFIS Image Quality Requirements for Fingerprint Scanners and Printers, FBI-CJIS-TD-xxxx, dated xxx. Formatted: Normal, Right: 0 pt, Tabs: Not at 490.5 pt

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**APPENDIX G**

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**Deleted:** 1.0 SCOPE AND PURPOSE¶

¶  
These specifications were originally for the purpose of accrediting 500 ppi live scanners and card scanners integrated into automated booking stations. These Appendix G interim image quality specifications for scanners were decommissioned for IAFIS certifications in July 1999; all fingerprint systems submitted for IAFIS certification after July 1999 must meet the Appendix F requirements. ¶

**2.1 Gray-Scale Linearity ¶**

No change from Appendix F of *Electronic Fingerprint Transmission Specification*, dated January 29, 1999, FBI document number CJIS-RS-0010 (V7). ¶

**2.2 Geometric Image Accuracy ¶**

The absolute value of the difference "D," between the actual distance "X" between any two points on a target and the distance "Y" between those same two points as measured on the output scanned image of that target, shall meet the following requirements for the value D:¶

$D \leq 0.001, \quad \text{for } 0 \leq X \leq 0.07¶$

$D \leq 0.015X, \quad \text{for } 0.07 \leq X \leq 1.50¶$

where: D, X, Y are in inches and D = absolute value of (Y-X)¶

¶  
The requirement corresponds to a positional accuracy of  $\pm 1.5\%$  for distances between 0.07 and 1.5 inches, and a constant  $\pm 0.001$  inches (1/2 pixel) for distances less than or equal to 0.07 inches. ¶

**2.3 Modulation Transfer Function¶**

cy/mm	sine wave MTF¶
.1	. . . 0.889 to 1.40¶
.2	. . . 0.778 to 1.40¶
.3	. . . 0.667 to 1.40¶
.4	. . . 0.556 to 1.40¶
.5	. . . 0.444 to 1.40¶
.6	. . . 0.333 to 1.00¶

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**APPENDIX H**

**DESCRIPTORS AND FIELD EDIT SPECIFICATIONS  
FOR TYPE-7 LOGICAL RECORDS**

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**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 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 6 “Finger Position code & maximum size” of the standard “Data Format for the Interchange of Fingerprint, Facial & Scar Mark & Tatum (SMT) Information”, ANSI/NIST-ITL 1-2000. 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.

**CGA - 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 contents 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 CGA 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 standard referenced above, describes the manner by which the fingerprint image information was obtained.

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**ISR - IMAGE SCANNING RESOLUTION.** This mandatory one-byte field shall occupy the thirteenth 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.

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

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IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					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	620000	1	1	620000	

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

**TABLE I-1. FIELD LIST FOR IMAGE REQUEST (IRO) TRANSACTIONS**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:1
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:0
ATN	M	2.006	"ATTENTION" INDICATOR	ANS	3	30	1	1	37	2.006:SA J Q DOE,11867<GS>
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P<
FBI	M	2.014	FBI NUMBER	AN	1	9	1	1000	10006	2.014:62760NY12<
FNR	M	2.057	FINGER NUMBER(S) REQUESTED	N	2	2	1	13	45	2.057:01<RS>02<R RS>04<RS>07<RS S>10<RS>12<RS>1
CRI	O	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	0	3	36	2.073:1
SCNA	O	2.086	AFIS SEGMENT CONTROL NUMBER	N	1	10	0	1	18	2.086:1
NDR	O	2.098	NAME OF DESIGNATED REPOSITORY	N	1	3	0	1	11	2.098:1<GS>
UCN	O	2.081	UNIVERSAL CONTROL NUMBER	AN	9	9	0	1	16	2.081:410357325<FS>
RFR	O	2.095	REQUEST FEATURES RECORD	A	1	1	0	1	8	2.095:Y<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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**TABLE I-2. FIELD LIST FOR IMAGE REQUEST RESPONSE (IRR) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:909<GS>
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:00<GS>
ATN	M	2.006	"ATTENTION" INDICATOR	ANS	3	30	1	1	37	2.006:SA J Q DOE, 11867< Deleted: ascii
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P< Formatted: Line spacing: 1.5 lines
FBI	M 1	2.014	FBI NUMBER	AN	1	9	1	1	16	2.014:62760NY12< Deleted: ascii
SID	O 1	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	0	1	17	2.015:NY12345678< Formatted: Line spacing: 1.5 lines
NAM	M	2.018	NAME	AS	3	30	1	1	37	2.018:JONES, ANT P<GS>
PPA	O	2.035	"PALM PRINTS AVAILABLE" INDICATOR	A	1	1	0	1	8	2.035:Y<GS>
PHT	O	2.036	"PHOTO AVAILABLE" INDICATOR	A	1	1	0	1	8	2.036:Y<GS>
FNR	O	2.057	FINGER NUMBER(S) REQUESTED	N	2	2	0	13	45	2.057:01<RS>02<R RS>04<RS>07<RS: S>10<RS>12<RS>1
CRI	O	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	0	3	36	2.073:NY1234567<

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 I-2. FIELD LIST FOR IMAGE REQUEST RESPONSE (IRR) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
AMP	C	2.084	AMPUTATED OR BANDAGED				0	9	60	2.084:03<US>XX<I
	M		FINGER NUMBER (FGP)	N	2	2	1	1		US>UP Deleted: FS
	M		AMPUTATED OR BANDAGED CODE (AMPCD)	A	2	2	1	1		
SCNA	O	2.086	AFIS SEGMENT CONTROL NUMBER	N	1	10	0	1	18	2.086:1234<GS> Formatted: Line spacing: 1.5 lines
NDR	O	2.098	NAME OF DESIGNATED REPOSITORY	N	1	3	0	1	11	2.098: 1<GS> Formatted: Tabs: 84.95 pt, Right + 302.4 pt, Left + 399.6 pt, Left + Not at 81 pt + 306 pt + 396 pt
UCN	O	2.081	UNIVERSAL CONTROL NUMBER	AN	9	9	0	1	16	2.081: 410537025<FS> Formatted: Line spacing: 1.5 lines Formatted: Tabs: 10.8 pt, Left + 84.95 pt, Right + 108 pt, Left + 147.6 pt, Left + 270 pt, Left + 302.4 pt, Left + 334.8 pt, Left + 342 pt, Left + 369 pt, Left + 399.6 pt, Left

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 I-3. FIELD LIST FOR IMAGE ERROR RESPONSE (ERRI) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DATA
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:<GS>
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:00<GS>
ATN	M	2.006	"ATTENTION" INDICATOR	ANS	3	30	1	1	37	2.006:SA J Q DOE, 11867<Deleted: ascii> <Formatted: Line spacing: 1.5 lines>
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P< <Deleted: ascii>
FBI	O 1	2.014	FBI NUMBER	AN	1	9	0	1	16	2.014:62760NY12<
SID	O 1	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	0	1	17	2.015:NY12345678< <Formatted: Line spacing: 1.5 lines>
MSG	M	2.060	STATUS/ERROR MESSAGE	ANS	1	300	1	11	3317	2.060:MATCH MA AGAIN FINGERPRINTS O 05/01/94<GS> <Deleted: ascii>
CRI	O	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	0	3	36	2.073:N <Deleted: FS>
SCNA	O	2.086	AFIS SEGMENT CONTROL NUMBER	N	1	10	0	1	18	2.086:1 <Formatted: Line spacing: 1.5 lines, Tabs: Not at 9 pt + 84.95 pt + 108 pt + 271.45 pt + 302.4 pt + 334.1 pt + 367.2 pt + 399.6 pt + 432 pt + 475.2 pt>
NDR	O	2.098	NAME OF DESIGNATED REPOSITORY	N	1	3	0	1	11	2.098:1<GS> <Formatted: Line spacing: 1.5 lines>
UCN	O	2.081	UNIVERSAL CONTROL NUMBER	AN	9	9	0	1	16	2.081:410357325<FS> <Formatted: Tabs: 9 pt, Left>

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 I-4. FIELD LIST FOR FINGERPRINT IMAGE SUBMISSION (FIS) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DATA
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:187<GS> <Deleted: 7.1> <Deleted: May 2>
IDC	M	2.002	IMAGE DESIGNATION	N	2	2	1	1	9	2.002:00688<GS> <Deleted: 5>

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ATN	M	2.006	CHARACTER "ATTENTION" INDICATOR	ANS	3	30	1	1	37
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186
FBI	M	2.014	FBI NUMBER	AN	1	9	1	1	16
SID	O	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	0	1	17
NAM	O	2.018	NAME	AS	3	30	0	1	37
PPA	O	2.035	"PALM PRINTS AVAILABLE" INDICATOR	A	1	1	0	1	8
DPR	M	2.038	DATE PRINTED	N	8	8	1	1	15
CRI	O	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	0	3	36
AMP	C 2	2.084	AMPUTATED OR BANDAGED				0	9	60
	M		FINGER NUMBER (FGP)	N	2	2	1	1	
	M		AMPUTATED OR BANDAGED CODE (AMPCD)	A	2	2	1	1	

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2.018:JONES, ANT  
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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 I-5. FIELD LIST FOR FINGERPRINT IMAGE SUBMISSION RESPONSE (FISR) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DATA
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:133<GS>
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:00<GS>
ATN	M	2.006	"ATTENTION" INDICATOR	ANS	3	30	1	1	37	2.006:SA J Q DOE, 11867
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P< Deleted: ascii Formatted: Line spacing: 1.5 lines Deleted: ascii
FBI	M 1	2.014	FBI NUMBER	AN	1	9	1	1	16	2.014:62760NY12<
SID	O 1	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	0	1	17	2.015:NY12345678 Formatted: Line spacing: 1.5 lines
NAM	O	2.018	NAME	AS	3	30	0	1	37	2.018:JONES, ANT P<GS>
FIU	M	2.072	FINGERPRINT IMAGE(S) UPDATED	AN	1	2	1	13	45	2.072:01<US>02<U US>07<US>08<US S>13< GS>
CRI	M	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	1	3	36	2.073:NY1234567<

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 I-6. FIELD LIST FOR IMAGE RESPONSE SUMMARY (ISR) TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DATA
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:90 Deleted: 7.1
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:00 Deleted: May 2 Deleted: 5

ATN	M	2.006	"ATTENTION" INDICATOR	ANS	3	30	1	1	37	2.006:SA J Q DOE,] 11867<	Deleted: ascii
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P<	Formatted: Line spacing: 1.5 lines
FBI	M	2.014	FBI NUMBER	AN	1	9	1	1000	10006	2.014:62760NY12<	
SID	O	2.015	STATE IDENTIFICATION NUMBER	ANS	3	10	0	1000	11006	2.015:<GS>	Formatted: Line spacing: 1.5 lines
MSG	M	2.060	STATUS/ERROR MESSAGE	ANS	1	300	1	1000	301006	2.060:<GS>	Deleted: ascii
CRI	O	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	0	3	36	2.073:<FS>	Formatted: Line spacing: 1.5 lines
<u>NDR</u>	<u>O</u>	<u>2.098</u>	<u>NAME OF DESIGNATED REPOSITORY</u>	<u>N</u>	<u>1</u>	<u>3</u>	<u>0</u>	<u>1</u>	<u>11</u>	<u>2.098:1&lt;GS&gt;</u>	Formatted: Line spacing: 1.5 lines
<u>UCN</u>	<u>O</u>	<u>2.081</u>	<u>UNIVERSAL CONTROL NUMBER</u>	<u>AN</u>	<u>1</u>	<u>9</u>	<u>0</u>	<u>1000</u>	<u>10006</u>	<u>2.081:&lt;FS&gt;</u>	Formatted: Tabs: 108 pt, Left

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

DESCRIPTORS AND FIELD EDIT SPECIFICATIONS  
FOR TYPE-9 LOGICAL RECORDS

**AFV 9.013 - AFIS FEATURE VECTOR.** 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.** The field contains one to three subfields separated by the <RS> separator with each subfield composed of three information items separated by the <US> 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). 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. Both information fields are zero for an arch, the second information item in a subfield should be zero if the pattern for the subfield is a loop, while 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 set to "31". If a particular fingerprint was not characterized for a ten-print 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.

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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.** This is a single information item field. 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 with mean of about 50 and 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 minutia divided by the maximum number of neighbors (eight). The normalized minutia quality ranges from unity (best) to zero (worst). A qualified neighbor would be another minutia with a reliable separating ridge count (less than 14) and within a reliable distance (not more than 1/5 inch).

**CLQ 9.025 - CLASSIFIER QUALITY.** 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.** 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 each separated by the <US> separator. 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. The column and row coordinate indexes (XYP) shall be coded as a single eight-digit integer number comprised of a four-digit column coordinate (X) concatenated with 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. The first information item contains

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the offset to the upper left corner of a non-rotated subimage used subsequently in image processing. The second information item contains the coordinates of the center of rotation within the subimage about which the subimage 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 subimage after the subimage 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 subimage 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.** This field is for cores that can be perceived in the fingerprint (both ten-print 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) separated by the <RS> separator. Each subfield contains three information items 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 comprised of the four-digit X coordinate (column) followed by the four-digit Y coordinate (row) using a format of XXXXYYYYY. The X coordinate and Y coordinate are in units of 10 micrometers with the origin at the upper left. Core positions shall be in the same coordinate system as the minutiae. 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.

**CRP 9.008 - CORE POSITION.** This eight-character field shall contain the X and Y coordinate position of the core. The X and Y values shall be coded as a single eight-digit integer number comprised of the four digit X-coordinate followed by the four digit Y-coordinate using a format of XXXXYYYYY.

**DLA 9.022 - DELTA(S) ATTRIBUTES.** This field is for deltas that can be perceived in the fingerprint for both AFIS/FBI latent and ten-print 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) separated by the <RS> separator. Each subfield contains five (5) information items separated by the <US> separator representing the attributes of each delta.

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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 comprised 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. 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.

**DLT 9.009 - DELTA(S) POSITION.** This eight-character field shall contain the X and Y positional coordinates of each delta that is present on the fingerprint. The X and Y values shall be recorded in the same manner as was the core position, CRP. Multiple occurrences of delta positions shall be separated by the RS separator.

**FCP 9.016 - FINGERPRINT CHARACTERIZATION PROCESS.** This field of three information items identifies the characterization equipment and the amount of manual intervention employed in the characterization process. The three information items shall be separated by the <US> 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

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<b>Description</b>	<b>Code</b>
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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**FGN 9.014 - FINGER NUMBER.** 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, the "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 Standards, and are as follows:

<b>Finger Position</b>	<b>Code</b>
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.** This one-byte field shall be used to indicate whether the remainder of the record adheres to the ANSI standard or is user defined. This field shall contain an "S" to indicate the minutiae are formatted as specified by the standard or a "U" to indicate user-defined. If the minutiae record is formatted in user defined terms, the remaining fields of the logical record may not be applicable.

**FPC 9.007 - FINGER PATTERN CLASSIFICATION.** This field shall contain the fingerprint pattern classification code. It shall contain two information items. The first information item shall indicate the source of the specific pattern classification code. It may be one chosen from the ANSI standard "Data Format for the Interchange of Fingerprint, Facial, & Scar Mark &

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Tattoo (SMT) Information” Table 8, “Pattern Classification” (table shown below), or may be a user-defined classification code. This item shall contain a “T” to indicate that the pattern classification code is from the ANSI standard table or a “U” to indicate a user defined code. The second information item of this field shall contain the pattern classification code chosen from the ANSI standard or a specific user-defined code. Reference finger classed shall be separated by the RS character.

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Description	Code
Plain arch	PA
Tented arch	TA
Radial loop	RL
Ulnar loop	UL
Plain whorl	PW
Central pocket loop	CP
Double loop	DL
Accidental whorl	AW
Whorl, type note designated	WN
Right slant loop	RS
Left slant loop	LS
Scar	SR
Amputation	XX
Unknown or unclassifiable	UN

**IDC 9.002 - IMAGE DESIGNATION CHARACTER.** 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.** 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 1-2006 standard, are as follows:

Description	Code
Live-scan plain	0
<u>Live-scan rolled</u>	<u>1</u>
<u>Nonlive-scan plain</u>	<u>2</u>
<u>Nonlive-scan rolled</u>	<u>3</u>
<u>Latent impression</u>	<u>4</u>
<u>Latent photo</u>	<u>6</u>
<u>Latent lift</u>	<u>7</u>

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 Live-scan rolled¶  
 Nonlive-scan plain¶  
 Nonlive-scan rolled¶  
 Latent impression¶  
 Latent photo¶  
 Latent lift  
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<a href="#">Live-scan vertical swipe</a>	<a href="#">8</a>
<a href="#">Live-scan optical contact plain</a>	<a href="#">20</a>
<a href="#">Live-scan optical contact rolled</a>	<a href="#">21</a>
<a href="#">Live-scan non-optical contact plain</a>	<a href="#">22</a>
<a href="#">Live-scan non-optical contact rolled</a>	<a href="#">23</a>
<a href="#">Live-scan optical contactless plain</a>	<a href="#">24</a>
<a href="#">Live-scan optical contactless rolled</a>	<a href="#">25</a>
<a href="#">Live-scan non-optical contactless plain</a>	<a href="#">26</a>
<a href="#">Live-scan non-optical contactless rolled</a>	<a href="#">27</a>
<a href="#">Live-scan non-optical contactless rolled</a>	<a href="#">28</a>
<a href="#">Other</a>	<a href="#">29</a>

**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.** This AFIS/FBI field shall contain all of the individual minutiae and ridge count data associated with the current fingerprint impression. It shall be comprised 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. Subfields shall be separated by the <RS> separator character. All information items within a subfield shall be separated by the <US> 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

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number corresponding to the concatenated 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. The coordinate system units shall be units of 0.01mm (10 micrometers). The direction of an ending shall be into the ending ridge and the direction of a bifurcation shall be into the white space created by the dividing ridge. Angles shall be in integer degrees measured positive counterclockwise from a reference horizontal and to the right. The XY coordinates shall be applied after all rotation and translation of the image has been accomplished.

Quality measure (QMS): If present, the third information item is the minutia quality measure. The two-digit values shall range from zero to 63. The value zero shall indicate a manually encoded minutia. The value one shall indicate that no method of indicating a confidence level is available. Values between two and 63 shall indicate decreasing levels of confidence, with two denoting the greatest confidence.

Minutia type designation (MNT): The fourth information item is the minutia 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

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Ridge count data (MRO): The fifth information item is the ridge count data for the nearest neighboring minutiae of the indexed minutia. It shall be formatted as a series of eight subitems, each consisting of a minutia 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 neighboring minutia into a five digit number. For AFIS/FBI, the minutia 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 minutia 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.

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 one if the neighboring minutia lies in the counterclockwise half of the octant. The corresponding character shall be zero if the neighboring minutia lies in the clockwise half of the octant or if there is no neighboring minutia

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in the octant.

**MRC 9.012 - MINUTIAE AND RIDGE COUNT DATA.** This field shall contain all of the individual minutiae and ridge count data associated with the current fingerprint impression. It shall be comprised of as many subfields as there are minutiae stated in the minutiae count in field, MIN. Each subfield shall be devoted to a single minutia and shall consist of multiple information items. All information items shall be separated by the US separator character.

Deleted: **MIN 9.010 - NUMBER OF MINUTIAE.** This single character field shall contain the count of the number of minutiae recorded for this fingerprint.¶  
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**NMN 9.015 - NUMBER OF MINUTIAE.** 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 minutia quality. Minutiae below the proximal crease generally are not included.

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**OFR 9.005 - ORIGINATING FINGERPRINT READING SYSTEM.** The originator's designation or name for the particular fingerprint reading system that generated the record shall be placed in the first information item of this field. The second information item of this field shall be a single character to indicate the method by which the minutiae data was read, encoded, and recorded. Allowable codes are listed in the table below. The third information item is an optional, two-character, user-generated subsystem designator that uniquely identifies the originator's equipment.

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Description	Code
Data automatically read, encoded, and recorded, no human editing.	A
Human editing was possible but unneeded.	U
Data was automatically read but manually edited before encoding and recording.	E
Data was manually read.	M

**ORN 9.020- ORIENTATION UNCERTAINTY.** The orientation uncertainty is a substantial contribution for AFIS/FBI latent characterizations and is not used for ten-print 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.

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**RDG 9.011 - MINUTIAE RIDGE COUNT INDICATOR.** This single character field shall be used to indicate the presence of minutiae ridge count information. A "0" (zero) in this field indicates that no ridge count information is available. A "1" (one) indicates that ridge count

information is available.

**ROY 9.018- REGION OF VALUE.** This is a field of 3 to 20 subfields separated by the <RS> separator defining the vertices of a polygon that bounds the region of the image from which the characterization products have been extracted. Each eight-character subfield consists of the concatenation 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. 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.

