ELECTRONIC BIOMETRIC TRANSMISSION SPECIFICATION (EBTS)

NIEM Information Exchange Package Documentation

Version 2.0

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CHANGE DESCRIPTION FORM

Revision	Change Description	Created/Changed by	Date	Approved By
1.0	Initial Draft	Joe Wade	08/01/2007	N/A
1.1	Updates to Mnemonic/NIEM definition table	Joe Wade	03/12/2008	N/A
1.2	Further updates to Mnemonic/NIEM definition table, wording clarifications	Joe Wade	04/02/2008	N/A
1.3	Added elements to for Type-2 “Future Capability” in accordance with EBTS 8.002	Joe Wade	04/28/2008	N/A
1.4	Added ebts:TransactionAugmentation to allow for EBTS specific TOT codes. TSR changed to EBTS namespace.	Patrice Yuh	04/13/2009	N/A
1.5	Updating to meet CJIS template standards. Document number addition.	Patrice Yuh	04/17/09	N/A
1.6	Corrected formatting and misspellings	Jennifer Stathakis	08/21/2009	N/A
1.7	<u>Updated Table 5-1</u> Added: APC 9.017, ROV 9.018, COF 9.019, LQM 13.024, CIN_ID 2.010B, CIN_PRE 2.010A, OMG 7.009, AMP 14.018, FGP 7.004, CIDN 2.2022. Changed: MRC 9.012, EID 2.049, PAS 10.023, NAM 2.018, NAM1-5 2.2001-2.2005,MAT 9.023, AOL 2.047B, COL 2.051B, FGN 9.014, ICO 2.056, PPA 2.035, HAI 2.032, SEX 2.024, CRI 2.073, CRA 9.021, CRP 9.008, DLT 9.009, DLA 9.022, IMT 2.062, FCP 9.016, IMA 2.067. Replaced Tags: 2.062, 14.024, 9.023D, 9.019C, 9.016, 17.999, 99.999, 13.015,	Jennifer Stathakis	11/6/2009	N/A

	14.005. Updated Table 5-2 Added APC, ROV, COF. Updated: DLA, CRA. Deleted: DLT, CRP. Updated the list of Sample XML Instances in Section 6.1			
1.8	Corrected references to ANSI/NIST-ITL 1-2007 Updated version numbers Rewrote Section 4 and added Figure 4-1. Table 5-1 Updated CAN 2.064, MSC 2.089, MRO 9.023E-L, DLA 9.022, CRA 9.021, RCN1, RCN2, CFS 2.077, CHQ 9.024, CIDN 2.2022, CIN 2.010, CIX 2.011, DAI 1.007, DLA 9.022, DMM 10.030, DOS 2.046,ETC 2.069, FFN 2.003, FNR 2.057, GUI 17.018, HGT 2.027, HTR 2.028, ICD 17.005, IRD 17.026, LCN 2.012, LCX 2.013, RSO 9.023M, MCP 14.014, MPS 14.015, MNU 2.017 ORI 1.008, PEN 2.078, XYM 9.018A, RSR 2.065, SCNA 2.086, SCO 2.007, SID 2.015, SQM 14.023, SRC 10.004, NIR 2.2010, IRT Removed Fields 9.005-9.012 Section 5.1.1 Added reference to the EBTS Native Specification document and updated transactions list. Added new section 5.1.3 State and Local Records. Added new sections regarding Type-1 and Type-2 records, 5.3.2 and 5.3.3. Added Table 5-3. Added Table 5-4 and rewrote section 5.3.6, Minutia Data, and Section 5.3.13, Message Layout.	Jennifer Stathakis	12/18/2009	

2.0	Added new substitution information to Section 5.3.3 Updated version numbers throughout document Table 5-1 Changed 14.014 to PPD Changed 14.015 to PPC Changed 15.024 APM to PQM Changed 14.024 to FQM Added SII 2.2023 Added ERS 2.075 Added GEO_TIME 2.2025 Added GEO_CORD 2.2026 Added DATUM_ID 2.2027 Added ITD 2.058 Added HTI 2.2024 Updated XML for PHT, PPA, RES and DNAF Table 5-3 Updated table to reflect new elements and cardinalities Section 6.1 Updated file names and paths	Jennifer Stathakis	3/15/10	

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1 PURPOSE

The Federal Bureau of Investigation uses the Electronic Biometric Transmission Specification in support of exchanging biometric data to facilitate the determination of the personal identity of a subject from fingerprint, palm, facial or other biometric information, across criminal justice agencies or organizations that use an Automated Fingerprint Identification System (AFIS) or related systems nationwide.

These biometric specifications are standards for electronically encoding and transmitting biometric image, identification and arrest data. The FBI EBTS is an extension of the biometric standards entitled "Data Format for the Interchange of Fingerprint Facial, & Other Biometric Information – Part 2: XML Version" (ANSI/NIST-ITL 2-2008), which are composed by the American National Standards Institute (ANSI) in correspondence with the Information Technology Laboratory (ITL) of the National Institute of Standards and Technology (NIST). These standards define the content, format, and units of measurement for the exchange of biometric information.

The FBI EBTS serves criminal justice agencies in the 50 states, the District of Columbia, Puerto Rico, and Canada.

This Information Exchange Package Documentation (IEPD) covers the FBI EBTS 9.1 XML Data Reference Model.

2 SCOPE

Data in the Federal Bureau of Investigation (FBI) Electronic Biometric Transmission Specification (EBTS) files are exchanged with and are for the official use of criminal justice officials of local, state, and federal governments in the U.S. and its possessions and in Canada.

3 LIST OF ARTIFACTS

1. NIEM Subset schemas
    - NIEM Core schema
    - NIEM appinfo schema
    - NIEM structures schema
    - NIEM proxy schema
    - JXDM Subset schema
    - ANSI-NIST Subset schema
    - FBI Subset schema
2. EBTS Extension schema
3. ANSI/NIST-ITL Exchange schema
4. XML Document Instance Templates and Examples
5. XML Mappings
6. NIEM IEP Documentation
7. XML Wantlist

4 XML SCHEMAS

The National Information Exchange Model (NIEM) is an interagency initiative providing a foundation for information exchange. The FBI Advisory Policy Board decided that the FBI would implement EBTS schema using NIEM; therefore, NIEM 2.0, the most current version that was available at the time, was used during the implementation of the FBI EBTS Information Exchange Package. The early draft EBTS IEPDs conformed to the NIEM NDR version 1.2, but after version 1.3 of the NDR was released, the IEPD was revised to conform to the new NDR.

The NIEM Data Model contains elements of the NIEM data components used to generate XML schemas for building IEPDs, called reference schemas. These reference schemas are a set of XML schemas representing a single coherent release of the NIEM Data Model, including NIEM Core, domains, code lists, and other support schemas such as appInfo.xsd and structures.xsd.

The NIEM Data Model also incorporates schemas geared toward specific domains (e.g., Criminal Justice, Biometrics, and Law Enforcement) necessary to capture the business requirements for an EBTS transaction. These domain specific schemas were released in correspondence with NIEM 2.0.

4.1 NIEM Subset Schemas

A NIEM subset was downloaded to capture basic elements and types that are components of the EBTS IEP. This subset was created to reduce complexity and promote efficiency in processing the EBTS schema. It is not necessary, nor is it desirable, to work directly with the NIEM subset schemas. The subset schemas are stored in the FBI EBTS Information Exchange Package, located in the xsd\niem directory. It includes NIEM version 2.0 reference schemas and the following NIEM 2.0 domains:

- An ANSI-NIST version 2.0 subset schema was downloaded to capture biometric elements and types that are components of the EBTS IEP. This subset schema is in the FBI EBTS Schema Package, located at xsd\niem\ansi-nist\2.0\ansi-nist.xsd.
- A JXDM version 4.0 subset schema was downloaded to capture criminal justice elements and types that are components of the EBTS IEP. This subset schema is included the FBI EBTS IEP, located at xsd\niem\domains\jxdm\4.0\jxdm.xsd.
- A FBI version 2.0 subset schema was created to capture code lists utilized by the FBI that are components of the EBTS IEP. This subset schema is in the FBI EBTS IEP, located at xsd\niem\fbi\2.0\fbi.xsd.

For the purpose of this document, elements utilized from these schemas will be referred to as NIEM Elements but referenced by the corresponding namespace.

4.2 Exchange Schema

In support of the development of the CJIS/NGI and in accordance with the recommendations of the CJIS Advisory Policy Board (APB) Identification Services Subcommittee, the FBI has developed a standard for electronically encoding and

transmitting fingerprint images, identification, and arrest data. ANSI/NIST-ITL was established in conjunction with the National Institute of Standards and Technology (NIST) and the fingerprint identification community. This exchange specification is the American National Standards Institute (ANSI) standard titled the "Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information – Part 2: XML Version" (ANSI/NIST-ITL 2-2008). This XML exchange schema is in the FBI EBTS IEP, located at xsd\itl\2-2008\ ITL-2007f-Package.xsd. It contains the root element used for EBTS exchanges, <itl:NISTBiometricInformationExchangePackage>.

4.3 Extension Schema

The FBI's EBTS defines requirements to which agencies must adhere when electronically communicating with CJIS. The 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-ITL implementation of logical records Type-2, Type-7, Type-9, Type-10, Type-13, Type-14, Type-15, and other record types are contained in the EBTS.

The EBTS extension schema contains customized types and elements that are needed by the FBI for the IEP but that are not part of the NIEM data model nor included in the ANSI/NIST-ITL exchange schema. This extension schema is in the EBTS Information Exchange Package, located at xsd\fbi_ebts\2.0\fbi_ebts.xsd.

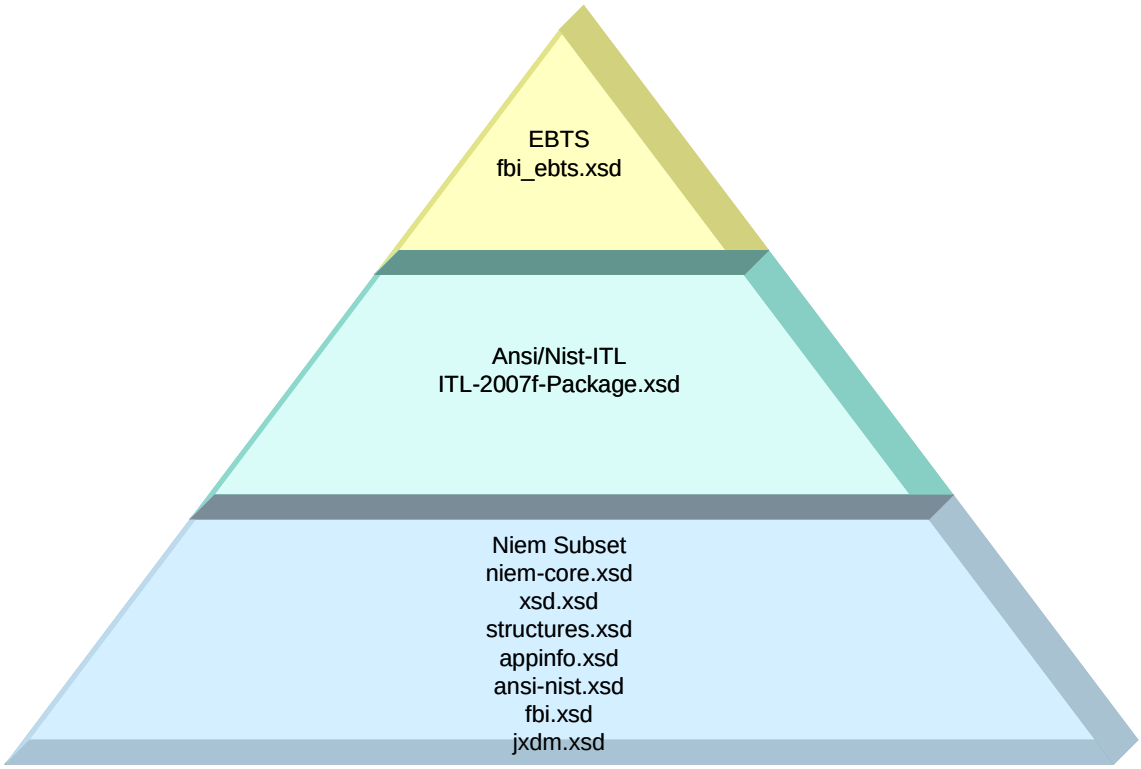

Figure 4-1 EBTS Schema Model

5 ADDITIONAL PROVISIONS

5.1 Additional Property Definitions

The basic requirements for EBTS messages are the Logical Records set forth in the ANSI/NIST-ITL standard, which are also applicable to transmissions to the FBI: Type-1, Type-2, Type-4, Type-7, Type-9, Type-10, Type-13, Type-14, Type-15, Type-16, Type-17 and Type-99. The FBI-specific requirements for the contents and format of Logical Records Type-2, Type-7, and Type-9, as well as for any special requirements for the other record types, are captured in the business requirements for an EBTS transaction. These requirements are documented in the "Electronic Biometric Transmission Specification, EBTS version 9.1," available for download at: https://www.fbibiospecs.org.

