



# **INTERPOL Implementation for Data Format for the Interchange of Fingerprint, Facial and Biometric Information**

**XML format, version 06.00.02  
Based on ANSI/NIST ITL 2011 Upd 2015**

INTERPOL AFIS Expert Working Group

27/11/2024

This new INTERPOL Implementation of the NIST XML Standard is now available with its entire package on our GitHub platform for consultation and download by the public. It is accessible by all using this URL:

<https://github.com/INTERPOL-Innovation-Centre/ANSI-NIST-XML-ITL-Implementation>

Feedback, questions, or issues can and should be submitted via the [Issue](#) Page to be reviewed and addressed by the dedicated INTERPOL Working Group. All other requests can be addressed by email to:

[NIST.STANDARD@INTERPOL.INT](mailto:NIST.STANDARD@INTERPOL.INT)

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# Glossary

## **Latent Friction-ridge Image**

An unknown (partial) fingerprint or palmprint image acquired from a crime scene. It may also be referred to as “Latent Print”.

## **Machine-readable Tables**

A tabular format of the definition of relevant record elements associated with the standard, in a machine readable format. A version for the Interpol Implementation has been produced and available via Interpol (and included with the associated package containing this electronic document). Its layout and format is based on the MRT produced for the umbrella ANSI/NIST-ITL standard (available form NIST).

## **National Information Exchange Model**

A flexible Information model defined and used by US government agencies to exchange information via XML data format.

## **National Institute for Standards and Technology**

Standardizing body for the US government, publisher of the ANSI/NIST-ITL standard for biometric data.

## **Tenprint**

A full set of fingerprint images, acquired from a known or unknown individual. From a law enforcement agency standpoint, a tenprint is normally composed of at least 10 rolled fingerprint images, 4 plain fingerprint images (left slap, right slap and 2 thumbs) and 2 lower palms. It might be completed by other images, such as writer's palms or upper palms. For the immigration agencies, the set is often reduced to 10 segmented plain fingerprint images and/or 4 plain fingerprint images (left slap, right slap and 2 thumbs).

# **Acronyms**

## **AFIS**

Automated Fingerprint Identification System.

## **AFR**

Automatic Fingerprint Recognition.

## **ANSI**

American National Standards Institute.

## **IAEWG**

INTERPOL AFIS Expert Working Group.

## **IEPD**

Information Exchange Package Description.

## **INT-I**

INTERPOL Implementation.

## **INTERPOL**

International Criminal Police Organization.

## **ISO**

International Organization for Standardization.

## **MRT**

Machine-readable Table.

## **NBS**

National Bureau of Standards.

**NIEM**

National Information Exchange Package.

**NIST**

National Institute for Standards and Technology.

**SMT**

Scars, Marks and Tattoos.

**TOT**

Type of Transaction.

# Revision history

**06.00.00a** (26/04/2018) — 1<sup>st</sup> public draft version

**06.00.00b** (09/11/2018) — 2<sup>nd</sup> public draft version

- Changed the title to focus on the exchange of biometrics rather than on ANSI/NIST ([issue #1](#))
- Changed [2.010] CRN field description to make it clear that it is mandatory only if [2.011] is absent ([issue #2](#))
- Changed [2.010] CRN and [2.011] ORN: add NPS in the mandatoriness rules ([issue #3](#))
- Removed table ISO3166-1 Alpha-3 code, keep only a list to the current list on the ISO website ([issue #4](#))
- Changed [2.011] ORN presence condition from Optional to Dependent ([issue #10](#))
- Changed [9.331] MIN to increase max occur from 999 to 9999 ([issue #11](#))
- Changed from [1.015-A] DCS/CSN and [1.015-B] DCS/CSI to [1.015-A] DCS/CSI and [1.015-B] DCS/CSN (fields where in the wrong order) ([issue #15](#))
- Changed from [1.015-A] DCS/CSN and [1.015-B] DCS/CSI to [1.015-A] DCS/CSI and [1.015-B] DCS/CSN (fields where in the wrong order) ([issue #15](#))
- Changed [2.012] MN1, [2.013] MN2, [2.014] MN3, [2.015] MN4 and [2.016] MN5 from simple text fields to structured fields ([issue #18](#))
- Fixed min occurrence and max occurrence for various Set\_X fields where they were not specified.
- Fixed max occurrence of [2.011] ORN (was 10, should be 1) ([issue #5](#), [issue #6](#) and [issue #7](#))
- Added [14.021] SEG, [14.025] ASEG and [15.021] SEG ([issue #13](#) and [issue #14](#))
- Fixed the XML samples ([issue #9](#))
- Fixed the valid examples for [1.009] TCN and [1.010] TCR ([issue #22](#))

**06.00.00** (12/03/2020) — 1<sup>st</sup> released version

- Fixed invalid regular expression for [1.009] TCN and [1.010] TCR ([issue #23](#))
- Fixed valid example for [1.013] DOM ([issue #24](#))

- Fixed the description for [2.023:X3-A] OB5 to [2.023:X3-G] OB11 ([issue #25](#))
- Added the description of ANSU Data Types ([issue #26](#) and [issue #27](#))
- Fixed valid example for [1.007] DAI
- Fixed valid example for [14.008] SLC

**06.00.01** (31/08/2020) — 2<sup>nd</sup> released version

- Changed description on second page

**06.00.02** (27/11/2024) — Updates based on decision made during the 3<sup>rd</sup> INSIWG

- Updated list of ToT ([issue #1](#))
- Corrected value range to {0..50000} for [09.300-C] 9/ROI/EHO & [09.300-D] 9/ROI/EVO ([issue #10](#))
- Corrected value range to {0..359} for [09.320-C] 9/COR/CDI & [09.321-C&D&E] 9/DEL/DUP&DFL&DRT & [09.331-C] 9/MIN/MTD ([issue #9](#), [issue #11](#), [issue #17](#), [issue #18](#) and [issue #19](#))

# 1. The History and the Spirit

In 1986 the American National Bureau of Standards published a standard to facilitate the interchange of fingerprint image information entitled “Data Format for the Interchange of Fingerprint Information” (ANSI/NBS-ICST 1-1986). Following a relatively exhaustive review procedure which included the UK Home Office together with US and Canadian law enforcement agencies, this was revised by the American National Institute of Standards and Technology (NIST) and issued as ANSI/NIST-CSL 1-1993. In 1997 the standard was expanded to handle facial images, - scar, mark and tattoo (SMT) image data. This expansion was issued as ANSI/NIST-ITL 1a-1997. In September 1998 both standards were revised and merged into the ANSI/NIST-ITL 1-2000 enhanced with additional field and record definitions.

ANSI/NIST-ITL 1-2007 and ANSI/NIST-ITL 1-2008 are major updated versions with a new format in XML. This format is defined by the W3C XML and is the most popular language used for exchanging data between remote computer systems such as an AFIS.

The present document, the INTERPOL Implementation (INT-I), has been written with the intention of supplementing the ANSI/NIST-ITL 1-2011 (Update 2015) publication for the guidance of members of the International Criminal Police Organization (INTERPOL).

INTERPOL facilitates twice a year an AFIS Expert Working Group (IAEWG) meeting where representatives from selected member countries can discuss international fingerprint exchange. Experiences are shared through real cases and best practices are discussed with needs being defined to improve the international fingerprint exchange and processing.

The ANSI/NIST INT-I standard is defined and endorsed by the IAEWG.

The INT-I has been drafted noting the following general points:

**Openness** The INT-I has been drafted to ensure openness and hence any subsequent systems using the INT-I are assured the highest level of impartiality.

**Non-intrusiveness** The INT-I has been drafted with a minimum level of mandatory requirements and many optional elements. There is no attempt to impose operational procedures and constraints onto any system which conforms to the INT-I.

**Interoperability** The INT-I allows for the transfer of fingerprint and other biometric information between different systems. However, in a situation where there is an incompatibility between the two (transmitter and receiver), it is the responsibility of the transmitter to ensure that the transmitted data is re-formatted to comply with the standard. The use of XML encoding of the data as introduced in this document further increases interoperability with formerly non INT-I enabled systems.

**Wide usage** The INT-I has been designed to encompass the exchange of a wide variety of fingerprint information, and not just that required by an AFIS.

It should be noted that the records described in the ANSI/NIST standard and INT-I are not intended for manual

entry and interpretation: rather they are intended for transmission of information between computers.

Also, the standard describes the content of the NIST file, but not how this file is transmitted from one system to another. This aspect should be covered in other system-specific documentations.

It is also important to note that some TOTs, and elements within records, may not be appropriate for certain transactions between particular agencies. For example, many agencies may not allow a remote site to add a record to its database, or there may be national legal objections to sending respondent images over a wide area network before they have been verified. However, in the spirit of open standards, and with the aim of excluding only the absolute minimum of information exchange, all such transactions are specified in INT-I but with the expectation that they could be blocked by the systems involved.

The following section describes the general structure of the ANSI/NIST standard and goes on to describe the various record types. Although this document describes a XML compatible format the nomenclature for the elements will be based on the existing previous non-XML versions of this standard. Elements are referenced through their assigned numeric value or mnemonic even though those values might never appear in a real INT-I transaction. Their use allows implementers to map data between XML and non-XML versions of the standard for conversion.

## 2. How to Apply the INTERPOL Implementation

The present document sets limits to open definitions and answers the open questions of the original standard ANSI/NIST-ITL 1-2011 (Update 2015). To this effect, this document does not repeat the well-defined parts of the underlying standard and it should be referred to for a complete definition. However, the associated XML schema defines the structure and the content of the complete XML-file. The structure and the content must be respected for a proper creation of XML-files for the international exchange.

In the following chapters, all references to “Type X” or “Fields X.XXX” are provided for reference to former tagged ANSI/NIST INT-I. These references can be used if you are looking to convert files from previous versions of the standard to this new XML version.

In conclusion, the creation of a XML-file according to the INTERPOL Implementation is done with this document, the underlying standard and the schema.

### 3. Content of the IEPD

The INTERPOL implementation for ANSI/NIST package contains the following items:

- this document;
- the XSD files describing the implementation, under the directory XMLschemas. The main xsd against which the XML must be validated is the file XMLschemas\int-i\1.0\int-i.xsd. Extracts of the relevant parts of schemas for the nc, biom, itl and iso3166 namespace elements are also included: the delivered XSD files are sufficient to validate a NIST file;
- XML sample files, found under the directory XMLsamples;
- the [Machine-readable Table \(MRT\)](#) file describing the INTERPOL format. This file serves as a reference and is used to generate this document. It is delivered as an Excel spreadsheet as well as in CSV format;
- the ANSI/NIST umbrella document this standard is derived from.

## 4. Data Conventions

### 4.1. XML Namespaces

#### 4.1.1. Forewords

This version of the INTERPOL implementation is based on the version 2.1 of the NIEM standard.

At the time of the writing of this document, only NIEM 2.1 and NIEM 3.1 were supported by ANSI/NIST umbrella and NIEM 3.1 was lacking some essential type (namely the ISO 3166-1 Alpha 3 country codes). The support of NIEM 4.0 in the umbrella standard came too late to be integrated into this version of INTERPOL's implementation.

We intend to follow if possible the new version of the NIEM standard. This could obviously lead to a new version of this implementation.

#### 4.1.2. nc

National Information Exchange Model (NIEM) core elements are basic elements taken from the NIEM standard. The definitions can be found in the file `XMLschemas/subset/niem/niem-core/2.0/niem-core.xsd` of the [Information Exchange Package Description \(IEPD\)](#). Elements in this workspace describe basic alphanumeric data such as names, locations or dates. In many cases the elements in the nc namespace are used as basis for extensions in the int-i namespace.

#### 4.1.3. biom

biom elements are elements taken from the biometric domain NIEM standard. The definitions can be found in the file `XMLschemas/subset/niem/domains/1.0/biometrics.xsd` of the [IEPD](#). Elements in this workspace describe basic biometric types, such as Fingerprint, Minutiae, ...

#### 4.1.4. itl

itl elements are taken from the ANSI/NIST-ITL 2011 Biometric Information Exchange Package. The definition can be found in the file `XMLschemas/exchange/itl.xsd` of the [IEPD](#).

#### 4.1.5. iso3166

iso3166 elements are taken from the ISO 3166-1 standard. The definition can be found in the file `XMLschemas/subset/niem/iso_3166/2.0/iso_3166.xsd` of the [IEPD](#).

#### 4.1.6. int-i

int-i elements are specific to the INTERPOL implementation of the standard. The definition can be found in the file `XMLschema/int-i/1.0/int-i.xsd` of the [IEPD](#).

## 4.2. Basic Data Types

### 4.2.1. Date and Time Types

#### nc:DateRepresentation

The base type for all date related fields is the abstract type nc:DateRepresentation. (see [NIEM core namespace](#)). Possible substitutions are nc:Date and nc:DateTime, which in turn are niem-xsd:date and niem-xsd:dateTime.

nc:Date and nc:DateTime both follow ISO 8601 format (full description can be found at this location [https://en.wikipedia.org/wiki/ISO\\_8601](https://en.wikipedia.org/wiki/ISO_8601)). This implementation nevertheless introduces two limitations:

- it is not allowed to specify milliseconds;
- it is not allowed to specify a timezone other than UTC.

Practically, this means that:

- a date should match this regular expression\*:

$\backslash d\{4\}-\backslash d\{2\}-\backslash d\{2\}$

, that is to say that the date should be expressed in the following format

$YYYY - MM - DD$

, where YYYY is the year on four digits, MM is the month on two digits and DD is the day on two digits.

- a dateTime should match this regular expression:

$\backslash d\{4\}-\backslash d\{2\}-\backslash d\{2\}T\backslash d\{2\}:\backslash d\{2\}:\backslash d\{2\}(Z)\{0,1\}$

, that is to say that the timestamp should be expressed in the following format

$YYYY - MM - DDTHH : MM : SSZ$

. The Z denotes an UTC timestamp and should not be present if the timestamp is expressed in the local time zone.

---

\*In the regular expression syntax, \d represents a digit (from 0 to 9), and the number between curly brackets represents the number of repetitions. See [https://en.wikipedia.org/wiki/Regular\\_expression](https://en.wikipedia.org/wiki/Regular_expression) for more information.

For instance, the following date and dateTime are valid:

```
2017-07-26
2017-07-26T16:48:52
2017-07-26T14:48:52Z
```

The following date and dateTime are on the other hand invalid:

```
2017-07-26T16:48
2017-07-26T16:48:52+02:00
2017-07-26T16:48:52.023
```

### 4.2.2. ISO 3166-1 Alpha-3 Country Codes Type

The base type for all country-code related fields is the ISO 3166-1 Alpha-3 standard, which assigns a unique 3-letter code to each country.

The previous version of the ANSI/NIST INTERPOL implementation (version 5.02) was using ISO 3166-1 Alpha-2. This new implementation uses the ISO 3166-1 Alpha-3 standard.

The change from Alpha-2 to Alpha-3 has been decided to avoid the ambiguities of Alpha-2, in which some codes have been recycled over time: for instance, CS originally meant Czechoslovakia, and was later assigned to Serbia and Montenegro.

For the most current code list, check <https://www.iso.org/iso-3166-country-codes.html>.

### 4.2.3. int-i ISO 3166-1 Alpha-3 Country Codes Type

This base type is an extension of above type with INTERPOL's proprietary codes. The following codes have been added to the standard list:

Table 4.1.: Extended ISO 3166-1 Alpha-3 Codes

Extended ISO Code	Organization
ZZZ <sup>1</sup>	All
XPO	INTERPOL
EPO	EUROPOL
UNO	United Nations
ICC	International Criminal Court

<sup>1</sup>The ZZZ code is not currently usable and is reserved for future usage.

### 4.2.4. int-i National Identifier Type

This base type allows to define national identifiers. It is made up of two sub-fields:

#### 4. Data Conventions

---

- an ISO 3166-1 Alpha 3 country code, denoting the country that assigned the identifier;
- the identifier itself (a free-format string), which represents the identifier as defined by the national guidelines.

Here is an example of such a national identifier:

```
<int-i:NationalPersonIdentifier>
  <int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
  <nc:IdentificationID>1234567890</nc:IdentificationID>
<int-i:NationalPersonIdentifier>
```

# 5. File Description

## 5.1. File Content

The maximal number present of each record depends on the type of transaction and the limits set by this standard. An overview is given in the following table:

Table 5.1.: File content per TOT

	CPS	ATP	MPS	NPS	SRE	ERR
Transaction Information Record (Type 1)	1	1	1	1	1	1
User-defined Descriptive Text Record (Type 2)	1	1	1	1	1	1
Minutiae Data Record (T9)	0	0	0 — 1	0	0	0
Face, other body part, or SMT Image Record (Type 10)	0 — 4*	0 — 4*	0	0 — 4*	0 — 4*	0
Friction-ridge Latent Image Record (Type 13)	0	0	1	0	0	0
Variable Resolution Fingerprint Image Record (Type 14)	1 — 14	1 — 14	0	1 — 14	0 — 14	0
Variable Resolution Palmprint Image Record (Type 15)	0 — 8	0 — 8	0	0 — 8	0 — 8	0
Source Representation Record (Type 20)	0	0	0 — 1	0	0	0

For the transmission of the data of one person, one single file is used. In INTERPOL implementation, it is not possible to send multiple persons (Type 2) in one single file, even if the ANSI/NIST standard would allow it.

For the transmission of a criminal case, only one latent image (and one source representation) is allowed to be transmitted in single file. If several latent images (Type 13) need to be sent, as many NIST files have to be created. In INTERPOL implementation, this is not possible to send multiple Type 13 and multiple Type 20, even if the ANSI/NIST standard allows it.

If the receiving system cannot handle multiple Type 10 images, then it should be made clear beforehand so that the senders can limit to one Type 10 (normally the front facial), or the receiving system can process one of the Type 10 (ideally the front pose, but without any guarantee) and silently drop the other ones.

\*this type of record supports face only

## **5.2. Implementation Domains**

As the standard allows more than the transmission of fingerprint data (i.e. also DNA), the extension of the standard has to be monitored by one single unit to assure the unity of the doctrine of this document. The IAEWG is the contact point for other working groups or member states for any issue concerning the INTERPOL Implementation.

For the sake of completeness, it is stated that this version of the INTERPOL Implementation has one exception. On grounds of importance and priority, the standard already comprises the possibility to transmit facial images only.

# 6. Record Description

## 6.1. Logical Record Types

A transaction is comprised of records. Each Record Type is defined in this standard. The following records are used in the present standard:

Table 6.1.: Logical Record Types

Record Type Identifier	Record Contents	XML-Tag
1	Transaction information record	<itl:PackageInformationRecord>
2	User-defined descriptive text record	<itl:PackageDescriptiveTextRecord>
9	Minutiae data record	<itl:PackageMinutiaeRecord>
10	Face, other body part, or SMT image record	<itl:PackageFacialAndSMTImageRecord>
13	Variable-resolution latent friction ridge image record	<itl:PackageLatentImageRecord>
14	Variable-resolution fingerprint image record	<itl:PackageFingerprintImageRecord>
15	Variable-resolution palmprint image record	<itl:PackagePalmpintImageRecord>
20	Source representation record	<itl:PackageSourceRepresentationRecord>

## 6.2. Transaction Information Record (aka Type 1)

This record contains routing information and information describing the structure of the rest of the file. This record type also defines the types of transaction and information about its transmission.

It is further described in chapter [8](#).

## 6.3. User-defined Descriptive Text Record (aka Type 2)

User-defined descriptive text record shall contain textual elements providing identification and descriptive information associated with the subject of the transaction.

In this context, the subject of the transaction can either be a person, — in this case the User-defined descriptive text conveys information about the person, the circumstances where the fingerprints were acquired...—, or a latent — in this case the User-defined descriptive text conveys information about the latent, when and why it was collected....

Data contained in this record shall conform in format and content to the specifications of the domain name as listed in Domain Name field (DOM) found in the Transaction information record.

It is further described in chapter [9](#).

## 6.4. Minutiae Data Record (aka Type 9)

Minutiae data record shall contain and be used to exchange minutiae or other friction ridge feature data. Each record shall represent the processed (automated and/or manual) image data from which the characteristics are stated. The primary use of this record type shall be for remote searching of latent prints.

It is further described in chapter [10](#).

## 6.5. Face, Other Body Part, or SMT Image Record (aka Type 10)

Face, other body part, or SMT image record shall contain and be used to exchange image data from the face, scars, (needle) marks, tattoos (SMT) and other body parts. Textual and analytic information pertinent to the digitized image is also contained in this record type. Quality of the image is of the upmost importance for use with INTERPOL's facial recognition system.

At this time, the present standard allows the transmission of facial images (up to 4) only in this record.

It is further described in chapter [11](#).

## 6.6. Variable-Resolution Latent Image Record (aka Type 13)

Variable-resolution latent image record shall contain and be used to exchange latent friction ridge image data (fingerprint, palm print) together with fixed and user defined textual information fields pertinent to the digitized image.

The transmitted image should be cropped to represent the area of a friction ridge of a single finger or palm (i.e. not finger sequences or have extraneous background detail).

The preferred scanning resolution for latent images is 39.37 ppmm (1000 ppi), but 19.68ppmm (500dpi) is still supported. The variable resolution latent image data contained in this record shall be preferably either uncompressed or may be the output from a lossless compression algorithm. Lossy compression algorithms are still supported but not recommended.

It is further described in chapter [12](#).

## 6.7. Variable-Resolution Fingerprint Image Record (aka Type 14)

Variable-resolution fingerprint image records shall contain fingerprint image data. Fixed and user-defined textual information fields pertinent to the digitized image may also be included.

## 6. Record Description

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It is strongly recommended that the resolution for fingerprint images be 39.37 ppmm (1000 ppi). It should be noted that as the resolution is increased, more detailed ridge and structure information becomes available in the fingerprint image. However, in all cases the resolution shall be at least 19.69 ppmm (500 ppi). The variable-resolution fingerprint image data contained in this record shall be in a compressed form (wsq for 500 ppi, jp2k for 1000 ppi).

The minimum size of the images is dependent of the Fingerprint Acquisition Profile. Please refer to section [13.33](#) for details.

The ANSI/NIST standard also defines a maximum practical size for the images. For convenience, this maximum size is repeated in the following table:

Table 6.2.: Practical Maximum Dimensions for Fingerprint Images

Finger position	Finger code	Max width (mm)	Max height (mm)	Max width (in)	Max height (in)
Unknown finger	0	40.6	38.1	1.6	1.5
Right thumb	1	40.6	38.1	1.6	1.5
Right index finger	2	40.6	38.1	1.6	1.5
Right middle finger	3	40.6	38.1	1.6	1.5
Right ring finger	4	40.6	38.1	1.6	1.5
Right little finger	5	40.6	38.1	1.6	1.5
Left thumb	6	40.6	38.1	1.6	1.5
Left index finger	7	40.6	38.1	1.6	1.5
Left middle finger	8	40.6	38.1	1.6	1.5
Left ring finger	9	40.6	38.1	1.6	1.5
Left little finger	10	40.6	38.1	1.6	1.5
Plain right thumb	11	25.4	76.2	1	3
Plain left thumb	12	25.4	76.2	1	3
Plain right four fingers	13	81.3	76.2	3.2	3
Plain left four fingers	14	81.3	76.2	3.2	3

It is further described in chapter [13](#).

## 6.8. Variable-Resolution Palm Print Image Record (aka Type 15)

Variable-resolution palm print image records shall contain and be used to exchange palm print image data together with fixed and user-defined textual information fields pertinent to the digitized image. It is strongly recommended that the resolution for palm print images be 39.37 ppmm (1000 ppi). It should be noted that as the resolution is increased, more detailed ridge and structure information becomes available in the image. However, in all cases the resolution shall be at least 19.69 ppmm (500 ppi). The variable-resolution palm print image data contained in this record shall be in a compressed form (wsq for 500 ppi, jp2k for 1000 ppi).

The minimum size of the images is dependent of the Palmprint Acquisition Profile. Please refer to section [14.26](#) for details.

The ANSI/NIST standard also defines a maximum practical size for the images. For convenience, this maximum size is repeated in the following table:

Table 6.3.: Practical Maximum Dimensions for Palmpoint Images

Palm position	Palm code	Max width (mm)	Max height (mm)	Max width (in)	Max height (in)
Unknown palm	20	139.7	213.0	5.5	8.5
Right full palm	21	139.7	213.0	5.5	8.5
Right writer's palm	22	44.5	127.0	1.8	5.0
Left full palm	23	139.7	213.0	5.5	8.5
Left writer's palm	24	44.5	127.0	1.8	5.0
Right lower palm	25	139.7	139.7	5.5	5.5
Right upper palm	26	139.7	139.7	5.5	5.5
Left lower palm	27	139.7	139.7	5.5	5.5
Left upper palm	28	139.7	139.7	5.5	5.5

It is further described in chapter [14](#).

## 6.9. Source Representation Record (aka Type 20)

Source representation record is designed for the exchange of images (e.g. lift showing several latents). This record shall contain and be used to exchange image data together with textual information elements pertinent to the digitized image. An extract from this image would typically form the latent image record (Type 13).

The preferred scanning resolution for source representation images is 39.37 ppmm (1000 ppi), but 19.68ppmm (500dpi) is also supported. The image data contained in this record shall be preferably either uncompressed or may be the output from a lossless compression algorithm. Lossy compression algorithms are supported but not recommended.

Images of lift should include a scale bar in the image.

It is further described in chapter [15](#).

## 7. Implementation Guidelines

### 7.1. Validating XML against INT-I Schemas

An XML file can be validated against the provided XSD using free open-source tool XMMLint, part of Libxml2 (<http://xmlsoft.org/>).

To do so, the following command must be run:

```
user@host:~/INT-I$ xmllint --schema XMLschemas/int-i/1.0/int-i.xsd --noout XMLsamples/SampleAll-FieldsINT-ITransaction.xml  
XMLsamples/SampleAll-FieldsINT-ITransaction.xml validates
```

Should an error occur, the following output will be obtained:

```
user@host:~/INT-I$ xmllint --schema XMLschemas/int-i/1.0/int-i.xsd --noout XMLsamples/SampleAll-FieldsINT-ITransaction.xml  
XMLsamples/SampleAll-FieldsINT-ITransaction.xml:146: element Date: Schemas validity error : Element '{  
    http://niem.gov/niem/niem-core/2.0}Date': '' is not a valid value of the atomic type 'xs:date'.  
XMLsamples/SampleAll-FieldsINT-ITransaction.xml:147: element DateTime: Schemas validity error :  
    Element '{http://niem.gov/niem/niem-core/2.0}DateTime': This element is not expected.  
XMLsamples/SampleAll-FieldsINT-ITransaction.xml fails to validate
```

Note that xmllint command performs the validation against the local XSD delivered as a part of the INTERPOL's Information Exchange Package Description (IEPD) even if the error messages seem to refer to their online counterparts.

### 7.2. Main Differences with the Previous INTERPOL Implementations

This section highlights the main differences between this new implementation and the previous one.

The legacy tagged record format is no longer supported in this version of the implementation. XML format only is anticipated. The prevalence of XML as an exchange format between IT systems and associated tool sets makes the use of XML much easier to implement and support over the legacy tagged formats.

**Type 2** The Type 2 has been simplified and fields that were never actually used have been removed.

In the previous version, it was possible to use the fields above 2.200 for national requirements. In this version, this can be done under a specific XPath (see [2/UDF:X2](#)).

**Type 4 vs Type 14** In this version of the implementation, the Type 4 has been replaced by Type 14 to transmit the fingerprints. Type 4 records are not supported anymore.

**Missing fingers** In the previous version of the implementation, the information regarding the missing fingers (amputated, bandaged, or damaged) was found in the Type 2, with one field (field 2.083) grouping the information for all the missing fingers.

This is no longer the case. This information is now found in the Type 14. See the [Type 14 Description](#) for the details, in particular [field 14/AMP and following fields](#).

The palms are managed in the same way: the information is found in the Type 15. See the [Type 15 Description](#) for the details, in particular [field 15/AMP and following fields](#).

**TOT** In the previous version, many different Types Of Transaction were defined. Some of them were seldomly used. In this version, the TOT have limited to the most commonly used. This also means that the file types allowed in each TOT have been adjusted. See [File Content](#) for details.

## 7.3. Limitations

This section gives a list of the limitations of INTERPOL's implementation.

These limitations have been decided to keep the implementation as simple as possible.

**NIEM 3.1 and NIEM 4.0 are not supported** INTERPOL's implementation only support NIEM 2.1: at the time of the writing of this document, only NIEM 2.1 and NIEM 3.1 were supported by ANSI/NIST umbrella standard and NIEM 3.1 was lacking some essential type (namely the ISO 3166-1 Alpha 3 country codes). The support of NIEM 4.0 in the umbrella standard came too late to be integrated into this version of INTERPOL's implementation. The integration of NIEM 4.0 will be studied later.

**Multiple Type 2 records are not supported** Even though the ANSI/NIST standard supports transmitting multiple Type 2 in a single file, this is not allowed in INTERPOL's implementation.

**Type 9 does not support legacy format minutiae and ULW annotations** Even though the ANSI/NIST standard supports transmitting legacy format minutiae and Universal Latent Workstation annotations, this is not allowed in INTERPOL's implementation.

**INCITS and EFS in Type 9** INTERPOL's implementation supports both INCITS-378 and EFS for the minutiae format. It is acceptable to use either format or both at the same time. The standard does not dictate aby particular behaviour for the receiving system if both formats are present: the receiving system might utilise only one format of the two.

**Type 10 records support facial images only** Even though the ANSI/NIST standard supports transmission of various types of images in Type 10 (such as [Scars, Marks and Tattoos \(SMT\)](#)), this is not allowed in INTERPOL's implementation which only support facial images (up to 4 images in a single NIST file).

**Multiple Type 13 records are not supported** Even though the ANSI/NIST standard supports transmitting multiple Type 13 in a single file, this is not allowed in INTERPOL's implementation.

**Type 14 records only support 1000dpi or 500dpi** Even though the ANSI/NIST standard supports transmitting images of any resolution in Type 14, INTERPOL's implementation only allows 1000dpi and 500dpi.

**Segmentation information transmission in Type 14** the umbrella standard allows to transmit the segmentation information for multiple-finger images (see [13.20](#) and [13.26](#)). INTERPOL's implementation does also but with the following limitations:

- there is no guaranty that the receiving system will use the segmentation information;
- if there is no rolled fingers in this acquisition (for instance a slap-only civil application), the segmented individual finger images must be transmitted in their own Type 14 containers;
- INTERPOL's implementation only support rectangle segmentation boxes, not arbitrary polygons.

Note that the segmentation information on the slaps images is never mandatory and the receiving system always has the possibility to recalculate the segmentation.

**Multiple Type 20 records are not supported** Even though the ANSI/NIST standard supports transmitting multiple Type 20 records in a single file, this is not allowed in INTERPOL's implementation. This also means that there is no need to specify a reference to a specific Type 20 record in Type 9 and Type 13 records.

Given the implementation limitations on Type 9 and Type 13, it is implied that if the Type 20 image contains multiple latents, you still need to send multiple files, one per latent.

**Only one candidate per SRE is allowed** To respond to a CPS or MPS transaction, INTERPOL's implementation imposes to have one SRE response per candidate. In case of multi-hit, multiple SRE NIST files must be sent.

**Namespace prefixes should not be changed** For clarity, the namespace prefixes should not be changed in the XML. That is to say that *int-i* should be used for `int-i.xsd`, *biom* for `/subset/niem/domains/1.0/biometrics.xsd`, *nc* for `/subset/niem/niem-core/2.0/niem-core.xsd`, etc... Using generic prefix such as *ns1*, *ns2*, ... is discouraged and may not be correctly interpreted by the receiving AFIS.

**Major Cases and 2-thumb images are not supported** Major cases images (also known as EJI, Entire Joint Images: images that include substantive portion of the medial or proximal segments of a finger, or the extreme tip of a fingerprint) are not supported by INTERPOL's implementation. Unsegmented 2-thumb images are not supported either: images of the plain thumbs must be sent segmented, each finger in its own Type 14 file.

**XSD are a superset of what is needed to validate INT-I implementation** The delivered XSD schemas define more types than strictly needed for INTERPOL's implementation. For instance, the XSD define plantar positions, major cases images..., which are not allowed in INTERPOL's implementation. The implementers should follow strictly what is described in this document and only use the documented types.

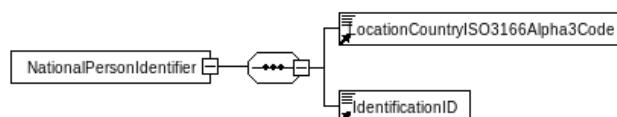
**Some constraints described in the document are not enforced by the XSD** Some constraints described in the [Machine-readable Table \(MRT\)](#) are not enforced by the XSD schemas to remain as compliant as possible with the umbrella standard. In such a case, the description of the field will clearly mention that limitation.

## 7.4. How to read the field description pages?

The following chapters of this document is mostly composed of the description of each field of each record, one page per field. Each page is presented with the same layout, which is detailed in figure 7.1. The information found on those pages comes all from the [MRT](#).

## 0.1 Criminal Reference Number (XML) - CRN

**A**



**B**

**Field Reference:** 2/CRN:X  
**Content Type:** Set\_X  
**XML Tag Name:** NationalPersonIdentifier  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:NationalIdentifierType

**Field ID:** [02.010-A\_02.010-B]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

**C**

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/ORN:X]
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=”CPS” [1/TOT]=”NPS” [1/TOT]=”ATP” [1/TOT]=”SRE” and [2/RLS/SRC]=”I” and [2/RLS/CAC]=”CPS”

**D**

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordMetadata
        ↳int-i:MisellaneousIdentification
          ↳int-i:NationalPersonIdentifier
  
```

**E**

### Summary

The Person Identifier (CRN) is a mandatory reference (if ORN is absent) and would be expected in any Person transaction. It should be unique within the country creating the reference and static (i.e. unchanging) for the person the biometrics relate to. It is traditionally an identity level reference rather than an event level reference and would be the primary key into all related information on the person within the country.

It is made up of 2 subfields: a ISO3166 Alpha-3 country code identifying the country owning the Person, and the reference number itself.

**F**

### Valid Examples

```

<int-i:NationalPersonIdentifier>
  <int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
  <nc:IdentificationID>1234567890</nc:IdentificationID>
<int-i:NationalPersonIdentifier>
  
```

Figure 7.1.: Example of a field description page

**in Zone A** of the page, a graphical representation of the XML structure of the field is displayed. If the field is a Set\_X type, the schema also displays the children of the field, allowing to see how the XML tree is layed out;

**in Zone B** of the page, various information regarding the type, presence, format... of the field are given;

**Field Reference** is XML name of the field;

**Field Id** is the name of the corresponding field in the traditional NIST format;

**Content Type** is the type of field:

- Set and Set\_X mean the field is an enclosing structure with sub-fields;
- Data, Data\_X and all other Data\_\* mean the field is a terminal field;

**Condition** is the rules governing the presence of the field. It can takes the following values:

**Mandatory** the field must be present;

**Optional** the field can be absent;

**Dependent** the presence of the field is governed by conditions depending on the value/presence/absence of other(s) field(s). These conditions are clarified in Zone C;

**Mandatory within a field** the field must be present if the enclosing field is present, but the enclosing field might not be mandatory itself;

**Optional within a field** the field can be absent, even if the enclosing field itself might be mandatory;

**XMLTagName** is the name of the tag in the XML file;

**Defined in** gives the name of the XSD file where the field is defined;

**Data Type** gives an overview of the type of data. It can take the following values:

**Type A**, alphabetic: 26 English letters, both upper and lower case, or spaces;

**Type N**, numeric: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9;

**Type AN**, alphanumeric: alphabetic and numeric;

**Type S**, special: used in combination with A, N, or AN representation to indicate Special Characters. The specific characters permitted are listed in Special characters;

**Type B or Base64**, base-64 encoded content;

**Type H**, hexadecimal: 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F;

**Type U**, unicode characters;

**Type Y**, boolean: true/false or 0/1;

**Special Characters** gives the list of the permitted special characters when the the field's Data Type is AS, NS, or ANS;

**Minimum Length and Maximum Length** is the maximum and minimum length of the Data fields;

**Minimum occurrences and Maximum occurrences** denote the number of times a field or a set can be repeated;

**Value range** limits the number of values a field can take. It can either define a discrete list of values (for instance "I", "N"), a range of values (for instance 0..99 meaning any integer from 0 included to 99 included) or a mix of the 2 (for instance 0..3,8,20..29);

**Regular expression** is the regular expression the data must validate;

**Code table** points to the list of valid codes for this field;

**Base type** is the type of the fields, as defined in the XSD files;

**Namespace** is the namespace where the type is defined.

**in Zone C** of the page, a dependency table if displayed when the field presence condition is "Dependent". This table lists the different rules that govern the presence or absence of the field.

Each row of the table represents a different condition; all the conditions (all the rows) must be validated. Inside a row, the left column describes the type of rule ("Mandatory if another field is present", "Mandatory if another field has a certain value"...), the right column clarifies the field(s) that the rule of the left column is referring to. Multiple lines in the right column can be viewed as independent condition (line 1 or line 2 or line 3).

For instance, in the example show in figure 7.1, the table is read as:  
[2/CRN] field is mandatory when

[2/ORN] is absent  
and  
[2/CRN] field is mandatory when  
[1/TOT] value is CPS  
or  
[1/TOT] value is NPS  
or  
[1/TOT] value is ATP  
or  
[1/TOT] value is SRE and [2/RLS/SRC] value is I and [2/RLS/CAC] value is CPS

**in Zone D** of the page, a representation of the XPath of the field is given. Some fields may be found at different XPath, in this case, all the possible XPath are displayed;

**in Zone E** of the page, a summary gives information about the field (mainly its purpose). Additional notes and technical notes are also displayed for certain fields, giving extra information (for instance, divergence between the ANSI-NIST umbrella standard and the INTERPOL implementation);

**in Zone F** of the page, valid examples (and for some fields invalid examples) are given.

## 7.5. INTERPOL AFIS Gateway

The current version of the AFIS Gateway does not support yet the XML implementation.

The modification of the AFIS Gateway to support this standard is not planned yet. When this is done, the AFIS Gateway should follow this standard exactly.

## *7. Implementation Guidelines*

---

Also, this standard only describes the content of the NIST file, and not how it is exchanged (via mail, web services,...). This aspects will be covered in the documentation specific to the AFIS Gateway.

## **8. Transaction Information Record (aka Type 1)**

This chapter describes all the fields that can be used in the Transaction Information Record. It first gives detailed information regarding each field, then gives an overview which focuses on the mandatoriness of each field.

## 8.1. Package Information Record (XML)

**Field Reference:** 1  
**Content Type:** Set\_X  
**XML Tag Name:** PackageInformationRecord  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** itl:PackageInformationRecordType

**Field ID:** [01]  
**Condition:** Mandatory  
**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://biometrics.nist.gov/standard/2011>

### XPath

/itl:PackageInformationRecord

### Summary

Information describing transaction.

## 8. Transaction Information Record (aka Type 1)

---



## 8.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 1/XRCC:X  
**Content Type:** Data\_X  
**XML Tag Name:** RecordCategoryCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1}  
**Code table:** n/a  
**Base type:** biom:RecordCategoryCodeType

**Field ID:** [01.001:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↴,/biom:RecordCategoryCode
```

### Summary

Numeric representation of Record Type that the associated block of XML elements represent within the overall transaction, for example 1 for Type-1 Record Type, 14 for Type-14 Record Type. The Record Types are defined within the ANSI-NIST standard.

### Valid Examples

```
<biom:RecordCategoryCode>1</biom:RecordCategoryCode>
```

### Invalid Examples

```
<biom:RecordCategoryCode>01</biom:RecordCategoryCode>
```

## 8.3. Transaction (XML)

**Field Reference:** 1/VER\_1/ANM  
**Content Type:** Set\_X  
**XML Tag Name:** Transaction  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:TransactionType

**Field ID:** [01.002\_01.017]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
```

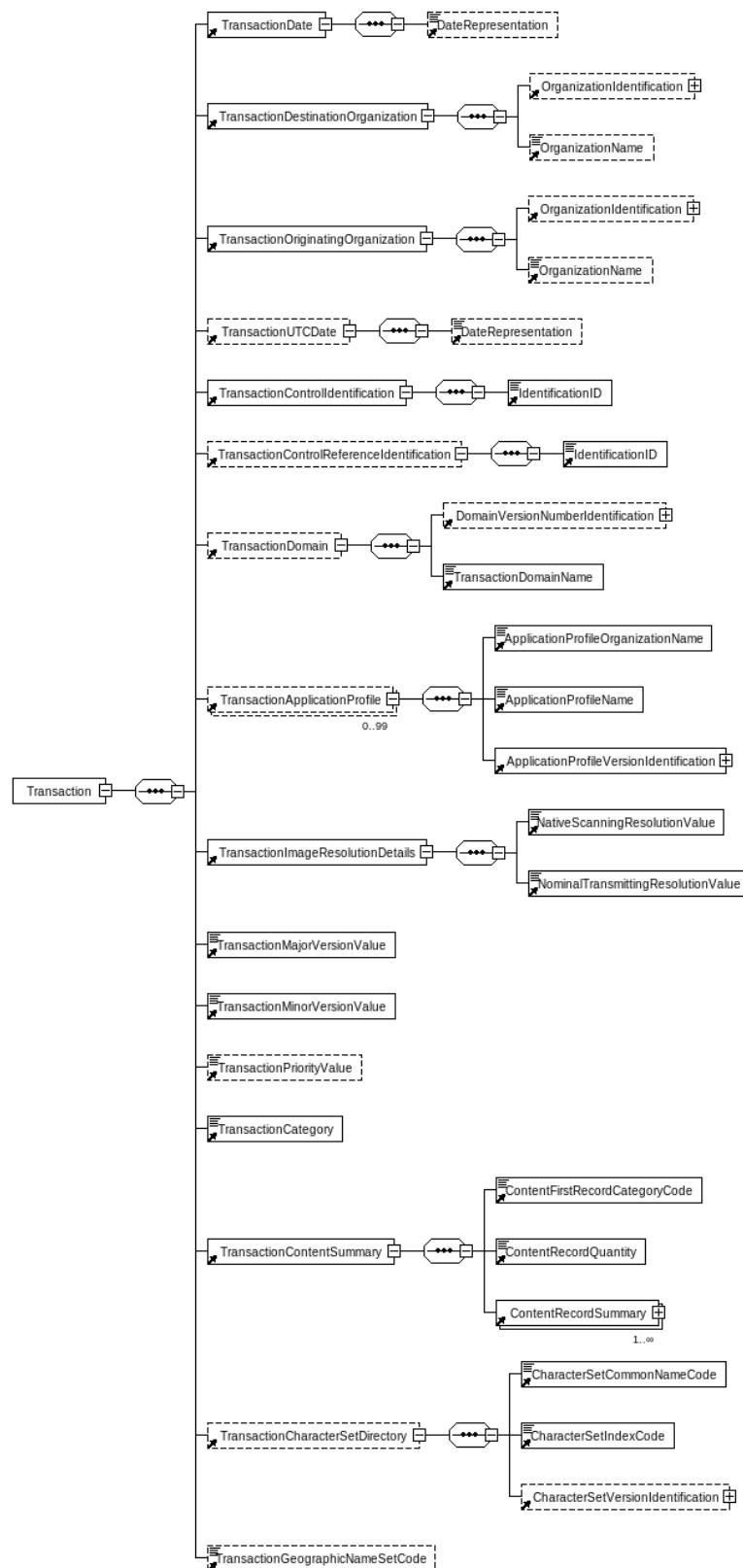
### Summary

This is the parent XML tag for detailed transaction information traditionally grouped in a Type 1 logical record.

### Notes

Applies to 1.002, 1.003, 1.004, 1.005, 1.006, 1.007, 1.008, 1.009, 1.010, 1.011, 1.012, 1.013, 1.014, 1.015, 1.016, and 1.017.

## 8. Transaction Information Record (aka Type 1)



## 8.4. Major Version - VER

### TransactionMajorVersionValue

**Field Reference:** 1/VER:X1  
**Content Type:** Data\_NX-1T  
**XML Tag Name:** TransactionMajorVersionValue  
**Data Type:** N  
**Minimum Length:** 2  
**Minimum Occurrences:** 1  
**Value range:** {05}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [01.002:X1]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionMajorVersionValue
```

### Summary

A current major version number of the ANSI/NIST-ITL standard implemented by the software or system creating the file.

### Notes

This element contains the major version number of the ANSI/NIST umbrella standard on which INTERPOL implementation is based. It must be set to “05” (which represents the 2011 ANSI NIST version and the 2013 and 2015 Updates).

### Valid Examples

```
<biom:TransactionMajorVersionValue>05<biom:TransactionMajorVersionValue>
```

## 8.5. Minor Version - VER

### TransactionMinorVersionValue

**Field Reference:** 1/VER:X2  
**Content Type:** Data\_NX-1T  
**XML Tag Name:** TransactionMinorVersionValue  
**Data Type:** N  
**Minimum Length:** 2  
**Minimum Occurrences:** 1  
**Value range:** {02}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [01.002:X2]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionMinorVersionValue
```

### Summary

A current minor version number of the ANSI/NIST-ITL standard implemented by the software or system creating the file.

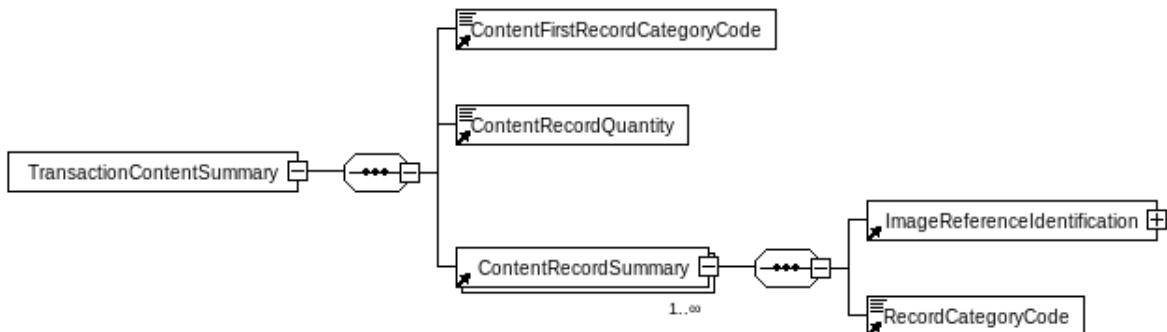
### Notes

This element contains the minor version number of the ANSI/NIST umbrella standard on which INTERPOL implementation is based. It must be set to “02” (which represents the 2015 Update of ANSI/NIST).

### Valid Examples

```
<biom:TransactionMinorVersionValue>02</biom:TransactionMinorVersionValue>
```

## 8.6. Transaction Content (XML) - CNT



**Field Reference:** 1/CNT:X  
**Content Type:** Set\_X  
**XML Tag Name:** TransactionContentSummary  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:TransactionContentSummaryType

**Field ID:** [01.003:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionContentSummary
```

### Summary

These elements provide a summary and packing list of the record contents being transmitted within the transaction.

### Valid Examples

```

<biom:TransactionContentSummary>
  <biom:ContentFirstRecordCategoryCode>1</biom:ContentFirstRecordCategoryCode>
  <biom:ContentRecordQuantity>00</biom:ContentRecordQuantity>
  <biom:ContentRecordSummary>
    <biom:ImageReferenceIdentification>
      <nc:IdentificationID>0</nc:IdentificationID>
    </biom:ImageReferenceIdentification>
    <biom:RecordCategoryCode>2</biom:RecordCategoryCode>
  </biom:ContentRecordSummary>
</biom:TransactionContentSummary>
```

## 8.7. First Record Category Code - FRC

### ContentFirstRecordCategoryCode

**Field Reference:** 1/CNT/FRC

**Content Type:** Data

**XML Tag Name:** ContentFirstRecordCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1}

**Code table:** see table [A.52](#)

**Base type:** biom:FirstRecordCategoryCodeType

**Field ID:** [01.003-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### Exceptions

see Technical Notes below

#### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionContentSummary
      ↳/biom:ContentFirstRecordCategoryCode
```

#### Summary

Indicates first record is a Type-1 record.

#### Technical Notes

This information item shall appear once and in the first subfield only.

#### Valid Examples

```
<biom:ContentFirstCategoryCode>1</biom:ContentFirstCategoryCode>
```

## 8.8. Content Record Count - CRC



**Field Reference:** 1/CNT/CRC  
**Content Type:** Data  
**XML Tag Name:** ContentRecordQuantity  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..999}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [01.003-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionContentSummary
      ↳/biom:ContentRecordQuantity
```

### Summary

Sum of Type-2 through to Type-99 records.

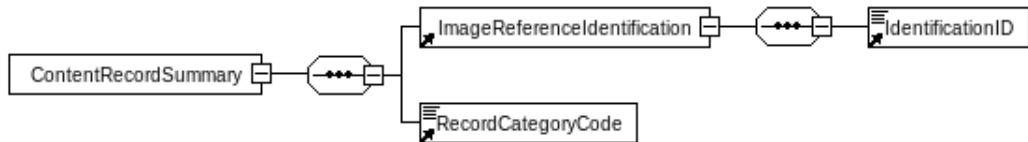
### Technical Notes

This information item shall appear once and in the first subfield only.

### Valid Examples

```
<biom:ContentRecordQuantity>13</biom:ContentRecordQuantity>
```

## 8.9. Content Record Summary (XML)



**Field Reference:** 1/CNT/REC\_1/CNT/IDC  
**Content Type:** Set\_X  
**XML Tag Name:** ContentRecordSummary  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ContentRecordSummaryType

**Field ID:** [01.003-C\_01.003-D]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionContentSummary
      ↳/biom:ContentRecordSummary
```

### Summary

A summary of the contents of each record in the transaction other than the Type 1 transaction record. There should be an instance of this for every transaction record type other than Type 1. (number of occurrences = number of records in the transaction minus 1).

### Notes

Applies to 1.003-C and 1.003-D

### Valid Examples

```
<biom:ContentRecordSummary>
  <biom:ImageReferenceIdentification>
    <nc:IdentificationID>0</nc:IdentificationID>
  </biom:ImageReferenceIdentification>
  <biom:RecordCategoryCode>2</biom:RecordCategoryCode>
</biom:ContentRecordSummary>
```

## 8.10. Record Category Code (XML) - REC

### RecordCategoryCode

**Field Reference:** 1/CNT/REC:X  
**Content Type:** Data\_X  
**XML Tag Name:** RecordCategoryCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {>1}  
**Code table:** see table A.52  
**Base type:** biom:RecordCategoryCodeType

**Field ID:** [01.003-C:X]  
**Condition:** Mandatory within a field  
**Defined in:** xsd:niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionContentSummary
      ↳/biom:ContentRecordSummary
        ↳/biom:RecordCategoryCode
```

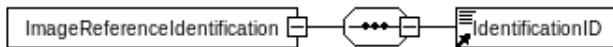
### Summary

A numeric value describing the kind of record. For example, 2 for Type-2; 14 for Type-14.

### Valid Examples

```
<biom:RecordCategoryCode>2</biom:RecordCategoryCode>
```

## 8.11. Information Designation Character (XML) - IDC



**Field Reference:** 1/CNT/IDC:X

**Content Type:** Data\_X

**XML Tag Name:** ImageReferenceIdentification

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..99}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [01.003-D:X]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionContentSummary
      ↳/biom:ContentRecordSummary
        ↳/biom:ImageReferenceIdentification
          ↳/nc:IdentificationID
```

### Summary

IDC for associated record in 1.003-C.

### Notes

Each of the records present in a transaction, with the exception of the Type-1 record, shall include a field (xx.002) containing the corresponding information designation character / IDC.

- Most frequently, IDCs are used to link a particular finger/palm/plantar image (in a Type - 4, 13, 14, 15, 19 records) with the corresponding Type-9 minutiae record.
- In ANSI/NIST umbrella implementation, two or more image records may share a single IDC only when they are enhancements of a single image; such transformations shall have identical dimensions, and shall not be distorted with respect to each other (i.e., a feature at a given position in one image shall be in the same position in the other image).

Such a thing (sharing a single IDC) is not possible in INTERPOL's implementation.

### Valid Examples

```
<biom:ImageReferenceIdentification>
  <nc:IdentificationID>0</nc:IdentificationID>
</biom:ImageReferenceIdentification>
```

## 8.12. Type of Transaction - TOT

### TransactionCategoryCode

**Field Reference:** 1/TOT

**Content Type:** Data

**XML Tag Name:** TransactionCategoryCode

**Data Type:** AS

**Minimum Length:** 3

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.60](#)

**Base type:** int-i:TransactionCategoryCodeType

**Field ID:** [01.004]

**Condition:** Mandatory

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageInformationRecord  
  ↳/bion:Transaction  
    ↳/int-i:TransactionCategoryCode
```

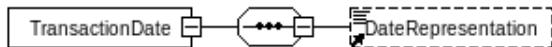
### Summary

Type of Transaction (TOT) identifier (in accordance with definitions provided by the domain or application profile).

### Valid Examples

```
<int-i:TransactionCategoryCode>ATP</int-i:TransactionCategoryCode>
```

## 8.13. Date (XML) - DAT



**Field Reference:** 1/DAT:X  
**Content Type:** Data\_X  
**XML Tag Name:** TransactionDate  
**Data Type:** NS  
**Minimum Length:** 10  
**Minimum Occurrences:** 1  
**Value range:** n/a  
  
**Code table:** n/a  
**Base type:** niem-xsd:dateTime or niem-xsd:date

**Field ID:** [01.005:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** [-]  
**Maximum Length:** 20  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}\d{2}(T\d{2}:\d{2}:\d{2}(Z){0,1}){0,1}  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionDate
      ↳/nc:Date
or
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionDate
      ↳/nc:DateTime
  
```

### Summary

Local date (and time) that the transaction was submitted.

### Notes

The date (and time) format should follow the ISO 8601 standard.

### Valid Examples

```

<biom:TransactionDate>
  <nc:Date>2007-01-01</nc:Date>
</biom:TransactionDate>
or
<biom:TransactionDate>
  <nc:DateTime>2007-01-01T01:02:03Z</nc:DateTime>
</biom:TransactionDate>
  
```

### Invalid Examples

```
<biom:TransactionDate>
  <nc:DateTime>2017-07-26T16:48</nc:DateTime>
</biom:TransactionDate>
or
<biom:TransactionDate>
  <nc:DateTime>2017-07-26T16:48:52+02:00</nc:DateTime>
</biom:TransactionDate>
or
<biom:Transactionate>
  <nc:DateTime><22017-07-26T16:48:52.023/nc:DateTime>
</biom:Transactionate>
```

## 8.14. Priority - PRY

### TransactionPriorityValue

**Field Reference:** 1/PRY  
**Content Type:** Data  
**XML Tag Name:** TransactionPriorityValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1..9}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [01.006]  
**Condition:** Optional  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionPriorityValue
```

### Summary

The urgency with which transaction response is desired.

### Notes

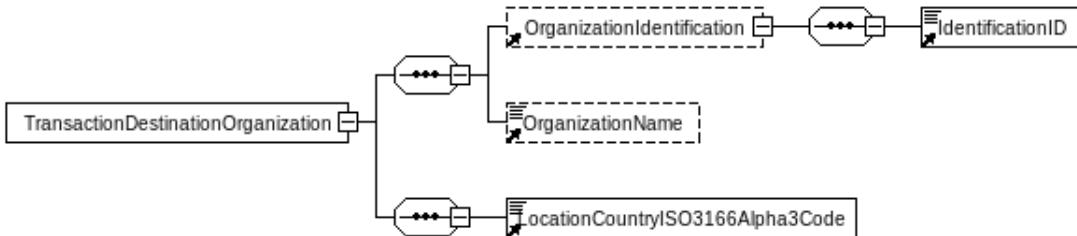
Priority is optional element and is used to assign a desired priority for the processing of the relevant transaction. The priority is a numeric value from 1 to 9, with 1 denoting the highest priority. If no priority element is assigned then the receiving systems should use a default priority, as agreed between the parties.

The priority value would be assigned by the initiator of any request transaction. The ideal behaviour is for the receiver of the request transaction to echo the priority field and associated priority value (as assigned in the request) in any associated response transactions (even if the transaction has been processed at a default priority).

### Valid Examples

```
<biom:TransactionPriorityValue>1</biom:TransactionPriorityValue>
```

## 8.15. Transaction Destination Organization (XML)



**Field Reference:** 1/DAI\_1/ANM/DAN

**Content Type:** Set\_X

**XML Tag Name:** TransactionDestinationOrganization

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:TransactionOrganizationType

**Field ID:** [01.007\_01.017-C]

**Condition:** Mandatory

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/int-i:TransactionDestinationOrganization
```

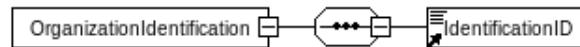
### Summary

The administration or organization designated to receive the transmission.

### Valid Examples

```
<int-i:TransactionDestinationOrganization>
  <nc:OrganizationName>BKA</nc:OrganizationName>
  <int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
</int-i:TransactionDestinationOrganization>
```

## 8.16. Destination Agency Identifier - DAI



**Field Reference:** 1/DAI

**Content Type:** Data

**XML Tag Name:** OrganizationIdentification

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:String

**Field ID:** [01.007]

**Condition:** Optional

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** ALL

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageInformationRecord  
  ↳/bim:Transaction  
    ↳/int-i:TransactionDestinationOrganization  
      ↳/nc:OrganizationIdentification  
        ↳/nc:IdentificationID
```

### Summary

An identifier for the administration or organization designated to receive the transmission

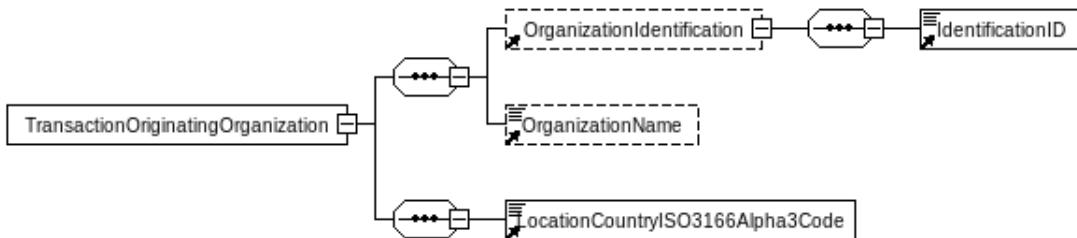
### Notes

Name of destination agency may be entered in 1.017.

### Technical Notes

This element has been kept for compatibility with the ANSI/NIST standard, but it is not used in the INTERPOL implementation. If present, it will be ignored.