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**TABLE J-1. FIELD LIST FOR TYPE-9 (MINUTIAE) REMOTE, NATIVE-MODE TEN-PRINT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					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	2048	2048	0	1	2055	9.013:binary data<C
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 S>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<U! S>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		

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) REMOTE, NATIVE-MODE TEN-PRINT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
COF	O	9.019	COORDINATE OFFSETS				0	1	51	9.019:01230444<US> 433<US>
	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		
CRA	O	9.021	CORE ATTRIBUTES				0	2	42	9.021:07612387<US> 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		

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) REMOTE, NATIVE-MODE TEN-PRINT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
DLA	O	9.022	DELTA ATTRIBUTES				0	2	58	9.022:07612387<US> 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 DIRECTION (DDD) (DID)	N	3	3	0	1		
	C 5		POSITION UNCERTAINTY (RRRR) (PUM)	N	4	4	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) REMOTE, NATIVE-MODE TEN-PRINT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
MAT	M 8	9.023	MINUTIAE AND RIDGE COUNT DATA				1	254	19818	9.023:001<US>XX; Y <US>QQ
	M		MINUTIAE INDEX NUMBER (III) (MDX)	N	3	3	1	1		
	M		LOCATION DIRECTION (XXXXYYYY ) (XYT)	N	11	11	1	1		
	M		QUALITY MEASURE (QMS)	N	2	2	1	1		
	M		MINUTIA TYPE (MNT)	A	1	1	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 0 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 1 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 2 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 3 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 4 (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) REMOTE, NATIVE-MODE TEN-PRINT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 5 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 6 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA 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>

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) REMOTE, NATIVE-MODE LATENT LOGICAL RECORD**

IDENTIFIER EXAMPLE DATA	CONDITION SPECIAL	FIELD NUMBER CHARACTERS	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER BYTES INCLUDING CHARACTERS	AND FIELD NUMBER	EXAMPLE DATA
					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	2048	2048	0	1	2055	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>R S<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>(S>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>2 016<RS>2032
	M			VERTEX (XXXXYYYY) (XYM)	N	8	8	3	20		

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) REMOTE, NATIVE-MODE LATENT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
COF	O	9.019	COORDINATE OFFSETS				0	1	51	9.019:01230444<US> 433<US>
	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> 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		

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) REMOTE, NATIVE-MODE LATENT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
DLA	O	9.022	DELTA ATTRIBUTES				0	2	58	9.022:07612387<US> US>210<RS>
	C 5		LOCATION	N	8	8	0	1		

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	(XXXXXXXX) (XYM)					
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 DIRECTION (DDD) (DID)	N	3	3	0	1
C 5	POSITION UNCERTAINTY (RRRR) (PUM)	N	4	4	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) REMOTE, NATIVE-MODE LATENT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
MAT	M 8	9.023	MINUTIAE AND RIDGE COUNT DATA				1	254	19818	9.023:001<US>XX Y <US>QQ
	M		MINUTIAE INDEX NUMBER (III) (MDX)	N	3	3	1	1		
	M		LOCATION DIRECTION (XXXXYYYY ) (XYT)	N	11	11	1	1		
	M		QUALITY MEASURE (QMS)	N	2	2	1	1		
	M		MINUTIA TYPE (MNT)	A	1	1	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 0 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 1 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 2 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 3 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 4 (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-2. FIELD LIST FOR TYPE-9 (MINUTIAE) REMOTE, NATIVE-MODE LATENT LOGICAL RECORD**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 5 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 6 (NNNCC) (MRO)	N	5	5	1	1		
	M		MINUTIA INDEX AND RIDGE COUNT OCTANT 7 (NNNCC) (MRO)	N	5	5	1	1		
	O		OCTANT RESIDUALS (RRRRRRRR) (RSO)	N	8	8	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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APPENDIX J REFERENCE NOTES

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- 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 <US> separators must remain.

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- 3. If no second subimage 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 <GS> separator instead of the <RS> separator and the second subfield shall be deleted.

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- 5. Maximum of two deltas reported. If only one delta, the first subfield shall be terminated with the <GS> separator instead of the <RS> separator and the second subfield shall be deleted.

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- 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 standard type-9 record will be parsed for sufficient features information. The Type-9 in Table J-1 defines the ANSI standard logical record sequence for a remote, native mode ten-print 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> + "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>

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

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**APPENDIX K**

**DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR  
TYPE-10 LOGICAL RECORDS AND LOGICAL RECORD  
FIELD LISTS FOR TYPE-2 (PHOTO) 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. Annex K provides the Type-2 record fields applicable to the photo and/or SMT Type-10 image record. For complete description of the Type-10 record fields, see ANSI/NIST-ITL 1-2006 contained in Attachment 1 to this document.

**TABLE K-1. FIELD LIST FOR SUBJECT PHOTO REQUEST (CPR)  
TRANSACTION**

IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER
					MIN.	MAX.	MIN.	MAX.	
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9
ATN	O	2.006	"ATTENTION" INDICATOR	ANS	3	30	0	1	37
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186
FBI	C <sup>5</sup>	2.014	FBI NUMBER	AN	1	9	0	1	16
DOA	O 1	2.045	DATE OF ARREST	N	8	8	0	1	15
DOS	O	2.046	DATE OF ARREST-SUFFIX	A	1	1	0	1	8
CRI	M 2	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	1	3	36
UCN	C <sup>6</sup>	2.081	UNIVERSAL CONTROL NUMBER	AN	1	9	0	1	16

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-2. FIELD LIST FOR SUBJECT PHOTO DELETE REQUEST (CPD) TRANSACTION**

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IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:909<GS>
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:0200<GS>
ATN	O	2.006	"ATTENTION" INDICATOR	ANS	3	30	0	1	37	2.006:SA J Q DOE,  11867< <div style="border: 1px solid black; padding: 2px; display: inline-block;">Deleted: ascii</div>
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P< <div style="border: 1px solid black; padding: 2px; display: inline-block;">Deleted: ascii</div>
FBI	M	2.014	FBI NUMBER	AN	1	9	1	1	16	2.014:62760NY12<
DOA	M 4	2.045	DATE OF ARREST	N	8	8	1	1	15	2.045:19950324<GS
DOS	M	2.046	DATE OF ARREST-SUFFIX	A	1	1	1	1	8	2.046:L<GS>
CRI	M 2	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	1	3	36	2.073:NY1224567< <div style="border: 1px solid black; padding: 2px; display: inline-block;">Formatted: Line spacing: 1.5 lines</div>
<u>UCN</u>	<u>C<sup>6</sup></u>	<u>2.081</u>	<u>UNIVERSAL CONTROL</u>	<u>AN</u>	<u>1</u>	<u>9</u>	<u>0</u>	<u>1</u>	<u>16</u>	<u>2.081:407542132&lt;GS&gt;</u>

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-3. FIELD LIST FOR SUBJECT PHOTO REQUEST RESPONSE (PRR) TRANSACTION**

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IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:909<GS>
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:0200<GS>
ATN	O	2.006	"ATTENTION" INDICATOR	ANS	3	30	0	1	37	2.006:SA J Q DOE,11867<GS>
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P<GS>
FBI	M	2.014	FBI NUMBER	AN	1	9	1	1	16	2.014:62760NY12<GS>
DOA	O	2.045	DATE OF ARREST	N	8	8	0	1	15	2.045:19950324<GS>
DOS	O	2.046	DATE OF ARREST-SUFFIX	A	1	1	0	1	8	2.046:L<GS>
CRI	M	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	1	3	36	2.073:NY1234567<GS>
EXP	O	2.080	RESPONSE EXPLANATION	ANS	1	50	0	1	57	2.080:PHOTO NOT FOUND<GS>
UCN	C <sup>6</sup>	2.081	UNIVERSAL CONTROL NUMBER	AN	1	9	0	1	16	2.081:407542132<GS>
REC	M <sub>3</sub>	2.082	RESPONSE CODE	A	1	1	1	1	8	2.082:Y<GS>

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 Under the character type column: A = Alpha; B = Binary; N = Numeric; S = Special Characters

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**TABLE K-4. FIELD LIST FOR SUBJECT PHOTO DELETE REQUEST RESPONSE (PDR) TRANSACTION**

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IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
LEN	M	2.001	LOGICAL RECORD LENGTH	N	2	7	1	1	14	2.001:909<GS>
IDC	M	2.002	IMAGE DESIGNATION CHARACTER	N	2	2	1	1	9	2.002:0200<GS>
ATN	O	2.006	"ATTENTION" INDICATOR	ANS	3	30	0	1	37	2.006:SA J Q DOE, 11867<
SCO	O	2.007	SEND COPY TO	ANS	9	19	0	9	186	2.007:NY030025P<
FBI	M	2.014	FBI NUMBER	AN	1	9	1	1	16	2.014:62760NY12<
DOA	M	2.045	DATE OF ARREST	N	8	8	1	1	15	2.045:19950324<G
DOS	O	2.046	DATE OF ARREST-SUFFIX	A	1	1	0	1	8	2.046:L<GS>
CRI	M	2.073	CONTROLLING AGENCY IDENTIFIER	ANS	1	9	1	3	36	2.073:NY1234567<
EXP	O	2.080	RESPONSE EXPLANATION	ANS	1	50	0	1	57	2.080:PHOTO NOT FOUND BOA D
UCN	C <sup>6</sup>	2.081	UNIVERSAL CONTROL NUMBER	AN	1	9	0	1	16	2.081:407542132<GS>
REC	M 3	2.082	RESPONSE CODE	A	1	1	1	1	8	2.082:Y

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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 K-5. FIELD LIST FOR TYPE-10 (SUBJECT PHOTO) LOGICAL RECORDS**

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IDENTIFIER	CONDITION	FIELD NUMBER	FIELD NAME	CHARACTER TYPE	FIELD SIZE PER OCCURRENCE		OCCURRENCES		MAXIMUM NUMBER OF BYTES INCLUDING CHARACTER SEPARATORS AND FIELD NUMBER	EXAMPLE DAT.
					MIN.	MAX.	MIN.	MAX.		
LEN	M	10.001	LOGICAL RECORD LENGTH	N	3	7	1	1	15	10.001:909<GS>
IDC	M	10.002	IMAGE DESIGNATION CHARACTER	N	1	4	1	1	12	10.002:0200<GS>
IMT	M	10.003	IMAGE TYPE	A	4	6	1	1	14	10.003:FACE<GS>
SRC	M	10.004	SOURCE AGENCY/ORI	AN	9	43	1	1	51	10.004: Deleted: 20
PHD	M	10.005	PHOTO DATE	N	8	8	1	1	16	10.005: Deleted: 28
HLL	M	10.006	HORIZONTAL LINE LENGTH	N	3	4	1	1	12	10.006:480<GS>
VLL	M	10.007	VERTICAL LINE LENGTH	N	3	4	1	1	12	10.007:600<GS>
SLC	M	10.008	SCALE UNITS	N	1	1	1	1	9	10.008:0<GS>
HPS	M	10.009	HORIZONTAL PIXEL SCALE	N	2	4	1	1	12	10.009:01<GS>
VPS	M	10.010	VERTICAL PIXEL SCALE	N	2	4	1	1	12	10.010:01<GS>
CGA	M	10.011	COMPRESSION ALGORITHM	A	4	6	1	1	14	10.011:JPEGB<GS>
CSP	M	10.012	COLOR SPACE	A	3	4	1	1	12	10.012:YCC<GS>
POS	M	10.020	SUBJECT POSE	A	1	1	1	1	9	10.020:L<GS>
POA	O	10.021	POSE OFFSET ANGLE	N	1	4	0	1	12	10.021:45<GS>
PXS	O	10.022	PHOTO DESCRIPTION	A	3	20	0	9	196	10.022:GLASSES<G
PAS	O	10.023	PHOTO ACQUISITION SOURCE	A	7	15	0	1	23	10.023:<GS>
SQS	O	10.024	SUBJECT QUALITY SCORE	N	10	35	0	9	323	10.024:<GS>
SPA	O	10.025	SUBJECT POSE ANGLES	N	9	23	0	1	31	10.025:<GS>
SXS	O	10.026	SUBJECT FACIAL DESCRIPTION A	A	6	21	0	50	1058	10.026:<GS>
SEC	O	10.027	SUBJECT EYE COLOR	A	4	4	0	1	12	10.027:<GS>
SHC	O	10.028	SUBJECT HAIR COLOR	A	4	8	0	2	24	10.028:<GS>
SFP	O	10.029	SUBJECT FEATURE POINTS	N	10	18	0	88	1592	10.028:<GS>
DMM	O	10.030	DEVICE MONITORING MODE	A	8	11	0	1	19	10.030:<GS>
SMT	M	10.040	NCIC DESIGNATION CODE	A	4	11	1	3	41	10.040: Formatted: Font: Times New Roman, 8 pt
SMS	O	10.041	SCAR/MARK/TATTOO SIZE	N	4	6	0	1	14	10.041:
SMD	O	10.042	SMT DESCRIPTORS	AN	16	51	0	9	467	10.042:TATTOO<L MS13<GS>
COL	O	10.043	COLORS PRESENT	A	4	21	0	9	197	10.043: Formatted: Font: Times New Roman, 8 pt
DAT	M	10.999	IMAGE DATA	B	2	5000000	1	1	5000008	10.999: Image name

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

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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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**APPENDIX L**

**SUMMARY TABLES**

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This appendix contains several tables that collect in one place summaries of information that otherwise is 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.

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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 EBTS electronic message. Subfields do not have independent tags, either with or without an alpha suffix.*

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Tables L-3 and L-4 list recordset requirements for each EBTS transaction type. Table L-3 lists the recordset requirements for each type of submission. Table L-4 lists recordset 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 and Type-14 requirements for Ten-print submissions are stated to be 14. If less than 14 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. The number N is the minimum number of fingers required by AFIS for a search, and N = 2 for IAFIS.

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**TABLE L-1. COMPLETE ELEMENT CROSS-REFERENCE LIST BY ID**

Element ID	EBTS Tag Number	Element Name
ACN	2.071	ACTION TO BE TAKEN
<u>AFM</u>	<u>14.024</u>	<u>ALTERNATE FINGERPRINT QUALITY METRIC</u>
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
<u>APM</u>	<u>15.024</u>	<u>ALTERNATE PALMPRINT QUALITY METRIC</u>
ASL	2.047	ARREST SEGMENT LITERAL
<u>ASM</u>	<u>14.023</u>	<u>ALTERNATE SEGMENTATION METRIC</u>
ATN	2.006	"ATTENTION" INDICATOR
<u>BCD</u>	<u>99.005</u>	<u>BIOMETRIC CAPTURE DATE</u>
<u>BDB</u>	<u>99.999</u>	<u>BIOMETRIC DATA BLOCK</u>
<u>BDQ</u>	<u>99.102</u>	<u>BIOMETRIC DATA QUALITY</u>
<u>BFO</u>	<u>99.103</u>	<u>BDB FORMAT OWNER</u>
<u>BFT</u>	<u>99.104</u>	<u>BDB FORMAT TYPE</u>
<u>BPX</u>	<u>13.012</u>	<u>BITS PER PIXEL</u>
<u>BPX</u>	<u>14.012</u>	<u>BITS PER PIXEL</u>
<u>BPX</u>	<u>15.012</u>	<u>BITS PER PIXEL</u>
<u>BPX</u>	<u>16.012</u>	<u>BITS PER PIXEL</u>
<u>BPX</u>	<u>17.012</u>	<u>BITS PER PIXEL</u>
<u>BTY</u>	<u>99.101</u>	<u>BIOMETRIC TYPE</u>
CAN	2.064	CANDIDATE LIST
<u>CCN</u>	<u>2.094</u>	<u>COURT CASE NUMBER</u>
CDD	2.051A	COURT DISPOSITION DATE
CFS	2.077	CANCEL FP SEARCH
CGA	10.011	COMPRESSION ALGORITHM
<u>CGA</u>	<u>13.011</u>	<u>COMPRESSION ALGORITHM</u>
<u>CGA</u>	<u>14.011</u>	<u>COMPRESSION ALGORITHM</u>
<u>CGA</u>	<u>15.011</u>	<u>COMPRESSION ALGORITHM</u>
<u>CGA</u>	<u>16.011</u>	<u>COMPRESSION ALGORITHM</u>
<u>CGA</u>	<u>17.011</u>	<u>COMPRESSION ALGORITHM</u>
CHQ	9.024	CHARACTERIZATION QUALITY
CIN	2.010	CONTRIBUTOR CASE IDENTIFIER NUMBER
CIN_ID	2.010B	CONTRIBUTOR CASE ID
CIN_PRE	2.010A	CONTRIBUTOR CASE PREFIX
CIX	2.011	CONTRIBUTOR CASE IDENTIFIER EXTENSION
CLQ	9.025	CLASSIFIER QUALITY
CNT	1.03	FILE CONTENT
COF	9.019	COORDINATE OFFSETS
COL	2.051B	COURT OFFENSE LITERAL
<u>COM</u>	<u>13.020</u>	<u>COMMENT</u>
<u>COM</u>	<u>14.020</u>	<u>COMMENT</u>
<u>COM</u>	<u>15.020</u>	<u>COMMENT</u>
<u>COM</u>	<u>16.020</u>	<u>COMMENT</u>
CPL	2.051C	OTHER COURT SENTENCE PROVISION LITERAL
CRA	9.021	CORE ATTRIBUTES
CRI	2.073	CONTROLLING AGENCY IDENTIFIER
<u>CSF</u>	<u>2.476</u>	<u>CASCADED SEARCH FLAG</u>

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CRP . 9.008 . CORE POSITION¶

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CSP . 10.012 . COLOR SPACE¶  
CSR . 2.048 . CIVIL SEARCH REQUESTED INDICATOR¶  
CST . 2.061 . CASE TITLE¶  
CTZ . 2.021 . COUNTRY OF CITIZENSHIP¶  
DAI . 1.07 . DESTINATION AGENCY IDENTIFIER¶  
DAT . 1.05 . DATE¶  
DAT . 10.999 . IMAGE DATA¶

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NOTE: The alpha suffixes shown here on EBTS tags are only to identify subfields. They must never be used in message construction.

**TABLE L-1. COMPLETE ELEMENT CROSS-REFERENCE LIST BY ID**

Element ID	EBTS Tag Number	Element Name
<a href="#">CRN</a>	2.085	<a href="#">CIVIL RECORD NUMBER</a>
<a href="#">CRP</a>	9.008	<a href="#">CORE POSITION</a>
<a href="#">CSL</a>	2.051	<a href="#">COURT SEGMENT LITERAL</a>
<a href="#">CSP</a>	10.012	<a href="#">COLOR SPACE</a>
<a href="#">CSP</a>	16.013	<a href="#">COLOR SPACE</a>
<a href="#">CSP</a>	17.013	<a href="#">COLOR SPACE</a>
<a href="#">CSR</a>	2.048	<a href="#">CIVIL SEARCH REQUESTED INDICATOR</a>
<a href="#">CST</a>	2.061	<a href="#">CASE TITLE</a>
<a href="#">CTZ</a>	2.021	<a href="#">COUNTRY OF CITIZENSHIP</a>
<a href="#">DAI</a>	1.07	<a href="#">DESTINATION AGENCY IDENTIFIER</a>
<a href="#">DAT</a>	1.05	<a href="#">DATE</a>
<a href="#">DAT</a>	10.999	<a href="#">IMAGE DATA</a>
<a href="#">DAT</a>	13.099	<a href="#">IMAGE DATA</a>
<a href="#">DAT</a>	14.099	<a href="#">IMAGE DATA</a>
<a href="#">DAT</a>	15.099	<a href="#">IMAGE DATA</a>
<a href="#">DAT</a>	16.099	<a href="#">IMAGE DATA</a> DID 9.021B DIRECTION IN DEGREES (DDD)
<a href="#">DID</a>	9.022B	<a href="#">UPWARD FLOW DIRECTION (DDD)</a>
<a href="#">DID</a>	9.022C	<a href="#">LEFTWARD FLOW DIRECTION (DDD)</a>
<a href="#">DID</a>	9.022D	<a href="#">RIGHTWARD FLOW DIRECTION (DDD)</a>
<a href="#">DLA</a>	9.022	<a href="#">DELTA ATTRIBUTES</a>
<a href="#">DLT</a>	9.009	<a href="#">DELTA POSITION</a>
<a href="#">DMM</a>	14.030	<a href="#">DEVICE MONITORING MODE</a>
<a href="#">DMM</a>	15.030	<a href="#">DEVICE MONITORING MODE</a>
<a href="#">DMM</a>	16.030	<a href="#">DEVICE MONITORING MODE</a>
<a href="#">DMM</a>	17.030	<a href="#">DEVICE MONITORING MODE</a>
<a href="#">DOA</a>	2.045	<a href="#">DATE OF ARREST</a>
<a href="#">DOB</a>	2.022	<a href="#">DATE OF BIRTH</a>
<a href="#">DOO</a>	2.047A	<a href="#">DATE OF OFFENSE</a>
<a href="#">DOS</a>	2.046	<a href="#">DATE OF ARREST-SUFFIX</a>
<a href="#">DPR</a>	2.038	<a href="#">DATE PRINTED</a>
<a href="#">DUI</a>	17.017	<a href="#">DEVICE UNIQUE IDENTIFIER</a>
<a href="#">EAD</a>	2.039	<a href="#">EMPLOYER AND ADDRESS</a>
<a href="#">ECL</a>	17.020	<a href="#">EYE COLOR</a>
<a href="#">EID</a>	2.049	<a href="#">EMPLOYEE IDENTIFICATION NUMBER</a>
<a href="#">ERS</a>	2.075	<a href="#">ELECTRONIC RAP SHEET</a>
<a href="#">ETC</a>	2.069	<a href="#">ESTIMATED TIME TO COMPLETE</a>
<a href="#">EXP</a>	2.080	<a href="#">RESPONSE EXPLANATION</a>
<a href="#">EYE</a>	2.031	<a href="#">COLOR EYES</a>
<a href="#">FBI</a>	2.014	<a href="#">FBI NUMBER</a>
<a href="#">FCP</a>	9.016	<a href="#">FINGERPRINT CHARACTERIZATION PROCESS</a>
<a href="#">FFN</a>	2.003	<a href="#">FBI FILE NUMBER</a>
<a href="#">FGN</a>	9.014	<a href="#">FINGER NUMBER</a>
<a href="#">FGP</a>	2.034A	<a href="#">FINGER NUMBER</a>
<a href="#">FGP</a>	2.074	<a href="#">FINGER POSITION</a>
<a href="#">FGP</a>	2.084A	<a href="#">FINGER NUMBER</a>
<a href="#">FGP</a>	2.091A	<a href="#">FINGER NUMBER</a>
<a href="#">FGP</a>	2.092A	<a href="#">FINGER NUMBER</a>
<a href="#">FGP</a>	7.04	<a href="#">FINGER POSITION</a>
<a href="#">FGP</a>	9.006	<a href="#">FINGER POSITION</a>
<a href="#">FGP</a>	13.013	<a href="#">FINGER POSITION</a>
<a href="#">FGP</a>	14.013	<a href="#">FINGER POSITION</a>

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FIU : 2.072 : FINGERPRINT IMAGE(S) UPDATED¶

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FNR : 2.057 : FINGER NUMBER(S) REQUESTED¶  
FNU : 2.064A : FBI NUMBER¶  
FPC : 2.033 : NCIC FINGERPRINT CLASSIFICATION¶  
FPC : 9.007 : FINGERPRINT PATTERN CLASSIFICATION¶  
GCA : 7.08 : GRAYSCALE COMPRESSION ALGORITHM¶  
GEO : 2.044 : GEOGRAPHICAL AREA OF SEARCH¶  
HAI : 2.032 : HAIR COLOR¶  
HGT : 2.027 : HEIGHT¶

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NOTE: The alpha suffixes shown here on EBTS tags are only to identify subfields. They must never be used in message construction.