5.1.1 The EBTS Transactions

FBI CJIS Division CJIS will process the following types of transactions for the service areas listed below in its electronic environment. There are several types of transactions for each service area that will be accepted by the FBI; the sender must designate the Type of Transaction (TOT) in the <ebts:TransactionCategoryCode> element, located within the <ebts:TransactionAugmentation> element of the Type-1 Record, to specify which process is to be followed. A list of TOTs by service, including request and response information, is listed Tables L-3 and L-4 of the "Electronic Biometric Transmission Specification, EBTS version 9.1," available for download at: https://www.fbibiospecs.org. Additional TOT codes may be added to accommodate interagency information sharing by prior arrangement with the FBI. These will begin with the prefix "EXT:" and must be between seven and nine uppercase characters.

Identification Service

Tenprint Fingerprint Identification Submissions

Latent Fingerprint Identification Submissions

Rapid Fingerprint Identification Search Submissions

International Terrorist Identification Submissions*

Disposition Fingerprint Identification Submissions*

Verification Service

Fingerprint Verification Submissions*

Information Service

- Biometric Image Retrieval Submissions
- Biometric Audit Trail Retrieval Submissions*
- Rap Back Information Retrieval Submissions*

Investigation Service

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

Notification Service

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

Data Management Service

- Latent Image Maintenance Submissions
- Fingerprint Image Maintenance Submissions

Biometric File Maintenance Submissions*

Biometric Enrollment*

Biometric Delete*

Biometric Decision*

Identity File Maintenance Submissions*

Disposition Submission Maintenance Submissions*

Rap Back Services*

External Link Updates*

Other Biometric Services *

CBEFF Type-99 records*

* Indicates Future Capability

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

5.1.2 The EBTS Records

Type-1 Header Record

- Record required for each transaction, providing information describing the type and use or purpose for the transaction involved, a listing of each logical record included, and the original source of the physical record, among other information items.

Type-2 Record

- Records containing textual fields providing identification and descriptive information associated with the subject of the transaction.

Type-4 Record

- Records used to exchange high-resolution grayscale fingerprint image data that was scanned at no less than the minimum scanning resolution.

Type-7 Record

- Records used to exchange image data that is not elsewhere specified or described in the ANSI/NIST-ITL standard, including miscellaneous images such as those pertaining to latent prints, wrists, toes, soles, etc.

Type-9 Record

- Records used to exchange geometric and topological minutiae templates and related information encoded from a fingerprint, palm, or latent image. Each record shall represent the processed image data from which the location and orientation descriptors of extracted minutiae characteristics are listed.

Type-10 Record

- Records used to exchange facial image data, or image data from scars, marks, and tattoos (SMT), together with textual information pertinent to the digitized image. The source of the image data shall be the image captured from scanning a photograph, a live image captured with a digital camera, or a digitized "freeze-frame" from a video camera.

Type-13 Record

- Records used to exchange image data acquired from latent fingerprint or palmprint images. Textual information regarding the scanning resolution, the image size and other parameters or comments required to process the image are recorded within the record.

Type-14 Record

- Records used to exchange variable-resolution fingerprint image data, segmented flat fingerprint data, or major case print data. All fingerprint impressions shall be acquired from a ten-print card, a major case print card, or from a live-scan device. Fingerprint images can be either rolled or plain (including swiped) impressions.

Type-15 Record

- Records used to exchange variable-resolution palmprint image data.

Type-16 Record

- Records used to exchange test image data.

Type-17 Record

- Records used to exchange iris image data.

Type-99 Record

- Records used to exchange biometric data that is not supported by other logical record types. This record type supports and is intended to be used for "exotic" biometric data types.

5.1.3 State and Local Records

In accordance with the current Native EBTS implementation, user agencies may add their own state- or local-specific data not otherwise required by the FBI to the EBTS transactions. The ANSI/NIST-ITL 2-2008 standard provides for this user-defined data use by creating the abstract type element <itl:OtherDescriptiveText>.

Consequently, users may take advantage of the EBTS-provided substitution element <ebts:StateDefinedFields>. Individual data elements within this field must be well-formed XML and contain ASCII data values. These elements are user-definable; their size and content shall be defined by the user and be in accordance with the receiving agency.

5.1.4 EBTS Field Mnemonic/NIEM Definitions

The following table represents the association of EBTS Field Mnemonics, Field Numbers, and the NIEM XML Data elements. This table is provided to help implementers cross-reference the XML property definitions. It is assumed that the data element definitions and specifications are available in the FBI EBTS version 9.1.

Throughout this document, "inbound" refers to messages coming into the FBI Biometric System and "outbound" refers to messages generated by the FBI Biometric System.

Table 5-1 XML Cross-Reference

Field Mnemonic	Field Number	NIEM Element
ACN	2.071	<ebts:TransactionActionText/>
AFV	9.013	<nc:BinaryBase64Object/>
AGR	2.023	<nc:PersonAgeMeasure> <nc:MeasureRangeValue> <nc:RangeMinimumValue/> <nc:RangeMaximumValue/> </nc:MeasureRangeValue> </nc:PersonAgeMeasure>
AKA	2.019	<ebts:PersonAlternateName> <nc:PersonGivenName/> <nc:PersonMiddleName/> <nc:PersonSurName/> </ebts:PersonAlternateName>
AMP	2.084 14.018	<itl:FingerprintImageFingerMissing>
FGP	2.084A	<ansi-nist:FingerPositionCode/>
AMPCD	2.084B	<itl:FingerMissingCode/>
		</itl:FingerprintImageFingerMissing>
APC	9.017	<ebts:MinutiaeFingerPattern>

Field Mnemonic	Field Number	NIEM Element
APAT	9.017A	<ebts:FingerprintPatternClassificationCode/>
RCN1, RCN2	9.017B 9.017C	<ansi-nist:RidgeCountValue/> <ansi-nist:RidgeCountValue/>
		</ebts:MinutiaeFingerPattern>
ASL	2.047	<j:Arrest>
DOO	2.047A	<nc:ActivityDate> <nc:Date/> </nc:ActivityDate>
AOL	2.047B	<ebts:ChargeText/>
		</j:Arrest>
ATN	2.006	<nc:CaveatText/>
BCD	99.005	<ansi-nist:CaptureDate> <nc:Date/> </ansi-nist:CaptureDate>
BDB	99.999	<nc:BinaryBase64Object/>
BDQ	99.102	<ansi-nist:ImageQuality> <ansi-nist:QualityAlgorithmProductIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmProductIdentification> <ansi-nist:QualityValue/> <ansi-nist:QualityMeasureVendorIdentification> <nc:IdentificationID/> </ansi-nist:QualityMeasureVendorIdentification> </ansi-nist:ImageQuality>
BFO	99.103	<ansi-nist:CBEFFFormatOwnerIdentification> <nc:IdentificationID/> </ansi-nist:CBEFFFormatOwnerIdentification>

Field Mnemonic	Field Number	NIEM Element
BFT	99.104	<ansi-nist:CBEFFFormatCategoryIdentification> <nc:IdentificationID/> </ansi-nist:CBEFFFormatCategoryIdentification>
BPX	13.012 14.012 15.012 16.012 17.012	<ansi-nist:ImageBitsPerPixelQuantity/>
BTY	99.101	<ansi-nist:CBEFFCategoryCode/>
CAN	2.064	<ebts:TransactionCandidateList> <ebts:Candidate>
NAM	2.064B	<ebts:PersonName> <nc:PersonGivenName/> <nc:PersonMiddleName/> <nc:PersonSurName/> </ebts:PersonName>
UCN	2.064A	<ebts:PersonUCNIdentification> <nc:IdentificationID/> </ebts:PersonUCNIdentification>
MSC	2.089	<ebts:CandidateMatchScoreValue/>
FGP		<ansi-nist:FingerPositionCode/>
IDC		<ebts:ImageReferenceIdentification> <nc:IdentificationID/> </ebts:ImageReferenceIdentification>
		</ebts:Candidate> </ebts:TransactionCandidateList>

Field Mnemonic	Field Number	NIEM Element
CCN	2.094[X]	<j:CourtEventSequenceID> <nc:IdentificationID/> </j:CourtEventSequenceID>
CFS	2.077	<ebts:TransactionCancelFingerprintSearchID/>
CGA	10.011 13.011 14.011 15.011 16.011 17.011	<ansi-nist:ImageCompressionAlgorithmText/>
CHQ	9.024	<ebts:MinutiaCharacterizationQualityValue/>
CIDN	2.2022	<ebts:ContributorAssignedIdentificationNumber> <nc:IdentificationID/> </ebts:ContributorAssignedIdentificationNumber>
CIN	2.010	<ebts:ContributorCaseIdentificationNumber>
CIN_PRE	2.10A	<ebts:ContributorCasePrefixIdentification> <nc:IdentificationCategoryText/> </ebts:ContributorCasePrefixIdentification>
CIN_ID	2.10B	<ebts:ContributorCaseIdentification> <nc:IdentificationID/> </ebts:ContributorCaseIdentification>
CIX	2.011	<ebts:ContributorCaseExtensionIdentification> <nc:IdentificationID/> </ebts:ContributorCaseExtensionIdentification>
		</ebts:ContributorCaseIdentificationNumber>
CLQ	9.025	<ebts:MinutiaClassifierQualityValue/>

[X] Future Capability

Field Mnemonic	Field Number	NIEM Element
CNT	1.003	<ansi-nist:TransactionContentSummary> <ansi-nist:ContentFirstRecordCategoryCode/> <ansi-nist:ContentRecordCount/> <ansi-nist:ContentRecordSummary> <ansi-nist:ImageReferenceIdentification> <nc:IdentificationID/> </ansi-nist:ImageReferenceIdentification> <ansi-nist:RecordCategoryCode/> </ansi-nist:ContentRecordSummary> </ansi-nist:TransactionContentSummary>
COL	10.043	<ansi-nist:PhysicalFeatureDescriptionDetail> <ansi-nist:PhysicalFeatureColorDetail> <ansi-nist:PhysicalFeaturePrimaryColorCode/> <ansi-nist:PhysicalFeatureSecondaryColorCode/> </ansi-nist:PhysicalFeatureColorDetail> </ansi-nist:PhysicalFeatureDescriptionDetail>
COF	9.019	<ebts:MinutiaCoordinateOffsets>
XYP	9.019A	<ebts:OffsetUpperLeftCoordinates> <ansi-nist:PositionHorizontalCoordinateValue/> <ansi-nist:PositionVerticalCoordinateValue/> </ebts:OffsetUpperLeftCoordinates>
XYP	9.019B	<ebts:OffsetCenterOfRotation> <ansi-nist:PositionHorizontalCoordinateValue/> <ansi-nist:PositionVerticalCoordinateValue/> </ebts:OffsetCenterOfRotation>
THET	9.019C	<ansi-nist:PositionThetaAngleMeasure/>
XYP	9.019D	<ebts:OffsetTranslatedCenterOfRotation> <ansi-nist:PositionHorizontalCoordinateValue/> <ansi-nist:PositionVerticalCoordinateValue/> </ebts:OffsetTranslatedCenterOfRotation>

Field Mnemonic	Field Number	NIEM Element
XYP	9.019E	<ebts:OffsetTranslatedUpperLeftCoordinates> <ansi-nist:PositionHorizontalCoordinateValue/> <ansi-nist:PositionVerticalCoordinateValue/> </ebts:OffsetTranslatedUpperLeftCoordinates>
		</ebts:MinutiaCoordinateOffsets>
COM	13.020 14.020 15.020 16.020 17.021	<ansi-nist:ImageCommentText/>
CRA	9.021	<ebts:MinutiaeFingerCoreAttributePosition>
DID	9.021B	<ansi-nist:PositionDirectionDegreeValue/>
XYM	9.021A	<ansi-nist:PositionHorizontalCoordinateValue/>
PUM	9.021C	<ansi-nist:PositionUncertaintyValue/>
XYM	9.021A	<ansi-nist:PositionVerticalCoordinateValue/> </ebts:MinutiaeFingerCoreAttributePosition>
CRI	2.073	<ebts:RecordControllingAgency> <nc:OrganizationIdentification> <nc:IdentificationID/> </nc:OrganizationIdentification> </ebts:RecordControllingAgency>
CRN	2.085	<ebts:CivilRecordIdentification> <nc:IdentificationID/> </ebts:CivilRecordIdentification>
CSF	2.2006[X]	<ebts:RecordCascadedSearchCode/>
CSL	2.051	<j:ArrestCharge>
		<j:ChargeDisposition> <j:ChargeDispositionCondition>
COL	2.051B	<ebts:ChargeText/>