## 8.17. Transaction Originating Organization (XML)



**Field Reference:** 1/ORI\_1/ANM/OAN

**Content Type:** Set\_X

**XML Tag Name:** TransactionOriginatingOrganization

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:TransactionOrganizationType

**Field ID:** [01.008\_01.017-D]

**Condition:** Mandatory

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/int-i:TransactionOriginatingOrganization
```

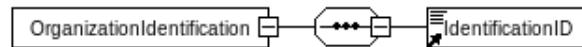
### Summary

The administration or organization designated to receive the transmission.

### Valid Examples

```
<int-i:TransactionOriginatingOrganization>
  <nc:OrganizationName>FAED</nc:OrganizationName>
  <int-i:LocationCountryISO3166Alpha3Code>FRA</int-i:LocationCountryISO3166Alpha3Code>
</int-i:TransactionOriginatingOrganization>
```

## 8.18. Originating Agency Identifier - ORI



**Field Reference:** 1/ORI

**Content Type:** Data

**XML Tag Name:** OrganizationIdentification

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:String

**Field ID:** [01.008]

**Condition:** Optional

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** ALL

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageInformationRecord  
  ↳/bim:Transaction  
    ↳/int-i:TransactionOriginatingOrganization  
      ↳/nc:OrganizationIdentification  
        ↳/nc:IdentificationID
```

### Summary

An identifier for the administration or organization originating the transmission

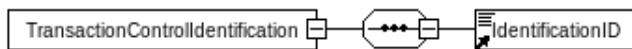
### Notes

Name of destination agency may be entered in 1.017.

### Technical Notes

This element has been kept for compatibility with the ANSI/NIST standard, but it is not used in the INTERPOL implementation. If present, it will be ignored.

## 8.19. Transaction Control Number - TCN



**Field Reference:** 1/TCN

**Content Type:** Data

**XML Tag Name:** TransactionControlIdentification

**Data Type:** AN

**Minimum Length:** 15

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:String

**Field ID:** [01.009]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 15

**Maximum Occurrences:** 1

**Regular Expression:** \d{14}[A-HJ-NP-RT-Z]

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionControlIdentification
      ↳/nc:IdentificationID
```

### Summary

Transaction control number as assigned by the originating agency. A unique control number shall be assigned to each transaction. For any transaction that requires a response, the respondent shall refer to this number in communicating with the originating agency.

### Notes

This element is a control number for reference purposes. It should be generated by the computer and shall have the following format:

YYSSSSSSSSSSSSA

where YY is the year of the transaction, SSSSSSSSSSSS is a twelve-digit serial number, and A is a check character generated by following the procedure given below. Originating agency has to ensure that the TCN is unique and that no other transaction of the agency will have the same TCN.

The number corresponding to the check character is generated using the following formula:

$$\text{checkdigit} = (YY \times 10^{12} + SSSSSSSSSSSS) \bmod 23$$

where YY and SSSSSSSSSSSS are the numerical values of the last two digits of the year and the serial number respectively.

The check character is then generated from this table:

## 8. Transaction Information Record (aka Type 1)

---

Check digit	Check character	Check digit	Check character	Check digit	Check character
1	A	9	J	17	T
2	B	10	K	18	U
3	C	11	L	19	V
4	D	12	M	20	W
5	E	13	N	21	X
6	F	14	P	22	Y
7	G	15	Q	0	Z
8	H	16	R		

### Technical Notes

The TCN format of the INTERPOL's implementation diverges from the ANSI/NIST standard by not allowing special characters.

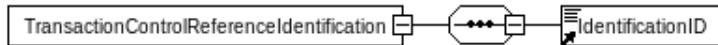
### Valid Examples

```
<biom:TransactionControlIdentification>
    <nc:IdentificationID>19125458357684J</nc:IdentificationID>
</biom:TransactionControlIdentification>
```

### Invalid Examples

```
<biom:TransactionControlIdentification>
    <nc:IdentificationID>11045467866</nc:IdentificationID>
</biom:TransactionControlIdentification>
or
<biom:TransactionControlIdentification>
    <nc:IdentificationID>19125458357684A</nc:IdentificationID>
</biom:TransactionControlIdentification>
```

## 8.20. Transaction Control Reference Number - TCR



**Field Reference:** 1/TCR

**Content Type:** Data

**XML Tag Name:** TransactionControlReferenceIdentification

**Data Type:** AN

**Minimum Length:** 15

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:String

**Field ID:** [01.010]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 15

**Maximum Occurrences:** 1

**Regular Expression:** \d{14}[A-HJ-NP-RT-Z]

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT ]="SRE" [1/TOT ]="ERR"

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionControlReferenceIdentification
      ↳/nc:IdentificationID
```

### Summary

TCN of a previously submitted transaction (used for responses only).

### Notes

This element shall be used for responses that refer to the TCN of a previous transaction involving an inquiry or other action that required a response. It therefore has the same format as TCN (Field 1.009).

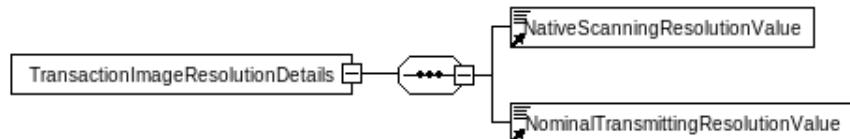
### Valid Examples

```
<biom:TransactionControlReferenceIdentification>
  <nc:IdentificationID>19125458357683H</nc:IdentificationID>
</biom:TransactionControlReferenceIdentification>
```

### Invalid Examples

```
<biom:TransactionControlIdentification>
  <nc:IdentificationID>11045467866</nc:IdentificationID>
</biom:TransactionControlIdentification>
or
<biom:TransactionControlIdentification>
  <nc:IdentificationID>19125458357684A</nc:IdentificationID>
</biom:TransactionControlIdentification>
```

## 8.21. Transaction Image Resolution Details (XML)



**Field Reference:** 1/NSR\_1/NTR

**Content Type:** Set\_X

**XML Tag Name:** TransactionImageResolutionDetails

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:ImageResolutionType

**Field ID:** [01.011\_01.012]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionImageResolutionDetails
```

### Summary

A set of resolution values in pixels per mm for a transaction.

### Notes

The image resolution details contain the Native Scanning Resolution (Field 1.011, NSR) and the Nominal Transmitting Resolution (Field 1.012, NTR). The values are set to '00.00'.

### Valid Examples

```
<biom:TransactionImageResolutionDetails>
  <biom:NativeScanningResolutionValue>00.00</biom:NativeScanningResolutionValue>
  <biom:NominalTransmittingResolutionValue>00.00</biom:NominalTransmittingResolutionValue>
</biom:TransactionImageResolutionDetails>
```

## 8.22. Native Scanning Resolution (XML) - NSR

### NativeScanningResolutionValue

**Field Reference:** 1/NSR:X

**Content Type:** Data\_X

**XML Tag Name:** NativeScanningResolutionValue

**Data Type:** NS

**Minimum Length:** 4

**Minimum Occurrences:** 1

**Value range:** {00.00}

**Code table:** n/a

**Base type:** niem-xsd:decimal

**Field ID:** [01.011:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** []

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** \d{1,2}\.\d{2}

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### Exceptions

see Technical Notes below

#### XPath

```
/it1:PackageInformationRecord  
  ↳/biom:Transaction  
    ↳/biom:TransactionImageResolutionDetails  
      ↳/biom:NativeScanningResolutionValue
```

#### Summary

A native resolution of transaction originator's scanning equipment.

#### Technical Notes

Set to "00.00" if there are no Type-4 records in the transaction. This field does not apply to Type-7 records in this version of the standard unless specified as such by the domain or application profile.

#### Valid Examples

```
<biom:NativeScanningResolutionValue>00.00</biom:NativeScanningResolutionValue>
```

## 8.23. Nominal Resolution (XML) - NTR

### NominalTransmittingResolutionValue

**Field Reference:** 1/NTR:X  
**Content Type:** Data\_X  
**XML Tag Name:** NominalTransmittingResolutionValue  
**Data Type:** NS  
**Minimum Length:** 4  
**Minimum Occurrences:** 1  
**Value range:** {00.00}  
**Code table:** n/a  
**Base type:** niem-xsd:decimal

**Field ID:** [01.012:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** []  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{1,2}\.\d{2}  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionImageResolutionDetails
      ↳/biom:NominalTransmittingResolutionValue
```

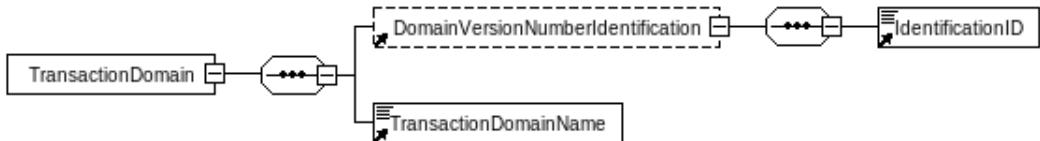
### Summary

Nominal scanning resolution of image(s) being exchanged.

### Valid Examples

```
<biom:NominalTransmittingResolutionValue>00.00</biom:NominalTransmittingResolutionValue>
```

## 8.24. Domain Name - DOM



**Field Reference:** 1/DOM  
**Content Type:** Set  
**XML Tag Name:** TransactionDomain  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:TransactionDomainType

**Field ID:** [01.013]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionDomain
```

### Summary

Domain name for Type-2 record implementation.

### Notes

Even though the XSD declares this field as optional, it must be specified in the INTERPOL implementation.

The domain name is “INT-I”, the domain version number “XXYY” (XX for major revision, YY for minor revision). The domain version represents the current INTERPOL implementation.

The current domain version for this implementation is “0600”.

### Valid Examples

```
<biom:TransactionDomain>
  <biom:DomainVersionNumberIdentification>
    <nc:IdentificationID>0600</nc:IdentificationID>
  </biom:DomainVersionNumberIdentification>
  <biom:TransactionDomainName>INT-I</biom:TransactionDomainName>
</biom:TransactionDomain>
```

## 8.25. Domain Name - DNM

### TransactionDomainName

**Field Reference:** 1/DOM/DNM  
**Content Type:** Data  
**XML Tag Name:** TransactionDomainName  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [01.013-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** ALL  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionDomain
      ↳/biom:TransactionDomainName
```

### Summary

Uniquely identifies agency, entity, or implementation used for formatting the fields of the Type-2 record.

### Notes

The domain name must be set to “INT-I”, representing the INTERPOL implementation.

### Valid Examples

```
<biom:TransactionDomainName>INT-I</biom:TransactionDomainName>
```

## 8.26. Domain Version Number - DVN



**Field Reference:** 1/DOM/DVN

**Content Type:** Data

**XML Tag Name:** DomainVersionNumberIdentification

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [01.013-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** ALL

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionDomain
      ↳/biom:DomainVersionNumberIdentification
        ↳/nc:IdentificationID
```

### Summary

Unique version of the particular implementation.

### Notes

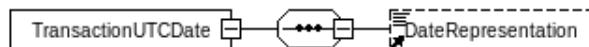
Even though the XSD declares this field as optional, it must be specified in the INTERPOL implementation.

The domain version must be set to “0600”, representing major version 6 and minor version 00 of the INTERPOL implementation.

### Valid Examples

```
<biom:DomainVersionNumberIdentification>
  <nc:IdentificationID>0600</nc:IdentificationID>
</biom:DomainVersionNumberIdentification>
```

## 8.27. Greenwich Mean Time (XML) - GMT



**Field Reference:** 1/GMT:X  
**Content Type:** Data\_X  
**XML Tag Name:** TransactionUTCDate  
**Data Type:** ANS  
**Minimum Length:** 20  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:date

**Field ID:** [01.014:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** [:]  
**Maximum Length:** 20  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionUTCDate
      ↳/nc:DateTime
```

### Summary

Optional field with transaction date and time expressed in terms of Greenwich Mean Time units.

### Notes

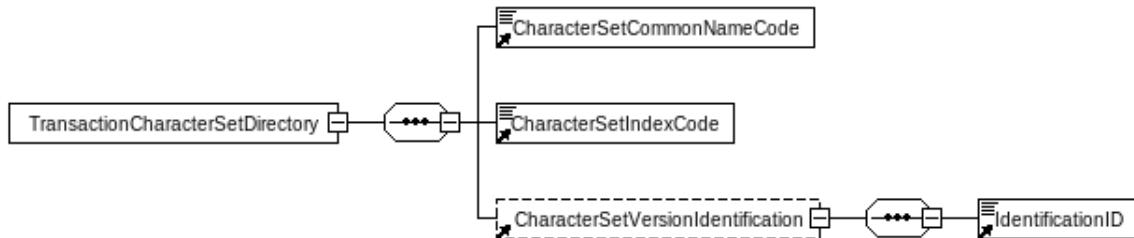
UTC has replaced GMT as the main reference time scale terminology, but the older terminology is retained in this standard for existing record types. In this standard, field 1.014 shall be taken to mean the UTC value.

Even though the xsd allows to specify a Date instead of a DateTime, DateTime should be preferred.

### Valid Examples

```
<biom:TransactionUTCDate>
  <nc:DateTime>2007-01-01T00:00:01Z</nc:DateTime>
</biom:TransactionUTCDate>
```

## 8.28. Character Encoding - DCS



**Field Reference:** 1/DCS

**Content Type:** Set

**XML Tag Name:** TransactionCharacterSetDirectory

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:TransactionCharacterSetType

**Field ID:** [01.015]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionCharacterSetDirectory
```

### Summary

Specifies the character encoding that may appear within this transaction for data with the character type listed as "U" or 'user-defined' in the record format tables.

### Notes

The default encoding and the only supported one. It is therefore not needed to fill up this field.

Moreover, it should be noted that the fact that the INTERPOL implementation of ANSI/NIST supports UTF-8 character encoding does not imply that the receiving AFIS will also support it. It is hence advised to restrict the characters used to the ASCII ones.

When non-ASCII characters need to be transmitted:

- the UTF-8 encoding should be used. Other encoding (such as latin-1) are not supported;
- the capacities of the receiving system must be checked beforehand.

**Valid Examples**

```
<biom:TransactionCharacterSetDirectory>
    <biom:CharacterSetCommonNameCode>UTF-8</biom:CharacterSetCommonNameCode>
    <biom:CharacterSetIndexCode>0</biom:CharacterSetIndexCode>
    <biom:CharacterSetVersionIdentification>
        <nc:IdentificationID>000</nc:IdentificationID>
    </biom:CharacterSetVersionIdentification>
</biom:TransactionCharacterSetDirectory>
```

## 8.29. Character Encoding Set Index - CSI



**Field Reference:** 1/DCS/CSI

**Content Type:** Data

**XML Tag Name:** CharacterSetIndexCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..4,128..999}

**Code table:** see table A.12 \*

**Base type:** biom:CharacterSetIndexCodeType

**Field ID:** [01.015-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord  
  ↳/biom:Transaction  
    ↳/biom:TransactionCharacterSetDirectory  
      ↳/biom:CharacterSetIndexCode
```

### Summary

A character set index number that references an associated character set throughout a transaction.

### Valid Examples

```
<biom:CharacterSetIndexCode>0</biom:CharacterSetIndexCode>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 8.30. Character Encoding Set Name - CSN

### CharacterSetCommonNameCode

**Field Reference:** 1/DCS/CSN

**Content Type:** Data

**XML Tag Name:** CharacterSetCommonNameCode

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table A.13 \*

**Base type:** biom:CharacterSetCommonNameCodeType

**Field ID:** [01.015-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** ALL

**Maximum Length:** 16

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord  
  ↳/biom:Transaction  
    ↳/biom:TransactionCharacterSetDirectory  
      ↳/biom:CharacterSetCommonNameCode
```

### Summary

A common name for the character set associated with index number.

### Valid Examples

```
<biom:CharacterSetCommonNameCode>UTF-8</biom:CharacterSetCommonNameCode>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 8.31. Character Encoding Set Version - CSV



**Field Reference:** 1/DCS/CSV

**Content Type:** Data

**XML Tag Name:** CharacterSetVersionIdentification

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [01.015-C]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** ALL

**Maximum Length:** 16

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord  
  ↳/biom:Transaction  
    ↳/biom:TransactionCharacterSetDirectory  
      ↳/biom:CharacterSetVersionIdentification  
        ↳/nc:IdentificationID
```

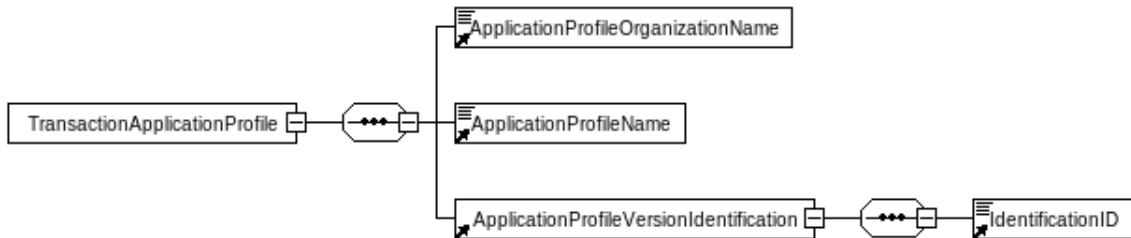
### Summary

Specific version of the character encoding used.

### Valid Examples

```
<biom:CharacterSetVersionIdentification><nc:Identification>000</nc:Identification></biom:CharacterSetVersionIdentification>
```

## 8.32. Application Profile Specifications - APS



**Field Reference:** 1/APS

**Content Type:** Set

**XML Tag Name:** TransactionApplicationProfile

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:TransactionApplicationProfileType

**Field ID:** [01.016]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 0

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionApplicationProfile
```

### Summary

Transaction's conformance with one or more specifications derived from specific implementations of ANSI/NIST (e.g., EBTS, INT-I, etc.)

### Technical Notes

This field is not to be used in the INTERPOL's implementation as no profiles have been defined and should not be specified.

### 8.33. Application Profile Organization - APO

#### ApplicationProfileOrganizationName

**Field Reference:** 1/APS/APO

**Content Type:** Data

**XML Tag Name:** ApplicationProfileOrganizationName

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [01.016-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** ALL

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageInformationRecord  
  ↳/biom:Transaction  
    ↳/biom:TransactionApplicationProfile  
      ↳/biom:ApplicationProfileOrganizationName
```

#### Summary

Agency or entity responsible for specification.

## 8.34. Application Profile Name - APN

### ApplicationProfileName

**Field Reference:** 1/APS/APN  
**Content Type:** Data  
**XML Tag Name:** ApplicationProfileName  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [01.016-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** ALL  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/biom:Transaction
    ↳/biom:TransactionApplicationProfile
      ↳/biom:ApplicationProfileName
```

### Summary

Name of specification.

## 8.35. Application Profile Version Number - APV



**Field Reference:** 1/APS/APV

**Content Type:** Data

**XML Tag Name:** ApplicationProfileVersionIdentification

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [01.016-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** ALL

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageInformationRecord  
  ↳/biom:Transaction  
    ↳/biom:TransactionApplicationProfile  
      ↳/biom:ApplicationProfileVersionIdentification  
        ↳/nc:IdentificationID
```

### Summary

Specific version of specification.

## 8.36. Destination Agency Name - DAN



**Field Reference:** 1/ANM/DAN

**Content Type:** Data

**XML Tag Name:** OrganizationName

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [01.017-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** ALL

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageInformationRecord  
  ↳/bion:Transaction  
    ↳/int-i:TransactionDestinationOrganization  
      ↳/nc:OrganizationName
```

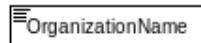
### Summary

Name of the administration or organization designated to receive the transmission

### Valid Examples

```
<nc:OrganizationName>BKA</nc:OrganizationName>
```

## 8.37. Originating Agency Name - OAN



**Field Reference:** 1/ANM/OAN

**Content Type:** Data

**XML Tag Name:** OrganizationName

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [01.017-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** ALL

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageInformationRecord  
  ↳/bion:Transaction  
    ↳/int-i:TransactionOriginatingOrganization  
      ↳/nc:OrganizationName
```

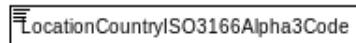
### Summary

Name of the administration or organization originating the transmission

### Valid Examples

```
<nc:OrganizationName>FAED</nc:OrganizationName>
```

## 8.38. Destination Agency Country Code - DAC



**Field Reference:** 1/ANM/DAC  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCountryISO3166Alpha3Code  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [int-i:ISO3166Alpha3CodeType](#)

**Field ID:** [01.017-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/bion:Transaction
    ↳/int-i:TransactionDestinationOrganization
      ↳/int-i:LocationCountryISO3166Alpha3Code
```

### Summary

ISO 3166-1 Alpha-3 Country code of the administration or organization designated to receive the transmission

### Notes

The country code is defined in ISO 3166-1 Alpha-3, extended with INTERPOL specific codes (see [4.2.3](#)).

### Valid Examples

```
<int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
```

## 8.39. Originating Agency Country Code - OAC



**Field Reference:** 1/ANM/OAC  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCountryISO3166Alpha3Code  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [int-i:ISO3166Alpha3CodeType](#)

**Field ID:** [01.017-D]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageInformationRecord
  ↳/bion:Transaction
    ↳/int-i:TransactionOriginatingOrganization
      ↳/int-i:LocationCountryISO3166Alpha3Code
```

### Summary

ISO 3166-1 Alpha-3 Country code of the administration or organization originating the transmission

### Notes

The country code is defined in ISO 3166-1 Alpha-3, extended with INTERPOL specific codes (see [4.2.3](#)).

### Valid Examples

```
<int-i:LocationCountryISO3166Alpha3Code>FRA</int-i:LocationCountryISO3166Alpha3Code>
```

## 8.40. Geographical Name Set - GNS

### TransactionGeographicNameSetCode

**Field Reference:** 1/GNS

**Content Type:** Data\_X

**XML Tag Name:** TransactionGeographicNameSetCode

**Data Type:** A

**Minimum Length:** 3

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:TransactionGeographicNameSetCodeType

**Field ID:** [01.018]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 0

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### Exceptions

see Technical Notes below

#### XPath

```
/itl:PackageInformationRecord  
  ↳/biom:Transaction  
    ↳/biom:TransactionGeographicNameSetCode
```

#### Summary

This optional field is used if the transaction uses GENC in lieu of ISO 3166-1 as a code set for country code specifications.

#### Technical Notes

This field is not to be used in INTERPOL's implementation, as only ISO 3166-1 is supported. It should not be present.

## 8.41. Field Mandatoriness in Transaction Information Record

The following table shows a summary of the fields and information items in Transaction Information Record (Type 1), and in particular the fields and items that are mandatory.

Table 8.1.: Field Summary for Type 1 Records

Field Ref	Description	CPS	PPS	PUS	CCS	UPS	UUS	ATP	ATC	DFP	DFC	BDQ	ACKSRE	ERR	BDR	PMS	MPS	MMS
1	Package Information Record (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/XRCC:X	XML Record Category Code	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/VER_1/ANM	Transaction (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/VER:X1	Major Version	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/VER:X2	Minor Version	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/CNT:X	Transaction Content (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/CNT/FRC	First Record Category Code	M^	M^	M^	M^	M^	M^											
1/CNT/CRC	Content Record Count	M^	M^	M^	M^	M^	M^											
1/CNT/REC_1/CNT/IDC	Record Summary (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/CNT/REC:X	Record Category Code (XML)	M^	M^	M^	M^	M^	M^											
1/CNT/IDC:X	Information Designation Character (XML)	M^	M^	M^	M^	M^	M^											
1/TOT	Type of Transaction	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/DAT:X	Date (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/PRY	Priority	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
1/DAI_1/ANM/DAI	Destination Organization (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/DAI	Destination Agency Identifier	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
1/ORI_1/ANM/DAI	Originating Organization (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/ORI	Originating Agency Identifier	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
1/TCN	Transaction Control Number	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1/TCR	Transaction Control Reference Number	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

## 8. Transaction Information Record (aka Type 1)

Table 8.1.: Field Summary for Type 1 Records

Field Ref	Description	CPS	PPS	PUS	CCS	UPS	UUS	ATP	ATC	DFP	DFC	BDQ	ACK	SRE	ERR	BDR	PMS	MPS	SMMS
1/NSR_1/NTR	Transaction Image Resolution Details (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
1/NSR:X	Native Scanning Resolution (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
1/NTR:X	Nominal Resolution (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
1/DOM	Domain Name	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
1/DOM/DNM	Domain Name	M^																	
1/DOM/DVN	Domain Version Number	M^																	
1/GMT:X	Greenwich Mean Time (XML)	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
1/DCS	Character Encoding	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
1/DCS/CSI	Character Encoding Set Index	M^																	
1/DCS/CSN	Character Encoding Set Name	M^																	
1/DCS/CSV	Character Encoding Set Version	O^																	
1/APS	Application Profile Specifications	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
1/APS/APO	Application Profile Organization	M^																	
1/APS/APN	Application Profile Name	M^																	
1/APS/APV	Application Profile Version Number	M^																	
1/ANM/DAN	Destination Agency Name	M^																	
1/ANM/OAN	Originating Agency Name	M^																	
1/ANM/DAC	Destination Agency Country Code	M^																	
1/ANM/OAC	Originating Agency Country Code	M^																	
1/GNS	Geographical Name Set	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

## 8.42. Type of Record Mandatoriness Depending on the TOT Value

Depending on the type of transaction, the structure of the message will vary. The following table shows the relation between a type of transaction and mandatory or optional presence of the different types of records.

Table 8.2.: Relation between types of transaction and record types

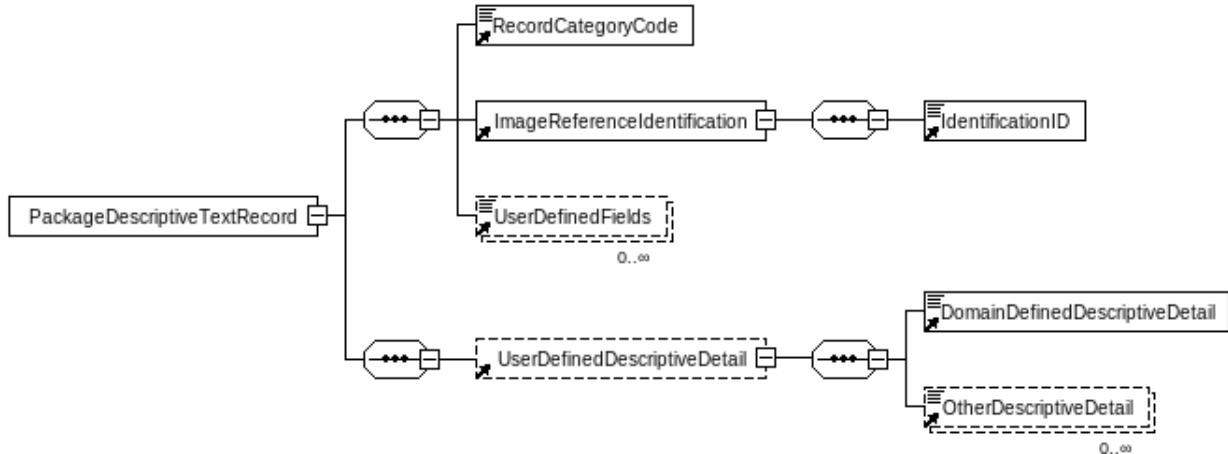
TOT	Type 1	Type 2	Type 9	Type 10	Type 13	Type 14	Type 15	Type 20
ATP	M	M		O		M	O	
CPS	M	M		O		M	O	
NPS	M	M		O		M	O	
MPS	M	M	O		M			O
SRE	M	M		O		O	O	
ERR	M	M						

M=Mandatory, O=Optional

## 9. User-defined Descriptive Text Record (aka Type 2)

This chapter describes all the fields that are used in the User-defined Descriptive Text Record. It first gives detailed information regarding each field, then gives an overview which focuses on the mandatoriness of each field.

## 9.1. Package Descriptive Text Record (XML)



**Field Reference:** 2  
**Content Type:** Set\_X  
**XML Tag Name:** PackageDescriptiveTextRecord  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** itl:PackageDescriptiveTextRecordType

**Field ID:** [02]  
**Condition:** Optional  
**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://biometrics.nist.gov/standard/2011>

### XPath

/itl:PackageDescriptiveTextRecord

### Summary

Textual information relating to the subject of the transaction.

### Notes

Even though the ANSI-NIST standard and the xsd would allow multiple Type 2 records to be packed in a single XML file, INTERPOL's implementation only allow one Type 2.

## 9.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 2/XRCC:X  
**Content Type:** Data\_X  
**XML Tag Name:** RecordCategoryCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {2}  
**Code table:** n/a  
**Base type:** biom:RecordCategoryCodeType

**Field ID:** [02.001:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↴,/biom:RecordCategoryCode
```

### Summary

Numeric representation of Record Type that the associated block of XML elements represent within the overall transaction, for example 1 for Type-1 Record Type, 14 for Type-14 Record Type. The Record Types are defined within the ANSI-NIST standard.

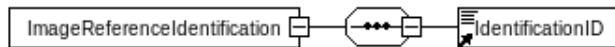
### Valid Examples

```
<biom:RecordCategoryCode>2</biom:RecordCategoryCode>
```

### Invalid Examples

```
<biom:RecordCategoryCode>02</biom:RecordCategoryCode>
```

### 9.3. Information Designation Character - IDC



**Field Reference:** 2/IDC  
**Content Type:** Data  
**XML Tag Name:** ImageReferenceIdentification  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..99}  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.002]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/bion:ImageReferenceIdentification
    ↳/nc:IdentificationID
```

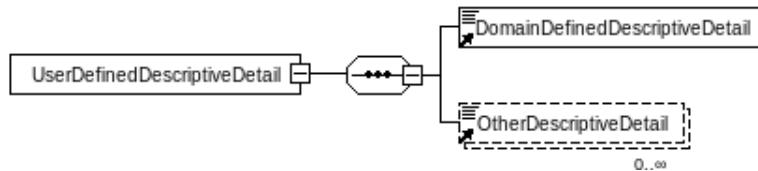
#### Summary

IDC assigned in 1.003-D to this Type-2 record.

#### Valid Examples

```
<bion:ImageReferenceIdentification><nc:IdentificationID>0</nc:IdentificationID></bion:ImageReferenceIdentification>
```

## 9.4. User-Defined Fields - UDF



**Field Reference:** 2/UDF

**Content Type:** Set

**XML Tag Name:** UserDefinedDescriptiveDetail

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** itl:UserDefinedDescriptiveDetailType

**Field ID:** [02.003\_02.999]

**Condition:** Mandatory

**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://biometrics.nist.gov/standard/2011>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳itl:UserDefinedDescriptiveDetail
```

### Summary

A set of user-defined descriptive information about the transaction.

## 9.5. Domain-Defined Fields

**Field Reference:** 2/UDF:X1  
**Content Type:** Set\_X  
**XML Tag Name:** DomainDefinedDescriptiveDetail  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:DomainDefinedDescriptiveDetailType

**Field ID:** [02.003\_02.999:X1]  
**Condition:** Mandatory  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

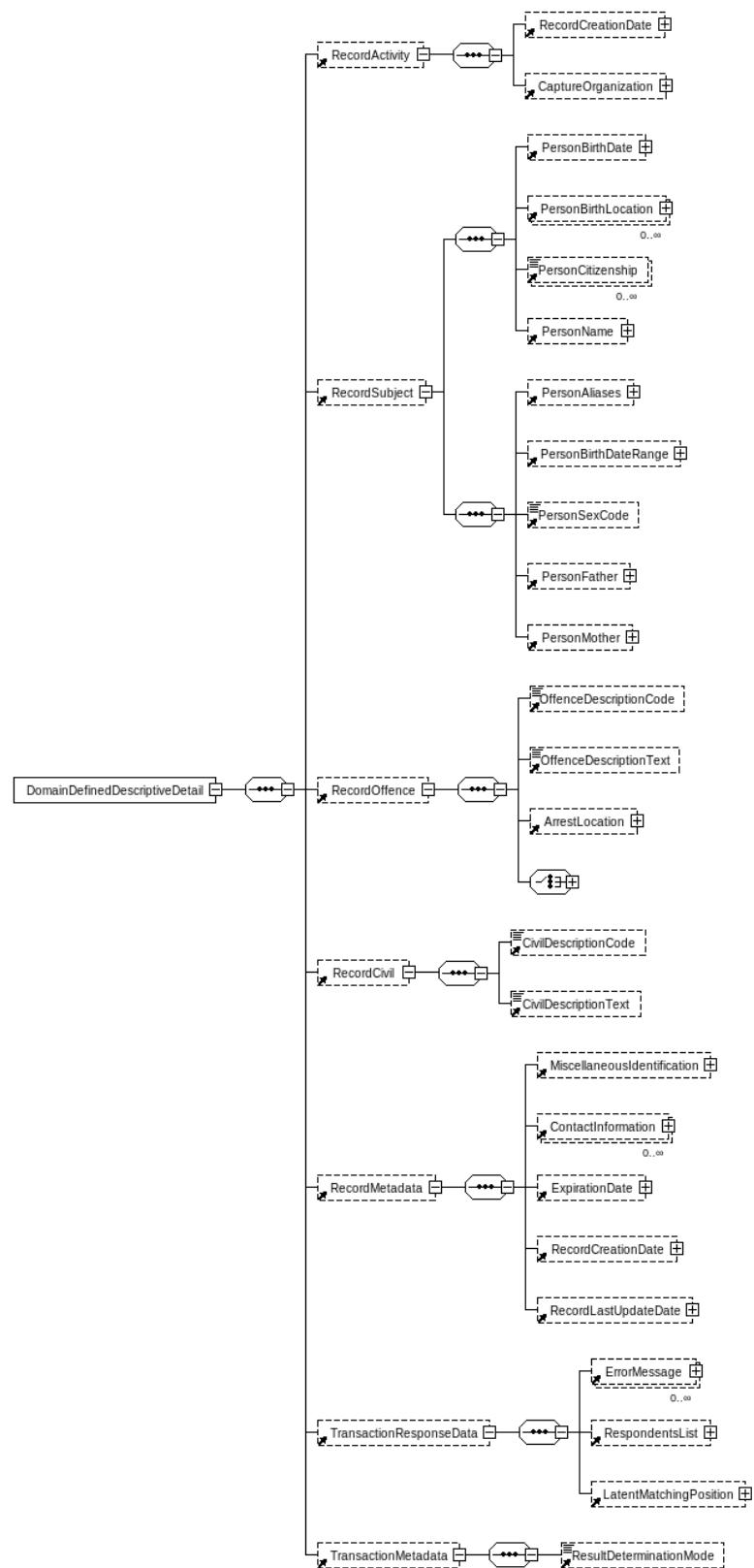
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
```

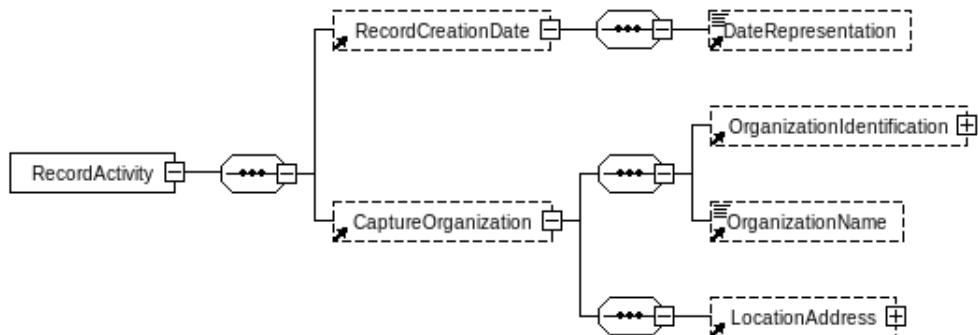
### Summary

INTERPOL's Domain descriptive information about the transaction.

## 9. User-defined Descriptive Text Record (aka Type 2)



## 9.6. Record Activity Fields



**Field Reference:** 2/UDF:X1/RAC  
**Content Type:** Set\_X  
**XML Tag Name:** RecordActivity  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:RecordActivityType

**Field ID:** [02.003\_02.999:X1-A]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
  
```

### Summary

Record Activity groups all the elements related to where and when the record was created.

## 9.7. Record Subject Fields

**Field Reference:** 2/UDF:X1/RSU  
**Content Type:** Set\_X  
**XML Tag Name:** RecordSubject  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:RecordSubjectType

**Field ID:** [02.003\_02.999:X1-B]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

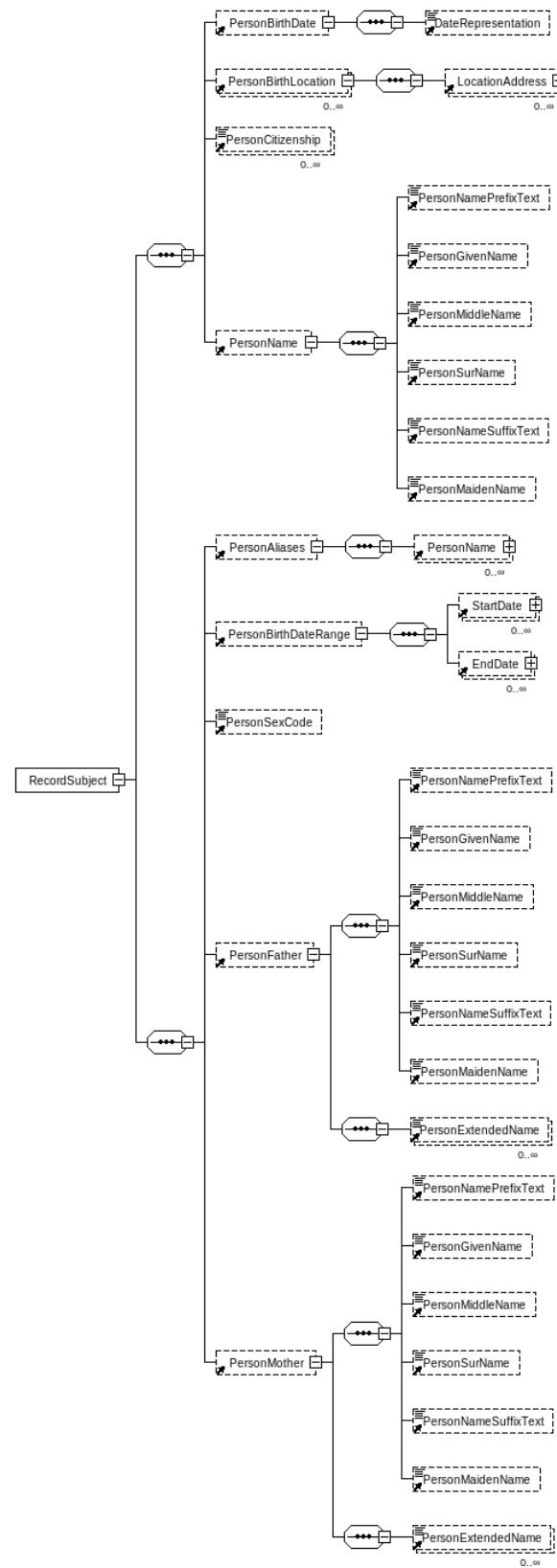
```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
```

### Summary

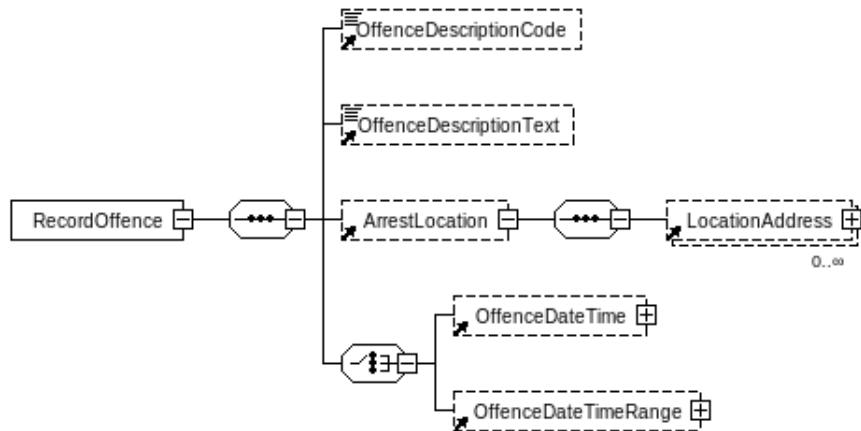
Record Subject groups all the alpha-numeric elements related to the person or latent.

## 9. User-defined Descriptive Text Record (aka Type 2)

---



## 9.8. Record Offence Fields



**Field Reference:** 2/UDF:X1/ROF  
**Content Type:** Set\_X  
**XML Tag Name:** RecordOffence  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:RecordOffenceType

**Field ID:** [02.003\_02.999:X1-C]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[1/TOT]=”CPS” [1/TOT]=”MPS” [1/TOT]=”ATP”

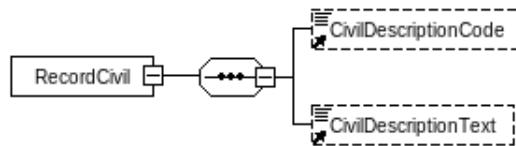
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
```

### Summary

Record Offence groups all the elements related to the reason for the criminal application.

## 9.9. Record Civil Fields



**Field Reference:** 2/UDF:X1/RCI  
**Content Type:** Set\_X  
**XML Tag Name:** RecordCivil  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:RecordCivilType

**Field ID:** [02.003\_02.999:X1-D]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table	
Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[1/TOT] = “NPS”

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordCivil
```

### Summary

Record Civil groups all the elements related to the reason for the non-criminal application.

## 9.10. Record Metadata Fields

**Field Reference:** 2/UDF:X1/RME  
**Content Type:** Set\_X  
**XML Tag Name:** RecordMetadata  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:RecordMetadataType

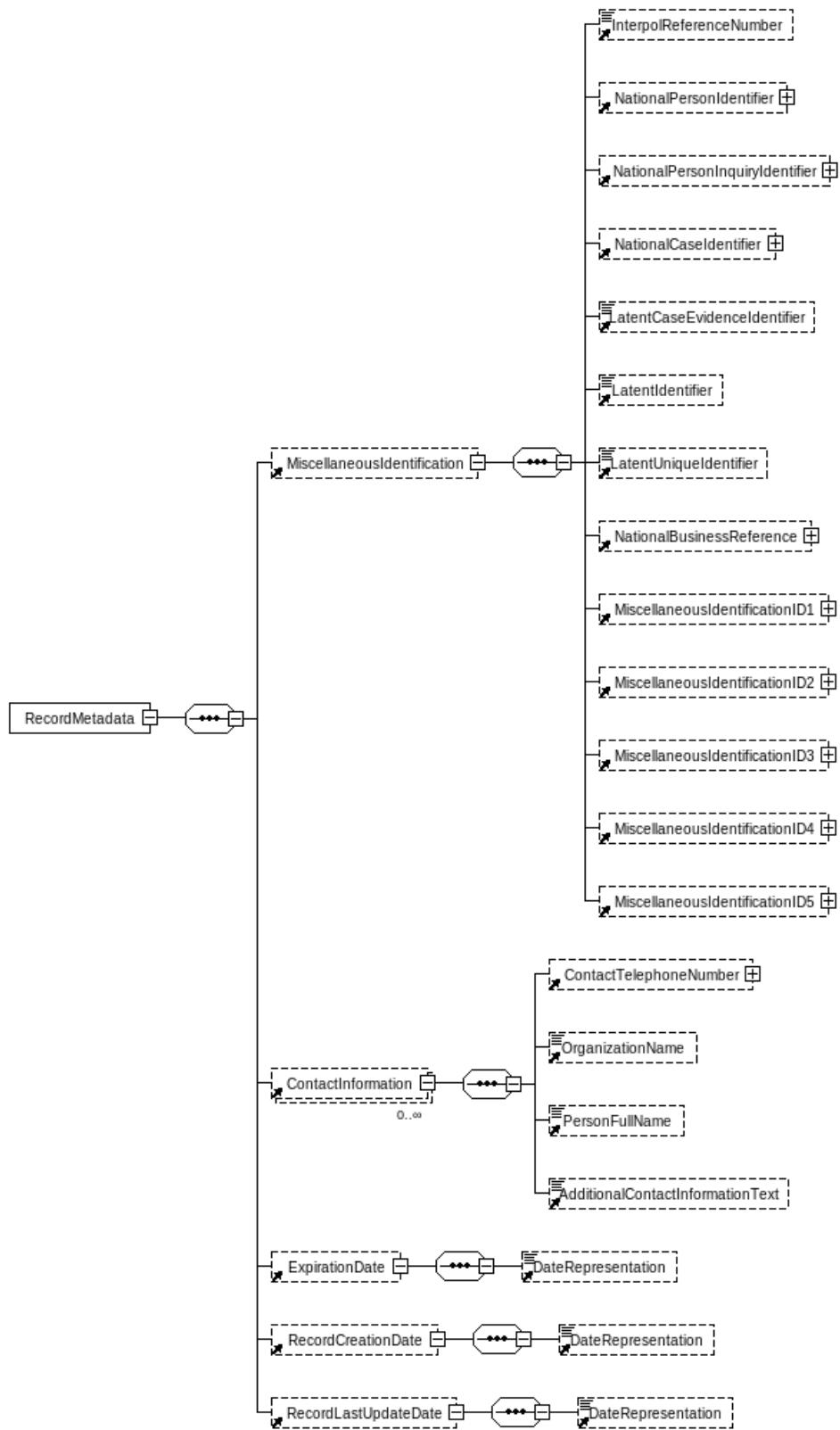
**Field ID:** [02.003\_02.999:X1-E]  
**Condition:** Mandatory  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

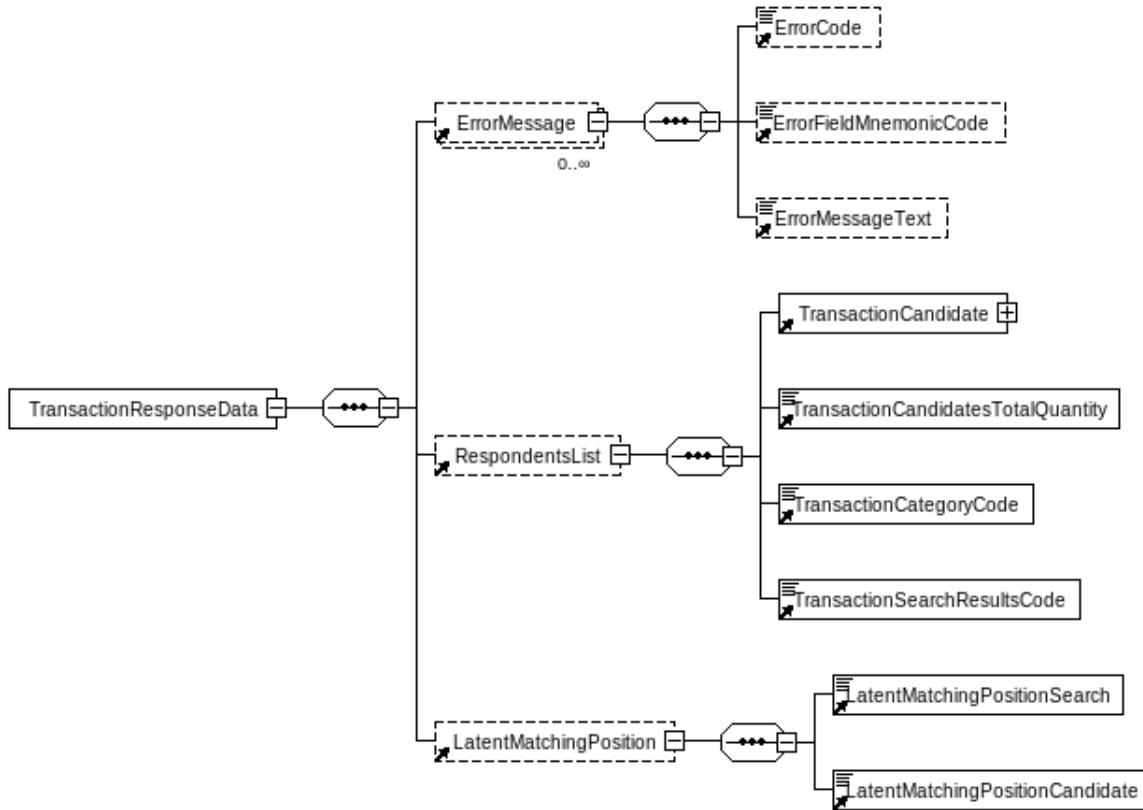
```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
```

### Summary

Record Metadata groups additional elements, in particular all the identifiers of the records.



## 9.11. Transaction Response Data Fields



**Field Reference:** 2/UDF:X1/TRD

**Content Type:** Set\_X

**XML Tag Name:** TransactionResponseData

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:TransactionResponseDataType

**Field ID:** [02.003\_02.999:X1-F]

**Condition:** Dependent (see table)

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""SRE""

### XPath

```

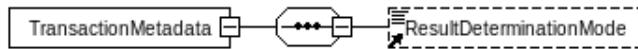
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData

```

**Summary**

Transaction Response Data groups all the elements related to a response: error, respondents, ...

## 9.12. Transaction Metadata Fields



**Field Reference:** 2/UDF:X1/TMD  
**Content Type:** Set\_X  
**XML Tag Name:** TransactionMetadata  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:TransactionMetadataType

**Field ID:** [02.003\_02.999:X1-G]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

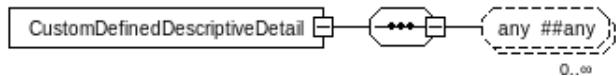
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionMetadata

```

### Summary

Transaction Meta Data groups all the elements related to the processing of the transaction.

## 9.13. Custom Defined Fields



**Field Reference:** 2/UDF:X2

**Content Type:** Set\_X

**XML Tag Name:** CustomDefinedDescriptiveDetail

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:CustomDefinedDescriptiveDetailType

**Field ID:** [02.003\_02.999:X2]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### Exceptions

see Technical Notes below

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/int-i:CustomDefinedDescriptiveDetail

```

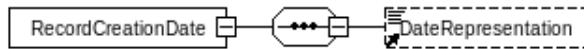
### Summary

Custom Defined Domain is a placeholder where the implementer can put any custom field (not part of the INTERPOL implementation).

### Technical Notes

Anything in this placeholder won't be validated against the xsd.

## 9.14. Date of Record - DAR



**Field Reference:** 2/DAR

**Content Type:** Data

**XML Tag Name:** RecordCreationDate

**Data Type:** ANS

**Minimum Length:** 10

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** [niem-xsd:dateTime](#) or [niem-xsd:date](#)

**Field ID:** [02.004]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** [-]

**Maximum Length:** 20

**Maximum Occurrences:** 1

**Regular Expression:**

$\backslash d\{2\}(T\backslash d\{2\}:\backslash d\{2\}:\backslash d\{2\}(Z)\{0,1\})\{0,1\}$

$\backslash d\{4\}-\backslash d\{2\}-$

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:RecordCreationDate
          ↳/nc:DateTime
or
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:RecordCreationDate
          ↳/nc:Date
  
```

### Summary

Date (and Time), in ISO 8601 format, on which the record was first created.

### Notes

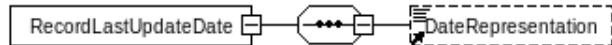
This date is the date when the record (the electronic file) was created by the system, be it a livescan or an AFIS, independantly from the date when the fingerprints were actually captured.

### Valid Examples

```

<int-i:RecordCreationDate>
  <nc:Date>2017-07-11</nc:Date>
</int-i:RecordCreationDate>
or
<int-i:RecordCreationDate>
  <nc:DateTime>2017-07-11T00:00:01Z</nc:DateTime>
</int-i:RecordLastUpdateDate>
  
```

## 9.15. Date of Last Update - DLU



**Field Reference:** 2/DLU  
**Content Type:** Data  
**XML Tag Name:** RecordLastUpdateDate  
**Data Type:** ANS  
**Minimum Length:** 10  
**Minimum Occurrences:** 0  
**Value range:** n/a  
  
**Code table:** n/a  
**Base type:** niem-xsd:dateTime or niem-xsd:date

**Field ID:** [02.005]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** [:]  
**Maximum Length:** 20  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{2}(T\d{2}:\d{2}:\d{2}(Z){0,1}){0,1}  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:RecordLastUpdateDate
          ↳/nc:DateTime
or
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:RecordLastUpdateDate
          ↳/nc:Date
  
```

### Summary

Date (and Time), in ISO 8601 format, on which the record was last updated.

### Notes

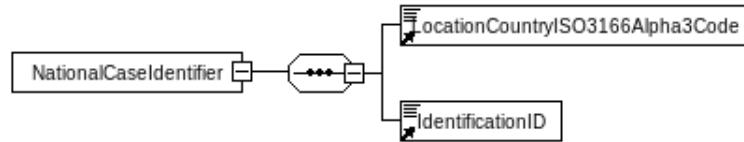
This date is the date when the record (the electronic file) was last updated by the system. This can be used in particular to explicit when a composite record was last recalculated in a multi-incident AFIS.

### Valid Examples

```

<int-i:RecordLastUpdateDate>
  <nc:Date>2017-07-11</nc:Date>
</int-i:RecordLastUpdateDate>
or
<int-i:RecordLastUpdateDate>
  <nc:DateTime>2017-07-11T00:00:01</nc:DateTime>
</int-i:RecordLastUpdateDate>
  
```

## 9.16. Case Reference (XML) - CNO



**Field Reference:** 2/CNO:X  
**Content Type:** Set\_X  
**XML Tag Name:** NationalCaseIdentifier  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:NationalIdentifierType

**Field ID:** [02.007-A\_02.007-B]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table	
Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""MPS" [1/TOT]=""SRE" and [2/RLS/SRC]=""I" and [2/RLS/CAC]=""CPS"

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:NationalCaseIdentifier
  
```

### Summary

The National Case Identifier (CNO) is a number assigned by the local fingerprint bureau to a collection of latents found at a crime scene.

It is made up of 2 subfields: a ISO3166 Alpha-3 country code identifying the country owning the case, and the case identifier itself

### Valid Examples

```

<int-i:NationalCaseIdentifier>
  <int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
  <nc:IdentificationID>47110815</nc:IdentificationID>
</int-i:NationalCaseIdentifier>
  
```

## 9.17. Case Reference Country - CN1

### LocationCountryISO3166Alpha3Code

**Field Reference:** 2/CNO:X/CN1

**Content Type:** Data\_X

**XML Tag Name:** LocationCountryISO3166Alpha3Code

**Data Type:** A

**Minimum Length:** 3

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** [int-i:ISO3166Alpha3CodeType](#)

**Field ID:** [02.007-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:NationalCaseIdentifier
            ↳/int-i:LocationCountryISO3166Alpha3Code
```

### Summary

The ISO3166 Alpha-3 country code of the country that assigned the Country Case Reference.

### Valid Examples

```
<int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
```

## 9.18. Case Reference Identifier - CN2



**Field Reference:** 2/CNO:X/CN2  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.007-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [/,-]  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:NationalCaseIdentifier
            ↳/nc:IdentificationID
```

### Summary

The value of the Country Case Reference, according the local guidelines of the country.

### Valid Examples

```
<nc:IdentificationID>47110815</nc:IdentificationID>
```

## 9.19. Evidence Identifier - SQN

### LatentCaseEvidenceIdentifier

**Field Reference:** 2/SQN  
**Content Type:** Data  
**XML Tag Name:** LatentCaseEvidenceIdentifier  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.008]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""MPS" [1/TOT]=""SRE" and [2/RLS/SRC]=""I" and [2/RLS/CAC]=""CPS"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:LatentCaseEvidenceIdentifier
```

### Summary

This specifies each evidence within a case.

A evidence is a latent or group of latents which are grouped together for the purposes of filing and/or searching. This definition implies that even single latents will still have to be assigned a evidence number.

In the case of search requests the field is included for identification purposes: if the remote system is an AFR system it can use the case number, evidence number and latent identifier to determine whether it already has an AFR encoding of the latent.

This field together with MID (Field 2.009) may be included to identify a particular latent within a evidence.

### Valid Examples

```
<int-i:LatentCaseEvidenceIdentifier>>Evidence001</int-i:LatentCaseEvidenceIdentifier>
```

## 9.20. Latent Identifier - MID

### LatentIdentifier

**Field Reference:** 2/MID  
**Content Type:** Data  
**XML Tag Name:** LatentIdentifier  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.009]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""MPS" [1/TOT]=""SRE" and [2/RLS/SRC]=""I" and [2/RLS/CAC]=""CPS"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:LatentIdentifier
```

### Summary

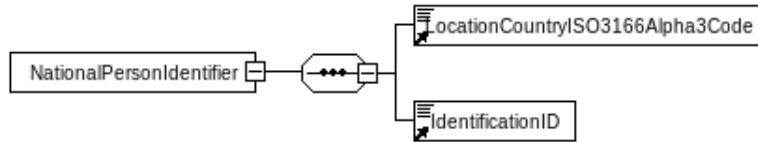
This specifies the individual latent within a evidence.

This field is used analog to the evidence identifier discussed in the description for SQN (Field 2.008).

### Valid Examples

```
<int-i:LatentIdentifier>001</int-i:LatentIdentifier>
```

## 9.21. Criminal Reference Number (XML) - CRN



**Field Reference:** 2/CRN:X  
**Content Type:** Set\_X  
**XML Tag Name:** NationalPersonIdentifier  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:NationalIdentifierType

**Field ID:** [02.010-A\_02.010-B]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/ORN:X]
Mandatory on Value of other Field, optional otherwise.	[1/TOT] = "CPS" [1/TOT] = "NPS" [1/TOT] = "ATP" [1/TOT] = "SRE" and [2/RLS/SRC] = "I" and [2/RLS/CAC] = "CPS"

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
  ↳/itl:DomainDefinedDescriptiveDetail
  ↳/int-i:RecordMetadata
    ↳/int-i:MiscellaneousIdentification
      ↳/int-i:NationalPersonIdentifier
  
```

### Summary

The Person Identifier (CRN) is a mandatory reference (if ORN is absent) and would be expected in any Person transaction. It should be unique within the country creating the reference and static (i.e. unchanging) for the person the biometrics relate to. It is traditionally an identity level reference rather than an event level reference and would be the primary key into all related information on the person within the country.

It is made up of 2 subfields: a ISO3166 Alpha-3 country code identifying the country owning the Person, and the reference number itself.

### Valid Examples

```

<int-i:NationalPersonIdentifier>
  <int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
  <nc:IdentificationID>1234567890</nc:IdentificationID>
<int-i:NationalPersonIdentifier>
  
```

## 9.22. Country Code of the Criminal Reference Number - CR1

### LocationCountryISO3166Alpha3Code

**Field Reference:** 2/CRN:X/CR1  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCountryISO3166Alpha3Code  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [int-i:ISO3166Alpha3CodeType](#)

**Field ID:** [02.010-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:NationalPersonIdentifier
            ↳/int-i:LocationCountryISO3166Alpha3Code
```

### Summary

The ISO3166 Alpha-3 country code of the country that owns the Person .