**TABLE L-1. COMPLETE ELEMENT CROSS-REFERENCE LIST BY ID**

Element ID	EBTS Tag Number	Element Name
<a href="#">FID</a>	<a href="#">17.003</a>	<a href="#">FEATURE IDENTIFIER</a>
<a href="#">FIU</a>	<a href="#">2.072</a>	<a href="#">FINGERPRINT IMAGE(S) UPDATED</a>
<a href="#">FMT</a>	<a href="#">9.004</a>	<a href="#">MINUTIAE FORMAT</a>
<a href="#">FNR</a>	<a href="#">2.057</a>	<a href="#">FINGER NUMBER(S) REQUESTED</a>
<a href="#">FNU</a>	<a href="#">2.064A</a>	<a href="#">FBI NUMBER</a>
<a href="#">FPC</a>	<a href="#">2.033</a>	<a href="#">NCIC FINGERPRINT CLASSIFICATION</a>
<a href="#">FPC</a>	<a href="#">9.007</a>	<a href="#">FINGERPRINT PATTERN CLASSIFICATION</a>
<a href="#">GCA</a>	<a href="#">7.08</a>	<a href="#">GRAYSCALE COMPRESSION ALGORITHM</a>
<a href="#">GEO</a>	<a href="#">2.044</a>	<a href="#">GEOGRAPHICAL AREA OF SEARCH</a>
<a href="#">GUI</a>	<a href="#">17.018</a>	<a href="#">GLOBAL UNIQUE IDENTIFIER</a>
<a href="#">HAI</a>	<a href="#">2.032</a>	<a href="#">HAIR COLOR</a>
<a href="#">HDV</a>	<a href="#">99.100</a>	<a href="#">CBEFF HEADER VERSION</a>
<a href="#">HGT</a>	<a href="#">2.027</a>	<a href="#">HEIGHT</a>
<a href="#">HLL</a>	<a href="#">10.006</a>	<a href="#">HORIZONTAL LINE LENGTH</a>
<a href="#">HLL</a>	<a href="#">7.06</a>	<a href="#">HORIZONTAL LINE LENGTH</a>
<a href="#">HLL</a>	<a href="#">13.006</a>	<a href="#">HORIZONTAL LINE LENGTH</a>
<a href="#">HLL</a>	<a href="#">14.006</a>	<a href="#">HORIZONTAL LINE LENGTH</a>
<a href="#">HLL</a>	<a href="#">15.006</a>	<a href="#">HORIZONTAL LINE LENGTH</a>
<a href="#">HLL</a>	<a href="#">16.006</a>	<a href="#">HORIZONTAL LINE LENGTH</a>
<a href="#">HLL</a>	<a href="#">17.006</a>	<a href="#">HORIZONTAL LINE LENGTH</a>
<a href="#">HPS</a>	<a href="#">10.009</a>	<a href="#">HORIZONTAL PIXEL SCALE</a>
<a href="#">HPS</a>	<a href="#">13.009</a>	<a href="#">HORIZONTAL PIXEL SCALE</a>
<a href="#">HPS</a>	<a href="#">14.009</a>	<a href="#">HORIZONTAL PIXEL SCALE</a>
<a href="#">HPS</a>	<a href="#">15.009</a>	<a href="#">HORIZONTAL PIXEL SCALE</a>
<a href="#">HPS</a>	<a href="#">16.009</a>	<a href="#">HORIZONTAL PIXEL SCALE</a>
<a href="#">HPS</a>	<a href="#">17.009</a>	<a href="#">HORIZONTAL PIXEL SCALE</a>
<a href="#">HTR</a>	<a href="#">2.028</a>	<a href="#">HEIGHT RANGE</a>
<a href="#">ICO</a>	<a href="#">2.056</a>	<a href="#">IDENTIFICATION COMMENTS</a>
<a href="#">IDC</a>	<a href="#">10.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">2.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">7.02</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">9.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">13.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">14.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">15.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">16.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">17.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IDC</a>	<a href="#">99.002</a>	<a href="#">IMAGE DESIGNATION CHARACTER</a>
<a href="#">IID</a>	<a href="#">17.099</a>	<a href="#">IRIS IMAGE DATA</a>
<a href="#">IMA</a>	<a href="#">2.067</a>	<a href="#">IMAGE CAPTURE EQUIPMENT</a>
<a href="#">IMG</a>	<a href="#">7.99</a>	<a href="#">IMAGE DATA</a>
<a href="#">IMP</a>	<a href="#">7.03</a>	<a href="#">IMPRESSION TYPE</a>
<a href="#">IMP</a>	<a href="#">9.003</a>	<a href="#">IMPRESSION TYPE</a>
<a href="#">IMP</a>	<a href="#">13.003</a>	<a href="#">IMPRESSION TYPE</a>
<a href="#">IMP</a>	<a href="#">14.003</a>	<a href="#">IMPRESSION TYPE</a>
<a href="#">IMP</a>	<a href="#">15.003</a>	<a href="#">IMPRESSION TYPE</a>
<a href="#">IMT</a>	<a href="#">10.003</a>	<a href="#">IMAGE TYPE</a>
<a href="#">IMT</a>	<a href="#">2.062</a>	<a href="#">IMAGE TYPE (IF TYPE -7 IMAGES)</a>
<a href="#">IPC</a>	<a href="#">17.016</a>	<a href="#">IMAGE PROPERTY CODE</a>
<a href="#">IQM</a>	<a href="#">14.022</a>	<a href="#">IMAGE QUALITY METRIC</a>
<a href="#">IQS</a>	<a href="#">17.024</a>	<a href="#">IMAGE QUALITY SCORE</a>

NOTE: The alpha suffixes shown here on EBTS tags are only to identify subfields. They must never be used in message construction.

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ISR 7.05 . IMAGE SCANNING RESOLUTION¶

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LCX 2.013 . FBI LATENT CASE EXTENSION¶  
LEN 1.01 . LOGICAL RECORD LENGTH¶  
LEN 10.001 . LOGICAL RECORD LENGTH¶  
LEN 2.001 . LOGICAL RECORD LENGTH¶  
LEN 7.01 . LOGICAL RECORD LENGTH¶  
LEN 9.001 . LOGICAL RECORD LENGTH¶  
MAK 2.067A . ORIGINATING FINGERPRINT READING SYSTEM MAKE¶  
MAT 9.023 . MINUTIAE AND RIDGE COUNT DATA¶  
MCOUNT 9.012E . RIDGE COUNT DATA¶  
MDX 9.012A . INDEX NUMBER¶  
MDX 9.023A . MINUTIAE INDEX NUMBER (III)¶  
MET 9.016C . METHOD¶  
MIL 2.042 . MILITARY CODE¶  
MIN 9.010 . NUMBER OF MINUTIAE¶  
MNT 9.023D . MINUTIA TYPE¶  
MNU 2.017 . MISCELLANEOUS IDENTIFICATION NUMBER¶  
MODL 2.067B . ORIGINATING FINGERPRINT READING SYSTEM MODEL¶  
MQUAL 9.012C . QUALITY MEASURE¶  
MRC 9.012 . MINUTIAE AND RIDGE COUNT DATA¶  
MRO 9.023E . MINUTIA INDEX AND RIDGE COUNT OCTANT 0 (NNNCC)¶

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**TABLE L-1. COMPLETE ELEMENT CROSS-REFERENCE LIST BY ID**

Element ID	EBTS Tag Number	Element Name
IRD	17.005	IRIS CAPTURE DATE
ISR	7.05	IMAGE SCANNING RESOLUTION
LCD	13.005	LATENT CAPTURE DATE
LCN	2.012	FBI LATENT CASE NUMBER
LCX	2.013	FBI LATENT CASE EXTENSION
LEN	1.01	LOGICAL RECORD LENGTH
LEN	10.001	LOGICAL RECORD LENGTH
LEN	2.001	LOGICAL RECORD LENGTH
LEN	7.01	LOGICAL RECORD LENGTH
LEN	9.001	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
MAK	2.067A	ORIGINATING FINGERPRINT READING SYSTEM MAKE
MAT	9.023	MINUTIAE AND RIDGE COUNT DATA
MCL	13.014	MAJOR CASE LATENT
MCP	14.014	MAJOR CASE PRINT
MCOUNT	9.012E	RIDGE COUNT DATA
MCS	13.015	MAJOR CASE PRINT SEGMENT POSITION(S)
MCS	14.015	MAJOR CASE PRINT SEGMENT POSITION(S)
MDX	9.012A	INDEX NUMBER
MDX	9.023A	MINUTIAE INDEX NUMBER (III)
MET	9.016C	METHOD
MIL	2.042	MILITARY CODE
MIN	9.010	NUMBER OF MINUTIAE
MMS	17.019	MAKE/MODEL/SERIAL NUMER
MNT	9.023D	MINUTIA TYPE
MNU	2.017	MISCELLANEOUS IDENTIFICATION NUMBER
MODL	2.067B	ORIGINATING FINGERPRINT READING SYSTEM MODEL
MQUAL	9.012C	QUALITY MEASURE
MRC	9.012	MINUTIAE AND RIDGE COUNT DATA
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	MATCHSCORE
MSG	2.060	STATUS/ERROR MESSAGE
MTD	9.012D	MINUTIA TYPE DESIGNATION
MXYTHETA	9.012B	X, Y, THETA VALUES
NAM	2.018	NAME
NAM	2.064B	NAME

NOTE: The alpha suffixes shown here on EBTS tags are only to identify subfields. They must never be used in message construction.

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Deleted: NAMI 2.XXX NAME-ONE¶  
 NAM2 2.XXX NAME-TWO¶  
 NAM3 2.XXX NAME-THREE¶  
 NAM4 2.XXX NAME-FOUR¶  
 NAM5 2.XXX NAME-FIVE¶

Deleted: NCR 2.079 NUMBER OF CANDIDATE'S IMAGES RETURNED¶  
 NMN 9.015 NUMBER OF MINUTIAE¶  
 NOT 2.088 NOTE FIELD¶  
 NSR 1.11 NATIVE SCANNING RESOLUTION¶  
 NTR 1.12 NOMINAL TRANSMITTING RESOLUTION¶  
 OCA 2.009 ORIGINATING AGENCY CASE NUMBER¶  
 OCP 2.040 OCCUPATION¶  
 OFC 2.053 OFFENSE CATEGORY¶  
 OFR 9.005 ORIGINATING FINGERPRINT READING SYSTEM¶  
 OFR\_METHOD 9.005B ORIGINATING FINGERPRINT READER METHOD¶  
 OFR\_NAME 9.005A ORIGINATING FINGERPRINT READER NAME¶  
 OFR\_SUBSYS 9.005C ORIGINATING FINGERPRINT READER SUBSYS¶  
 ORI 1.08 ORIGINATING AGENCY IDENTIFIER¶  
 ORN 9.020 ORIENTATION UNCERTAINTY¶  
 PAT 2.034 PATTERN LEVEL CLASSIFICATIONS¶  
 PATCL 2.034B PATTERN CLASSIFICATION CODE¶  
 PEN 2.078 PENETRATION QUERY RESPONSE¶  
 PHD 10.005 PHOTO DATE¶  
 PHT 2.036 "PHOTO AVAILABLE" INDICATOR¶  
 POA 10.021 POSE OFFSET ANGLE¶  
 POB 2.020 PLACE OF BIRTH¶  
 POS 10.020 SUBJECT POSE¶  
 PPA 2.035 "PALM PRINTS AVAILABLE" INDICATOR¶  
 PRI 2.076 PRIORITY¶

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**TABLE L-1. COMPLETE ELEMENT CROSS-REFERENCE LIST BY ID**

Element ID	<u>EBTS</u> Tag Number	Element Name
NAM1	2.471	NAME-ONE
NAM2	2.472	NAME-TWO
NAM3	2.473	NAME-THREE
NAM4	2.474	NAME-FOUR
NAM5	2.475	NAME-FIVE
NCR	2.079	NUMBER OF CANDIDATE'S IMAGES RETURNED
NDR	2.098	NAME OF DESIGNATED REPOSITORY
NMN	9.015	NUMBER OF MINUTIAE
NOT	2.088	NOTE FIELD
NSR	1.11	NATIVE SCANNING RESOLUTION
NTR	1.12	NOMINAL TRANSMITTING RESOLUTION
OCA	2.009	ORIGINATING AGENCY CASE NUMBER
OCP	2.040	OCCUPATION
OFC	2.053	OFFENSE CATEGORY
OFR	9.005	ORIGINATING FINGERPRINT READING SYSTEM
OFR_METHOD	9.005B	ORIGINATING FINGERPRINT READER METHOD
OFR_NAME	9.005A	ORIGINATING FINGERPRINT READER NAME
OFR_SUBSYS	9.005C	ORIGINATING FINGERPRINT READER SUBSYS
ORI	1.08	ORIGINATING AGENCY IDENTIFIER
ORN	9.020	ORIENTATION UNCERTAINTY
PAT	2.034	PATTERN LEVEL CLASSIFICATIONS
PATCL	2.034B	PATTERN CLASSIFICATION CODE
PEN	2.078	PENETRATION QUERY RESPONSE
PCD	15.005	PALMPRINT CAPTURE DATE
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	"PALM PRINTS AVAILABLE" INDICATOR
PRI	2.076	PRIORITY
PRY	1.06	TRANSACTION PRIORITY
PTD	2.063	PERSON TYPE DESIGNATOR
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	17.1015	ROTATION UNCERTAINTY
RBR	2.052	RAP-BACK REQUEST
RBRO	2.058	RAP-BACK RECORD OWNER
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
RDG	9.011	MINUTIAE RIDGE COUNT INDICATOR
REC	2.082	RESPONSE CODE

NOTE: The alpha suffixes shown here on EBTS tags are only to identify subfields. They must never be used in message construction.

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 RET 2.005 . RETENTION CODE¶  
 RFP 2.037 . REASON FINGERPRINTED¶  
 RFR 2.270 . REQUEST FEATURES RECORD¶  
 RPR 2.271 . REQUEST PHOTO RECORD¶  
 ROV 9.018 . REGION OF VALUE POLYGON¶

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Deleted: RSO 9.023M . OCTANT RESIDUALS (RRRRRRRR)¶  
 RSR 2.065 . REPOSITORY STATISTICS RESPONSE¶  
 SCNA 2.086 . AFIS SEGMENT CONTROL NUMBER¶  
 SCO 2.007 . SEND COPY TO¶  
 SERNO 2.067C . ORIGINATING FINGERPRINT READING SYSTEM SERIAL ¶  
 SEX 2.024 . SEX¶  
 SID 2.015 . STATE IDENTIFICATION NUMBER¶  
 SLC 10.008 . SCALE UNITS¶  
 SLE 2.055 . CUSTODY OR SUPERVISORY STATUS LITERAL¶  
 SMT 2.026 . SCARS, MARKS, AND TATTOOS¶  
 SOC 2.016 . SOCIAL SECURITY ACCOUNT NUMBER¶  
 SRC 10.004 . SOURCE AGENCY/ORI¶  
 SRF 2.059 . SEARCH RESULTS FINDINGS¶  
 SSD 2.054 . CUSTODY OR SUPERVISORY STATUS - START DATE¶  
 TAA 2.087 . TREAT AS ADULT¶  
 TCN 1.09 . TRANSACTION CONTROL NUMBER¶

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**TABLE L-1. COMPLETE ELEMENT CROSS-REFERENCE LIST BY ID**

Element ID	EBTS Tag Number	Element Name
RES	2.041	RESIDENCE OF PERSON FINGERPRINTED
RET	2.005	RETENTION CODE
RFP	2.037	REASON FINGERPRINTED
RFR	2.095	REQUEST FEATURES RECORD
RPR	2.096	REQUEST PHOTO RECORD
ROV	9.018	REGION OF VALUE POLYGON
RSO	9.023M	OCTANT RESIDUALS (RRRRRRRR)
RSR	2.065	REPOSITORY STATISTICS RESPONSE
SAN	2.099	STATE ARREST NUMBER
SCNA	2.086	AFIS SEGMENT CONTROL NUMBER
SCO	2.007	SEND COPY TO
SDOB	2.477	SUBMITTED DATE OF BIRTH
SEG	14.021	FINGERPRINT SEGMENT POSITION(S)
SERNO	2.067C	ORIGINATING FINGERPRINT READING SYSTEM SERIAL
SEX	2.024	SEX
SHPS	13.016	SCAN HOR PIXEL 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
SLC	10.008	SCALE UNITS
SLC	13.008	SCALE UNITS
SLC	14.008	SCALE UNITS
SLC	15.008	SCALE UNITS
SLC	16.008	SCALE UNITS
SLC	17.008	SCALE UNITS
SLCN	2.093	SPECIAL LATENT COGNIZANT NUMBER
SLE	2.055	CUSTODY OR SUPERVISORY STATUS LITERAL
SMT	2.026	SCARS, MARKS, AND TATTOOS
SNAM	2.478	SUBMITTED NAME
SOC	2.016	SOCIAL SECURITY ACCOUNT NUMBER
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	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	SCAN VERT PIXEL SCALE
SVPS	14.017	SCAN VERT PIXEL SCALE
SVPS	15.017	SCAN VERT PIXEL SCALE
SVPS	16.017	SCAN VERT PIXEL SCALE
TAA	2.087	TREAT AS ADULT
TCD	14.005	TENPRINT CAPTURE DATE
TCN	1.09	TRANSACTION CONTROL NUMBER
TCR	1.10	TRANSACTION CONTROL REFERENCE
THET	9.019C	ROTATION ANGLE CW DEGREES (IILFFFF)
TOT	1.04	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

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T¶  
VER 1.02 VERSION¶  
VID 9.016B VERSION IDENTIFIER¶  
VLL 7.07 VERTICAL LINE  
LENGTH¶  
VLL 10.007 VERTICAL LINE  
LENGTH¶

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LINE LENGTH¶

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LINE LENGTH¶  
VLL 14.007 VERTICAL LINE  
LENGTH¶  
VLL 15.007 VERTICAL LINE  
LENGTH

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[NOTE: The alpha suffixes shown here on EBTS tags are only to identify subfields. They must never be used in message construction](#)

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**TABLE L-1. COMPLETE ELEMENT CROSS-REFERENCE LIST BY ID**

Element ID	EBTS Tag Number	Element Name
<a href="#">VEN</a>	<a href="#">9.016A</a>	<a href="#">EQUIPMENT</a>
<a href="#">VER</a>	<a href="#">1.02</a>	<a href="#">VERSION</a>
<a href="#">VID</a>	<a href="#">9.016B</a>	<a href="#">VERSION IDENTIFIER</a>
<a href="#">VLL</a>	<a href="#">7.07</a>	<a href="#">VERTICAL LINE LENGTH</a>
<a href="#">VLL</a>	<a href="#">10.007</a>	<a href="#">VERTICAL LINE LENGTH</a>
<a href="#">VLL</a>	<a href="#">13.007</a>	<a href="#">VERTICAL LINE LENGTH</a>
<a href="#">VLL</a>	<a href="#">14.007</a>	<a href="#">VERTICAL LINE LENGTH</a>
<a href="#">VLL</a>	<a href="#">15.007</a>	<a href="#">VERTICAL LINE LENGTH</a>
<a href="#">VLL</a>	<a href="#">17.007</a>	<a href="#">VERTICAL LINE LENGTH</a>
<a href="#">VLL</a>	<a href="#">16.007</a>	<a href="#">VERTICAL LINE LENGTH</a>
<a href="#">VPS</a>	<a href="#">10.010</a>	<a href="#">VERTICAL PIXEL SCALE</a>
<a href="#">VPS</a>	<a href="#">13.010</a>	<a href="#">VERTICAL PIXEL SCALE</a>
<a href="#">VPS</a>	<a href="#">14.010</a>	<a href="#">VERTICAL PIXEL SCALE</a>
<a href="#">VPS</a>	<a href="#">15.010</a>	<a href="#">VERTICAL PIXEL SCALE</a>
<a href="#">VPS</a>	<a href="#">16.010</a>	<a href="#">VERTICAL PIXEL SCALE</a>
<a href="#">VPS</a>	<a href="#">17.010</a>	<a href="#">VERTICAL PIXEL SCALE</a>
<a href="#">WGT</a>	<a href="#">2.029</a>	<a href="#">WEIGHT</a>
<a href="#">WTR</a>	<a href="#">2.030</a>	<a href="#">WEIGHT RANGE</a>
<a href="#">XYM</a>	<a href="#">9.018A</a>	<a href="#">VERTEX (XXXXXXXXXX)</a>
<a href="#">XYM</a>	<a href="#">9.021A</a>	<a href="#">LOCATION (XXXXXXXXXX)</a>
<a href="#">XYM</a>	<a href="#">9.022A</a>	<a href="#">LOCATION (XXXXXXXXXX)</a>
<a href="#">XYP</a>	<a href="#">9.019A</a>	<a href="#">OFFSET TO UL CORNER SUBIMAGE (XXXXXXXXXX)</a>
<a href="#">XYP</a>	<a href="#">9.019B</a>	<a href="#">CENTER OF ROTATION IN SUBIMAGE (XXXXXXXXXX)</a>
<a href="#">XYP</a>	<a href="#">9.019D</a>	<a href="#">ROTATION CENTER IN ROTATED SUBIMAGE (XXXXXXXXXX)</a>
<a href="#">XYP</a>	<a href="#">9.019E</a>	<a href="#">OFFSET TO UL CORNER FINAL SUBIMAGE (XXXXXXXXXX)</a>
<a href="#">XYT</a>	<a href="#">9.023B</a>	<a href="#">LOCATION DIRECTION (XXXXXXXXXX)</a>

NOTE: The alpha suffixes shown here on EBTS tags are only to identify subfields. They must never be used in message construction

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WTR . 2.030 . WEIGHT RANGE¶  
XYM . 9.018A . VERTEX  
(XXXXXXXXXX)¶  
XYM . 9.021A . LOCATION  
(XXXXXXXXXX)¶  
XYM . 9.022A . LOCATION  
(XXXXXXXXXX)¶  
XYP . 9.019A . OFFSET TO UL  
CORNER SUBIMAGE (XXXXXXXXXX)¶  
XYP . 9.019B . CENTER OF  
ROTATION IN  
SUBIMAGE(XXXXXXXXXX)¶  
XYP . 9.019D . ROTATION CENTER  
IN ROTATED SUBIMAGE  
(XXXXXXXXXX)¶  
XYP . 9.019E . OFFSET TO UL  
CORNER FINAL SUBIMAGE  
(XXXXXXXXXX)¶  
XYT . 9.023B . LOCATION  
DIRECTION (XXXXXXXXXX )¶

NOTE: The alpha suffixes shown here on EFTS tags are only to identify subfields. They must never be used in message construction

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<b>EBTS Tag Number</b>	<b>Element ID</b>	<b>Element Name</b>
1.01	LEN	LOGICAL RECORD LENGTH
1.02	VER	VERSION
1.03	CNT	FILE CONTENT
1.04	TOT	TYPE OF TRANSACTION
1.05	DAT	DATE
1.06	PRY	TRANSACTION PRIORITY
1.07	DAI	DESTINATION AGENCY IDENTIFIER
1.08	ORI	ORIGINATING AGENCY IDENTIFIER
1.09	TCN	TRANSACTION CONTROL NUMBER
1.10	TCR	TRANSACTION CONTROL REFERENCE
1.11	NSR	NATIVE SCANNING RESOLUTION
1.12	NTR	NOMINAL TRANSMITTING RESOLUTION
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
2.023	AGR	AGE RANGE
2.024	SEX	SEX

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NOTE: The alpha suffixes shown here on **EBTS** tags are only to identify subfields. They must never be used in message construction.