[X] Future Capability

Field Mnemonic	Field Number	NIEM Element
CDD	2.051A	<nc:ConditionSetDate> <nc:Date/> </nc:ConditionSetDate> </j:ChargeDispositionCondition>
CPL	2.051C	<j:ChargeDispositionOtherText/>
		</j:ChargeDisposition> </j:ArrestCharge>
CSP	10.012 16.013 17.013	<ansi-nist:ImageColorSpaceCode/>
CSR	2.048	<ebts:TransactionCivilSearchRequestIndicator/>
CST	2.061	<ebts:CaseTitleText/>
CTZ	2.021	<ebts:PersonCitizenshipCode/>
DAI	1.007	<ansi-nist:TransactionDestinationOrganization> <nc:OrganizationIdentification> <nc:IdentificationID/> </nc:OrganizationIdentification> </ansi-nist:TransactionDestinationOrganization>
DAT	1.005	<ansi-nist:TransactionDate> <nc:Date/> </ansi-nist:TransactionDate>
DAT	10.999 13.999 14.999 15.999 16.999	<nc:BinaryBase64Object/>
DATUM_ID	2. 2027[X]	<ebts:RecordBiometricCaptureGeoLocation> <ebts:GeographicCoordinateDatumCode> </ebts:RecordBiometricCaptureGeoLocation>

[X] Future Capability

Field Mnemonic	Field Number	NIEM Element
DCS	1.015	<ansi-nist:TransactionCharacterSetDirectory> <ansi-nist:CharacterSetCommonNameCode/> <ansi-nist:CharacterSetIndexCode/> <ansi-nist:CharacterSetVersionIdentification> <nc:IdentificationID/> </ansi-nist:CharacterSetVersionIdentification> </ansi-nist:TransactionCharacterSetDirectory>
DLA	9.022	<ebts:MinutiaeFingerDeltaAttributePosition>
DID	9.022B 9.022C 9.022D	<ansi-nist:PositionDirectionDegreeValue/> <ansi-nist:PositionDirectionDegreeValue/> <ansi-nist:PositionDirectionDegreeValue/>
XYM	9.022A	<ansi-nist:PositionHorizontalCoordinateValue/>
PUM	9.022E	<ansi-nist:PositionUncertaintyValue/>
XYM	9.022A	<ansi-nist:PositionVerticalCoordinateValue/> </ebts:MinutiaeFingerDeltaAttributePosition>
DMI	2.2013[X]	<ebts:TransactionDispositionMaintenanceCode/>
DMM	10.030 14.030 15.030 16.030 17.030	<ansi-nist:ImageCaptureDetail> <ansi-nist:CaptureDeviceMonitoringModeCode/> </ansi-nist:ImageCaptureDetail>
DNAC	2.2018[X]	<ebts:BinaryCODISAvailableIndicator/>
DNAF	2.2016[X]	<ebts:PersonDNAAvailableIndicator/>
DOA	2.045	<nc:ActivityDate> <nc:Date/> </nc:ActivityDate>

[X] Future Capability

Field Mnemonic	Field Number	NIEM Element
DOB	2.022	<nc:PersonBirthDate> <nc:Date/> </nc:PersonBirthDate>
DOM	1.013	<ansi-nist:TransactionDomain> <ansi-nist:DomainVersionNumberIdentification> <nc:IdentificationID/> </ansi-nist:DomainVersionNumberIdentification> <ansi-nist:OrganizationName/> </ansi-nist:TransactionDomain>
DORI	2.2017[X]	<nc:BiometricRepositoryOrganization> <nc:OrganizationIdentification> <nc:IdentificationID/> </nc:OrganizationIdentification> </nc:BiometricRepositoryOrganization>
DOS	2.046	<ebts:ArrestDateSuffixCode/>
DPR	2.038	<ebts:PersonFingerprintSet> <nc:BiometricCaptureDate> <nc:Date/> </nc:BiometricCaptureDate> </ebts:PersonFingerprintSet>
DUI	17.017	<ansi-nist:IrisImageCapture> <ansi-nist:CaptureDeviceIdentification> <nc:IdentificationID/> </ansi-nist:CaptureDeviceIdentification> </ansi-nist:IrisImageCapture>

[X] Future Capability

Field Mnemonic	Field Number	NIEM Element
EAD	2.039	<nc:Employer> <nc:EntityOrganization> <nc:OrganizationName/> </nc:EntityOrganization> </nc:Employer> <nc:EmploymentLocation> <nc:LocationAddress> <nc:StructuredAddress> <nc:LocationStreet> <nc:StreetNumberText/> <nc:StreetName/> </nc:LocationStreet> <nc:LocationCityName/> <nc:LocationPostalCode/> <nc:LocationStateNCICLSTACode/> </nc:StructuredAddress> </nc:LocationAddress> </nc:EmploymentLocation>
ECL	17.020	<ansi-nist:IrisEyeColorAttributeCode/>
EID	2.049	<ansi-nist:TransactionUserIdentification> <nc:IdentificationID/> </ansi-nist:TransactionUserIdentification>
ERS	2.075	<ebts:TransactionElectronicRapSheetText/>
ETC	2.069	<ebts:TransactionEstimatedCompletionMinutesQuantity/>
EXP	2.080	<ansi-nist:TransactionReasonText/>
EYE	2.031	<nc:PersonEyeColorCode/>
FBI	2.014	<j:PersonFBIIdentification> <nc:IdentificationID/> </j:PersonFBIIdentification>

Field Mnemonic	Field Number	NIEM Element
FCD	14.005	<ansi-nist:CaptureDate> <nc:Date/> </ansi-nist:CaptureDate>
FCP	9.016	<ebts:MinutiaeReadingSystem>
VEN	9.016A	<ansi-nist:ReadingSystemName/>
VID	9.016B	<ansi-nist:ReadingSystemSubsystemIdentification> <nc:IdentificationID/> </ansi-nist:ReadingSystemSubsystemIdentification>
MET	9.016C	<ebts:ReadingSystemCodingMethodCode/>
		</ebts:MinutiaeReadingSystem>
FFN	2.003	<ebts:FBIFileNumber> <nc:IdentificationID/> </ebts:FBIFileNumber>
FGN	9.014	<ansi-nist:MinutiaeFingerPositionCode/>
FGP	2.074 7.004 13.013 14.013	<ansi-nist:FingerPositionCode/>
FID	17.003	<ansi-nist:IrisEyePositionCode/>
FIU	2.072	<ebts:TransactionFingerprintImagesUpdated> <ansi-nist:FingerPositionCode/> </ebts:TransactionFingerprintImagesUpdated>
FMT	9.004	<ansi-nist:MinutiaeFormatNISTStandardIndicator/>
FNR	2.057	<ebts:TransactionFingerprintImagesRequested> <ansi-nist:FingerPositionCode/> </ebts:TransactionFingerprintImagesRequested>
FPC	2.033	<ebts:FingerprintImageFinger> <ebts:NCICFingerprintClassificationCode/> </ebts:FingerprintImageFinger>

Field Mnemonic	Field Number	NIEM Element
FQM	14.024	<itl:FingerprintImageQuality> <ansi-nist:FingerPositionCode/> <ansi-nist:QualityAlgorithmProductIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmProductIdentification> <ansi-nist:QualityAlgorithmVendorIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmVendorIdentification> <ansi-nist:QualityValue/> </itl:FingerprintImageQuality>
GCA	4.008 7.008	<ansi-nist:ImageCompressionAlgorithmCode/>
GEO	2.044	<ebts:TransactionSearchAreaCode/>
GEO_CORD	2. 2026[X]	<ebts:RecordBiometricCaptureGeoLocation>
GEO_TIME	2.2025[X]	<ansi-nist:TransactionUTCDate> <nc:DateTime/> </ansi-nist:TransactionUTCDate>
LATD	2.2026A[X]	<nc:GeographicCoordinateLatitude> <nc:LatitudeDegreeValue>
LATM	2. 2026B[X]	<nc:LatitudeMinuteValue>
LATS	2. 2026C[X]	<nc:LatitudeSecondValue> </nc:GeographicCoordinateLatitude>
LOND	2. 2026D[X]	<nc:GeographicCoordinateLongitude> <nc:LongitudeDegreeValue>
LONM	2. 2026E[X]	<nc:LongitudeMinuteValue>
LONS	2. 2026F[X]	<nc:LongitudeSecondValue> </nc:GeographicCoordinateLongitude>
		</ebts:RecordBiometricCaptureGeoLocation>

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Field Mnemonic	Field Number	NIEM Element
GMT	1.014	<ansi-nist:TransactionUTCDate> <nc:Date/> </ansi-nist:TransactionUTCDate>
GUI	17.018	<ansi-nist:IrisImageCapture> <ansi-nist:CaptureDeviceGlobalIdentification> <nc:IdentificationID/> </ansi-nist:CaptureDeviceGlobalIdentification> </ansi-nist:IrisImageCapture>
HAI	2.032	<ebts:PersonHairColorCode/>
HDV	99.100	<ansi-nist:CBEFFVersionIdentification> <nc:IdentificationID/> </ansi-nist:CBEFFVersionIdentification>
HGT	2.027	<nc:PersonHeightMeasure> <nc:MeasurePointValue/> <nc:MeasureUnitText/> </nc:PersonHeightMeasure>
HLL	4.006 7.006 10.006 13.006 14.006 15.006 16.006 17.006	<ansi-nist:ImageHorizontalLineLengthPixelQuantity/>
HPS	10.009 13.009 14.009 15.009 16.009 17.009	<ansi-nist:ImageHorizontalPixelDensityValue/>
HTI	2.2024	<ebts:TransactionHitCategoryCode/>

Field Mnemonic	Field Number	NIEM Element
HTR	2.028	<nc:PersonHeightMeasure> <nc:MeasureRangeValue> <nc:RangeMinimumValue/> <nc:RangeMaximumValue/> </nc:MeasureRangeValue> <nc:MeasureUnitText/> </nc:PersonHeightMeasure>
ICO	2.056	<j:SubjectOffenderNoticeText/>
IDC	2.002 4.002 7.002 9.002 10.002 13.002 14.002 15.002 16.002 17.002 99.002	<ansi-nist:ImageReferenceIdentification> <nc:IdentificationID/> </ansi-nist:ImageReferenceIdentification>
IFS	2.2021[X]	<j:PersonFirearmSalesDisqualifiedCode/>
IID	17.999	<nc:BinaryBase64Object/>
IIR	2.2012[X]	<ebts:RecordIrisImagesRequestedCode/>
IMA	2.067	<ebts:RecordImageCaptureDetail>
MAK	2.067A	<ansi-nist:CaptureDeviceMakeText/>
MODL	2.067B	<ansi-nist:CaptureDeviceModelText/>
SERNO	2.067C	<ansi-nist:CaptureDeviceSerialNumberText/>
		</ebts:RecordImageCaptureDetail>
IMG	4.009 7.009	<nc:BinaryBase64Object/>

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Field Mnemonic	Field Number	NIEM Element
IMP	4.003 7.003 9.003 13.003 14.003 15.003	<ansi-nist:FingerprintImageImpressionCaptureCategoryCode/>
IMT	2.062	<ebts:RecordLatentImageCategoryCode />
IMT	10.003	<ansi-nist:ImageCategoryCode/>
IPC	17.016	<ansi-nist:IrisImageCapture> <ansi-nist:IrisImageHorizontalOrientationCode/> <ansi-nist:IrisImageScanCategoryCode/> <ansi-nist:IrisImageVerticalOrientationCode/> </ansi-nist:IrisImageCapture>
ITD	2.058	<ebts:RecordImageRecordCategoryRequestCode/>
NQM	14.022	<ansi-nist:FingerprintImageNISTQuality> <ansi-nist:FingerPositionCode/> <ansi-nist:NISTQualityMeasure/> </ansi-nist:FingerprintImageNISTQuality>
IQS	17.024	<ansi-nist:ImageQuality> <ansi-nist:QualityAlgorithmProductIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmProductIdentification> <ansi-nist:QualityValue/> <ansi-nist:QualityMeasureVendorIdentification> <nc:IdentificationID/> </ansi-nist:QualityMeasureVendorIdentification> </ansi-nist:ImageQuality>
ICD	17.005	<ansi-nist:CaptureDate> <nc:Date/> </ansi-nist:CaptureDate>
IRD	17.026	<itl:IrisDiameterPixelQuantity/>