### Valid Examples

```
<int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
```

## 9.23. Criminal Reference Number Value - CR2



**Field Reference:** 2/CRN:X/CR2

**Content Type:** Data\_X

**XML Tag Name:** IdentificationID

**Data Type:** ANS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:String

**Field ID:** [02.010-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 32

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord  
  ↳/itl:UserDefinedDescriptiveDetail  
    ↳/itl:DomainDefinedDescriptiveDetail  
      ↳/int-i:RecordMetadata  
        ↳/int-i:MiscellaneousIdentification  
          ↳/int-i:NationalPersonIdentifier  
            ↳/nc:IdentificationID
```

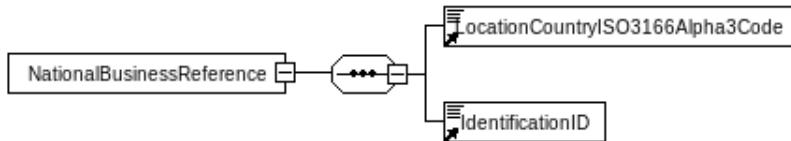
### Summary

The value of the Reference Number, according the local guidelines of the country.

### Valid Examples

```
<nc:IdentificationID>1234567890</nc:IdentificationID>
```

## 9.24. Business Reference Number (XML) - ORN



**Field Reference:** 2/ORN:X  
**Content Type:** Set\_X  
**XML Tag Name:** NationalBusinessReference  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:NationalIdentifierType

**Field ID:** [02.011-A\_02.011-B]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 10  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/CRN:X]
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=”CPS” [1/TOT]=”NPS” [1/TOT]=”ATP” [1/TOT]=”SRE” and [2/RLS/SRC]=”I” and [2/RLS/CAC]=”CPS”

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordMetadata
        ↳int-i:MiscellaneousIdentification
          ↳int-i:NationalBusinessReference

```

### Summary

The Business Reference Number (ORN) is an optional field. It would typically contain an event level reference from the country that purpose of biometrics where submitted for. It is anticipated as being unique with the country. Where submitted, it is intended that this would be shared back in any future interactions relating to the original biometric submission, allowing the submission party to more easily identify identify the context for initial response or future enquirers. It would allow the country to differentiate between biometric submission of the same person submitted on multiple occasions, over time. The source of the business reference is open for the individual country to decide; this could be an arrest event or warrant related reference. Whilst this could also be workflow event reference from the country's submission system, this reference is in addition to the mandated TCN and TCR elements.

It is made up of 2 subfields: a ISO3166 Alpha-3 country code identifying the country owning the Person, and the reference number itself.

### Valid Examples

```

<int-i:NationalBusinessReference>
  <int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
  <nc:IdentificationID>1234567890</nc:IdentificationID>
</int-i:NationalBusinessReference>

```

## 9.25. Country Code of the Business Reference Number - OR1

### LocationCountryISO3166Alpha3Code

**Field Reference:** 2/ORN:X/OR1  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCountryISO3166Alpha3Code  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [int-i:ISO3166Alpha3CodeType](#)

**Field ID:** [02.011-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:NationalBusinessReference
            ↳/int-i:LocationCountryISO3166Alpha3Code
```

### Summary

The ISO3166 Alpha-3 country code of the country that gave the Business Reference .

### Valid Examples

```
<int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
```

## 9.26. Business Reference Number Value - OR2



**Field Reference:** 2/ORN:X/OR2  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.011-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:NationalBusinessReference
            ↳/nc:IdentificationID
```

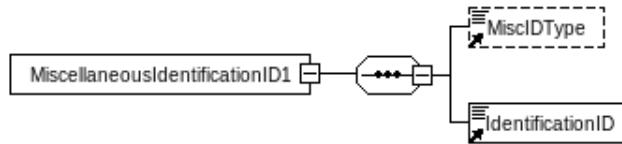
### Summary

The value of the Business Reference Number, according the local guidelines of the country.

### Valid Examples

```
<nc:IdentificationID>1234567890</nc:IdentificationID>
```

## 9.27. Miscellaneous Identification Number 1 (XML) - MN1



**Field Reference:** 2/MN1:X

**Content Type:** Set\_X

**XML Tag Name:** MiscellaneousIdentificationID1

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:MisellaneousIdentificationIDXType

**Field ID:** [02.012-A\_02.012-B]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MisellaneousIdentificationID1
  
```

### Summary

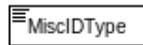
Any miscellaneous reference number can be entered in this field.

### Valid Examples

```

<int-i:MisellaneousIdentificationID1>
  <int-i:MiscIDType>type of ID 1</int-i:MiscIDType>
  <nc:IdentificationID>MISC1</nc:IdentificationID>
</int-i:MisellaneousIdentificationID1>
  
```

## 9.28. Miscellaneous Identification Number 1 (XML) – Type - MN1T



**Field Reference:** 2/MN1:X/MN1T  
**Content Type:** Data\_X  
**XML Tag Name:** MiscIDType  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.012-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID1
            ↳/int-i:MiscIDType
```

### Summary

Type of the miscellaneous identifier, for instance “Social Security Number” or “CNP”

### Valid Examples

```
<int-i:MiscIDType>type of ID 1</int-i:MiscIDType>
```

## 9.29. Miscellaneous Identification Number 1 (XML) – Value - MN1V



**Field Reference:** 2/MN1:X/MN1V  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.012-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID1
            ↳/nc:IdentificationID
```

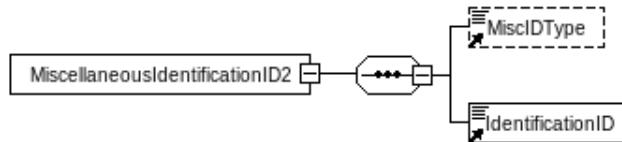
### Summary

Value of the miscellaneous identifier

### Valid Examples

```
<nc:IdentificationID>MISC1</nc:IdentificationID>
```

## 9.30. Miscellaneous Identification Number 2 (XML) - MN2



**Field Reference:** 2/MN2:X

**Content Type:** Set\_X

**XML Tag Name:** MiscellaneousIdentificationID2

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:MisellaneousIdentificationIDXType

**Field ID:** [02.013-A\_02.013-B]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID2

```

### Summary

Any miscellaneous reference number can be entered in this field.

### Valid Examples

```

<int-i:MiscellaneousIdentificationID2>
  <int-i:MiscIDType>type of ID 2</int-i:MiscIDType>
  <nc:IdentificationID>MISC2</nc:IdentificationID>
</int-i:MiscellaneousIdentificationID2>

```

## 9.31. Miscellaneous Identification Number 2 (XML) – Type - MN2T



**Field Reference:** 2/MN2:X/MN2T  
**Content Type:** Data\_X  
**XML Tag Name:** MiscIDType  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.013-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID2
            ↳/int-i:MiscIDType
```

### Summary

Type of the miscellaneous identifier, for instance “Social Security Number” or “CNP”

### Valid Examples

```
<int-i:MiscIDType>type of ID 2</int-i:MiscIDType>
```

## 9.32. Miscellaneous Identification Number 2 (XML) – Value - MN2V



**Field Reference:** 2/MN2:X/MN2V  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.013-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID2
            ↳/nc:IdentificationID
```

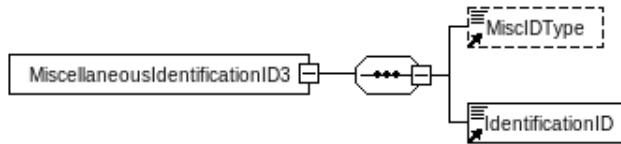
### Summary

Value of the miscellaneous identifier

### Valid Examples

```
<nc:IdentificationID>MISC2</nc:IdentificationID>
```

### 9.33. Miscellaneous Identification Number 3 (XML) - MN3



**Field Reference:** 2/MN3:X

**Content Type:** Set\_X

**XML Tag Name:** MiscellaneousIdentificationID3

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:MiscellaneousIdentificationIDXType

**Field ID:** [02.014-A\_02.014-B]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

#### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID3
  
```

#### Summary

Any miscellaneous reference number can be entered in this field.

#### Valid Examples

```

<int-i:MiscellaneousIdentificationID3>
  <int-i:MiscIDType>type of ID 3</int-i:MiscIDType>
  <nc:IdentificationID>MISC3</nc:IdentificationID>
</int-i:MiscellaneousIdentificationID3>
  
```

## 9.34. Miscellaneous Identification Number 3 (XML) – Type - MN3T



**Field Reference:** 2/MN3:X/MN3T  
**Content Type:** Data\_X  
**XML Tag Name:** MiscIDType  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.014-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID3
            ↳/int-i:MiscIDType
```

### Summary

Type of the miscellaneous identifier, for instance “Social Security Number” or “CNP”

### Valid Examples

```
<int-i:MiscIDType>type of ID 3</int-i:MiscIDType>
```

## 9.35. Miscellaneous Identification Number 3 (XML) – Value - MN3V



**Field Reference:** 2/MN3:X/MN3V  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.014-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID3
            ↳/nc:IdentificationID
```

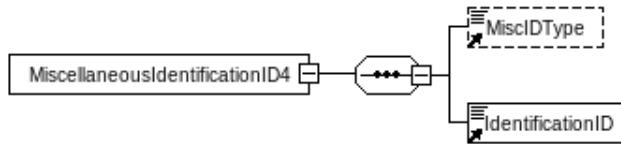
### Summary

Value of the miscellaneous identifier

### Valid Examples

```
<nc:IdentificationID>MISC3</nc:IdentificationID>
```

## 9.36. Miscellaneous Identification Number 4 (XML) - MN4



**Field Reference:** 2/MN4:X

**Content Type:** Set\_X

**XML Tag Name:** MiscellaneousIdentificationID4

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:MiscellaneousIdentificationIDXType

**Field ID:** [02.015-A\_02.015-B]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID4
  
```

### Summary

Any miscellaneous reference number can be entered in this field.

### Valid Examples

```

<int-i:MiscellaneousIdentificationID4>
  <int-i:MiscIDType>type of ID 4</int-i:MiscIDType>
  <nc:IdentificationID>MISC4</nc:IdentificationID>
</int-i:MiscellaneousIdentificationID4>
  
```

## 9.37. Miscellaneous Identification Number 4 (XML) - MN4T



**Field Reference:** 2/MN4:X/MN4T  
**Content Type:** Data\_X  
**XML Tag Name:** MiscIDType  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.015-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID4
            ↳/int-i:MiscIDType
```

### Summary

Type of the miscellaneous identifier, for instance “Social Security Number” or “CNP”

### Valid Examples

```
<int-i:MiscIDType>type of ID 4</int-i:MiscIDType>
```

## 9.38. Miscellaneous Identification Number 4 (XML) - MN4V



**Field Reference:** 2/MN4:X/MN4V  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.015-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID4
            ↳/nc:IdentificationID
```

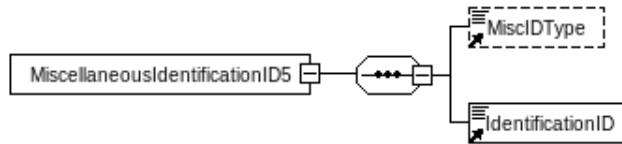
### Summary

Value of the miscellaneous identifier

### Valid Examples

```
<nc:IdentificationID>MISC4</nc:IdentificationID>
```

## 9.39. Miscellaneous Identification Number 5 (XML) - MN5



**Field Reference:** 2/MN5:X

**Content Type:** Set\_X

**XML Tag Name:** MiscellaneousIdentificationID5

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:MisellaneousIdentificationIDXType

**Field ID:** [02.016-A\_02.016-B]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID5

```

### Summary

Any miscellaneous reference number can be entered in this field.

### Valid Examples

```

<int-i:MiscellaneousIdentificationID5>
  <int-i:MiscIDType>type of ID 5</int-i:MiscIDType>
  <nc:IdentificationID>MISC5</nc:IdentificationID>
</int-i:MiscellaneousIdentificationID5>

```

## 9.40. Miscellaneous Identification Number 5 (XML) - MN5T



**Field Reference:** 2/MN5:X/MN5T  
**Content Type:** Data\_X  
**XML Tag Name:** MiscIDType  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.016-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MisellaneousIdentification
          ↳/int-i:MisellaneousIdentificationID5
            ↳/int-i:MiscIDType
```

### Summary

Type of the miscellaneous identifier, for instance “Social Security Number” or “CNP”

### Valid Examples

```
<int-i:MiscIDType>type of ID 5</int-i:MiscIDType>
```

## 9.41. Miscellaneous Identification Number 5 (XML) - MN5V



**Field Reference:** 2/MN5:X/MN5V  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:String

**Field ID:** [02.016-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:MiscellaneousIdentificationID5
            ↳/nc:IdentificationID
```

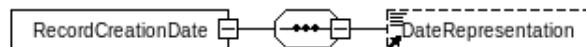
### Summary

Value of the miscellaneous identifier

### Valid Examples

```
<nc:IdentificationID>MISC5</nc:IdentificationID>
```

## 9.42. Date (and Time) Fingerprinted - DPR



**Field Reference:** 2/DPR:X  
**Content Type:** Data\_X  
**XML Tag Name:** RecordCreationDate  
**Data Type:** ANS  
**Minimum Length:** 10  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:dateTime or niem-xsd:date

**Field ID:** [02.019:X]  
**Condition:** Optional  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** [:]  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}\d{2}(\d{2}:\d{2}:\d{2}(Z){0,1}){0,1}  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/biom:RecordCreationDate
          ↳/nc:DateTime
or
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/biom:RecordCreationDate
          ↳/nc:Date
  
```

### Summary

Date (and Time), in ISO 8601 format, on which the images were acquired.

### Notes

This is the date when the images have been acquired, independently from the date when the record has been created.

Note that it is now possible to put the date of the acquisition directly in the Type 14 and Type 15.

### Valid Examples

```

<biom:RecordCreationDate>
  <nc:DateTime>2010-07-04T15:05:12Z</nc:DateTime>
</biom:RecordCreationDate>
or
<biom:RecordCreationDate>
  <nc:Date>2010-07-04</nc:Date>
</biom:RecordCreationDate>
  
```

## 9.43. Offence Description Code - RFP

### OffenceDescriptionCode

**Field Reference:** 2/RFP  
**Content Type:** Data\_X  
**XML Tag Name:** OffenceDescriptionCode  
**Data Type:** A  
**Minimum Length:** 2  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table [A.40](#)  
**Base type:** int-i:OffenceDescriptionCodeType

**Field ID:** [02.021]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:OffenceDescriptionCode
```

### Summary

Reason for acquiring the fingerprints (Criminal acquisition)

### Valid Examples

```
<int-i:OffenceDescriptionCode>NLC</int-i:OffenceDescriptionCode>
```

## 9.44. Place Of Arrest - POA



**Field Reference:** 2/POA:X  
**Content Type:** Set\_X  
**XML Tag Name:** ArrestLocation  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:LocationType

**Field ID:** [02.022:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation

```

### Summary

Description of the place of arrest.

### Valid Examples

```

<int-i:ArrestLocation>
  <nc:LocationAddress>
    <nc:StructuredAddress>
      <nc:LocationCityName>Wiesbaden</nc:LocationCityName>
      <nc:LocationCountyName>Hessen</nc:LocationCountyName>
      <nc:LocationCountryISO3166Alpha3Code>DEU</nc:LocationCountryISO3166Alpha3Code>
    </nc:StructuredAddress>
  </nc:LocationAddress>
</int-i:ArrestLocation>
or
<int-i:ArrestLocation>
  <nc:LocationAddress>
    <nc:AddressFullText>Wiesbaden</nc:AddressFullText>
  </nc:LocationAddress>
</int-i:ArrestLocation>

```

## 9.45. Place of Arrest (XML) – Free-text-form address - POA

### AddressFullText

**Field Reference:** 2/POA/POA:X1  
**Content Type:** Data\_X  
**XML Tag Name:** AddressFullText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.022:X1]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [-]  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/POA/POA:X2]

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:AddressFullText
```

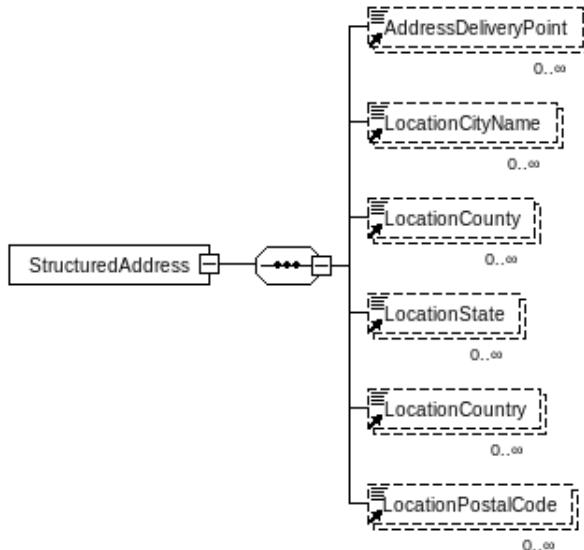
### Summary

Place of arrest of the subject being fingerprinted, in free text format.

### Valid Examples

```
<nc:AddressFullText>
  Thaerstrasse 11,
  Wiesbaden 65173
  Deutschland
</nc:AddressFullText>
```

## 9.46. Place of Arrest (XML) – Structured-form address - POA



**Field Reference:** 2/POA/POA:X2  
**Content Type:** Set\_X  
**XML Tag Name:** StructuredAddress  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:StructuredAddressType

**Field ID:** [02.022:X2-A\_02.022:X2-G]  
**Condition:** Dependent (see table)  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/POA/POA:X1]

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordOffence
        ↳int-i:ArrestLocation
          ↳nc:LocationAddress
            ↳nc:StructuredAddress
  
```

### Summary

Place of arrest of the subject being fingerprinted, in structured format.

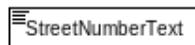
### Notes

When using a nc:StructuredAddress, at least the nc:LocationCountryISO3166Alpha3Code must be specified.

### Valid Examples

```
<nc:StructuredAddress>
    <nc:LocationStreet>
        <nc:StreetNumberText>11</nc:StreetNumberText>
        <nc:StreetName>Thaerstrasse</nc:StreetName>
    </nc:LocationStreet>
    <nc:LocationCityName>Wiesbaden</nc:LocationCityName>
    <nc:LocationStateName>Hessen</nc:LocationStateName>
    <nc:LocationCountryISO3166Alpha3Code>DEU</nc:LocationCountryISO3166Alpha3Code>
    <nc:LocationPostalCode>65173</nc:LocationPostalCode>
</nc:StructuredAddress>
```

## 9.47. Place of Arrest (XML) – Street number - PA1



**Field Reference:** 2/POA/POA:X2/PB1  
**Content Type:** Data\_X  
**XML Tag Name:** StreetNumberText  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.022:X2-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStreet
                ↳/nc:StreetNumberText
```

### Summary

In structured format, street number of the place of arrest of the subject being fingerprinted.

## 9.48. Place of Arrest (XML) – Street name - PA2



**Field Reference:** 2/POA/POA:X2/PB2  
**Content Type:** Data\_X  
**XML Tag Name:** StreetName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.022:X2-B]  
**Condition:** Optional within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

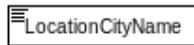
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStreet
                ↳/nc:StreetName
```

### Summary

In structured format, street name of the place of arrest of the subject being fingerprinted.

## 9.49. Place of Arrest (XML) – City name - PA3



**Field Reference:** 2/POA/POA:X2/PB3  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCityName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.022:X2-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

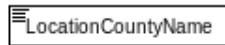
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCityName
```

### Summary

In structured format, city name of the place of arrest of the subject being fingerprinted.

## 9.50. Place of Arrest (XML) – County name - PA4



**Field Reference:** 2/POA/POA:X2/PB4  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCountyName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.022:X2-D]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

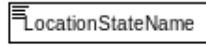
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCountyName
```

### Summary

In structured format, county, parish, or vicarage name of the place of arrest of the subject being fingerprinted.

## 9.51. Place of Arrest (XML) – State name - PA5



**Field Reference:** 2/POA/POA:X2/PB5  
**Content Type:** Data\_X  
**XML Tag Name:** LocationStateName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.022:X2-E]  
**Condition:** Optional within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStateName
```

### Summary

In structured format, state name of the place of arrest of the subject being fingerprinted.

## 9.52. Place of Arrest (XML) – Country code - PA6



**Field Reference:** 2/POA/POA:X2/PB6

**Content Type:** Data\_X

**XML Tag Name:** LocationCountryISO3166Alpha3Code

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** [iso\\_3166:CountryAlpha3CodeType](#)

**Field ID:** [02.022:X2-F]

**Condition:** Mandatory within a field

**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCountryISO3166Alpha3Code
```

### Summary

In structured format, country code in ISO3166 Alpha-3 format of the place of arrest of the subject being fingerprinted.

## 9.53. Place of Arrest (XML) – Postal code - PA7



**Field Reference:** 2/POA/POA:X2/PB7  
**Content Type:** Data\_X  
**XML Tag Name:** LocationPostalCode  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [02.022:X2-G]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

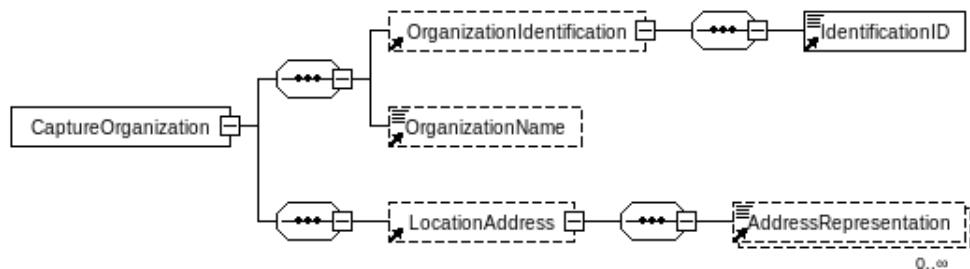
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:ArrestLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationPostalCode
```

### Summary

In structured format, postal or ZIP code of the place of arrest of the subject being fingerprinted.

## 9.54. Capture Organization Information (XML) - OBU



**Field Reference:** 2/OBU:X  
**Content Type:** Set\_X  
**XML Tag Name:** CaptureOrganization  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:CaptureOrganizationType

**Field ID:** [02.023:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
```

### Summary

Description of the agency that performed the fingerprint acquisition

### Valid Examples

```
<int-i:CaptureOrganization>
  <nc:OrganizationName>BKA</nc:OrganizationName>
  <nc:LocationAddress>
    <nc:StructuredAddress>
      <nc:LocationStreet>
        <nc:StreetNumberText>11</nc:StreetNumberText>
        <nc:StreetName>Thaerstrasse</nc:StreetName>
      </nc:LocationStreet>
      <nc:LocationCityName>Wiesbaden</nc:LocationCityName>
      <nc:LocationCountryISO3166Alpha3Code>DEU</nc:LocationCountryISO3166Alpha3Code>
    </nc:StructuredAddress>
  </nc:LocationAddress>
</int-i:CaptureOrganization>
```

## 9.55. Capture Organization Information (XML) – Organization Identification - OB1

### IdentificationID

**Field Reference:** 2/OBU/OBU:X1  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [02.023:X1]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:OrganizationIdentification
            ↳/nc:IdentificationID
```

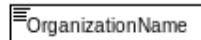
### Summary

Organization ID of the agency that performed the fingerprint acquisition

### Valid Examples

<nc:IdentificationID>BKA_TestSystem</nc:IdentificationID>
---

## 9.56. Capture Organization Information (XML) – Organization Name - OB2



**Field Reference:** 2/OBU/OBU:X2  
**Content Type:** Data\_X  
**XML Tag Name:** OrganizationName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.023:X2]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [-]  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:OrganizationName
```

### Summary

Organization name of the agency that performed the fingerprint acquisition

### Valid Examples

```
<nc:OrganizationName>BKA</nc:OrganizationName>
```

## 9.57. Capture Organization Information (XML) – Free-text-form address - OB3

### AddressFullText

**Field Reference:** 2/OBU/OBU:X3  
**Content Type:** Data\_X  
**XML Tag Name:** AddressFullText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.023:X3]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [-]  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:AddressFullText
```

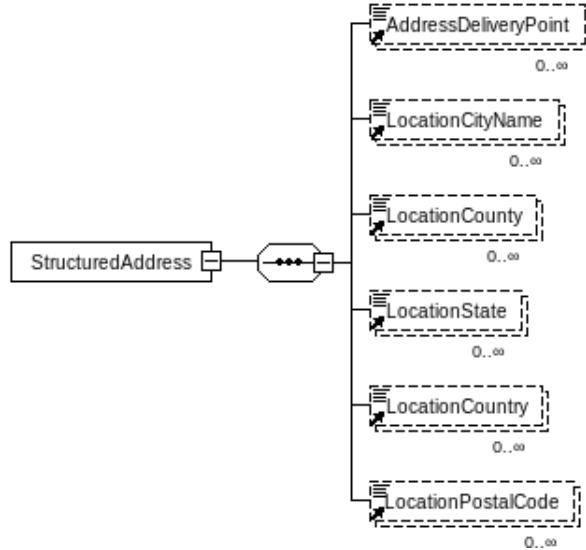
### Summary

Address, in free text format, of the agency that performed the fingerprint acquisition

### Valid Examples

```
<nc:AddressFullText>Thaerstrasse 11, Wiesbaden, Deutschland</nc:AddressFullText>
```

## 9.58. Capture Organization Information (XML) – Structured-form address - OB4



**Field Reference:** 2/OBU/OBU:X4  
**Content Type:** Set\_X  
**XML Tag Name:** StructuredAddress  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:StructuredAddressType

**Field ID:** [02.023:X3-A\_02.023:X3-G]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

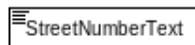
```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
  ↳/itl:DomainDefinedDescriptiveDetail
  ↳/int-i:RecordActivity
  ↳/int-i:CaptureOrganization
    ↳/nc:LocationAddress
      ↳/nc:StructuredAddress
  
```

### Summary

Address, in structured format, of the agency that performed the fingerprint acquisition

## 9.59. Capture Organization Information (XML) – Street number - OB5



**Field Reference:** 2/OBU/OBU:X4/OB1  
**Content Type:** Data\_X  
**XML Tag Name:** StreetNumberText  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.023:X3-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStreet
                ↳/nc:StreetNumberText
```

### Summary

In structured format, street number of the agency that performed the fingerprint acquisition.

## 9.60. Capture Organization Information (XML) – Street name - OB6



**Field Reference:** 2/OBU/OBU:X4/OB2  
**Content Type:** Data\_X  
**XML Tag Name:** StreetName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.023:X3-B]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStreet
                ↳/nc:StreetName
```

### Summary

In structured format, street name of the agency that performed the fingerprint acquisition.

## 9.61. Capture Organization Information (XML) – City name - OB7



**Field Reference:** 2/OBU/OBU:X4/OB3  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCityName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.023:X3-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

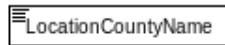
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCityName
```

### Summary

In structured format, city name of the agency that performed the fingerprint acquisition.

## 9.62. Capture Organization Information (XML) – County name - OB8



**Field Reference:** 2/OBU/OBU:X4/OB4  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCountyName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.023:X3-D]  
**Condition:** Optional within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

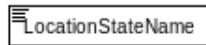
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCountyName
```

### Summary

In structured format, county, parish, or vicarage name of the agency that performed the fingerprint acquisition.

## 9.63. Capture Organization Information (XML) – State name - OB9



**Field Reference:** 2/OBU/OBU:X4/OB5  
**Content Type:** Data\_X  
**XML Tag Name:** LocationStateName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.023:X3-E]  
**Condition:** Optional within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStateName
```

### Summary

In structured format, state name of the agency that performed the fingerprint acquisition.

## 9.64. Capture Organization Information (XML) – Country code - OB10



**Field Reference:** 2/OBU/OBU:X4/OB6

**Content Type:** Data\_X

**XML Tag Name:** LocationCountryISO3166Alpha3Code

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** [iso\\_3166:CountryAlpha3CodeType](#)

**Field ID:** [02.023:X3-F]

**Condition:** Optional within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

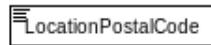
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCountryISO3166Alpha3Code
```

### Summary

In structured format, country code in ISO3166 Alpha-3 format of the agency that performed the fingerprint acquisition.

## 9.65. Capture Organization Information (XML) – Postal code - OB11



**Field Reference:** 2/OBU/OBU:X4/OB7  
**Content Type:** Data\_X  
**XML Tag Name:** LocationPostalCode  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [02.023:X3-G]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

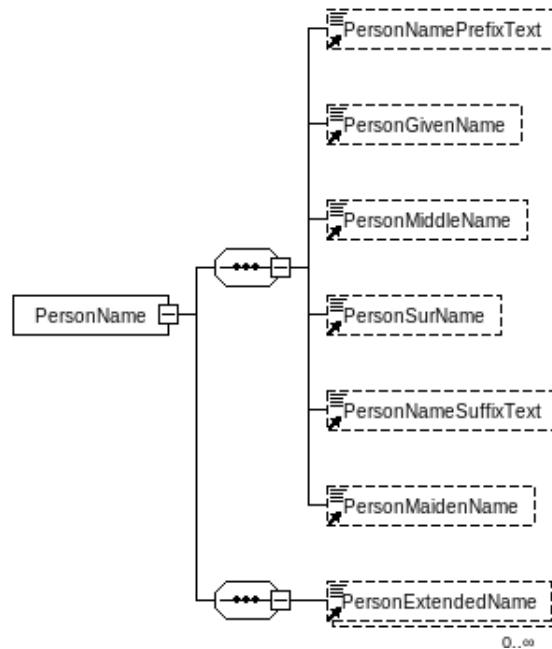
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordActivity
        ↳/int-i:CaptureOrganization
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationPostalCode
```

### Summary

In structured format, postal or ZIP code of the agency that performed the fingerprint acquisition.

## 9.66. Name - NAM



**Field Reference:** 2/NAM:X  
**Content Type:** Set\_X  
**XML Tag Name:** PersonName  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:PersonNameType

**Field ID:** [02.030]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table	
Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""ATP""

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordSubject
        ↳int-i:PersonName
  
```

### Summary

Name of the subject being fingerprinted

**Valid Examples**

```
<int-i:PersonName>
    <nc:PersonNamePrefixText>Dr</nc:PersonNamePrefixText>
    <nc:PersonGivenName>Renate</nc:PersonGivenName>
    <nc:PersonMiddleName>Erika</nc:PersonMiddleName>
    <nc:PersonSurName>Mustermann</nc:PersonSurName>
    <nc:PersonNameSuffixText>Jr.</nc:PersonNameSuffixText>
    <nc:PersonMaidenName>Schmidt</nc:PersonMaidenName>
    <int-i:PersonExtendedName>Dr. Renate Erika Mustermann</int-i:PersonExtendedName>
</int-i:PersonName>
```

## 9.67. Person Prefix Name - NM1



**Field Reference:** 2/NAM/NAM:X1  
**Content Type:** Data\_X  
**XML Tag Name:** PersonNamePrefixText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.030:X1]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonName
          ↳/nc:PersonNamePrefixText
```

### Summary

Title or honorific of the subject being fingerprinted, for instance Dr.

### Notes

Even though multiple nc:PersonNamePrefixText are allowed by the xsd, INTERPOL's implementation expects only one.

### Valid Examples

```
<nc:PersonNamePrefixText>Dr</nc:PersonNamePrefixText>
```

## 9.68. Person Given Name - NM2

### PersonGivenName

**Field Reference:** 2/NAM/NAM:X2  
**Content Type:** Data\_X  
**XML Tag Name:** PersonGivenName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [02.030:X2]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/NAM/NAM:X7]

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonName
          ↳/nc:PersonGivenName
```

### Summary

Given name of the subject being fingerprinted

### Notes

Even though multiple nc:PersonGivenName are allowed by the xsd, INTERPOL's implementation expects only one.

### Valid Examples

<nc:PersonGivenName>Renate</nc:PersonGivenName>
---

## 9.69. Person Middle Name - NM3



**Field Reference:** 2/NAM/NAM:X3  
**Content Type:** Data\_X  
**XML Tag Name:** PersonMiddleName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [02.030:X3]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonName
          ↳/nc:PersonMiddleName
```

### Summary

Middle name of the subject being fingerprinted

### Notes

Even though multiple nc:PersonMiddleName are allowed by the xsd, INTERPOL's implementation expects only one.

### Valid Examples

```
<nc:PersonMiddleName>Erika</nc:PersonMiddleName>
```

## 9.70. Person Surname - NM4



**Field Reference:** 2/NAM/NAM:X4  
**Content Type:** Data\_X  
**XML Tag Name:** PersonSurName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [02.030:X4]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/NAM/NAM:X7]

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonName
          ↳/nc:PersonSurName
```

### Summary

Surname of the subject being fingerprinted.

### Notes

Even though multiple nc:PersonSurName are allowed by the xsd, INTERPOL's implementation expects only one.

### Valid Examples

```
>nc:PersonSurName>Mustermann</nc:PersonSurName>
```

## 9.71. Person Suffix Name - NM5

### PersonNameSuffixText

**Field Reference:** 2/NAM/NAM:X5  
**Content Type:** Data\_X  
**XML Tag Name:** PersonNameSuffixText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.030:X5]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonName
          ↳/nc:PersonNameSuffixText
```

### Summary

Suffix of the subject being fingerprinted.

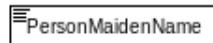
### Notes

Even though multiple nc:PersonNameSuffixText are allowed by the xsd, INTERPOL's implementation expects only one.

### Valid Examples

```
<nc:PersonNameSuffixText>Jr.</nc:PersonNameSuffixText>
```

## 9.72. Person Maiden Name - NM6



**Field Reference:** 2/NAM/NAM:X6  
**Content Type:** Data\_X  
**XML Tag Name:** PersonMaidenName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [02.030:X6]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonName
          ↳/nc:PersonMaidenName
```

### Summary

Maiden name of the subject being fingerprinted.

### Notes

Even though multiple nc:PersonMaidenName are allowed by the xsd, INTERPOL's implementation expects only one.

### Valid Examples

```
<nc:PersonMaidenName>Schmidt</nc:PersonMaidenName>
```

## 9.73. Person Extended Name - NM7

### PersonExtendedName

**Field Reference:** 2/NAM/NAM:X7  
**Content Type:** Data\_X  
**XML Tag Name:** PersonExtendedName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.030:X7]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Absence of other Field	[2/NAM/NAM:X2],[2/NAM/NAM:X4]

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonName
          ↳/int-i:PersonExtendedName
```

### Summary

Extended name of the subject being fingerprinted.

### Notes

Even though multiple int-i:PersonExtendedName are allowed by the xsd, INTERPOL's implementation expects only one.

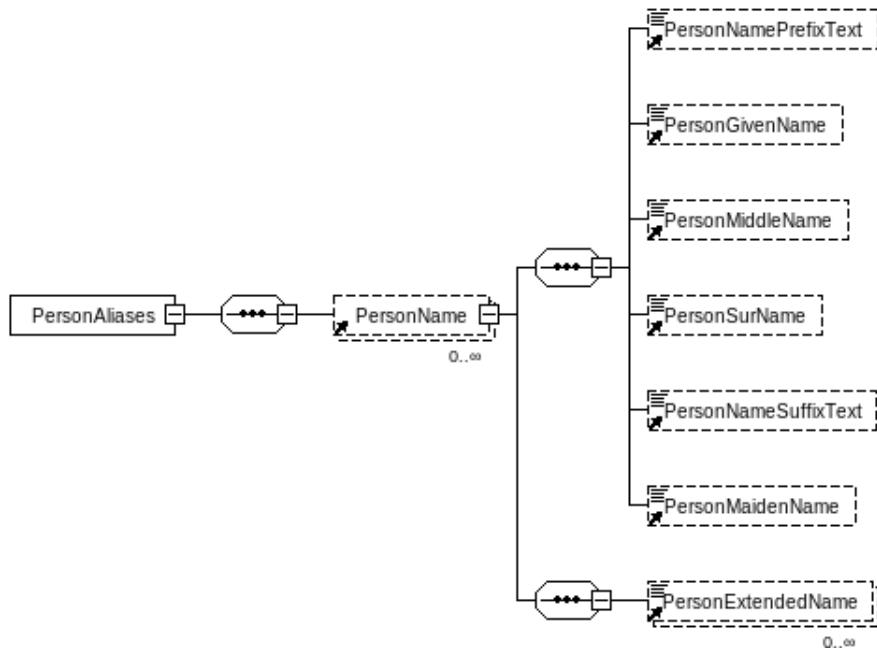
The extended name is used for two different cases:

- when the local culture does not follow the first/middle/last naming convention;
- in case of record conversion, when it would be difficult to convert the full name from a single string to the XML structure.

### Valid Examples

<int-i:PersonExtendedName>Dr. Renate Erika Mustermann</int-i:PersonExtendedName>
--

## 9.74. Aliases - AKA



**Field Reference:** 2/AKA  
**Content Type:** Set\_X  
**XML Tag Name:** PersonAliases  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:**  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:PersonAliasesType

**Field ID:** [02.034]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:**  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳ itl:UserDefinedDescriptiveDetail
    ↳ itl:DomainDefinedDescriptiveDetail
      ↳ int-i:RecordSubject
        ↳ int-i:PersonAliases
  
```

### Summary

The aliases of the subject being fingerprinted.

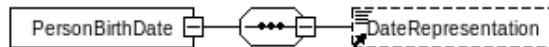
### Notes

Each alias has the same format as the name field (9.66) with up to 7 subfields.

**Valid Examples**

```
<int-i:PersonAliases>
  <int-i:PersonName>
    <nc:PersonGivenName>Heike</nc:PersonGivenName>
    <nc:PersonSurName>Schneider</nc:PersonSurName>
  </int-i:PersonName>
</int-i:PersonAliases>
```

## 9.75. Date of Birth (XML) - DOB



**Field Reference:** 2/DOB:X

**Content Type:** Data\_X

**XML Tag Name:** PersonBirthDate

**Data Type:** NS

**Minimum Length:** 10

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:date

**Field ID:** [02.035:X]

**Condition:** Optional

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** [-]

**Maximum Length:** 10

**Maximum Occurrences:** 1

**Regular Expression:** \d{4}-\d{2}-\d{2}

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthDate
          ↳/nc:Date
  
```

### Summary

Date of birth of the subject being fingerprinted.

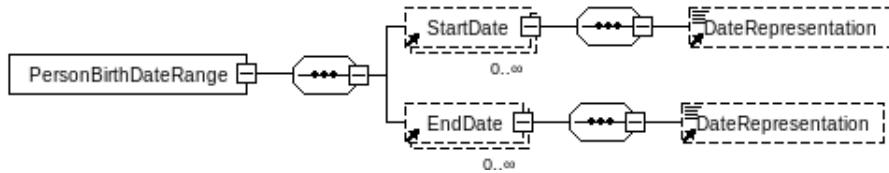
### Notes

The date format should follow the ISO 8601 standard.

### Valid Examples

```
<nc:PersonBirthDate><nc:Date>1950-12-01</nc:Date></nc:PersonBirthDate>
```

## 9.76. Date of Birth Range (XML) - DBR



**Field Reference:** 2/DBR:X

**Content Type:** Set\_X

**XML Tag Name:** PersonBirthDateRange

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:DateRangeType

**Field ID:** [02.036-A\_02.036-B]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/DOB:X]

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonBirthDateRange
```

### Summary

Date of birth of the subject being fingerprinted, expressed as range of date.

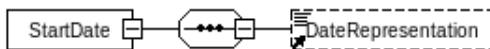
### Notes

Either the date (DOB/2.036) or the date of birth range can be used, but not both at the same time.

### Valid Examples

```
<int-i:PersonBirthDateRange>
  <nc:StartDate>
    <nc:Date>1948-01-01</nc:Date>
  </nc:StartDate>
  <nc:EndDate>
    <nc:Date>1960-12-31</nc:Date>
  </nc:EndDate>
</int-i:PersonBirthDateRange>
```

## 9.77. Date of Birth Range (XML) - Min Date - SDA



**Field Reference:** 2/DBR/SDA  
**Content Type:** Data\_X  
**XML Tag Name:** StartDate  
**Data Type:** NS  
**Minimum Length:** 10  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:DateType

**Field ID:** [02.036-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** []  
**Maximum Length:** 10  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonBirthDateRange
          ↳/nc:StartDate
```

### Summary

Start of the date of birth range of the subject being fingerprinted.

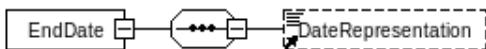
### Notes

The date format should follow the ISO 8601 standard.

### Valid Examples

```
<nc:StartDate>
  <nc:Date>1948-01-01</nc:Date>
</nc:StartDate>
```

## 9.78. Date of Birth Range (XML) - Max Date - EDA



**Field Reference:** 2/DBR/EDA  
**Content Type:** Data\_X  
**XML Tag Name:** EndDate  
**Data Type:** NS  
**Minimum Length:** 10  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:DateType

**Field ID:** [02.036-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** []  
**Maximum Length:** 10  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonBirthDateRange
          ↳/nc:EndDate
  
```

### Summary

End of the date of birth range of the subject being fingerprinted.

### Notes

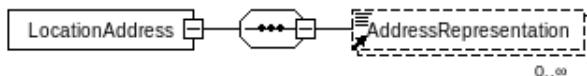
The date format should follow the ISO 8601 standard.

### Valid Examples

```

<nc:EndDate>
  <nc:Date>1960-12-31</nc:Date>
</nc:EndDate>
  
```

## 9.79. Place of Birth (XML) - POB



**Field Reference:** 2/POB:X  
**Content Type:** Set\_X  
**XML Tag Name:** LocationAddress  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:AddressType

**Field ID:** [02.037:X]  
**Condition:** Optional  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
```

### Summary

Place of birth of the subject being fingerprinted. The field contains the address in a structured format or free text format.

### Notes

Even though multiple location addresses can be specified according to the xsd, INTERPOL's implementation expect only one: either a StructuredAddress, or an AddressFullText, but not both.

### Valid Examples

```
<nc:LocationAddress>
  <nc:StructuredAddress>
    <nc:LocationStreet>
      <nc:StreetNumberText>11</nc:StreetNumberText>
      <nc:StreetName>Thaerstrasse</nc:StreetName>
    </nc:LocationStreet>
    <nc:LocationCityName>Wiesbaden</nc:LocationCityName>
    <nc:LocationStateName>Hessen</nc:LocationStateName>
    <nc:LocationCountryISO3166Alpha3Code>DEU</nc:LocationCountryISO3166Alpha3Code>
    <nc:LocationPostalCode>65173</nc:LocationPostalCode>
  </nc:StructuredAddress>
</nc:LocationAddress>
or
<nc:LocationAddress>
  <nc:AddressFullText>
    Thaerstrasse 11,
    Wiesbaden 65173
    Deutschland
  </nc:AddressFullText>
</nc:LocationAddress>
```

### Invalid Examples

```
<nc:LocationAddress>
  <nc:StructuredAddress>
    <nc:LocationStreet>
      <nc:StreetNumberText>11</nc:StreetNumberText>
      <nc:StreetName>Thaerstrasse</nc:StreetName>
    </nc:LocationStreet>
    <nc:LocationCityName>Wiesbaden</nc:LocationCityName>
    <nc:LocationStateName>Hessen</nc:LocationStateName>
    <nc:LocationCountryISO3166Alpha3Code>DEU</nc:LocationCountryISO3166Alpha3Code>
    <nc:LocationPostalCode>65173</nc:LocationPostalCode>
  </nc:StructuredAddress>
  <nc:AddressFullText>
    Thaerstrasse 11,
    Wiesbaden 65173
    Deutschland
  </nc:AddressFullText>
</nc:LocationAddress>
```

## 9.80. Place of Birth (XML) – Free text form - POB

### AddressFullText

**Field Reference:** 2/POB/POB:X1  
**Content Type:** Data\_X  
**XML Tag Name:** AddressFullText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.037:X1]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [-]  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

**Dependency table**

Type of dependency	Value
Mandatory on Absence of other Field	[2/POB/POB:X2]

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:AddressFullText
```

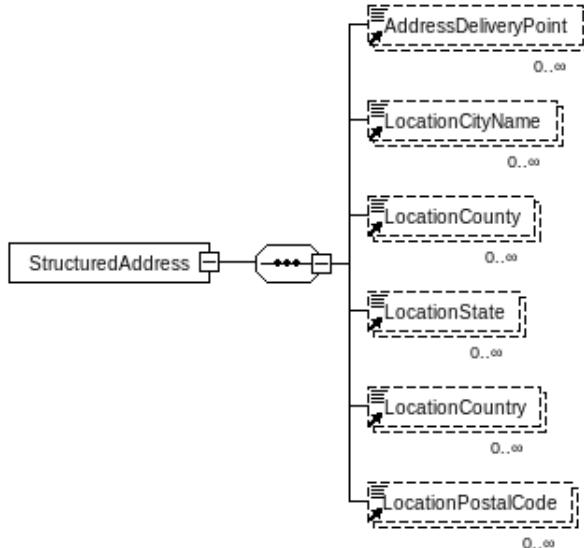
### Summary

Place of birth of the subject being fingerprinted, in free text format.

### Valid Examples

```
<nc:AddressFullText>
  Thaerstrasse 11,
  Wiesbaden 65173
  Deutschland
</nc:AddressFullText>
```

## 9.81. Place of Birth (XML) – Structured address form - POB



**Field Reference:** 2/POB/POB:X2  
**Content Type:** Set\_X  
**XML Tag Name:** StructuredAddress  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:StructuredAddressType

**Field ID:** [02.037:X2-A\_02.037:X2-G]  
**Condition:** Dependent (see table)  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/POB/POB:X1]

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
  
```

### Summary

Place of birth of the subject being fingerprinted, in structured format.

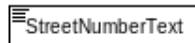
### Notes

When using a nc:StructuredAddress, at least the nc:LocationCountryISO3166Alpha3Code must be specified.

**Valid Examples**

```
<nc:StructuredAddress>
    <nc:LocationStreet>
        <nc:StreetNumberText>11</nc:StreetNumberText>
        <nc:StreetName>Thaerstrasse</nc:StreetName>
    </nc:LocationStreet>
    <nc:LocationCityName>Wiesbaden</nc:LocationCityName>
    <nc:LocationStateName>Hessen</nc:LocationStateName>
    <nc:LocationCountryISO3166Alpha3Code>DEU</nc:LocationCountryISO3166Alpha3Code>
    <nc:LocationPostalCode>65173</nc:LocationPostalCode>
</nc:StructuredAddress>
```

## 9.82. Place of Birth (XML) – Street number - PB1



**Field Reference:** 2/POB/POB:X2/PB1  
**Content Type:** Data\_X  
**XML Tag Name:** StreetNumberText  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.037:X2-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStreet
                ↳/nc:StreetNumberText
```

### Summary

In structured format, street number of the place of birth of the subject being fingerprinted.

## 9.83. Place of Birth (XML) – Street name - PB2



**Field Reference:** 2/POB/POB:X2/PB2  
**Content Type:** Data\_X  
**XML Tag Name:** StreetName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.037:X2-B]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

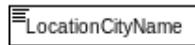
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStreet
                ↳/nc:StreetName
```

### Summary

In structured format, street name of the place of birth of the subject being fingerprinted.

## 9.84. Place of Birth (XML) – City name - PB3



**Field Reference:** 2/POB/POB:X2/PB3  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCityName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.037:X2-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

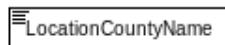
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCityName
```

### Summary

In structured format, city name of the place of birth of the subject being fingerprinted.

## 9.85. Place of Birth (XML) – County name - PB4



**Field Reference:** 2/POB/POB:X2/PB4  
**Content Type:** Data\_X  
**XML Tag Name:** LocationCountyName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.037:X2-D]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

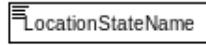
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCountyName
```

### Summary

In structured format, county, parish, or vicarage name of the place of birth of the subject being fingerprinted.

## 9.86. Place of Birth (XML) – State name - PB5



**Field Reference:** 2/POB/POB:X2/PB5  
**Content Type:** Data\_X  
**XML Tag Name:** LocationStateName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:ProperNameTextType

**Field ID:** [02.037:X2-E]  
**Condition:** Optional within a field  
**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationStateName
```

### Summary

In structured format, state name of the place of birth of the subject being fingerprinted.

## 9.87. Place of Birth (XML) – Country code - PB6



**Field Reference:** 2/POB/POB:X2/PB6

**Content Type:** Data\_X

**XML Tag Name:** LocationCountryISO3166Alpha3Code

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** [iso\\_3166:CountryAlpha3CodeType](#)

**Field ID:** [02.037:X2-F]

**Condition:** Mandatory within a field

**Defined in:** xsd:niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

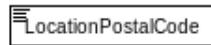
### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationCountryISO3166Alpha3Code
```

### Summary

In structured format, country code in ISO3166 Alpha-3 format of the place of birth of the subject being fingerprinted.

## 9.88. Place of Birth (XML) – Postal code - PB7



**Field Reference:** 2/POB/POB:X2/PB7  
**Content Type:** Data\_X  
**XML Tag Name:** LocationPostalCode  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [02.037:X2-G]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonBirthLocation
          ↳/nc:LocationAddress
            ↳/nc:StructuredAddress
              ↳/nc:LocationPostalCode
```

### Summary

In structured format, postal or ZIP code of the place of birth of the subject being fingerprinted.

## 9.89. Nationality - NAT



**Field Reference:** 2/NAT  
**Content Type:** Data  
**XML Tag Name:** PersonCitizenshipISO3166Alpha3Code  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [iso\\_3166:CountryAlpha3CodeType](#)

**Field ID:** [02.038]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=”ATP”

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/nc:PersonCitizenshipISO3166Alpha3Code
```

### Summary

The ISO3166 Alpha3 code of the nationality of the subject being fingerprinted.

### Valid Examples

```
<nc:PersonCitizenshipISO3166Alpha3Code>DEU</nc:PersonCitizenshipISO3166Alpha3Code>
```

## 9.90. Sex - SEX

### PersonSexCode

**Field Reference:** 2/SEX  
**Content Type:** Data  
**XML Tag Name:** PersonSexCode  
**Data Type:** A  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {"M", "F", "U"}  
**Code table:** see table [A.58](#)  
**Base type:** int-i:PersonSexCodeType

**Field ID:** [02.039]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""ATP" [1/TOT]=""CPS"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordSubject
        ↳/int-i:PersonSexCode
```

### Summary

Sex of the subject being fingerprinted.

### Valid Examples

```
<int-i:PersonSexCode>M</int-i:PersonSexCode>
```

## 9.91. Offence Description Text - OTY

### OffenceDescriptionText

**Field Reference:** 2/OTY:X  
**Content Type:** Data\_X  
**XML Tag Name:** OffenceDescriptionText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.054:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** ALL  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[2/RFP]=""NLC"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:OffenceDescriptionText
```

### Summary

Description of the crime committed.

### Valid Examples

```
<int-i:OffenceDescriptionText>Kidnapped Perry the platypus</int-i:OffenceDescriptionText>
```

## 9.92. Date (and Time) of Offence (XML) - DOO



**Field Reference:** 2/DOO:X  
**Content Type:** Data\_X  
**XML Tag Name:** OffenceDateTime  
**Data Type:** ANS  
**Minimum Length:** 10  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:dateTime or niem-xsd:date

**Field ID:** [02.055:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** [-]  
**Maximum Length:** 19  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	[2/DOR:X]
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""MPS"

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordOffence
        ↳int-i:OffenceDateTime
          ↳nc:DateTime
or
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordOffence
        ↳int-i:OffenceDateTime
          ↳nc:Date
  
```

### Summary

Date (and possibly time) on which the Offence was committed.

### Notes

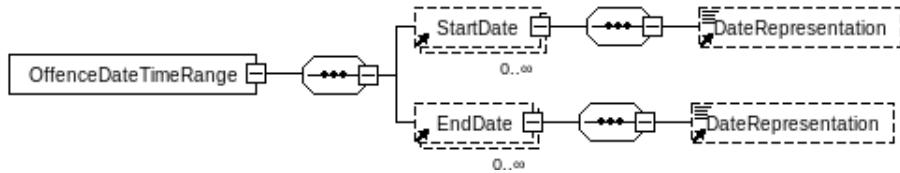
Either the date of offence (DOO/2.055) or the date of offence range (DOR/2.056) can be used, but not both at the same time.

### Valid Examples

```

<int-i:OffenceDateTime>
  <nc:DateTime>2016-12-17T15:00:00</nc:DateTime>
<int-i:OffenceDateTime>
or
<int-i:OffenceDateTime>
  <nc:Date>2016-12-17</nc:Date>
<int-i:OffenceDateTime>
  
```

## 9.93. Date of Offence Range (XML) - DOR



**Field Reference:** 2/DOR:X

**Content Type:** Set\_X

**XML Tag Name:** OffenceDateTimeRange

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:DateRangeType

**Field ID:** [02.056-A\_02.056-B]]

**Condition:** Dependent (see table)

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Absence of other Field	[2/DOO:X]
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""MPS"

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:OffenceDateTimeRange
  
```

### Summary

Date (and possible time) range during which the offence was committed.

### Notes

Either the date of offence (DOO/2.055) or the date of offence range (DOR/2.056) can be used, but not both at the same time.

### Valid Examples

```

<int-i:OffenceDateTimeRange>
  <nc:StartDate>
    <nc:DateTime>2016-12-17T17:00:00</nc:DateTime>
  </nc:StartDate>
  <nc:EndDate>
    <nc:Date>2016-12-18</nc:Date>
  </nc:EndDate>
</int-i:OffenceDateTimeRange>
  
```

## 9.94. Date (and Time) of Offence Range (XML) - Min Date - SDA



**Field Reference:** 2/DOR/SDA  
**Content Type:** Data\_X  
**XML Tag Name:** StartDate  
**Data Type:** ANS  
**Minimum Length:** 10  
**Minimum Occurrences:** 0  
**Value range:** n/a

**Code table:** n/a  
**Base type:** niem-xsd:dateTime or niem-xsd:date

**Field ID:** [02.056-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [:]  
**Maximum Length:** 19  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}\d{2}(T\d{2}:\d{2}:\d{2}(Z){0,1}){0,1}  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:OffenceDateTimeRange
          ↳/nc:StartDate
          ↳/nc:DateTime

```

or

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:OffenceDateTimeRange
          ↳/nc:StartDate
          ↳/nc:Date

```

### Summary

Start of the date (and time) of offence range of the subject being fingerprinted.

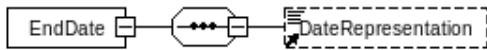
### Valid Examples

```

<nc:StartDate><nc:Date>2016-12-17</nc:Date></nc:StartDate>
or
<nc:StartDate><nc:DateTime>2016-12-17T11:00:00</nc:DateTime></nc:StartDate>

```

## 9.95. Date (and Time) of Offence Range (XML) - Max Date - EDA



**Field Reference:** 2/DOR/EDA

**Content Type:** Data\_X

**XML Tag Name:** EndDate

**Data Type:** ANS

**Minimum Length:** 10

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:dateTime or niem-xsd:date

**Field ID:** [02.056-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** [:]

**Maximum Length:** 19

**Maximum Occurrences:** 1

**Regular Expression:** \d{2}(T\d{2}:\d{2}:\d{2}(Z){0,1}){0,1}

\d{4}-\d{2}-

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:OffenceDateTimeRange
          ↳/nc:EndDate
          ↳/nc:DateTime
  or
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordOffence
        ↳/int-i:OffenceDateTimeRange
          ↳/nc:EndDate
          ↳/nc:Date
  
```

### Summary

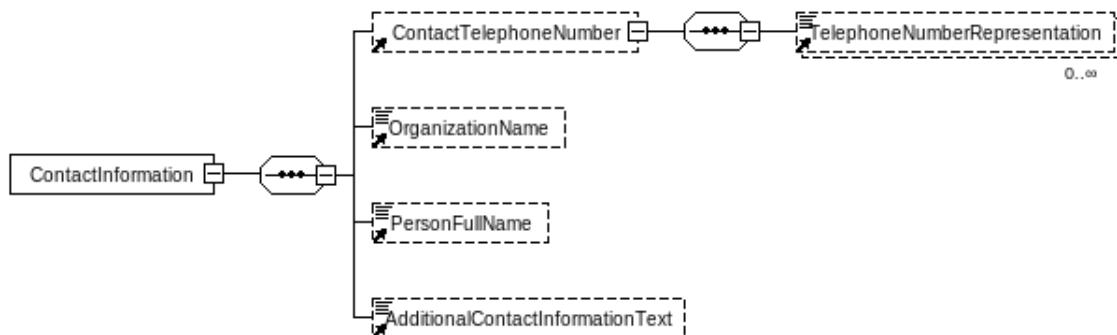
End of the date (and time) of offence range of the subject being fingerprinted.

### Valid Examples

```

<nc:EndDate><nc:Date>2016-12-18</nc:Date></nc:EndDate>
or
<nc:EndDate><nc:DateTime>2016-12-18T10:00:00</nc:DateTime></nc:EndDate>
  
```

## 9.96. Additional Contact Information - INF



**Field Reference:** 2/INF:X  
**Content Type:** Set\_X  
**XML Tag Name:** ContactInformation  
**Data Type:** U  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i>ContactInformationType

**Field ID:** [02.063-A\_02.063-D]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:ContactInformation
```

### Summary

Additional contact point to get further information about the request

### Valid Examples

```
<int-i:ContactInformation>
  <nc>ContactTelephoneNumber>
    <nc:FullPhoneNumber>
      <nc:TelephoneNumberFullID>447700954321</nc:TelephoneNumberFullID>
    </nc:FullPhoneNumber>
  </nc>ContactTelephoneNumber>
  <nc:OrganizationName>Interpol</nc:OrganizationName>
  <nc:PersonFullName>Holock Holmes</nc:PersonFullName>
  <int-i:AdditionalContactInformationText>Contact Immediately. Terrorist.</int-i:
    AdditionalContactInformationText>
</int-i:ContactInformation>
```

## 9.97. Telephone number for the additional contact information - IN1

### nc:TelephoneNumberFullID

**Field Reference:** 2/INF/TEL  
**Content Type:** Data\_X  
**XML Tag Name:** TelephoneNumberFullID  
**Data Type:** N  
**Minimum Length:** 0  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [02.063-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 64  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i>ContactInformation
          ↳/nc:ContactTelephoneNumber
            ↳/nc:FullTelephoneNumber
              ↳/nc:TelephoneNumberFullID
```

### Summary

Telephone number of the additional contact point

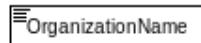
### Notes

INTERPOL implementation does not allow to use the nc:TelephoneSuffixID element along with the nc:TelephoneNumberFullID.

### Valid Examples

```
<nc:TelephoneNumberFullID>447700954321</nc:TelephoneNumberFullID>
```

## 9.98. Organization name for the additional contact information - IN2



**Field Reference:** 2/INF/ONM  
**Content Type:** Data\_X  
**XML Tag Name:** OrganizationName  
**Data Type:** ANS  
**Minimum Length:** 0  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.063-B]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 64  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i>ContactInformation
          ↳/nc:OrganizationName
```

### Summary

Name of the organization the additional contact point belong to

### Valid Examples

```
<nc:OrganizationName>INTERPOL</nc:OrganizationName>
```

## 9.99. Person full name for the additional contact information - IN3

### PersonFullName

**Field Reference:** 2/INF/PFN  
**Content Type:** Data\_X  
**XML Tag Name:** PersonFullName  
**Data Type:** ANS  
**Minimum Length:** 0  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [02.063-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 64  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i>ContactInformation
          ↳/nc:PersonFullName
```

### Summary

Person full name of the additional contact point

### Valid Examples

```
<nc:PersonFullName>Herlock Holmes</nc:PersonFullName>
```

## 9.100. Additional information for the additional contact information - IN4

### AdditionalContactInformationText

**Field Reference:** 2/INF/ACI

**Content Type:** Data\_X

**XML Tag Name:** AdditionalContactInformationText

**Data Type:** ANS

**Minimum Length:** 0

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [02.063-D]

**Condition:** Optional within a field

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:** 64

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i>ContactInformation
          ↳/int-i:AdditionalContactInformationText
```

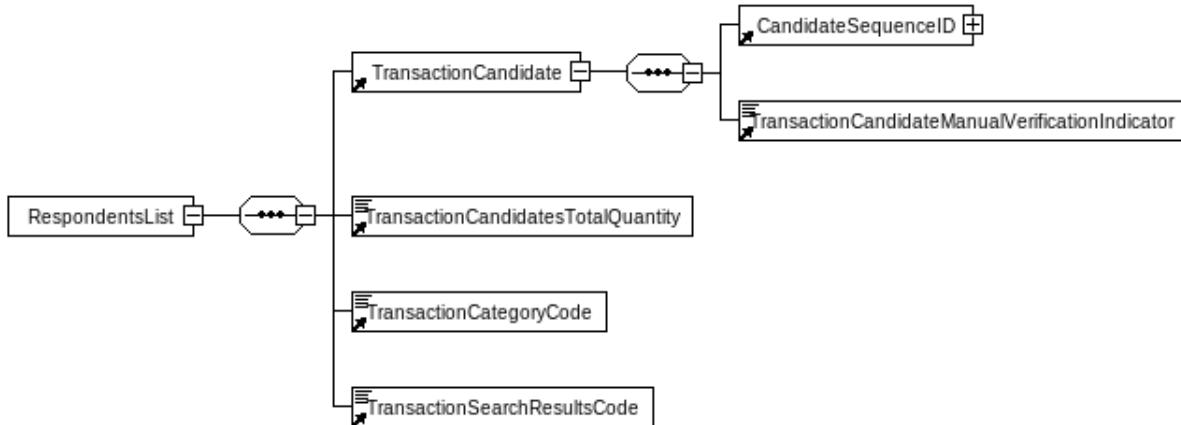
### Summary

Additional comment

### Valid Examples

```
<int-i:AdditionalContactInformationText>Contact Immediately. Terrorist.</int-i:AdditionalContactInformationText>
```

## 9.101. Respondent List (XML) - RLS



**Field Reference:** 2/RLS:X  
**Content Type:** Set\_X  
**XML Tag Name:** RespondentsList  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:RespondentsListType

**Field ID:** [02.064-A\_02064-E]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table	
Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=""SRE""

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:RespondentsList

```

### Summary

Result for a search request.

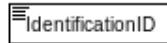
This field contains 3 subfields in case of a no-hit and 5 in case of a hit. Each search response message can convey at most one candidate. In case of multiple hits, multiple SRE must be sent to the requester.

The identifiers of the candidates are not transmitted in this structure, but rather in the standard identifier fields of the Type 2.

### Valid Examples

```
<int-i:RespondentsList>
  <int-i:TransactionCandidate>
    <int-i:CandidateSequenceID>
      <nc:IdentificationID>1</nc:IdentificationID>
    </int-i:CandidateSequenceID>
    <int-i:TransactionCandidateManualVerificationIndicator>true</int-i:TransactionCandidateManualVerificationIndicator>
  </int-i:TransactionCandidate>
  <int-i:TransactionCandidatesTotalQuantity>3</int-i:TransactionCandidatesTotalQuantity>
  <int-i:TransactionCategoryCode>CPS</int-i:TransactionCategoryCode>
  <int-i:TransactionSearchResultsCode>I</int-i:TransactionSearchResultsCode>
</int-i:RespondentsList>
```

## 9.102. Candidate Sequence ID - CSI



**Field Reference:** 2/RLS/CSI  
**Content Type:** Data\_X  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** \d{1,2}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [02.064-A]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[2/RLS/SRC] = "I"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:RespondentsList
          ↳/int-i:TransactionCandidate
            ↳/int-i:CandidateSequenceID
              ↳/nc:IdentificationID
```

### Summary

In case of a hit, this field represents the number of the candidate transmitted in the current message (out of the total number of candidates)

### Valid Examples

```
<nc:IdentificationID>1</nc:IdentificationID>
```

## 9.103. Candidate Manual Verification Indicator - MVI

### TransactionCandidateManualVerificationIndicator

**Field Reference:** 2/RLS/MVI

**Content Type:** Data\_X

**XML Tag Name:** TransactionCandidateManualVerificationIndicator

**Data Type:** A

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** {"true", "false"}

**Code table:** n/a

**Base type:** niem-xsd:boolean

**Field ID:** [02.064-B]

**Condition:** Dependent (see table)

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[2/RLS/SRC] = "I"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:RespondentsList
          ↳/int-i:TransactionCandidate
            ↳/int-i:TransactionCandidateManualVerificationIndicator
```

### Summary

In case of a hit, this field indicates whether the candidate has been manually verified or not.

### Valid Examples

```
<int-i:TransactionCandidateManualVerificationIndicator>true</int-i:TransactionCandidateManualVerificationIndicator>
```

## 9.104. Candidates Total Quantity - CTQ

### TransactionCandidatesTotalQuantity

**Field Reference:** 2/RLS/CTQ  
**Content Type:** Data\_X  
**XML Tag Name:** TransactionCandidatesTotalQuantity  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** \d{1,2}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [02.064-C]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[2/RLS/SRC] = "I"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:RespondentsList
          ↳/int-i:TransactionCandidatesTotalQuantity
```

### Summary

In case of a hit, this field indicates the total number of candidates that the search yielded. As many SRE messages as candidates will be sent back to the requester.