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS</u> Tag Number	Element ID	Element Name	Deleted: EFTS
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	"PALM PRINTS 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	
<u>2.049</u>	<u>EID</u>	<u>EMPLOYEE IDENTIFICATION NUMBER</u>	Deleted: .
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	
<u>2.052</u>	<u>RBR</u>	<u>RAP-BACK REQUEST</u>	
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	
NOTE: The alpha suffixes shown here on <u>EBTS</u> tags are only to identify subfields. They must never be used in message construction.			Deleted: EFTS

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>	Deleted: EFTS
<u>2.058</u>	<u>RBRO</u>	<u>RAP-BACK RECORD OWNER</u>	
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 FP SEARCH	
2.078	PEN	PENETRATION QUERY RESPONSE	
2.079	NCR	NUMBER OF CANDIDATE'S IMAGES RETURNED	
2.080	EXP	RESPONSE EXPLANATION	
<u>2.081</u>	<u>UCN</u>	<u>UNIVERSAL CONTROL NUMBER</u>	Deleted: .
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	MATCHSCORE	
2.091	RCD1	RIDGE CORE DELTA ONE FOR SUBPATTERN	
2.091A	FGP	FINGER NUMBER	
NOTE: The alpha suffixes shown here on <u>EBTS tags</u> are only to identify subfields. They must never be used in message construction.			Deleted: EFTS

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS</u> Tag Number	Element ID	Element Name	
2.091B	RCN1	RIDGE COUNT NUMBER 1	Deleted: EFTS
2.092	RCD2	RIDGE CORE DELTA TWO FOR SUBPATTERN	
2.092A	FGP	FINGER NUMBER	
2.092B	RCN2	RIDGE COUNT NUMBER 2	
2.093	SLCN	SPECIAL LATENT COGNIZANT NUMBER	
2.094	CCN	COURT CASE NUMBER	
2.0095	RFR	REQUEST FEATURES RECORD	
2.096	RPR	REQUEST PHOTO RECORD	
2.098	NDR	NAME OF DESIGNATED REPOSITORY	
2.099	SAN	STATE ARREST NUMBER	
2.471	NAM1	NAME-ONE	Deleted: . Deleted: . 2.049 . EID . EMPLOYEE IDENTIFICATION NUMBER¶ . 2.081 . UCN . UNIVERSAL CONTROL NUMBER¶ . 2.052 . RBR . RAP-BACK REQUEST¶ . 2.058 . RBRO . RAP-BACK RECORD OWNER¶
2.472	NAM2	NAME-TWO	
2.473	NAM3	NAME-THREE	
2.474	NAM4	NAME-FOUR	
2.475	NAM5	NAME-FIVE	
2.476	CSF	CASCADED SEARCH FLAG	Deleted: . 2.270 . RFR . REQUEST FEATURES RECORD¶ . 2.271 . RPR . REQUEST PHOTO RECORD¶ . 2.272 . SLCN . SPECIAL LATENT COGNIZANT NUMBER¶
2.477	SDOB	SUBMITTED DATE OF BIRTH	
2.478	SNAM	SUBMITTED NAME	Deleted: 273
7.01	LEN	LOGICAL RECORD LENGTH	Deleted: 274
7.02	IDC	IMAGE DESIGNATION CHARACTER	Deleted: 275
7.03	IMP	IMPRESSION TYPE	Deleted: 276
7.04	FGP	FINGER POSITION	Deleted: 277
7.05	ISR	IMAGE SCANNING RESOLUTION	Deleted: . 2.278 . CCN . COURT CASE NUMBER¶
7.06	HLL	HORIZONTAL LINE LENGTH	Deleted: ¶
7.07	VLL	VERTICAL LINE LENGTH	Formatted: Font: Times New Roman
7.08	GCA	GRAYSCALE COMPRESSION ALGORITHM	Formatted: Font: Times New Roman
7.99	IMG	IMAGE DATA	Deleted:
9.001	LEN	LOGICAL RECORD LENGTH	Deleted: 9.012 . MRC . MINUTIAE AND RIDGE COUNT DATA¶ . 9.012A . MDX . INDEX NUMBER¶ . 9.012B . MXYTHETA . X, Y, THETA VALUES¶ . 9.012C . MQUAL . QUALITY MEASURE¶ . 9.012D . MTD . MINUTIA TYPE DESIGNATION¶ . 9.012E . MCOUNT . RIDGE COUNT DATA¶ . 9.013 . AFV . AFIS FEATURE VECTOR¶ . 9.014 . FGN . FINGER NUMBER¶ . 9.015 . NMN . NUMBER OF MINUTIAE¶ . 9.016 . FCP . FINGERPRINT CHARACTERIZATION PROCESS
9.002	IDC	IMAGE DESIGNATION CHARACTER	
9.003	IMP	IMPRESSION TYPE	
9.004	FMT	MINUTIAE FORMAT	
9.005	OFR	ORIGINATING FINGERPRINT READING SYSTEM	
9.005A	OFR_NAME	ORIGINATING FINGERPRINT READER NAME	
9.005B	OFR_METHOD	ORIGINATING FINGERPRINT READER METHOD	
9.005C	OFR_SUBSYS	ORIGINATING FINGERPRINT READER SUBSYS	
9.006	FGP	FINGER POSITION	
9.007	FPC	FINGERPRINT PATTERN CLASSIFICATION	
9.008	CRP	CORE POSITION	
9.009	DLT	DELTA POSITION	
9.010	MIN	NUMBER OF MINUTIAE	
9.011	RDG	MINUTIAE RIDGE COUNT INDICATOR	

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>
9.012	MRC	MINUTIAE AND RIDGE COUNT DATA
9.012A	MDX	INDEX NUMBER
9.012B	MXYTHETA	X, Y, THETA VALUES
9.012C	MQUAL	QUALITY MEASURE
9.012D	MTD	MINUTIA TYPE DESIGNATION
9.012E	MCOUNT	RIDGE COUNT DATA
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
9.018	ROV	REGION OF VALUE POLYGON
9.018A	XYM	VERTEX (XXXXXXXX)
9.019	COF	COORDINATE OFFSETS
9.019A	XYP	OFFSET TO UL CORNER SUBIMAGE (XXXXXXXX)
9.019B	XYP	CENTER OF ROTATION IN SUBIMAGE (XXXXXXXX)
9.019C	THET	ROTATION ANGLE CW DEGREES (II.FFFF)
9.019D	XYP	ROTATION CENTER IN ROTATED SUBIMAGE (XXXXXXXX)
9.019E	XYP	OFFSET TO UL CORNER FINAL SUBIMAGE (XXXXXXXX)
9.020	ORN	ORIENTATION UNCERTAINTY
9.021	CRA	CORE ATTRIBUTES
9.021A	XYM	LOCATION (XXXXXXXX)
9.021B	DID	DIRECTION IN DEGREES (DDD)
9.021C	PUM	POSITION UNCERTAINTY (RRRR)
9.022	DLA	DELTA ATTRIBUTES
9.022A	XYM	LOCATION (XXXXXXXX)
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 (XXXXXXXX )
9.023C	QMS	QUALITY MEASURE
9.023D	MNT	MINUTIA TYPE
9.023E	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 0 (NNCC)
9.023F	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 1 (NNCC)
9.023G	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 2 (NNCC)
9.023H	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 3 (NNCC)
9.023I	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 4 (NNCC)
9.023J	MRO	MINUTIA INDEX AND RIDGE COUNT OCTANT 5 (NNCC)

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS</u> Tag Number	Element ID	Element Name
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
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
10.012	CSP	COLOR SPACE
10.020	POS	SUBJECT POSE
10.021	POA	POSE OFFSET ANGLE
10.022	PXS	PHOTO DESCRIPTION
<u>10.023</u>	<u>PAS</u>	<u>PHOTO ACQUISITION SOURCE</u>
<u>10.024</u>	<u>SQS</u>	<u>SUBJECT QUALITY SCORE</u>
<u>10.025</u>	<u>SPA</u>	<u>SUBJECT POSE ANGLES</u>
<u>10.026</u>	<u>SXS</u>	<u>SUBJECT FACIAL DESCRIPTION</u>
<u>10.027</u>	<u>SEC</u>	<u>SUBJECT EYE COLOR</u>
<u>10.028</u>	<u>SHC</u>	<u>SUBJECT HAIR COLOR</u>
<u>10.029</u>	<u>SFP</u>	<u>SUBJECT FEATURE POINTS</u>
<u>10.030</u>	<u>DMM</u>	<u>DEVICE MONITORING MODE</u>
<u>10.040</u>	<u>SMT</u>	<u>NCIC DESIGNATION CODE</u>
<u>10.041</u>	<u>SMS</u>	<u>SCAR/MARK/TATTOO SIZE</u>
<u>10.042</u>	<u>SMD</u>	<u>SMT DESCRIPTORS</u>
<u>10.043</u>	<u>COL</u>	<u>COLORS PRESENT</u>
10.999	DAT	IMAGE DATA

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>
<u>13.001</u>	<u>LEN</u>	<u>LOGICAL RECORD LENGTH</u>
<u>13.002</u>	<u>IDC</u>	<u>IMAGE DESIGNATION CHARACTER</u>
<u>13.003</u>	<u>IMP</u>	<u>IMPRESSION TYPE</u>
<u>13.004</u>	<u>SRC</u>	<u>SOURCE AGENCY/ORI</u>
<u>13.005</u>	<u>LCD</u>	<u>LATENT CAPTURE DATE</u>
<u>13.006</u>	<u>HLL</u>	<u>HORIZONTAL LINE LENGTH</u>
<u>13.007</u>	<u>VLL</u>	<u>VERTICAL LINE LENGTH</u>
<u>13.008</u>	<u>SLC</u>	<u>SCALE UNITS</u>
<u>13.009</u>	<u>HPS</u>	<u>HORIZONTAL PIXEL SCALE</u>
<u>13.010</u>	<u>VPS</u>	<u>VERTICAL PIXEL SCALE</u>
<u>13.011</u>	<u>CGA</u>	<u>COMPRESSION ALGORITHM</u>
<u>13.012</u>	<u>BPX</u>	<u>BITS PER PIXEL</u>
<u>13.013</u>	<u>FGP</u>	<u>FINGER POSITION</u>
<u>13.014</u>	<u>MCL</u>	<u>MAJOR CASE LATENT</u>
<u>13.015</u>	<u>MCS</u>	<u>MAJOR CASE PRINT SEGMENT POSITION(S)</u>
<u>13.016</u>	<u>SHPS</u>	<u>SCAN HOR PIXEL SCALE</u>
<u>13.017</u>	<u>SVPS</u>	<u>SCAN VERT PIXEL SCALE</u>
<u>13.020</u>	<u>COM</u>	<u>COMMENT</u>
<u>13.099</u>	<u>DAT</u>	<u>IMAGE DATA</u>

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>
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	LCD	TENPRINT 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	MCL	MAJOR CASE PRINT
14.015	MCS	MAJOR CASE PRINT SEGMENT POSITION(S)
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	IQM	IMAGE QUALLITY METRIC
14.023	ASM	ALTERNATE SEGMENTATION METRIC
14.024	AFM	ALTERNATE FINGERPRINT QUALITY METRIC
14.030	DMM	DEVICE MONITORING MODE
14.099	DAT	IMAGE DATA

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>
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
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	APM	ALTERNATE PALMPRINT QUALITY METRIC
15.030	DMM	DEVICE MONITORING MODE
15.099	DAT	IMAGE DATA

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>
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
16.099	DAT	IMAGE DATA

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>
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
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
17.099	IID	IRIS IMAGE DATA

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**TABLE L-2. COMPLETE ELEMENT CROSS-REFERENCE LIST BY TAG NUMBER**

<u>EBTS Tag Number</u>	<u>Element ID</u>	<u>Element Name</u>
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-	RSV	RESERVED FOR FUTURE INCLUSION
99.099		
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	RSV	RESERVED FOR FUTURE INCLUSION -
99.199		
99.999	BDB	BIOMETRIC DATA BLOCK

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**TABLE L-3. RECORDSET REQUIREMENTS SUMMARY BY TYPE OF TRANSACTION**

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Transaction	Normal	Delayed	Error	Ref	TOT	T1	T2	T4*	T7	T9	T10
T15				Response							
				/14	/13						/17**

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<b>Ten-Print Submissions</b>				3.1.2							
CRIMINAL TEN-PRINT SUBMISSION - ANSWER REQUIRED	3.1.1.1	CAR	1	1	14	0	0	0	0	0	0
<i>N** 8/2***</i> CRIMINAL TEN-PRINT SUBMISSION - NO ANSWER REQUIRED	3.1.1.2	SRE	1	1	14	0	0	0	0	0	0
CRIMINAL FINGERPRINT CARD DIRECT ROUTE	3.1.1.3	CNA	1	1	14	0	0	0	0	0	0
CRIMINAL FINGERPRINT CARD DIRECT ROUTE	3.1.1.3	CPDR	1	1	14	0	0	0	0	0	0
CRIMINAL NON-URGENT FINGERPRINT CARD	3.1.1.4	CPNU	1	1	14	0	0	0	0	0	0
ELECTRONIC DISPOSITION REPORTING	3.1.1.18	DSPE	1	1	14	0	0	0	0	0	0
FEDERAL APPLICANT - NO CHARGE	3.1.1.3	FANC	1	1	14	0	0	0	0	0	0
FEDERAL APPLICANT - USER FEE	3.1.1.4	FAUF	1	1	14	0	0	0	0	0	0
FEDERAL NO-CHARGE DIRECT ROUTE	3.1.1.7	FNDR	1	1	14	0	0	0	0	0	0
FREEDOM OF INFORMATION DEPARTMENTAL ORDER	3.1.1.8	FIDO	1	1	14	0	0	0	0	0	0
NON-FEDERAL NO-CHARGE DIRECT ROUTE	3.1.1.9	NNDR	1	1	14	0	0	0	0	0	0
NON-FEDERAL APPLICANT USER FEE	3.1.1.5	NFUF	1	1	14	0	0	0	0	0	0
MISCELLANEOUS APPLICANT - CIVIL	3.1.1.6	MAP	1	1	14	0	0	0	0	0	0
KNOWN DECEASED	3.1.1.7	DEK	1	1	14	0	0	0	0	0	0
UNKNOWN DECEASED	3.1.1.8	DEU	1	1	14	0	0	0	0	0	0
MISSING PERSON	3.1.1.9	MPR	1	1	14	0	0	0	0	0	0
AMNESIA VICTIM	3.1.1.10	AMN	1	1	14	0	0	0	0	0	0
<b>Remote Ten-Print Searches</b>				3.2.2							
TEN-PRINT FINGERPRINT IMAGE SEARCH	3.2.1.1	TPIS	1	1	2-10	0	0	0	0	0	0
TEN-PRINT FINGERPRINT FEATURES SEARCH	3.2.1.2	TPFS	1	1	0	0	2-10	0	0	0	0
RAPID PRINT IMAGE SEARCH	3.2.1.6	RPIS	1	1	2-10	0	0	0	0	0	0
<b>Fingerprint Image Request and Upgrade</b>				3.6.2, 3.7.2							
FINGERPRINT IMAGE REQUEST	3.6.1.1	IRQ	1	1	0	0	0	0	0	0	0
FINGERPRINT IMAGE SUBMISSION	3.7.1.1	FIS	1	1	14	0	0	0	0	0	0
<b>Criminal Subject Photo Services</b>				3.10.2							
CRIMINAL SUBJECT PHOTO REQUEST	3.10.1.1	CPR	1	1	0	0	0	0	0	0	0
CRIMINAL SUBJECT PHOTO DELETE REQUEST	3.10.1.2	CPD	1	1	0	0	0	0	0	0	0
<b>Latent Submissions</b>				3.3.2							
LATENT FINGERPRINT IMAGE SUBMISSION	3.3.1.1	LFS	1	1	1-10	1-10	0	0	0	0	0
COMPARISON FINGERPRINT IMAGE SUBMISSION	3.3.1.2	CFS	1	1	14	0	0	0	0	0	0
MAJOR CASE IMAGE SUBMISSION	3.3.1.3	MCS	1	1	0 or 14	1-N	0	0	0	0	0
EVALUATION LATENT FINGERPRINT IMAGE SUBMISSION	3.3.1.4	ELR	1	1	1-10	1-10	0	0	0	0	0
<b>Remote Latent Fingerprint Searches</b>				3.4.2							
LATENT FINGERPRINT IMAGE SEARCH	3.4.1.1	LFIS	1	1-2	1-10	0-10	0	0	0	0	0
LATENT FINGERPRINT FEATURES SEARCH	3.4.1.2	LFFS	1	1-2	1-10	0-10	1-10	0	0	0	0
LATENT PENETRATION QUERY	3.4.1.5	LPNQ	1	1	0	0	0	0	0	0	0

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\* For Ten-Print Submissions, the number of Type-4/14 images is nominally 14. When less than 14 are sent, the AMP field of the accompanying Type-2 must account for all missing images.

\*\* The number of photos accompanying a ten-print submission is unlimited.

\*\*\*Type-15 images apply for Palmprint Enrollment and Major Case Print Collections in conjunction with Ten-print Submissions. Type-17 images apply for Iris Image Enrollment.

**TABLE L-3. RECORDSET REQUIREMENTS SUMMARY BY TYPE OF TRANSACTION**

Transaction	Ref	TOT	T1	T2	T4*	T7	T9	T10	T15	Norm	Respo
<b>T17**</b>											
<i>Latent File Maintenance Requests</i> 3.5.2											
UNSOLVED LATENT RECORD DELETE REQUEST	3.5.1.1	ULD	1	1	0	0	0	0	0	0	ULDR
UNSOLVED LATENT ADD CONFIRM REQUEST	3.5.1.2	ULAC	1	1	0	0	0	0	0	0	ULAR
<i>Latent Administrative Transactions</i> 3.11.2											
LATENT REPOSITORY STATISTICS QUERY	3.11.1.1	LSRQ	1	1	0	0	0	0	0	0	LSRSR
LATENT SEARCH STATUS AND MODIFICATIONS QUERY	3.11.1.2	LSMQ	1	1	0	0	0	0	0	0	LSMR
<i>Special Latent Cognizant File Transactions</i> 3.12											
SPECIAL LATENT COGNIZANT FILE ADD	3.12.2.1	SLCA	1	1	14	0	0	10*	0	0	SLCAC
SPECIAL LATENT COGNIZANT FILE RECORD DELETE	3.12.2.2	SLCD	1	1	0	0	0	0	0	0	SLCDC
SPECIAL LATENT COGNIZANT FILE RECORD MODIFY	3.12.2.3	SLCM	1	1	14	0	0	10*	0	0	SLCMC
<i>Palmprint Service Requests</i> 3.13											
PALMPRINT ENROLLMENT REQUEST	3.13.2	PPE	1	1	14	0	0	0	8**	0	PRR
<i>Iris Recognition Services</i> 3.15											
IRIS IMAGE ENROLLMENT	3.15.1.1	IIE	1	1	14	0	0	0	2***	0	IIE
<i>RAP-Back Service Requests</i> 3.16											
RAP-BACK HIT NOTIFICATION	3.16.1.2	RBHN	1	1	0	0	0	0	0	0	RBHN
RAP-BACK FLAG DELETE REQUEST	3.16.1.3	RBFD	1	1	0	0	0	0	0	0	RBFD
RAP-BACK VERIFICATION REQUEST	3.16.1.4	RBV	1	1	0	0	0	0	0	0	RBV
RAP-BACK MAINTENANCE REQUEST	3.16.1.5	RBM	1	1	0	0	0	0	0	0	RBM

\* For Ten-Print Submissions, the number of Type-4/14 images is nominally 14. When less than 14 are sent, the AMP field of the accompanying Type-2 must account for all missing images.  
 \*\*\*Type-15 images apply for Palmprint Enrollment and Major Case Print Collections in conjunction with Ten-print Submissions. Type-17 images apply for Iris Image Enrollment