Field Mnemonic	Field Number	NIEM Element
ISR	4.005 7.005	<ansi-nist:ImageCaptureDetail> <ansi-nist:CaptureResolutionCode/> </ansi-nist:ImageCaptureDetail>
LCD	13.005	<ansi-nist:CaptureDate> <nc:Date/> </ansi-nist:CaptureDate>
		<ebts:FBILatentCaseIdentification>
LCN	2.012	<ebts:FBILatentCaseNumber> <nc:IdentificationID/> </ebts:FBILatentCaseNumber>
LCX	2.013	<ebts:FBILatentCaseNumberExtension> <nc:IdentificationID/> </ebts:FBILatentCaseNumberExtension>
		</ebts:FBILatentCaseIdentification>
LQM	13.024	<itl:FingerprintImageQuality> <ansi-nist:FingerPositionCode/> <ansi-nist:QualityValue/> </itl:FingerprintImageQuality>
MAT	9.023	<ebts:MinutiaDetail>
MDX	9.023A	<ansi-nist:MinutiaIdentification> <nc:IdentificationID/> </ansi-nist:MinutiaIdentification>
XYT	9.023B	<ansi-nist:PositionHorizontalCoordinateValue/> <ansi-nist:PositionVerticalCoordinateValue/> <ansi-nist:PositionThetaAngleMeasure/>
QMS	9.023C	<ansi-nist:MinutiaQualityValue/>

Field Mnemonic	Field Number	NIEM Element
MRO	9.023E-L	<ebts:MinutiaRidgeCount> <ansi-nist:RidgeCountReferenceIdentification> <nc:IdentificationID/> </ansi-nist:RidgeCountReferenceIdentification> <ansi-nist:RidgeCountValue/> <ebts:MinutiaOctantNumeric/>
RSO	9.023M	<ebts:MinutiaOctantResidualNumeric/> </ebts:MinutiaRidgeCount>
MNT	9.023D	<ebts:MinutiaTypeCode/>
		</ebts: MinutiaDetail>
MIL	2.042	<ansi-nist:TransactionSubmissionMilitaryCode/>
MMS	17.019	<ansi-nist:IrisImageCapture> <ansi-nist:CaptureDeviceMakeText/> <ansi-nist:CaptureDeviceModelText/> <ansi-nist:CaptureDeviceSerialNumberText/> </ansi-nist:IrisImageCapture>
MNU	2.017	<nc:PersonOtherIdentification> <nc:IdentificationID/> <ebts:PersonIDCategoryCode/> </nc:PersonOtherIdentification>
MSG	2.060	<ebts:TransactionStatusText/>
NAM	2.018	<ebts:PersonName> <nc:PersonGivenName/> <nc:PersonMiddleName/> <nc:PersonSurName/>

Field Mnemonic	Field Number	NIEM Element
NAM1, NAM2, NAM3, NAM4, NAM5	2.2001[X] 2.2002[X] 2.2003[X] 2.2004[X] 2.2005[X]	<ebts:PersonExtendedName/> </ebts:PersonName>
NCR	2.079	<ebts:TransactionImagesRequestedQuantity/>
NDR	2.098	<ebts:RecordFBIRepositoryCode/>
NIR	2.2010[X]	<ebts:RecordImagesRequestedQuantity/>
NMN	9.015	<ansi-nist:MinutiaeQuantity/>
NOT	2.088	<ebts:TransactionDescriptionText/>
		<ansi-nist:TransactionImageResolutionDetails>
NSR	1.011	<ansi-nist:NativeScanningResolutionValue/>
NTR	1.012	<ansi-nist:NominalTransmittingResolutionValue/>
		</ansi-nist:TransactionImageResolutionDetails>
OCA	2.009	<nc:CaseTrackingID/>
OCP	2.040	<nc:EmployeeOccupationText/>
OFC	2.053	<ebts:OffenseCategoryCode/>
ORI	1.008	<ansi-nist:TransactionOriginatingOrganization> <nc:OrganizationIdentification> <nc:IdentificationID/> </nc:OrganizationIdentification> </ansi-nist:TransactionOriginatingOrganization>
ORN	9.020	<ansi-nist:PositionUncertaintyValue/>
PAS	10.023	<itl:FaceImageAcquisitionSource> <ansi-nist:CaptureSourceCode/> </itl:FaceImageAcquisitionSource>

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Field Mnemonic	Field Number	NIEM Element
PAT	2.034	<ebts:FingerprintImageFinger>
FGP	2.034A	<ansi-nist:FingerPositionCode/>
PATCL	2.034B	<ebts:RidgeCoreDelta> <ebts:FingerprintPatternClassificationCode/> </ebts:RidgeCoreDelta>
		</ebts:FingerprintImageFinger>
PCD	15.005	<ansi-nist:ImageCaptureDetail> <ansi-nist:CaptureDate> <nc:Date/> </ansi-nist:CaptureDate> </ansi-nist:ImageCaptureDetail>
PEN	2.078	<ebts:TransactionPenetrationQueryResponsePercent/>
PHD	10.005	<ansi-nist:CaptureDate> <nc:Date/> </ansi-nist:CaptureDate>
PHT	2.036	<ebts:PersonDigitalImageAvailableIndicator/>
PLP	15.013	<ansi-nist:PalmPositionCode/>
POA	10.021	<ansi-nist:FaceImagePoseOffsetAngleMeasure/>
POB	2.020	<ebts:PersonBirthPlaceCode/>
POS	10.020	<ansi-nist:FaceImageSubjectPoseCode/>
PPA	2.035	<ebts:PersonPalmPrintAvailableIndicator/>
PPC	13.015 14.015	<ansi-nist:MajorCasePrintSegmentOffset> <ansi-nist:SegmentBottomVerticalCoordinateValue/> <ansi-nist:SegmentLocationCode/> <ansi-nist:SegmentFingerViewCode/> <ansi-nist:SegmentLeftHorizontalCoordinateValue/> <ansi-nist:SegmentRightHorizontalCoordinateValue/> <ansi-nist:SegmentTopVerticalCoordinateValue/> </ansi-nist:MajorCasePrintSegmentOffset>

Field Mnemonic	Field Number	NIEM Element
PPD	14.014	<ansi-nist:FingerprintImageMajorCasePrint> <ansi-nist:FingerPositionCode/> <ansi-nist:MajorCasePrintCode/> </ansi-nist:FingerprintImageMajorCasePrint>
PQM	15.024	<itl:PalmprintImageQuality> <ansi-nist:PalmPositionCode/> <ansi-nist:QualityAlgorithmProductIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmProductIdentification> <ansi-nist:QualityAlgorithmVendorIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmVendorIdentification> <ansi-nist:QualityValue/> </itl:PalmprintImageQuality>
PRI	2.076	<ebts:TransactionSearchPriorityCode/>
PRY	1.006	<ansi-nist:TransactionPriorityValue/>
PTD	2.063	<ebts:PersonTypeDesignatorCode/>
PTY	2.2009[X]	<ansi-nist:ImageCategoryCode/>
PXS	10.022	<ansi-nist:FaceImageAttribute> <ansi-nist:FaceImageAttributeCode/> <ansi-nist:FaceImageAttributeText/> </ansi-nist:FaceImageAttribute>
QDD	2.004	<ebts:TransactionQueryDepthCode/>
RAC	2.025	<nc:PersonRaceCode/>
RAE	17.014	<ansi-nist:IrisEyeRotationAngleMeasure/>
RAP	2.070	<ansi-nist:RecordRapSheetRequestIndicator/>
RAU	17.015	<ansi-nist:IrisEyeRotationUncertaintyValueText/>

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Field Mnemonic	Field Number	NIEM Element
RCC[1]	***	<ansi-nist:RecordCategoryCode/>
RCD1	2.091	<ebts:FingerprintImageFinger>
FGP	2.091A	<ansi-nist:FingerPositionCode/>
		<ebts:RidgeCoreDelta>
RCN1	2.091B	<ansi-nist:RidgeCountValue/>
		</ebts:RidgeCoreDelta> </ebts:FingerprintImageFinger>
RCD2	2.092	<ebts:FingerprintImageFinger>
FGP	2.092A	<ansi-nist:FingerPositionCode/>
		<ebts:RidgeCoreDelta>
RCN2	2.092B	<ansi-nist:RidgeCountValue/>
		</ebts:RidgeCoreDelta> </ebts:FingerprintImageFinger>
REC	2.082	<ebts:TransactionResponseIndicator/>
RES	2.041	<ebts:PersonResidenceLocation> <nc:LocationAddress> <nc:StructuredAddress> <nc:LocationStreet> <nc:StreetNumberText/> <nc:StreetName/> </nc:LocationStreet> <nc:LocationCityName/> <nc:LocationPostalCode/> <nc:LocationStateNCICLSTACode/> </nc:StructuredAddress> </nc:LocationAddress> </ebts:PersonResidenceLocation>

[1]This element does not map to any numbered EBTS tag. It preserves the record type number.

Field Mnemonic	Field Number	NIEM Element
RET	2.005	<ansi-nist:RecordRetentionIndicator/>
RFP	2.037	<nc:ActivityReasonText/>
RFR	2.095[X]	<ebts:RecordFeaturesRequestIndicator/>
ROV	9.018	<etbs:MinutiaPolygonalVerticesPositions>
XYM	9.018A	<itl:PositionPolygonVertex/> <ansi-nist:PositionHorizontalCoordinateValue/> <ansi-nist:PositionVerticalCoordinateValue/> </itl:PositionPolygonVertex>
		</etbs:MinutiaPolygonalVerticesPositions>
RPR	2.096	<ebts:RecordPhotoRequestIndicator/>
RSR	2.065	<ebts:TransactionRepositoryResponse> <ebts:RepositoryParameterPercent/> <ebts:RepositoryParameterText/> <ebts:RepositoryParameterValueText/> </ebts:TransactionRepositoryResponse>
SAN	2.099[X]	<j:ArrestSequenceID> <nc:IdentificationID/> </j:ArrestSequenceID>
SAP	10.013	<ansi-nist:FaceImageAcquisitionProfileCode/>
SCNA	2.086	<ebts:AFISSegmentControlID/>
SCO	2.007	<ansi-nist:RecordForwardOrganizations> <nc:OrganizationIdentification> <nc:IdentificationID/> </nc:OrganizationIdentification> </ansi-nist:RecordForwardOrganizations>
SDF[1]	***	<ebts:StateDefinedFields/>

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[1]This element does not map to any numbered EBTS tag. It represents State-specific data.