### Valid Examples

```
<int-i:TransactionCandidatesTotalQuantity>3</int-i:TransactionCandidatesTotalQuantity>
```

## 9.105. Transaction Category Code - CAC

### TransactionCategoryCode

**Field Reference:** 2/RLS/CAC  
**Content Type:** Data\_X  
**XML Tag Name:** TransactionCategoryCode  
**Data Type:** AS  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table [A.60](#)  
**Base type:** int-i:TransactionCategoryCodeType

**Field ID:** [02.064-D]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:RespondentsList
          ↳/int-i:TransactionCategoryCode
```

### Summary

This field contains the mnemonic of the type of search that has been carried out.

### Valid Examples

```
<int-i:TransactionCategoryCode>CPS</int-i:TransactionCategoryCode>
```

## 9.106. Transaction Search Results Code - SRC

### TransactionSearchResultsCode

**Field Reference:** 2/RLS/SRC  
**Content Type:** Data\_X  
**XML Tag Name:** TransactionSearchResultsCode  
**Data Type:** A  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {"I","N"}  
**Code table:** n/a  
**Base type:** int-i:TransactionSearchResultsCodeType

**Field ID:** [02.064-E]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:RespondentsList
          ↳/int-i:TransactionSearchResultsCode
```

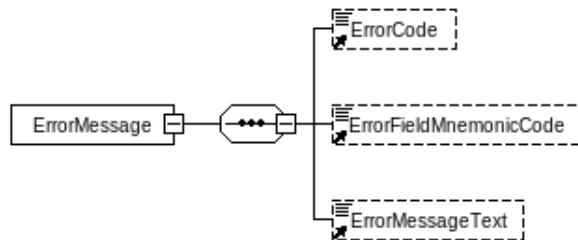
### Summary

This field contains a single character that gives the outcome of the search: I if candidates were found, N if not.

### Valid Examples

```
<int-i:TransactionSearchResultsCode>I</int-i:TransactionSearchResultsCode>
```

## 9.107. Error Message (XML) - ERM



**Field Reference:** 2/ERM:X  
**Content Type:** Set\_X  
**XML Tag Name:** ErrorMessage  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:ErrorMessageType

**Field ID:** [02.074-A\_02.074-C]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[1/TOT]=”ERR”

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:ErrorMessage
```

### Summary

This field is a structure that contains the error message resulting from a transaction which will be sent back to the requester.

### Valid Examples

```
<int-i:ErrorMessage>
  <int-i:ErrorCode>101</int-i:ErrorCode>
  <int-i:ErrorFieldMnemonicCode>NAME</int-i:ErrorFieldMnemonicCode>
  <int-i:ErrorMessageText>MANDATORY FIELD MISSING</int-i:ErrorMessageText>
</int-i:ErrorMessage>
```

## 9.108. Error code - ECO



**Field Reference:** 2/ERM/ECO  
**Content Type:** Data\_X  
**XML Tag Name:** ErrorCode  
**Data Type:** N  
**Minimum Length:** 3  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table [A.22](#)  
**Base type:** int-i:ErrorCodeType

**Field ID:** [02.074-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:ErrorMessage
          ↳/int-i:ErrorCode
```

### Summary

This field contains the numeric error code.

### Notes

The error codes and the corresponding messages are given in table [A.22](#) in annex A.

### Valid Examples

```
<int-i:ErrorCode>101</int-i:ErrorCode>
```

## 9.109. Error Field Mnemonic Code - EFM

### ErrorFieldMnemonicCode

**Field Reference:** 2/ERM/EFM  
**Content Type:** Data\_X  
**XML Tag Name:** ErrorFieldMnemonicCode  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.074-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:ErrorMessage
          ↳/int-i:ErrorFieldMnemonicCode
```

### Summary

This field contains the 3-letter mnemonic of the field that caused the error.

### Valid Examples

```
<int-i:ErrorFieldMnemonicCode>NAM</int-i:ErrorFieldMnemonicCode>
```

## 9.110. Error Message Text - EMT



**Field Reference:** 2/ERM/EMT  
**Content Type:** Data\_X  
**XML Tag Name:** ErrorMessageText  
**Data Type:** ANS  
**Minimum Length:** 0  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table A.22  
**Base type:** nc:TextType

**Field ID:** [02.074-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 128  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/it1:PackageDescriptiveTextRecord
  ↳/it1:UserDefinedDescriptiveDetail
    ↳/it1:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:ErrorMessage
          ↳/int-i:ErrorMessageText
```

### Summary

This field contains the error message text corresponding to the numeric error code of the previous field.

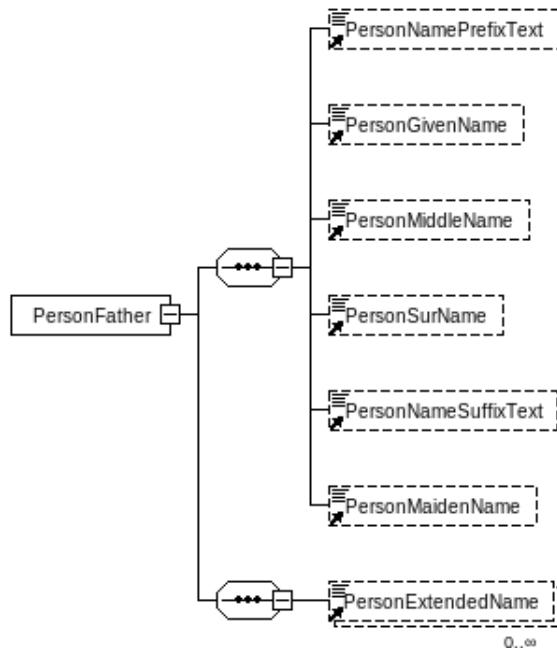
### Notes

The error codes and the corresponding messages are given in table A.22 in annex A.

### Valid Examples

```
<int-i:ErrorMessageText>MANDATORY FIELD MISSING</int-i:ErrorMessageText>
```

### 9.111. Father's name - FFN



**Field Reference:** 2/FFN  
**Content Type:** Set\_X  
**XML Tag Name:** PersonFather  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:PersonNameType

**Field ID:** [02.075:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

#### XPath

```

/itl:PackageDescriptiveTextRecord
  </itl>UserDefinedDescriptiveDetail
    </itl>DomainDefinedDescriptiveDetail
      </int-i:RecordSubject
        </int-i:PersonFather
  
```

#### Summary

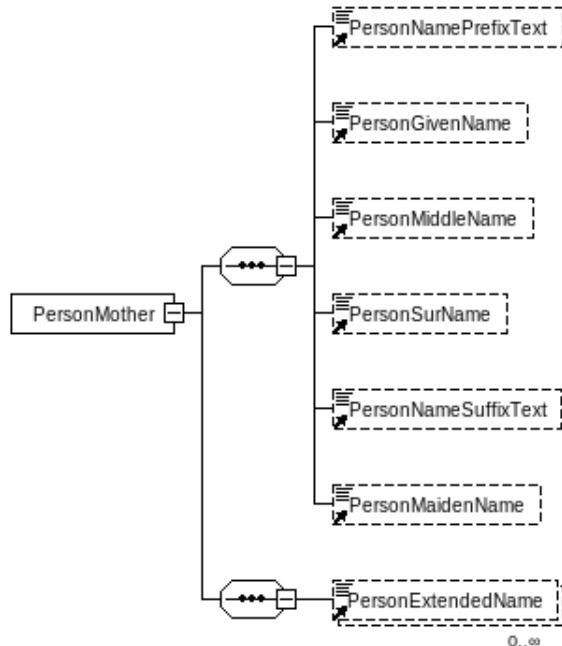
This field specifies the identity of the father of the person being fingerprinted, in particular his family name.

It has the same structure as the field 2.030/NAM, but most likely you would only specify the nc:PersonSurName

**Valid Examples**

```
<int-i:PersonFather>
  <nc:PersonGivenName>Max</nc:PersonGivenName>
  <nc:PersonSurName>Schneider</nc:PersonSurName>
</int-i:PersonFather>
```

## 9.112. Mother's family name - MMN



**Field Reference:** 2/MMN  
**Content Type:** Set\_X  
**XML Tag Name:** PersonMother  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:PersonNameType

**Field ID:** [02.076:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordSubject
        ↳int-i:PersonMother
  
```

### Summary

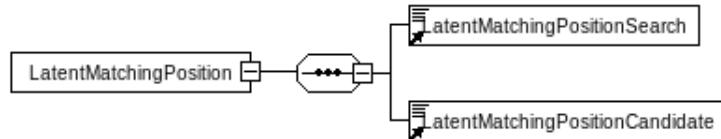
This field specifies the identity of the mother of the person being fingerprinted, in particular her maiden name.

It has the same structure as the field 2.030/NAM, but most likely you would only specify the nc:PersonMaidenName

**Valid Examples**

```
<int-i:PersonMother>
  <nc:PersonGivenName>Sabine</nc:PersonGivenName>
  <nc:PersonMaidenName>Meyer</nc:PersonMaidenName>
</int-i:PersonMother>
```

### 9.113. Latent Matching Position - LMP



**Field Reference:** 2/LMP  
**Content Type:** Set\_X  
**XML Tag Name:** LatentMatchingPosition  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** int-i:LatentMatchingPositionType

**Field ID:** [02.077-A\_02.077-B]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

#### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:LatentMatchingPosition
  
```

#### Summary

In case of an SRE transaction this optional field contains 2 subfields: the FGP Code of the matched finger, palm or latent and the FGP of the finger, palm or latent which caused the possible HIT.

#### Valid Examples

```

<int-i:LatentMatchingPosition>
  <int-i:LatentMatchingPositionSearch>11</int-i:LatentMatchingPositionSearch>
  <int-i:LatentMatchingPositionCandidate>13</int-i:LatentMatchingPositionCandidate>
</int-i:LatentMatchingPosition>
  
```

## 9.114. Latent Matching Position – Search - LMS

### LatentMatchingPositionSearch

**Field Reference:** 2/LMP/LMS  
**Content Type:** Data\_X  
**XML Tag Name:** LatentMatchingPositionSearch  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.25  
**Base type:** int-i:LatentMatchingPositionSimpleType

**Field ID:** [02.077-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{1,2}  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:LatentMatchingPosition
          ↳/int-i:LatentMatchingPositionSearch
```

### Summary

FGP of the matched finger, palm or latent

### Notes

The position codes are given in table A.25 in annex A.

### Valid Examples

```
<int-i:LatentMatchingPositionSearch>11</int-i:LatentMatchingPositionSearch>
```

## 9.115. Latent Matching Position – Candidate - LMC

### LatentMatchingPositionCandidate

**Field Reference:** 2/LMP/LMS-1  
**Content Type:** Data\_X  
**XML Tag Name:** LatentMatchingPositionCandidate  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table [A.25](#)  
**Base type:** int-i:LatentMatchingPositionSimpleType

**Field ID:** [02.077-A]  
**Condition:** Optional within a field  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{1,2}  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionResponseData
        ↳/int-i:LatentMatchingPosition
          ↳/int-i:LatentMatchingPositionCandidate
```

### Summary

FGP of the finger, palm or latent that created the hit

### Notes

The position codes are given in table [A.25](#) in annex A.

### Valid Examples

```
<int-i:LatentMatchingPositionCandidate>13</int-i:LatentMatchingPositionCandidate>
```

## 9.116. INTERPOL Reference Number - IRN

### InterpolReferenceNumber

**Field Reference:** 2/IRN  
**Content Type:** Data\_X  
**XML Tag Name:** InterpolReferenceNumber  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.090:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 32  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:MiscellaneousIdentification
          ↳/int-i:InterpolReferenceNumber
```

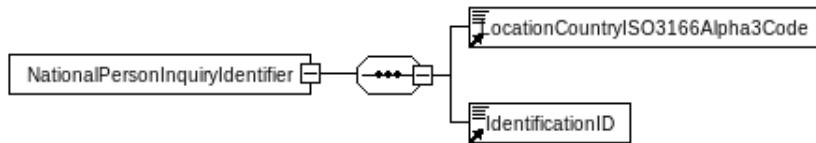
### Summary

This field allows to transmit the INTERPOL reference number for the Person or the Latent.

### Valid Examples

```
<int-i:InterpolReferenceNumber>01234567890A</int-i:InterpolReferenceNumber>
```

## 9.117. National Person Inquiry Identifier - NPI



**Field Reference:** 2/NPI

**Content Type:** Set\_X

**XML Tag Name:** NationalPersonInquiryIdentifier

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** int-i:NationalIdentifierType

**Field ID:** [02.091:X]

**Condition:** Optional

**Defined in:** xsd/int-i/1.0/int-i.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳int-i:RecordMetadata
        ↳int-i:MiscellaneousIdentification
          ↳int-i:NationalPersonInquiryIdentifier
  
```

### Summary

This field allows to transmit the a temporary person reference number for the inquiry.

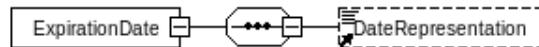
It has the same format as 2.010 (CRN) field, namely 2 subfields: a ISO3166 Alpha-3 country code identifying the country owning the Person, and the reference number itself.

### Valid Examples

```

<int-i:NationalPersonInquiryIdentifier>
  <int-i:LocationCountryISO3166Alpha3Code>DEU</int-i:LocationCountryISO3166Alpha3Code>
  <nc:IdentificationID>0987654321</nc:IdentificationID>
</int-i:NationalPersonInquiryIdentifier>
  
```

## 9.118. Record Expiration Date - EXP



**Field Reference:** 2/EXP  
**Content Type:** Data\_X  
**XML Tag Name:** ExpirationDate  
**Data Type:** NS  
**Minimum Length:** 10  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:date

**Field ID:** [02.092:X]  
**Condition:** Optional  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [-]  
**Maximum Length:** 10  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/nc:ExpirationDate
          ↳/nc:Date

```

### Summary

If there is a known expiration date, this field gives the latest date when the record has to be deleted.

### Notes

Even though the XSD would allow a nc:DateTime object in this field, the INTERPOL implementation only allows the use of a nc:Date element.

### Valid Examples

```

<nc:ExpirationDate>
  <nc:Date>2027-07-11</nc:Date>
</nc:ExpirationDate>

```

### Invalid Examples

```

<nc:ExpirationDate>
  <nc:DateTime>2027-07-11T12:00:00</nc:DateTime>
</nc:ExpirationDate>

```

## 9.119. Latent Unique Identifier - LID

### LatentUniqueIdentifier

**Field Reference:** 2/LID  
**Content Type:** Data\_X  
**XML Tag Name:** LatentUniqueIdentifier  
**Data Type:** ANS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.093:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** [/.-]  
**Maximum Length:** 128  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordMetadata
        ↳/int-i:LatentUniqueIdentifier
```

### Summary

This field is an optional unique reference identifier for the latent. It can be the concatenation of the case reference, evidence identifier and latent identifier, or any other identifier decided by the implementing country.

If specified in the request, it should be included in the response.

### Valid Examples

```
<int-i:LatentUniqueIdentifier>001</int-i:LatentUniqueIdentifier>
```

## 9.120. Result Determination Mode - RDM

### ResultDeterminationMode

**Field Reference:** 2/RDM  
**Content Type:** Data\_X  
**XML Tag Name:** ResultDeterminationMode  
**Data Type:** A  
**Minimum Length:** 2  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table [A.51](#)  
**Base type:** int-i:ResultDeterminationModeSimpleType

**Field ID:** [02.094:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:TransactionMetadata
        ↳/int-i:ResultDeterminationMode
```

### Summary

As part of inquiry, indicates the type of processing and verification request; in a response indicates the processing and verification of any results.

### Notes

If an inquiry has this element populated, any subsequent response should also include this element. Not all systems will include all modes; supported modes should be agreed between parties. Where only one mode or a default mode is agreed, this element can be omitted.

### Valid Examples

```
<int-i:ResultDeterminationMode>CO</int-i:ResultDeterminationMode>
```

## 9.121. Civil Description Code - CRF



**Field Reference:** 2/CRF  
**Content Type:** Data\_X  
**XML Tag Name:** CivilDescriptionCode  
**Data Type:** A  
**Minimum Length:** 2  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table [A.7](#)  
**Base type:** int-i:CivilDescriptionCodeType

**Field ID:** [02.095:X]  
**Condition:** Optional  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordCivil
        ↳/int-i:CivilDescriptionCode
```

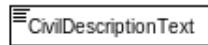
### Summary

Reason for acquiring the fingerprints (Non-criminal acquisition)

### Valid Examples

```
<int-i:CivilDescriptionCode>OTH</int-i:CivilDescriptionCode>
```

## 9.122. Civil Description Text - COT



**Field Reference:** 2/COT  
**Content Type:** Data\_X  
**XML Tag Name:** CivilDescriptionText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [02.096:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/int-i/1.0/int-i.xsd  
**Special Characters:** ALL  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://interpol.int/int-i/1.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[2/RFP]=""OTH"

### XPath

```
/itl:PackageDescriptiveTextRecord
  ↳/itl:UserDefinedDescriptiveDetail
    ↳/itl:DomainDefinedDescriptiveDetail
      ↳/int-i:RecordCivil
        ↳/int-i:CivilDescriptionText
```

### Summary

Description of the reason to acquire the fingerprint (Non-criminal acquisition)

### Valid Examples

```
<int-i:CivilDescriptionText>VISA extension</int-i:CivilDescriptionText>
```

## 9.123. Field Mandatoriness in User-defined Descriptive Text Record

Depending on the context (especially on the type of transaction), the structure of the User-defined Descriptive Text will vary. The following table shows field by field, which ones are optional and which ones are mandatory, depending on the context.

Note that this table is just an overview: to know the exact conditions when each field is mandatory, optional, dependent... please refer to the field description page.

Table 9.1.: Field Summary for Type 2 Records

Field Ref	Description	CPS	PPS	PUS	CCS	UPS	UUS	ATP	ATC	DFP	DFC	BDQ	ACKS	RE	ERR	BDR	PMS	MPS	MMS
2	Package Descriptive Text Record (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/XRCC:X	XML Record Category Code	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/IDC	Information Designation Character	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/UDF	User-Defined Fields	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/UDF:X1	Domain-Defined Fields	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/UDF:X1/RAC	Record Activity Fields	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/UDF:X1/RSU	Record Subject Fields	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/UDF:X1/ROF	Record Offence Fields	O						O									O		
2/UDF:X1/RCI	Record Civil Fields																		
2/UDF:X1/RME	Record Metadata Fields	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2/UDF:X1/TRD	Transaction Response Data Fields	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O
2/UDF:X1/TMD	Transaction Metadata Fields	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/UDF:X2	Custom Defined Fields	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/DAR	Date of Record	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/DLU	Date of Last Update	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/CNO:X	Case Reference (XML)	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O
2/CNO:X/CN1	Case Reference Country	M^	M^	M^	M^	M^	M^	M^											
2/CNO:X/CN2	Case Reference Identifier	M^	M^	M^	M^	M^	M^	M^											
2/SQN	Evidence Identifier	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O
2/MID	Latent Identifier	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

Table 9.1.: Field Summary for Type 2 Records

Field Ref	Description	C	P	S	P	S	C	C	S	U	U	S	A	T	C	D	F	P	D	F	C	B	D	Q	A	K	S	R	E	R	B	D	R	P	M	S	M	P	S	M	M	S
2/CRN:X	Criminal Reference Number (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O					
2/CRN:X/CR1	Country Code of the Criminal Reference Number	M^																																								
2/CRN:X/CR2	Criminal Reference Number Value	M^																																								
2/ORN:X	Business Reference Number (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O						
2/ORN:X/OR1	Country Code of the Business Reference Number	M^																																								
2/ORN:X/OR2	Business Reference Number Value	M^																																								
2/MN1:X	Miscellaneous Identification Number 1 (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O						
2/MN1:X/MN1T	Miscellaneous Identification Number 1 (XML) – Type	O^																																								
2/MN1:X/MN1V	Miscellaneous Identification Number 1 (XML) – Value	M^																																								
2/MN2:X	Miscellaneous Identification Number 2 (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O						
2/MN2:X/MN2T	Miscellaneous Identification Number 2 (XML) – Type	O^																																								
2/MN2:X/MN2V	Miscellaneous Identification Number 2 (XML) – Value	M^																																								
2/MN3:X	Miscellaneous Identification Number 3 (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O						
2/MN3:X/MN3T	Miscellaneous Identification Number 3 (XML) – Type	O^																																								
2/MN3:X/MN3V	Miscellaneous Identification Number 3 (XML) – Value	M^																																								

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

Table 9.1.: Field Summary for Type 2 Records

Field Ref	Description	C	P	S	P	S	C	C	S	U	S	A	T	C	D	F	P	D	F	B	D	Q	A	K	S	R	E	R	B	D	R	P	M	S	M	P	S	M	M	S
2/MN4:X	Miscellaneous Identification Number 4 (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O				
2/MN4:X/MN4T	Miscellaneous Identification Number 4 (XML)	O^																																						
2/MN4:X/MN4V	Miscellaneous Identification Number 4 (XML)	M^																																						
2/MN5:X	Miscellaneous Identification Number 5 (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O				
2/MN5:X/MN5T	Miscellaneous Identification Number 5 (XML)	O^																																						
2/MN5:X/MN5V	Miscellaneous Identification Number 5 (XML)	M^																																						
2/DPR:X	Date (and Time) Fingerprinted	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O				
2/RFP	Offence Description Code	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O				
2/POA:X	Place Of Arrest	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O				
2/POA/POA:X1	Place of Arrest (XML) – Free-text-form address	Doa																																						
2/POA/POA:X2	Place of Arrest (XML) – Structured-form address	Doa																																						
2/POA/POA:X2/PIBde of Arrest (XML) – Street number	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^						
2/POA/POA:X2/PIBde of Arrest (XML) – Street name	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^						
2/POA/POA:X2/PIBde of Arrest (XML) – City name	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^						
2/POA/POA:X2/PIBde of Arrest (XML) – County name	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^						
2/POA/POA:X2/PIBde of Arrest (XML) – State name	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^						
2/POA/POA:X2/PIBde of Arrest (XML) – Country code	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^	M^							
2/POA/POA:X2/PIBde of Arrest (XML) – Postal code	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^	O^						
2/OBU:X	Capture Organization Information (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

Table 9.1.: Field Summary for Type 2 Records

Field Ref	Description	CPS	PPS	PUS	CCS	UPS	UUS	ATP	ATC	DFP	DFC	BDQ	ACK	SRE	ERR	BDR	PMS	MPS	SMMS
2/OBU/OBU:X1	Capture Organization Information (XML) – Organization Identification	O^																	
2/OBU/OBU:X2	Capture Organization Information (XML) – Organization Name	O^																	
2/OBU/OBU:X3	Capture Organization Information (XML) – Free-text-form address	O^																	
2/OBU/OBU:X4	Capture Organization Information (XML) – Structured-form address	O^																	
2/OBU/OBU:X4:CAP1	Capture Organization Information (XML) – Street number	O^																	
2/OBU/OBU:X4:CAP2	Capture Organization Information (XML) – Street name	O^																	
2/OBU/OBU:X4:CAP3	Capture Organization Information (XML) – City name	O^																	
2/OBU/OBU:X4:CAP4	Capture Organization Information (XML) – County name	O^																	
2/OBU/OBU:X4:CAP5	Capture Organization Information (XML) – State name	O^																	
2/OBU/OBU:X4:CAP6	Capture Organization Information (XML) – Country code	O^																	
2/OBU/OBU:X4:CAP7	Capture Organization Information (XML) – Postal code	O^																	
2/NAM:X	Name	O	O	O	O	O	O	M	O	O	O	O	O	O	O	O	O	O	O
2/NAM/NAM:X1	Person Prefix Name	O^																	
2/NAM/NAM:X2	Person Given Name	Doa																	
2/NAM/NAM:X3	Person Middle Name	O^																	
2/NAM/NAM:X4	Person Surname	Doa																	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

## 9. User-defined Descriptive Text Record (aka Type 2)

Table 9.1.: Field Summary for Type 2 Records

Field Ref	Description	CPS	PPS	PUS	CCS	UPS	UUS	ATP	ATC	DFP	DFC	BDQ	ACK	SRE	ERR	BDR	PMS	MPS	SMMS
2/NAM/NAM:X5	Person Suffix Name	O^																	
2/NAM/NAM:X6	Person Maiden Name	O^																	
2/NAM/NAM:X7	Person Extended Name	Doa																	
2/AKA	Aliases	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
2/DOB:X	Date of Birth (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
2/DBR:X	Date of Birth Range (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
2/DBR/SDA	Date of Birth Range (XML) - Min Date	M^																	
2/DBR/EDA	Date of Birth Range (XML) - Max Date	M^																	
2/POB:X	Place of Birth (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
2/POB/POB:X1	Place of Birth (XML) – Free text form	Doa																	
2/POB/POB:X2	Place of Birth (XML) – Structured address form	Doa																	
2/POB/POB:X2/PIBde	Place of Birth (XML) – Street number	O^																	
2/POB/POB:X2/PIBde	Place of Birth (XML) – Street name	O^																	
2/POB/POB:X2/PIBde	Place of Birth (XML) – City name	O^																	
2/POB/POB:X2/PIBde	Place of Birth (XML) – County name	O^																	
2/POB/POB:X2/PIBde	Place of Birth (XML) – State name	O^																	
2/POB/POB:X2/PIBde	Place of Birth (XML) – Country code	M^																	
2/POB/POB:X2/PIBde	Place of Birth (XML) – Postal code	O^																	
2/NAT	Nationality	O	O	O	O	O	O	M	O	O	O	O	O	O	O	O	O	O	
2/SEX	Sex	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
2/OTY:X	Offence Description Text	Dmv																	
2/DOO:X	Date (and Time) of Offence (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	M	
2/DOR:X	Date of Offence Range (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
2/DOR/SDA	Date (and Time) of Offence Range (XML) - Min Date	M^																	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

## 9. User-defined Descriptive Text Record (aka Type 2)

Table 9.1.: Field Summary for Type 2 Records

Field Ref	Description	C	P	S	P	S	P	U	S	A	T	P	D	F	P	D	C	B	D	Q	A	K	S	R	E	R	B	D	P	M	S	M	P	S	M	M
2/DOR/EDA	Date (and Time) of Offence Range (XML) - Max Date	M^	M^																																	
2/INF:X	Additional Contact Information	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
2/INF/TEL	Telephone number for the additional contact information	O^																																		
2/INF/ONM	Organization name for the additional contact information	O^																																		
2/INF/PFN	Person full name for the additional contact information	O^																																		
2/INF/ACI	Additional information for the additional contact information	O^																																		
2/RLS:X	Respondent List (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		
2/RLS/CSI	Candidate Sequence ID	Dmv																																		
2/RLS/MVI	Candidate Manual Verification Indicator	Dmv																																		
2/RLS/CTQ	Candidates Total Quantity	Dmv																																		
2/RLS/CAC	Transaction Category Code	M^																																		
2/RLS/SRC	Transaction Search Results Code	M^																																		
2/ERM:X	Error Message (XML)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	M	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
2/ERM/ECO	Error code	M^																																		
2/ERM/EFM	Error Field Mnemonic Code	M^																																		
2/ERM/EMT	Error Message Text	M^																																		
2/FFN	Father's name	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		
2/MMN	Mother's family name	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		
2/LMP	Latent Matching Position	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		
2/LMP/LMS	Latent Matching Position – Search	O^																																		
2/LMP/LMS	Latent Matching Position – Candidate	O^																																		

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

Table 9.1.: Field Summary for Type 2 Records

Field Ref	Description	CPS	PPS	PUS	CCS	UPS	UUS	ATP	ATC	DFP	DFC	BDQ	ACK	SRE	ERR	BDR	PMS	MPS	SMMS
2/IRN	INTERPOL Reference Number	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/NPI	National Person Inquiry Identifier	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/EXP	Record Expiration Date	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/LID	Latent Unique Identifier	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/RDM	Result Determination Mode	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/CRF	Civil Description Code	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2/COT	Civil Description Text	Dmv																	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, Dmp=Mandatory if another field is present (not permitted otherwise), Dop=Optional and only permitted if another field is present, Doa=Optional and only permitted if another field is absent, Dmv=Mandatory (and not permitted otherwise) if another field has a given value, Ds=Special condition

## **10. Minutiae Data Record (aka Type 9)**

This chapter describes all the fields that are used in the Minutiae Data Record.

## 10.1. Package Minutiae Record (XML)

**Field Reference:** 9  
**Content Type:** Set\_X  
**XML Tag Name:** PackageMinutiaeRecord  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** itl:PackageMinutiaeRecordType

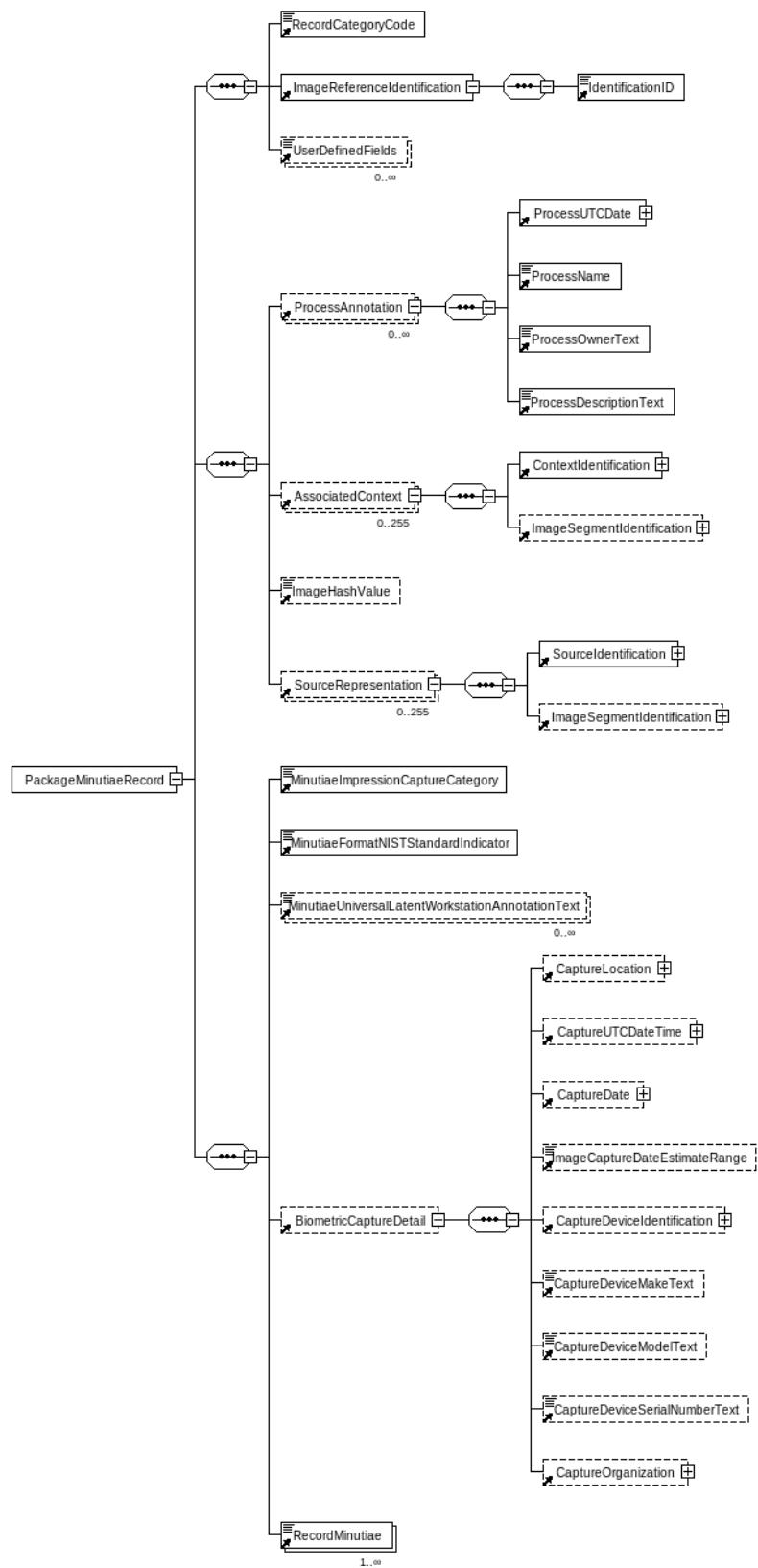
**Field ID:** [09]  
**Condition:** Optional  
**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://biometrics.nist.gov/standard/2011>

### XPath

/itl:PackageMinutiaeRecord

### Summary

Minutiae and related information encoded from a finger, palm, or plantar image.



## 10.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 9/XRCC:X  
**Content Type:** Data\_X  
**XML Tag Name:** RecordCategoryCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {9}  
**Code table:** n/a  
**Base type:** biom:RecordCategoryCodeType

**Field ID:** [09.001:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↴/biom:RecordCategoryCode
```

### Summary

Numeric representation of Record Type.

### Valid Examples

```
<biom:RecordCategoryCode>9</biom:RecordCategoryCode>
```

## 10.3. Information Designation Character - IDC



**Field Reference:** 9/IDC  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..99}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.002]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ImageReferenceIdentification
    ↳/nc:IdentificationID
```

### Summary

IDC assigned in 1.003-D to this Type-9 record.

### Valid Examples

```
<biom:ImageReferenceIdentification><nc:IdentificationID>3</nc:IdentificationID></biom:ImageReferenceIdentification>
```

## 10.4. Impression Type - IMP

### MinutiaeImpressionCaptureCategoryCode

**Field Reference:** 9/IMP

**Content Type:** Data

**XML Tag Name:** MinutiaeImpressionCaptureCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.31](#)

**Base type:** biom:ImpressionCaptureCategoryCodeType

**Field ID:** [09.003]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ,biom:MinutiaeImpressionCaptureCategoryCode
```

### Summary

Manner by which friction ridge was obtained.

### Valid Examples

```
<biom:MinutiaeImpressionCaptureCategoryCode>10</biom:MinutiaeImpressionCaptureCategoryCode>
```

## 10.5. Minutia Format (XML) - FMT



**Field Reference:** 9/FMT:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeFormatNISTStandardIndicator  
**Data Type:** A  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {"false"}  
**Code table:** n/a  
**Base type:** niem-xsd:boolean

**Field ID:** [09.004:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↴/biom:MinutiaeFormatNISTStandardIndicator
```

### Summary

Indicates whether the information in the remainder of the record adheres to the standard format or is a user-defined format.

### Notes

The deprecated standard minutiae format is not supported in INTERPOL's implementation, therefore only "false" is possible here.

### Valid Examples

```
<biom:MinutiaeFormatNISTStandardIndicator>false<biom:MinutiaeFormatNISTStandardIndicator>
```

## 10.6. User-Defined Fields - RMU

**Field Reference:** 9/RMU:X  
**Content Type:** Set\_X  
**XML Tag Name:** RecordMinutiae  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** n/a

**Field ID:** [09.013\_09.225:X]  
**Condition:** Optional  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:RecordMinutiae
```

### Summary

The size and content of these fields shall be defined by the user and be in accordance with the receiving agency. Fields 9.180-9.225 shall be used to record specific vendor proprietary information regarding minutiae feature data.

### Notes

This element is abstract and must be substituted with a user-defined element. Applies to the following groups of fields: 9.013-9.125, 9.151-9.175, 9.180-9.225.

## 10.7. INCITS Minutiae (XML)

**Field Reference:** 9/CBI\_9/ADA  
**Content Type:** Set\_X  
**XML Tag Name:** INCITSMinutiae  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:INCITSMinutiaeType

**Field ID:** [09.126\_09.141]  
**Condition:** Optional  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
```

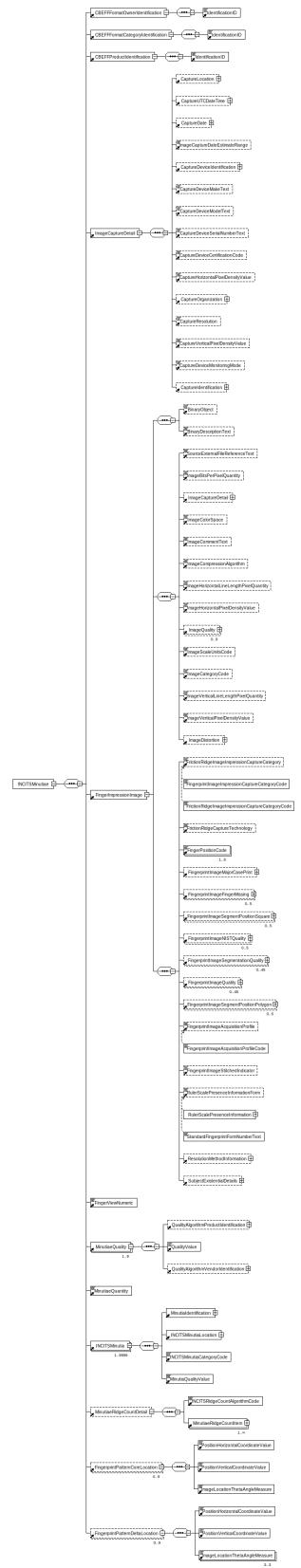
### Summary

Type-9 Fields for INCITS 378 features.

### Notes

Applies to 9.126, 9.127, 9.128, 9.129, 9.130, 9.131, 9.132, 9.133, 9.134, 9.135, 9.137, 9.138, 9.139, 9.140 and 9.141.

## 10. Minutiae Data Record (aka Type 9)



## 10.8. CBEFF Format Owner - CFO



**Field Reference:** 9/CBI/CFO  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 2  
**Minimum Occurrences:** 1  
**Value range:** {27}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.126-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CEI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:CBEFFFormatOwnerIdentification
      ↳/nc:IdentificationID
```

### Summary

Identification assigned to the INCITS Technical Committee M1 by the International Biometric Industry Association (IBIA).

### Valid Examples

```
<nc:IdentificationID>27</nc:IdentificationID>
```

## 10.9. CBEFF Format Type - CFT



**Field Reference:** 9/CBI/CFT  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** {513..515}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.126-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:CBEFFFormatCategoryIdentification
      ↳/nc:IdentificationID
```

### Summary

CBEFF format features.

### Technical Notes

"513" if 9.137 is present; "514" if 9.137, 9.138, 9.139, and 9.140 are present; "515" if INCITS 378-2009 is followed (does not indicate the presence or absence of any fields).

### Valid Examples

```
<nc:IdentificationID>513</nc:IdentificationID>
```

## 10.10. CBEFF Product Identifier - CPI



**Field Reference:** 9/CBI/CPI  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** H  
**Minimum Length:** 8  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.126-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 8  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:CBEFFProductIdentification
      ↳/nc:IdentificationID
```

### Summary

Owner of the encoding equipment.

### Notes

Vendor sets this value at the IBIA website ([www.ibia.org](http://www.ibia.org)) if it is posted. If it is not posted, enter "0000".

### Valid Examples

```
<nc:IdentificationID>001D</nc:IdentificationID>
```

## 10.11. M1 Capture Equipment ID - CEI

**Field Reference:** 9/CEI  
**Content Type:** Set  
**XML Tag Name:** ImageCaptureDetail  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageCaptureType

**Field ID:** [09.127]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

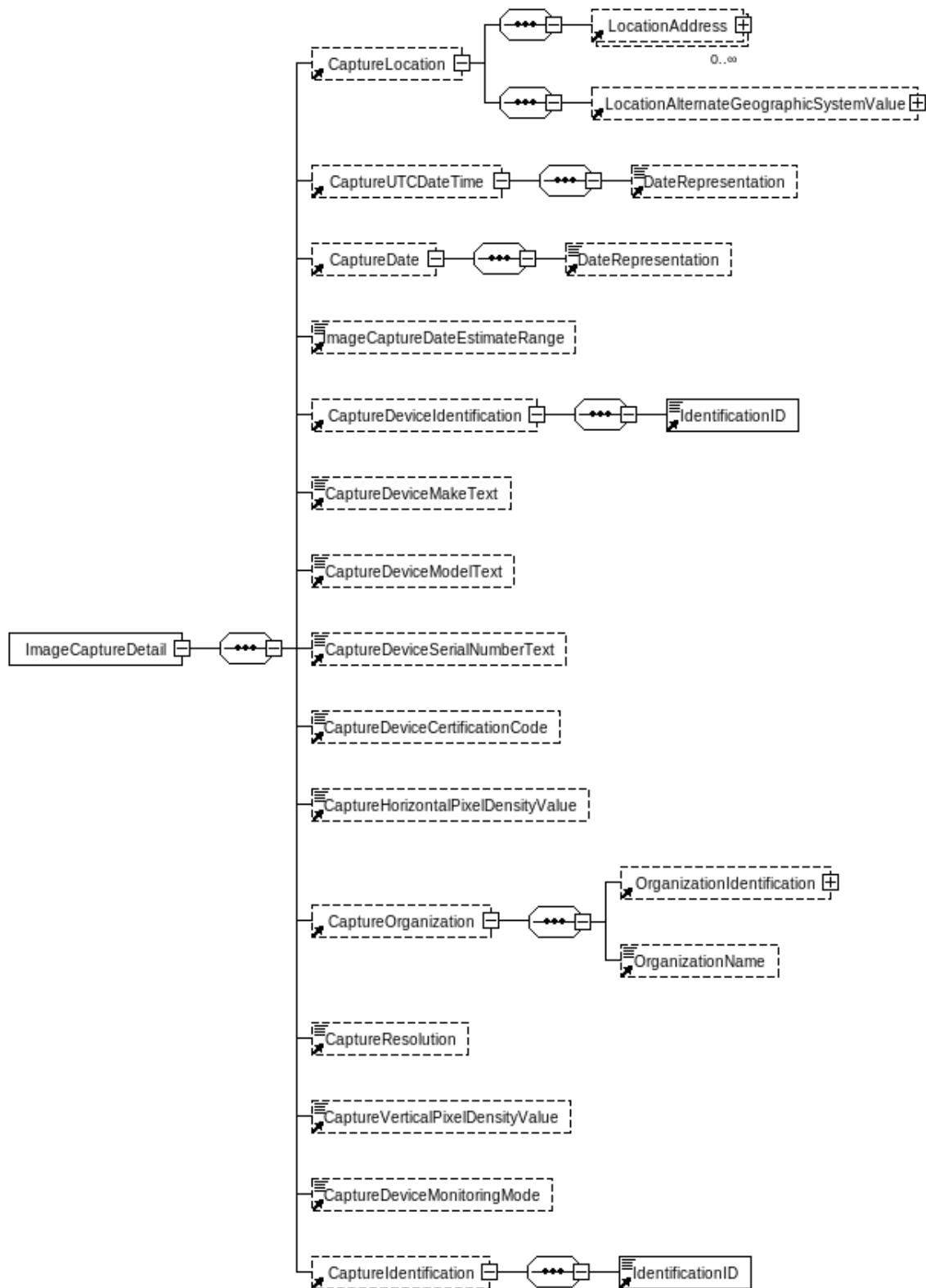
Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:ImageCaptureDetail
```

### Summary

Capture equipment information.



## 10.12. Appendix F Status - AFS



**Field Reference:** 9/CEI/AFS  
**Content Type:** Data  
**XML Tag Name:** CaptureDeviceCertificationCode  
**Data Type:** A  
**Minimum Length:** 4  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.5  
**Base type:** biom:CaptureDeviceCertificationCodeType

**Field ID:** [09.127-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDeviceCertificationCode
```

### Summary

Notes whether or not equipment conforms to Appendix F specifications.

### Valid Examples

```
<biom:CaptureDeviceCertificationCode>APPF</biom:CaptureDeviceCertificationCode>
```

## 10.13. Capture Equipment ID - CID



**Field Reference:** 9/CEI/CID  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.127-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 30  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/bion:INCITSMinutiae
    ↳/bion:ImageCaptureDetail
      ↳/bion:CaptureDeviceIdentification
        ↳/nc:IdentificationID
```

### Summary

Vendor-assigned product number/identifier of capture equipment.

### Notes

A value of "0" indicates that the capture equipment ID is unreported.

### Valid Examples

```
<nc:IdentificationID>0</nc:IdentificationID>
```

## 10.14. Finger Impression Image (XML)

**Field Reference:** 9/HLL\_9/FGP  
**Content Type:** Set\_X  
**XML Tag Name:** FingerImpressionImage  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:FingerImpressionImageType

**Field ID:** [09.128\_09.134]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

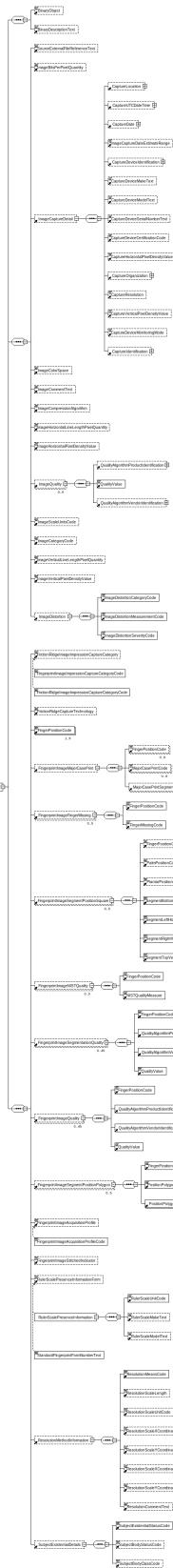
```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerImpressionImage
```

### Summary

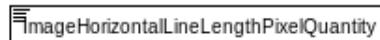
Finger impression image.

### Notes

Applies to 9.128, 9.129, 9.130, 9.131, 9.132 and 9.134 .



## 10.15. M1 Horizontal Line Length - HLL



**Field Reference:** 9/HLL

**Content Type:** Data

**XML Tag Name:** ImageHorizontalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.128]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerImpressionImage
      ↳/biom:ImageHorizontalLineLengthPixelQuantity
```

### Summary

Number of pixels contained on a single horizontal line of the image.

### Valid Examples

```
<biom:ImageHorizontalLineLengthPixelQuantity>80</biom:ImageHorizontalLineLengthPixelQuantity>
```

## 10.16. M1 Vertical Line Length - VLL

### ImageVerticalLineLengthPixelQuantity

**Field Reference:** 9/VLL

**Content Type:** Data

**XML Tag Name:** ImageVerticalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.129]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerImpressionImage
      ↳/biom:ImageVerticalLineLengthPixelQuantity
```

### Summary

Number of pixels contained on a single vertical line of the image (or number of horizontal lines contained in the transmitted image).

### Valid Examples

```
<biom:ImageVerticalLineLengthPixelQuantity>65</biom:ImageVerticalLineLengthPixelQuantity>
```

## 10.17. M1 Scale Units - SLC

### ImageScaleUnitsCode

**Field Reference:** 9/SLC  
**Content Type:** Data  
**XML Tag Name:** ImageScaleUnitsCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table [A.59](#)  
**Base type:** biom:ScaleUnitsCodeType

**Field ID:** [09.130]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerImpressionImage
      ↳/biom:ImageScaleUnitsCode
```

### Summary

Image sampling frequency (pixel density).

### Notes

For contact exemplar friction ridge images, a value of 1 or 2 shall be specified. A value of 1 or 2 shall be specified for latent friction ridge prints if the lifted latent print is transmitted directly from a scanner. If the latent print is contained in a photograph, a value of 1 or 2 shall be entered only if the image of the latent was captured with a scale measurement visible in the image and the pixels across an inch or centimeter can be calculated - given the known characteristics of the camera and its distance from the latent print. A value of 0 for a latent print indicates that the true ppi value of the image is not known. For non-contact images of body parts, SLC shall be set to 0 unless the object being imaged is a fixed distance from the capture device and the ppi or ppmm values for the capture device are accurately known at that fixed distance. (An example might be an iris capture device with a very small effective capture zone).

### Valid Examples

```
<biom:ImageScaleUnitsCode>2</biom:ImageScaleUnitsCode>
```

## 10.18. M1 Transmitted Horizontal Pixel Scale - THPS

### ImageHorizontalPixelDensityValue

**Field Reference:** 9/THPS

**Content Type:** Data

**XML Tag Name:** ImageHorizontalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.131]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerImpressionImage
      ↳/biom:ImageHorizontalPixelDensityValue
```

### Summary

Integer pixel density in the horizontal direction (if 9/SLC = 1 or 2); otherwise, if 9/SLC = 0, the horizontal component of the pixel aspect ratio.

### Notes

For example, if the SLC value = 1, then the value of THPS could be '1000' for a 1000 ppi sensor.

### Technical Notes

If 9/SLC=1,2, then THPS shall equal TVPS

### Valid Examples

```
<biom:ImageHorizontalPixelDensityValue>1000</biom:ImageHorizontalPixelDensityValue>
```

## 10.19. M1 Transmitted Vertical Pixel Scale - TVPS

### ImageVerticalPixelDensityValue

**Field Reference:** 9/TVPS

**Content Type:** Data

**XML Tag Name:** ImageVerticalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.132]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerImpressionImage
      ↳/biom:ImageVerticalPixelDensityValue
```

### Summary

Integer pixel density in the vertical direction (if 9/SLC = 1 or 2); otherwise, if 9/SLC = 0, the vertical component of the pixel aspect ratio.

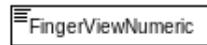
### Technical Notes

If 9/SLC=1,2, then THPS shall equal TVPS

### Valid Examples

```
<biom:ImageVerticalPixelDensityValue>1000</biom:ImageVerticalPixelDensityValue>
```

## 10.20. M1 Finger View - FVW



**Field Reference:** 9/FVW  
**Content Type:** Data  
**XML Tag Name:** FingerViewNumeric  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..15}  
**Code table:** n/a  
**Base type:** biom:FingerViewNumericType

**Field ID:** [09.133]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerViewNumeric
```

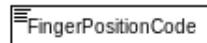
### Summary

View number of the finger associated with this record's data; used to differentiate multiple images of the same finger. The view number begins with "0" and increments by one to "15".

### Valid Examples

```
<biom:FingerViewNumeric>8</biom:FingerViewNumeric>
```

## 10.21. M1 Friction Ridge Generalized Position - FGP



**Field Reference:** 9/FGP  
**Content Type:** Data  
**XML Tag Name:** FingerPositionCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..10,20..28}  
**Code table:** see table A.25 and table A.26  
**Base type:** biom:FingerPositionCodeType

**Field ID:** [09.134]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 6  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerImpressionImage
      ↳/biom:FingerPositionCode
```

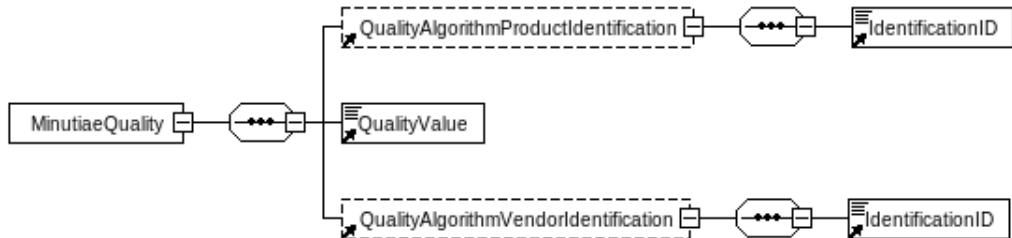
### Summary

Finger position that produced information in this Type-9 record.

### Valid Examples

```
<biom:FingerPositionCode>5</biom:FingerPositionCode>
```

## 10.22. M1 Friction Ridge Quality Data - FQD



**Field Reference:** 9/FQD

**Content Type:** Set

**XML Tag Name:** MinutiaeQuality

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:ImageQualityType

**Field ID:** [09.135]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 9

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

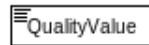
### XPath

```
/it1:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeQuality
```

### Summary

Quality of overall finger minutiae data.

## 10.23. Quality Value - QVU



**Field Reference:** 9/FQD/QVU  
**Content Type:** Data  
**XML Tag Name:** QualityValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..100,254,255}  
**Code table:** see table A.48 \*  
**Base type:** niem-xsd:integer

**Field ID:** [09.135-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeQuality
      ↳/biom:QualityValue
```

### Summary

Quantitative expression of predicted matching performance of biometric sample. This information item shall contain the integer image quality score between 0 and 100 (inclusive) assigned to the image data by a quality algorithm. Higher values indicate better quality.

### Valid Examples

```
<biom:QualityValue>100</biom:QualityValue>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.24. Algorithm Vendor Identification - QAV

### IdentificationID

**Field Reference:** 9/FQD/QAV  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** H  
**Minimum Length:** 4  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.135-B]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/bion:INCITSMinutiae
    ↳/bion:MinutiaeQuality
      ↳/bion:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
```

### Summary

ID of the vendor of the quality algorithm used to calculate the quality score. This value is assigned by IBA, which maintains the Vendor Registry of CBEFF Biometric Organizations that map the value in this field to a registered organization.

### Valid Examples

```
<nc:IdentificationID>FFF0</nc:IdentificationID>
```

## 10.25. Algorithm Product Identification - QAP

### IdentificationID

**Field Reference:** 9/FQD/QAP  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1..65535}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.135-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
```

### Summary

Numeric product code assigned by the vendor of the quality algorithm (may be registered with the IBA, but registration is not required).

### Valid Examples

```
<nc:IdentificationID>28495</nc:IdentificationID>
```

## 10.26. M1 Number of Minutiae - NOM

### MinutiaeQuantity

**Field Reference:** 9/NOM  
**Content Type:** Data  
**XML Tag Name:** MinutiaeQuantity  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1..9999}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.136]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeQuantity
```

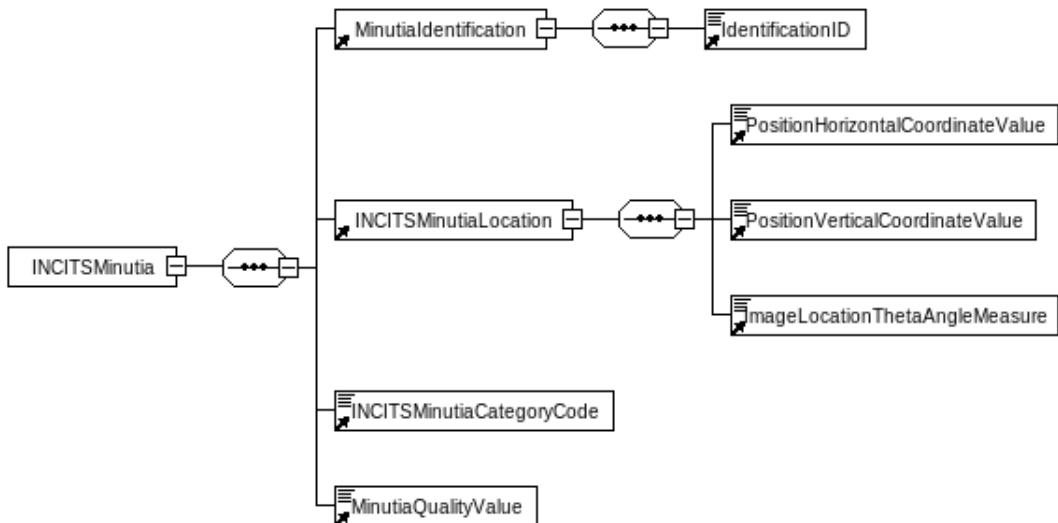
### Summary

Number of minutiae in INCITS feature set.