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**TABLE L-4. RECORDSET REQUIREMENTS SUMMARY BY TYPE OF RESPONSE**

Name of Transaction T9	Ref T10	Response Types		T1	T2	T4/14T7/13	Request TOTs
		Normal	Delayed Error				
<b>Ten-Print Responses</b> 3.1.2, 3.4.2							
SUBMISSION RESULTS - ELECTRONIC	3.1.1.11	SRE		1	1	0	0
0	0	CAR, CPNU, CPDR					
SUBMISSION RESULTS - ELECTRONIC	3.1.1.11	SRE		1	1	0	0
0	0	FANC, FAUF, NFUF, MAP					
SUBMISSION RESULTS - ELECTRONIC	3.1.1.11	SRE		1	1	0	0
0	0	DEK, DEU, MPR, AMN					
UNSOLVED LATENT MATCH RESPONSE	3.4.1.4	ULM		1	1	1-10	0-10
0	0	CAR, CNA, DEK, CPNU					
TEN-PRINT TRANSACTION ERROR	3.1.1.12	ERRT		1	1	0	0
0	0	all the above					
DISPOSITION RESPONSE	3.1.1.20	DSPR	ERRT	1	1		
<b>Remote Ten-Print Responses</b> 3.1.2, 3.2.2							
SEARCH RESULTS - TEN-PRINT	3.2.1.3	SRT		1	1	0-14	0
0	0	TPIS, TPFS					
TEN-PRINT TRANSACTION ERROR	3.2.1.4	ERRT		1	1	0	0
0	0	TPIS, TPFS					
RAPID PRINT IMAGE SEARCH RESPONSE	3.2.1.5	RPISR	ERRT	1	1	0	0
1	0	RPIS					
<b>Fingerprint Image Services Responses</b> 3.6.2, 3.7.2							
FINGERPRINT IMAGE REQUEST	3.6.1.3	IRR		1	1	1-14	
0	0	IRQ					
FINGERPRINT IMAGE SUBMISSION	3.7.1.2	FISR		1	1	0	0
0	0	FIS					
IMAGE TRANSACTION ERROR	3.6.1.4	ERRI		1	1	0	0
0	0	IRQ, FIS					
<b>Criminal Subject Photo Services</b> 3.10.2							
PHOTO REQUEST RESPONSE	3.10.1.3	PRR	PRR	1	1	0	0
1	0	CPR					
PHOTO DELETE RESPONSE	3.10.1.3	PDR	PDR	1	1	0	0
0	0	CPD					
<b>Latent Submission Responses</b> 3.3.2, 3.4.2							
LATENT SUBMISSION RESULTS	3.3.1.5	LSR		1	1	0-14	0
0	0	LFS					
NOTIFICATION OF ACTION RESPONSE	3.3.1.6	NAR		1	1	0	0
0	0	ELR					
UNSOLVED LATENT MATCH RESPONSE	3.4.1.4	ULM		1	1	1-10	0-10
0	0	LFS					
LATENT TRANSACTION ERROR	3.3.1.8	ERRL		1	1	0	0
0	0	LFS, CFS, MCS, ELR					
<b>Remote Latent Fingerprint Search</b> 3.4.2, 3.5.2							
SEARCH RESULTS - LATENT	3.4.1.3	SRL		1	1	0-NCR	0
0	0	LFIS, LFFS					
LATENT PENETRATION RESPONSE	3.4.1.6	LPNR		1	1	0	0
0	0	LPNQ					
UNSOLVED LATENT MATCH RESPONSE	3.4.1.4	ULM		1	1	1-10	0-10
0	0	LFIS, LFFS					
UNSOLICITED UNSOLVED LATENT DELETE	3.5.1.5	UULD		1	1	0	0
0	0	LFIS, LFFS					
LATENT TRANSACTION ERROR	3.4.1.7	ERRL		1	1	0	0
0	0	LFIS, LFFS, LPNQ					
<b>Latent File Maintenance Request</b> 3.5.2							
UNSOLVED LATENT RECORD DELETE RESPONSE	3.5.1.4	ULDR		1	1	0	0
0	0	ULD					
UNSOLVED LATENT ADD CONFIRM							

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RESPONSE	3.5.1.3	ULAR		1	1	0	0	0
0	0	ULAC						
UNSOLICITED UNSOLVED LATENT DELETE	3.5.1.5	UULD		1	1	0	0	0
0	0	ULAC						
LATENT TRANSACTION ERROR	3.5.1.7	ERRL		1	1	0	0	0
0	0	ULD, ULAC						
<b>Latent Administrative Transactions 3.11.2</b>								
LATENT REPOSITORY STATISTICS QUERY	3.11.1.3	LRSR		1	1	0	0	0
0	0	LRSQ						
LATENT SEARCH STATUS AND MODIFICATIONS	3.11.1.4	LSMR		1	1	0	0	0
0	0	LSMQ						
ADMINISTRATIVE TRANSACTION ERROR	3.11.1.5	ERRA		1	0	0	0	0
<b>Special Latent Cognizant File Transactions 3.12</b>								
SPECIAL LATENT COGNIZANT FILE ADD	3.12.2.1	SLCAC	ERRL	1	1	0	0	0
0	0	SLCA						
SPECIAL LATENT COGNIZANT FILE RECORD DELETE	3.12.2.2	SLCDC	ERRL	1	1	0	0	0
0	0	SLCD						
SPECIAL LATENT COGNIZANT FILE RECORD MODIFY	3.12.2.3	SLCMC	ERRL	1	1	0	0	0
0	0	SLCM						
<b>Palmprint Service Requests 3.13</b>								
PALMPRINT ENROLLMENT REQUEST	3.13.2	PPR	ERRT	1	1	0	0	0
0	0	PPE						
<b>Iris Recognition Services 3.15</b>								
IRIS IMAGE ENROLLMENT	3.15.1.1	IHER	ERRT	1	1	0	0	0
0	0	IIE						
<b>RAP-Back Service Requests 3.16</b>								
RAP-BACK HIT NOTIFICATION	3.16.1.2	NA	NA					
0	0	RBDR	ERRT	1	1	0	0	0
RAP-BACK FLAG DELETE REQUEST	3.16.1.3	RBFD						
0	0	RBVR	ERRT	1	1	0	0	0
RAP-BACK ANNUAL VERIFICATION	3.16.1.4	RBV						
0	0	RBMR	ERRT	1	1	0	0	0
RAP-BACK MAINTENANCE REQUEST	3.16.1.5	RBM						
0	0							

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**APPENDIX M**

**TRANSACTION ERROR MESSAGES**

**TABLE M-1. TRANSACTION ERROR MESSAGES**

<b>Code Insert#1</b>	<b>Error Condition Insert#2</b>	<b>MDD Error Description Insert#3</b>	<b>Count</b>
A0001	Unauthorized ULF delete	Requested deletion from ULF not authorized.	0
A0002	Unauthorized Criminal History Access	Request suspended. Initiate a Print Screen and route document and printout to supervisor	0
A0003	Unauthorized SPF Modification	Request suspended. Route to Supervisor. PRD review and authorization is required.	0
A0004	Unauthorized <del>EFTS</del> transaction	Requestor is not authorized for transaction type %1.	1
			TOT of message
A0005	Unauthorized Criminal History Access	Requestor is not authorized to change existing record with FNU %1. Document Specialist review and authorization is required.	1
			FNU
A0006	Unauthorized Processing or SPF Modification	Requestor is not authorized for requested action. Document Specialist review and authorization is required.	0
A0007	Unauthorized Criminal History Access	Requestor is not authorized to access existing record with FNU %1. Hits to Wants review and authorization is required.	1
			FNU
A0008	Unauthorized ULF Add Confirm	Requested ULF Add Confirm request not authorized.	TBD
A0009	Latent Search Queue Request Reject	This Latent Search Queue modification request is invalid.	
A0010	Hit to Want	IDRR or NIDR cannot be provided without proper authorization. Route to Answer Hits to Wants.	
A0011	An Unauthorized IDRR/NIDR Request SPF (5/6)	Request suspended. Route to Supervisor. PRD review and authorization is required.	0

<b>Code Insert#1</b>	<b>Error Condition Insert#2</b>	<b>MDD Error Description Insert#3</b>	<b>Count</b>
A0012	Unauthorized IDRR Request (DOD or SPF K)	Unauthorized Service Provider not (DOCSPEC) requests IDRR (A1040) for a subject with DOD in identification data or SPF=K.	0
A0013	Unauthorized Criminal History Request (OFO)	An OFO User is authorized to use the Criminal History request only for an IDRR, either printed locally or displayed.	0
A0014	Unauthorized CCA Update	Requestor is not authorized to update the CCA file.	0

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	A0015	Unauthorized File Update	Requestor is not authorized to update the requested file.	0	
	A0016	Requested Photo Not Available	Photo requested in conjunction with image Request is not available for 1%	1	UCN
Name	E0001	Required element missing	Mandatory IAFIS-generated element	1	Element
Name	E0002	Element failed validation	%1 was not supplied in message. Element %1, with value of [%2]	2	Element
Name	E0003	Element failed validation	contains invalid data. Element %1, with value of [%2]	2	Element
Name	E0004	Record IDC value or the	contains invalid data. The data may not comply with the acceptable range of values. EBTS record parse error EBTS logical record type %1	2	Logical Type
Tag	E0005	EBTS field parse error	EBTS field %1 could not be parsed.	1	Field
Name	E0006	Field relationship error	The value of element %1 is inconsistent with the value of element %2.	2	Element
	E007	NFS File not available	NFS file %1 not available for transfer.	1	
	E008	NFS Fils Read Error	NFS file %1 produced a read error during file transfer. Check for proper format. %2 %3	1-3	Free Text
	E009	NFS File ICN Error	NFS File ICN does not match the ICN provided in the request message.	0	

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Code	Error Condition	MDD Error Description	Count
Insert#1	Insert#2	Insert#3	
E0010	Too Few FNUs for FST	Only one FNU %1, was supplied for Restore FNU File Synchronization with FST %2.	2 FNU FST
E0011	Too Maby 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 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 Free Text

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Name	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	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
	L0001	SLC Repositories Full	SLC repositories is full; cannot add another subject.	0	
	L0002	Subject does not exist in Criminal or Civil File	Subject with identifier %1 does not exist in repository.	1	UCN

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which the subject already exists. Subjects may NOT be duplicated within this repository.

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 RST %2 does not match that provided in message. 2 FNU RST value

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 ten print 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. 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 2 SID FNU

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Code Error Condition MDD Error Description Count Insert#1 Insert#2 Insert#3

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

**Code Error Condition MDD Error Description Count**  
**Insert#1 Insert#2 Insert#3**

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 unused field represen tation).

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 1 DOA

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			because DOA %1 and corresponding DOS already exist.		
Name	L0033	Element Entry Limit Exceeded	Update of record would cause the maximum number of entries of the %1 field to be exceeded.	1	Field
	L0034	Existing identification comments	Cannot overwrite existing ICO.	0	
	L0035	DOD prior to DOA	Date of arrest in submission is after 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	
from	L0038	SID already exists from NFF state Existing SID	Cannot establish new SID %1 for this subject because your state has already submission established SID %2 for this subject.	2	SID
	<u>L0039</u>	<u>Purpose Code Required</u>	<u>Purpose code is required to modify this record.</u>	<u>0</u>	
	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 status.	0	
	L0042	No Matching Court Data	Matching court data does not exist.	0	
	L0043	No Corresponding Court Count	Cannot add supplemental court data - no corresponding count.	0	
	L0044	No Update Of NFF Record	Cannot update NFF record.	0	
	<u>L0045</u>	<u>Data Already On File</u>	<u>Cannot update this cycle - data already exists in record.</u>	<u>0</u>	
	L0046	TPTP Notify Error	AFIS Search number %1 or candidate number %2 cannot be associated with previous search.	2	SCNA
	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
	<u>L0048</u>	<u>Route to Wants</u>	<u>Route this document to the Wants group for processing.</u>	<u>0</u>	
field	L0049	No Matching Data Found field value	No data found to match input value %1 with record value %2.	2	Name of
	<u>L0050</u>	<u>Invalid Request for Segment Type</u>	<u>This maintenance request cannot be applied because of the SGT value contained in the record.</u>	<u>0</u>	
	<u>L0051</u>	<u>Cycle is not sealed.</u>	<u>Cannot apply unseal request because cycle has not previously been sealed.</u>	<u>0</u>	
	<u>L0052</u>	<u>Submitter is not Authorized to Update</u>	<u>Requestor is not authorized to perform</u>	<u>0</u>	

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Code Error Condition MDD Error Description Count Insert#1 Insert#2 Insert#3

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Record the requested file maintenance

L0053	Attempt to Consolidate AUD M Record	The request for consolidation has been made against a record %1 in the Manual File. Record must be converted.	1	FNU
L0054	Reverse Consolidation Pointers	Reverse kept FNU (%1) and killed FNUs due to the III pointers contained in the respective records.	1	FNU
L0055	Consolidation Subject Contains NFF State Pseudo Pointer	Consolidation attempt has been made against subject record containing a Pseudo Pointer for an NFF state for FNU %L.	1	FNU
L0056	Reverse Consolidation Wants	Reverse kept FNU % 1 and killed FNUs due to Wants contained in the respective records.	1	FNU

<u>Code</u>	<u>Error Condition</u>	<u>MDD Error Description</u>	<u>Count</u>		
<u>Insert#1</u>	<u>Insert#2</u>	<u>Insert#3</u>			
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					
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	Invalid SPF Request	Existing SPF code precludes addition of this code.	0		

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L0070 Illegal Sequence Count A request has been made for a value in %1 2 Filed  
 Name Current last value  
 that is not the next available after %2 in the sequence.

L0071 Illegal Delete Request for AUD W A request has been made for deletion of 0  
**Code Error Condition MDD Error Description Count**  
**Insert#1 Insert#2 Insert#3**  
 Record data from a field other than ANA from an AUD W record.

L0072 No Match for Data Cannot match data in field %1 in this 2 Field  
 Name Field Name  
 maintenance request with any data in field %2 the record.

L0073 Cannot Delete SID Cannot delete SID because record 0  
 contains a matching state pointer.

L0074 Illegal Request to Delete Primary Data Cannot delete primary data while 0  
 secondary data is still present.

L0075 Illegal Request to Remove Custody Data Attempt has been made to remove a 0  
 custody segment while corresponding arrest data remains.

L0076 Illegal SCH Modification Request AN SCH Modification request has 0  
 attempted to perform a maintenance action against a record awaiting expungement.

L0077 Invalid Modify Request Because of Code Cannot modify field %1 because of the 2 Field  
 Name Either AUD or SGT  
 Value Set value of %2 code contained in record.

L0078 Field Value Mismatch Cannot find match in the database for 2 Field  
 Name Field Value

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L0079 Invalid SID The SID %1 failed III edit check. 1 SID  
 value

L0080 Pointer/Data Mismatch Cannot update data associated with 1 Field  
 Name active state pointer because of mismatch with %1 field.

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L0081 Attempt to Modify Empty Field A maintenance request has been 1 Field  
 Name made against empty field %1.

L0082 ORI Exists in CCA File The ORI contained in the Add request 0  
 already exists in the CCA File.

L0083 ORI does not exist in CCA File The ORI contained in the maintenance 0  
 request does not exist in the CCA File.

L0084 Alternate ORI does not exist in CCA File The alternate ORI contained in the 0  
 maintenance request does not exist in the CCA File.

L0085 Alternate ORI cannot be deleted Cannot delete alternate ORI because ONC 0  
 is equal to 'A.'

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<u>Code</u>	<u>Error Condition</u>	<u>MDD Error Description</u>	<u>Count</u>
<u>Insert#1</u>	<u>Insert#2</u>	<u>Insert#3</u>	
L0086	CRS Data does not exist	The maintenance request references CRS Data that does not exist.	0
L0087	CRS Data already exists	The maintenance request references CRS Data that does not exist.	0
L0088	Attempt to Update AUD W Record	The maintenance request has attempted to add data to a deleted record.	0
L0089	Year of Birth out of range	The year of birth in the maintenance request is not within ten 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
L0093	Attempt to Delete Last Want	A request has been received to delete the last active Want from a record containing an AUD = 'P.'	0
L0094	AKA/ANA Error	A request has been made to delete or modify AKA with matching ANA present.	0
L0095	ANF/Name Error	A request has been made to modify ANF without a matching AKA or MNM present.	0
L0096	DOB Delete Error	A request has been made to delete the last DOB contained in the SCH record.	0
L0097	DOB Modification Error	A request has been made to modify a DOB to "unknown" all zeroes with DOBs remaining in the SCH record.	0
L0098	Arrest Segment Data Error	This maintenance request must include ACH, AON, and AOL.	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

<u>Code</u>	<u>Error Condition</u>	<u>MDD Error Description</u>	<u>Count</u>
<u>Insert#1</u>	<u>Insert#2</u>	<u>Insert#3</u>	
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
L0102	Illegal AID Modification	Cannot change the ORI to a different type or different state.	0
L0103	Photo SPF 'E' Error	A request has been made to either set or	0

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		remove SPF of 'E' that would be inconsistent with the state of CRIMINAL-SUBJECT-PHOTO-DATA.		
L0104	TOW/AID Error	TOW and AID must be modified as a set.	0	
L0105	Insufficient CCA Data	Cannot add, modify, or delete an ORI.	0	
L0106	ORI/ZIP	The format of the field ZIP is not consistent with the country specified by ORI.	0	
L0107	Incomplete SCT	A request has been made that is missing a required element from set SCT.	0	
L0108	Invalid ONC Value	An attempt has been made to add an ORI to a record containing an ONC value other than 'A' or 'D.'	0	
L0109	Poor Image Quality	The quality of the fingerprint images is too poor to permit processing.		
L0110	MRD Merge Failure	Ten-print submission failed to merge with MRD data.	0	
L0111	Image Sequence Error	Submitted ten-print finger images are out of sequence.		
L0112	No statutory authority	The agency indicated by the ORI or CRI in this submission is not authorized to request this service.		
L0113	Non-serious charge	This submission references an arrest charge representing a non-criterion offense.		
L0114	TOT/Submission Data Error	The Type of Transaction is inconsistent with the Reason Fingerprinted.		
L0115	Other QC Error			
L0116	Fingerprint Pattern Quality Error	Fingerprint pattern(s) not discernible		
L0117	Fingerprint Pattern Area Error	Insufficient pattern area(s) recorded for identification purposes		
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.		
L0119	Charge listed needs literal translation	The charge listed in the submission requires that a literal translation be provided.		
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	3	UCN

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		user %3.			
L0123	No SLC Delete	Unable to complete SLC Delete for identifier %1 in repository %2 and user %3.	3	UCN	NDR
L0124	Unacceptable Criteria	The submission does not meet latent acceptance criteria.			
L0125	Invalid ORI	This ORI, %1, is not present in the value from CCA file. Maintenance	1	ORI	Request
L0126	Invalid CRI	This CRI, %1, is not present in the value from CCA file. Maintenance	1	CRI	Request
L0127	Invalid SCT	This file maintenance request contained an SCT with an invalid ORI of %1 Maintenance Request	1	ORI	

Code	Error Condition	MDD Error Description	Count	
Insert#1	Insert#2	Insert#3		

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	Request
L0131	Required element missing	Mandatory user-provided element %1 was not supplied in 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	file (NDR)
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 AHSPARMS 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		
L0135	Ad Hoc Subject Search Candidate Cap Exceeded	The number of candidates meeting the submitted search criteria exceeds the maximum allowed. Refine the criteria before resubmitting the search.			
L0136	Invalid Request for Subject Record	IDRR or NIDR cannot be provided for	0		

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		subject with non-blank AUD.		
L0137	Unable to Print Subject Record	Subject record cannot be printed due to restricted cycles.	0	
L0138	Unable to Print Subject Record	Subject record cannot be printed for the specified contributor due to restricted cycles.	0	
L0139	Extraneous Data	The file maintenance request contained data for %1 which is either not needed or not allowed in this context.	1	Field Name
L0140	Invalid AUD Code Conversion Request	Active Want on file for this subject. Record cannot be converted from AUD P to AUD T.	1	FNU

Code	Error Condition	MDD Error Description	Count	
Insert#1	Insert#2	Insert#3		
L0141	STOT/RET Discrepancy	Retention code must equal Y for an STOT of CAN.	0	
L0142	SLC Copy Failed	SLC Copy failed. %1 %2 %3	0-3	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
L0145	Invalid Ad Hoc Search Criterion	N/A – Error description provided in AHSPARMS (see Table II).		
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 files offline.	0	
L0147	Contributor has remote	The contributing state has remote capability.		
L0148	Poor Latent Image Quality	The image quality is not adequate for conducting an AFIS search.		
L0149	Bad Search Criteria	The descriptive search criteria is not adequate or is incomplete.		
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	IAFIS cannot retrieve or delete the cited photo because the associated record is purged, expunged, not automated, deceased, or deleted.	0	
L0153	Photo Action on AUD C Record	IAFIS cannot retrieve or delete the cited	2	FNU

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photo with FBI %1 because it has been consolidated with FBI %2.

R0001 Queue Full A message queue is temporarily full. 0

Code Insert#1	Error Condition Insert#2	MDD Error Description Insert#3	Count
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R0002 Undefined Segment Error Internal segment error; retry message. 0

R0003 Service Unavailable The requested Tuxedo service %1 is not value currently available. 1 SERV

S0001 Cannot match the response with a request A response message type %1 indicating IAFIS transaction %2, with SCN2 = %3, could not be associated with its request. 3 MTY ICN

S0002 General segment error A general segment error was detected that is not currently defined. Optional error message: %1 %2%3. 0-3 Free

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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 Bitmap Generation Error An error occurred during the generation or handling of the file comparison bitmap related to repository %1. 1 NDR

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 Authorized High Penetration Search A high penetration search estimated Request Percent Authorization Cap Submitted at %1 percent is within the allowable limit of %2 and is being processed. 2

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

Code Insert#1	Error Condition Insert#2	MDD Error Description Insert#3	Count
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W0005 Route to Wants Route the document to Wants. 0

W0006 AUD T Subject Requested service involves an AUD T 0

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		subject. Route transaction to Special Stops for review prior to further action.
W0007	Ident Status Warning	Response for this submission may be non-Ident because this SCH record contains non-disseminable data.
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.
W0009	Route to Dead Desk	The Subject Criminal History Record has been restored, however, the transaction requires further review. Route the hardcopy document to the Dead Desk.
W0010	Route to Wants and Dead Desk	The Subject Criminal History Record has been restored, however, the transaction requires further review. Route the hardcopy document to the Wants Unit and then to the Dead Desk.

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**TABLE M-2. TRANSACTION ERROR DESCRIPTION INSERTS**

Table M-1 Error Code	Error Description	Error
<b>Description Inserts</b>		
L0134	The submitted search string text contains a syntax error. The portion of the string up to the point of error is shown here: %1.	Insert %1 is the expanded query string up to point of error.
L0135	The number of candidates meeting the submitted search criteria, %1, exceeds the maximum allowed, %2. Refine the criteria before resubmitting the search. Insert %2 is the element MAXCANS from NUMCANS. or, if MAXCANS is not specified in the search request,	Insert %1 is the number of candidates returned from the Ad Hoc Subject Search (element the search request the default value.
L0145	The Service Provider is not authorized to perform the type of Ad Hoc Subject Search requested, or the query contains a restricted item. Contact the ITN Segment Administrator to determine corrective action.	