Field Mnemonic	Field Number	NIEM Element
SDOB	2.2007[X]	<ebts:PersonSubmittedBirthDate> <nc:Date/> </ebts:PersonSubmittedBirthDate>
SEAL	2.2019[X]	<ebts:ArrestSealIndicator/>
SEC	10.027	<ansi-nist:FaceImageEyeColorAttributeCode/>
SEG	14.021	<itl:FingerprintImageSegmentPositionSquare> <ansi-nist:FingerPositionCode/> <ansi-nist:SegmentBottomVerticalCoordinateValue/> <ansi-nist:SegmentLeftHorizontalCoordinateValue/> <ansi-nist:SegmentRightHorizontalCoordinateValue/> <ansi-nist:SegmentTopVerticalCoordinateValue/> </itl:FingerprintImageSegmentPositionSquare>
SEX	2.024	<ebts:PersonSexCode/>
SFP	10.029	<ansi-nist:FaceImageFeaturePoint> <ansi-nist:FeaturePointHorizontalCoordinateValue/> <ansi-nist:FeaturePointIdentification> <nc:IdentificationID/> </ansi-nist:FeaturePointIdentification> <ansi-nist:FeaturePointCategoryCode/> <ansi-nist:FeaturePointVerticalCoordinateValue/> </ansi-nist:FaceImageFeaturePoint>
SHC	10.028	<ansi-nist:FaceImageHairColorAttributeCode/>
SHPS	10.016 13.016 14.016 15.016 16.016 17.022	<ansi-nist:CaptureHorizontalPixelDensityValue/>
SII	2.2023	<ebts:TransactionSupplementaryIdentityInformationText/>

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Field Mnemonic	Field Number	NIEM Element
SID	2.015	<nc:PersonStateIdentification> <nc:IdentificationID/> <nc:IdentificationCategoryText/> </nc:PersonStateIdentification>
SLC	10.008 13.008 14.008 15.008 16.008 17.008	<ansi-nist:ImageScaleUnitsCode/>
SLE	2.055	<j:ArrestRelease> <nc:ActivityStatus> <nc:StatusText/> </nc:ActivityStatus> </j:ArrestRelease>
SMD	10.042	<ansi-nist:PhysicalFeatureDescriptionDetail> <ansi-nist:PhysicalFeatureCategoryCode/> <ansi-nist:PhysicalFeatureClassCode/> <ansi-nist:PhysicalFeatureDescriptionText/> <ansi-nist:PhysicalFeatureSubClassCode/> </ansi-nist:PhysicalFeatureDescriptionDetail>
SMS	10.041	<ansi-nist:PhysicalFeatureSize> <ansi-nist:PhysicalFeatureHeightMeasure/> <ansi-nist:PhysicalFeatureWidthMeasure/> </ansi-nist:PhysicalFeatureSize>
SMT	2.026	<nc:PersonPhysicalFeature> <nc:PhysicalFeatureCategoryCode/> </nc:PersonPhysicalFeature>
SMT	10.040	<ansi-nist:PhysicalFeatureNCICCode/>

Field Mnemonic	Field Number	NIEM Element
SNAM	2.2008[X]	<ebts:PersonSubmittedName> <nc:PersonGivenName/> <nc:PersonMiddleName/> <nc:PersonSurName/> </ebts:PersonSubmittedName>
SOC	2.016	<nc:PersonSSNIdentification> <nc:IdentificationID/> </nc:PersonSSNIdentification>
SPA	10.025	<ansi-nist:FaceImage3DPoseAngle> <ansi-nist:PosePitchAngleMeasure/> <ansi-nist:PosePitchUncertaintyValue/> <ansi-nist:PoseRollAngleMeasure/> <ansi-nist:PoseRollUncertaintyValue/> <ansi-nist:PoseYawAngleMeasure/> <ansi-nist:PoseYawUncertaintyValue/> </ansi-nist:FaceImage3DPoseAngle>
SPCN	2.093[X]	<ebts:RecordSpecialPopulationCognizantFileldIdentification> <nc:IdentificationID/> </ebts:RecordSpecialPopulationCognizantFileldIdentification>
SPD	13.014	<ansi-nist:FingerprintImageMajorCasePrint> <ansi-nist:FingerPositionCode/> <ansi-nist:MajorCasePrintCode/> </ansi-nist:FingerprintImageMajorCasePrint>

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Field Mnemonic	Field Number	NIEM Element
SQM	14.023	<ansi-nist:FingerprintImageSegmentationQuality> <ansi-nist:FingerPositionCode/> <ansi-nist:QualityAlgorithmProductIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmProductIdentification> <ansi-nist:QualityAlgorithmVendorIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmVendorIdentification> <ansi-nist:QualityValue/> </ansi-nist:FingerprintImageSegmentationQuality>
SQS	10.024	<ansi-nist:ImageQuality> <ansi-nist:QualityAlgorithmProductIdentification> <nc:IdentificationID/> </ansi-nist:QualityAlgorithmProductIdentification> <ansi-nist:QualityValue/> <ansi-nist:QualityMeasureVendorIdentification> <nc:IdentificationID/> </ansi-nist:QualityMeasureVendorIdentification> </ansi-nist:ImageQuality>
SRC	10.004 13.004 14.004 15.004 16.004 17.004 99.004	<ansi-nist:CaptureOrganization> <nc:OrganizationIdentification> <nc:IdentificationID/> </nc:OrganizationIdentification> <nc:OrganizationName/> </ansi-nist:CaptureOrganization>
SRF	2.059	<ebts:TransactionSearchResultsCode/>
SSD	2.054	<j:ArrestRelease> <nc:ActivityDate> <nc:Date/> </nc:ActivityDate> </j:ArrestRelease>

Field Mnemonic	Field Number	NIEM Element
SVPS	10.017 13.017 14.017 15.017 16.017	<ansi-nist:CaptureVerticalPixelDensityValue/>
SXS	10.026	<ansi-nist:FaceImageDescriptionCode/>
TAA	2.087	<ebts:PersonAdultTreatmentIndicator/>
TCN	1.009	<ansi-nist:TransactionControlIdentification> <nc:IdentificationID/> </ansi-nist:TransactionControlIdentification>
TCR	1.010	<ansi-nist:TransactionControlReferenceIdentification> <nc:IdentificationID/> </ansi-nist:TransactionControlReferenceIdentification>
TOT	1.004	<ebts:TransactionAugmentation> <ebts:TransactionCategoryCode/> </ebts:TransactionAugmentation>
TSR	2.043	<ebts:TransactionSearchRequestCategoryCode/>
UCN	2.081[X]	<ebts:PersonUCNIdentification> <nc:IdentificationID/> </ebts:PersonUCNIdentification>
UDI	16.003	<nc:BinaryDescriptionText/>
ULF	2.083	<ebts:TransactionUnsolvedLatentFileIndicator/>
UTD	16.005	<ansi-nist:CaptureDate> <nc:Date/> </ansi-nist:CaptureDate>
VER	1.002	<ansi-nist:TransactionMajorVersionValue/> <ansi-nist:TransactionMinorVersionValue/>

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Field Mnemonic	Field Number	NIEM Element
VLL	4.007 7.007 10.007 13.007 14.007 15.007 16.007 17.007	<ansi-nist:ImageVerticalLineLengthPixelQuantity/>
VPS	10.010 13.010 14.010 15.010 16.010 17.010	<ansi-nist:ImageVerticalPixelDensityValue/>
WGT	2.029	<nc:PersonWeightMeasure> <nc:MeasurePointValue/> </nc:PersonWeightMeasure>
WTR	2.030	<nc:PersonWeightMeasure> <nc:MeasureRangeValue> <nc:RangeMinimumValue/> <nc:RangeMaximumValue/> </nc:MeasureRangeValue> </nc:PersonWeightMeasure>
TBD	2.052[X]	<ebts:RecordRapBackRequestCode/>
TBD	2.2011[X]	<ebts:RecordRapBackVerificationIndicator/>
TBD	2.2014[X]	<ebts:RecordRapBackEligibilityIndicator/>
TBD	2.2015[X]	<ebts:RecordRapBackExpirationDate> <nc:Date/> </ebts:RecordRapBackExpirationDate>

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Field Mnemonic	Field Number	NIEM Element
TBD	2.2020[X]	<ebts:RecordRapBackOwnerOrganization> <nc:OrganizationIdentification> <nc:IdentificationID/> </nc:OrganizationIdentification> </ebts:RecordRapBackOwnerOrganization>

5.2 Minimal Properties Set

FBI EBTS XML inbound and outbound messages should have at least the XML processing instruction, a namespace definition, a Type-1 (header) record, and a Type-2 (descriptive) record.

5.3 Additional Business Rules

Existing Data requirements of the Electronic Biometric Transmission Specification (EBTS) apply to the FBI EBTS XML content. It is strongly recommended that the EBTS version 9.1 Specification be referenced for appropriate FBI EBTS data value and format.

The order of elements in the schema and in the sample XML files might be different from the order of FBI EBTS transaction elements in the legacy format because of the structure of NIEM. Following the NIEM standard FBI EBTS extension elements are added after existing NIEM elements. Several Field Mnemonics consist of multiple fields that are separated by the order of NIEM (e.g., Employer Name and Address (EAD) – Employer Name is separated from the Employer Address by the Occupation (OCP) field).

Date values are received in the XML format as YYYY-MM-DD and are stored as YYYYMMDD in EBTS. The XML processing system will strip the dashes from the inbound XML message and insert them on the outbound XML message.

Indicator values are received in the XML format as Boolean “true” or “false” values and are stored in EBTS as values “Y” or “N.” The XML processing system will map the “true” or “false” values to “Y” or “N” on inbound messages and will do the reverse when generating outbound XML message. Code values are captured as enumerated lists of specified values.

The Electronic Rapsheet (ERS 2.075) is included as a text field. It may also be sent as separate xml content (i.e., an attachment) within the same web service response, in which case it will conform to the Interstate Criminal History Transmission Specification, which has been created in NIEM 2.0 by the Joint Task Force on Rap Sheet Standardization.

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5.3.1 FIELD MNEMONIC SETS

Certain Field Mnemonics for the FBI EBTS transactions are sets made up of several fields. These fields have been represented within the existing sets in Section 5.1.1: The EBTS Transactions.

Table 5-2 Field Mnemonic Reference

Field Mnemonic	Field Number	SET Field Mnemonics
AMP	2.084	AMPCD, FGP
APC	9.017	APAT, RCN1, RCN2
ASL	2.047	DOO, AOL
CAN	2.064	NAM, UNC, FGP, IDC
CIN	2.010	CIN_PRE, CIN_ID
COF	9.019	XYP, XYP, THET, XYP, XYP
CSL	2.051	CDD, COL, CPL
DLA	9.022	XYM, DID, DID, DID, PUM
MAT	9.023	MDX, XYT, QMS, MNT, MRO, RSO
PAT	2.034	PATCL, FGP
ROV	9.018	XYM, XYM, XYM

5.3.2 Header Data

Specifications for the EBTS Type-1 Record Type of Transaction Field (TOT) require values that are not represented in the ANSI/NIST-ITL standard. Therefore, the EBTS specification augments the <ansi-nist:TransactionType> in order to provide the expanded TOT codes. In order to use the EBTS TOT codes, the <ebts:Transaction> substitution element must be used in place of the <ansi-nist:Transaction> element within the Type-1 Record root element, <itl:PackageInformationRecord>.

5.3.3 User Defined Descriptive Text

Specifications for the ANSI/NIST-ITL Type-2 Record require substitution of the abstract element, <itl:DomainDefinedDescriptiveFields> with a user-defined structure. EBTS provides the substitution element <ebts:DomainDefinedDescriptiveFields> to represent the EBTS Type-2 Record. The hierarchical structure of the EBTS Type-2 Record is presented in Table 5-3 Type-2 Record Hierarchical Model, below.

Certain further substitutions are required within the Type-2 record, in order to replace NIEM elements with more specific or more correct EBTS representations. In order to

present correct EBTS code values, please note the following: <ebts:PersonSexCode> replaces <nc:PersonSex>, <ebts:PersonHairColorCode> replaces <nc:PersonHairColor>, <ebts:PersonCitizenshipCode> replaces the abstract element <nc:PersonCitizenship>, and <ebts:PersonIDCategoryCode> replaces <nc:IdentificationCategory>. In order to include additional concepts and clarify meaning, <ebts:PersonName> replaces <nc:PersonName>, <ebts:PersonAlternateName> replaces <nc:PersonAlternateName>, and <ebts:ChargeText> replaces <nc:ActivityDescriptionText>.

In order to allow non-FBI agencies to include their own specific fields as described in Section 5.1.3, <ebts:StateDefinedFields> replaces the abstract element <itl:OtherDescriptiveText>. The hierarchical structure of the EBTS Type-2 Record is presented in Table 5-3 Type-2 Record Hierarchical Model, below:

Table 5-3 Type-2 Record Hierarchical Model

Element Tag	XML Representation	Min	Max
	<itl:PackageDescriptiveTextRecord>	1	*
RCC	<ansi-nist:RecordCategoryCode>	1	1
IDC 2.002	<ansi-nist:ImageReferenceIdentification>	1	1
	<nc:IdentificationID>		
	<itl:UserDefinedDescriptiveText>	1	1
	<ebts:DomainDefinedDescriptiveFields>	1	1
RET 2.005	<ansi-nist:RecordRetentionIndicator>	1	1
SCO 2.007	<ansi-nist:RecordForwardOrganizations>	0	1
	<nc:OrganizationIdentification>	1	9
	<nc:IdentificationID>		
RAP 2.070	<ansi-nist:RecordRapSheetRequestIndicator>	0	1
ATN 2.006	<nc:CaveatText>	0	1
IMT 2.062	<ebts:RecordLatentImageCategoryCode >	0	10
IMA 2.067	<ebts:RecordImageCaptureDetail>	0	1
MAK 2.067A	<ansi-nist:CaptureDeviceMakeText>	1	1
MODL 2.067B	<ansi-nist:CaptureDeviceModelText>	1	1
SERNO 2.067C	<ansi-nist:CaptureDeviceSerialNumberText>	1	1
*PTY 2.2009	<ansi-nist:ImageCategoryCode>	0	1
	<ebts:RecordBiometricCaptureGeoLocation>	0	1
*GEO_TIME 2. 2025	<ansi-nist:TransactionUTCDate>	1	1
	<nc:DateTime>		
*GEO_CORD 2. 2026	<nc:GeographicCoordinateLatitude>	1	1
*LATD 2. 2026A	<nc:LatitudeDegreeValue>	1	1
*LATM 2. 2026B	<nc:LatitudeMinuteValue>	0	1
*LATS 2. 2026C	<nc:LatitudeSecondValue>	0	1
	<nc:GeographicCoordinateLongitude>	1	1
*LOND 2. 2026D	<nc:LongitudeDegreeValue>	1	1
*LONM 2. 2026E	<nc:LongitudeMinuteValue>	0	1
*LONS 2. 2026F	<nc:LongitudeSecondValue>	0	1
*DATUM_ID 2. 2027	<ebts:GeographicCoordinateDatumCode>	1	1
NDR 2.098	<ebts:RecordFBIRepositoryCode>	0	4
ITD 2.058	<ebts:RecordImageRecordCategoryRequestCode>	0	1