### Valid Examples

```
<biom:MinutiaeQuantity>50</biom:MinutiaeQuantity>
```

## 10.27. M1 Finger Minutiae Data (XML) - FMD



**Field Reference:** 9/FMD:X

**Content Type:** Set\_X

**XML Tag Name:** INCITSMinutia

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:INCITSMinutiaType

**Field ID:** [09.137:X]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/CBI/CFO

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:INCITSMinutia
```

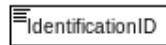
### Summary

Finger minutiae data.

### Notes

The total number of minutiae subfields must agree with the count found in field 136.

## 10.28. Minutia Index Number - MAN



**Field Reference:** 9/FMD/MAN  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {>=1}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.137-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:INCITSMminutia
      ↳/biom:MinutiaIdentification
        ↳/nc:IdentificationID
```

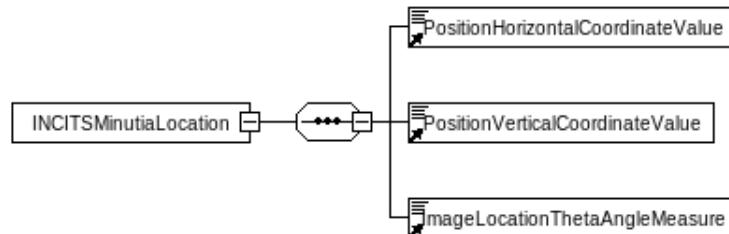
### Summary

Minutia index number; initialized to "1" and incremented by "1" for each additional minutia in the fingerprint.

### Valid Examples

```
<nc:IdentificationID>51</nc:IdentificationID>
```

## 10.29. INCITS Minutia Location (XML)



**Field Reference:** 9/FMD/MXC\_9/FMD/MAV

**Content Type:** Set\_X

**XML Tag Name:** INCITSMinutiaLocation

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerprintFeatureLocationType

**Field ID:** [09.137-B\_09.137-D]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

/itl:PackageMinutiaeRecord
  </biom:INCITSMinutiae
    </biom:INCITSMinutia
      </biom:INCITSMinutiaLocation

```

### Summary

Minutia index number.

### Notes

Applies to 9.137-B, 9.137-C, and 9.137-D

## 10.30. X Coordinate - MXC

### PositionHorizontalCoordinateValue

**Field Reference:** 9/FMD/MXC

**Content Type:** Data

**XML Tag Name:** PositionHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {>=1}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.137-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:INCITSMinutia
      ↳/biom:INCITSMinutiaLocation
        ↳/biom:PositionHorizontalCoordinateValue
```

### Summary

X coordinate of minutia (expressed in pixel units).

### Valid Examples

```
<biom:PositionHorizontalCoordinateValue>25643</biom:PositionHorizontalCoordinateValue>
```

## 10.31. Y Coordinate - MYC

### PositionVerticalCoordinateValue

**Field Reference:** 9/FMD/MYC

**Content Type:** Data

**XML Tag Name:** PositionVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {>=1}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.137-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:INCITSMinutia
      ↳/biom:INCITSMinutiaLocation
        ↳/biom:PositionVerticalCoordinateValue
```

### Summary

Y coordinate of minutia (expressed in pixel units).

### Valid Examples

```
<biom:PositionVerticalCoordinateValue>35681</biom:PositionVerticalCoordinateValue>
```

## 10.32. Minutia Angle - MAV

### ImageLocationThetaAngleMeasure

**Field Reference:** 9/FMD/MAV

**Content Type:** Data

**XML Tag Name:** ImageLocationThetaAngleMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..179}

**Code table:** n/a

**Base type:** biom:ThetaAngleMeasureType

**Field ID:** [09.137-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:INCITSMinutiae  
    ↳/biom:INCITSMinutia  
      ↳/biom:INCITSMinutiaLocation  
        ↳/biom:ImageLocationThetaAngleMeasure
```

### Summary

Angle of minutia.

### Valid Examples

```
<biom:ImageLocationThetaAngleMeasure>101</biom:ImageLocationThetaAngleMeasure>
```

## 10.33. Minutia Type - M1M

### INCITSMinutiaCategoryCode

**Field Reference:** 9/FMD/M1M

**Content Type:** Data

**XML Tag Name:** INCITSMinutiaCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.27](#)

**Base type:** biom:INCITSMinutiaCategoryCodeType

**Field ID:** [09.137-E]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:INCITSMinutiae  
    ↳/biom:INCITSMinutia  
      ↳/biom:INCITSMinutiaCategoryCode
```

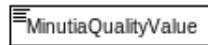
### Summary

Type of minutia.

### Valid Examples

```
<biom:INCITSMinutiaCategoryCode>0</biom:INCITSMinutiaCategoryCode>
```

## 10.34. Quality of Minutia - QOM



**Field Reference:** 9/FMD/QOM

**Content Type:** Data

**XML Tag Name:** MinutiaeQualityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..100}

**Code table:** see table [A.28](#) \*

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.137-F]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:INCITSMinutiae  
    ↳/biom:INCITSMinutia  
      ↳/biom:MinutiaeQualityValue
```

### Summary

Minutiae quality.

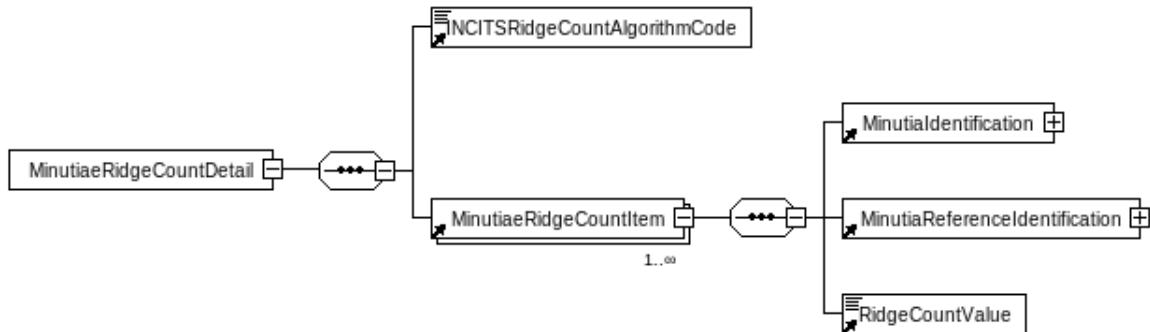
### Valid Examples

```
<biom:MinutiaeQualityValue>99</biom:MinutiaeQualityValue>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.35. M1 Ridge Count Information - RCI



**Field Reference:** 9/RCI

**Content Type:** Set

**XML Tag Name:** MinutiaeRidgeCountDetail

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeRidgeCountType

**Field ID:** [09.138]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 79993

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/CBI/CFT]IN{514,515}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeRidgeCountDetail
```

### Summary

Ridge count information.

### Notes

MaxOccur = 9999 \* 8 + 1 (9999=max occurrence of 9/NOM)

## 10.36. Ridge Count Extraction Method - REM

### INCITSRidgeCountAlgorithmCode

**Field Reference:** 9/RCI/REM

**Content Type:** Data

**XML Tag Name:** INCITSRidgeCountAlgorithmCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table A.50

**Base type:** biom:INCITSRidgeCountAlgorithmCodeType

**Field ID:** [09.138-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeRidgeCountDetail
      ↳/biom:INCITSRidgeCountAlgorithmCode
```

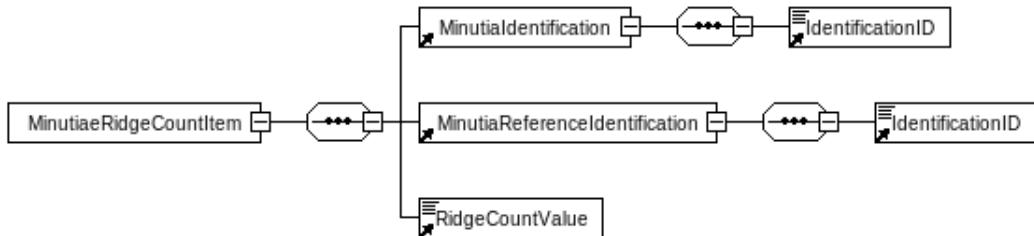
### Summary

Method of ridge count extraction.

### Valid Examples

```
<biom:INCITSRidgeCountAlgorithmCode>1</biom:INCITSRidgeCountAlgorithmCode>
```

## 10.37. Minutiae Ridge Count Item (XML)



**Field Reference:** 9/RCI/CMI\_9/RCI/NRC

**Content Type:** Set\_X

**XML Tag Name:** MinutiaeRidgeCountItem

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeRidgeCountItemType

**Field ID:** [09.138-D\_09.138-F]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeRidgeCountDetail
      ↳/biom:MinutiaeRidgeCountItem
```

### Summary

Minutiae ridge count.

### Notes

Applies to 9.138-D, 9.138-E, and 9.138-F

## 10.38. Center Minutia Index Number - CMI



**Field Reference:** 9/RCI/CMI

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {>=1}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [09.138-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeRidgeCountDetail
      ↳/biom:MinutiaeRidgeCountItem
        ↳/biom:MinutiaeIdentification
          ↳/nc:IdentificationID
```

### Summary

Center minutia index.

### Valid Examples

```
<nc:IdentificationID>22</nc:IdentificationID>
```

## 10.39. Neighboring Minutia Index Number - NMN



**Field Reference:** 9/RCI/NMN  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {>=1}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.138-E]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/bion:INCITSMinutiae
    ↳/bion:MinutiaeRidgeCountDetail
      ↳/bion:MinutiaeRidgeCountItem
        ↳/bion:MinutiaeReferenceIdentification
          ↳/nc:IdentificationID
```

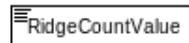
### Summary

Neighboring minutiae index number.

### Valid Examples

```
<nc:IdentificationID>22</nc:IdentificationID>
```

## 10.40. Number of Ridges Crossed - NRC



**Field Reference:** 9/RCI/NRC  
**Content Type:** Data  
**XML Tag Name:** RidgeCountValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..99}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.138-F]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:MinutiaeRidgeCountDetail
      ↳/biom:MinutiaeRidgeCountItem
        ↳/biom:RidgeCountValue
```

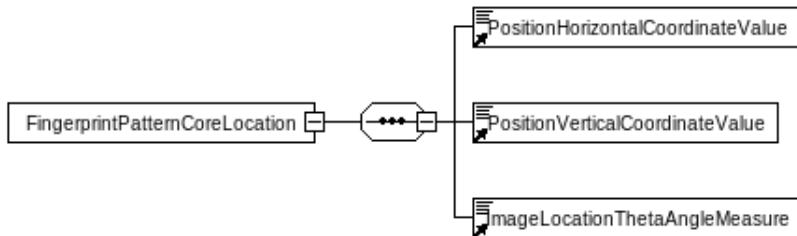
### Summary

Number of ridges crossed.

### Valid Examples

```
<biom:RidgeCountValue>17</biom:RidgeCountValue>
```

## 10.41. M1 Core Information - CIN



**Field Reference:** 9/CIN

**Content Type:** Set

**XML Tag Name:** FingerprintPatternCoreLocation

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerprintFeatureLocationType

**Field ID:** [09.139]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 9

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/CBI/CFT]IN{514,515}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerprintPatternCoreLocation
```

### Summary

Core information.

## 10.42. X Coordinate - XCC

### PositionHorizontalCoordinateValue

**Field Reference:** 9/CIN/XCC

**Content Type:** Data

**XML Tag Name:** PositionHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {>=1}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.139-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerprintPatternCoreLocation
      ↳/biom:PositionHorizontalCoordinateValue
```

### Summary

X coordinate of core.

### Valid Examples

```
<biom:PositionHorizontalCoordinateValue>2000</biom:PositionHorizontalCoordinateValue>
```

## 10.43. Y Coordinate - YCC



**Field Reference:** 9/CIN/YCC

**Content Type:** Data

**XML Tag Name:** PositionVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {>=1}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.139-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:INCITSMinutiae  
    ↳/biom:FingerprintPatternCoreLocation  
      ↳/biom:PositionVerticalCoordinateValue
```

### Summary

Y coordinate of core.

### Valid Examples

```
<biom:PositionVerticalCoordinateValue>2000</biom:PositionVerticalCoordinateValue>
```

## 10.44. Angle of the Core - ANGC

### ImageLocationThetaAngleMeasure

**Field Reference:** 9/CIN/ANGC

**Content Type:** Data

**XML Tag Name:** ImageLocationThetaAngleMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..179}

**Code table:** n/a

**Base type:** biom:ThetaAngleMeasureType

**Field ID:** [09.139-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:INCITSMinutiae  
    ↳/biom:FingerprintPatternCoreLocation  
      ↳/biom:ImageLocationThetaAngleMeasure
```

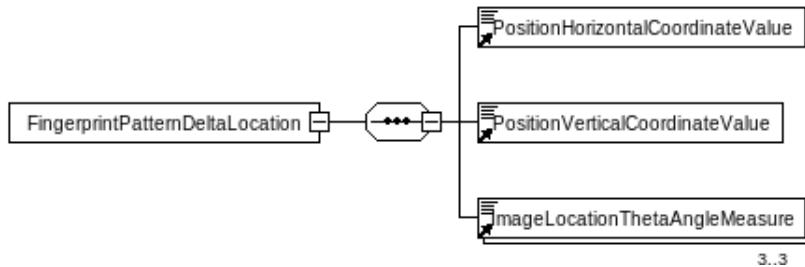
### Summary

Core angle.

### Valid Examples

```
<biom:ImageLocationThetaAngleMeasure>30</biom:ImageLocationThetaAngleMeasure>
```

## 10.45. M1 Delta Information - DIN



**Field Reference:** 9/DIN

**Content Type:** Set

**XML Tag Name:** FingerprintPatternDeltaLocation

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerprintDeltaLocationType

**Field ID:** [09.140]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 9

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/CBI/CFT]IN{514,515}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerprintPatternDeltaLocation
```

### Summary

Delta information.

## 10.46. X Coordinate - XCD

### PositionHorizontalCoordinateValue

**Field Reference:** 9/DIN/XCD

**Content Type:** Data

**XML Tag Name:** PositionHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {>=1}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.140-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:INCITSMinutiae  
    ↳/biom:FingerprintPatternDeltaLocation  
      ↳/biom:PositionHorizontalCoordinateValue
```

### Summary

X coordinate of delta.

### Valid Examples

```
<biom:PositionHorizontalCoordinateValue>3154</biom:PositionHorizontalCoordinateValue>
```

## 10.47. Y Coordinate - YCD



**Field Reference:** 9/DIN/YCD

**Content Type:** Data

**XML Tag Name:** PositionVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {>=1}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.140-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:INCITSMinutiae  
    ↳/biom:FingerprintPatternDeltaLocation  
      ↳/biom:PositionVerticalCoordinateValue
```

### Summary

Y coordinate of delta.

### Valid Examples

```
<biom:PositionVerticalCoordinateValue>3154</biom:PositionVerticalCoordinateValue>
```

## 10.48. First, Second, and Third Angles of the Delta

### ImageLocationThetaAngleMeasure

**Field Reference:** 9/DIN/ANG1\_9/ADA/ANG3

**Content Type:** Data\_1X-NT

**XML Tag Name:** ImageLocationThetaAngleMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..179}

**Code table:** n/a

**Base type:** biom:ThetaAngleMeasureType

**Field ID:** [09.140-C\_09.141-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 3

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:INCITSMinutiae
    ↳/biom:FingerprintPatternDeltaLocation
      ↳/biom:ImageLocationThetaAngleMeasure
```

### Summary

First, second, and third delta angles.

### Notes

Applies to 9.140-C, 9.141-A and 9.141-B

### Valid Examples

```
<biom:ImageLocationThetaAngleMeasure>33</biom:ImageLocationThetaAngleMeasure>
```

## 10.49. Extended Feature Set Minutiae (XML)

**Field Reference:** 9/ROI\_9/RPS  
**Content Type:** Set\_X  
**XML Tag Name:** ExtendedFeatureSetMinutiae  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ExtendedFeatureSetMinutiaeType

**Field ID:** [09.300\_09.373]  
**Condition:** Optional  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

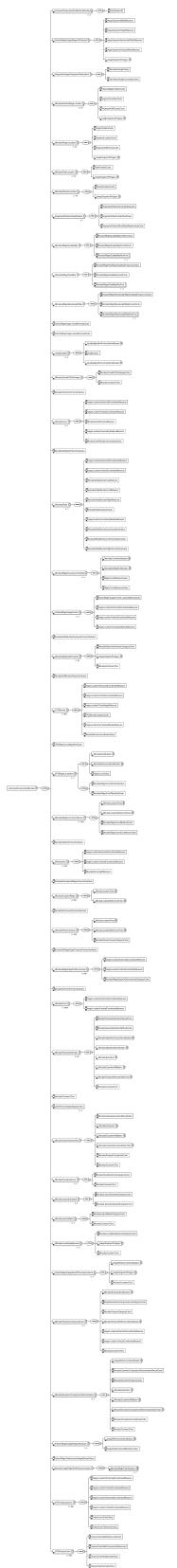
```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
```

### Summary

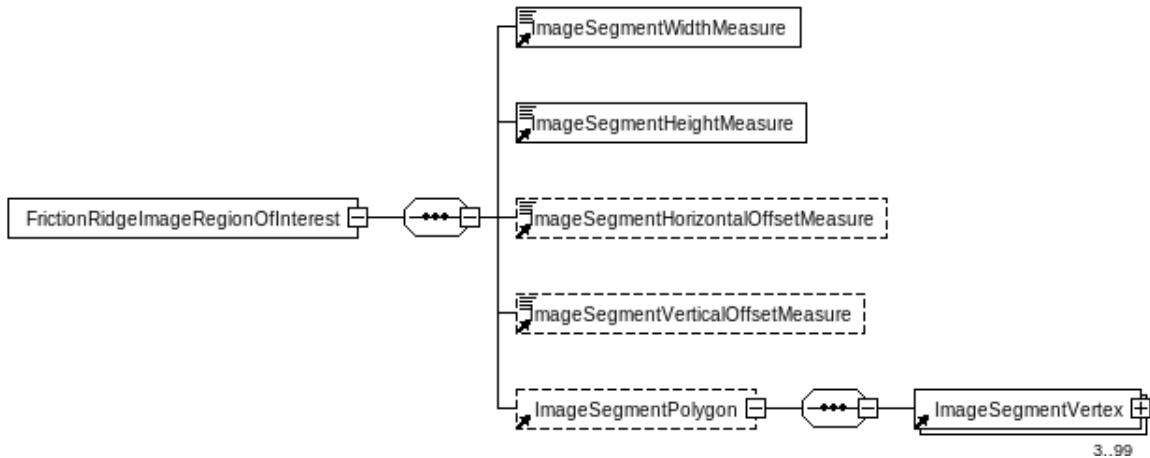
Type-9 fields for the Extended Feature Set (EFS). The EFS specification defines a quantifiable, repeatable, and clear method of characterizing the information content of a fingerprint or other friction ridge image.

### Notes

Applies to 9.300, 9.301, 9.302, 9.303, 9.307, 9.308, 9.309, 9.310, 9.311, 9.312, 9.313, 9.314, 9.315, 9.316, 9.317, 9.320, 9.321, 9.322, 9.323, 9.324, 9.325, 9.326, 9.327, 9.331, 9.332, 9.333, 9.334, 9.335, 9.340, 9.341, 9.342, 9.343, 9.344, 9.345, 9.346, 9.347, 9.348, 9.349, 9.350, 9.351, 9.352, 9.353, 9.354, 9.355, 9.356, 9.357, 9.360, 9.361, 9.362, 9.363, 9.372 and 9.373



## 10.50. EFS Region of Interest - ROI



**Field Reference:** 9/ROI

**Content Type:** Set

**XML Tag Name:** FrictionRidgeImageRegionOfInterest

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FrictionRidgeImageRegionOfInterestType

**Field ID:** [09.300]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/FPP

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRegionOfInterest
```

### Summary

Rectangle or a polygon that bounds the area of the original image containing a single friction ridge impression, and separates it from the background and any other friction ridge data present in the image.

### Notes

All EFS features are in relation to the Region of Interest, not to the original image; all coordinates are relative to the top left corner of the ROI.

## 10.51. ROI Width - EWI



**Field Reference:** 9/ROI/EWI

**Content Type:** Data

**XML Tag Name:** ImageSegmentWidthMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1..50000}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.300-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:FrictionRidgeImageRegionOfInterest  
      ↳/biom:ImageSegmentWidthMeasure
```

### Summary

Width of region of interest in units of 10 micrometers (0.01 mm).

### Valid Examples

```
<biom:ImageSegmentWidthMeasure>50000</biom:ImageSegmentWidthMeasure>
```

## 10.52. ROI Height - EHI

### ImageSegmentHeightMeasure

**Field Reference:** 9/ROI/EHI

**Content Type:** Data

**XML Tag Name:** ImageSegmentHeightMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1..50000}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.300-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:FrictionRidgeImageRegionOfInterest  
      ↳/biom:ImageSegmentHeightMeasure
```

### Summary

Height of region of interest in units of 10 micrometers (0.01 mm).

### Valid Examples

```
<biom:ImageSegmentHeightMeasure>50000</biom:ImageSegmentHeightMeasure>
```

## 10.53. ROI Horizontal Offset - EHO

### ImageSegmentHorizontalOffsetMeasure

**Field Reference:** 9/ROI/EHO

**Content Type:** Data

**XML Tag Name:** ImageSegmentHorizontalOffsetMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..50000}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.300-C]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### Exceptions

see Technical Notes below

#### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRegionOfInterest
      ↳/biom:ImageSegmentHorizontalOffsetMeasure
```

#### Summary

Horizontal distance in units of 10 micrometers from left edge of image to left edge of region of interest.

#### Technical Notes

If absent, defaults to zero.

#### Valid Examples

```
<biom:ImageSegmentHorizontalOffsetMeasure>35478</biom:ImageSegmentHorizontalOffsetMeasure>
```

## 10.54. ROI Vertical Offset - EVO

### ImageSegmentVerticalOffsetMeasure

**Field Reference:** 9/ROI/EVO

**Content Type:** Data

**XML Tag Name:** ImageSegmentVerticalOffsetMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..50000}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.300-D]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### Exceptions

see Technical Notes below

#### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRegionOfInterest
      ↳/biom:ImageSegmentVerticalOffsetMeasure
```

#### Summary

Vertical distance in units of 10 micrometers from top edge of image to top edge of region of interest.

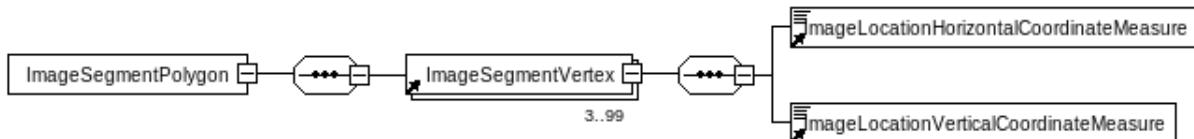
#### Technical Notes

If absent, defaults to zero.

#### Valid Examples

```
<biom:ImageSegmentVerticalOffsetMeasure>35478</biom:ImageSegmentVerticalOffsetMeasure>
```

## 10.55. ROI Polygon (XML) - ROP



**Field Reference:** 9/ROI/ROP:X1  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentPolygon  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentPolygonType

**Field ID:** [09.300-E:X1]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

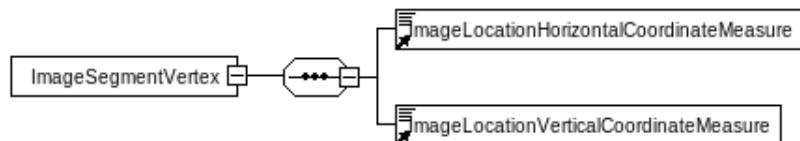
### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRegionOfInterest
      ↳/biom:ImageSegmentPolygon
```

### Summary

Polygon that further defines the friction ridge area.

## 10.56. Image Segment Vertex (XML) - ROP



**Field Reference:** 9/ROI/ROP:X2

**Content Type:** Set\_X

**XML Tag Name:** ImageSegmentVertex

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 3

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.300-E:X2]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 99

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRegionOfInterest
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
```

### Summary

Polygon that further defines the friction ridge area.

## 10.57. Image Location Horizontal Coordinate Measure (XML) - ROP

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/ROI/ROP:X3

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.300-E:X3]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRegionOfInterest
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

Polygon that further defines the friction ridge area.

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>130</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.58. Image Location Vertical Coordinate Measure (XML) - ROP



**Field Reference:** 9/ROI/ROP:X4

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.300-E:X4]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRegionOfInterest
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
```

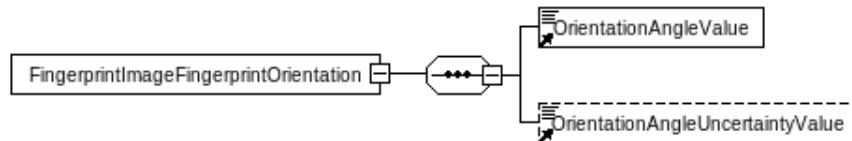
### Summary

Polygon that further defines the friction ridge area.

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>275</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.59. EFS Orientation - ORT



**Field Reference:** 9/ORT

**Content Type:** Set

**XML Tag Name:** FingerprintImageFingerprintOrientation

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerprintImageFingerprintOrientationType

**Field ID:** [09.301]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```

/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FingerprintImageFingerprintOrientation
  
```

### Summary

Orientation and direction uncertainty of EFS region of interest.

## 10.60. Direction - EOD

### OrientationAngleValue

**Field Reference:** 9/ORT/EOD  
**Content Type:** Data  
**XML Tag Name:** OrientationAngleValue  
**Data Type:** NS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {-179..180}  
**Code table:** n/a  
**Base type:** biom:RelativeRotationMeasureType

**Field ID:** [09.301-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** [-]  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### Exceptions

see Technical Notes below

#### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FingerprintImageFingerprintOrientation
      ↳/biom:OrientationAngleValue
```

#### Summary

Deviation of region of interest from upright (fingertip up) in integer degrees.

#### Notes

Positive angles are counterclockwise, negative angles are clockwise. A value of "0" indicates an upright direction.

#### Technical Notes

If field is omitted, the direction shall default to 0 (upright).

#### Valid Examples

```
<biom:OrientationAngleValue>2</biom:OrientationAngleValue>
```

## 10.61. Uncertainty - EUC

### OrientationAngleUncertaintyValue

**Field Reference:** 9/ORT/EUC

**Content Type:** Data

**XML Tag Name:** OrientationAngleUncertaintyValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..180}

**Code table:** n/a

**Base type:** biom:UncertaintyValueType

**Field ID:** [09.301-B]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### Exceptions

see Technical Notes below

#### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FingerprintImageFingerprintOrientation
      ↳/biom:OrientationAngleUncertaintyValue
```

#### Summary

Uncertainty of orientation direction in integer degrees. If orientation cannot be determined, the uncertainty value shall be set to 180.

#### Technical Notes

If field is omitted, the direction shall default to 0 (upright).

#### Valid Examples

```
<biom:OrientationAngleUncertaintyValue>180</biom:OrientationAngleUncertaintyValue>
```

## 10.62. EFS Finger, Palm, Plantar Position - FPP

**Field Reference:** 9/FPP

**Content Type:** Set

**XML Tag Name:** MinutiaePalmLocation or MinutiaePlantarLocation or MinutiaeFingerLocation

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaePlantarLocationType  
or biom:MinutiaePalmLocationType or biom:MinutiaeFingerLocationType

**Field ID:** [09.302]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 20

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Presence of other Field	9/ROI

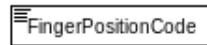
### XPath

```
if [9/FPP/FGP] IN 0..19, 40..50 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFingerLocation
elseif [9/FPP/FGP] IN 20..38, 81..82 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
  ↳/biom:MinutiaePalmLocation
else
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
  ↳/biom:MinutiaePlantarLocation
endif
```

### Summary

Physical position(s) that correspond to the EFS region of interest.

## 10.63. Friction Ridge Generalized Position - FGP



**Field Reference:** 9/FPP/FGP

**Content Type:** Data

**XML Tag Name:** FingerPositionCode or PalmPositionCode or PlantarPositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table A.25 and table A.26

**Base type:** biom:PlantarPositionCodeType or biom:FingerPositionCodeType or biom:PalmPositionCodeType

**Field ID:** [09.302-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
if [9/FPP/FGP] IN 0..19, 40..50 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFingerLocation
      ↳/biom:FingerPositionCode
elseif [9/FPP/FGP] IN 20..38, 81..82 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePalmLocation
      ↳/biom:PalmPositionCode
else
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePlantarLocation
      ↳/biom:PlantarPositionCode
endif
```

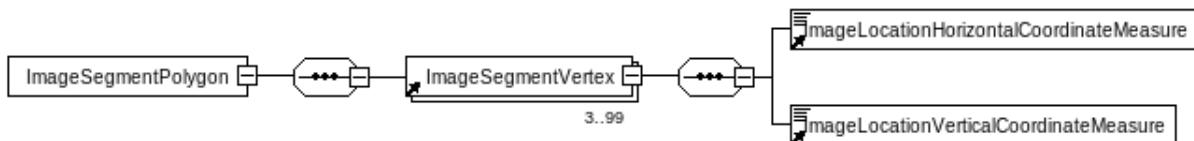
### Summary

Finger position code.

### Valid Examples

```
<biom:FingerPositionCode>17</biom:FingerPositionCode>
```

## 10.64. Segment Polygon (XML) - SGP



**Field Reference:** 9/FPP/SGP:X1  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentPolygon  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentPolygonType

**Field ID:** [09.302-D:X1]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

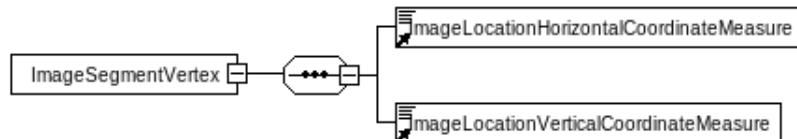
```

if [9/FPP/FGP] IN 0..19, 40..50 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFingerLocation
      ↳/biom:ImageSegmentPolygon
elseif [9/FPP/FGP] IN 20..38, 81..82 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePalmLocation
      ↳/biom:ImageSegmentPolygon
else
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePlantarLocation
      ↳/biom:ImageSegmentPolygon
endif
  
```

### Summary

Closed path polygon that delineates the area that corresponds to the specified position/segment.

## 10.65. Image Segment Vertex (XML) - SGP



**Field Reference:** 9/FPP/SGP:X2  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentVertex  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 3  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.302-D:X2]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 99  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [9/FPP/FGP] IN 0..19, 40..50 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFingerLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
elseif [9/FPP/FGP] IN 20..38, 81..82 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePalmLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
else
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePlantarLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
endif
  
```

### Summary

Closed path polygon that delineates the area that corresponds to the specified position/segment.

## 10.66. Image Location Horizontal Coordinate Measure (XML) - SGP

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/FPP/SGP:X3

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.302-D:X3]

**Condition:** Mandatory within a field

**Defined in:** xsd:niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [9/FPP/FGP] IN 0..19, 40..50 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFingerLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
elseif [9/FPP/FGP] IN 20..38, 81..82 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePalmLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
else
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePlantarLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
endif

```

### Summary

Closed path polygon that delineates the area that corresponds to the specified position/segment.

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>2130</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.67. Image Location Vertical Coordinate Measure (XML) - SGP

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/FPP/SGP:X4

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.302-D:X4]

**Condition:** Mandatory within a field

**Defined in:** xsd:niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [9/FPP/FGP] IN 0..19, 40..50 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFingerLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
elseif [9/FPP/FGP] IN 20..38, 81..82 then
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePalmLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
else
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePlantarLocation
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
endif

```

### Summary

Closed path polygon that delineates the area that corresponds to the specified position/segment

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>6</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.68. EFS Feature Set Profile - FSP



**Field Reference:** 9/FSP  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table A.20  
**Base type:** niem-xsd:string

**Field ID:** [09.303]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 9  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### Exceptions

see Technical Notes below

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:ExtendedFeatureSetProfileIdentification
      ↳/nc:IdentificationID
```

### Summary

EFS Profile, which defines the specific set of EFS fields incorporated in a specific ANSI/NIST-ITL transaction.

### Notes

CodeTable obtained NIST Special Publication 1134: Extended Feature Set Profile Specification (<http://nvlpubs.nist.gov/nistpubs/Speci>9/EFS=10 requires 9/SIM. 9/EFS=11 requires 9/MRA and 9/MRC.

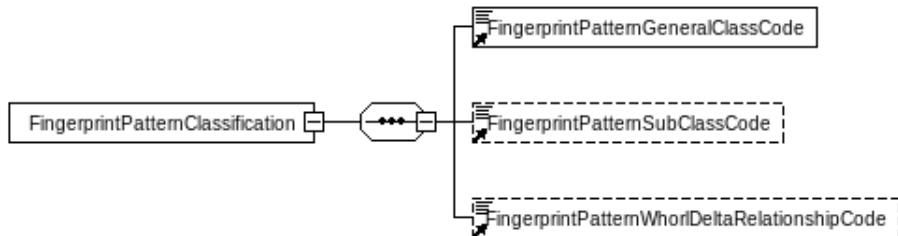
### Technical Notes

Note this can have multiple occurrences, so the requirements apply if ANY of the 9/FSP occurrences is defined. If 9/FSP=1, then (either 9/COR or 9/NCOR is required) and (either 9/DEL or 9/NDEL is required). 9/FSP=2 has requirements of 9/FSP=1 as well as (either 9/MIN or 9/NMIN is required). 9/FSP=3 has the requirements of 9/FSP=1 and 2 as well as required 9/RQM, 9/RFM, and (either 9/DOT or 9/NDOT) and (either 9/INR or 9/NINR).

### Valid Examples

```
<nc:IdentificationID>11</nc:IdentificationID>
```

## 10.69. EFS Pattern Classification - PAT



**Field Reference:** 9/PAT

**Content Type:** Set

**XML Tag Name:** FingerprintPatternClassification

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerprintPatternClassificationType

**Field ID:** [09.307]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 7

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FingerprintPatternClassification
```

### Summary

EFS fingerprint classification information for image.

### Notes

This field shall only be used for fingerprints, and shall be omitted for other friction ridge impressions. Complete Scar (SR) and Dissociated Ridges/Dysplasia (DR) should only be noted if the fingerprint cannot be classified. If the print can be classified and scar(s), dissociated ridges, and/or dysplasia are present, this field should note the classification(s) and the scar(s), dissociated ridges, and/or dysplasia should be noted in Field 9.324: EFS distinctive features / DIS. The use of Field 9.322: EFS core delta ridge counts / CDR can be used to further subcategorize pattern classification.

## 10.70. General Class - GCF

### FingerprintPatternGeneralClassCode

**Field Reference:** 9/PAT/GCF

**Content Type:** Data

**XML Tag Name:** FingerprintPatternGeneralClassCode

**Data Type:** A

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.42](#)

**Base type:** biom:FingerprintPatternGeneralClassCodeType

**Field ID:** [09.307-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FingerprintPatternClassification
      ↳/biom:FingerprintPatternGeneralClassCode
```

### Summary

General pattern classification (arch, whorl, left, or right loop).

### Valid Examples

```
<biom:FingerprintPatternGeneralClassCode>SR</biom:FingerprintPatternGeneralClassCode>
```

## 10.71. Subclass - SUB

### FingerprintPatternSubClassCode

**Field Reference:** 9/PAT/SUB  
**Content Type:** Data  
**XML Tag Name:** FingerprintPatternSubClassCode  
**Data Type:** A  
**Minimum Length:** 2  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table A.43  
**Base type:** biom:FingerprintPatternSubClassCodeType

**Field ID:** [09.307-B]  
**Condition:** ?  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/PAT/GCF]IN{"AU","WU"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FingerprintPatternClassification
      ↳/biom:FingerprintPatternSubClassCode
```

### Summary

Sub-classification of arch/whorl.

### Valid Examples

```
<biom:FingerprintPatternSubClassCode>PW</biom:FingerprintPatternSubClassCode>
```

## 10.72. Whorl-Delta Relationship - WDR

### FingerprintPatternWhorlDeltaRelationshipCode

**Field Reference:** 9/PAT/WDR

**Content Type:** Data

**XML Tag Name:** FingerprintPatternWhorlDeltaRelationshipCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table A.44

**Base type:** biom:FingerprintPatternWhorlDeltaRelationshipCodeType  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [09.307-C]

**Condition:** ?

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/PAT/SUB]IN{"PW","CP","DL","AW"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FingerprintPatternClassification
      ↳/biom:FingerprintPatternWhorlDeltaRelationshipCode
```

### Summary

Whorl-delta relationship.

### Valid Examples

```
<biom:FingerprintPatternWhorlDeltaRelationshipCode>M</biom:FingerprintPatternWhorlDeltaRelationshipCode>
```

## 10.73. EFS Ridge Quality Map (XML) - RQM

**Field Reference:** 9/RQM:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeRidgeQualityMapRowText  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table A.56\*  
**Base type:** nc:TextType

**Field ID:** [09.308:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 50000  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

**Dependency table**

Type of dependency	Value
Optional on Presence of other Field	9/ROI
Mandatory on Value of other Field, optional otherwise.	[9/FSP]=3

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeQualityMap
      ↳/biom:MinutiaeRidgeQualityMapRowText
```

### Summary

EFS local friction ridge quality map used to assess confidence of areas in an image.

### Notes

This optional field is comprised of a repeating set of values. The number of subfields corresponds to the number of cells in a column of the image. The quality of each cell will be represented with a local quality value 0 through 5 representing the quality of ridge detail in that cell, as specified in Table 33 in ANIS/NIST. If a region of interest is defined, cells outside of the ROI polygon shall be set to a local quality value of 0 (black). Each row value is encoded as shown in Table 34 in ANSI/NIST. See Field 9.309 for the definition of the grid size and data representation.

### Technical Notes

If 9/RQF/RDF="UNC", permissible characters are [0..5]; otherwise permissible characters are [0..9][A.."F"], coincidentally the same as hexadecimal.

---

\*The code table is applies only to some of the characters of the field.

## 10.74. Ridge Quality Map Format (XML) - RQF

**Field Reference:** 9/RQF:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeRidgeQualityMap  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeRidgeQualityMapType

**Field ID:** [09.309:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	9/RQM:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeQualityMap
```

### Summary

Grid size or data representation format used in 9.308.

## 10.75. Grid Size - GSZ

**Field Reference:** 9/RQF/GSZ  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeQualityMapCellSizeValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..41}  
**Code table:** n/a  
**Base type:** biom:MapSamplingFrequencyValueType

**Field ID:** [09.309-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeQualityMap
      ↳/biom:MinutiaeRidgeQualityMapCellSizeValue
```

### Summary

Grid sizes including horizontal and vertical dimensions of a single cell in the grid. Valid settings range from "1" (0.01 mm) through "41" (0.41 mm). The recommended grid size is 0.20mm (0.008") - note this is 4 pixels at 500 ppi, or 8 pixels at 1000 ppi.

### Valid Examples

```
<biom:MinutiaeRidgeQualityMapCellSizeValue>39</biom:MinutiaeRidgeQualityMapCellSizeValue>
```

## 10.76. Ridge Quality Data Format - RDF

**Field Reference:** 9/RQF/RDF  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeQualityMapFormatCode  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.55  
**Base type:** biom:MinutiaeRidgeQualityMapFormatCodeType

**Field ID:** [09.309-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeQualityMap
      ↳/biom:MinutiaeRidgeQualityMapFormatCode
```

### Summary

Data format used in 9.308.

### Notes

The first cell starts at the top left corner of the Region of Interest, with cells in order left to right.

- All of the quality values for each row are stored in one repeating subfield.
- The subfields are ordered from top to bottom
- If the width and/or height of the Region of Interest are not evenly divisible by the Grid Size, partial cells shall be included at the right and/or bottom of the ridge flow map.

### Valid Examples

```
<biom:MinutiaeRidgeQualityMapFormatCode>RLE</biom:MinutiaeRidgeQualityMapFormatCode>
```

## 10.77. EFS Ridge Flow Map (XML) - RFM

**Field Reference:** 9/RFM:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeRidgeFlowMapRowText  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.310:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 100000  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[9/FSP]=3

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeFlowMap
      ↳/biom:MinutiaeRidgeFlowMapRowText
```

### Summary

Direction of friction ridges at points throughout EFS region of interest.

### Notes

The number of occurrences must either be 0 or (9/EHI divided by 9/RFF/SFQ). If 9/RFF/RDF="UNC", the length of each value must be (2 \* 9/EWI divided by 9/RFF/SFQ); otherwise (9/RFF/RDF="B64"), the length of each value must be (9/EWI divided by 9/RFF/SFQ). The first sampling point in the image is the top left-most point in the region of interest. The same sampling frequency is used both horizontally and vertically. Values shall be included for all sampling points in the region of interest, even if the sampling points are at the edge of the region of interest. For each sampling point, angles shall be reported in integer degrees, with 0 degrees to the right (horizontal), increasing counterclockwise to a maximum value of 179° (since 180°=0°). Undefined angles are recorded in Field 9.311: EFS ridge flow map format / RFF. Each subfield corresponds to one row of the map in order from top to bottom.

### Technical Notes

If 9/RFF/RDF="UNC", the DataType is H (hexadecimal), otherwise Base64.

### Valid Examples

```
<biom:MinutiaeRidgeFlowMapRowText>UNC</biom:MinutiaeRidgeFlowMapRowText>
```

## 10.78. EFS Ridge Flow Map Format (XML) - RFF

**Field Reference:** 9/RFF:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeRidgeFlowMap  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeRidgeFlowMapType

**Field ID:** [09.311:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/RFM:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeFlowMap
```

### Summary

EFS ridge flow map format used for 9.310 for values other than the defaults.

## 10.79. Sampling Frequency - SFQ

**Field Reference:** 9/RFF/SFQ  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeFlowMapSamplingFrequency-Value  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..41}  
**Code table:** n/a  
**Base type:** biom:MapSamplingFrequencyValueType

**Field ID:** [09.311-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeFlowMap
      ↳/biom:MinutiaeRidgeFlowMapSamplingFrequencyValue
```

### Summary

Optional field permits setting the sampling frequency or data representation format used in the Field 9.310: EFS ridge flow map / RFM to values other than the defaults.

### Technical Notes

Default value is "41".

### Valid Examples

```
<biom:MinutiaeRidgeFlowMapSamplingFrequencyValue>15</biom:MinutiaeRidgeFlowMapSamplingFrequencyValue>
```

## 10.80. Ridge Flow Data Format - RDF

**Field Reference:** 9/RFF/RDF  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeFlowMapFormatCode  
**Data Type:** AN  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.54  
**Base type:** biom:MinutiaeRidgeFlowMapFormatCodeType

**Field ID:** [09.311-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeFlowMap
      ↳/biom:MinutiaeRidgeFlowMapFormatCode
```

### Summary

Format (uncompressed or base-64) used in Ridge Flow Map field.

### Technical Notes

Default value is "UNC".

### Valid Examples

```
<biom:MinutiaeRidgeFlowMapFormatCode>UNC</biom:MinutiaeRidgeFlowMapFormatCode>
```

## 10.81. EFS Ridge Wavelength Map (XML) - RWM

**Field Reference:** 9/RWM:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeRidgeWavelengthMapRowText  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.312:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 100000  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/RWF:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeWavelengthMap
      ↳/biom:MinutiaeRidgeWavelengthMapRowText
```

### Summary

Peak-to-peak distance between ridges at various sampling points throughout the EFS region of interest.

### Notes

The sampling frequency is optionally defined in Field 9.313. For each sampling point in the Region of Interest, distances between ridge peaks, measured perpendicular to ridge flow, shall be reported in 2-character decimal format using units of 10 micrometers (0.01 mm). Unknown values shall be set to "XX". Valid values are therefore "01" (0.01 mm) through "99" (0.99 mm or greater). (In practice, the actual stored values are likely to be "30" to "70" in most cases (0.3 - 0.7 mm). The 2-character decimal wavelength values for each sampling point are concatenated left to right for all sampling points in a row. Each subfield corresponds to one row of the map, in order from top to bottom.

### Technical Notes

The number of occurrences must either be 0 or (9/EHI divided by 9/RWF/FWS). The length of each value must be (2 \* 9/EWI divided by 9/RWF/FWS). Valid characters are [0..9]["X"].

## 10.82. EFS Ridge Wavelength Map Format (XML) - RWF

**Field Reference:** 9/RWF:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeRidgeWavelengthMap  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeRidgeWavelengthMapType

**Field ID:** [09.313:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/RWM:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeWavelengthMap
```

### Summary

EFS ridge flow map format used for 9.312 for values other than the defaults.

## 10.83. Sampling Frequency - FWS

**Field Reference:** 9/RWF/FWS

**Content Type:** Data

**XML Tag Name:** MinutiaeRidgeWavelengthMapSamplingFrequencyValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1..41}

**Code table:** n/a

**Base type:** biom:MapSamplingFrequencyValueType

**Field ID:** [09.313-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeWavelengthMap
      ↳/biom:MinutiaeRidgeWavelengthMapSamplingFrequencyValue
```

### Summary

Permits setting the sampling frequency or data representation format used in Field 9.312: EFS ridge wavelength map / RWM to values other than the defaults, and is conditional on the presence of Field 9.312.

### Technical Notes

Default value is "41".

### Valid Examples

```
<biom:MinutiaeRidgeWavelengthMapSamplingFrequencyValue>2</biom:MinutiaeRidgeWavelengthMapSamplingFrequencyValue>
```

## 10.84. Data Format - FDF

**Field Reference:** 9/RWF/FDF  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeWavelengthMapFormatCode  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** {"UNC"}  
**Code table:** n/a  
**Base type:** biom:MinutiaeRidgeWavelengthMapFormatCodeType

**Field ID:** [09.313-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageMinutiaeRecord
  ↴/biom:ExtendedFeatureSetMinutiae
    ↴/biom:MinutiaeRidgeWavelengthMap
      ↴/biom:MinutiaeRidgeWavelengthMapFormatCode
```

### Summary

Format (uncompressed or base-64) used in 9.312.

### Technical Notes

Default value is "UNC".

### Valid Examples

```
<biom:MinutiaeRidgeWavelengthMapFormatCode>UNC</biom:MinutiaeRidgeWavelengthMapFormatCode>
```

## 10.85. EFS Tonal Reversal - TRV

**Field Reference:** 9/TRV

**Content Type:** Data

**XML Tag Name:** FrictionRidgeImageTonalReversalCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table [A.61](#)

**Base type:** biom:FrictionRidgeImageTonalReversalCodeType

**Field ID:** [09.314]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageTonalReversalCode
```

### Summary

Indicates whether all or part of an EFS image is tonally reversed. If no part of the image is tonally reversed, field is omitted.

### Valid Examples

```
<biom:FrictionRidgeImageTonalReversalCode>N</biom:FrictionRidgeImageTonalReversalCode>
```

## 10.86. EFS Possible Lateral Reversal - PLR

**Field Reference:** 9/PLR

**Content Type:** Data

**XML Tag Name:** FrictionRidgeImageLateralReversalCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table [A.46](#)

**Base type:** biom:FrictionRidgeImageLateralReversalCodeType

**Field ID:** [09.315]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageLateralReversalCode
```

### Summary

Indicates whether the image is or may be laterally reversed (flipped left-right). If image was not reversed, field is omitted.

### Valid Examples

```
<biom:FrictionRidgeImageLateralReversalCode>A</biom:FrictionRidgeImageLateralReversalCode>
```

## 10.87. EFS Friction Ridge Quality Metric - FQM

**Field Reference:** 9/FQM  
**Content Type:** Set  
**XML Tag Name:** ImageQuality  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageQualityType

**Field ID:** [09.316]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 9  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

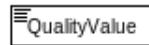
### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:ImageQuality
```

### Summary

Specifies one or more different metrics of EFS friction ridge quality for image.

## 10.88. Quality Value - QVU



**Field Reference:** 9/FQM/QVU  
**Content Type:** Data  
**XML Tag Name:** QualityValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..100,254,255}  
**Code table:** see table A.48 \*  
**Base type:** niem-xsd:integer

**Field ID:** [09.316-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:ImageQuality
      ↳/biom:QualityValue
```

### Summary

Quantitative expression of predicted matching performance of biometric sample. This information item shall contain the integer image quality score between 0 and 100 (inclusive) assigned to the image data by a quality algorithm. Higher values indicate better quality.

### Valid Examples

```
<biom:QualityValue>100</biom:QualityValue>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.89. Algorithm Vendor Identification - QAV

### IdentificationID

**Field Reference:** 9/FQM/QAV  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** H  
**Minimum Length:** 4  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.316-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:ImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
```

### Summary

ID of the vendor of the quality algorithm used to calculate the quality score. This value is assigned by IBA, which maintains the Vendor Registry of CBEFF Biometric Organizations that map the value in this field to a registered organization.

### Valid Examples

```
<nc:IdentificationID>FFF0</nc:IdentificationID>
```

## 10.90. Algorithm Product Identification - QAP

### IdentificationID

**Field Reference:** 9/FQM/QAP  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..65535}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.316-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:ImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
```

### Summary

Numeric product code assigned by the vendor of the quality algorithm (may be registered with the IBA, but registration is not required).

### Valid Examples

```
<nc:IdentificationID>28495</nc:IdentificationID>
```

## 10.91. EFS Possible Growth or Shrinkage - PGS

**Field Reference:** 9/PGS  
**Content Type:** Set  
**XML Tag Name:** MinutiaeGrowthOrShrinkage  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeGrowthOrShrinkageType

**Field ID:** [09.317]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeGrowthOrShrinkage
```

### Summary

For EFS friction ridge impressions that have changed size or scale (e.g., swollen skin from water exposure). This field acts as a flag to indicate that greater than ordinary dimensional variation should be expected in performing subsequent comparisons.

## 10.92. Growth or Shrinkage Type - TGS

**Field Reference:** 9/PGS/TGS

**Content Type:** Data

**XML Tag Name:** MinutiaeGrowthOrShrinkageCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.45](#)

**Base type:** biom:MinutiaeGrowthOrShrinkageCodeType

**Field ID:** [09.317-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeGrowthOrShrinkage
      ↳/biom:MinutiaeGrowthOrShrinkageCode
```

### Summary

Code for type of growth or shrinkage.

### Valid Examples

```
<biom:MinutiaeGrowthOrShrinkageCode>G</biom:MinutiaeGrowthOrShrinkageCode>
```

## 10.93. Growth or Shrinkage Comment (XML) - CGS

**Field Reference:** 9/PGS/CGS:X

**Content Type:** Data\_X

**XML Tag Name:** MinutiaeCommentText

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [09.317-B:X]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1000

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

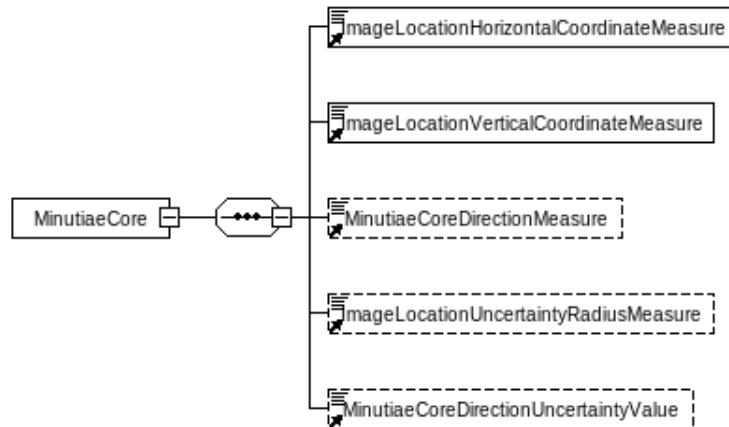
### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeGrowthOrShrinkage  
      ↳/biom:MinutiaeCommentText
```

### Summary

Rationale for believing growth or shrinkage may have occurred.

## 10.94. EFS Cores (XML) - COR



**Field Reference:** 9/COR:X

**Content Type:** Set\_X

**XML Tag Name:** MinutiaeCore

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeCoreType

**Field ID:** [09.320:X]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NCOR:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeCore
```

### Summary

EFS core information. When no cores are present, this field shall not be used.

### Technical Notes

If palm/plantar 9/FPP/FGP>=18, MaxOccur=\*; if 9/PAT/SUB="AW", MaxOccur=\*; if 9/PAT/SUB="PA", MaxOccur=0; if 9/PAT/SUB="TA", MaxOccur=1; if 9/PAT/GCF="LS" or "RS", MaxOccur=1; if 9/PAT/GCF="WU", MaxOccur=2.

## 10.95. X Coordinate - CXC

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/COR/CXC

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.320-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeCore  
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of core (integer units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>4970</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.96. Y Coordinate - CYC



**Field Reference:** 9/COR/CYC

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.320-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeCore
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of core (integer units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>4970</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.97. Direction - CDI

### MinutiaeCoreDirectionMeasure

**Field Reference:** 9/COR/CDI  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCoreDirectionMeasure  
**Data Type:** NS  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..359}  
**Code table:** n/a  
**Base type:** biom:DirectionMeasureType

**Field ID:** [09.320-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** [-]  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeCore
      ↳/biom:MinutiaeCoreDirectionMeasure
```

### Summary

Average tangent direction of two closest friction ridges. The direction shall be omitted for circular whorls, or if the direction is unknown.

### Valid Examples

```
<biom:MinutiaeCoreDirectionMeasure>110</biom:MinutiaeCoreDirectionMeasure>
```

## 10.98. Radius of Position Uncertainty - RPU

**Field Reference:** 9/COR/RPU  
**Content Type:** Data  
**XML Tag Name:** ImageLocationUncertaintyRadiusMeasure  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..999}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.320-D]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeCore
      ↳/biom:ImageLocationUncertaintyRadiusMeasure
```

### Summary

Radius of a circle sized to include the area of possible locations of the core; used if the precise location cannot be determined (such as due to poor clarity). If the core location is known precisely, the radius of position uncertainty may be omitted or set to 0.

### Valid Examples

```
<biom:ImageLocationUncertaintyRadiusMeasure>80</biom:ImageLocationUncertaintyRadiusMeasure>
```

## 10.99. Direction Uncertainty - DUY

**Field Reference:** 9/COR/DUY  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCoreDirectionUncertaintyValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..180}  
**Code table:** see table A.2 \*  
**Base type:** biom:UncertaintyValueType

**Field ID:** [09.320-E]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeCore
      ↳/biom:MinutiaeCoreDirectionUncertaintyValue
```

### Summary

Uncertainty of direction of the core ("0" = indicates certain direction; "180" = unknown orientation).

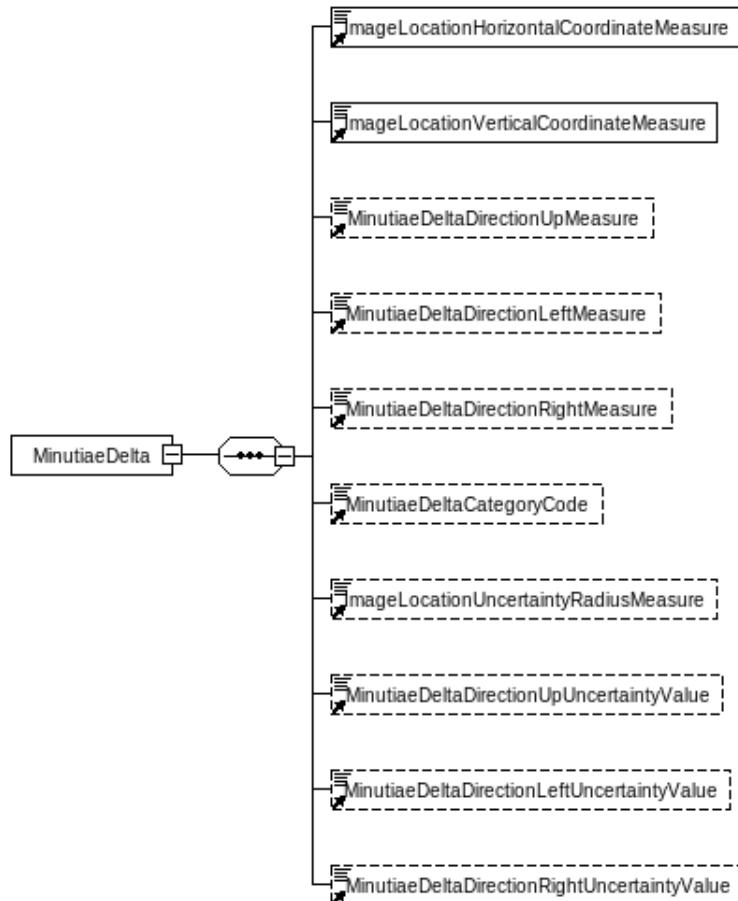
### Valid Examples

```
<biom:MinutiaeCoreDirectionUncertaintyValue>75</biom:MinutiaeCoreDirectionUncertaintyValue>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.100. EFS Deltas (XML) - DEL



**Field Reference:** 9/DEL:X

**Content Type:** Set\_X

**XML Tag Name:** MinutiaeDelta

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeDeltaType

**Field ID:** [09.321:X]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NDEL:X

## XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeDelta
```

## Summary

EFS delta information.

## Notes

For fingerprints, one or more deltas are defined for all pattern classifications other than plain arches. For palm prints or other non-fingerprint friction ridge images, any number of delta-like patterns may be defined using this field if such structures are present.

## Technical Notes

If palm/plantar 9/FPP/FGP $\geq$ 18, MaxOccur=\*. Otherwise, if 9/PAT/SUB="AW", MaxOccur=\*; if 9/PAT/SUB="PA", MaxOccur=0; if 9/PAT/SUB="TA", MaxOccur=1; if 9/PAT/GCF="LS" or "RS", MaxOccur=1; if 9/PAT/GCF="WU", MaxOccur=2.

## 10.101. X Coordinate - DXC

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/DEL/DXC

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.321-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeDelta  
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of delta (units of 10 micrometers).

## 10.102. Y Coordinate - DYC

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/DEL/DYC

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.321-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of delta (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>49700</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.103. Direction Up - DUP

### MinutiaeDeltaDirectionUpMeasure

**Field Reference:** 9/DEL/DUP  
**Content Type:** Data  
**XML Tag Name:** MinutiaeDeltaDirectionUpMeasure  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..359}  
**Code table:** n/a  
**Base type:** biom:DeltaDirectionMeasureType

**Field ID:** [09.321-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:MinutiaeDeltaDirectionUpMeasure
```

### Summary

Direction up of delta in degrees from right (degrees counterclockwise from the right).