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\*NOTE: In the case of elements that are composites of two or more other element values (e.g., DATETIME), an additional error code may be returned to report the error in the subelement as long as the cor

Key	Error Class
A	Authorization - Security Errors
E	Element - Intersegment and External Message Element Errors
H	Header - Intersegment Message Header Errors
L	Logic - Operational Errors
R	Error with Retry allowed
S	Status - Segment Status Errors
W	Warning only

**Notes:**

1. For errors detected in EBTS messages, the Element Name will be the EBTS Field Tag.
2. In the MDD Error description column, the % number expression represents the value provided in the like-numbered Insert column.

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APPENDIX N

CIVIL BACKGROUND CHECKS USING FLAT IMPRESSIONS DESCRIPTORS AND FIELD EDIT SPECIFICATIONS FOR TYPE-14 LOGICAL RECORDS

This section presents the descriptors and field specifications for Type-14 logical records used with flats-based civil background checks. The flat-fingerprint impressions are contained in 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. Offsets to the locations of image segments containing the individual fingers are included with the image records. Most of the following definitions are taken from the ANSI Standard, Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information (ANSI/NIST-ITL 1-2006). Additional fields are defined to contain the NIST Fingerprint Image Quality (NFIQ) metric, alternate image quality metrics, and metrics for predicting the correctness of the segmentation.

AFM 14.024 – ALTERNATE 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. 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.

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 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 65535.

This subfield is repeated for each finger image and quality algorithm used, separated by the "RS" character.

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**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 is uncompressed. For those images that are to be compressed, this field shall contain "WSQ" the preferred method for the compression of ten-print-fingerprint images.

**COM 14.020—COMMENT.** This optional field may be used to insert comments or other ASCII text information with the ten-print image data.

**DAT 14.999—IMAGE DATA.** This field shall contain all of the data from a captured ten-print 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.**

**FGP 14.013—FINGER POSITION.** This mandatory tagged-field shall contain finger position code that matches the ten-print 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. Table 1 also lists the maximum image area that can be transmitted for each of the fourteen possible finger positions.

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**Table N-1 - Finger position code & maximum size**

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

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**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 ten-print-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-byte ASCII field shall indicate the manner by which the ten-print image information was obtained. The appropriate code (0-3) selected from Table 11 of the ANSI/NIST-ITL 1-2006 standard, shall be entered in this field.

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**IQM 14.022—IMAGE 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 <US> separator. Individual finger quality definitions are separated by the <RS> separator.

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**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.

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Description ... [318]

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**MCP 14.014 – MAJOR CASE PRINTS.**

**MPS 14.015 – MAJOR CASE PRINT SEGMENT POSITIONS.**

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**SEG 14.021—FINGER SEGMENT POSITION(s).** This mandatory ASCII field 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 <US> separator. Individual finger segment definitions are separated by the <RS> separator.

**SHPS 14.016 – SCANNED HORIZONTAL PIXEL SCALE**

**SVPS 14.017 – SCANNED VERTICAL PIXEL SCALE.**

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**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, or 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.**

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**SRC 14.004—SOURCE AGENCY.** This mandatory ASCII field shall contain the identification of the administration or organization that originally captured the ten-print 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.

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**TCD 14.005—TEN-PRINT CAPTURE DATA.** This mandatory ASCII field shall contain the date that the ten-print image 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, the entry 20000229 represents February 29, 2000. The complete date must be a legitimate date.

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**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**

Condition	Field Number	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Maximum Number of Bytes	Example Data
				Min	Max	Min	Max		
M	14.001	LOGICAL REC LENGTH	N	4	8	1	1	15	14.001:40164<GS>
M	14.002	IMAGE DESIGNATION CHAR	N	2	5	1	1	12	14.002:01<GS>
M	14.003	IMPRESSION TYPE	A	2	2	1	1	9	14.003:0<GS>
M	14.004	SOURCE AGENCY/ORI	AN	10	21	1	1	28	14.004:CA0000001<GS>
M	15.005	TEN-PRINT CAPTURE DATE	N	9	9	1	1	16	14.005:20040227<GS>
M	14.006	HORIZONTAL LINE LENGTH	N	4	5	1	1	12	14.006:1600<GS>
M	14.007	VERTICAL LINE LENGTH	N	4	5	1	1	12	14.007:1450<GS>
M	14.008	SCALE UNITS	N	2	2	1	1	9	14.008:1<GS>
M	14.009	HORIZONTAL PIXEL SCALE	N	2	5	1	1	12	14.009:500<GS>
M	14.010	VERTICAL PIXEL SCALE	N	2	5	1	1	12	14.010:500<GS>
M	14.011	COMPRESSION ALGORITHM	A	5	7	1	1	14	14.011:1<GS>
M	14.012	BITS PER PIXEL	N	2	3	1	1	10	14.012:8<GS>
M	14.013	FINGER POSITION CODE	N	2	2	1	6	25	14.013:13<GS>
O	<del>14.014</del>	<del>MAJOR CASE PRINT</del>	<del>A/N</del>	<del>6</del>	<del>7</del>	<del>0</del>	<del>1</del>	<del>14</del>	<del>14.014:&lt;GS&gt;</del>
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Condition	Field Number	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Maximum Number of Bytes	Example Data
				----- Min	Max	----- Min	Max		
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<a href="#">O</a>	<a href="#">14.024</a>	<a href="#">ALTERNATE FINGERPRINT QUALITY METRIC</a>	N	<a href="#">16</a>	<a href="#">76</a>	<a href="#">0</a>	<a href="#">*</a>	<a href="#">*</a>	
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<a href="#">O</a>	<a href="#">14.030</a>	<a href="#">DEVICE MONITORING MODE</a>	A	<a href="#">8</a>	<a href="#">11</a>	<a href="#">0</a>	<a href="#">1</a>	<a href="#">18</a>	
	<a href="#">14.031-14.099</a>	<a href="#">RESERVED FOR FUTURE DEFINITION</a>	==	==	==	==	==	==	
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APPENDIX AC

ACRONYMS

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AFIS	Automated Fingerprint Identification System
AMN	Amnesia Victim
ANSI	American National Standards Institute
APB	Advisory Policy Board
CAR	Criminal Ten-Print Submission (Answer Required)
CFS	Comparison Fingerprint Image(s) Submission
CGA	Compression Algorithm
CJIS	Criminal Justice Information Services
CNA	Criminal Ten-Print Submission (No Answer Necessary)
<u>CPDR</u>	<u>Criminal Fingerprint Card Direct Route</u>
<u>CPNU</u>	<u>Criminal Fingerprint Card Processing Non-Urgent</u>
<u>CSA</u>	<u>CJIS State Authority</u>
CSN	Candidate Sequence Number
DEK	Known Deceased
DEU	Unknown Deceased
<u>DSPE</u>	<u>Electronic Disposition Reporting</u>
<u>DSPR</u>	<u>Disposition Response</u>
ELR	Evaluation Latent Fingerprint Submission Request
ERRA	Administrative Transaction Error
ERRI	Image Transaction Error
ERRL	Latent Transaction Error
ERRT	Ten-print Transaction Error
<u>ETIS</u>	<u>Enhanced Terrorist Information Service</u>
FANC	Federal Applicant (No Charge)
FAUF	Federal Applicant User Fee
FBI	Federal Bureau of Investigation
<u>FIDO</u>	<u>Freedom of Information Departmental Order</u>
FIS	Fingerprint Image Submission
FISR	Fingerprint Image Submission Response
<u>FNDR</u>	<u>Federal No-Charge Direct Route</u>
GCA	Grayscale Compression Algorithm
IAFIS	Integrated Automated Fingerprint Identification System
ICN	IAFIS Control Number
<u>IIE</u>	<u>Iris Image Enrollment</u>
<u>IIER</u>	<u>Iris Image Enrollment Request Response</u>
III	Interstate Identification Index
IRQ	Fingerprint Image Request
IRR	Fingerprint Image Request Response
ITN	Identification Tasking and Networking

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LFFS Latent Fingerprint Features Search  
 LFIS Latent Fingerprint Image(s) Search  
 LFS Latent Fingerprint Image(s) Submission  
 LFMR Latent File Maintenance Response  
 LSR Latent Submission Results  
 MAP Miscellaneous Applicant Civil  
 MCS Major Case Image(s) Submission  
 MFC Message Field Code  
 MNC Maximum Number of Candidates  
 MPR Missing Person  
 MSG Message  
 MTF Modular Transfer Function  
[NAM1](#) [NAME-ONE](#)  
[NAM2](#) [NAME-TWO](#)  
[NAM3](#) [NAME-THREE](#)  
[NAM4](#) [NAME-FOUR](#)  
[NAM5](#) [NAME-FIVE](#)  
 NAR Notification of Action Response  
 NCIC National Crime Information Center  
 NCR Number of Candidates Returned  
 NFAP Non-Federal Advanced Payment  
 NFF National Fingerprint File  
 NFUF Non-Federal Applicant User Fee  
 NIST National Institute of Standards and Technology  
[NNDR](#) [Non-Federal No-Charge Direct Route](#)  
 NRC Number of Required Candidates  
 OCS Officers' Candidate School  
[PPE](#) [Palmprint Enrollment Request](#)  
[PPR](#) [Palmprint Enrollment Response](#)  
[RBHN](#) [RAP-Back Hit Notification](#)  
[Rbfd](#) [RAP-Back Flag Delete Request](#)  
[RBM](#) [RAP-Back Maintenance Request](#)  
[RBV](#) [RAP-Back Verification Request](#)  
[RFR](#) [Request Features Record](#)  
 RMS Root Mean Squared  
[RPIS](#) [Rapid Print Image Search](#)  
[RPISR](#) [Rapid Print Image Search Response](#)  
[RPR](#) [Request Photo Record](#)  
 SCNA AFIS Segment Control Number  
[SLC](#) [Special Latent Cognizant Files](#)  
[SLCA](#) [Special Latent Cognizant File Add](#)  
[SLCD](#) [Special Latent Cognizant File Delete](#)  
[SLCM](#) [Special Latent Cognizant File Modify](#)  
[SLCN](#) [Special Latent Cognizant Number](#)

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SRE Submission Results — Electronic  
 SRF Search Results Findings  
 SRL Search Results — Latent  
 SRT Search Results — Ten-Print  
 TBD To Be Determined  
 TBR To be Resolved  
 TOT Type of Transaction  
 TPFS Ten-Print Fingerprint Features Search  
 TPIS Ten-Print Fingerprint Image Searches  
 TPRS Ten-Print Rap Sheet  
TPRR [Ten-Print Rap Sheet Response](#)  
 TSR Type of Search Requested  
UCN [Universal Control Number](#)  
 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  
 UULD Unsolicited Unsolved Latent Delete  
 WSQ [Wavelet Scalar Quantization](#)

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For almost 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 are now accepted as a national standard for the exchange of fingerprint, identification, and arrest data between criminal justice agencies.

However, because fingerprint cards must be physically transported and processed, substantial delays are introduced into the identification cycle. To improve the speed and accuracy of the fingerprint identification process and eliminate the need for contributing agencies to create and mail paper fingerprint cards to the Federal Bureau of Investigation (FBI) for processing, the FBI Criminal Justice Information Services (CJIS) Division is developing an Integrated Automated Fingerprint Identification System (IAFIS) that will support the paperless submission of fingerprint records.

In support of the development of the IAFIS and in accordance with the recommendations of the National Crime Information Center (NCIC) Advisory Policy Board (APB) Identification Services Subcommittee, the FBI has developed in conjunction with the National Institute of Standards and Technology (NIST), and the fingerprint identification community, a standard for electronically encoding and transmitting fingerprint image, identification, and arrest data. This standard is comprised of an American National Standards Institute (ANSI) standard entitled “Data Format for the Interchange of Fingerprint, Facial, & Scar Mark & Tattoo (SMT) Information” (ANSI/NIST-ITL 1-2000).

The ANSI standards define the content, format and units of measurement for the exchange of information that may be used in the fingerprint identification of a subject. Such information is intended for use in the interchange between criminal justice administrations or organizations that use an Automated Fingerprint Identification System (AFIS), and will provide a common interface for AFISs and related systems nationwide.

The submission contains either ten rolled and four plain impressions or three Type-14 identification flat impressions (see Appendix N), optional palmprint images from both hands (including writer’s palm and full palmprints), biographic descriptor data, and optionally an unlimited number of photos of the subject. The palmprint images and the photos are allowed only if the retention field (2.005 RET) is set to “Y.”

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**Table A-1. Priorities**

<b>Level 1 - Urgent</b>	<b>Level 2 - Routine</b>	<b>Level 3 - Secondary</b>	<b>Level 4 - Test/Training</b>
2 hour average response	24 hour average response	Over 24 hour response	test and training response <b>TBR</b>
CAR <sup>1</sup>		IRQ <sup>6</sup>	
TPIS	NFAP <sup>7</sup>	CPD	
TPFS	FANC	CPR	
TPRS <sup>7</sup>	FAUF		
CNA	FIDO		
	NFUF	NNDR	
	MAP	DSPE	
	LFIS <sup>4</sup>	Rbfd	
	LPNQ	RBM	
	LRSQ	PPE	
	LSMQ	IIE	
	LFFS <sup>4</sup>		
	CFS <sup>4</sup>		
	ELR <sup>4</sup>		
	MCS <sup>4</sup>		
	LFS <sup>4</sup>		
	AMN		
	DEU		
	DEK		
	MPR		
	FIS <sup>2</sup>		
	IRQ <sup>5</sup>		
ULACSLCASL CD	ULD SLCM		

OFC 2.053 OFFENSE CATEGORY N 1 1 2.053:1<GS>

PAT 2.034 PATTERN LEVEL SET  
2.034:01<US>WU<RS>02<US>LS<RS>03<US>  
CLASSIFICATIONS  
>LS<RS>04<US>LS<RS>05<US>LS<RS>06<

RS>08<US>LS<RS>0

US>RS<RS>07<US>RS<

S<GS>

		FINGER NUMBER (FGP)	N	2	2	
		PATTERN CLASSIFICATION CODE (PATCL)	A	2	2	
PEN	2.078	PENETRATION QUERY RESPONSE	N	2	2	2.078:10<FS>
PHT	2.036	"PHOTO AVAILABLE" INDICATOR	A	1	1	2.036:Y<GS>

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**TABLE D-3. SUMMARY FIELD LISTS FOR TEN-PRINT TRANSACTIONS**  
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## **1.0 SCOPE AND PURPOSE**

These specifications were originally for the purpose of accrediting 500 ppi live scanners and card scanners integrated into automated booking stations. These Appendix G interim image quality specifications for scanners were decommissioned for IAFIS certifications in July 1999; all fingerprint systems submitted for IAFIS certification after July 1999 must meet the Appendix F requirements.

### **2.1 Gray-Scale Linearity**

No change from Appendix F of *Electronic Fingerprint Transmission Specification*, dated January 29, 1999, FBI document number CJIS-RS-0010 (V7).

### **2.2 Geometric Image Accuracy**

The absolute value of the difference "D," between the actual distance "X" between any two points on a target and the distance "Y" between those same two points as measured on the output scanned image of that target, shall meet the following requirements for the value D:

$$D \leq 0.001, \quad \text{for } 0 \leq X \leq 0.07$$

$$D \leq 0.015X, \quad \text{for } 0.07 \leq X \leq 1.50$$

where: D, X, Y are in inches and D = absolute value of (Y-X)

The requirement corresponds to a positional accuracy of  $\pm 1.5\%$  for distances between 0.07 and 1.5 inches, and a constant  $\pm 0.001$  inches (1/2 pixel) for distances less than or equal to 0.07 inches.

### 2.3 Modulation Transfer Function

cy/mm	sine wave MTF
1	0.889 to 1.40
2	0.778 to 1.40
3	0.667 to 1.40
4	0.556 to 1.40
5	0.444 to 1.40
6	0.333 to 1.00
8	0.111 to 1.00
10	0.000 to 1.00

The MTF shall be measured using a sine wave test target unless scanner characteristics are incompatible with imaging a continuous tone sine wave target, in which case a bar target may be used.

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### 2.4 Signal-to-Noise Ratio

No change from Appendix F of *Electronic Fingerprint Transmission Specification*, dated January 29, 1999, FBI document number CJIS-RS-0010 (V7).

### 2.5 Gray-level Uniformity

No change from Appendix F of *Electronic Fingerprint Transmission Specification*, dated January 29, 1999, FBI document number CJIS-RS-0010 (V7).

### 2.6 Gray-Scale Range of Image Data

At least 80% of the captured individual fingerprint images shall have a gray-scale dynamic range of at least 150 gray-levels. For this requirement, “dynamic range” is defined as the total number of gray-levels that have signal content from the fingerprint image. Fingerprint card format lines, boxes, and text shall be excluded from the dynamic range computation, and white surround in the immediate vicinity of a given fingerprint shall be included in the dynamic range computation.

Page 22: [236] Deleted a example	B. Scott Swann	10/19/2006 10:28:00 AM
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lists each of the mandatory and optional field present in a Type-10 logical record. The following paragraphs describe the data contained in each of the fields for the Type-10 logical record.

Within a Type-10 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 image data shall be the last physical field in the record. For each field of the Type-10 record, 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

Table Type-10 facial and SMT record layout

Ident	Cond code	Field Number	Field Name	IMG	Char type	Field size per occurrence		Occur count		Max byte count
						min	max	min	max	
LEN	M	10.001	LOGICAL RECORD LENGTH		N	4	8	1	1	15
IDC	M	10.002	IMAGE DESIGNATION CHARACTER		N	2	5	1	1	12
IMT	M	10.003	IMAGE TYPE		A	5	7	1	1	14
SRC	M	10.004	SOURCE AGENCY / ORI		AN	10	36	1	1	43
PHD	M	10.005	PHOTO DATE		N	9	9	1	1	16
HLL	M	10.006	HORIZONTAL LINE LENGTH		N	4	5	1	1	12
VLL	M	10.007	VERTICAL LINE LENGTH		N	4	5	1	1	12
SLC	M	10.008	SCALE UNITS		N	2	2	1	1	9
HPS	M	10.009	HORIZONTAL PIXEL SCALE		N	2	5	1	1	12
VPS	M	10.010	VERTICAL PIXEL SCALE		N	2	5	1	1	12
CGA	M	10.011	COMPRESSION ALGORITHM		A	4	7	1	1	14
CSP	M	10.012	COLOR SPACE		A	4	5	1	1	12
SAP	M	10.013	SUBJECT ACQUISITION PROFILE	FAC	N	2	4	1	1	11
RSV	-	10.014 10.019	RESERVED FOR FUTURE DEFINITION		--	--	--	--	--	--
POS	O	10.020	SUBJECT POSE	FAC	A	2	2	0	1	9
POA	O	10.021	POSE OFFSET ANGLE	FAC	N	2	5	0	1	12
PXS	O	10.022	PHOTO DESCRIPTION	FAC	A	4	21	0	9	196
PAS <sup>1</sup>	O	10.023	PHOTO ACQUISITION SOURCE	FAC	A	7	15	0	1	22
SQS	O	10.024	SUBJECT QUALITY SCORE	FAC	N	10	35	0	9	322
SPA	O	10.025	SUBJECT POSE ANGLES	FAC	N	9	23	0	1	30
SXS	O	10.026	SUBJECT FACIAL DESCRIPTION	FAC	A	6	21	0	50	1057
SEC	O	10.027	SUBJECT EYE COLOR	FAC	A	4	4	0	1	11

<sup>1</sup>The PAS, SPA, SXS, SEC, and SHC fields are mandatory if the SAP entry (Field 10.013) is "40" or greater.

Ident	Cond code	Field Number	Field Name	IMG	Char type	Field size per occurrence		Occur count		Max byte count
						min	max	min	max	
SHC	O	10.028	SUBJECT HAIR COLOR	FAC	A	4	8	0	2	15
SFP	O	10.029	SUBJECT FEATURE POINTS	FAC	N	10	18	0	88	1591

**CSP 10.012 - COLORSPACE.** This mandatory ASCII field shall contain the color space used to exchange the image. For compressed images, the preferred colorspace using baseline JPEG and JFIF is YcbCr<sup>2</sup> to be coded as "YCC". An entry of "GRAY" shall be used for all gray scale images. For uncompressed color images containing non-interleaved red, green, and blue pixels in that order, this field shall contain "RGB". All other colorspace are undefined.

**DAT 10.999 - IMAGE DATA.** This field shall contain all of the gray scale or color data from a face image. It shall begin with the ASCII identifier "10.999", and be followed by image data in a binary representation.

Each pixel of uncompressed gray scale data shall be quantized to eight bits (256 gray levels) contained in a single byte. Uncompressed color image data shall be expressed as 24-bit RGB pixels. The first byte shall contain the eight bits for the red component of the pixel, the second byte shall contain the eight bits for the green component of the pixel, and the third byte shall contain the last eight bits for the blue component of the pixel.

If compression is used, the pixel data shall be compressed in accordance with the compression technique specified in the CGA field. If the JPEG algorithm is to be used to compress the data, this field shall be encoded using the JFIF format specification.

**CGA 10.011 - COMPRESSION ALGORITHM.** This mandatory ASCII field shall specify the algorithm used to compress the color or gray scale image. An entry of "NONE" in the field indicates that the data contained in this record is uncompressed.

For those images that are to be compressed, the required method for the compression of facial images to the FBI is specified by the baseline mode of the JPEG algorithm formatted in accordance with the JPEG File Interchange Format, Version 1.02 (JFIF).<sup>1</sup> An entry of "JPEGB" indicates that the scanned or captured image was compressed using baseline JPEG. An entry of "JPEGL" indicates that the lossless mode of the JPEG algorithm was used to compress the image. If the image is captured in gray scale, then only the luminescence component will be compressed and transmitted. When transmitting images to the FBI, the image(s) comprising the image set, that accompany the Ten-Print Criminal Submission, should average no larger than 40KB in size.

The FBI will maintain a registry of additional compression techniques and corresponding codes that may be used as they become available in the future.

**COL 10.043 – COLOR.** This optional field shall contain one subfield corresponding to each subfield contained in Field 10.042. Each subfield shall contain one or more information items that list the color(s) of the tattoo or part of the tattoo. For each subfield, the first information item in the subfield shall be the predominant color chosen from Table 14. Additional colors for the sub-field shall be entered as information items in the subfield separated by the *US* separator character.

<sup>1</sup> Developed by C-Cube Microsystems, 1778 McCarthy Blvd., Milpitas, CA 95035

<sup>2</sup> Annex F of the Proposed Addendum to ANSI/NIST-ITL 1-2000 contains the information necessary to perform conversions between 24-bit RGB pixels and the YcbCr colorspace.