Element Tag	XML Representation	Min	Max
*NIR 2.2010	<ebts:RecordImagesRequestedQuantity>	0	1
*IIR 2.2012	<ebts:RecordIrisImagesRequestedCode>	0	1
*CSF 2.2006	<ebts:RecordCascadedSearchCode>	0	1
*RFR 2.095	<ebts:RecordFeaturesRequestIndicator>	0	1
RPR 2.096	<ebts:RecordPhotoRequestIndicator>	0	1
*TBD 2.2014	<ebts:RecordRapBackEligibilityIndicator>	0	1
*TBD 2.2015	<ebts:RecordRapBackExpirationDate>	0	1
	<nc:Date>		
*TBD 2.2020	<ebts:RecordRapBackOwnerOrganization>	0	3
	<nc:OrganizationIdentification>	1	1
	<nc:IdentificationID>		
*TBD 2.052	<ebts:RecordRapBackRequestCode>	0	1
*TBD 2.2011	<ebts:RecordRapBackVerificationIndicator>	0	1
*SPCN 2.093	<ebts:RecordSpecialPopulationCognizantFileldIdentification>	0	100
	<nc:IdentificationID>		
	<ebts:RecordTransactionData>	0	1
MIL 2.042	<ansi-nist:TransactionSubmissionMilitaryCode>	0	1
EID 2.049	<ansi-nist:TransactionUserIdentification>	0	1
	<nc:IdentificationID>		
CFS 2.077	<ebts:TransactionCancelFingerprintSearchID>	0	200
CSR 2.048	<ebts:TransactionCivilSearchRequestIndicator>	0	1
NOT 2.088	<ebts:TransactionDescriptionText>	0	1
*DMI 2.2013	<ebts:TransactionDispositionMaintenanceCode>	0	1
ETC 2.069	<ebts:TransactionEstimatedCompletionMinutesQuantity>	0	200
	<ebts:TransactionFingerprintImagesRequested>	0	1
FNR 2.057	<ansi-nist:FingerPositionCode>	1	13
	<ebts:TransactionFingerprintImagesUpdated>	0	1
FIU 2.072	<ansi-nist:FingerPositionCode>	1	13
NCR 2.079	<ebts:TransactionImagesRequestedQuantity>	0	1
QDD 2.004	<ebts:TransactionQueryDepthCode>	0	1
	<ebts:TransactionResponseData>	0	1
HTI 2.2024	<ebts:TransactionHitCategoryCode>	0	1
EXP 2.080	<ansi-nist:TransactionReasonText>	0	1
ACN 2.071	<ebts:TransactionActionText>	0	1
	<ebts:TransactionCandidateList>	0	1
CAN 2.064	<ebts:Candidate>	1	99
	<ebts:PersonName>	1	1
NAM 2.064B	<nc:PersonGivenName>		
	<nc:PersonMiddleName>		
	<nc:PersonSurName>		
*NAM1-5 2.2001-5	<ebts:PersonExtendedName>	0	5
FNU 2.064A	<ebts:PersonUCNIdentification>	1	1
	<nc:IdentificationID>		
MSC 2.089	<ebts:CandidateMatchScoreValue>	1	1
FGP	<ansi-nist:FingerPositionCode>	0	1
IDC	<ebts:ImageReferenceIdentification>	0	1

Element Tag	XML Representation	Min	Max
	<nc:IdentificationID>		
PEN 2.078	<ebts:TransactionPenetrationQueryResponsePercent>	0	1
RSR 2.065	<ebts:TransactionRepositoryResponse>	0	1
	<ebts:RepositoryParameterPercent>		
	<ebts:RepositoryParameterText>		
	<ebts:RepositoryParameterValueText>		
REC 2.082	<ebts:TransactionResponseIndicator>	0	1
SRF 2.059	<ebts:TransactionSearchResultsCode>	0	1
MSG 2.060	<ebts:TransactionStatusText>	0	11
SII 2.2023	<ebts:TransactionSupplementaryIdentityInformationText>	0	1
ERS 2.075	<ebts:TransactionElectronicRapSheetText>	0	1
GEO 2.044	<ebts:TransactionSearchAreaCode>	0	5
PRI 2.076	<ebts:TransactionSearchPriorityCode>	0	200
TSR 2.043	<ebts:TransactionSearchRequestCategoryCode>	0	1
ULF 2.083	<ebts:TransactionUnsolvedLatentFileIndicator>	0	1
	<ebts:RecordActivity>	0	1
DOA 2.045	<nc:ActivityDate>	0	1
	<nc:Date>		
RFP 2.037	<nc:ActivityReasonText>	0	1
OCA 2.009	<nc:CaseTrackingID>	0	1
ICO 2.056	<j:SubjectOffenderNoticeText>	0	1
ASL 2.047	<j:Arrest>	0	40
DOO 2.047A	<nc:ActivityDate>	0	1
	<nc:Date>		
AOL 2.047B	<ebts:ChargeText>	1	1
CSL 2.051	<j:ArrestCharge>	0	1
	<j:ChargeDisposition>		
	<j:ChargeDispositionCondition>		
COL 2.051B	<ebts:ChargeText>	1	1
CDD 2.051A	<nc:ConditionSetDate>	0	1
	<nc:Date>		
CPL 2.051C	<j:ChargeDispositionOtherText>	0	1
	<j:ArrestRelease>	0	1
SSD 2.054	<nc:ActivityDate>	1	1
	<nc:Date>		
SLE 2.055	<nc:ActivityStatus>	1	1
	<nc:StatusText>	1	1
*SAN 2.099	<j:ArrestSequenceID>	0	1
	<nc:IdentificationID>		
*CCN 2.094	<j:CourtEventSequenceID>	0	1
	<nc:IdentificationID>		
DOS 2.046	<ebts:ArrestDateSuffixText>	0	1
*SEAL 2.2019	<ebts:ArrestSealIndicator>	0	1
CRI 2.073	<ebts:RecordControllingAgency>	0	3
	<nc:OrganizationIdentification>		

Element Tag	XML Representation	Min	Max
	<nc:IdentificationID>		
SCNA 2.086	<ebts:AFISSegmentControlID>	0	200
CST 2.061	<nc:CaseTitleText>	0	1
CRN 2.085	<ebts:CivilRecordIdentification>	0	1
	<nc:IdentificationID>		
CIN 2.010	<ebts:ContributorCaseIdentificationNumber>	0	200
CIN_PRE 2.010A	<ebts:ContributorCasePrefixIdentification>	1	1
	<nc:IdentificationCategoryText>		
CIN_ID 2.010B	<ebts:ContributorCaseIdentification>	1	1
	<nc:IdentificationID>		
CIX 2.011	<ebts:ContributorCaseExtensionIdentification>	1	1
	<nc:IdentificationID>		
FFN 2.003	<ebts:FBIFileNumber>	0	1
	<nc:IdentificationID>		
	<ebts:FBILatentCaseIdentification>	0	1
LCN 2.012	<ebts:FBILatentCaseNumber>	1	1
	<nc:IdentificationID>		
LCX 2.013	<ebts:FBILatentCaseNumberExtension>	1	1
	<nc:IdentificationID>		
CIDN 2.2022	<ebts:ContributorAssignedIdentificationNumber>	0	1
	<nc:IdentificationID>		
OFC 2.053	<ebts:OffenseCategoryCode>	0	1
	<ebts:RecordSubject>	0	1
AGR 2.023	<nc:PersonAgeMeasure>	0	1
	<nc:MeasureRangeValue>		
	<nc:RangeMinimumValue>		
	<nc:RangeMaximumValue>		
AKA 2.019	<ebts:PersonAlternateName>	0	10
	<nc:PersonGivenName>		
	<nc:PersonSurName>		
DOB 2.022	<nc:PersonBirthDate>	0	5
	<nc:Date>		
CTZ 2.021	<ebts:PersonCitizenshipCode>	0	1
EYE 2.031	<nc:PersonEyeColorCode>	0	1
HAI 2.032	<ebts:PersonHairColorCode>	0	1
HGT 2.027	<nc:PersonHeightMeasure>	0	1
	<nc:MeasurePointValue>		
	<nc:MeasureUnitText>		
HTR 2.028	<nc:PersonHeightMeasure>	0	1
	<nc:MeasureRangeValue>		
	<nc:RangeMinimumValue>		
	<nc:RangeMaximumValue>		
	<nc:MeasureUnitText>		
NAM 2.018	<ebts:PersonName>	0	1

Element Tag	XML Representation	Min	Max
	<nc:PersonGivenName>		
	<nc:PersonMiddleName>		
	<nc:PersonSurName>		
*NAM1-5 2.2001-5	<ebts:PersonExtendedName>		
MNU 2.017	<nc:PersonOtherIdentification>	0	4
	<nc:IdentificationID>	1	1
	<ebts:PersonIDCategoryCode>	1	1
SMT 2.026	<nc:PersonPhysicalFeature>	0	1
	<nc:PhysicalFeatureCategoryCode>	0	10
RAC 2.025	<nc:PersonRaceCode>	0	1
SEX 2.024	<ebts:PersonSexCode>	0	1
SOC 2.016	<nc:PersonSSNIdentification>	0	4
	<nc:IdentificationID>		
SID 2.015	<nc:PersonStateIdentification>	0	1000
	<nc:IdentificationID>		
	<nc:IdentificationCategoryText>		
WGT 2.029	<nc:PersonWeightMeasure>	0	1
	<nc:MeasurePointValue>		
WTR 2.030	<nc:PersonWeightMeasure>	0	1
	<nc:MeasureRangeValue>		
	<nc:RangeMinimumValue>		
	<nc:RangeMaximumValue>		
POB 2.020	<ebts:PersonBirthPlaceCode>	0	1
*SDOB 2.2007	<ebts:PersonSubmittedBirthDate>	0	1
	<nc:Date>		
*SNAM 2.2008	<ebts:PersonSubmittedName>	0	1
	<nc:PersonGivenName>		
	<nc:PersonMiddleName>		
	<nc:PersonSurName>		
*UCN 2.081	<ebts:PersonUCNIdentification>	0	1
	<nc:IdentificationID>		
FBI 2.014	<j:PersonFBIIdentification>	0	1000
	<nc:IdentificationID>		
*IFS 2.2021	<j:PersonFirearmSalesDisqualifiedCode>	0	1
PTD 2.063	<ebts:PersonTypeDesignatorCode>	0	1
TAA 2.087	<ebts:PersonAdultTreatmentIndicator>	0	1
PHT 2.036	<ebts:PersonDigitalImageAvailableIndicator>	0	1
PPA 2.035	<ebts:PersonPalmPrintAvailableIndicator>	0	1
*DNAF 2.2016	<nc:PersonDNAAvailableIndicator>	0	1
*DNAC 2.2018	<ebts:BinaryCODISAvailableIndicator>	0	1
*DORI 2.2017	<nc:BiometricRepositoryOrganization>	0	1
	<nc:OrganizationIdentification>		
	<nc:IdentificationID>		
	<ebts:PersonFingerprintSet>		
DPR 2.038	<nc:BiometricCaptureDate>	0	1
	<nc:Date>		

Element Tag	XML Representation	Min	Max
AMP 2.084	<itl:FingerprintImageFingerMissing>	0	9
FGP 2.084A	<ansi-nist:FingerPositionCode>		
AMPCD 2.084B	<itl:FingerMissingCode>		
PAT 2.034 /RCD1 2.091 /RCD2 2.092	<ebts:FingerprintImageFinger>	0	10
FGP 2.074 /2.034A /2.091A /2.092A	<ansi-nist:FingerPositionCode>	1	10
FPC 2.033	<ebts:NCICFingerprintClassificationCode>	0	1
	<ebts:RidgeCoreDelta>	1	3
PATCL 2.034B	<ebts:FingerprintPatternClassificationCode>	1	1
RCN1 2.091B	<ansi-nist:RidgeCountValue>	0	1
RCN2 2.092B	<ansi-nist:RidgeCountValue>	0	1
RES 2.041	<ebts:PersonResidenceLocation>	0	1
	<nc:LocationAddress>		
	<nc:StructuredAddress>		
	<nc:LocationStreet>		
	<nc:StreetNumberText>		
	<nc:StreetName>		
	<nc:LocationCityName>		
	<nc:LocationStateNCICLSTACode>		
	<nc:LocationPostalCode>		
EAD 2.039	<nc:Employer>	0	1
	<nc:EntityOrganization>		
	<nc:OrganizationName>		
OCP 2.040	<nc:EmployeeOccupationText>	0	1
EAD 2.039	<nc:EmploymentLocation>	0	1
	<nc:LocationAddress>		
	<nc:StructuredAddress>		
	<nc:LocationStreet>		
	<nc:StreetNumberText>		
	<nc:StreetName>		
	<nc:LocationCityName>		
	<nc:LocationStateNCICLSTACode>		
	<nc:LocationPostalCode>		
SDF	<ebts:StateDefinedFields>	0	1

* FUTURE CAPABILTIES

5.3.4 Fingerprint Images

Specifications for fingerprint images are defined in the ANSI/NIST-ITL Type-4 Record and ANSI/NIST-ITL Type-14 Record, based on the resolution requirements.