### Notes

Information item is allowed to be omitted (left empty).

### Valid Examples

```
<biom:MinutiaeDeltaDirectionUpMeasure>49700</biom:MinutiaeDeltaDirectionUpMeasure>
```

## 10.104. Direction Left - DLF

### MinutiaeDeltaDirectionLeftMeasure

**Field Reference:** 9/DEL/DLF

**Content Type:** Data

**XML Tag Name:** MinutiaeDeltaDirectionLeftMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..359}

**Code table:** n/a

**Base type:** biom:DeltaDirectionMeasureType

**Field ID:** [09.321-D]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:MinutiaeDeltaDirectionLeftMeasure
```

### Summary

Direction left of delta in degrees from right (degrees counterclockwise from the right).

### Notes

Information item is allowed to be omitted (left empty).

### Valid Examples

```
<biom:MinutiaeDeltaDirectionLeftMeasure>100</biom:MinutiaeDeltaDirectionLeftMeasure>
```

## 10.105. Direction Right - DRT

### MinutiaeDeltaDirectionRightMeasure

**Field Reference:** 9/DEL/DRT

**Content Type:** Data

**XML Tag Name:** MinutiaeDeltaDirectionRightMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..359}

**Code table:** n/a

**Base type:** biom:DeltaDirectionMeasureType

**Field ID:** [09.321-E]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:MinutiaeDeltaDirectionRightMeasure
```

### Summary

Direction right of delta in degrees from right (degrees counterclockwise from the right).

### Notes

Information item is allowed to be omitted (left empty).

### Valid Examples

```
<biom:MinutiaeDeltaDirectionRightMeasure>100</biom:MinutiaeDeltaDirectionRightMeasure>
```

## 10.106. Type - DTP

**Field Reference:** 9/DEL/DTP  
**Content Type:** Data  
**XML Tag Name:** MinutiaeDeltaCategoryCode  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table A.15  
**Base type:** biom:MinutiaeDeltaCategoryCodeType

**Field ID:** [09.321-F]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:MinutiaeDeltaCategoryCode
```

### Summary

Type of delta.

### Valid Examples

```
<biom:MinutiaeDeltaCategoryCode>UP</biom:MinutiaeDeltaCategoryCode>
```

## 10.107. Radius of Position Uncertainty - RPU

**Field Reference:** 9/DEL/RPU  
**Content Type:** Data  
**XML Tag Name:** ImageLocationUncertaintyRadiusMeasure  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1..999}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.321-G]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:ImageLocationUncertaintyRadiusMeasure
```

### Summary

Radius of a circle sized to include the area of possible locations of the delta; used if the precise location cannot be determined (such as due to poor clarity). If the delta location is known precisely, the radius of position uncertainty may be omitted or set to 0.

### Valid Examples

```
<biom:ImageLocationUncertaintyRadiusMeasure>180</biom:ImageLocationUncertaintyRadiusMeasure>
```

## 10.108. Direction Uncertainty Up - DUU

**Field Reference:** 9/DEL/DUU

**Content Type:** Data

**XML Tag Name:** MinutiaeDeltaDirectionUpUncertaintyValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..180}

**Code table:** see table A.2 \*

**Base type:** biom:UncertaintyValueType

**Field ID:** [09.321-H]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:MinutiaeDeltaDirectionUpUncertaintyValue
```

### Summary

Uncertainty of the up delta angle ("0" = indicates certain direction; "180" = unknown orientation).

### Valid Examples

```
<biom:MinutiaeDeltaDirectionUpUncertaintyValue>180</biom:MinutiaeDeltaDirectionUpUncertaintyValue>
```

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.109. Direction Uncertainty Left - DUL

**Field Reference:** 9/DEL/DUL

**Content Type:** Data

**XML Tag Name:** MinutiaeDeltaDirectionLeftUncertaintyValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..180}

**Code table:** see table A.2 \*

**Base type:** biom:UncertaintyValueType

**Field ID:** [09.321-I]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:MinutiaeDeltaDirectionLeftUncertaintyValue
```

### Summary

Uncertainty of the left delta angle ("0" = indicates certain direction; "180" = unknown orientation).

### Valid Examples

```
<biom:MinutiaeDeltaDirectionLeftUncertaintyValue>180</biom:MinutiaeDeltaDirectionLeftUncertaintyValue>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.110. Direction Uncertainty Right - DUR

**Field Reference:** 9/DEL/DUR

**Content Type:** Data

**XML Tag Name:** MinutiaeDeltaDirectionRightUncertaintyValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..180}

**Code table:** see table A.2 \*

**Base type:** biom:UncertaintyValueType

**Field ID:** [09.321-J]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDelta
      ↳/biom:MinutiaeDeltaDirectionRightUncertaintyValue
```

### Summary

Uncertainty of the right delta angle ("0" = indicates certain direction; "180" = unknown orientation).

### Valid Examples

```
<biom:MinutiaeDeltaDirectionRightUncertaintyValue>180</biom:MinutiaeDeltaDirectionRightUncertaintyValue>
```

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.111. EFS Core-Delta Ridge Counts - CDR

**Field Reference:** 9/CDR

**Content Type:** Set

**XML Tag Name:** MinutiaeRidgeCountCoreToDelta

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeRidgeCountCoreToDeltaType

**Field ID:** [09.322]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 255

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountCoreToDelta
```

### Summary

Count of ridges between each EFS core and delta.

### Notes

If the exact value is known, then that value should be put in the minimum and maximum fields. If only a minimum is known, such as when a delta is not visible, the maximum value shall be omitted. If there are more than two cores and deltas, only the leftmost and rightmost of the cores and deltas need to be used for ridge counts.

## 10.112. Core Index - CIX



**Field Reference:** 9/CDR/CIX  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..99,"L","U"}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.322-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountCoreToDelta
      ↳/biom:MinutiaeCoreIdentification
        ↳/nc:IdentificationID
```

### Summary

Identifier of core corresponding to this count ("1" if only one core is defined). If the relevant core is not defined, this shall be set to "U" to indicate an upper core or "L" to indicate a lower core (whorls only), permitting minimum ridge counts when cores are not in the region of interest.

### Valid Examples

```
<nc:IdentificationID>L</nc:IdentificationID>
```

## 10.113. Delta index - DIX



**Field Reference:** 9/CDR/DIX  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..99,"L","R"}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.322-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountCoreToDelta
      ↳/biom:MinutiaeDeltaIdentification
        ↳/nc:IdentificationID
```

### Summary

Identifier of delta corresponding to this count ("1" if only one delta is defined). If the relevant delta is not defined, this shall be set to "L" to indicate a left delta or "R" to indicate a right delta, permitting minimum ridge counts when deltas are not in the region of interest.

### Valid Examples

```
<nc:IdentificationID>L</nc:IdentificationID>
```

## 10.114. Min Ridge Count - MNRC

**Field Reference:** 9/CDR/MNRC  
**Content Type:** Data  
**XML Tag Name:** RidgeCountMinimumValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..99}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.322-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountCoreToDelta
      ↳/biom:RidgeCountMinimumValue
```

### Summary

Precise ridge count if known; otherwise minimum of range of ridge count values.

### Valid Examples

```
<biom:RidgeCountMinimumValue>45</biom:RidgeCountMinimumValue>
```

## 10.115. Max Ridge Count - MXRC

**Field Reference:** 9/CDR/MXRC  
**Content Type:** Data  
**XML Tag Name:** RidgeCountMaximumValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1..99}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.322-D]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountCoreToDelta
      ↳/biom:RidgeCountMaximumValue
```

### Summary

Precise ridge count if known; otherwise, maximum of range of ridge count values (if there is a known or estimated maximum). If maximum is not known, this information item shall be omitted.

### Valid Examples

```
<biom:RidgeCountMaximumValue>45</biom:RidgeCountMaximumValue>
```

## 10.116. EFS Center Point of Reference - CPR

**Field Reference:** 9/CPR  
**Content Type:** Set  
**XML Tag Name:** FrictionRidgeImageCenter  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:FrictionRidgeImageCenterType

**Field ID:** [09.323]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 3  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageCenter
```

### Summary

Location of a center point of reference of a fingerprint, which may be used to define how centered a fingerprint is, as a feature, for registration or orientation, and for quality measurements. While the core may serve some of the same purposes, a center point of reference is defined for arches and provides a single center location for complex whorls, unlike cores.

### Notes

The center point of reference is the sole EFS feature that can be located outside of the EFS region of interest. Note that this means that the X and Y values for CPR are the only EFS coordinates that may be negative, or greater than the ROI width or height.

## 10.117. Method - CPM

**Field Reference:** 9/CPR/CPM  
**Content Type:** Data  
**XML Tag Name:** FrictionRidgeImageCenterLocationMethodCode  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.11  
**Base type:** biom:FrictionRidgeImageCenterLocationMethodCodeTy

**Field ID:** [09.323-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageCenter
      ↳/biom:FrictionRidgeImageCenterLocationMethodCode
```

### Summary

Method of determining the location of the center point of reference.

### Valid Examples

```
<biom:FrictionRidgeImageCenterLocationMethodCode>H</biom:FrictionRidgeImageCenterLocationMethodCode>
```

## 10.118. X Coordinate - PXC

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/CPR/PXC

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** NS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {<=50000}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.323-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageCenter
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of center point of reference (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>1500</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.119. Y Coordinate - PYC

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/CPR/PYC

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** NS

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {<=50000}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.323-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageCenter
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of center point of reference (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>1500</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.120. Radius of Position Uncertainty - CRU

**Field Reference:** 9/CPR/CRU  
**Content Type:** Data  
**XML Tag Name:** ImageLocationUncertaintyRadiusMeasure  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..999}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.323-D]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageCenter
      ↳/biom:ImageLocationUncertaintyRadiusMeasure
```

### Summary

Radius of position uncertainty for center point of reference. The radius of position uncertainty is 0 (default) if the location is known precisely; otherwise the position is marked at the best estimate of position, with a radius including the area of other possible locations, in integer units of 10 micrometers.

### Valid Examples

```
<biom:ImageLocationUncertaintyRadiusMeasure>502</biom:ImageLocationUncertaintyRadiusMeasure>
```

## 10.121. EFS Distinctive Features (XML) - DIS

**Field Reference:** 9/DIS:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeDistinctiveFeature  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeDistinctiveFeatureType

**Field ID:** [09.324:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 99  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NDIS:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDistinctiveFeature
```

### Summary

Defines one or more areas containing unusually discriminating EFS features that are not defined anywhere else. The characteristics noted in this field are specific to the friction skin itself, as opposed to issues specific to the impression (such as smudging) that are noted in Field 9.357.

## 10.122. Distinctive Feature Type - DIT

**Field Reference:** 9/DIS/DIT  
**Content Type:** Data  
**XML Tag Name:** MinutiaeDistinctiveFeatureCategoryCode  
**Data Type:** A  
**Minimum Length:** 4  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.16  
**Base type:** biom:MinutiaeDistinctiveFeatureCategoryCodeType

**Field ID:** [09.324-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 9  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDistinctiveFeature
      ↳/biom:MinutiaeDistinctiveFeatureCategoryCode
```

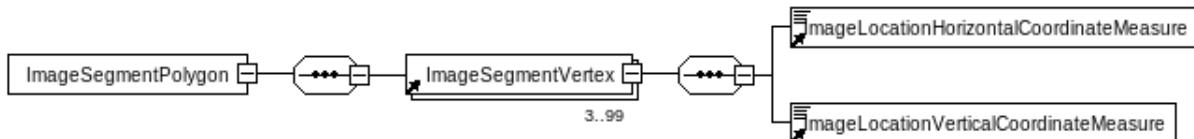
### Summary

Feature type.

### Valid Examples

```
<biom:MinutiaeDistinctiveFeatureCategoryCode>DYSPLASIA</biom:MinutiaeDistinctiveFeatureCategoryCode>
```

## 10.123. Distinctive Features Polygon (XML) - DFP



**Field Reference:** 9/DIS/DFP:X1  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentPolygon  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentPolygonType

**Field ID:** [09.324-B:X1]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

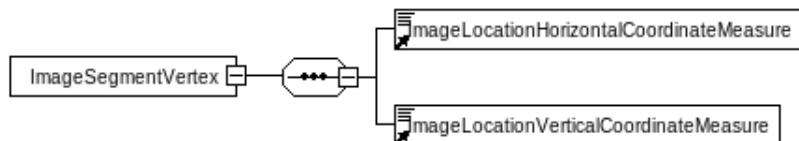
### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDistinctiveFeature
      ↳/biom:ImageSegmentPolygon
```

### Summary

Closed path polygon that outlines the area of the distinctive feature.

## 10.124. Image Segment Vertex (XML) - DFP



**Field Reference:** 9/DIS/DFP:X2  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentVertex  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 3  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.324-B:X2]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 99  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDistinctiveFeature
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
```

### Summary

Closed path polygon that outlines the area of the distinctive feature.

## 10.125. Image Location Horizontal Coordinate Measure (XML) - DFP

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/DIS/DFP:X3

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.324-B:X3]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDistinctiveFeature
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

Closed path polygon that outlines the area of the distinctive feature.

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>2510</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.126. Image Location Vertical Coordinate Measure (XML) - DFP



**Field Reference:** 9/DIS/DFP:X4

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.324-B:X4]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDistinctiveFeature
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Closed path polygon that outlines the area of the distinctive feature.

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>1290</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.127. Distinctive Features Comment - DFC

**Field Reference:** 9/DIS/DFC  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.324-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1000  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDistinctiveFeature
      ↳/biom:MinutiaeCommentText
```

### Summary

Optional text describing the feature.

## 10.128. EFS No Cores Present (XML) - NCOR

**Field Reference:** 9/NCOR:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeNoCoresPresentIndicator  
**Data Type:** Y  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {"true",1}  
**Code table:** n/a  
**Base type:** niem-xsd:boolean

**Field ID:** [09.325:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/COR:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoCoresPresentIndicator
```

### Summary

Indicates if no EFS cores can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoCoresPresentIndicator>true</biom:MinutiaeNoCoresPresentIndicator>
```

## 10.129. EFS No Deltas Present (XML) - NDEL

**Field Reference:** 9/NDEL:X

**Content Type:** Data\_X

**XML Tag Name:** MinutiaeNoDeltasPresentIndicator

**Data Type:** Y

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {"true",1}

**Code table:** n/a

**Base type:** niem-xsd:boolean

**Field ID:** [09.326:X]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/DEL:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoDeltasPresentIndicator
```

### Summary

Indicates if no EFS deltas can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoDeltasPresentIndicator>true</biom:MinutiaeNoDeltasPresentIndicator>
```

## 10.130. EFS No Distinctive Features Present (XML) - NDIS

**Field Reference:** 9/NDIS:X

**Content Type:** Data\_X

**XML Tag Name:** MinutiaeNoDistinctiveFeaturesPresentIndicator

**Data Type:** Y

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {"true",1}

**Code table:** n/a

**Base type:** niem-xsd:boolean

**Field ID:** [09.327:X]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/DIS:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoDistinctiveFeaturesPresentIndicator
```

### Summary

Indicates if no EFS distinctive features can be discerned.

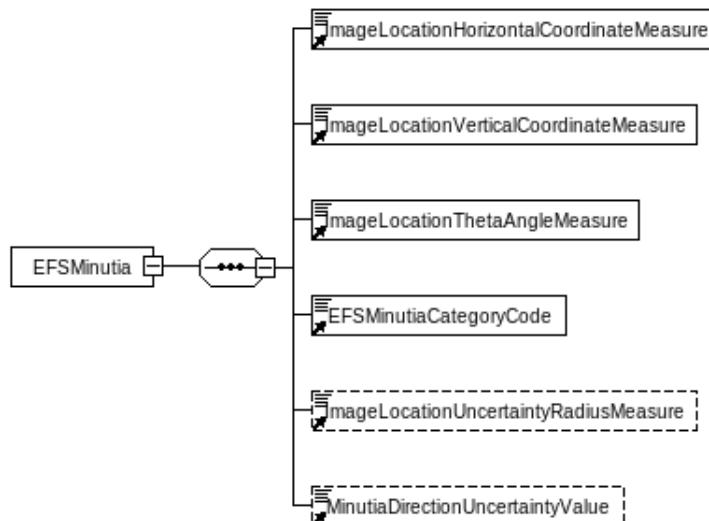
### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoDistinctiveFeaturesPresentIndicator>true</biom:MinutiaeNoDistinctiveFeaturesPresentIndicator>
```

## 10.131. EFS Minutiae (XML) - MIN



**Field Reference:** 9/MIN:X  
**Content Type:** Set\_X  
**XML Tag Name:** EFSMinutia  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:EFSMinutiaType

**Field ID:** [09.331:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 9999  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table	
Type of dependency	Value
Mandatory on Absence of other Field	9/NMIN:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSMinutia
```

### Summary

Characteristics of all EFS minutiae in the region of interest.

### Notes

ANSI/NIST umbrella standard limits the number of minutiae to 999. Large palm marks (and enrolled palm) can exceed 999 minutiae; INT-I increases this limit to 9999.

## 10.132. X Coordinate - MXC

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/MIN/MXC

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.331-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSMinutiae
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of minutia (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>2500</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.133. Y Coordinate - MYC

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/MIN/MYC

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.331-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSMinutiae
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of minutia (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>2500</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.134. Theta Degrees - MTD

### ImageLocationThetaAngleMeasure

**Field Reference:** 9/MIN/MTD

**Content Type:** Data

**XML Tag Name:** ImageLocationThetaAngleMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..359}

**Code table:** see table A.2 \*

**Base type:** biom:ThetaAngleMeasureType

**Field ID:** [09.331-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSMinutia
      ↳/biom:ImageLocationThetaAngleMeasure
```

### Summary

Direction (angle) of minutia.

### Valid Examples

```
<biom:ImageLocationThetaAngleMeasure>101</biom:ImageLocationThetaAngleMeasure>
```

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.135. Minutia Type - MTY

### EFSMinutiaCategoryCode

**Field Reference:** 9/MIN/MTY  
**Content Type:** Data  
**XML Tag Name:** EFSMinutiaCategoryCode  
**Data Type:** A  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table [A.37](#)  
**Base type:** biom:EFSMinutiaCategoryCodeType

**Field ID:** [09.331-D]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSMinutiae
      ↳/biom:EFSMinutiaCategoryCode
```

### Summary

Type of minutia.

### Valid Examples

```
<biom:EFSMinutiaCategoryCode>E</biom:EFSMinutiaCategoryCode>
```

## 10.136. Radius of Position Uncertainty - MRU

**Field Reference:** 9/MIN/MRU  
**Content Type:** Data  
**XML Tag Name:** ImageLocationUncertaintyRadiusMeasure  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..999}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.331-E]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[9/MIN/MTY]="X"

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSMinutia
      ↳/biom:ImageLocationUncertaintyRadiusMeasure
```

### Summary

Radius of a circle defining the location (X,Y) of the minutiae.

### Valid Examples

```
<biom:ImageLocationUncertaintyRadiusMeasure>120</biom:ImageLocationUncertaintyRadiusMeasure>
```

## 10.137. Minutiae Direction of Uncertainty - MDU

**Field Reference:** 9/MIN/MDU  
**Content Type:** Data  
**XML Tag Name:** MinutiaeDirectionUncertaintyValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {0..180}  
**Code table:** see table A.2 \*  
**Base type:** biom:UncertaintyValueType

**Field ID:** [09.331-F]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSMinutiae
      ↳/biom:MinutiaeDirectionUncertaintyValue
```

### Summary

Direction uncertainty of minutiae.

### Valid Examples

```
<biom:MinutiaeDirectionUncertaintyValue>120</biom:MinutiaeDirectionUncertaintyValue>
```

---

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 10.138. EFS Minutiae Ridge Count Algorithm - MRA

**Field Reference:** 9/MRA

**Content Type:** Data

**XML Tag Name:** EFSRidgeCountAlgorithmCode

**Data Type:** AN

**Minimum Length:** 5

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table A.38

**Base type:** biom:EFSRidgeCountAlgorithmCodeType

**Field ID:** [09.332]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 8

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/MRC
Mandatory on Value of other Field, optional otherwise.	[9/FSP]=11

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSRidgeCountAlgorithmCode
```

### Summary

Algorithm used in determining how neighboring minutiae are selected for use in the ridge counts in Field 9.333.

### Valid Examples

```
<biom:EFSRidgeCountAlgorithmCode>EFTS7</biom:EFSRidgeCountAlgorithmCode>
```

## 10.139. EFS Minutiae Ridge Counts - MRC

**Field Reference:** 9/MRC  
**Content Type:** Set  
**XML Tag Name:** EFSRidgeCountItem  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:EFSRidgeCountItemType

**Field ID:** [09.333]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 7992  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI
Mandatory on Value of other Field, optional otherwise.	[9/FSP]=11

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSRidgeCountItem
```

### Summary

EFS ridge counts between specified minutiae.

## 10.140. Minutia Index A - MIA



**Field Reference:** 9/MRC/MIA  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..9999}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.333-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSRidgeCountItem
      ↳/biom:MinutiaeIdentification
        ↳/nc:IdentificationID
```

### Summary

Index of first minutia.

### Valid Examples

```
<nc:IdentificationID>190</nc:IdentificationID>
```

## 10.141. Minutia Index B - MIB



**Field Reference:** 9/MRC/MIB  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..9999}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.333-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSRidgeCountItem
      ↳/biom:MinutiaeReferenceIdentification
        ↳/nc:IdentificationID
```

### Summary

Index of second minutia.

### Valid Examples

```
<nc:IdentificationID>90</nc:IdentificationID>
```

## 10.142. Ridge Count - MIR



**Field Reference:** 9/MRC/MIR  
**Content Type:** Data  
**XML Tag Name:** RidgeCountValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..99}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.333-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSRidgeCountItem
      ↳/biom:RidgeCountValue
```

### Summary

Ridge count between minutia A and B.

### Valid Examples

```
<biom:RidgeCountValue>90</biom:RidgeCountValue>
```

## 10.143. Reference Number - MRN

**Field Reference:** 9/MRC/MRN  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeCountOctantNumeric  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1..8}  
**Code table:** n/a  
**Base type:** biom:OctantNumericType

**Field ID:** [09.333-D]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSRidgeCountItem
      ↳/biom:MinutiaeRidgeCountOctantNumeric
```

### Summary

Reference number specific to the ridge count algorithm. For the OCTANT and EFTS7 ridge count algorithms, this information item specifies the octant. For the QUADRANT ridge count algorithm, this information item specifies the quadrant.

### Valid Examples

<biom:MinutiaeRidgeCountOctantNumeric>1</biom:MinutiaeRidgeCountOctantNumeric>
--

## 10.144. Residual - MRS

**Field Reference:** 9/MRC/MRS  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeCountResidualCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table A.39  
**Base type:** biom:MinutiaeRidgeCountResidualCodeType

**Field ID:** [09.333-E]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:EFSRidgeCountItem
      ↳/biom:MinutiaeRidgeCountResidualCode
```

### Summary

Specifies the half of the octant in which the neighboring minutia lies (for OCTANT and EFTS7 algorithms).

### Valid Examples

```
<biom:MinutiaeRidgeCountResidualCode>1</biom:MinutiaeRidgeCountResidualCode>
```

## 10.145. EFS No Minutia Present (XML) - NMIN

**Field Reference:** 9/NMIN:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeNoMinutiaePresentIndicator  
**Data Type:** Y  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {"true",1}  
**Code table:** n/a  
**Base type:** niem-xsd:boolean

**Field ID:** [09.334:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/MIN:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoMinutiaePresentIndicator
```

### Summary

Indicates if no EFS minutiae can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoMinutiaePresentIndicator>true</biom:MinutiaeNoMinutiaePresentIndicator>
```

## 10.146. EFS Ridge Count Confidence - RCC

**Field Reference:** 9/RCC

**Content Type:** Set

**XML Tag Name:** MinutiaeRidgeCountConfidence

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeRidgeCountConfidenceType

**Field ID:** [09.335]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 7992

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
```

### Summary

Confidence in intervening EFS ridge counts between two points (e.g., minutiae, core/delta). If this field is not used, the default assumption is that the ridge counts were manually determined.

## 10.147. Minutiae Location Point (XML)

**Field Reference:** 9/RCC/ACX\_9/RCC/ACY  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeLocationPoint  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.335-A\_09.335-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
      ↳/biom:MinutiaeLocationPoint
```

### Summary

Coordinates for point A (units of 10 micrometers).

### Notes

Applies to 9.335-A and 9.335-B

## 10.148. X Coordinate Point A - ACX

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/RCC/ACX

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.335-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
      ↳/biom:MinutiaeLocationPoint
        ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate for point A (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>6422</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.149. Y Coordinate Point A - ACY

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/RCC/ACY

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.335-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
      ↳/biom:MinutiaeLocationPoint
        ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate for point A (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>6422</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.150. Minutiae Location Reference Point (XML)

**Field Reference:** 9/RCC/BCX\_9/RCC/BCY  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeLocationReferencePoint  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.335-C\_09.335-D]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
      ↳/biom:MinutiaeLocationReferencePoint
```

### Summary

Coordinates for point B (units of 10 micrometers).

### Notes

Applies to 9.335-C and 9.335-D

## 10.151. X Coordinate Point B - BCX

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/RCC/BCX

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.335-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeRidgeCountConfidence  
      ↳/biom:MinutiaeLocationReferencePoint  
        ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate for point B (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>8855</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.152. Y Coordinate Point B - BCY

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/RCC/BCY

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.335-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
      ↳/biom:MinutiaeLocationReferencePoint
        ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate for point B (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>8855</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.153. Method of Ridge Counting - MORC

**Field Reference:** 9/RCC/MORC

**Content Type:** Data

**XML Tag Name:** MinutiaeRidgeCountMethodCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.49](#)

**Base type:** biom:MinutiaeRidgeCountMethodCodeType

**Field ID:** [09.335-E]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
      ↳/biom:MinutiaeRidgeCountMethodCode
```

### Summary

Method by which ridge counts were determined and/or validated.

### Valid Examples

```
<biom:MinutiaeRidgeCountMethodCode>M</biom:MinutiaeRidgeCountMethodCode>
```

## 10.154. Confidence Value - MCV

**Field Reference:** 9/RCC/MCV  
**Content Type:** Data  
**XML Tag Name:** MinutiaeRidgeCountConfidenceValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..99}  
**Code table:** n/a  
**Base type:** biom:MinutiaeRidgeCountConfidenceValueType

**Field ID:** [09.335-F]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeCountConfidence
      ↳/biom:MinutiaeRidgeCountConfidenceValue
```

### Summary

Confidence value for the ridge count ("0" = no confidence).

### Valid Examples

```
<biom:MinutiaeRidgeCountConfidenceValue>57</biom:MinutiaeRidgeCountConfidenceValue>
```

## 10.155. EFS Dots (XML) - DOT

**Field Reference:** 9/DOT:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeDot  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeDotType

**Field ID:** [09.340:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 999  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NDOT:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDot
```

### Summary

EFS dot description.

## 10.156. Dot X Coordinate - DOX

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/DOT/DOX

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.340-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDot
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of dot center (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>56444</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.157. Dot Y Coordinate - DOY



**Field Reference:** 9/DOT/DOY

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.340-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDot
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of dot center (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>56444</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.158. Dot Length - DOL

**Field Reference:** 9/DOT/DOL

**Content Type:** Data

**XML Tag Name:** MinutiaeDotLengthMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {1..99}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [09.340-C]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeDot
      ↳/biom:MinutiaeDotLengthMeasure
```

### Summary

Dot length along its longest dimension (units of 10 micrometers)

### Valid Examples

```
<biom:MinutiaeDotLengthMeasure>95</biom:MinutiaeDotLengthMeasure>
```

## 10.159. EFS Incipient Ridges (XML) - INR

**Field Reference:** 9/INR:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeIncipientRidge  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeIncipientRidgeType

**Field ID:** [09.341:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 999  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NINR:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeIncipientRidge
```

### Summary

EFS incipient ridge information.

## 10.160. Minutiae Location Point (XML)

**Field Reference:** 9/INR/X1C\_9/INR/Y1C  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeLocationPoint  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.341-A\_09.341-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeIncipientRidge
      ↳/biom:MinutiaeLocationPoint
```

### Summary

Coordinates of incipient ridge endpoint A.

### Notes

Applies to 9.341-A and 9.341-B

## 10.161. X Coordinate Point 1 - X1C

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/INR/X1C

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.341-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeIncipientRidge
      ↳/biom:MinutiaeLocationPoint
        ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of one endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>40000</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.162. Y Coordinate Point 1 - Y1C

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/INR/Y1C

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.341-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeIncipientRidge
      ↳/biom:MinutiaeLocationPoint
        ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of one endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>40000</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.163. Minutiae Location Reference Point (XML)

**Field Reference:** 9/INR/X2C\_9/INR/Y2C  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeLocationReferencePoint  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.341-C\_09.341-D]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeIncipientRidge
      ↳/biom:MinutiaeLocationReferencePoint
```

### Summary

Coordinates of incipient ridge endpoint B.

### Notes

Applies to 9.341-C and 9.341-D

## 10.164. X Coordinate Point 2 - X2C

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/INR/X2C

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.341-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeIncipientRidge
      ↳/biom:MinutiaeLocationReferencePoint
        ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of other endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>40000</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.165. Y Coordinate Point 2 - Y2C



**Field Reference:** 9/INR/Y2C

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.341-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeIncipientRidge  
      ↳/biom:MinutiaeLocationReferencePoint  
        ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of other endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>40000</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.166. EFS Creases and Linear Discontinuities (XML) - CLD

**Field Reference:** 9/CLD:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeFlexionCrease  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeFlexionCreaseType

**Field ID:** [09.342:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 999  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NCLD:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFlexionCrease
```

### Summary

Defines permanent flexion creases and linear discontinuities

## 10.167. Minutiae Location Point (XML)

**Field Reference:** 9/CLD/X1D\_9/CLD/Y1D  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeLocationPoint  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.342-A\_09.342-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFlexionCrease
      ↳/biom:MinutiaeLocationPoint
```

### Summary

Coordinates of crease/linear discontinuity endpoint A

### Notes

Applies to 9.342-A and 9.342-B

## 10.168. X Coordinate Point 1 - X1D

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/CLD/X1D

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.342-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFlexionCrease
      ↳/biom:MinutiaeLocationPoint
        ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of one endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>7700</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.169. Y Coordinate Point 1 - Y1D

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/CLD/Y1D

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.342-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFlexionCrease
      ↳/biom:MinutiaeLocationPoint
        ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of one endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>4700</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.170. Minutiae Location Reference Point (XML)

**Field Reference:** 9/CLD/X2D\_9/CLD/Y2D

**Content Type:** Set\_X

**XML Tag Name:** MinutiaeLocationReferencePoint

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.342-C\_09.342-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeFlexionCrease  
      ↳/biom:MinutiaeLocationReferencePoint
```

### Summary

Coordinates of crease/linear discontinuity endpoint B.

### Notes

Applies to 9.342-C and 9.342-D

## 10.171. X Coordinate Point 2 - X2D

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/CLD/X2D

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.342-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFlexionCrease
      ↳/biom:MinutiaeLocationReferencePoint
        ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of other endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>7700</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.172. Y Coordinate Point 2 - Y2D

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/CLD/Y2D

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.342-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeFlexionCrease  
      ↳/biom:MinutiaeLocationReferencePoint  
        ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of other endpoint (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>4700</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.173. Type - TPD

**Field Reference:** 9/CLD/TPD  
**Content Type:** Data  
**XML Tag Name:** MinutiaeFlexionCreaseCategoryCode  
**Data Type:** AN  
**Minimum Length:** 2  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.8  
**Base type:** biom:MinutiaeFlexionCreaseCategoryCodeType

**Field ID:** [09.342-E]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFlexionCrease
      ↳/biom:MinutiaeFlexionCreaseCategoryCode
```

### Summary

Type of permanent flexion crease.

### Valid Examples

```
<biom:MinutiaeFlexionCreaseCategoryCode>PDC07</biom:MinutiaeFlexionCreaseCategoryCode>
```

## 10.174. EFS Ridge Edge Features (XML) - REF

**Field Reference:** 9/REF:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeRidgeEdgeOrDiscontinuity  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeRidgeEdgeOrDiscontinuityType

**Field ID:** [09.343:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 999  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NREF:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeEdgeOrDiscontinuity
```

### Summary

EFS ridge end features (i.e., protrusions, indentations, discontinuities) data.

## 10.175. X Coordinate - CLX

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/REF/CLX

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.343-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeEdgeOrDiscontinuity
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of the feature center (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>40000</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.176. Y Coordinate - CLY

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/REF/CLY

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.343-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeEdgeOrDiscontinuity
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of the feature center (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>40000</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.177. Type - CLT

**Field Reference:** 9/REF/CLT

**Content Type:** Data

**XML Tag Name:** MinutiaeRidgeEdgeOrDiscontinuityCategoryCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.53](#)

**Base type:** biom:MinutiaeRidgeEdgeOrDiscontinuityCategoryCode **Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [09.343-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeRidgeEdgeOrDiscontinuity
      ↳/biom:MinutiaeRidgeEdgeOrDiscontinuityCategoryCode
```

### Summary

Type of feature.

### Valid Examples

```
<biom:MinutiaeRidgeEdgeOrDiscontinuityCategoryCode>I</biom:MinutiaeRidgeEdgeOrDiscontinuityCategoryCode>
```

## 10.178. EFS No Pores Present (XML) - NPOR

**Field Reference:** 9/NPOR:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeNoPoresPresentIndicator  
**Data Type:** Y  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {"true",1}  
**Code table:** n/a  
**Base type:** niem-xsd:boolean

**Field ID:** [09.344:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/POR:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoPoresPresentIndicator
```

### Summary

Indicates if no EFS pores can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoPoresPresentIndicator>true</biom:MinutiaeNoPoresPresentIndicator>
```

## 10.179. EFS Pores (XML) - POR

**Field Reference:** 9/POR:X  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaePore  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaePoreType

**Field ID:** [09.345:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 9999  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/NPOR:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePore
```

### Summary

EFS pore data.

## 10.180. X Coordinate - POX

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/POR/POX

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.345-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePore
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of pore center (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>40000</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.181. Y Coordinate - POY

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/POR/POY

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.345-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaePore
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of pore center (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>40000</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.182. EFS No Dots Present (XML) - NDOT

**Field Reference:** 9/NDOT:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeNoDotsPresentIndicator  
**Data Type:** Y  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {"true",1}  
**Code table:** n/a  
**Base type:** niem-xsd:boolean

**Field ID:** [09.346:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/DOT:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoDotsPresentIndicator
```

### Summary

Indicates if no EFS dots can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoDotsPresentIndicator>true</biom:MinutiaeNoDotsPresentIndicator>
```

## 10.183. EFS No Incipient Ridges Present (XML) - NINR

**Field Reference:** 9/NINR:X

**Content Type:** Data\_X

**XML Tag Name:** MinutiaeNoIncipientRidgesPresentIndicator

**Data Type:** Y

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {"true",1}

**Code table:** n/a

**Base type:** niem-xsd:boolean

**Field ID:** [09.347:X]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/INR:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoIncipientRidgesPresentIndicator
```

### Summary

Indicates if no EFS incipient ridges can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoIncipientRidgesPresentIndicator>true</biom:MinutiaeNoIncipientRidgesPresentIndicator>
```

## 10.184. EFS No Creases Present (XML) - NCLD

**Field Reference:** 9/NCLD:X  
**Content Type:** Data\_X  
**XML Tag Name:** MinutiaeNoCreasesPresentIndicator  
**Data Type:** Y  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {"true",1}  
**Code table:** n/a  
**Base type:** niem-xsd:boolean

**Field ID:** [09.348:X]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/CLD:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoCreasesPresentIndicator
```

### Summary

Indicates if no EFS creases or linear discontinuities can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoCreasesPresentIndicator>true</biom:MinutiaeNoCreasesPresentIndicator>
```

## 10.185. EFS No Ridge Edge Features Present (XML) - NREF

**Field Reference:** 9/NREF:X

**Content Type:** Data\_X

**XML Tag Name:** MinutiaeNoRidgeEdgeFeaturesPresentIndicator

**Data Type:** Y

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {"true",1}

**Code table:** n/a

**Base type:** niem-xsd:boolean

**Field ID:** [09.349:X]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	9/REF:X

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeNoRidgeEdgeFeaturesPresentIndicator
```

### Summary

Indicates if no EFS ridge edge features can be discerned.

### Notes

Omit field if false

### Valid Examples

```
<biom:MinutiaeNoRidgeEdgeFeaturesPresentIndicator>true</biom:MinutiaeNoRidgeEdgeFeaturesPresentIndicator>
```

## 10.186. EFS Method of Feature Detection - MFD

**Field Reference:** 9/MFD  
**Content Type:** Set  
**XML Tag Name:** MinutiaeFeatureDetection  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeFeatureDetectionType

**Field ID:** [09.350]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 99  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
```

### Summary

Method(s) by which EFS features were detected and/or edited. Each time fields are created or modified, the date and name of the automated algorithm or human examiner is noted in a new data entry repeating subfield).

## 10.187. Field - FIE

**Field Reference:** 9/MFD/FIE  
**Content Type:** Data  
**XML Tag Name:** MinutiaeFeatureDetectionFieldListText  
**Data Type:** ANS  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.350-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** [.]  
**Maximum Length:** 999  
**Maximum Occurrences:** 1  
**Regular Expression:** ("ALL")|(9.3\d\d(,9.3\d\d)\*)  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeFeatureDetectionFieldListText
```

### Summary

Fields which correspond to method noted.

## 10.188. Method - FME

**Field Reference:** 9/MFD/FME

**Content Type:** Data

**XML Tag Name:** MinutiaeFeatureDetectionMethodCode

**Data Type:** A

**Minimum Length:** 3

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table A.36

**Base type:** biom:MinutiaeFeatureDetectionMethodCodeType

**Field ID:** [09.350-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeFeatureDetectionMethodCode
```

### Summary

Method by which fingerprint features were detected and encoded.

### Valid Examples

```
<biom:MinutiaeFeatureDetectionMethodCode>EDIT</biom:MinutiaeFeatureDetectionMethodCode>
```

## 10.189. Algorithm Vendor - FAV



**Field Reference:** 9/MFD/FAV  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.350-C]  
**Condition:** ?  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 40  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/MFD/FME]IN{"AUTO","REV","EDIT"}

### XPath

```

/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeAlgorithmVendorIdentification
        ↳/nc:IdentificationID
  
```

### Summary

Vendor of encoding algorithm.

## 10.190. Algorithm - FAL



**Field Reference:** 9/MFD/FAL  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.350-D]  
**Condition:** ?  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 40  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/MFD/FME]IN{"AUTO","REV","EDIT"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeAlgorithmIdentification
        ↳/nc:IdentificationID
```

### Summary

Algorithm name and version.

## 10.191. Minutiae Examiner (XML)

**Field Reference:** 9/MFD/ESN\_9/MFD/EGN  
**Content Type:** Set\_X  
**XML Tag Name:** PersonName  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameType

**Field ID:** [09.350-E\_09.350-F]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeExaminer
        ↳/nc:PersonName
```

### Summary

Minutiae examiner name.

### Notes

Applies to 9.350-E and 9.350-F

## 10.192. Examiner Surname - ESN



**Field Reference:** 9/MFD/ESN  
**Content Type:** Data  
**XML Tag Name:** PersonSurName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [09.350-E]  
**Condition:** ?  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 40  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/MFD/FME]IN{"MAN","REV","EDIT"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeExaminer
        ↳/nc:PersonName
          ↳/nc:PersonSurName
```

### Summary

Last name of fingerprint examiner.

### Valid Examples

```
<nc:PersonSurName>Smith</nc:PersonSurName>
```

## 10.193. Examiner Given Name - EGN

### PersonGivenName

**Field Reference:** 9/MFD/EGN  
**Content Type:** Data  
**XML Tag Name:** PersonGivenName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [09.350-F]  
**Condition:** ?  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 40  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

**Dependency table**

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/MFD/FME]IN{"MAN","REV","EDIT"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/bim:ExtendedFeatureSetMinutiae
    ↳/bim:MinutiaeFeatureDetection
      ↳/bim:MinutiaeExaminer
        ↳/nc:PersonName
          ↳/nc:PersonGivenName
```

### Summary

Given name or first and middle names of fingerprint examiner.

### Valid Examples

<nc:PersonGivenName>John</nc:PersonGivenName>
---

## 10.194. Examiner Affiliation - EAF

### OrganizationName

**Field Reference:** 9/MFD/EAF  
**Content Type:** Data  
**XML Tag Name:** OrganizationName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.350-G]  
**Condition:** ?  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 99  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[9/MFD/FME]IN{"MAN","REV","EDIT"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeExaminerAffiliation
        ↳/nc:OrganizationName
```

### Summary

Employer or organizational affiliation of examiner.

### Valid Examples

```
<nc:OrganizationName>FBI</nc:OrganizationName>
```

## 10.195. Date and Time (XML) - EMT



**Field Reference:** 9/MFD/EMT:X  
**Content Type:** Data\_X  
**XML Tag Name:** DateTime  
**Data Type:** ANS  
**Minimum Length:** 20  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [niem-xsd:dateTime](#)

**Field ID:** [09.350-H:X]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [:]  
**Maximum Length:** 20  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeFeatureDetectionDateTime
        ↳/nc:DateTime
```

### Summary

Date and time determination was made.

### Valid Examples

```
<nc:DateTime>2007-01-01T00:00:01Z</nc:DateTime>
```

## 10.196. Notes - NTS

**Field Reference:** 9/MFD/NTS  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.350-I]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 99  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureDetection
      ↳/biom:MinutiaeCommentText
```

### Summary

Additional information regarding the detection or modification of features.

## 10.197. EFS Comment - COM

**Field Reference:** 9/COM  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.351]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 126  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeCommentText
```

### Summary

Additional information not noted in other fields. This may include unformatted text information such as location, background information, or descriptive information. If comments need to be made about specific portions of the impression, use Field 9.324 or Field 9.332.

### Valid Examples

```
<biom:MinutiaeCommentText>Comment</biom:MinutiaeCommentText>
```

## 10.198. EFS Latent Processing Method - LPM

**Field Reference:** 9/LPM

**Content Type:** Data

**XML Tag Name:** LatentProcessingCategoryCode

**Data Type:** AN

**Minimum Length:** 3

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table A.33

**Base type:** biom:LatentProcessingCategoryCodeType

**Field ID:** [09.352]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 9

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:LatentProcessingCategoryCode
```

### Summary

Technique(s) used to process the latent fingerprint (only used for latent images). Unprocessed impressions (latent images visible to the naked eye) shall be labeled VIS. Methods should only be marked if they contributed substantively to the visualization of the image, and shall not be a compilation of all methods attempted.

### Valid Examples

```
<biom:LatentProcessingCategoryCode>AMB</biom:LatentProcessingCategoryCode>
```

## 10.199. EFS Examiner Analysis Assessment - EAA

**Field Reference:** 9/EAA  
**Content Type:** Set  
**XML Tag Name:** MinutiaeValueAssessment  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeValueAssessmentType

**Field ID:** [09.353]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
```

### Summary

Examiner's assessment of impression value.

## 10.200. Value Assessment Code - AAV

**Field Reference:** 9/EAA/AAV  
**Content Type:** Data  
**XML Tag Name:** MinutiaeValueAssessmentResultCode  
**Data Type:** A  
**Minimum Length:** 5  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table [A.18](#)  
**Base type:** biom:MinutiaeValueAssessmentResultCodeType

**Field ID:** [09.353-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 8  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
      ↳/biom:MinutiaeValueAssessmentResultCode
```

### Summary

Value of impression.

### Valid Examples

```
<biom:MinutiaeValueAssessmentResultCode>NOVALUE</biom:MinutiaeValueAssessmentResultCode>
```

## 10.201. Minutiae Examiner (XML)

**Field Reference:** 9/EAA/ALN\_9/EAA/AFN  
**Content Type:** Set\_X  
**XML Tag Name:** PersonName  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameType

**Field ID:** [09.353-B\_09.353-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
      ↳/biom:MinutiaeExaminer
        ↳/nc:PersonName
```

### Summary

Minutiae examiner name.

### Notes

Applies to 9.353-B and 9.353-C

## 10.202. Examiner Last Name - ALN



**Field Reference:** 9/EAA/ALN  
**Content Type:** Data  
**XML Tag Name:** PersonSurName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameTextType

**Field ID:** [09.353-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 40  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
      ↳/biom:MinutiaeExaminer
        ↳/nc:PersonName
          ↳/nc:PersonSurName
```

### Summary

Last name of examiner.

### Valid Examples

```
<nc:PersonSurName>Smith</nc:PersonSurName>
```

## 10.203. Examiner First Name - AFN

### PersonGivenName

**Field Reference:** 9/EAA/AFN

**Content Type:** Data

**XML Tag Name:** PersonGivenName

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:PersonNameTextType

**Field ID:** [09.353-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 40

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeValueAssessment  
      ↳/biom:MinutiaeExaminer  
        ↳/nc:PersonName  
          ↳/nc:PersonGivenName
```

### Summary

Given name or first and middle names of examiner.

### Valid Examples

```
<nc:PersonGivenName>John</nc:PersonGivenName>
```

## 10.204. Examiner Affiliation - AAF



**Field Reference:** 9/EAA/AAF  
**Content Type:** Data  
**XML Tag Name:** OrganizationName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.353-D]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 99  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
      ↳/biom:MinutiaeExaminerAffiliation
        ↳/nc:OrganizationName
```

### Summary

Employer or organizational affiliation of examiner.

### Valid Examples

```
<nc:OrganizationName>FBI</nc:OrganizationName>
```

## 10.205. Date and Time (XML) - AMT



**Field Reference:** 9/EAA/AMT:X  
**Content Type:** Data\_X  
**XML Tag Name:** DateTime  
**Data Type:** ANS  
**Minimum Length:** 20  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [niem-xsd:dateTime](#)

**Field ID:** [09.353-E:X]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [:]  
**Maximum Length:** 20  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
      ↳/biom:MinutiaeValueAssessmentDateTime
        ↳/nc:DateTime
```

### Summary

Date and time determination was made.

### Valid Examples

```
<nc:DateTime>2007-01-01T00:00:01Z</nc:DateTime>
```

## 10.206. Comment - ACM

**Field Reference:** 9/EAA/ACM  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.353-F]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 200  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
      ↳/biom:MinutiaeCommentText
```

### Summary

Additional clarifying information for examiner analysis assessment.

### Valid Examples

```
<biom:MinutiaeCommentText>Low minutiae count</biom:MinutiaeCommentText>
```

## 10.207. Analysis Complexity Flag - CXF

**Field Reference:** 9/EAA/CXF  
**Content Type:** Data  
**XML Tag Name:** MinutiaeAnalysisComplexityCode  
**Data Type:** A  
**Minimum Length:** 7  
**Minimum Occurrences:** 0  
**Value range:** {"COMPLEX"}  
**Code table:** n/a  
**Base type:** biom:MinutiaeAnalysisComplexityCodeType

**Field ID:** [09.353-G]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 7  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeValueAssessment
      ↳/biom:MinutiaeAnalysisComplexityCode
```

### Summary

Indicates the examiner determined that the analysis was complex as defined in Standards for examining friction ridge impressions and resulting conclusions.

### Valid Examples

```
<biom:MinutiaeAnalysisComplexityCode>COMPLEX</biom:MinutiaeAnalysisComplexityCode>
```

## 10.208. EFS Evidence of Fraud - EOF

**Field Reference:** 9/EOF  
**Content Type:** Set  
**XML Tag Name:** MinutiaeFraudEvidence  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeFraudEvidenceType

**Field ID:** [09.354]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 4  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFraudEvidence
```

### Summary

Indicates that the image may be fraudulent.

## 10.209. Fraud Type - FRA

**Field Reference:** 9/EOF/FRA  
**Content Type:** Data  
**XML Tag Name:** MinutiaeFraudEvidenceCategoryCode  
**Data Type:** A  
**Minimum Length:** 3  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.21  
**Base type:** biom:MinutiaeFraudEvidenceCategoryCodeType

**Field ID:** [09.354-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFraudEvidence
      ↳/biom:MinutiaeFraudEvidenceCategoryCode
```

### Summary

Potential type of fraud attempted.

### Valid Examples

```
<biom:MinutiaeFraudEvidenceCategoryCode>EVA</biom:MinutiaeFraudEvidenceCategoryCode>
```

## 10.210. Comment - CFD

**Field Reference:** 9/EOF/CFD  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.354-B]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 200  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFraudEvidence
      ↳/biom:MinutiaeCommentText
```

### Summary

Clarifying information regarding assessment of potential evidence of fraud.

### Valid Examples

```
<biom:MinutiaeCommentText>Fake fingerprints</biom:MinutiaeCommentText>
```

## 10.211. EFS Latent Substrate - LSB

**Field Reference:** 9/LSB  
**Content Type:** Set  
**XML Tag Name:** MinutiaeLatentSubstrate  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeLatentSubstrateType

**Field ID:** [09.355]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 3  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLatentSubstrate
```

### Summary

EFS surface on which the friction ridge impression was deposited. If multiple substrates are present, they are represented by separate subfields.

## 10.212. Code - CLS

**Field Reference:** 9/LSB/CLS  
**Content Type:** Data  
**XML Tag Name:** MinutiaeLatentSubstrateCategoryCode  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.35  
**Base type:** biom:MinutiaeLatentSubstrateCategoryCodeType

**Field ID:** [09.355-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLatentSubstrate
      ↳/biom:MinutiaeLatentSubstrateCategoryCode
```

### Summary

Type of substrate.

### Valid Examples

```
<biom:MinutiaeLatentSubstrateCategoryCode>3D</biom:MinutiaeLatentSubstrateCategoryCode>
```

## 10.213. Object/Substrate Description - OSD

**Field Reference:** 9/LSB/OSD

**Content Type:** Data

**XML Tag Name:** MinutiaeLatentSubstrateDescriptionText

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [09.355-B]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1000

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLatentSubstrate
      ↳/biom:MinutiaeLatentSubstrateDescriptionText
```

### Summary

Text that describes object or surface on which print was deposited, or provides clarifying information regarding the substrate.

### Valid Examples

```
<biom:MinutiaeLatentSubstrateDescriptionText>Glass</biom:MinutiaeLatentSubstrateDescriptionText>
```

## 10.214. EFS Latent Matrix - LMT

**Field Reference:** 9/LMT  
**Content Type:** Set  
**XML Tag Name:** MinutiaeLatentMatrix  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeLatentMatrixType

**Field ID:** [09.356]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 3  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLatentMatrix
```

### Summary

EFS substance deposited by the finger that forms the impression. Each latent matrix is represented by a repeating subfield.

## 10.215. Code - TOM

**Field Reference:** 9/LMT/TOM  
**Content Type:** Data  
**XML Tag Name:** MinutiaeLatentMatrixCategoryCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table A.32  
**Base type:** biom:MinutiaeLatentMatrixCategoryCodeType

**Field ID:** [09.356-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLatentMatrix
      ↳/biom:MinutiaeLatentMatrixCategoryCode
```

### Summary

Type of substance deposited by finger. All visible contaminants are apparent rather than necessarily known to certainty; for example, the substrate may be marked as blood if it appears to be blood; if known for certain that should be indicated as a comment.

### Valid Examples

<biom:MinutiaeLatentMatrixCategoryCode>1</biom:MinutiaeLatentMatrixCategoryCode>
--

## 10.216. Comment - CLA

**Field Reference:** 9/LMT/CLA  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.356-B]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1000  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLatentMatrix
      ↳/biom:MinutiaeCommentText
```

### Summary

Clarifying information regarding the deposited substance.

### Valid Examples

```
<biom:MinutiaeCommentText>Known for certain that substrate is perspiration</biom:MinutiaeCommentText>
```

## 10.217. EFS Local Quality Issues - LQI

**Field Reference:** 9/LQI

**Content Type:** Set

**XML Tag Name:** MinutiaeLocalQualityIssues

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeLocalQualityIssuesType

**Field ID:** [09.357]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLocalQualityIssues
```

### Summary

Defines area(s) containing quality or transfer issues that indicate that the anatomical friction ridge features may not have been accurately represented in the image.

## 10.218. Type - LQT

**Field Reference:** 9/LQI/LQT  
**Content Type:** Data  
**XML Tag Name:** MinutiaeLocalQualityIssuesCategoryCode  
**Data Type:** A  
**Minimum Length:** 4  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** see table [A.34](#)  
**Base type:** biom:MinutiaeLocalQualityIssuesCategoryCodeType

**Field ID:** [09.357-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 10  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLocalQualityIssues
      ↳/biom:MinutiaeLocalQualityIssuesCategoryCode
```

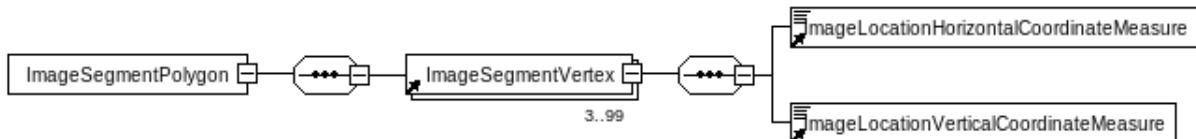
### Summary

Type of quality issue.

### Valid Examples

```
<biom:MinutiaeLocalQualityIssuesCategoryCode>BACKGROUND</biom:MinutiaeLocalQualityIssuesCategoryCode>
```

## 10.219. Image Segment Polygon (XML) - LQP



**Field Reference:** 9/LQI/LQP:X1  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentPolygon  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentPolygonType

**Field ID:** [09.357-B:X1]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

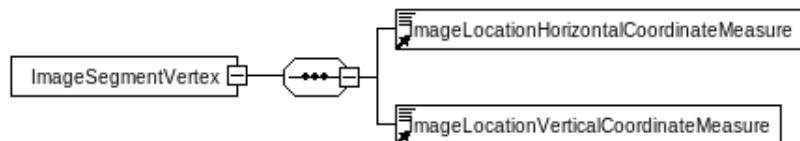
### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLocalQualityIssues
      ↳/biom:ImageSegmentPolygon
```

### Summary

Closed path polygon outlining the area of the quality issue.

## 10.220. Image Segment Vertex (XML) - LQP



**Field Reference:** 9/LQI/LQP:X2  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentVertex  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 3  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.357-B:X2]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 99  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLocalQualityIssues
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
```

### Summary

Closed path polygon outlining the area of the quality issue.

## 10.221. Image Location Horizontal Coordinate Measure (XML) - LQP

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/LQI/LQP:X3

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.357-B:X3]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLocalQualityIssues
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

Closed path polygon outlining the area of the quality issue.

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>1530</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.222. Image Location Vertical Coordinate Measure (XML) - LQP



**Field Reference:** 9/LQI/LQP:X4

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.357-B:X4]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLocalQualityIssues
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Closed path polygon outlining the area of the quality issue.

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>2510</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.223. Comment - LQC

**Field Reference:** 9/LQI/LQC  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.357-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1000  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeLocalQualityIssues
      ↳/biom:MinutiaeCommentText
```

### Summary

Text describing quality issue.

## 10.224. EFS Area of Correspondence - AOC

**Field Reference:** 9/AOC  
**Content Type:** Set  
**XML Tag Name:** FrictionRidgeImageAreaOfCorrespondence  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:FrictionRidgeImageAreaOfCorrespondenceType

**Field ID:** [09.360]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageAreaOfCorrespondence
```

### Summary

EFS polygon enclosing a region of usable ridge detail in two or more images being compared. If the corresponding areas are discontinuous, more than one area of correspondence may be defined for a pair of images, each in a separate subfield.

### Notes

Note that the AOC in a given Type-9 record contains an IDC reference for one or more other Type-9 record in a transaction. For example, a latent could have areas of correspondence with both the rolled and plain exemplars from one subject, or a latent could have areas of correspondence with candidate exemplars from two different subjects. If two prints overlap but neither encloses the area of the other (such as shown in Figure 11, the AOC shall be marked for both prints. If the area of a small print is completely enclosed by the area of a larger print so that the AOC for the small print is identical to the ROI, the AOC may be omitted for the smaller print.

## 10.225. IDC Reference - CIR



**Field Reference:** 9/AOC/CIR  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..99}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.360-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageAreaOfCorrespondence
      ↳/biom:ImageReferenceIdentification
        ↳/nc:IdentificationID
```

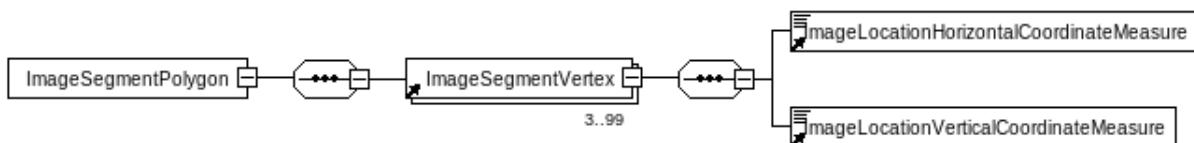
### Summary

IDC for the target image / Type-9 record for a given AOC.

### Valid Examples

```
<nc:IdentificationID>2</nc:IdentificationID>
```

## 10.226. Image Segment Polygon (XML) - AOP



**Field Reference:** 9/AOC/AOP:X1  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentPolygon  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentPolygonType

**Field ID:** [09.360-B:X1]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

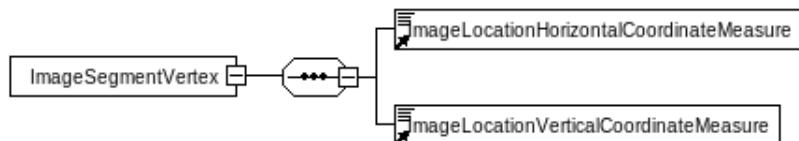
### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageAreaOfCorrespondence
      ↳/biom:ImageSegmentPolygon
```

### Summary

Defines outline of corresponding area.

## 10.227. Image Segment Vertex (XML) - AOP



**Field Reference:** 9/AOC/AOP:X2  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentVertex  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 3  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.360-B:X2]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 99  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/bion:ExtendedFeatureSetMinutiae
    ↳/bion:FrictionRidgeImageAreaOfCorrespondence
      ↳/bion:ImageSegmentPolygon
        ↳/bion:ImageSegmentVertex
```

### Summary

Defines outline of corresponding area.

## 10.228. Image Location Horizontal Coordinate Measure (XML) - AOP

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/AOC/AOP:X3

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.360-B:X3]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageAreaOfCorrespondence
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

Defines outline of corresponding area.

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>1530</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.229. Image Location Vertical Coordinate Measure (XML) - AOP



**Field Reference:** 9/AOC/AOP:X4

**Content Type:** Data\_NX-1T

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.360-B:X4]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageAreaOfCorrespondence
      ↳/biom:ImageSegmentPolygon
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Defines outline of corresponding area.