**The FBI will maintain a registry of additional compression techniques and corresponding codes that may be used as they become available in the future.**

**Table 14 – Color codes**

<b>Color description</b>	<b>Color code</b>
Black	BLACK
Brown	BROWN
Gray	GRAY
Blue	BLUE
Green	GREEN
Orange	ORANGE
Purple	PURPLE
Red	RED
Yellow	YELLOW
White	WHITE
Multi-colored	MULTI
Outlined	OUTLINE

**CSP 10.012 - COLORSPACE.** This mandatory ASCII field shall contain an entry from Table 3 to identify the color space used to exchange the image data. If the color space for an RGB image cannot be determined an entry of "RGB" shall be entered in field 10.012. For JPEG-compressed color image files (stored using the JFIF file format), the preferred (external) color space is sRGB and an entry of "SRGB" shall be used for Field 10.012. For all grayscale (monochrome) images, an entry of "GRAY" shall be used for Field 10.012. For JPEG 2000 images stored using the JP2 file format, the available enumerated color spaces are sRGB, sYCC, and grayscale, to be entered, respectively, as "SRGB", "SYCC", and "GRAY" in Field 10.012. The preferred (external) color space for color images is sRGB. If a photo acquisition device uses another ICC color profile, the acquisition system must convert the image data to one of these enumerated color spaces before the JP2 file may be embedded in a Type 10 record. For uncompressed color images containing non-interleaved red, green, and blue pixels in that order, the preferred color space is sRGB and an entry of "SRGB" shall be used for Field 10.012.

Note that the field codes do not determine if the image data is JPEG, JPEG2000, or uncompressed color images. Field 10.011 will need to be examined to make that determination.

**DAT 10.999 - IMAGE DATA.** This field shall contain all of the grayscale or color image data from a face, scar, mark, tattoo, or other image. It shall always be assigned field number 999 and must be the last physical field in the record. The field number designation "10.999:" is followed by the image data in a binary representation.

Table Tattoo classes

<b>Class description</b>	<b>Class code</b>
Human Forms and Features	HUMAN
Animals and Animal Features	ANIMAL
Plants	PLANT
Flags	FLAG
Objects	OBJECT
Abstractions	ABSTRACT
Insignias & Symbols	SYMBOL
Other Images	OTHER

Table a Human tattoo subclasses

<b>Subclass</b>	<b>Subclass code</b>
Male Face	MFACE
Female Face	FFACE
Abstract Face	ABFACE
Male Body	MBODY
Female Body	FBODY
Abstract Body	ABBODY
Roles (Knight, Witch, man, etc.)	ROLES
Sports Figures (Football Player, Skier, etc.)	SPORT
Male Body Parts	MBPART
Female Body Parts	FBPART
Abstract Body Parts	ABBPART
Skulls	SKULL
Miscellaneous Human Forms	MHUMAN

Table 27b Animal tattoo subclasses

<b>Subclass</b>	<b>Subclass code</b>
Cats & Cat Heads	CAT
Dogs & Dog Heads	DOG
Other Domestic Animals	DOMESTIC
Vicious Animals (Lions, etc.)	VICIOUS
Horses (Donkeys, Mules, etc.)	HORSE

Other Wild Animals	WILD
Snakes	SNAKE
Dragons	DRAGON
Birds (Cardinal, Hawk, etc.)	BIRD
Spiders, Bugs, and Insects	INSECT
Abstract Animals	ABSTRACT
Animal Parts	PARTS
Miscellaneous Animal Forms	MANIMAL

Table 27c – Plant tattoo subclasses

Subclass	Subclass code
Narcotics	NARCOTICS
Red Flowers	REDFL
Blue Flowers	BLUEFL
Yellow Flowers	YELFL
Drawings of Flowers	DRAW
Rose	ROSE
Tulip	TULIP
Lily	LILY
Miscellaneous Plants, Flowers, Vegetables	MPLANT

Table 27d – Flags tattoo subclasses

Subclass	Subclass code
American Flag	USA
State Flag	STATE
Nazi Flag	NAZI
Confederate Flag	CONFED
British Flag	BRIT
Miscellaneous Flags	MFLAG

Table 27e – Objects tattoo subclasses

Subclass	Subclass code
Fire	FIRE

Weapons(Guns, Arrows, etc.)	WEAP
Airplanes	PLANE
Boats, Ships, & Other Vessels	VESSEL
Trains	TRAIN
Cars, Trucks, and Vehicles	VEHICLE
Mythical (Unicorns, etc.)	MYTH
Sporting Objects (Football, Ski, Hurdles, etc.)	SPORT
Water & Nature Scenes(Rivers, Sky, Trees, etc.)	NATURE
Miscellaneous Objects	MOBJECTS

Table 27f – Abstract tattoo subclasses

<b>Subclass</b>	<b>Subclass code</b>
Figure(s)	FIGURE
Sleeve	SLEEVE
Bracelet	BRACE
Anklet	ANKLET
Necklace	NECKLC
Shirt	SHIRT
Body Band	BODBND
Head Band	HEDBND
Miscellaneous Abstract	MABSTRACT

Table 27g – Symbols tattoo subclasses

<b>Subclass</b>	<b>Subclass code</b>
National Symbols	NATION
Political Symbols	POLITIC
Military Symbols	MILITARY
Fraternal Symbols	FRATERNAL
Professional Symbols	PROFESS
Gang Symbols	GANG
Miscellaneous Symbols	MSYMBOLS

Table 27h – Other tattoo subclasses

Subclass	Subclass code
Wording (Mom, Dad, Mary, etc.)	WORDING
Freeform Drawings	FREEFRM
Miscellaneous Images	MISC

Table Color codes

Color description	Color code
Black	BLACK
Brown	BROWN
Gray	GRAY
Blue	BLUE
Green	GREEN
Orange	ORANGE
Purple	PURPLE
Red	RED
Yellow	YELLOW
White	WHITE
Multi-colored	MULTI
Outlined	OUTLINE

Each pixel of uncompressed grayscale data shall be quantized to eight bits (256 gray levels) and shall occupy a single byte. Uncompressed color image data shall be expressed as 24 bit sRGB pixels. The first byte shall contain the eight bits for the red component of the pixel, the second byte shall contain the eight bits for the green component of the pixel, and the third byte shall contain the last eight bits for the blue component of the pixel. If compression is used, the pixel data shall be compressed in accordance with the compression technique specified in the GCA field. If the JPEG algorithm is to be used to compress the data, this field shall be encoded using the JFIF format specification.

**DMM 10.030 – 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 to indicate the monitoring mode of the biometric sample capture device.

Table Device monitoring modes

CONDITION	DESCRIPTION
ASSISTED	Person available to provide assistance to user of the biometric capture device
OBSERVED	Person present to observe operation of the device but provides no assistance

<b>UNATTENDED</b>	<b>No one present to observe or provide assistance</b>
<b>UNKNOWN</b>	<b>No information is known</b>

**HLL 10.006 - HORIZONTAL LINE LENGTH.** This mandatory ASCII field shall contain the number of pixels contained on a single horizontal line of the transmitted image.

**HPS 10.009 - HORIZONTAL PIXEL SCALE.** This mandatory ASCII field shall specify the 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 10.002 - IMAGE DESIGNATION CHARACTER.** The Image Designation Character shall be a sequentially assigned positive integer starting from zero and increasing by one for each finger position, image, or Type-10 record present. Each IDC value matches a value in the Content (CNT) field of the Type-1 message header.

**IMT 10.003 - IMAGE TYPE.** This mandatory ASCII field is used to indicate the type of image contained in this record. It shall contain "FACE", "SCAR", "MARK", or "TATTOO" to indicate the appropriate image type.

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**This mandatory ASCII field is used to indicated the type of image contained in this record. It shall contain "FACE", to indicate a face image.**

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**For Scars, Marks, or Tattoo, the image type will reflect SMT (this entry is required for inclusion of fields 10.040 through 10.043). The content of this field shall conform to the requirements set forth by the agency to**

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which the transmission is being sent.

**LEN 10.001 - LOGICAL RECORD LENGTH.** This mandatory ASCII field shall contain the total count of the number of bytes in this Type-10 logical record. Field 10.001 shall begin with "10.001:", 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.

**PAS 10.023 – PHOTO ACQUISITION SOURCE.** This optional field shall specify the classification of the source of the image contained in this record. When included, this field shall contain an ASCII character code selected from to describe the source of captured image data.

Table Acquisition source type codes

Acquisition source type attribute	Attribute code
Unspecified	UNSPECIFIED
Static photograph from an unknown source	UNKNOWN PHOTO
Static photograph from a digital still-image camera	DIGITAL CAMERA
Static photograph from a scanner	SCANNER
Single video frame from an unknown source	UNKNOWN VIDEO
Single video frame from an analogue video camera	ANALOGUE VIDEO
Single video frame from a digital video camera	DIGITAL VIDEO
Unknown	UNKNOWN
Vendor Specific source	VENDOR

The "VENDOR" category is used to enter unlisted or miscellaneous source attributes of the facial image. This information shall be entered as a two-information item subfield. The first is "VENDOR" followed by the "US" separator, followed by the unformatted text used to describe the attribute.

**PHD 10.005 - PHOTO DATE.** This mandatory ASCII field shall contain the date that the facial image contained in the record was captured. The date shall appear as an eight-digit number 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, 19960229 represents February 29, 1996. The photo date 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 IAFIS will accept the local date as valid up to 1 day forward (24 hours), in order to accommodate the variance between international time zones.

**POA 10.021 - POSE OFFSET ANGLE.** This field shall only be used for the exchange of facial image data if Field 10.020 (POS) contains an "A" to indicate an angled pose of the subject. This field should be omitted for a full face or a profile. This ASCII field specifies the pose position of the subject at any possible orientation within a circle. Its value shall be to a nearest degree.

Table Subject pose

Pose description	Pose code
Full Face Frontal	F
Right Profile (90 degree)	R
Left Profile (90 degree)	L
Angled Pose	A
Determined 3D Pose	D

The offset angle shall be measured from the full-face pose position and have a range of values from -180 degrees to +180 degrees. A positive angle is used to express the angular offset as the subject rotates from a full-face pose to their right (approaching a left profile). A negative angle is used to express the angular offset as the subject rotates from a full-face pose to their left (approaching a right profile). If the entry in the POS field is an "F", "L", or "R", the contents of this field are ignored.

**This field shall only be used for the exchange of facial image data if Field 10.020 (POS) contains an "A" to indicate an angled pose of the subject. For a full face or a profile this field should be omitted. This ASCII field**

specifies the pose position of the subject at any possible orientation within a circle. Its value shall be to a nearest degree. The offset angle shall be measured from the full-face pose position and have a range of values from - 180 degrees to + 180 degrees. A positive angle is used to express the angular offset as the subject rotates from a full-face pose to their right (approaching a left profile). A negative angle is used to express the angular offset as the subject rotates from a full-face pose to their left (approaching a right profile). If the entry in the POS field is an "F", "L", or "R", the contents of this field are ignored.

**POS 10.020 - SUBJECT POSE.** This optional field is to be used for the exchange of facial image data. When included, this field shall contain one ASCII character code selected from to describe the pose of the subject. For the angled pose entry "A", field 10.021 shall contain the offset angle from the full face orientation. For the determined 3D pose entry "D", Field 10.025 shall contain a set of determined 3D pose angles (i.e., Yaw, Pitch, and Roll angles) away from the full frontal face orientation. Note that the offset angle in Field 10.021 is opposite from the yaw angle in Field 10.025 by a minus sign.

This is an optional field to be used for the exchange of facial image data. When included, this field shall contain a one ASCII character code selected from the list below to describe the pose of the subject. For the angled pose entry "A", field 10.021 (POA)

**shall contain the offset angle from the full face orientation.**

Full Face Frontal	F
Right Profile (90 degree)	R
Left Profile (90 degree)	L
Angled Pose	A

**PXS 10.022 - PHOTO DESCRIPTION.** This optional ASCII field, retained for legacy systems, should be used for the exchange of facial image data. When present, it shall consist of one or more subfields and shall describe special attributes of the captured facial image. Attributes associated with the facial image may be selected from Table 8 and entered in this field as one or more subfields separated by the "RS" separator character between the items.

**Table Photo descriptors**

Facial image attribute	Attribute code
Subject Wearing Glasses	GLASSES



provide a general description of the criteria under which the facial image was captured. This field shall contain an ASCII character code selected from Table 17 to indicate the numeric value of the acquisition profile and conditions used to acquire the image. Typically, the higher the value, the stronger the acquisition requirements become. Therefore, in the text below, the SAP value will also be denoted as a “level”.

Together with Table 17 is a brief description of each of the levels. Note that levels 10 to 15 denote transactions associated with image acquisition under the guidance of other facial standards or application profiles. Levels 30 to 51 reference best practice recommendations consisting of increasingly more stringent requirements that must be satisfied. Additional details and criteria for these levels are contained in Annex H and Annex I.

#### Level 0 (Unknown profile)

This level denotes any case when the Subject Acquisition Profile is unknown. This value can be used to alert systems that the profile of the face image needs to be determined manually or via advanced face image quality evaluation techniques.

#### Level 1 (Latent facial image)

This SAP denotes a latent facial image: a face image captured without specific regard to scene, photographic, or digital requirements. For example, an image of a face from commonly available surveillance video equipment is generally considered a latent facial image. Typically latent facial images are of relatively poor quality compared to mugshots, including significant pose angle used for the frontal view, poor image resolution, poor image contrast, etc.

#### Levels 10-15 (Other application profiles)

Levels 10-15 shall denote transaction associated with capture under the guidance of other facial standards or application profiles as defined below:

Level 10 denotes a driver license facial portrait described in AAMVA DL/ID-2000

Level 11 denotes an ANSI facial image which meets requirements of the Full Frontal Image type defined in ANSI/INCITS 385-2004

Level 12 denotes an ANSI facial image which meets requirements of the Token Face Image type defined in ANSI/INCITS 385-2004

Level 13 denotes an ISO facial image that meets the requirements of the Full Frontal Image defined in International standard ISO/IEC 19794-5

Level 14 denotes an ISO facial image that meets the requirements of the Token Face Image type defined in International standard ISO/IEC 19794-5

Level 15 denotes a PIV facial image which meets requirements of Biometric Data Specification for Personal Identity Verification

Note that the facial images of Levels 13 and 14 may come from travel documents as described in “Deployment of Machine Readable Travel Documents”, ICAO Technical Report, version 2.0 .

**Table 17 Subject acquisition profiles**

Subject Acquisition Profile	Attribute Level Code
Unknown profile	0
Latent facial image	1
Driver's license image (AAMVA)	10
ANSI Full Frontal facial image (ANSI 385)	11
ANSI Token facial image (ANSI 385)	12
ISO Full Frontal facial image (ISO/IEC 19794-5)	13
ISO Token facial image (ISO/IEC 19794-5)	14
PIV facial image (NIST SP 800-76)	15
Legacy Mugshot	20
Best Practice Application - Level 30	30
Best Practice Application - Level 40	40
Best Practice Application - Level 50	50
Best Practice Application - Level 51	51

**Level 20 (Legacy facial mugshot)**

A transaction conforming to this application profile level shall be a mugshot formatted according to ANSI/NIST-ITL 2000, but not necessarily or known to be conforming to the best practice requirements given in profile 30 below. The subject pose(s) can be Frontal, Profile, or Angled.

**Best Practice Application Level 30**

A transaction conforming to a level 30 application profile shall include at least one mugshot record conforming to all best practice requirements (BPR) in Annex H. These mugshots shall adhere to strict background, lighting, and resolution requirements. In particular, the background is 18% gray, the lighting is three-point, and the resolution is at least 480x600 pixels with an aspect ratio of 1:1.25.

**Best Practice Application Level 40**

A facial image conforming to the level 40 application profile can be captured with an off-the-shelf 1 megapixel camera. Annex I contains detailed information for the capture of level 40, 50, and 51 facial images. Requirements for compliance with level 40 facial image capture include the following:

Conformance to the minimum requirements for the capture of level 30 facial images  
At least one frontal face image shall be captured which conforms to the “face image capture requirements”

The minimum number of pixels in the electronic digital image shall be 768 pixels in the horizontal direction by 1024 pixels in the vertical direction and

Facial images shall conform to the “head and shoulders” composition detailed requirements.

It should be noted that the image quality of the captured facial images will be improved as the number of pixels in both directions are increased. However, as images are captured with an increased number of pixels, the 3:4 (Width:Height) aspect ratio shall be maintained.

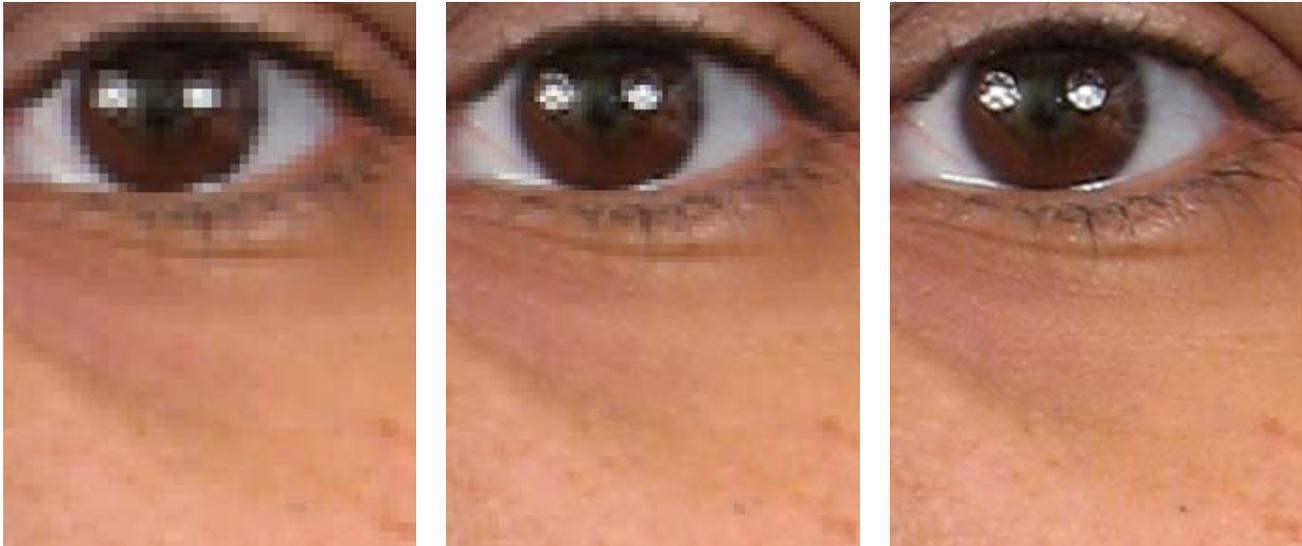
#### Best Practice Application Level 50 and Level 51

A transaction conforming to the level 50 and level 51 application profiles shall include “face image capture requirements” as described in Annex I. These profile levels are intended to allow for examination of up to forensic-level (0.1 millimeter) detail on a subject’s face. The only difference between levels 50 and 51 is that level 50 specifies the “head and shoulders” composition requirements while level 51 specifies the “head only” composition requirements.

Identification applications require approximately 1700 pixels wide by 2515 pixels high on the face for the 99th percentile male in the U.S. population. Allocating 50% of the image width for the head requires approximately 3400 pixels for a “head and shoulders photo” image width. For a level 50 image capture profile, the minimum number of pixels in the electronic digital image shall be 3300 pixels in the horizontal direction by 4400 pixels in the vertical direction. Off-the-shelf 15 (or more) megapixel digital cameras satisfy this requirement.

As an alternative, allocating 70% of the image width for the head requires approximately 2400 pixels for the “head only” facial capture. For a level 51 image capture profile, the minimum number of pixels in the electronic digital image shall be 2400 pixels in the horizontal direction by 3200 pixels in the vertical direction. Off-the-shelf 8 megapixel digital cameras satisfy this requirement.

The level 50 and level 51 SAPs allow for the encoding of very high resolution face images that are consistent with the discussion above and with the “face image capture requirements”. It should be noted that the image quality of the captured facial images will be improved as the number of pixels in both directions are increased. illustrates the improvement in image quality from levels 30 to 50/51. However, as images are captured with an increased number of pixels, the 3:4 (Width:Height) aspect ratio shall be maintained.



**a. Level 30**

**b. Level 40**

**c. Levels 50 and 51**

Examples of resolution for levels 30, 40, & 50/51

**SEC 10.027 – SUBJECT EYE COLOR.** This optional ASCII field shall be used for the exchange of facial image data. When present, it shall describe the eye color of the subject as seen in the photograph. If unusual or unnatural such as may be the case when colored contact lenses are present and the “real” eye color cannot be ascertained, then the color should be labeled as “UNKNOWN”. Eye color attributes and attribute codes are given by .

Table Eye color codes

Eye color attribute	Attribute code
Black	BLK
Blue	BLU
Brown	BRO
Gray	GRY
Green	GRN
Hazel	HAZ
Maroon	MAR
Multicolored	MUL
Pink	PNK
Unknown	XXX

**SFP 10.029 – SUBJECT FEATURE POINTS.** The optional ASCII field shall be used for the exchange of facial image data. When present, it shall describe special attributes of manually or automatically detected facial feature points of the captured facial image. This information shall be entered as a four-information item feature point block as described in . The first information

item is feature point type. For this version of the standard the only allowable value is "1" which is followed by the "US" separator character. The second is feature point code, followed by the "US" separator character. The third is the X coordinate of a feature point, followed by the "US" separator character. The fourth and final item is the Y coordinate of a feature point in the facial image. Multiple facial points may be listed using these four information items. But each feature block must be separated by the "RS" separator character. The maximum number of feature points shall be 88, with the use of 84 MPEG4 feature points and 4 additional center feature points.

Feature points shall be included in the record format if they have been accurately determined, thereby providing the option that that these parameters do not have to be re-determined when the image is processed for face recognition tasks.

Typically a computer algorithm will either accurately determine the position of the feature point or completely fail and provide either clearly erroneous or no landmark information. Therefore, a method for accurate determination is the use of computer-automated feature point determination followed by human verification and potential override of the computer determined feature points.

**Table Subject feature point field**

Item	Size	Value	Notes
Feature Point Type	1 character	1	Denotes a 2D Feature Point. All other values are reserved.
Feature Point Code	4 characters	A.B in ASCII text A and B are described in Annex K	The maximum value of A is 12 and of B is 15.
X coordinate	1-4 characters	Horizontal pixel count from upper left pixel.	Count starts at 0.
Y coordinate	1-4 characters	Vertical pixel count from upper left pixel.	Count starts at 0.