5.3.5 User Defined Images

Specifications for User Defined Images are based on the ANSI/NIST-ITL Type-7 Record. Future capabilities will require extending this record type to include information specific to an FBI Biometric Identification message.

5.3.6 Minutiae Data

Specifications for minutiae data are based on the ANSI/NIST-ITL Type-9 Record. The FBI EBTS has additional requirements for this message and therefore has created a substitution element for the abstract ANSI/NIST-ITL element <itl:RecordMinutiae>. EBTS uses this element, <ebts:Minutiae>, to represent information specific to an FBI Biometric Identification message. The hierarchical structure of the EBTS Type-9 Record is presented in Table 5-4 Type-9 Record Hierarchical Model, below.

Table 5-4 Type-9 Record Hierarchical Model

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

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

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

[O]Optional for Single-finger Latent Search Requests

[L]Mandatory for Latent Records Only.

5.3.7 Facial and SMT Images

Specifications for facial and SMT images are defined in the ANSI/NIST-ITL Type-10 Record, using the fields specific for a Facial Image Record, or an SMT Image Record, as appropriate.

5.3.8 Latent Print Images

Specifications for latent images are defined in the ANSI/NIST-ITL Type-13 Record.

5.3.9 Major Case Print

Specifications for Major Case Print images are based on the ANSI/NIST-ITL Type-14 Record.

5.3.10 Palmprint Images

Specifications for palmprint images are based on the ANSI/NIST-ITL Type-15 Record.

5.3.11 Iris Images

Specifications for iris images are based on the ANSI/NIST-ITL Type-17 Record.

5.3.12 CBEFF Biometric Data

Specifications for this data are based on the ANSI/NIST-ITL Type-99 Record.

5.3.13 Messages Layout

The EBTS IEPD contains both example transactions and templates to aid in understanding and creating new transactions. These are listed in Section 6.

The sample “template” instances include all the required and optional fields for any given transaction, and are to be used as “blueprints” for creating new messages, not taken as valid transactions. There is one template included for each EBTS TOT. These templates are organized by EBTS service and located within the service subdirectories in the xml\ directory of the IEPD.

The sample “all-field” examples included in support of this package contain element representations of every possible field, and are not to be taken as valid transactions. An FBI EBTS XML message will not include all the elements defined in these samples; all the elements are represented in the sample to capture their structures and formats in an XML FBI EBTS message. These files are located within the xml\ directory of the IEPD. They are also listed by filename in Section 6.

The sample “complete” message examples are fully valid samples of EBTS CAR, SRL, IRQ, and ISR transactions, and are located within the xml\ directory of the IEPD. They are also listed by filename in Section 6.

The goal of these representations is to help guide agencies and vendors in their design of systems for FBI EBTS XML interchange.

EBTS XML transactions require schema instance references and domain prefixes to enable both the use of predefined elements and the enforcement of constraints that have been implemented in the extension schema and in the various domain schemas. The xmlns attribute allows global elements declared in the specified namespace to be used in this instance. The xsi:schemaLocation attribute is used to associate the EBTS schema with the namespace.

The following example declaration allows the use of necessary global elements from NIEM Data Model namespaces and the ITL namespace. It is relative to the xml\ directory in the EBTS IEPD.

```
<itl:NISTBiometricInformationExchangePackage
xmlns:ebts="http://cjis.fbi.gov/fbi_ebts/2.0"
xmlns:ansi-nist="http://niem.gov/niem/ansi-nist/2.0"
xmlns:itl="http://biometrics.nist.gov/standard/2-2008"
xmlns:nc="http://niem.gov/niem/niem-core/2.0"
xmlns:j="http://niem.gov/niem/domains/jxdm/4.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://cjis.fbi.gov/fbi_ebts/2.0 ../../xsd/fbi_ebts/2.0/fbi_ebts.xsd">
```

5.3.14 Inbound Messages

An individual XML inbound transaction contains at least two records: a Header Record (Type-1 Record) and a User Defined Descriptive Text Record (Type-2 Record). Inbound transactions may also contain several Image Records including: Palm or Fingerprint Images, User Defined Images, and Facial and SMT Images. Inbound transactions may also contain records pertaining to Minutiae Information.

The additional record requirements for each TOT are listed in the "Electronic Biometric Transmission Specification, EBTS version 9.1," *Table L-3, Record Set Requirements Summary by Type of Transaction*. This document is available for download at: https://www.fbibiospecs.org.

5.3.15 Response Messages

An individual XML outbound transaction contains at least two records: a Header Record (Type-1 Record) and a User Defined Descriptive Text Record (Type-2 Record). Information pertaining to the actual response will be contained within the User Defined Descriptive Text Record. The response message may also contain Palm or Fingerprint Images, User Defined Images, Facial and SMT Images and Minutiae Information Records.

The User Defined Descriptive Text Record of a response Message will contain a Transaction Response Data Section, which has information specific to an EBTS response transaction, including fields specifying any action or direction for the user to take upon receiving the transaction, error messages and other detailed information pertaining to the results of a search.

Additional records that may be returned by the responses are listed in the "Electronic Biometric Transmission Specification, EBTS version 9.1," *Table L-4, Record Set Requirements Summary by Type of Response*. This document is available for download at: https://www.fbibiospecs.org.

6 SAMPLES

To help agencies, users and vendors design and develop their XML processing system for FBI EBTS messages, the FBI has provided as part of this Interface Definition Package sample templates and both transaction and "all-field" examples for EBTS XML messages with "sanitized" content.

6.1 Sample XML Instances

The FBI EBTS XML message templates (not to be taken as valid transactions) include:

- EBTS Schema Package fbi_ebts_2.0\xml\Data Management Service
  - Template(CPD)CriminalSubjectPhotoDeleteRequestTransaction.xml
  - Template(ERRI)ImageErrorResponseTransaction.xml
  - Template(FIS)FingerprintImageSubmissionTransaction.xml
  - Template(FISR)FingerprintImageSubmissionResponseTransaction.xml
  - Template(PDR)SubjectPhotoDeleteResponse.xml
  - Template(ULAC)UnsolvedLatentAddConfirmRequestTransaction.xml
  - Template(ULAR)UnsolvedLatentAddConfirmResponseTransaction.xml
  - Template(ULD)UnsolvedLatentRecordDeleteRequestTransaction.xml
  - Template(ULDR)UnsolvedLatentDeleteResponseTransaction.xml
- EBTS Schema Package fbi_ebts_2.0\xml\Identification Service
  - Template(AMN)AmnesiaVictimTransaction.xml
  - Template(CAR)CriminalTenPrintAnswerRequiredTransaction.xml
  - Template(CNA)CriminalTenPrintNoAnswerTransaction.xml
  - Template(CPDR)CriminalFingerprintCardDirectRouteTransaction.xml
  - Template(CPNU)CriminalFingerprintCardProcessingNonUrgentTransaction.xml
  - Template(DEK)KnownDeceasedTransaction.xml
  - Template(DEU)UnknownDeceasedTransaction.xml
  - Template(DOCE)DepartmentalOrderingChannelingElectronic.xml
  - Template(EMUF)ElectronicInManualOutUserFee.xml
  - Template(ERRT)TenPrintTransactionErrorTransaction.xml
  - Template(FANC)FederalApplicantNoChargeTransaction.xml
  - Template(FAUF)FederalApplicantUserFeeTransaction.xml
  - Template(FNDR)FederalNoChargeDirectRouteTransaction.xml
  - Template(LFS)LatentFingerprintImageSubmissionTransaction.xml
  - Template(LSR)LatentSubmissionResultsTransaction.xml

- Template(MAP)MiscellaneousApplicantCivilTransaction.xml
- Template(MPR)MissingPersonTransaction.xml
- Template(NFAP)NonFederalAdvancedPaymentTransaction.xml
- Template(NFUE)NonFederalApplicantUserFeeExpedite.xml
- Template(NFUF)NonFederalApplicantUserFeeTransaction.xml
- Template(NNDR)NonFederalNoChargeDirectRouteTransaction.xml
- Template(RPIS)RapidFingerprintIdentificationSearchTransaction.xml
- Template(RPISR)RapidFingerprintIdentificationResponseTransaction.xml
- Template(SRE)ElectronicCriminalSubmissionResultsTransaction.xml
- Template(SRE)ElectronicSubmissionResultsTransaction.xml

- EBTS Schema Package fbi_ebts_2.0\xml\Investigation Service
  - Template(CFS)ComparisonFingerprintImageSubmissionTransaction.xml
  - Template(EHRR)ElectronicHistoryRequestResponse.xml
  - Template(ELR)EvaluationLatentFingerprintSubmissionRequestTransaction.xml
  - Template(EQER)ExternalQueryHistoryErrorResponse.xml
  - Template(EQHR)ExternalQueryHistoryRequest.xml
  - Template(EQRR)ExternalQueryHistoryRequestResponse.xml
  - Template(ERRA)AdministrativeErrorResponseTransaction.xml
  - Template(ERRL)LatentTransactionErrorTransaction.xml
  - Template(ERRR)TransactionErrorElectronicResponseTransaction.xml
  - Template(LFFS)LatentFrictionRidgeFeaturesSearchTransaction.xml
  - Template(LFIS)LatentFrictionRidgeImageSearchTransaction.xml
  - Template(LPNQ)LatentPenetrationQueryTransaction.xml
  - Template(LPNR)LatentPenetrationResponseTransaction.xml
  - Template(LRSQ)LatentRepositoryStatisticsQueryTransaction.xml
  - Template(LRSR)LatentRepositoryStatisticsResponseTransaction.xml
  - Template(LSMQ)LatentSearchStatusandModificationQueryTransaction.xml
  - Template(LSMR)LatentSearchStatusandModificationResponseTransaction.xml
  - Template(NAR)NotificationofActionResponse.xml
  - Template(SRL)SearchResultsLatentTransaction.xml
  - Template(SRT)SearchResultsTenprint.xml
  - Template(TPFS)TenPrintFingerprintFeaturesSearchTransaction.xml
  - Template(TPIS)TenPrintFingerprintImageSearchTransaction.xml
  - Template(TPRR)TenPrintRapSheetResponse.xml

  - Template(TPRS)TenPrintRapSheetSearchTransaction.xml
- EBTS Schema Package fbi_ebts_2.0\Information Service
  - Template(CPR)CriminalSubjectPhotoRequestTransaction.xml
  - Template(IRQ)FingerprintImageRequestTransaction.xml
  - Template(IRR)FingerprintImageRequestResponseTransaction.xml
  - Template(ISR)FingerprintImageSummaryResponseTransaction.xml
  - Template(PRR)CriminalPhotoRequestResponseTransaction.xml
- EBTS Schema Package fbi_ebts_2.0\xml\Notification Service
  - Template(UHN)UnsolicitedHitNotificationTransaction.xml
  - Template(ULM)UnsolvedLatentMatchResponseTransaction.xml
  - Template(UULD)UnsolicitedUnsolvedLatentDeleteTransaction.xml

The FBI EBTS XML complete message examples include:

- EBTS Schema Package fbi_ebts_2.0\xml\
  - CompleteExample(CAR)CriminalTenPrintAnswerRequiredTransaction.xml
  - CompleteExample(IRQ)FingerprintImageRequestTransaction.xml
  - CompleteExample(ISR)FingerprintImageSummaryResponseTransaction.xmll
  - CompleteExample(SRL)SearchResultsLatentTransaction.xml

The FBI EBTS and ANSI-NIST XML “all-field” examples, to illustrate the use of every field (not to be taken as valid transactions) include:

- EBTS Schema Package fbi_ebts_2.0\xml\
  - SampleAll-FieldsEBTSTransaction.xml
  - SampleAll-FieldsANSI-NISTTransaction.xml

7 DEVELOPMENT

The EBTS IEP was developed by the Federal Bureau of Investigation (FBI) Criminal Justice Information Services (CJIS) Division. The FBI developed this IEP in conjunction with the Wisconsin Department of Justice, the Terrorist Screening Center (TSC), the Department of Homeland Security (DHS), the Department of Justice (DOJ), Noblis, and the Joint Task Force for Rapsheet Standardization as primary reviewers.