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>2510</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.230. Comment - CAC

**Field Reference:** 9/AOC/CAC  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.360-C]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1000  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageAreaOfCorrespondence
      ↳/biom:MinutiaeCommentText
```

### Summary

Free text comment or description related to the AOC.

## 10.231. EFS Corresponding Points or Features - CPF

**Field Reference:** 9/CPF

**Content Type:** Set

**XML Tag Name:** MinutiaeFeatureCorrespondence

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:MinutiaeFeatureCorrespondenceType

**Field ID:** [09.361]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
```

### Summary

EFS points and features for corresponding areas.

## 10.232. Label - COL



**Field Reference:** 9/CPF/COL  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** AN  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.361-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
      ↳/biom:MinutiaeFeatureIdentification
        ↳/nc:IdentificationID
```

### Summary

Alphanumeric label used to indicate corresponding features and points in different Type-9 records. The label names may be selected and assigned at the discretion of the system or the examiner.

### Notes

Labels within a single Type-9 record shall be unique. Note that the use of a given label in one Type-9 record means that that point or feature corresponds with any or all other features with the same label in other Type-9 records in the transaction.

### Valid Examples

```
<nc:IdentificationID>3</nc:IdentificationID>
```

## 10.233. Type of Correspondence - TOC

**Field Reference:** 9/CPF/TOC

**Content Type:** Data

**XML Tag Name:** MinutiaeFeatureCorrespondenceCategoryCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.10](#)

**Base type:** biom:MinutiaeFeatureCorrespondenceCategoryCodeType  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [09.361-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
      ↳/biom:MinutiaeFeatureCorrespondenceCategoryCode
```

### Summary

Code indicating the type of correspondence or non-correspondence.

### Valid Examples

```
<biom:MinutiaeFeatureCorrespondenceCategoryCode>R</biom:MinutiaeFeatureCorrespondenceCategoryCode>
```

## 10.234. Corresponding Field Number - CFN

**Field Reference:** 9/CPF/CFN  
**Content Type:** Data  
**XML Tag Name:** MinutiaeFeatureCategoryCode  
**Data Type:** N  
**Minimum Length:** 3  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** see table A.9  
**Base type:** biom:MinutiaeFeatureCategoryCodeType

**Field ID:** [09.361-C]  
**Condition:** ?  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, should not be set if not.	[9/CPF/TOC]IN{"F","DF"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
      ↳/biom:MinutiaeFeatureCategoryCode
```

### Summary

Field number being compared.

### Valid Examples

```
<biom:MinutiaeFeatureCategoryCode>331</biom:MinutiaeFeatureCategoryCode>
```

## 10.235. Corresponding Field Occurrence - FOC

### IdentificationID

**Field Reference:** 9/CPF/FOC  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1..999}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.361-D]  
**Condition:** ?  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 3  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, should not be set if not.	[9/CPF/TOC]IN{"F","DF"}

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
      ↳/biom:MinutiaeFeatureReferenceIdentification
        ↳/nc:IdentificationID
```

### Summary

Occurrence of the specified field that the label applies to. Occurrences are numbered starting with 1.

### Valid Examples

```
<nc:IdentificationID>11</nc:IdentificationID>
```

## 10.236. Corresponding X Coordinate - CXC

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/CPF/CXC

**Content Type:** Data

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.361-E]

**Condition:** ?

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[9/CPF/TOC]IN{"P","DP"}
Optional on Value of other Field, should not be set otherwise.	[9/CPF/TOC]="X"

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
      ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

X coordinate of feature/point (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>9880</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.237. Corresponding Y Coordinate - CYC

### ImageLocationVerticalCoordinateMeasure

**Field Reference:** 9/CPF/CYC

**Content Type:** Data

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.361-F]

**Condition:** ?

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[9/CPF/TOC]IN{"P","DP"}
Optional on Value of other Field, should not be set otherwise.	[9/CPF/TOC]="X"

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
      ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Y coordinate of feature/point (units of 10 micrometers).

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>9880</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.238. Comment - COC

**Field Reference:** 9/CPF/COC  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.361-G]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1000  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeFeatureCorrespondence
      ↳/biom:MinutiaeCommentText
```

### Summary

Text comment or description related to the corresponding features and points.

## 10.239. EFS Examiner Comparison Determination - ECD

<b>Field Reference:</b> 9/ECD	<b>Field ID:</b> [09.362]
<b>Content Type:</b> Set	<b>Condition:</b> Dependent (see table)
<b>XML Tag Name:</b> MinutiaeExaminerComparisonDetermination	<b>Defined in:</b> xsd/niem/biometrics/1.0/biometrics.xsd
<b>Data Type:</b>	<b>Special Characters:</b> n/a
<b>Minimum Length:</b>	<b>Maximum Length:</b>
<b>Minimum Occurrences:</b> 0	<b>Maximum Occurrences:</b> *
<b>Value range:</b> n/a	<b>Regular Expression:</b> n/a
<b>Code table:</b> n/a	
<b>Base type:</b> biom:MinutiaeExaminerComparisonDeterminationType	<b>Namespace:</b> <a href="http://niem.gov/niem/biometrics/1.0">http://niem.gov/niem/biometrics/1.0</a>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
```

### Summary

Examiner's determination based on analysis and comparison of two specified friction ridge images. If multiple examiners' determinations are represented, each is contained separately in a repeating subfield. Comparison determinations against multiple impressions in the same transaction are specified in a separate subfield with distinct IDC references.

## 10.240. IDC Reference - EDC



**Field Reference:** 9/ECD/EDC  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..99}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.362-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
      ↳/biom:ImageReferenceIdentification
        ↳/nc:IdentificationID
```

### Summary

IDC for the target image for a given determination.

### Valid Examples

```
<nc:IdentificationID>2</nc:IdentificationID>
```

## 10.241. Determination - EDE

**Field Reference:** 9/ECD/EDE

**Content Type:** Data

**XML Tag Name:** MinutiaeExaminerComparisonDeterminationResultCode

**Data Type:** AS

**Minimum Length:** 4

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table A.19

**Base type:** biom:MinutiaeExaminerComparisonDeterminationResultCode

**Field ID:** [09.362-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** [ ]

**Maximum Length:** 6

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
      ↳/biom:MinutiaeExaminerComparisonDeterminationResultCode
```

### Summary

Comparison conclusion.

### Technical Notes

The default value is "NONE".

### Valid Examples

```
<biom:MinutiaeExaminerComparisonDeterminationResultCode>INC_I</biom:MinutiaeExaminerComparisonDeterminationResultCode>
```

## 10.242. Work in Progress - WIP

**Field Reference:** 9/ECD/WIP

**Content Type:** Data

**XML Tag Name:** MinutiaeExaminerProgressCode

**Data Type:** A

**Minimum Length:** 5

**Minimum Occurrences:** 1

**Value range:** {"PRELIMINARY", "FINAL"}

**Code table:** n/a

**Base type:** biom:MinutiaeExaminerProgressCodeType

**Field ID:** [09.362-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 11

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
      ↳/biom:MinutiaeExaminerProgressCode
```

### Summary

Status (preliminary or final).

### Technical Notes

The default value is "PRELIMINARY".

### Valid Examples

<biom:MinutiaeExaminerProgressCode>PRELIMINARY</biom:MinutiaeExaminerProgressCode>
--

## 10.243. Minutiae Examiner (XML)

**Field Reference:** 9/ECD/ELN\_9/ECD/EFN  
**Content Type:** Set\_X  
**XML Tag Name:** PersonName  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:PersonNameType

**Field ID:** [09.362-D\_09.362-E]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/bim:ExtendedFeatureSetMinutiae
    ↳/bim:MinutiaeExaminerComparisonDetermination
      ↳/bim:MinutiaeExaminer
        ↳/nc:PersonName
```

### Summary

Minutiae examiner name.

### Notes

Applies to 9.362-D and 9.362-E

## 10.244. Examiner Last Name - ELN



**Field Reference:** 9/ECD/ELN

**Content Type:** Data

**XML Tag Name:** PersonSurName

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:PersonNameTextType

**Field ID:** [09.362-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 40

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeExaminerComparisonDetermination  
      ↳/biom:MinutiaeExaminer  
        ↳/nc:PersonName  
          ↳/nc:PersonSurName
```

### Summary

Surname of the fingerprint examiner.

### Valid Examples

```
<nc:PersonSurName>Smith</nc:PersonSurName>
```

## 10.245. Examiner First Name - EFN

### PersonGivenName

**Field Reference:** 9/ECD/EFN

**Content Type:** Data

**XML Tag Name:** PersonGivenName

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:PersonNameTextType

**Field ID:** [09.362-E]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 40

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord  
  ↳/biom:ExtendedFeatureSetMinutiae  
    ↳/biom:MinutiaeExaminerComparisonDetermination  
      ↳/biom:MinutiaeExaminer  
        ↳/nc:PersonName  
          ↳/nc:PersonGivenName
```

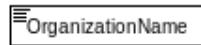
### Summary

Given name (first name or first and middle names) of the fingerprint examiner.

### Valid Examples

```
<nc:PersonGivenName>John</nc:PersonGivenName>
```

## 10.246. Examiner Affiliation - EAF



**Field Reference:** 9/ECD/EAF  
**Content Type:** Data  
**XML Tag Name:** OrganizationName  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.362-F]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 99  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
      ↳/biom:MinutiaeExaminerAffiliation
        ↳/nc:OrganizationName
```

### Summary

Employer or organizational affiliation of examiner.

### Valid Examples

```
<nc:OrganizationName>FBI</nc:OrganizationName>
```

## 10.247. Date and Time (XML) - DTG



**Field Reference:** 9/ECD/DTG:X  
**Content Type:** Data\_X  
**XML Tag Name:** DateTime  
**Data Type:** ANS  
**Minimum Length:** 20  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [niem-xsd:dateTime](#)

**Field ID:** [09.362-G:X]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [:]  
**Maximum Length:** 20  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}Z  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
      ↳/biom:MinutiaeExaminerComparisonDeterminationDateTime
        ↳/nc:DateTime
```

### Summary

Date and time determination was made, in terms of Greenwich Mean Time units.

### Valid Examples

```
<nc:DateTime>2007-01-01T00:00:01Z</nc:DateTime>
```

## 10.248. Comment - CZZ

**Field Reference:** 9/ECD/CZZ  
**Content Type:** Data  
**XML Tag Name:** MinutiaeCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [09.362-H]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 200  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
      ↳/biom:MinutiaeCommentText
```

### Summary

Clarifying or qualifying information regarding comparison determination.

## 10.249. Complex Comparison Flag - CCF

**Field Reference:** 9/ECD/CCF  
**Content Type:** Data  
**XML Tag Name:** MinutiaeComparisonComplexityCode  
**Data Type:** A  
**Minimum Length:** 7  
**Minimum Occurrences:** 0  
**Value range:** {"COMPLEX"}  
**Code table:** n/a  
**Base type:** biom:MinutiaeAnalysisComplexityCodeType

**Field ID:** [09.362-I]  
**Condition:** Optional within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 7  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeExaminerComparisonDetermination
      ↳/biom:MinutiaeComparisonComplexityCode
```

### Summary

Used only when examiner determines that the comparison was complex.

### Valid Examples

```
<biom:MinutiaeComparisonComplexityCode>COMPLEX</biom:MinutiaeComparisonComplexityCode>
```

## 10.250. EFS Relative Rotation of Corresponding Print - RRC

**Field Reference:** 9/RRC  
**Content Type:** Set  
**XML Tag Name:** FrictionRidgeImageRelativeRotation  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:FrictionRidgeImageRelativeRotationType

**Field ID:** [09.363]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRelativeRotation
```

### Summary

Relative overall rotation needed for two or more prints to be compared. The number of subfields is limited only by the number of Type-9 records in a transaction.

## 10.251. Rotation IDC Reference - RIR



**Field Reference:** 9/RRC/RIR  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {0..99}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [09.363-A]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRelativeRotation
      ↳/biom:ImageReferenceIdentification
        ↳/nc:IdentificationID
```

### Summary

IDC for the Type-9 record associated with target image / Type-9 record for a given RRC.

### Valid Examples

```
<nc:IdentificationID>2</nc:IdentificationID>
```

## 10.252. Relative Overall Rotation - ROR

**Field Reference:** 9/RRC/ROR  
**Content Type:** Data  
**XML Tag Name:** ImageRelativeOverallRotationValue  
**Data Type:** NS  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {-179..180}  
**Code table:** n/a  
**Base type:** biom:RelativeRotationMeasureType

**Field ID:** [09.363-B]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** [-]  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeImageRelativeRotation
      ↳/biom:ImageRelativeOverallRotationValue
```

### Summary

Number of degrees the target image and/or features referenced by 9.363-A must be rotated to correspond with the designated Type-9 record. Positive numbers indicate degrees counterclockwise; negative numbers indicate degrees clockwise.

### Valid Examples

```
<biom:ImageRelativeOverallRotationValue>101</biom:ImageRelativeOverallRotationValue>
```

## 10.253. EFS Skeletonized Image - SIM

**Field Reference:** 9/SIM

**Content Type:** Data

**XML Tag Name:** FrictionRidgeSkeletonizedImageBinaryObject

**Data Type:** Base64

**Minimum Length:** 8

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:base64Binary

**Field ID:** [09.372]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Presence of other Field	9/ROI

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:FrictionRidgeSkeletonizedImageBinaryObject
```

### Summary

EFS skeletonized image (aka ridge tracing), which reduces the friction ridge impression to an image with thinned representations of each ridge.

### Notes

The skeletonized image is stored as a 1-bit grayscale PNG compressed image, bit-packed 6 bits per character using Base-64 representation (See Annex A: Character encoding information). The entire PNG128 formatted image is included as a single data entry / information item. Interlacing, alpha transparency, and color palettes shall not be used. The skeletonized image's dimensions shall be identical width and height of the ROI (See Field 9.300). The resolution of the skeletonized image shall be the same as the original image, and shall be set in the PNG header. See section F.6.7 Ridge path: Skeletonized image and ridge path segments in ANSI/NIST for more information.

## 10.254. Minutiae Image Ridge Path Representation (XML) - RPS

**Field Reference:** 9/RPS:X1  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeImageRidgePathRepresentation  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:MinutiaeImageRidgePathRepresentationType

**Field ID:** [09.373:X1]  
**Condition:** Optional  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeImageRidgePathRepresentation
```

### Summary

Alternate representation of skeletonized image data contained in 9.372.

### Notes

Each ridge path segment is saved as an open path (ordered set of vertices) and each skeletonized ridge segment is stored as a separate subfield. Each endpoint of a ridge segment is either shared by three ridge segments (at a bifurcation) or is unique to a single ridge segment (at a ridge ending). See section F.6.7 Ridge path: Skeletonized image and ridge path segments in ANSI/NIST for more information.

## 10.255. Minutiae Ridge Path Segment (XML) - RPS

**Field Reference:** 9/RPS:X2  
**Content Type:** Set\_X  
**XML Tag Name:** MinutiaeRidgePathSegment  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentPathType

**Field ID:** [09.373:X2]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

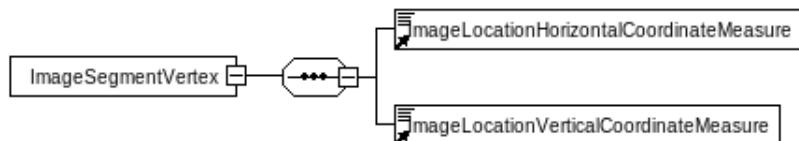
### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeImagePathRepresentation
      ↳/biom:MinutiaeRidgePathSegment
```

### Summary

Alternate representation of skeletonized image data contained in 9.372.

## 10.256. Image Segment Vertex (XML) - RPS



**Field Reference:** 9/RPS:X3  
**Content Type:** Set\_X  
**XML Tag Name:** ImageSegmentVertex  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 2  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** biom:ImageSegmentVertexType

**Field ID:** [09.373:X3]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 99  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/bion:ExtendedFeatureSetMinutiae
    ↳/bion:MinutiaeImageRidgePathRepresentation
      ↳/bion:MinutiaeRidgePathSegment
        ↳/bion:ImageSegmentVertex
```

### Summary

Alternate representation of skeletonized image data contained in 9.372.

## 10.257. Image Location Horizontal Coordinate Measure (XML) - RPS

### ImageLocationHorizontalCoordinateMeasure

**Field Reference:** 9/RPS:X4

**Content Type:** Data\_X

**XML Tag Name:** ImageLocationHorizontalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.373:X4]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeImageRidgePathRepresentation
      ↳/biom:MinutiaeRidgePathSegment
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationHorizontalCoordinateMeasure
```

### Summary

Alternate representation of skeletonized image data contained in 9.372.

### Valid Examples

```
<biom:ImageLocationHorizontalCoordinateMeasure>1530</biom:ImageLocationHorizontalCoordinateMeasure>
```

## 10.258. Image Location Vertical Coordinate Measure (XML) - RPS



**Field Reference:** 9/RPS:X5

**Content Type:** Data\_X

**XML Tag Name:** ImageLocationVerticalCoordinateMeasure

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..49999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [09.373:X5]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageMinutiaeRecord
  ↳/biom:ExtendedFeatureSetMinutiae
    ↳/biom:MinutiaeImageRidgePathRepresentation
      ↳/biom:MinutiaeRidgePathSegment
        ↳/biom:ImageSegmentVertex
          ↳/biom:ImageLocationVerticalCoordinateMeasure
```

### Summary

Alternate representation of skeletonized image data contained in 9.372.

### Valid Examples

```
<biom:ImageLocationVerticalCoordinateMeasure>2510</biom:ImageLocationVerticalCoordinateMeasure>
```

## 10.259. Field Mandatoriness in Minutiae Data Record

The following table shows a summary of the fields and information items in each record type and its corresponding XML elements, and in particular the fields and items that are mandatory.

Table 10.1.: Field Summary for Type 9 Records

Field Id	Code	Field Name	Card.	Notes
9/XRCC:X	[09.001:X]	XML Record Category Code	M	
9/IDC	[09.002]	Information Designation Character	M	
9/IMP	[09.003]	Impression Type	M	
9/FMT:X	[09.004:X]	Minutiae Format (XML)	M	
9/RMU:X	[09.013_09.225:X]	User-Defined Fields	O	
9/CBL_9/ADA	[09.126_09.141]	INCITS Minutiae (XML)	O	
9/CBI/CFO	[09.126-A]	CBEFF Format Owner	M^	This field is required (and not permitted otherwise) if 9/CEI is/are present.
9/CBI/CFT	[09.126-B]	CBEFF Format Type	M^	
9/CBI/CPI	[09.126-C]	CBEFF Product Identifier	M^	
9/CEI	[09.127]	M1 Capture Equipment ID	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/CEI/AFS	[09.127-A]	Appendix F Status	M^	
9/CEI/CID	[09.127-B]	Capture Equipment ID	M^	
9/HLL_9/FGP	[09.128_09.134]	Finger Impression Image (XML)	M	
9/HLL	[09.128]	M1 Horizontal Line Length	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/VLL	[09.129]	M1 Vertical Line Length	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/SLC	[09.130]	M1 Scale Units	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/THPS	[09.131]	M1 Transmitted Horizontal Pixel Scale	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/TVPS	[09.132]	M1 Transmitted Vertical Pixel Scale	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/FVW	[09.133]	M1 Finger View	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/FGP	[09.134]	M1 Friction Ridge Generalized Position	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/FQD	[09.135]	M1 Friction Ridge Quality Data	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/FQD/QVU	[09.135-A]	Quality Value	M^	
9/FQD/QAV	[09.135-B]	Algorithm Vendor Identification	O^	
9/FQD/QAP	[09.135-C]	Algorithm Product Identification	O^	
9/NOM	[09.136]	M1 Number of Minutiae	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/FMD:X	[09.137:X]	M1 Finger Minutiae Data (XML)	D	This field is required (and not permitted otherwise) if 9/CBI/CFO is/are present.
9/FMD/MAN	[09.137-A]	Minutiae Index Number	M^	
9/FMD/MXC_9/FMD/MAV	[09.137-B_09.137-D]	INCITS Minutiae Location (XML)	M	
9/FMD/MXC	[09.137-B]	X Coordinate	M^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## 10. Minutiae Data Record (aka Type 9)

Table 10.1.: Field Summary for Type 9 Records

<b>Field Id</b>	<b>Code</b>	<b>Field Name</b>	<b>Card.</b>	<b>Notes</b>
9/FMD/MYC	[09.137-C]	Y Coordinate	M^	
9/FMD/MAV	[09.137-D]	Minutia Angle	M^	
9/FMD/M1M	[09.137-E]	Minutia Type	M^	
9/FMD/QOM	[09.137-F]	Quality of Minutia	M^	
9/RCI	[09.138]	M1 Ridge Count Information	D	This field is optional (and should not be entered otherwise) if [9/CBI/CFT]IN514,515
9/RCI/REM	[09.138-A]	Ridge Count Extraction Method	M^	
9/RCI/CMI_9/RCI/NRC	[09.138-D_09.138-F]	Minutiae Ridge Count Item (XML)	M^	
9/RCI/CMI	[09.138-D]	Center Minutia Index Number	M^	
9/RCI/NMN	[09.138-E]	Neighboring Minutia Index Number	M^	
9/RCI/NRC	[09.138-F]	Number of Ridges Crossed	M^	
9/CIN	[09.139]	M1 Core Information	D	This field is optional (and should not be entered otherwise) if [9/CBI/CFT]IN514,515
9/CIN/XCC	[09.139-A]	X Coordinate	M^	
9/CIN/YCC	[09.139-B]	Y Coordinate	M^	
9/CIN/ANGC	[09.139-C]	Angle of the Core	M^	
9/DIN	[09.140]	M1 Delta Information	D	This field is optional (and should not be entered otherwise) if [9/CBI/CFT]IN514,515
9/DIN/XCD	[09.140-A]	X Coordinate	M^	
9/DIN/YCD	[09.140-B]	Y Coordinate	M^	
9/DIN/ANG1_9/ADA/ANG3	[09.140-C_09.141-B]	First, Second, and Third Angles of the Delta	M^	
9/ROI_9/RPS	[09.300_09.373]	Extended Feature Set Minutiae (XML)	O	
9/ROI	[09.300]	EFS Region of Interest	D	This field is required (and not permitted otherwise) if 9/FPP is/are present.
9/ROI/EWI	[09.300-A]	ROI Width	M^	
9/ROI/EHI	[09.300-B]	ROI Height	M^	
9/ROI/EHO	[09.300-C]	ROI Horizontal Offset	O^	If absent, defaults to zero.
9/ROI/EVO	[09.300-D]	ROI Vertical Offset	O^	If absent, defaults to zero.
9/ROI/ROP:X1	[09.300-E:X1]	ROI Polygon (XML)	O^	
9/ROI/ROP:X2	[09.300-E:X2]	Image Segment Vertex (XML)	M^	
9/ROI/ROP:X3	[09.300-E:X3]	Image Location Horizontal Coordinate Measure (XML)	M^	
9/ROI/ROP:X4	[09.300-E:X4]	Image Location Vertical Coordinate Measure (XML)	M^	
9/ORT	[09.301]	EFS Orientation	D	This field is optional but is only permitted if 9/ROI is/are present.
9/ORT/EOD	[09.301-A]	Direction	M^	If field is omitted, the direction shall default to 0 (upright).
9/ORT/EUC	[09.301-B]	Uncertainty	O^	If field is omitted, the direction shall default to 0 (upright).
9/FPP	[09.302]	EFS Finger, Palm, Plantar Position	D	This field is required (and not permitted otherwise) if 9/ROI is/are present.
9/FPP/FGP	[09.302-A]	Friction Ridge Generalized Position	M^	
9/FPP/SGP:X1	[09.302-D:X1]	Segment Polygon (XML)	O^	
9/FPP/SGP:X2	[09.302-D:X2]	Image Segment Vertex (XML)	M^	
9/FPP/SGP:X3	[09.302-D:X3]	Image Location Horizontal Coordinate Measure (XML)	M^	
9/FPP/SGP:X4	[09.302-D:X4]	Image Location Vertical Coordinate Measure (XML)	M^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## 10. Minutiae Data Record (aka Type 9)

---

Table 10.1.: Field Summary for Type 9 Records

<b>Field Id</b>	<b>Code</b>	<b>Field Name</b>	<b>Card.</b>	<b>Notes</b>
9/FSP	[09.303]	EFS Feature Set Profile	D	<ul style="list-style-type: none"> <li>This field is optional but is only permitted if 9/ROI is/are present.</li> <li>Note this can have multiple occurrences, so the requirements apply if ANY of the 9/FSP occurrences is defined. If 9/FSP=1, then (either 9/COR or 9/NCOR is required) and (either 9/DEL or 9/NDEL is required). 9/FSP=2 has requirements of 9/FSP=1 as well as (either 9/MIN or 9/NMIN is required). 9/FSP=3 has the requirements of 9/FSP=1 and 2 as well as required 9/RQM, 9/RFM, and (either 9/DOT or 9/NDOT) and (either 9/INR or 9/NINR).</li> </ul>
9/PAT	[09.307]	EFS Pattern Classification	D	This field is optional but is only permitted if 9/ROI is/are present.
9/PAT/GCF	[09.307-A]	General Class	M^	
9/PAT/SUB	[09.307-B]	Subclass	D^	This field is optional (and should not be entered otherwise) if [9/PAT/GCF]IN"AU","WU"
9/PAT/WDR	[09.307-C]	Whorl-Delta Relationship	D^	This field is optional (and should not be entered otherwise) if [9/PAT/SUB]IN"PW","CP","DL","AW"
9/RQM:X	[09.308:X]	EFS Ridge Quality Map (XML)	D	<ul style="list-style-type: none"> <li>This field is optional but is only permitted if 9/ROI is/are present.</li> <li>This field is required (and optional otherwise) if [9/FSP]=3</li> <li>If 9/RQF/RDF="UNC", permissible characters are [0..5]; otherwise permissible characters are [0..9]["A".."F"], coincidentally the same as hexadecimal.</li> </ul>
9/RQF:X	[09.309:X]	Ridge Quality Map Format (XML)	D	This field is required (and not permitted otherwise) if 9/RQM:X is/are present.
9/RQF/GSZ	[09.309-A]	Grid Size	M^	
9/RQF/RDF	[09.309-B]	Ridge Quality Data Format	M^	
9/RFM:X	[09.310:X]	EFS Ridge Flow Map (XML)	M	<ul style="list-style-type: none"> <li>This field is required (and optional otherwise) if [9/FSP]=3</li> <li>If 9/RFF/RDF="UNC", the DataType is H (hexadecimal), otherwise Base64.</li> </ul>
9/RFF:X	[09.311:X]	EFS Ridge Flow Map Format (XML)	D	This field is optional but is only permitted if 9/RFM:X is/are present.

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

Table 10.1.: Field Summary for Type 9 Records

Field Id	Code	Field Name	Card.	Notes
9/RFF/SFQ	[09.311-A]	Sampling Frequency	M^	Default value is "41".
9/RFF/RDF	[09.311-B]	Ridge Flow Data Format	M^	Default value is "UNC".
9/RWM:X	[09.312:X]	EFS Ridge Wavelength Map (XML)	D	<ul style="list-style-type: none"> <li>This field is optional but is only permitted if 9/RWF:X is/are present.</li> </ul>
				<ul style="list-style-type: none"> <li>The number of occurrences must either be 0 or (9/EHI divided by 9/RWF/FWS). The length of each value must be (2 * 9/EWI divided by 9/RWF/FWS). Valid characters are [0..9]["X"].</li> </ul>
9/RWF:X	[09.313:X]	EFS Ridge Wavelength Map Format (XML)	D	This field is optional but is only permitted if 9/RWM:X is/are present.
9/RWF/FWS	[09.313-A]	Sampling Frequency	M^	Default value is "41".
9/RWF/FDF	[09.313-B]	Data Format	M^	Default value is "UNC".
9/TRV	[09.314]	EFS Tonal Reversal	D	This field is optional but is only permitted if 9/ROI is/are present.
9/PLR	[09.315]	EFS Possible Lateral Reversal	D	This field is optional but is only permitted if 9/ROI is/are present.
9/FQM	[09.316]	EFS Friction Ridge Quality Metric	D	This field is optional but is only permitted if 9/ROI is/are present.
9/FQM/QVU	[09.316-A]	Quality Value	M^	
9/FQM/QAV	[09.316-B]	Algorithm Vendor Identification	M^	
9/FQM/QAP	[09.316-C]	Algorithm Product Identification	M^	
9/PGS	[09.317]	EFS Possible Growth or Shrinkage	D	This field is optional but is only permitted if 9/ROI is/are present.
9/PGS/TGS	[09.317-A]	Growth or Shrinkage Type	M^	
9/PGS/CGS:X	[09.317-B:X]	Growth or Shrinkage Comment (XML)	O^	
9/COR:X	[09.320:X]	EFS Cores (XML)	D	<ul style="list-style-type: none"> <li>This field is only permitted if 9/NCOR:X is/are absent.</li> <li>If palm/plantar 9/FPP/FGP&gt;=18, MaxOccur=*; if 9/PAT/SUB="AW", MaxOccur=*; if 9/PAT/SUB="PA", MaxOccur=0; if 9/PAT/SUB="TA", MaxOccur=1; if 9/PAT/GCF="LS" or "RS", MaxOccur=1; if 9/PAT/GCF="WU", MaxOccur=2.</li> </ul>
9/COR/CXC	[09.320-A]	X Coordinate	M^	
9/COR/CYC	[09.320-B]	Y Coordinate	M^	
9/COR/CDI	[09.320-C]	Direction	O^	
9/COR/RPU	[09.320-D]	Radius of Position Uncertainty	O^	
9/COR/DUY	[09.320-E]	Direction Uncertainty	O^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## 10. Minutiae Data Record (aka Type 9)

---

Table 10.1.: Field Summary for Type 9 Records

Field Id	Code	Field Name	Card.	Notes
9/DEL:X	[09.321:X]	EFS Deltas (XML)	D	<ul style="list-style-type: none"> <li>This field is only permitted if 9/NDEL:X is/are absent.</li> <li>If palm/plantar 9/FPP/FGP<math>\geq</math>18, MaxOccur=*. Otherwise, if 9/PAT/SUB="AW", MaxOccur=*; if 9/PAT/SUB="PA", MaxOccur=0; if 9/PAT/SUB="TA", MaxOccur=1; if 9/PAT/GCF="LS" or "RS", MaxOccur=1; if 9/PAT/GCF="WU", MaxOccur=2.</li> </ul>
9/DEL/DXC	[09.321-A]	X Coordinate	M^	
9/DEL/DYC	[09.321-B]	Y Coordinate	M^	
9/DEL/DUP	[09.321-C]	Direction Up	O^	
9/DEL/DLF	[09.321-D]	Direction Left	O^	
9/DEL/DRT	[09.321-E]	Direction Right	O^	
9/DEL/DTP	[09.321-F]	Type	O^	
9/DEL/RPU	[09.321-G]	Radius of Position Uncertainty	O^	
9/DEL/DUU	[09.321-H]	Direction Uncertainty Up	O^	
9/DEL/DUL	[09.321-I]	Direction Uncertainty Left	O^	
9/DEL/DUR	[09.321-J]	Direction Uncertainty Right	O^	
9/CDR	[09.322]	EFS Core-Delta Ridge Counts	D	This field is optional but is only permitted if 9/ROI is/are present.
9/CDR/CIX	[09.322-A]	Core Index	M^	
9/CDR/DIX	[09.322-B]	Delta index	M^	
9/CDR/MNRC	[09.322-C]	Min Ridge Count	M^	
9/CDR/MXRC	[09.322-D]	Max Ridge Count	O^	
9/CPR	[09.323]	EFS Center Point of Reference	D	This field is optional but is only permitted if 9/ROI is/are present.
9/CPR/CPM	[09.323-A]	Method	M^	
9/CPR/PXC	[09.323-B]	X Coordinate	M^	
9/CPR/PYC	[09.323-C]	Y Coordinate	M^	
9/CPR/CRU	[09.323-D]	Radius of Position Uncertainty	O^	
9/DIS:X	[09.324:X]	EFS Distinctive Features (XML)	D	This field is only permitted if 9/NDIS:X is/are absent.
9/DIS/DIT	[09.324-A]	Distinctive Feature Type	M^	
9/DIS/DFP:X1	[09.324-B:X1]	Distinctive Features Polygon (XML)	O^	
9/DIS/DFP:X2	[09.324-B:X2]	Image Segment Vertex (XML)	M^	
9/DIS/DFP:X3	[09.324-B:X3]	Image Location Horizontal Coordinate Measure (XML)	M^	
9/DIS/DFP:X4	[09.324-B:X4]	Image Location Vertical Coordinate Measure (XML)	M^	
9/DIS/DFC	[09.324-C]	Distinctive Features Comment	O^	
9/NCOR:X	[09.325:X]	EFS No Cores Present (XML)	D	This field is only permitted if 9/COR:X is/are absent.
9/NDEL:X	[09.326:X]	EFS No Deltas Present (XML)	D	This field is only permitted if 9/DEL:X is/are absent.
9/NDIS:X	[09.327:X]	EFS No Distinctive Features Present (XML)	D	This field is only permitted if 9/DIS:X is/are absent.
9/MIN:X	[09.331:X]	EFS Minutiae (XML)	D	This field is only permitted if 9/NMIN:X is/are absent.
9/MIN/MXC	[09.331-A]	X Coordinate	M^	
9/MIN/MYC	[09.331-B]	Y Coordinate	M^	
9/MIN/MTD	[09.331-C]	Theta Degrees	M^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## 10. Minutiae Data Record (aka Type 9)

Table 10.1.: Field Summary for Type 9 Records

<b>Field Id</b>	<b>Code</b>	<b>Field Name</b>	<b>Card.</b>	<b>Notes</b>
9/MIN/MTY	[09.331-D]	Minutiae Type	M^	
9/MIN/MRU	[09.331-E]	Radius of Position Uncertainty	O^	This field is required (and optional otherwise) if [9/MIN/MTY]="X"
9/MIN/MDU	[09.331-F]	Minutiae Direction of Uncertainty	O^	
9/MRA	[09.332]	EFS Minutiae Ridge Count Algorithm	D	<ul style="list-style-type: none"> <li>• This field is optional but is only permitted if 9/MRC is/are present.</li> <li>• This field is required (and optional otherwise) if [9/FSP]=11</li> </ul>
9/MRC	[09.333]	EFS Minutiae Ridge Counts	D	<ul style="list-style-type: none"> <li>• This field is optional but is only permitted if 9/ROI is/are present.</li> <li>• This field is required (and optional otherwise) if [9/FSP]=11</li> </ul>
9/MRC/MIA	[09.333-A]	Minutiae Index A	M^	
9/MRC/MIB	[09.333-B]	Minutiae Index B	M^	
9/MRC/MIR	[09.333-C]	Ridge Count	M^	
9/MRC/MRN	[09.333-D]	Reference Number	O^	
9/MRC/MRS	[09.333-E]	Residual	O^	
9/NMIN:X	[09.334:X]	EFS No Minutia Present (XML)	D	This field is only permitted if 9/MIN:X is/are absent.
9/RCC	[09.335]	EFS Ridge Count Confidence	D	This field is optional but is only permitted if 9/ROI is/are present.
9/RCC/ACX_9/RCC/ACY	[09.335-A_09.335-B]	Minutiae Location Point (XML)	M^	
9/RCC/ACX	[09.335-A]	X Coordinate Point A	M^	
9/RCC/ACY	[09.335-B]	Y Coordinate Point A	M^	
9/RCC/BCX_9/RCC/BCY	[09.335-C_09.335-D]	Minutiae Location Reference Point (XML)	M^	
9/RCC/BCX	[09.335-C]	X Coordinate Point B	M^	
9/RCC/BCY	[09.335-D]	Y Coordinate Point B	M^	
9/RCC/MORC	[09.335-E]	Method of Ridge Counting	M^	
9/RCC/MCV	[09.335-F]	Confidence Value	M^	
9/DOT:X	[09.340:X]	EFS Dots (XML)	D	This field is only permitted if 9/NDOT:X is/are absent.
9/DOT/DOX	[09.340-A]	Dot X Coordinate	M^	
9/DOT/DOY	[09.340-B]	Dot Y Coordinate	M^	
9/DOT/DOL	[09.340-C]	Dot Length	O^	
9/INR:X	[09.341:X]	EFS Incipient Ridges (XML)	D	This field is only permitted if 9/NINR:X is/are absent.
9/INR/X1C_9/INR/Y1C	[09.341-A_09.341-B]	Minutiae Location Point (XML)	M^	
9/INR/X1C	[09.341-A]	X Coordinate Point 1	M^	
9/INR/Y1C	[09.341-B]	Y Coordinate Point 1	M^	
9/INR/X2C_9/INR/Y2C	[09.341-C_09.341-D]	Minutiae Location Reference Point (XML)	M^	
9/INR/X2C	[09.341-C]	X Coordinate Point 2	M^	
9/INR/Y2C	[09.341-D]	Y Coordinate Point 2	M^	
9/CLD:X	[09.342:X]	EFS Creases and Linear Discontinuities (XML)	D	This field is only permitted if 9/NCLD:X is/are absent.
9/CLD/X1D_9/CLD/Y1D	[09.342-A_09.342-B]	Minutiae Location Point (XML)	M^	
9/CLD/X1D	[09.342-A]	X Coordinate Point 1	M^	
9/CLD/Y1D	[09.342-B]	Y Coordinate Point 1	M^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

Table 10.1.: Field Summary for Type 9 Records

Field Id	Code	Field Name	Card.	Notes
9/CLD/X2D_9/CLD/Y2D	[09.342-C_09.342-D]	Minutiae Location Reference Point (XML)	M^	
9/CLD/X2D	[09.342-C]	X Coordinate Point 2	M^	
9/CLD/Y2D	[09.342-D]	Y Coordinate Point 2	M^	
9/CLD/TPD	[09.342-E]	Type	M^	
9/REF:X	[09.343:X]	EFS Ridge Edge Features (XML)	D	This field is only permitted if 9/NREF:X is/are absent.
9/REF/CLX	[09.343-A]	X Coordinate	M^	
9/REF/CLY	[09.343-B]	Y Coordinate	M^	
9/REF/CLT	[09.343-C]	Type	M^	
9/NPOR:X	[09.344:X]	EFS No Pores Present (XML)	D	This field is only permitted if 9/POR:X is/are absent.
9/POR:X	[09.345:X]	EFS Pores (XML)	D	This field is only permitted if 9/NPOR:X is/are absent.
9/POR/POX	[09.345-A]	X Coordinate	M^	
9/POR/POY	[09.345-B]	Y Coordinate	M^	
9/NDOT:X	[09.346:X]	EFS No Dots Present (XML)	D	This field is only permitted if 9/DOT:X is/are absent.
9/NINR:X	[09.347:X]	EFS No Incipient Ridges Present (XML)	D	This field is only permitted if 9/INR:X is/are absent.
9/NCLD:X	[09.348:X]	EFS No Creases Present (XML)	D	This field is only permitted if 9/CLD:X is/are absent.
9/NREF:X	[09.349:X]	EFS No Ridge Edge Features Present (XML)	D	This field is only permitted if 9/REF:X is/are absent.
9/MFD	[09.350]	EFS Method of Feature Detection	D	This field is optional but is only permitted if 9/ROI is/are present.
9/MFD/FIE	[09.350-A]	Field	M^	
9/MFD/FME	[09.350-B]	Method	M^	
9/MFD/FAV	[09.350-C]	Algorithm Vendor	D^	This field is optional (and should not be entered otherwise) if [9/MFD/FME]IN"AUTO","REV","EDIT"
9/MFD/FAL	[09.350-D]	Algorithm	D^	This field is optional (and should not be entered otherwise) if [9/MFD/FME]IN"AUTO","REV","EDIT"
9/MFD/ESN_9/MFD/EGN	[09.350-E_09.350-F]	Minutiae Examiner (XML)	O^	
9/MFD/ESN	[09.350-E]	Examiner Surname	D^	This field is optional (and should not be entered otherwise) if [9/MFD/FME]IN"MAN","REV","EDIT"
9/MFD/EGN	[09.350-F]	Examiner Given Name	D^	This field is optional (and should not be entered otherwise) if [9/MFD/FME]IN"MAN","REV","EDIT"
9/MFD/EAF	[09.350-G]	Examiner Affiliation	D^	This field is optional (and should not be entered otherwise) if [9/MFD/FME]IN"MAN","REV","EDIT"
9/MFD/EMT:X	[09.350-H:X]	Date and Time (XML)	O^	
9/MFD/NTS	[09.350-I]	Notes	O^	
9/COM	[09.351]	EFS Comment	D	This field is optional but is only permitted if 9/ROI is/are present.
9/LPM	[09.352]	EFS Latent Processing Method	D	This field is optional but is only permitted if 9/ROI is/are present.
9/EAA	[09.353]	EFS Examiner Analysis Assessment	D	This field is optional but is only permitted if 9/ROI is/are present.
9/EAA/AAV	[09.353-A]	Value Assessment Code	M^	
9/EAA/ALN_9/EAA/AFN	[09.353-B_09.353-C]	Minutiae Examiner (XML)	M^	
9/EAA/ALN	[09.353-B]	Examiner Last Name	M^	
9/EAA/AFN	[09.353-C]	Examiner First Name	M^	
9/EAA/AAF	[09.353-D]	Examiner Affiliation	M^	
9/EAA/AMT:X	[09.353-E:X]	Date and Time (XML)	M^	
9/EAA/ACM	[09.353-F]	Comment	O^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

Table 10.1.: Field Summary for Type 9 Records

Field Id	Code	Field Name	Card.	Notes
9/EAA/CXF	[09.353-G]	Analysis Complexity Flag	O^	
9/EOF	[09.354]	EFS Evidence of Fraud	D	This field is optional but is only permitted if 9/ROI is/are present.
9/EOF/FRA	[09.354-A]	Fraud Type	M^	
9/EOF/CFD	[09.354-B]	Comment	O^	
9/LSB	[09.355]	EFS Latent Substrate	D	This field is optional but is only permitted if 9/ROI is/are present.
9/LSB/CLS	[09.355-A]	Code	M^	
9/LSB/OSD	[09.355-B]	Object/Substrate Description	O^	
9/LMT	[09.356]	EFS Latent Matrix	D	This field is optional but is only permitted if 9/ROI is/are present.
9/LMT/TOM	[09.356-A]	Code	M^	
9/LMT/CLA	[09.356-B]	Comment	O^	
9/LQI	[09.357]	EFS Local Quality Issues	D	This field is optional but is only permitted if 9/ROI is/are present.
9/LQI/LQT	[09.357-A]	Type	M^	
9/LQI/LQP:X1	[09.357-B:X1]	Image Segment Polygon (XML)	M^	
9/LQI/LQP:X2	[09.357-B:X2]	Image Segment Vertex (XML)	M^	
9/LQI/LQP:X3	[09.357-B:X3]	Image Location Horizontal Coordinate Measure (XML)	M^	
9/LQI/LQP:X4	[09.357-B:X4]	Image Location Vertical Coordinate Measure (XML)	M^	
9/LQI/LQC	[09.357-C]	Comment	O^	
9/AOC	[09.360]	EFS Area of Correspondence	D	This field is optional but is only permitted if 9/ROI is/are present.
9/AOC/CIR	[09.360-A]	IDC Reference	M^	
9/AOC/AOP:X1	[09.360-B:X1]	Image Segment Polygon (XML)	M^	
9/AOC/AOP:X2	[09.360-B:X2]	Image Segment Vertex (XML)	M^	
9/AOC/AOP:X3	[09.360-B:X3]	Image Location Horizontal Coordinate Measure (XML)	M^	
9/AOC/AOP:X4	[09.360-B:X4]	Image Location Vertical Coordinate Measure (XML)	M^	
9/AOC/CAC	[09.360-C]	Comment	O^	
9/CPF	[09.361]	EFS Corresponding Points or Features	D	This field is optional but is only permitted if 9/ROI is/are present.
9/CPF/COL	[09.361-A]	Label	M^	
9/CPF/TOC	[09.361-B]	Type of Correspondence	M^	
9/CPF/CFN	[09.361-C]	Corresponding Field Number	D^	This field is required (and not permitted otherwise) if [9/CPF/TOC]IN{"F", "DF"}
9/CPF/FOC	[09.361-D]	Corresponding Field Occurrence	D^	This field is required (and not permitted otherwise) if [9/CPF/TOC]IN{"F", "DF"}
9/CPF/CXC	[09.361-E]	Corresponding X Coordinate	D^	<ul style="list-style-type: none"> <li>• This field is required (and optional otherwise) if [9/CPF/-TOC]IN{"P", "DP"}</li> <li>• This field is optional (and should not be entered otherwise) if [9/CPF/TOC]!="X"</li> </ul>

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

Table 10.1.: Field Summary for Type 9 Records

Field Id	Code	Field Name	Card.	Notes
9/CPF/CYC	[09.361-F]	Corresponding Y Coordinate	D^	<ul style="list-style-type: none"> <li>This field is required (and optional otherwise) if [9/CPF/-TOC]IN{"P","DP"}</li> <li>This field is optional (and should not be entered otherwise) if [9/CPF/TOC]="X"</li> </ul>
9/CPF/COC	[09.361-G]	Comment	O^	
9/ECD	[09.362]	EFS Examiner Comparison Determination	D	This field is optional but is only permitted if 9/ROI is/are present.
9/ECD/EDC	[09.362-A]	IDC Reference	M^	
9/ECD/EDE	[09.362-B]	Determination	M^	The default value is "NONE".
9/ECD/WIP	[09.362-C]	Work in Progress	M^	The default value is "PRELIMINARY".
9/ECD/ELN_9/ECD/EFN	[09.362-D_09.362-E]	Minutiae Examiner (XML)	M^	
9/ECD/ELN	[09.362-D]	Examiner Last Name	M^	
9/ECD/EFN	[09.362-E]	Examiner First Name	M^	
9/ECD/EAF	[09.362-F]	Examiner Affiliation	M^	
9/ECD/DTG:X	[09.362-G:X]	Date and Time (XML)	M^	
9/ECD/CZZ	[09.362-H]	Comment	O^	
9/ECD/CCF	[09.362-I]	Complex Comparison Flag	O^	
9/RRC	[09.363]	EFS Relative Rotation of Corresponding Print	D	This field is optional but is only permitted if 9/ROI is/are present.
9/RRC/RIR	[09.363-A]	Rotation IDC Reference	M^	
9/RRC/ROR	[09.363-B]	Relative Overall Rotation	M^	
9/SIM	[09.372]	EFS Skeletonized Image	D	This field is optional but is only permitted if 9/ROI is/are present.
9/RPS:X1	[09.373:X1]	Minutiae Image Ridge Path Representation (XML)	O	
9/RPS:X2	[09.373:X2]	Minutiae Ridge Path Segment (XML)	M	
9/RPS:X3	[09.373:X3]	Image Segment Vertex (XML)	M	
9/RPS:X4	[09.373:X4]	Image Location Horizontal Coordinate Measure (XML)	M	
9/RPS:X5	[09.373:X5]	Image Location Vertical Coordinate Measure (XML)	M	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## 11. Photographic Body Part Imagery Record (aka Type 10)

This chapter describes all the fields that are used in the Photographic Body Part Imagery Record.

## 11.1. Package Facial And SMT Image Record (XML)

**Field Reference:** 10  
**Content Type:** Set\_X  
**XML Tag Name:** PackageFacialAndSMTImageRecord  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** itl:PackageFacialAndSMTImageRecordType

**Field ID:** [10]  
**Condition:** Optional  
**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://biometrics.nist.gov/standard/2011>

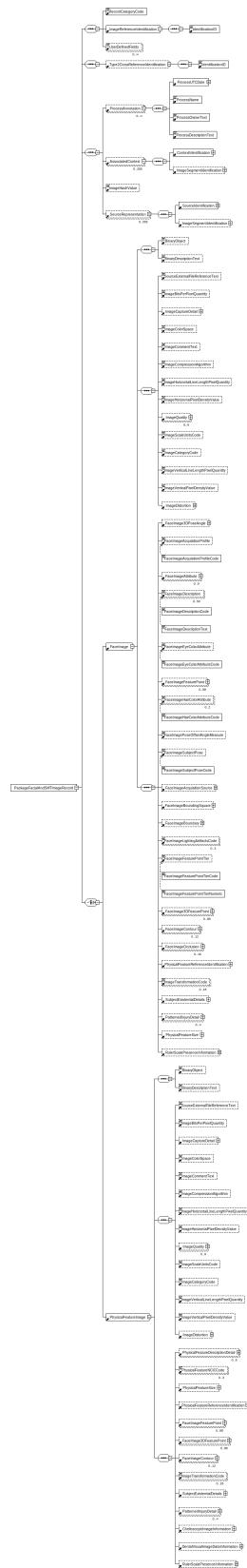
### XPath

/itl:PackageFacialAndSMTImageRecord

### Summary

Face, SMT, and/or other body part image data and related information pertaining to the specific image contained in this record.

11. Photographic Body Part Imagery Record (aka Type 10)



## 11.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 10/XRCC:X

**Content Type:** Data\_X

**XML Tag Name:** RecordCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {10}

**Code table:** n/a

**Base type:** biom:RecordCategoryCodeType

**Field ID:** [10.001:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFacialAndSMTImageRecord  
  ↴/biom:RecordCategoryCode
```

#### Summary

Numeric representation of Record Type.

#### Valid Examples

```
<biom:RecordCategoryCode>10</biom:RecordCategoryCode>
```

## 11.3. Information Designation Character - IDC



**Field Reference:** 10/IDC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..99}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [10.002]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageFacialAndSMTImageRecord  
  ↴/biom:ImageReferenceIdentification  
    ↴/nc:IdentificationID
```

### Summary

IDC assigned to this Type-10 record as listed in field 1.003.

### Valid Examples

```
<nc:IdentificationID>4</nc:IdentificationID>
```

## 11.4. Face or Physical Feature Indication (XML)

**Field Reference:** 10/IMT\_10/DATA

**Content Type:** Set\_X

**XML Tag Name:** FaceImage or PhysicalFeatureImage

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:PhysicalFeatureImageType      or      **Namespace:** <http://niem.gov/niem/biometrics/1.0>  
biom:FaceImageType

**Field ID:** [10.003\_10.999]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:FaceImage
else
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:PhysicalFeatureImage
endif
```

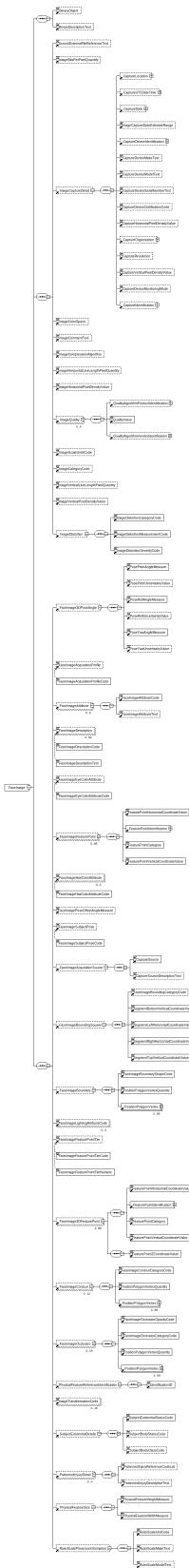
### Summary

Image and associated information.

### Notes

Applies to 10.003, 10.004, 10.005, 10.006, 10.007, 10.008, 10.009, 10.010, 10.011, 10.012, 10.016, 10.017, 10.018, 10.024, 10.030, 10.038, 10.044, 10.903, 10.904, 10.993, 10.998, and 10.999.

11. Photographic Body Part Imagery Record (aka Type 10)



## 11.5. Image Type - IMT

### ImageCategoryCode

**Field Reference:** 10/IMT

**Content Type:** Data

**XML Tag Name:** ImageCategoryCode

**Data Type:** AS

**Minimum Length:** 4

**Minimum Occurrences:** 1

**Value range:** {"FACE"}

**Code table:** n/a

**Base type:** biom:PersonImageCategoryCodeType

**Field ID:** [10.003]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** [-]

**Maximum Length:** 11

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:FaceImage
    ↴/biom:ImageCategoryCode
else
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:PhysicalFeatureImage
    ↴/biom:ImageCategoryCode
endif
```

#### Summary

Type of image contained in the record.

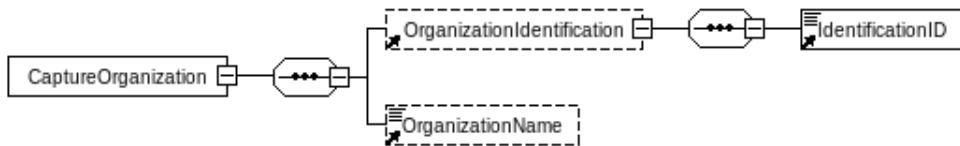
#### Notes

Even though the ANSI-NIST standard allows a large number of types, only the "FACE" one is allowed in the INTERPOL implementation.

#### Valid Examples

```
<biom:ImageCategoryCode>FACE</biom:ImageCategoryCode>
```

## 11.6. Capture Organization (XML)



**Field Reference:** 10/SRC\_10/SAN

**Content Type:** Set\_X

**XML Tag Name:** CaptureOrganization

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:OrganizationType

**Field ID:** [10.004\_10.993]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
else
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
endif
  
```

### Summary

Identifier of agency that created record and supplied information contained in it.

### Notes

Applies to 10.004 and 10.993

## 11.7. Source Agency - SRC

### IdentificationID

**Field Reference:** 10/SRC  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [10.004]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
else
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
endif
```

### Summary

Identifier of agency that created and supplied information contained in the record. The source agency name may be entered in 10.993.

### Valid Examples

```
<nc:IdentificationID>WI013415Y</nc:IdentificationID>
```

## 11.8. Photo Capture Date (XML) - PHD



**Field Reference:** 10/PHD:X

**Content Type:** Data\_X

**XML Tag Name:** Date

**Data Type:** NS

**Minimum Length:** 10

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:date

**Field ID:** [10.005:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** [-]

**Maximum Length:** 10

**Maximum Occurrences:** 1

**Regular Expression:** \d{4}-\d{2}-\d{2}

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
if [10/IMT] IN "FACE" then
/itl:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
else
/itl:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
endif
```

### Summary

The date that the image contained in the record was captured.

### Valid Examples

<nc:Date>2007-01-01</nc:Date>
-------------------------------

## 11.9. Horizontal Line Length - HLL

### ImageHorizontalLineLengthPixelQuantity

**Field Reference:** 10/HLL

**Content Type:** Data

**XML Tag Name:** ImageHorizontalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [10.006]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
else
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
endif
```

#### Summary

Number of pixels contained on a single horizontal line of the image.

#### Valid Examples

```
<biom:ImageHorizontalLineLengthPixelQuantity>80</biom:ImageHorizontalLineLengthPixelQuantity>
```

## 11.10. Vertical Line Length - VLL

### ImageVerticalLineLengthPixelQuantity

**Field Reference:** 10/VLL

**Content Type:** Data

**XML Tag Name:** ImageVerticalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [10.007]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:FaceImage
    ↴/biom:ImageVerticalLineLengthPixelQuantity
else
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:PhysicalFeatureImage
    ↴/biom:ImageVerticalLineLengthPixelQuantity
endif
```

#### Summary

Number of pixels contained on a single vertical line of the image.

#### Valid Examples

```
<biom:ImageVerticalLineLengthPixelQuantity>65</biom:ImageVerticalLineLengthPixelQuantity>
```

## 11.11. Scale Units - SLC



**Field Reference:** 10/SLC

**Content Type:** Data

**XML Tag Name:** ImageScaleUnitsCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0}

**Code table:** see table A.59

**Base type:** biom:ScaleUnitsCodeType

**Field ID:** [10.008]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageScaleUnitsCode
else
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageScaleUnitsCode
endif
```

### Summary

Image sampling frequency (pixel density).

### Notes

For contact exemplar friction ridge images, a value of 1 or 2 shall be specified. A value of 1 or 2 shall be specified for latent friction ridge prints if the lifted latent print is transmitted directly from a scanner. If the latent print is contained in a photograph, a value of 1 or 2 shall be entered only if the image of the latent was captured with a scale measurement visible in the image and the pixels across an inch or centimeter can be calculated - given the known characteristics of the camera and its distance from the latent print. A value of 0 for a latent print indicates that the true ppi value of the image is not known. For non-contact images of body parts, SLC shall be set to 0 unless the object being imaged is a fixed distance from the capture device and the ppi or ppmm values for the capture device are accurately known at that fixed distance. (An example might be an iris capture device with a very small effective capture zone).

### Valid Examples

```
<biom:ImageScaleUnitsCode>2</biom:ImageScaleUnitsCode>
```

## 11.12. Transmitted Horizontal Pixel Scale - THPS



**Field Reference:** 10/THPS  
**Content Type:** Data  
**XML Tag Name:** ImageHorizontalPixelDensityValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {10..99999}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [10.009]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageHorizontalPixelDensityValue
else
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageHorizontalPixelDensityValue
endif
```

### Summary

Integer pixel density in the horizontal direction (if 10/SLC = 1 or 2); otherwise, if 10/SLC = 0, the horizontal component of the pixel aspect ratio.

### Notes

For example, if the SLC value = 1, then the value of THPS could be '1000' for a 1000 ppi sensor.

### Technical Notes

If 10/SLC=1,2, then THPS shall equal TVPS.

### Valid Examples

```
<biom:ImageHorizontalPixelDensityValue>1000</biom:ImageHorizontalPixelDensityValue>
```

## 11.13. Transmitted Vertical Pixel Scale - TVPS



**Field Reference:** 10/TVPS

**Content Type:** Data

**XML Tag Name:** ImageVerticalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [10.010]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageVerticalPixelDensityValue
else
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageVerticalPixelDensityValue
endif
```

### Summary

Integer pixel density in the vertical direction (if 10/SLC = 1 or 2); otherwise, if 10/SLC = 0, the vertical component of the pixel aspect ratio.

### Technical Notes

If 10/SLC=1,2, then THPS shall equal TVPS.

### Valid Examples

```
<biom:ImageVerticalPixelDensityValue>1000</biom:ImageVerticalPixelDensityValue>
```

## 11.14. Compression Algorithm - CGA



**Field Reference:** 10/CGA

**Content Type:** Data

**XML Tag Name:** ImageCompressionAlgorithmText

**Data Type:** AN

**Minimum Length:** 3

**Minimum Occurrences:** 1

**Value range:** {"JPEGB", "JPEGL"}

**Code table:** see table A.6

**Base type:** nc:TextType

**Field ID:** [10.011]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:ImageCompressionAlgorithmText
else
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:PhysicalFeatureImage
    ↳/biom:ImageCompressionAlgorithmText
endif
```

### Summary

Algorithm used to compress the transmitted color or grayscale images.