### MPEG4 Feature points

The feature point code item shall specify the feature point that is stored in the feature point block. The codes for the feature points are taken from the MPEG4 standard and defined as MPEG4 feature points. Each feature point code is represented by a notation A.B using a major (A) and a minor (B) value. The encoding of the feature point code is given by the numeric ASCII representation of the value of A.B.

denotes the feature point codes associated with feature points as given by Annex C of ISO/IEC 14496-2. Each code is given by major value A and minor value B. For example, the code for the left corner of the left eye is given by major value 3 and minor value 7.

### Eye and nostril center Feature Points

The eye center feature points 12.1 (left) and 12.2 (right) are defined to be the horizontal and vertical midpoints of the eye corners (3.7, 3.11) and (3.8, 3.12) respectively. The left nostril center feature point 12.3 is defined to be the midpoint of the nose feature points (9.1, 9.15) in the horizontal direction and (9.3, 9.15) in the vertical direction. Similarly, the right nostril center feature point 12.4 is defined to be the midpoint of the nose feature points (9.2, 9.15) in the horizontal direction and (9.3, 9.15) in the vertical direction. Both the eye center and nostril center Feature points are shown in and values given in .

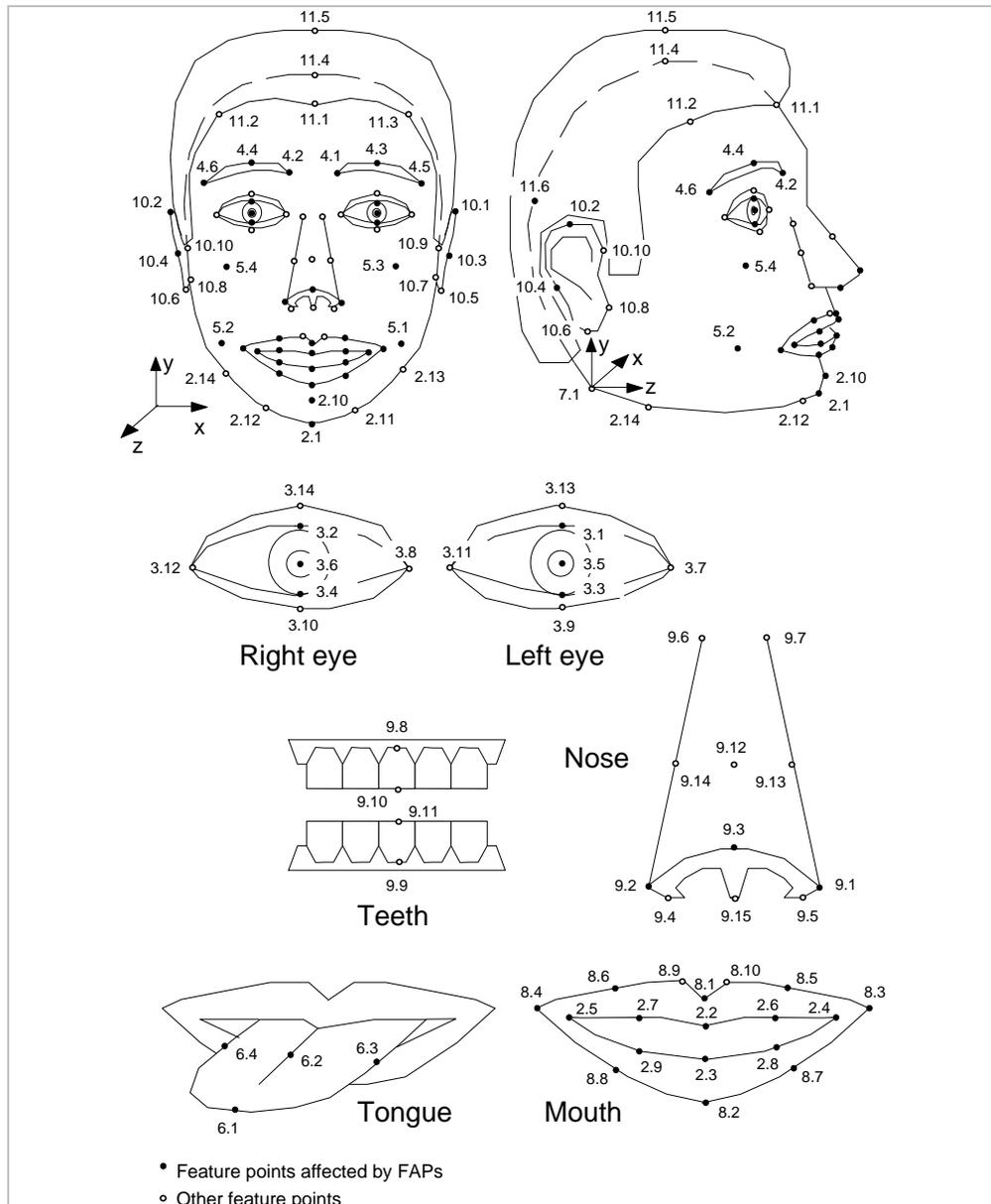


Figure Feature point codes defined in ISO/IEC 14496-2

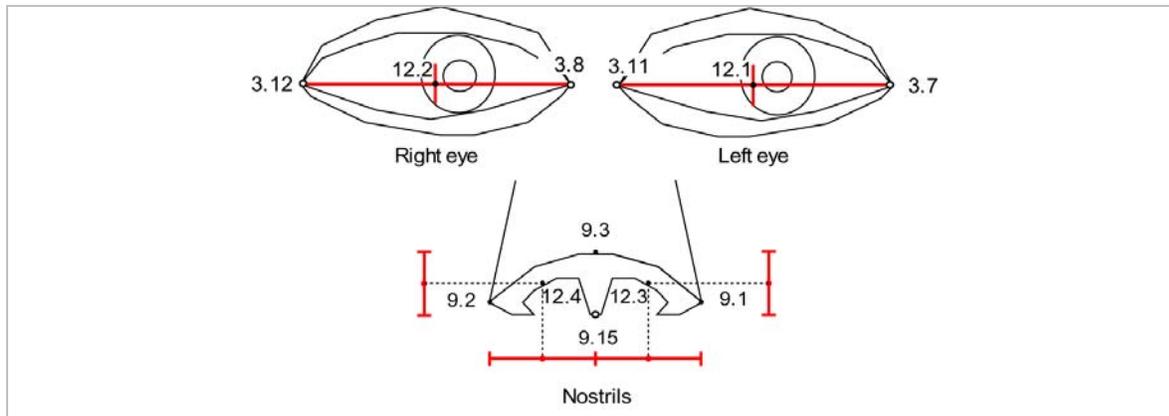


Figure Eye and nostril center feature points

Table Eye and nostril center feature point codes

Center Feature Point	Midpoint of Feature Points		Feature Point code
Left Eye	3.7, 3.11		12.1
Right Eye	3.8, 3.12		12.2
Left Nostril	Horizontal	Vertical	12.3
	9.1, 9.15	9.3,9.15	
Right Nostril	Horizontal	Vertical	12.4
	9.2, 9.15	9.3,9.15	

An example transaction for representing two feature points of eye centers is “10.029:1<sup>US</sup>12.2<sup>US</sup>120<sup>US</sup>130<sup>RS</sup>1<sup>US</sup>12.1<sup>US</sup>240<sup>US</sup>129<sup>GS</sup>”.

**SHC 10.028 – SUBJECT HAIR COLOR.** This optional ASCII field shall be used for the exchange of facial image data. When present, it shall contain an entry form that describes the hair color of the subject as seen in the photograph. For unusual or unnatural colors not listed in the table, or the "real" color cannot be ascertained, the hair color should be labeled as “UNKNOWN”

If the subject is completely bald, or has a completely shaved head, then the hair color shall be labeled as “BAL”. When the subject is predominantly bald, but hair color is discernable, then the appropriate hair color attribute code shall follow “BAL” (separated by the “RS” character).

Table Hair color codes

Hair color attribute	Attribute code
Unspecified or unknown	XXX
Bald	BAL
Black	BLK
Blonde or Strawberry	BLN
Brown	BRO
Gray or Partially Gray	GRY
Red or Auburn	RED

Sandy	SDY
White	WHI
Blue	BLU
Green	GRN
Orange	ONG
Pink	PNK
Purple	PLE

**SLC 10.008 - SCALE UNITS.** This mandatory ASCII field shall specify the units used to describe the image sampling frequency (pixels density). A "1" in this field indicates pixels per inch. A "2" indicates pixels centimeter. A "0" in this field indicates no scale is given, for this case, the quotient of HPS/VPS give the pixel aspect ratio.

**SMD 10.042 – SMT DESCRIPTORS.** This optional field is used to describe the content of the SMT image. It shall consist of one or more subfields. Each subfield shall contain three or four information items that provide progressively detailed information describing the total image or a portion of the image.

The first information item of each subfield shall identify the source of the image as being a scar, a mark, or a tattoo. It shall contain "SCAR" to indicate healed scar tissue that was the result an accident or medical procedure. An entry of "MARK" shall be used for the pattern resulting from needle or "Track" marks. For either case the second and third information items shall contain "OTHER" and "MISC" and the fourth information item shall contain a textual description or other information concerning the scar or mark pattern.

For deliberately applied or drawn images, the first information item will contain "TATTOO" to indicate a common tattoo or indelible image resulting from the pricking of the skin with a coloring matter; "CHEMICAL" if the image was created by the use of chemicals to burn the image into the skin; "BRANDED" if the image was burned into the skin using a branding iron or other form of heat; or "CUT" if the image was caused by incision of the skin.

The second information item shall be the general class code of tattoo chosen from Table 12. For each general class of tattoo, there are several defined subclasses. The third information item of the subfield shall be the appropriate subclass code selected from Tables 13a - 13h which lists the various subclasses of tattoos for each of the general classes.

The final and optional information item in this subfield shall be an ASCII text string that provides additional qualifiers to describe the image or portion of the image. For example, to fully describe a tattoo, there may be a class description of "ANIMAL", with a subclass description of "DOG", and qualified by "golden retriever with an overbite". The "US" separator character will be used between information items.

An SMT image consisting of several parts or sub-images shall use multiple subfields, separated by the “RS” separator, to fully describe the various parts or features found in the total image. The first subfield shall describe the most predominant feature or sub-image contained in the SMT image. Subsequent subfields shall describe additional portions of the image that are not part of the main or central focal point of the image. For example, a tattoo consisting of a man with a snake on the arm being followed by a dog may contain three subfields – one describing the man, a second describing the snake, and a third describing the dog.

**Table 12 – Tattoo classes**

<b>Class description</b>	<b>Class code</b>
Human Forms and Features	HUMAN
Animals and Animal Features	ANIMAL
Plants	PLANT
Flags	FLAG
Objects	OBJECT
Abstractions	ABSTRACT
Insignias & Symbols	SYMBOL
Other Images	OTHER

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**Table 13d – Flags tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
American Flag	USA
State Flag	STATE
Nazi Flag	NAZI
Confederate Flag	CONFED
British Flag	BRIT
Miscellaneous Flags	MFLAG

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**Table 13a – Human tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
Male Face	MFACE
Female Face	FFACE
Abstract Face	ABFACE
Male Body	MBODY
Female Body	FBODY
Abstract Body	ABBODY
Roles (Knight, Witch, man, etc.)	ROLES
Sports Figures (Football Player, Skier, etc.)	SPORT
Male Body Parts	MBPART
Female Body Parts	FBPART
Abstract Body Parts	ABBPART
Skulls	SKULL
Miscellaneous Human Forms	MHUMAN

**Table 13b – Animal tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
Cats & Cat Heads	CAT
Dogs & Dog Heads	DOG
Other Domestic Animals	DOMESTIC
Vicious Animals (Lions, Tigers, etc.)	VICIOUS
Horses (Donkeys, Mules, etc.)	HORSE
Other Wild Animals	WILD
Snakes	SNAKE
Dragons	DRAGON
Birds (Cardinal, Hawk, etc.)	BIRD
Spiders, Bugs, and Insects	INSECT
Abstract Animals	ABSTRACT
Animal Parts	PARTS
Miscellaneous Animal Forms	MANIMAL

**Table 13c – Plant tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
Narcotics	NARCOTICS
Red Flowers	REDFL
Blue Flowers	BLUEFL
Yellow Flowers	YELFL
Drawings of Flowers	DRAW
Rose	ROSE
Tulip	TULIP
Lily	LILY
Miscellaneous Plants, Flowers, Vegetables	MPLANT

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**Table 13e – Objects tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
Fire	FIRE
Weapons (Guns, Arrows, etc.)	WEAP
Airplanes	PLANE
Boats, Ships, and Other Vessels	VESSEL
Trains	TRAIN
Cars, Trucks, and Vehicles	VEHICLE
Mythical (Unicorns, etc.)	MYTH
Sporting Objects (Football, Ski, Hurdles, etc.)	SPORT
Water & Nature Scenes (Rivers, Sky, Trees, etc.)	NATURE
Miscellaneous Objects	MOBJECTS

**Table 13f – Abstract tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
Figure(s)	FIGURE
Sleeve	SLEEVE
Bracelet	BRACE
Anklet	ANKLET
Necklace	NECKLC
Shirt	SHIRT
Body Band	BODBND
Head Band	HEDBND
Miscellaneous Abstract	MABSTRACT

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**Table 13g – Symbols tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
National Symbols	NATION
Political Symbols	POLITIC
Military Symbols	MILITARY
Fraternal Symbols	FRATERNAL
Professional Symbols	PROFESS
Gang Symbols	GANG
Miscellaneous Symbols	MSYMBOLS

**Table 13h – Other tattoo subclasses**

<b>Subclass</b>	<b>Subclass code</b>
Wording (Mom, Dad, Mary, etc.)	WORDING
Freeform Drawings	FREEFRM
Miscellaneous Images	MISC

**SMS 10.041 – SMT SIZE.** This optional field shall contain the dimensions of the scar, mark or tattoo. It shall consist of two information items. The height shall be the first information item followed by the “US” separator character followed by the width. Each dimension shall be entered to the nearest centimeter.

**SMT 10.040 – NCIC DESIGNATION CODE.** This field is mandatory for a Type-10 record containing SMT image data. It is used to identify a general location of the captured scar, mark, or tattoo image. The contents of this field will be an entry chosen from Part 4 Section 13 of the Eighth (or current) Edition of the NCIC Code Manual, July 14, 1999. The captured image can encompass an area larger than that specified by a single NCIC body part code for the particular image type. This situation can be accommodated by listing multiple NCIC codes separated by the “RS” separator character. In this case the primary code is listed first. For the “marks” category, the NCIC manual lists the common locations for needle track marks. For other body part locations not listed under the “marks” category, use the body location codes listed for scars

**SPA 10.025 – SUBJECT POSE ANGLES.** This optional ASCII field shall be present when Field 10.020 (POS) contains a “D” to indicate a set of determined 3D pose angles of the same subject. If the entry in the POS Field is an “F”, “L”, or “R”, the contents of this field are ignored. When present, this information shall be entered as three or six information items.

The first is the Yaw angle (rotation about the vertical 'y' axis) followed by the “US” separator, followed by the Pitch angle (rotation about 'x' horizontal axis), followed by the “US” separator, followed by the Roll angle (rotation about the 'z' axis). The fourth, fifth and sixth information items denote the uncertainty degrees for the Yaw, Pitch, and Roll angles respectively. If the second triple of angles is not present, then the uncertainty in the angles is not determined, but the additional three “US” separators shall still be included.

The first three items specify the pose of the subject estimated or measured at constrained possible orientations within a sphere. Each angle value shall be to the nearest integer degree. If both field 10.021 and this field are present, the Yaw angle of this field shall supersede the offset angle contained in Field 10.021. Note that the Yaw angle of this field has the opposite sign of the offset angle contained in Field 10.021. Annex J contains, additional information, details, and examples of the subject pose angles.

**SQS 10.024 – SUBJECT QUALITY SCORE.** This optional ASCII field shall specify quality score data for facial images stored in this record. Each subfield shall contain four information items separated by the "US" separator character. They identify a quality score and the algorithm used to create the quality score, and should be present if known. 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 first 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 1 and 100 assigned to the image data by a quality algorithm. Higher values indicate better quality. An entry of “-1” shall indicate a failed attempt to calculate a quality score. The use of additional values to convey other information should be harmonized with ISO/IEC 19794 standards.

2. The second information item shall specify the alphanumeric ID value of the vendor of the quality algorithm used to calculate the quality score. NIST will maintain a Vendor Registry that

will map the values in this field to registered quality algorithm vendors. The Vendor ID shall be composed of ASCII printable characters up to 16 characters in length.

3. The third information item shall specify a numeric product code assigned by the vendor of the quality algorithm. 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 65535.

4. The fourth item shall specify the version number of the quality algorithm used. The version number shall include a major number and minor number separated by a period. The major number and minor numbers should each be the ASCII representation of integer values in the range 0 to 255.

**SRC 10.004 - SOURCE AGENCY/ORI.** This mandatory ASCII field shall contain the identification of the administration or organization that originally captured the latent image contained in the record. Normally, the Originating Agency Identifier, ORI, of the agency that captured the image will be contained in this field. The SRC may contain up to 36 identifying characters and the data content of this field shall be defined by the user and be in accordance with the receiving agency.

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**This mandatory ASCII field shall contain the identification of the administration or organization that originally captured the facial image contained in the record. Normally, the ORI of the agency that captured the image will be contained in this field. The size and data content of this field shall be denied by the user and be in accordance with the receiving agency.**

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**SXS 10.026 – SUBJECT FACIAL DESCRIPTION.** This optional ASCII field shall be used for the exchange of facial image data. When present, it shall describe the facial expression of the subject and other attributes associated with the subject's captured facial image. This field may have one or more subfields each containing a single information item. Attributes associated with the facial image may be selected from Table 13 and entered in this field. For "Physical Characteristic", enter a characteristic as listed in **Part 4 Section 13 of the Eighth (or current) Edition of the NCIC Code Manual, July 14, 1999**. For the "Other Characteristic" enter unlisted or

miscellaneous attributes as unformatted text used to describe the attribute. Multiple attributes may be listed but must be separated by the “RS” character.

**Table Subject facial description codes**

<b>Facial description attribute</b>	<b>Attribute code</b>
Expression unspecified	UNKNOWN
Neutral (non-smiling) with both eyes open and mouth closed)	NEUTRAL
Smiling where the inside of the mouth and/or teeth is not exposed (closed jaw).	SMILE
Subject Having Mouth open	MOUTH OPEN
Having Teeth visible	TEETH VISIBLE
Raising eyebrows	RAISED BROWS
Frowning	FROWNING
Looking away from the camera	EYES AWAY
Squinting	SQUINTING
Subject Wearing Left Eye Patch	LEFT EYE PATCH
Subject Wearing Right Eye Patch	RIGHT EYE PATCH
Subject Wearing Clear Glasses	CLEAR GLASSES
Subject Wearing Dark or Visible Colored Glasses (medical)	DARK GLASSES
Head covering/hat	HAT
Wearing Scarf	SCARF
Having Moustache	MOUSTACHE
Having Beard	BEARD
Ear(s) obscured by hair	NO EAR
Blinking (either or both eyes closed)	BLINK
Having Distorting Medical Condition impacting Feature Point detection	DISTORTING CONDITION
Physical Characteristics	<From NCIC Code Manual>
Other Characteristics	<Unformatted Text>

Note: This field is intended to replace the photo description field (PXS) and to enhance the content with additional descriptive information. As such, photo descriptors found in Table 8 also appear in Table 13.

**VLL 10.007 - VERTICAL LINE LENGTH.** This mandatory ASCII shall contain the number of horizontal lines contained in the transmitted image.

**VPS 10.010 - VERTICAL PIXEL SCALE.** This mandatory ASCII field shall specify the 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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Page 25: [317] Formatted	10/26/2006 9:52:00 AM
Tabs: 18 pt, Left + 198 pt, Centered + 225 pt, Left + 279 pt, Centered + 318.25 pt, Centered + 360 pt, Centered + 390.95 pt, Centered + 416.15 pt, Centered + 441 pt, Centered + 466.55 pt, Centered + 491.05 pt, Centered + 516.25 pt, Centered +	
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**Table N-2 - Finger impression type**

Description	Code
Live-scan plain	0
Live-scan rolled	1
Nonlive-scan plain	2
Nonlive-scan rolled	3
Latent impression	4
Latent tracing	5
Latent photo	6
Latent lift	7

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**TABLE N-3 FIELD LIST FOR FLATS CIVIL CHECK TYPE-14  
RECORD**

Condition	Field Number	Field Name	Character Type	Field Size Per Occurrence		Occurrences		Maximum Number of Bytes	Example Data
				----- Min	Max	----- Min	Max		
M	14.001	LOGICAL REC LENGTH	N	4	8	1	1	15	14.001:40164<GS>
M	14.002	IMAGE DESIGNATION CHAR	N	2	5	1	1	12	14.002:01<GS>
M	14.003	IMPRESSION TYPE	A	2	2	1	1	9	14.003:0<GS>
M	14.004	SOURCE AGENCY/ORI	AN	10	21	1	1	28	14.004:CA0000001<GS>
M	15.005	TEN-PRINT CAPTURE DATE	N	9	9	1	1	16	14:005:20040227<GS>
M	14.006	HORIZONTAL LINE LENGTH	N	4	5	1	1	12	14:006:1600<GS>
M	14.007	VERTICAL LINE LENGTH	N	4	5	1	1	12	14:007:1450<GS>
M	14.008	SCALE UNITS	N	2	2	1	1	9	14.008:1<GS>
M	14.009	HORIZONTAL PIXEL SCALE	N	2	5	1	1	12	14:009:500<GS>
M	14.010	VERTICAL PIXEL SCALE	N	2	5	1	1	12	14:010:500<GS>
M	14.011	COMPRESSION ALGORITHM	A	5	7	1	1	14	14:011:1<GS>
M	14.012	BITS PER PIXEL	N	2	3	1	1	10	14:012:8<GS>
M	14.013	FINGER POSITION CODE	N	2	2	1	6	25	14.013:13<GS>

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Ident	Cond Code	Field Number	Field Name	Char Type	Field size per Occurrence		Occur count		Max byte count