7.1 Participants

- Implementers contributed to the EBTS IEP design and implementation, and review
- Contributors contributed to the EBTS IEP design and review.
- Reviewers contributed to the EBTS IEP by reviewing the XML instances to ensure EBTS data representation and EBTS data integrity.

Table 7-1 Participants

Name	Organization	Role
Ast, Terri	FBI Contractor	Implementer
Coleman, Gerry	Wisconsin DOJ	Contributor, Reviewer
Wade, Joe	FBI Contractor	Implementer
Yuh, Patrice	FBI	Implementer
Stathakis, Jennifer	FBI	Implementer
Hayes, Cherie	FBI	Implementer
Finegold, Brian	FBI Contractor	Reviewer
Mike Lesko	TX DPS/JTF	Reviewer
Charlie Schaffer	FDLE/JTF	Reviewer
Arun Vemuri	DHS	Reviewer
Dale Hapeman	DoD	Reviewer

7.2 Process

To design and implement this Information Exchange Package, a strategy was developed based on Unified Modeling Language including:

- Data discovery, an analysis phase during which EBTS elements were mapped to NIEM base elements and to augmented data

- Data Description, a design phase during which data was organized based on the business relation between them; during this phase, the semantic and syntactic structure of data was captured
- Data review, a phase during which internal review and external reviews were conducted
- Data implementation and schema generation, an implementation phase that also focused on validation
- Data validation phase focused on ensuring that schemas and instance documents follow NIEM rules

The EBTS XML Data Reference Model was developed by using an object-oriented framework to define elements. NIEM types were used as the base types and FBI-specific data was added. The differentiation of FBI-specific datatypes and NIEM datatypes is handled with namespace prefixes.

The schema development environment of choice was XMLSpy, which enabled the efficient development and validation of schemas. This also enabled the integration of sample XML instance data with the generated schemas and validation of business and constraint requirements, while keeping in mind that the goal of this IEPD development is to help users and vendors generate messages in the expected formats.

7.3 Development Artifacts

7.3.1 Transaction Model Diagram

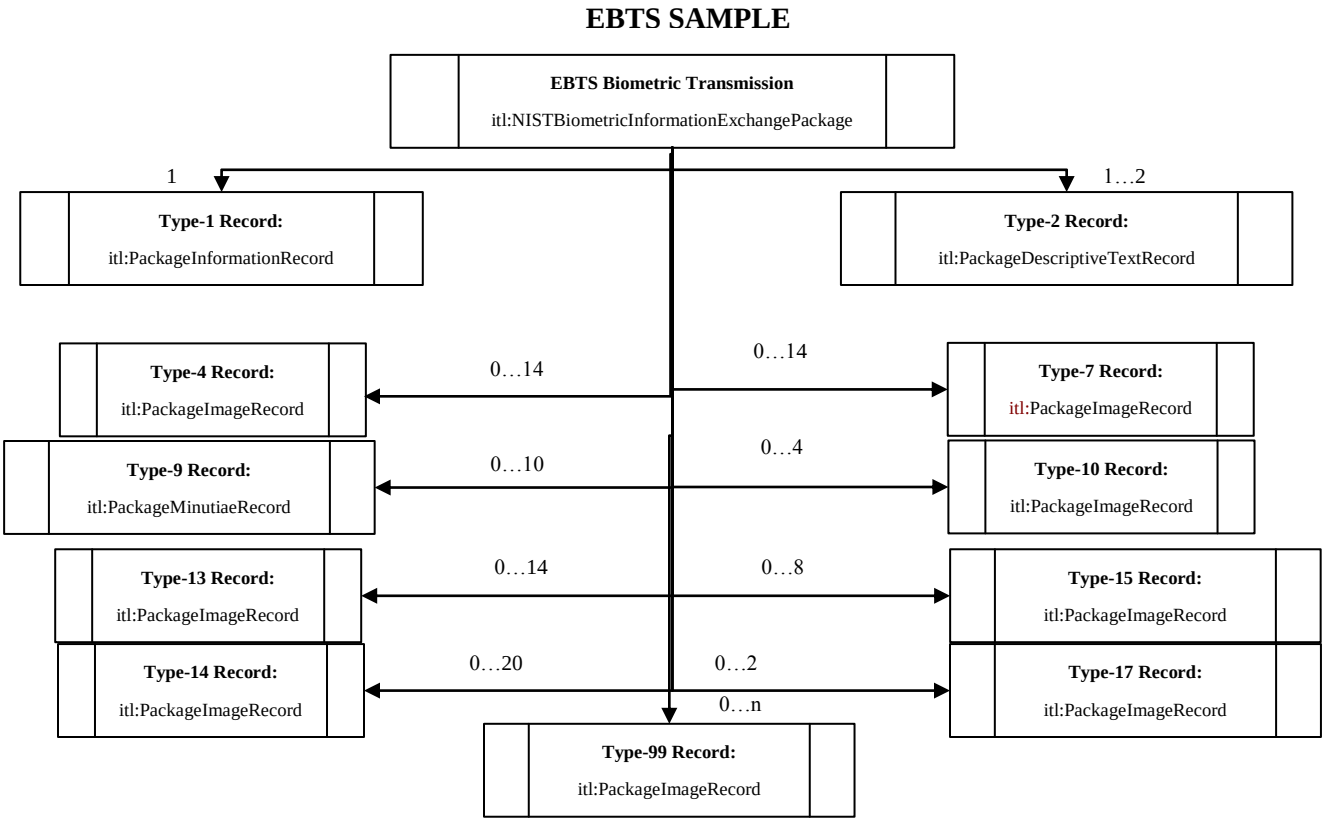

Figure 7-1 EBTS Sample

7.3.2 Detailed Transaction Model Diagram

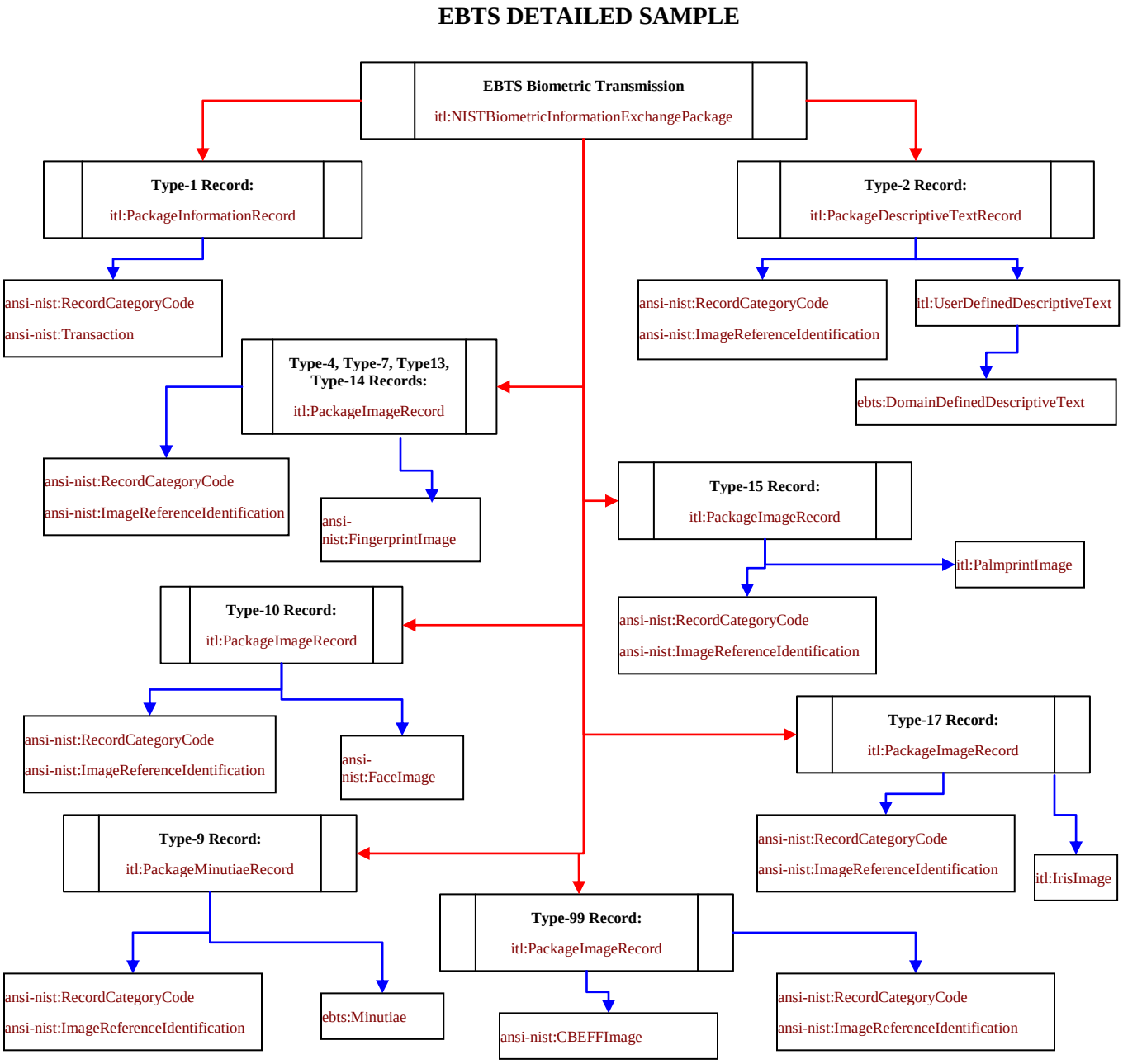

Figure 7-2 EBTS Detailed Sample

8 TESTING AND CONFORMANCE

The FBI recognizes the contributions of the ANSI-NIST group including:

Chair: Mr. Gerry Coleman, Wisconsin Department of Justice

8.1 Testing

Preliminary testing has been conducted, consisting of manually verifying the translation between native and xml formats by three kinds of verification:

- Syntactic
- Manual inspection of element mapping
- Semantic inspection of the content/meaning of the transactions

8.2 Conformance

ANSI-NIST recognized its support of the business model demonstrated in the FBI CJIS Division's EBTS Specification and IEPD.

Systems claiming conformance with this standard shall implement the transmitting and/or receiving record types as defined by the ANSI/NIST-ITL and EBTS Specifications. At a minimum, they must be capable of transmitting and receiving Type-1 and Type-2 records. However, in order to transmit a meaningful EBTS-compliant message, systems must be able to transmit a minimum of:

- Ten-Print Submissions: Type-4 OR Type-14 Records.
- Ten-Print Searches: Type-4, Type-9 OR Type-14 Records.
- Latent Submissions: Type-4, Type-7, OR Type-13 Records.
- Latent Searches: Type-4, Type-7, Type-9, OR Type-13 Records.
- Electronic Requests to Upgrade Fingerprint Images: Type-4 OR Type-14 Records.

In order to receive a meaningful EBTS message, systems should be able to receive a minimum of:

- Ten-Print Submission Responses: Type-10 Photo Records
- Ten-Print Search Responses: Type-4 and Type-14 Records.
- Latent Submission Responses: Type-4 and Type-14 Records.
- Latent Search Responses: Type-4 and Type-14 Records.
- Remote Requests for Fingerprint Image Responses: Type-4, Type-7, Type-9, Type-13, Type-14, Type-15 and Type-17 Records.
- Criminal Subject Photo Request Response: Type-10 Photo Records.

Implementers may not introduce new elements or record types not supported by EBTS. All required elements and records must be present in a conforming instance document, even if the implementers' standards do not strictly enforce the requirement.

9 FEEDBACK

The EBTS v 9.1 Draft XML Specification was published April 20th, 2010 on the FBI Biometrics Specifications webpage, https://www.fbibiospecs.org. The subsequent public comment period produced no submitted comments.