### Notes

INTERPOL standard restricts the possible formats to the following ones:

**JPEGB** JPEG lossy

**JPEGL** JPEG lossless

### Valid Examples

```
<biom:ImageCompressionAlgorithmText>JPEGB</biom:ImageCompressionAlgorithmText>
```

## 11.15. Color Space - CSP



**Field Reference:** 10/CSP

**Content Type:** Data

**XML Tag Name:** ImageColorSpaceCode

**Data Type:** A

**Minimum Length:** 3

**Minimum Occurrences:** 1

**Value range:** {"SRGB"}

**Code table:** see table [A.14](#)

**Base type:** biom:ColorSpaceCodeType

**Field ID:** [10.012]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
if [10/IMT] IN "FACE" then
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:FaceImage
    ↴/biom:ImageColorSpaceCode
else
/it1:PackageFacialAndSMTImageRecord
  ↴/biom:PhysicalFeatureImage
    ↴/biom:ImageColorSpaceCode
endif
```

### Summary

Image color space, e. g., grayscale or undetermined color space for an RGB image.

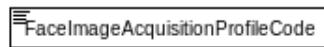
### Notes

See Section 7.7.10.3 Color Image Data for a detailed description of this field.

### Valid Examples

```
<biom:ImageColorSpaceCode>SRGB</biom:ImageColorSpaceCode>
```

## 11.16. Subject Acquisition Profile - SAP



**Field Reference:** 10/SAP

**Content Type:** Data

**XML Tag Name:** FaceImageAcquisitionProfileCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {30..52}

**Code table:** see table [A.57](#)

**Base type:** biom:FaceImageAcquisitionProfileCodeType

**Field ID:** [10.013]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Value of other Field, should not be set if not.	[10/IMT]="FACE"

### XPath

```
/itl:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:FaceImageAcquisitionProfileCode
```

### Summary

Set of characteristics concerning the capture of the face sample.

### Notes

To ensure a minimum quality level, the Subject Acquisition Profile should be 30 or higher.

### Valid Examples

```
<biom:FaceImageAcquisitionProfileCode>30</biom:FaceImageAcquisitionProfileCode>
```

## 11.17. Subject Pose - POS

### FaceImageSubjectPoseCode

**Field Reference:** 10/POS

**Content Type:** Data

**XML Tag Name:** FaceImageSubjectPoseCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {"F","L","R","A"}

**Code table:** see table [A.47](#)

**Base type:** biom:SubjectPoseCodeType

**Field ID:** [10.020]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[10/IMT]="FACE"

#### XPath

```
/it1:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:FaceImageSubjectPoseCode
```

#### Summary

Code describing pose of subject.

#### Notes

For this implementation, the determined 3D pose is not permitted.

#### Valid Examples

```
<biom:FaceImageSubjectPoseCode>F</biom:FaceImageSubjectPoseCode>
```

## 11.18. Pose Offset Angle - POA

**Field Reference:** 10/POA

**Content Type:** Data

**XML Tag Name:** FaceImagePoseOffsetAngleMeasure

**Data Type:** NS

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {-180..180}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [10.021]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** [-]

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[10/IMT]="FACE",[10/POS]="A"

### XPath

```
/itl:PackageFacialAndSMTImageRecord
  ↳/biom:FaceImage
    ↳/biom:FaceImagePoseOffsetAngleMeasure
```

### Summary

Specifies pose direction of the subject to the nearest degree. A positive angle is used to express the angular offset as the subject rotates from a full-face pose to their left (approaching a right profile).

### Valid Examples

```
<biom:FaceImagePoseOffsetAngleMeasure>40</biom:FaceImagePoseOffsetAngleMeasure>
```

## 11.19. Body Part Image - DATA

### BinaryBase64Object

**Field Reference:** 10/DATA

**Content Type:** Data

**XML Tag Name:** BinaryBase64Object

**Data Type:** B

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:base64Binary

**Field ID:** [10.999]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

#### XPath

```
if [10/IMT] IN "FACE" then
  /it1:PackageFacialAndSMTImageRecord
    ↳/biom:FaceImage
      ↳/nc:BinaryBase64Object
else
  /it1:PackageFacialAndSMTImageRecord
    ↳/biom:PhysicalFeatureImage
      ↳/nc:BinaryBase64Object
endif
```

#### Summary

Contains the image.

#### Notes

Binary for Traditional encoding or Base64 for XML

#### Valid Examples

```
<nc:BinaryBase64Object>mrHbPdrko3u1s7ahtgPBjtm01s85tfG2U7bpofY94Czu2SbY7d7wF9fQ7ZptgGrtk02a2dsJ7wZbe8BlzvAmQ7xq+
Y94GoHeEsR3ikWd4DIGhzmp3k42d4DRmzs94DKveDTB3hqw6PeBLrtpPep0H/+h</nc:BinaryBase64Object>
```

## 11.20. Field Mandatoriness in Photographic Imagery Record

The following table shows a summary of the fields and information items in each record type and its corresponding XML elements, and in particular the fields and items that are mandatory.

Table 11.1.: Field Summary for Type 10 Records

Field Id	Code	Field Name	Card.	Notes
10/XRCC:X	[10.001:X]	XML Record Category Code	M	
10/IDC	[10.002]	Information Designation Character	M	
10/IMT_10/DATA	[10.003_10.999]	Face or Physical Feature Indication (XML)	M	
10/IMT	[10.003]	Image Type	M	
10/SRC_10/SAN	[10.004_10.993]	Capture Organization (XML)	M	
10/SRC	[10.004]	Source Agency	M	
10/PHD:X	[10.005:X]	Photo Capture Date (XML)	M	
10/HLL	[10.006]	Horizontal Line Length	M	
10/VLL	[10.007]	Vertical Line Length	M	
10/SLC	[10.008]	Scale Units	M	
10/THPS	[10.009]	Transmitted Horizontal Pixel Scale	M	
10/TVPS	[10.010]	Transmitted Vertical Pixel Scale	M	
10/CGA	[10.011]	Compression Algorithm	M	
10/CSP	[10.012]	Color Space	M	
10/SAP	[10.013]	Subject Acquisition Profile	D	This field is required (and not permitted otherwise) if [10/IMT]="FACE"
10/POS	[10.020]	Subject Pose	D	This field is optional (and should not be entered otherwise) if [10/IMT]="FACE"
10/POA	[10.021]	Pose Offset Angle	D	This field is optional (and should not be entered otherwise) if [10/IMT]="FACE", [10/POS]=""A"
10/DATA	[10.999]	Body Part Image	M	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## 12. Friction-ridge Latent Image Record (aka Type 13)

This chapter describes all the fields that are used in the Friction-ridge Latent Image Record.

## 12.1. Package Latent Image Record (XML)

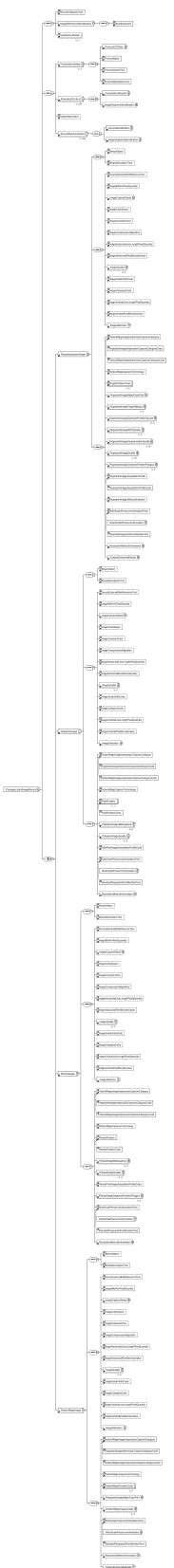
<b>Field Reference:</b> 13	<b>Field ID:</b> [13]
<b>Content Type:</b> Set_X	<b>Condition:</b> Optional
<b>XML Tag Name:</b> PackageLatentImageRecord	<b>Defined in:</b> xsd/itl/2011/ITL-2007f-Package.xsd
<b>Data Type:</b>	<b>Special Characters:</b> n/a
<b>Minimum Length:</b>	<b>Maximum Length:</b>
<b>Minimum Occurrences:</b> 0	<b>Maximum Occurrences:</b> *
<b>Value range:</b> n/a	<b>Regular Expression:</b> n/a
<b>Code table:</b> n/a	
<b>Base type:</b> itl:PackageLatentImageRecordType	<b>Namespace:</b> <a href="http://biometrics.nist.gov/standard/2011">http://biometrics.nist.gov/standard/2011</a>

### XPath

/itl:PackageLatentImageRecord

### Summary

Image data acquired from latent captures of friction ridge images.



## 12.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 13/XRCC:X

**Content Type:** Data\_X

**XML Tag Name:** RecordCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {13}

**Code table:** n/a

**Base type:** biom:RecordCategoryCodeType

**Field ID:** [13.001:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageLatentImageRecord  
  ↴/biom:RecordCategoryCode
```

#### Summary

Numeric representation of Record Type.

#### Valid Examples

```
<biom:RecordCategoryCode>13</biom:RecordCategoryCode>
```

## 12.3. Information Designation Character - IDC



**Field Reference:** 13/IDC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..99}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [13.002]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageLatentImageRecord  
  ↴/biom:ImageReferenceIdentification  
    ↴/nc:IdentificationID
```

### Summary

IDC assigned to this Type-13 record as listed in 1.003.

### Valid Examples

```
<nc:IdentificationID>6</nc:IdentificationID>
```

## 12.4. Image Type (XML)

**Field Reference:** 13/IMP\_13/DATA

**Content Type:** Set\_X

**XML Tag Name:** FingerImpressionImage or FrictionRidgeImage or PalmprintImage or PlantarImage

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:PlantarImageType

or biom:FrictionRidgeImageType

or biom:FingerImpressionImageType or biom:PalmprintImageType

**Field ID:** [13.003\_13.999]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

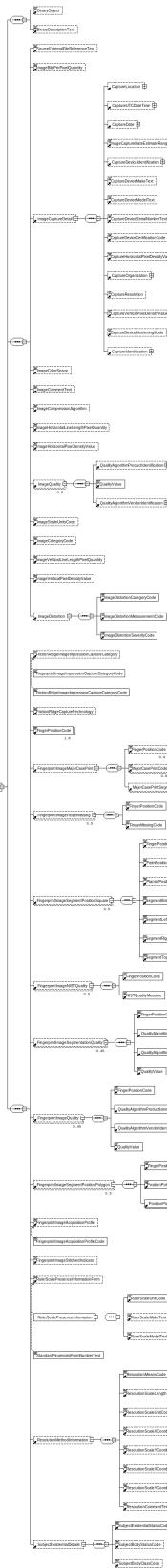
```
if [13/IMP] IN 4..7 then
  /itl:PackageLatentImageRecord
    ↳/biom:FingerImpressionImage
  or
  /itl:PackageLatentImageRecord
    ↳/biom:FrictionRidgeImage
  elseif [13/IMP] IN 12..15 then
    /itl:PackageLatentImageRecord
      ↳/biom:PalmprintImage
  or
  /itl:PackageLatentImageRecord
    ↳/biom:FrictionRidgeImage
  elseif [13/IMP] IN 28..29 then
    /itl:PackageLatentImageRecord
      ↳/biom:FingerImpressionImage
  or
  /itl:PackageLatentImageRecord
    ↳/biom:PalmprintImage
  or
  /itl:PackageLatentImageRecord
    ↳/biom:PlantarImage
  or
  /itl:PackageLatentImageRecord
    ↳/biom:FrictionRidgeImage
  elseif [13/IMP] IN 32..35 then
    /itl:PackageLatentImageRecord
      ↳/biom:PlantarImage
  or
  /itl:PackageLatentImageRecord
    ↳/biom:FrictionRidgeImage
  else
    /itl:PackageLatentImageRecord
      ↳/biom:FrictionRidgeImage
  endif
```

### Summary

Image and associated information.

### Notes

Applies to 13.003, 13.004, 13.005, 13.006, 13.007, 13.008, 13.009, 13.010, 13.011, 13.012, 13.013, 13.014, 13.015, 13.016, 13.017, 13.020, 13.024, 13.903, 13.904, 13.993, 13.998, 13.999. XML elements itl:FingerprintImage and itl:PalmprintImage are not listed in ANSI/NIST documentation, but are included in the XML schemas to allow for backward compatibility.



## 12.5. Impression Type - IMP

### FingerprintImageImpressionCaptureCategoryCode

**Field Reference:** 13/IMP

**Content Type:** Data

**XML Tag Name:** FingerprintImageImpressionCaptureCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {4}

**Code table:** see table A.31

**Base type:** biom:ImpressionCaptureCategoryCodeType

**Field ID:** [13.003]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
elseif [13/IMP] IN 28..29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
else

```

```
/itl:PackageLatentImageRecord
  ↳/bim:FrictionRidgeImage
    ↳/bim:FingerprintImageImpressionCaptureCategoryCode
endif
```

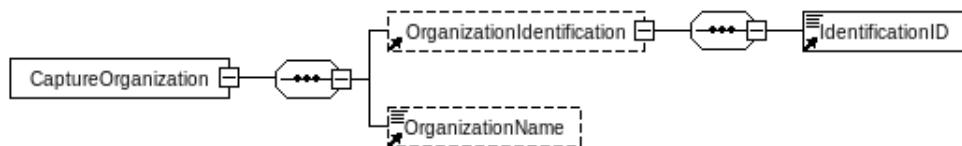
**Summary**

Manner by which latent print was obtained.

**Valid Examples**

```
<bim:FingerprintImageImpressionCaptureCategoryCode>5</bim:FingerprintImageImpressionCaptureCategoryCode>
```

## 12.6. Capture Organization (XML)



**Field Reference:** 13/SRC\_13/SAN

**Content Type:** Set\_X

**XML Tag Name:** CaptureOrganization

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:OrganizationType

**Field ID:** [13.004\_13.993]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
elseif [13/IMP] IN 28..29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
or
  
```

```
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
endif
```

**Summary**

Identifier of agency that created record and supplied information contained in it.

**Notes**

Applies to 13.004 and 13.993.

## 12.7. Source Agency - SRC



**Field Reference:** 13/SRC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [13.004]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
elseif [13/IMP] IN 28..29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
  
```

```

or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
endif

```

**Summary**

Identifier of agency that created and supplied information contained in the record. The source agency name may be entered in 13.993.

**Valid Examples**

<nc:IdentificationID>WI013415Y</nc:IdentificationID>
--

## 12.8. Latent Capture Date (XML) - LCD



**Field Reference:** 13/LCD:X  
**Content Type:** Data\_X  
**XML Tag Name:** Date  
**Data Type:** NS  
**Minimum Length:** 10  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:date

**Field ID:** [13.005:X]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [-]  
**Maximum Length:** 10  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:Date
```

```
or
/itl:PackageLatentImageRecord
  ↴/biom:FrictionRidgeImage
    ↴/biom:ImageCaptureDetail
      ↴/biom:CaptureDate
        ↴/nc:Date
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↴/biom:PlantarImage
    ↴/biom:ImageCaptureDetail
      ↴/biom:CaptureDate
        ↴/nc:Date
or
/itl:PackageLatentImageRecord
  ↴/biom:FrictionRidgeImage
    ↴/biom:ImageCaptureDetail
      ↴/biom:CaptureDate
        ↴/nc:Date
else
/itl:PackageLatentImageRecord
  ↴/biom:FrictionRidgeImage
    ↴/biom:ImageCaptureDetail
      ↴/biom:CaptureDate
        ↴/nc:Date
endif
```

**Summary**

Capture date of latent biometric data.

**Valid Examples**

```
<nc:Date>2014-01-18</nc:Date>
```

## 12.9. Horizontal Line Length - HLL

### ImageHorizontalLineLengthPixelQuantity

**Field Reference:** 13/HLL

**Content Type:** Data

**XML Tag Name:** ImageHorizontalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [13.006]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity

```

endif

**Summary**

Number of pixels contained on a single horizontal line of the image.

**Valid Examples**

```
<biom:ImageHorizontalLineLengthPixelQuantity>80</biom:ImageHorizontalLineLengthPixelQuantity>
```

## 12.10. Vertical Line Length - VLL



**Field Reference:** 13/VLL

**Content Type:** Data

**XML Tag Name:** ImageVerticalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [13.007]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity

```

endif

**Summary**

Number of pixels contained on a single vertical line of the image.

**Valid Examples**

```
<biom:ImageVerticalLineLengthPixelQuantity>65</biom:ImageVerticalLineLengthPixelQuantity>
```

## 12.11. Scale Units - SLC



**Field Reference:** 13/SLC  
**Content Type:** Data  
**XML Tag Name:** ImageScaleUnitsCode  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..2}  
**Code table:** see table A.59  
**Base type:** biom:ScaleUnitsCodeType

**Field ID:** [13.008]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 1  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageScaleUnitsCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageScaleUnitsCode
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageScaleUnitsCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageScaleUnitsCode
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageScaleUnitsCode
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageScaleUnitsCode
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageScaleUnitsCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageScaleUnitsCode
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageScaleUnitsCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageScaleUnitsCode
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageScaleUnitsCode
```

endif

**Summary**

Image sampling frequency (pixel density).

**Notes**

For contact exemplar friction ridge images, a value of 1 or 2 shall be specified. A value of 1 or 2 shall be specified for latent friction ridge prints if the lifted latent print is transmitted directly from a scanner. If the latent print is contained in a photograph, a value of 1 or 2 shall be entered only if the image of the latent was captured with a scale measurement visible in the image and the pixels across an inch or centimeter can be calculated - given the known characteristics of the camera and its distance from the latent print. A value of 0 for a latent print indicates that the true ppi value of the image is not known. For non-contact images of body parts, SLC shall be set to 0 unless the object being imaged is a fixed distance from the capture device and the ppi or ppmm values for the capture device are accurately known at that fixed distance. (An example might be an iris capture device with a very small effective capture zone).

**Valid Examples**

```
<biom:ImageScaleUnitsCode>1</biom:ImageScaleUnitsCode>
```

## 12.12. Transmitted Horizontal Pixel Scale - THPS



**Field Reference:** 13/THPS

**Content Type:** Data

**XML Tag Name:** ImageHorizontalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [13.009]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
elseif [13/IMP] IN 28..29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
elseif [13/IMP] IN 32..35 then

```

```
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageHorizontalPixelDensityValue
endif
```

**Summary**

Integer pixel density in the horizontal direction (if 13/SLC = 1 or 2); otherwise, if 13/SLC = 0, the horizontal component of the pixel aspect ratio.

**Notes**

For example, if the SLC value = 1, then the value of THPS could be '1000' for a 1000 ppi sensor.

**Technical Notes**

If 13/SLC=1,2, then THPS shall equal TVPS.

**Valid Examples**

```
<biom:ImageHorizontalPixelDensityValue>1000</biom:ImageHorizontalPixelDensityValue>
```

## 12.13. Transmitted Vertical Pixel Scale - TVPS



**Field Reference:** 13/TVPS

**Content Type:** Data

**XML Tag Name:** ImageVerticalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [13.010]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
elseif [13/IMP] IN 28..29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
elseif [13/IMP] IN 32..35 then

```

```
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:ImageVerticalPixelDensityValue
endif
```

#### Summary

Integer pixel density in the vertical direction (if 13/SLC = 1 or 2); otherwise, if 13/SLC = 0, the vertical component of the pixel aspect ratio.

#### Technical Notes

If 13/SLC=1,2, then THPS shall equal TVPS.

#### Valid Examples

```
<biom:ImageVerticalPixelDensityValue>1000</biom:ImageVerticalPixelDensityValue>
```

## 12.14. Compression Algorithm - CGA



**Field Reference:** 13/CGA

**Content Type:** Data

**XML Tag Name:** ImageCompressionAlgorithmText

**Data Type:** AN

**Minimum Length:** 3

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table A.6

**Base type:** nc:TextType

**Field ID:** [13.011]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCompressionAlgorithmText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCompressionAlgorithmText
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCompressionAlgorithmText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCompressionAlgorithmText
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCompressionAlgorithmText
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCompressionAlgorithmText
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCompressionAlgorithmText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCompressionAlgorithmText
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCompressionAlgorithmText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCompressionAlgorithmText
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCompressionAlgorithmText

```

endif

**Summary**

Algorithm used to compress the transmitted grayscale images.

**Notes**

Event if INTERPOL's implementation allows lossy compression algorithms for latents, it is recommended to use lossless algorithms.

**Valid Examples**

```
<biom:ImageCompressionAlgorithmText>NONE</biom:ImageCompressionAlgorithmText>
```

## 12.15. Bits Per Pixel - BPX



**Field Reference:** 13/BPX  
**Content Type:** Data  
**XML Tag Name:** ImageBitsPerPixelQuantity  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {8}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [13.012]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 2  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageBitsPerPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageBitsPerPixelQuantity
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageBitsPerPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageBitsPerPixelQuantity
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageBitsPerPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageBitsPerPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageBitsPerPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageBitsPerPixelQuantity
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageBitsPerPixelQuantity
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageBitsPerPixelQuantity
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageBitsPerPixelQuantity

```

endif

**Summary**

Number of bits per pixel.

**Notes**

This field shall contain an entry of "8" for normal grayscale values of "0" to "255". Any entry in this field greater than "8" shall be used to represent a grayscale pixel with increased proportion. For color, BPX represents the total number of bits per pixel (not per color). For instance, BPX=24 represents a 24-bit RGB image using 8 bits for each color.

**Valid Examples**

```
<biom:ImageBitsPerPixelQuantity>8</biom:ImageBitsPerPixelQuantity>
```

## 12.16. Friction Ridge Generalized Position - FGP

<b>Field Reference:</b> 13/FGP	<b>Field ID:</b> [13.013]
<b>Content Type:</b> Data	<b>Condition:</b> Mandatory
<b>XML Tag Name:</b> PlantarPositionCode or FingerPositionCode or PalmPositionCode or FrictionRidgePositionCode	<b>Defined in:</b> xsd/niem/biometrics/1.0/biometrics.xsd
<b>Data Type:</b> N	<b>Special Characters:</b> n/a
<b>Minimum Length:</b> 1	<b>Maximum Length:</b> 2
<b>Minimum Occurrences:</b> 1	<b>Maximum Occurrences:</b> 6
<b>Value range:</b> {0..10,20..28}	<b>Regular Expression:</b> n/a
<b>Code table:</b> see table A.25 and table A.26	<b>Namespace:</b> <a href="http://niem.gov/niem/biometrics/1.0">http://niem.gov/niem/biometrics/1.0</a>
<b>Base type:</b> biom:FingerPositionCodeType or biom:PalmPositionCodeType biom:FrictionRidgePositionCodeSimpleType biom:PlantarPositionCodeType	or or

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgePositionCode
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgePositionCode
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgePositionCode
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgePositionCode
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgePositionCode
endif

```

**Summary**

The finger, palm or plantar position that matches the latent image.

**Valid Examples**

```
<biom:PlantarPositionCode>2</biom:PlantarPositionCode>
```

## 12.17. Scanned Horizontal Pixel Scale - SHPS



**Field Reference:** 13/SHPS

**Content Type:** Data

**XML Tag Name:** CaptureHorizontalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [13.016]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
elseif [13/IMP] IN 28..29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
elseif [13/IMP] IN 32..35 then

```

```
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureHorizontalPixelDensityValue
endif
```

**Summary**

Horizontal pixel density used for scanning the original image/impression or horizontal component of pixel aspect ratio. This field is used if the transmission pixel scale differs from the original image scale.

**Technical Notes**

If 13/SLC=1,2, then SHPS shall equal SVPS.

**Valid Examples**

```
<biom:CaptureHorizontalPixelDensityValue>500</biom:CaptureHorizontalPixelDensityValue>
```

## 12.18. Scanned Vertical Pixel Scale - SVPS



**Field Reference:** 13/SVPS

**Content Type:** Data

**XML Tag Name:** CaptureVerticalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [13.017]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
elseif [13/IMP] IN 32..35 then

```

```
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureVerticalPixelDensityValue
endif
```

#### Summary

Vertical pixel density used for scanning the original image/impression or vertical component of pixel aspect ratio. This field is used if the transmission pixel scale differs from the original image scale.

#### Technical Notes

If 13/SLC=1,2, then SHPS shall equal SVPS.

#### Valid Examples

```
<biom:CaptureVerticalPixelDensityValue>500</biom:CaptureVerticalPixelDensityValue>
```

## 12.19. Comment - COM



**Field Reference:** 13/COM  
**Content Type:** Data  
**XML Tag Name:** ImageCommentText  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:TextType

**Field ID:** [13.020]  
**Condition:** Optional  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 126  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCommentText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCommentText
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCommentText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCommentText
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCommentText
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCommentText
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCommentText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCommentText
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:ImageCommentText
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCommentText
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:ImageCommentText

```

endif

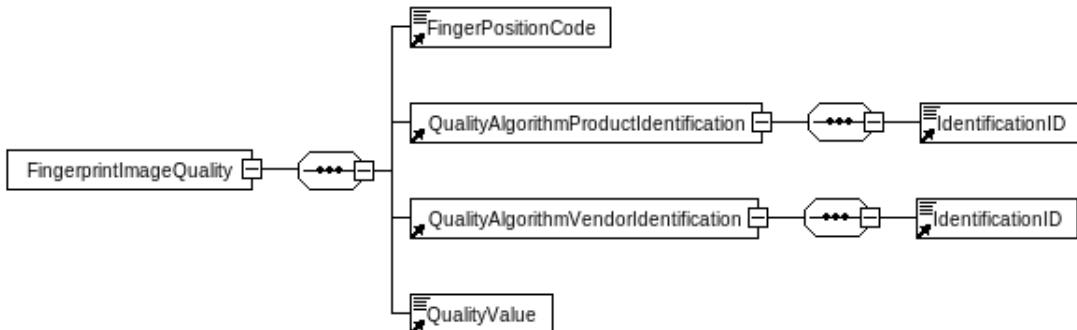
**Summary**

Free text information. It is not reserved exclusively for log-related information but has historically often been used for this purpose.

**Valid Examples**

```
<biom:ImageCommentText>Comment</biom:ImageCommentText>
```

## 12.20. Latent Quality Metric - LQM



**Field Reference:** 13/LQM

**Content Type:** Set

**XML Tag Name:** FingerprintImageQuality or PalmprintImageQuality or PlantarImageQuality or FrictionRidgeImageQuality

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:PlantarImageQualityType  
or biom:FrictionRidgeImageQualityType  
or biom:PalmprintImageQualityType  
or biom:FingerprintImageQualityType

**Field ID:** [13.024]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 9

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
  ↳/biom:FingerprintImageQuality
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
  ↳/biom:FrictionRidgeImageQuality
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
  ↳/biom:PalmprintImageQuality
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
  ↳/biom:FrictionRidgeImageQuality
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
  ↳/biom:FingerprintImageQuality
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
  ↳/biom:PalmprintImageQuality
or
  
```

```
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
endif
```

**Summary**

Specifies one or more different metrics of latent image quality score data for the image stored in this record.

## 12.21. Friction Ridge Metric Position - FRMP

**Field Reference:** 13/LQM/FRMP

**Content Type:** Data

**XML Tag Name:** PlantarPositionCode or FingerPositionCode or PalmPositionCode or FrictionRidgePositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table A.25 and table A.26

**Base type:** biom:FingerPositionCodeType  
or biom:PalmPositionCodeType  
biom:FrictionRidgePositionCodeSimpleType  
biom:PlantarPositionCodeType

**Field ID:** [13.024-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:FingerPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:FrictionRidgePositionCode
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:PalmPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:FrictionRidgePositionCode
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:FingerPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:PalmPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
      ↳/biom:PlantarPositionCode
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:FrictionRidgePositionCode
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
      ↳/biom:PlantarPositionCode

```

```
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:FrictionRidgePositionCode
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:FrictionRidgePositionCode
endif
```

**Summary**

Finger, palm or plantar position.

**Valid Examples**

```
<biom:PlantarPositionCode>2</biom:PlantarPositionCode>
```

## 12.22. Quality Value - QVU



**Field Reference:** 13/LQM/QVU

**Content Type:** Data

**XML Tag Name:** QualityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..100,254,255}

**Code table:** see table A.48 \*

**Base type:** niem-xsd:integer

**Field ID:** [13.024-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:QualityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityValue
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:QualityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityValue
elseif [13/IMP] IN 28..29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:QualityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:QualityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
      ↳/biom:QualityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityValue
elseif [13/IMP] IN 32..35 then

```

```
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
      ↳/biom:QualityValue
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityValue
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityValue
endif
```

**Summary**

Quantitative expression of predicted matching performance of biometric sample. This information item shall contain the integer image quality score assigned to the image data by a quality algorithm. Higher values indicate better quality.

**Valid Examples**

```
<biom:QualityValue>100</biom:QualityValue>
```

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 12.23. Algorithm Vendor ID - QAV



**Field Reference:** 13/LQM/QAV  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** H  
**Minimum Length:** 4  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [13.024-C]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 4  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
  
```

```
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmVendorIdentification
        ↳/nc:IdentificationID
endif
```

**Summary**

ID of the vendor of the quality algorithm used to calculate the quality score. This value is assigned by IBIA, which maintains the Vendor Registry of CBEFF Biometric Organizations that map the value in this field to a registered organization.

**Valid Examples**

```
<nc:IdentificationID>FFF0</nc:IdentificationID>
```

## 12.24. Algorithm Product Identification - QAP



**Field Reference:** 13/LQM/QAP  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** {1..65535}  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [13.024-D]  
**Condition:** Mandatory within a field  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:PlantarImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID

```

```
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeImageQuality
      ↳/biom:QualityAlgorithmProductIdentification
        ↳/nc:IdentificationID
      elseif [13/IMP] IN 32..35 then
        /itl:PackageLatentImageRecord
          ↳/biom:PlantarImage
            ↳/biom:PlantarImageQuality
              ↳/biom:QualityAlgorithmProductIdentification
                ↳/nc:IdentificationID
      or
      /itl:PackageLatentImageRecord
        ↳/biom:FrictionRidgeImage
          ↳/biom:FrictionRidgeImageQuality
            ↳/biom:QualityAlgorithmProductIdentification
              ↳/nc:IdentificationID
      else
        /itl:PackageLatentImageRecord
          ↳/biom:FrictionRidgeImage
            ↳/biom:FrictionRidgeImageQuality
              ↳/biom:QualityAlgorithmProductIdentification
                ↳/nc:IdentificationID
      endif
```

**Summary**

Numeric product code assigned by the vendor of the quality algorithm (may be registered with the IBIA, but registration is not required).

**Valid Examples**

```
<nc:IdentificationID>28495</nc:IdentificationID>
```

## 12.25. Friction Ridge Capture Technology - FCT



**Field Reference:** 13/FCT

**Content Type:** Data\_X

**XML Tag Name:** FrictionRidgeCaptureTechnology

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0,18..22}

**Code table:** see table A.24

**Base type:** biom:FrictionRidgeCaptureTechnologyType

**Field ID:** [13.901]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FrictionRidgeCaptureTechnology
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeCaptureTechnology
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:FrictionRidgeCaptureTechnology
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeCaptureTechnology
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FrictionRidgeCaptureTechnology
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:FrictionRidgeCaptureTechnology
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:FrictionRidgeCaptureTechnology
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeCaptureTechnology
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/biom:FrictionRidgeCaptureTechnology
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeCaptureTechnology
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/biom:FrictionRidgeCaptureTechnology

```

endif

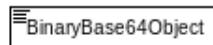
**Summary**

The technology used to capture friction ridge data

**Valid Examples**

```
<biom:FrictionRidgeCaptureTechnology>0</biom:FrictionRidgeCaptureTechnology>
```

## 12.26. Latent Friction Ridge Image - DATA



**Field Reference:** 13/DATA  
**Content Type:** Data  
**XML Tag Name:** BinaryBase64Object  
**Data Type:** B  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:base64Binary

**Field ID:** [13.999]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
if [13/IMP] IN 4..7 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/nc:BinaryBase64Object
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/nc:BinaryBase64Object
elseif [13/IMP] IN 12..15 then
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/nc:BinaryBase64Object
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/nc:BinaryBase64Object
elseif [13/IMP] IN 28, 29 then
/itl:PackageLatentImageRecord
  ↳/biom:FingerImpressionImage
    ↳/nc:BinaryBase64Object
or
/itl:PackageLatentImageRecord
  ↳/biom:PalmprintImage
    ↳/nc:BinaryBase64Object
or
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/nc:BinaryBase64Object
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/nc:BinaryBase64Object
elseif [13/IMP] IN 32..35 then
/itl:PackageLatentImageRecord
  ↳/biom:PlantarImage
    ↳/nc:BinaryBase64Object
or
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/nc:BinaryBase64Object
else
/itl:PackageLatentImageRecord
  ↳/biom:FrictionRidgeImage
    ↳/nc:BinaryBase64Object
```

endif

**Summary**

Contains the latent image.

**Notes**

Binary for Traditional encoding or Base64 for XML

**Valid Examples**

```
<nc:BinaryBase64Object>mrHbPdrko3u1s7ahtgPBjtm01s85tfG2U7bpofY94Czu2SbY7d7wF9fQ7ZptgGrtk02a2dsJ7wZbe8BlzvAmQ7xq+
Y94GoHeEsR3ikWd4DIGhzmp3k42d4DRmzs94DKveDTB3hqw6PeBLrtpPep0H/+h</nc:BinaryBase64Object>
```

## 12.27. Field Mandatoriness in Friction-ridge Latent Image Record

The following table shows a summary of the fields and information items in each record type and its corresponding XML elements, and in particular the fields and items that are mandatory.

Table 12.1.: Field Summary for Type 13 Records

Field Id	Code	Field Name	Card.	Notes
13/XRCC:X	[13.001:X]	XML Record Category Code	M	
13/IDC	[13.002]	Information Designation Character	M	
13/IMP_13/DATA	[13.003_13.999]	Image Type (XML)	M	
13/IMP	[13.003]	Impression Type	M	
13/SRC_13/SAN	[13.004_13.993]	Capture Organization (XML)	M	
13/SRC	[13.004]	Source Agency	M	
13/LCD:X	[13.005:X]	Latent Capture Date (XML)	M	
13/HLL	[13.006]	Horizontal Line Length	M	
13/VLL	[13.007]	Vertical Line Length	M	
13/SLC	[13.008]	Scale Units	M	
13/THPS	[13.009]	Transmitted Horizontal Pixel Scale	M	
13/TVPS	[13.010]	Transmitted Vertical Pixel Scale	M	
13/CGA	[13.011]	Compression Algorithm	M	
13/BPX	[13.012]	Bits Per Pixel	M	
13/FGP	[13.013]	Friction Ridge Generalized Position	M	
13/SHPS	[13.016]	Scanned Horizontal Pixel Scale	O	
13/SPVS	[13.017]	Scanned Vertical Pixel Scale	O	
13/COM	[13.020]	Comment	O	
13/LQM	[13.024]	Latent Quality Metric	O	
13/LQM/FRMP	[13.024-A]	Friction Ridge Metric Position	M^	
13/LQM/QVU	[13.024-B]	Quality Value	M^	
13/LQM/QAV	[13.024-C]	Algorithm Vendor ID	M^	
13/LQM/QAP	[13.024-D]	Algorithm Product Identification	M^	
13/FCT	[13.901]	Friction Ridge Capture Technology	O	
13/DATA	[13.999]	Latent Friction Ridge Image	M	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## **13. Fingerprint Image Record (aka Type 14)**

This chapter describes all the fields that are used in the Fingerprint Image Record.

### 13.1. Package Fingerprint Image Record (XML)

**Field Reference:** 14

**Content Type:** Set\_X

**XML Tag Name:** PackageFingerprintImageRecord

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** itl:PackageFingerImpressionImageRecordType

**Field ID:** [14]

**Condition:** Optional

**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

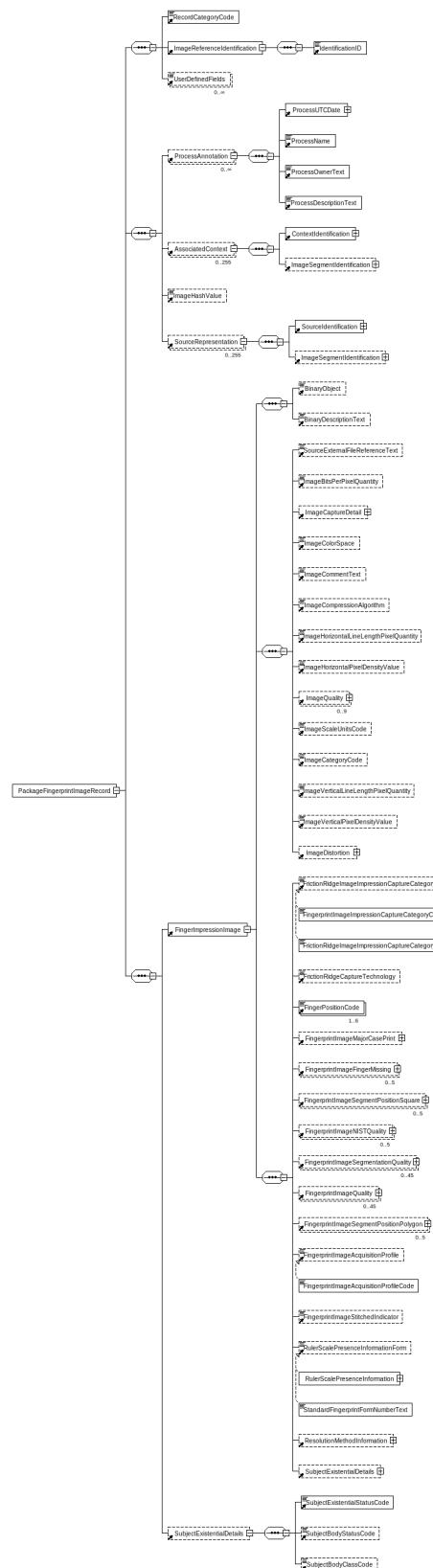
**Namespace:** <http://biometrics.nist.gov/standard/2011>

#### XPath

/itl:PackageFingerprintImageRecord

#### Summary

Contains and is used to exchange exemplar fingerprint image data, such as a rolled tenprint, an identification flat, or a complete friction ridge exemplar.



## 13.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 14/XRCC:X

**Content Type:** Data\_X

**XML Tag Name:** RecordCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {14}

**Code table:** n/a

**Base type:** biom:RecordCategoryCodeType

**Field ID:** [14.001:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:RecordCategoryCode
```

#### Summary

Numeric representation of Record Type.

#### Valid Examples

```
<biom:RecordCategoryCode>14</biom:RecordCategoryCode>
```

### 13.3. Information Designation Character - IDC



**Field Reference:** 14/IDC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..99}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [14.002]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

#### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:ImageReferenceIdentification  
    ↴/nc:IdentificationID
```

#### Summary

IDC assigned to this Type-14 record as listed in 1.003.

#### Valid Examples

```
<nc:IdentificationID>7</nc:IdentificationID>
```

## 13.4. Finger Impression Image (XML)

**Field Reference:** 14/IMP\_14/DATA

**Content Type:** Set\_X

**XML Tag Name:** FingerImpressionImage

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerImpressionImageType

**Field ID:** [14.003\_14.999]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

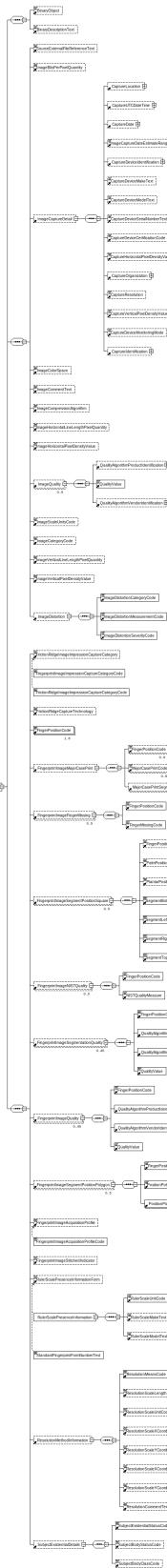
```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage
```

### Summary

Image and associated information.

### Notes

Applies to 14.003, 14.004, 14.005, 14.006, 14.007, 14.008, 14.009, 14.010, 14.011, 14.012, 14.013, 14.014, 14.015, 14.016, 14.017, 14.018, 14.020, 14.021, 14.022, 14.023, 14.024, 14.025, 14.026, 14.027, 14.030, 14.031, 14.903, 14.904, 14.993, 14.998 and 14.999. XML elements itl:FingerprintImage and itl:PalmprintImage are not listed in ANSI/NIST documentation, but are included in the XML schemas to allow for backward compatibility.



## 13.5. Impression Type - IMP

### FingerprintImageImpressionCaptureCategoryCode

**Field Reference:** 14/IMP

**Content Type:** Data

**XML Tag Name:** FingerprintImageImpressionCaptureCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0,1,8,24,25,28,29,41,42}

**Code table:** see table [A.31](#)

**Base type:** biom:ImpressionCaptureCategoryCodeType

**Field ID:** [14.003]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
```

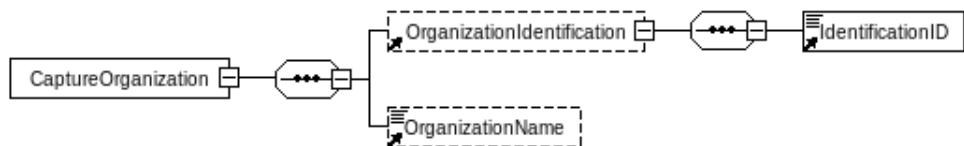
#### Summary

Manner by which the print was obtained.

#### Valid Examples

```
<biom:FingerprintImageImpressionCaptureCategoryCode>7</biom:FingerprintImageImpressionCaptureCategoryCode>
```

## 13.6. Capture Organization (XML)



**Field Reference:** 14/SRC\_14/SAN

**Content Type:** Set\_X

**XML Tag Name:** CaptureOrganization

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:OrganizationType

**Field ID:** [14.004\_14.993]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
  ↳/biom:ImageCaptureDetail
  ↳/biom:CaptureOrganization
```

### Summary

Identifier of agency that created record and supplied information contained in it.

### Notes

Applies to 14.004 and 14.993

## 13.7. Source Agency - SRC

### IdentificationID

**Field Reference:** 14/SRC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [14.004]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↴/biom:FingerImpressionImage
    ↴/biom:ImageCaptureDetail
      ↴/biom:CaptureOrganization
        ↴/nc:OrganizationIdentification
          ↴/nc:IdentificationID
```

#### Summary

Identifier of agency that created and supplied information contained in the record. The source agency name may be entered in 14.993.

#### Valid Examples

```
<nc:IdentificationID>WI013415Y</nc:IdentificationID>
```

## 13.8. Fingerprint Capture Date (XML) - FCD



**Field Reference:** 14/FCD:X

**Content Type:** Data\_X

**XML Tag Name:** Date

**Data Type:** NS

**Minimum Length:** 10

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:date

**Field ID:** [14.005:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** [-]

**Maximum Length:** 10

**Maximum Occurrences:** 1

**Regular Expression:** \d{4}-\d{2}-\d{2}

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageFingerprintImageRecord  
  ↳/biom:FingerImpressionImage  
    ↳/biom:ImageCaptureDetail  
      ↳/biom:CaptureDate  
        ↳/nc:Date
```

### Summary

Capture date of exemplar fingerprint image data.

### Valid Examples

```
<nc:Date>2007-01-01</nc:Date>
```

## 13.9. Horizontal Line Length - HLL

### ImageHorizontalLineLengthPixelQuantity

**Field Reference:** 14/HLL

**Content Type:** Data

**XML Tag Name:** ImageHorizontalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [14.006]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	14/DATA

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
```

#### Summary

Number of pixels contained on a single horizontal line of the image.

#### Valid Examples

```
<biom:ImageHorizontalLineLengthPixelQuantity>5000</biom:ImageHorizontalLineLengthPixelQuantity>
```

## 13.10. Vertical Line Length - VLL

### ImageVerticalLineLengthPixelQuantity

**Field Reference:** 14/VLL

**Content Type:** Data

**XML Tag Name:** ImageVerticalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [14.007]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Presence of other Field	14/DATA

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
```

#### Summary

Number of pixels contained on a single vertical line of the image.

#### Valid Examples

```
<biom:ImageVerticalLineLengthPixelQuantity>2500</biom:ImageVerticalLineLengthPixelQuantity>
```

## 13.11. Scale Units - SLC



**Field Reference:** 14/SLC

**Content Type:** Data

**XML Tag Name:** ImageScaleUnitsCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {1}

**Code table:** see table A.59

**Base type:** biom:ScaleUnitsCodeType

**Field ID:** [14.008]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	14/DATA

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageScaleUnitsCode
```

### Summary

Image sampling frequency (pixel density).

### Notes

Only code 1 (ppi) is allowed in INTERPOL's implementation.

### Valid Examples

```
<biom:ImageScaleUnitsCode>1</biom:ImageScaleUnitsCode>
```

## 13.12. Transmitted Horizontal Pixel Scale - THPS



**Field Reference:** 14/THPS

**Content Type:** Data

**XML Tag Name:** ImageHorizontalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {1000,500}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.009]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	14/DATA

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageHorizontalPixelDensityValue
```

### Summary

Integer pixel density in the horizontal direction (if 14/SLC = 1 or 2); otherwise, if 14/SLC = 0, the horizontal component of the pixel aspect ratio.

### Notes

For example, if the SLC value = 1, then the value of THPS could be '1000' for a 1000 ppi sensor.

### Technical Notes

If 14/SLC=1,2, then THPS shall equal TVPS.

### Valid Examples

```
<biom:ImageHorizontalPixelDensityValue>1000</biom:ImageHorizontalPixelDensityValue>
```

### 13.13. Transmitted Vertical Pixel Scale - TVPS



**Field Reference:** 14/TVPS

**Content Type:** Data

**XML Tag Name:** ImageVerticalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {1000,500}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.010]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	14/DATA

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageVerticalPixelDensityValue
```

#### Summary

Integer pixel density in the vertical direction (if 14/SLC = 1 or 2); otherwise, if 14/SLC = 0, the vertical component of the pixel aspect ratio.

#### Technical Notes

If 14/SLC=1,2, then THPS shall equal TVPS.

#### Valid Examples

```
<biom:ImageVerticalPixelDensityValue>1000</biom:ImageVerticalPixelDensityValue>
```

## 13.14. Compression Algorithm - CGA

### ImageCompressionAlgorithmText

**Field Reference:** 14/CGA

**Content Type:** Data

**XML Tag Name:** ImageCompressionAlgorithmText

**Data Type:** AN

**Minimum Length:** 3

**Minimum Occurrences:** 0

**Value range:** {"JP2","JP2L","WSQ20"}

**Code table:** see table [A.6](#)

**Base type:** nc:TextType

**Field ID:** [14.011]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	14/DATA

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageCompressionAlgorithmText
```

#### Summary

Algorithm used to compress the transmitted grayscale images.

#### Notes

INTERPOL standard restricts the possible formats to the following ones, depending on the image resolution:

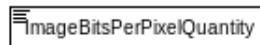
**500ppi images** WSQ

**1000ppi images** JPEG 2000 lossless, or JPEG 2000 lossy, with a compression ratio of 10:1

#### Valid Examples

```
<biom:ImageCompressionAlgorithmText>NONE</biom:ImageCompressionAlgorithmText>
```

## 13.15. Bits Per Pixel - BPX



**Field Reference:** 14/BPX

**Content Type:** Data

**XML Tag Name:** ImageBitsPerPixelQuantity

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {8}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.012]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	14/DATA

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:ImageBitsPerPixelQuantity
```

### Summary

Number of bits per pixel.

### Notes

This field shall contain an entry of "8" for normal grayscale values of "0" to "255". Any entry in this field greater than "8" shall be used to represent a grayscale pixel with increased proportion. For color, BPX represents the total number of bits per pixel (not per color). For instance, BPX=24 represents a 24-bit RGB image using 8 bits for each color.

INTERPOL's implementation only supports 8-bit grayscale images.

### Valid Examples

```
<biom:ImageBitsPerPixelQuantity>8</biom:ImageBitsPerPixelQuantity>
```

## 13.16. Friction Ridge Generalized Position - FGP

### FingerPositionCode

**Field Reference:** 14/FGP

**Content Type:** Data

**XML Tag Name:** FingerPositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1..14}

**Code table:** see table [A.25](#) and table [A.26](#)

**Base type:** biom:FingerPositionCodeType

**Field ID:** [14.013]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage  
    ↴/biom:FingerPositionCode
```

#### Summary

Friction ridge generalized position.

#### Notes

INTERPOL's implementation only allows FGP between 1 and 15. Extra fingers, unknown fingers,... are not accepted.

#### Valid Examples

```
<biom:FingerPositionCode>9</biom:FingerPositionCode>
```

## 13.17. Amputated or Bandaged - AMP

**Field Reference:** 14/AMP

**Content Type:** Set

**XML Tag Name:** FingerprintImageFingerMissing

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerprintImageFingerMissingType

**Field ID:** [14.018]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 5

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageFingerprintImageRecord  
  ↳/biom:FingerImpressionImage  
    ↳/biom:FingerprintImageMissing
```

### Summary

Specifies if one or more fingers are amputated or bandaged. This field is to be used anytime there are fewer than expected printable fingers in a submission (e.g., less than four in a left or right slap or less than two in a two-thumb slap).

## 13.18. Friction Ridge Amputated or Bandaged Position - FRAP

### FingerPositionCode

**Field Reference:** 14/AMP/FRAP

**Content Type:** Data

**XML Tag Name:** FingerPositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1..10}

**Code table:** see table [A.25](#) and table [A.26](#)

**Base type:** biom:FingerPositionCodeType

**Field ID:** [14.018-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage  
    ↴/biom:FingerprintImageFingerMissing  
      ↴/biom:FingerPositionCode
```

#### Summary

Friction ridge amputated or bandaged position.

#### Notes

Even though the ANSI-NIST standard allows codes 16 and 17 (right and left extra fingers), these codes are not allowed in the INTERPOL implementation.

#### Valid Examples

```
<biom:FingerPositionCode>8</biom:FingerPositionCode>
```

## 13.19. Amputated or Bandaged Code - ABC

**Field Reference:** 14/AMP/ABC

**Content Type:** Data

**XML Tag Name:** FingerMissingCode

**Data Type:** A

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {"XX","UP"}

**Code table:** see table A.1

**Base type:** biom:FrictionRidgeImageMissingAreaReasonCodeType **Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [14.018-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageFingerMissing
      ↳/biom:FingerMissingCode
```

### Summary

Code describing amputation or bandaged friction ridge area.

### Notes

XX shall be used only when a partial print exists due to amputation; therefore it contains some friction ridge detail. (The finger is not totally amputated, some countries might qualify such print as "mutilated")

UP shall be used with the complete block where an image was to be transmitted, but there is no image due to amputation or total lack of friction ridge detail (such as with a bandage).

An image with a scar should not be marked XX or UP, the 14.018 field should not be present. The SR (scar) code of the ANSI-NIST standard should not be used in INTERPOL's implementation.

Note that if a finger has simply not been acquired (for instance in the case of a 2-finger acquisition), no type 14 should be created for this finger.

### Valid Examples

```
<biom:FingerMissingCode>UP</biom:FingerMissingCode>
```

## 13.20. Finger Segment Position - SEG



**Field Reference:** 14/SEG

**Content Type:** Set

**XML Tag Name:** FingerprintImageSegmentPositionSquare

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FrictionRidgeImageSegmentPositionSquareType **Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [14.021]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 4

**Regular Expression:** n/a

### Exceptions

see Technical Notes below

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[14/FGP]IN{13,14}

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageSegmentPositionSquare
```

### Summary

Offsets to the locations of image segments containing the individual fingers within the flat images of simultaneous fingers from each hand or the two simultaneous thumbs.

**Notes**

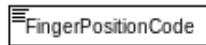
If the segmentation information are present, it is up to the receiving system to decide whether or not it will be used. There is hence no guaranty that the receiving system will use the same segmentation as the emitting one.

**Technical Notes**

INTERPOL's implementation is more restrictive than the umbrella standard and only allow the transmission of segmentation information for the left and right four-finger images. This field must not be used for the other images.

In case of a slap-only acquisition (no rolled images), this is not enough to transmit the 4 images (2 4-finger slap images and 2 plain 1-thumb image) with the segmentation information; the segmented individual flat finger images must also be sent in their own Type 14 as well. If rolled finger images are part of the acquisition, then the segmented individual flat finger extracted from the slap images must not be included.

## 13.21. Friction Ridge Segment Position - FRSP



**Field Reference:** 14/SEG/FRSP

**Content Type:** Data

**XML Tag Name:** FingerPositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1..10}

**Code table:** see table [A.25](#) and table [A.26](#)

**Base type:** biom:FingerPositionCodeType

**Field ID:** [14.021-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage  
    ↴/biom:FingerprintImageSegmentPositionSquare  
      ↴/biom:FingerPositionCode
```

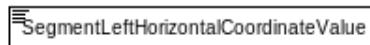
### Summary

Code indicating the location or position of the friction ridge segment.

### Valid Examples

```
<biom:FingerPositionCode>2</biom:FingerPositionCode>
```

## 13.22. Left Horizontal Coordinate Value - LHC



**Field Reference:** 14/SEG/LHC

**Content Type:** Data

**XML Tag Name:** SegmentLeftHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.021-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageSegmentPositionSquare
      ↳/biom:SegmentLeftHorizontalCoordinateValue
```

### Summary

Horizontal offset in pixels to the left edge of the bounding box relative to the origin positioned in the upper left corner of the image.

### Valid Examples

```
<biom:SegmentLeftHorizontalCoordinateValue>50</biom:SegmentLeftHorizontalCoordinateValue>
```

### 13.23. Right Horizontal Coordinate Value - RHC

#### SegmentRightHorizontalCoordinateValue

**Field Reference:** 14/SEG/RHC

**Content Type:** Data

**XML Tag Name:** SegmentRightHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.021-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageSegmentPositionSquare
      ↳/biom:SegmentRightHorizontalCoordinateValue
```

#### Summary

Horizontal offset in pixels to the right edge of the bounding box relative to the origin positioned in the upper left corner of the image.

#### Valid Examples

```
<biom:SegmentRightHorizontalCoordinateValue>10</biom:SegmentRightHorizontalCoordinateValue>
```

## 13.24. Top Vertical Coordinate Value - TVC



**Field Reference:** 14/SEG/TVC

**Content Type:** Data

**XML Tag Name:** SegmentTopVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.021-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageFingerprintImageRecord
  ↴/biom:FingerImpressionImage
    ↴/biom:FingerprintImageSegmentPositionSquare
      ↴/biom:SegmentTopVerticalCoordinateValue
```

### Summary

Vertical offset (pixel counts down) to the top of the bounding box.

### Valid Examples

```
<biom:SegmentTopVerticalCoordinateValue>30</biom:SegmentTopVerticalCoordinateValue>
```

## 13.25. Bottom Vertical Coordinate Value - BVC

### SegmentBottomVerticalCoordinateValue

**Field Reference:** 14/SEG/BVC

**Content Type:** Data

**XML Tag Name:** SegmentBottomVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.021-E]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↴/biom:FingerImpressionImage
    ↴/biom:FingerprintImageSegmentPositionSquare
      ↴/biom:SegmentBottomVerticalCoordinateValue
```

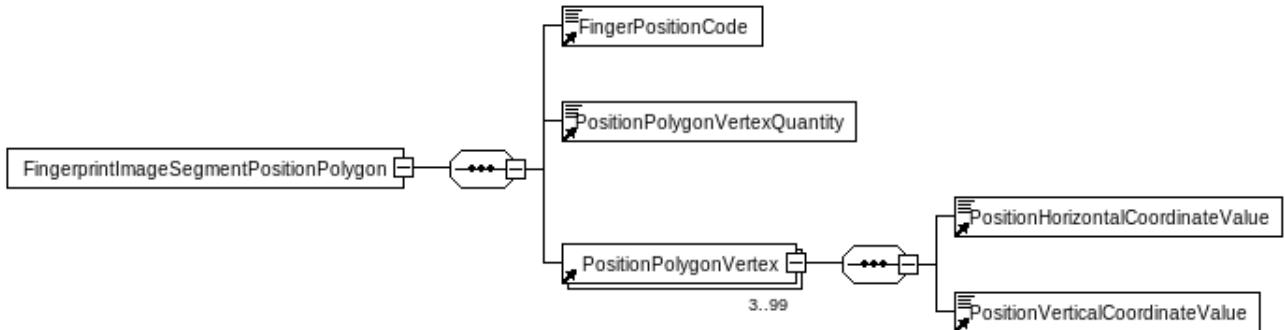
#### Summary

Vertical offset (in pixels) from the upper left corner of the image down to the bottom of the bounding box.

#### Valid Examples

```
<biom:SegmentBottomVerticalCoordinateValue>10</biom:SegmentBottomVerticalCoordinateValue>
```

## 13.26. Alternate Finger Segment Position(s) - ASEG



**Field Reference:** 14/ASEG

**Content Type:** Set

**XML Tag Name:** FingerprintImageSegmentPositionPolygon

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FingerprintImageSegmentPositionPolygonType

**Field ID:** [14.025]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 4

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### Exceptions

see Technical Notes below

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[14/FGP]IN{13,14}

### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageSegmentPositionPolygon
```

### Summary

Alternate approach to describing the locations for each of the image segments of each of the individual fingers within a flat image containing the capture of four (or more if extra digits exist on the hand) simultaneous fingers or two simultaneous thumbs.

### Notes

The order of the vertices shall be in their consecutive order around the perimeter of the polygon, either clockwise or counterclockwise. No two vertices may occupy the same location. The polygon side defined by the last vertex and the first vertex shall complete the polygon. The polygon shall be a simple, plane figure with no sides crossing and no interior holes.

If the segmentation information are present, it is up to the receiving system to decide whether or not it will be used. There is hence no guarantee that the receiving system will use the same segmentation as the emitting one.

**Technical Notes**

INTERPOL's implementation is more restrictive than the umbrella standard and only allow the transmission of segmentation information for the left and right four-finger images. This field must not be used for the other images.

In case of a slap-only acquisition (no rolled images), this is not enough to transmit the 4 images (2 4-finger slap images and 2 plain 1-thumb image) with the segmentation information; the segmented individual flat finger images must also be sent in their own Type 14 as well. If rolled finger images are part of the acquisition, then the segmented individual flat finger extracted from the slap images must not be included.

Finally, while the umbrella standard allows to define the segmentation as an up-to-99 vertices polygon, INTERPOL's implementation restrict that to rectangle.

## 13.27. Friction Ridge Alternate Segment Position - FRAS

### FingerPositionCode

**Field Reference:** 14/ASEG/FRAS

**Content Type:** Data

**XML Tag Name:** FingerPositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1..10}

**Code table:** see table [A.25](#) and table [A.26](#)

**Base type:** biom:FingerPositionCodeType

**Field ID:** [14.025-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage  
    ↴/biom:FingerprintImageSegmentPositionPolygon  
      ↴/biom:FingerPositionCode
```

#### Summary

Finger number from Table 8.

#### Valid Examples

```
<biom:FingerPositionCode>8</biom:FingerPositionCode>
```

## 13.28. Number of Points - NOP



**Field Reference:** 14/ASEG/NOP

**Content Type:** Data

**XML Tag Name:** PositionPolygonVertexQuantity

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {4}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.025-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageFingerprintImageRecord
  ↴/biom:FingerImpressionImage
    ↴/biom:FingerprintImageSegmentPositionPolygon
      ↴/biom:PositionPolygonVertexQuantity
```

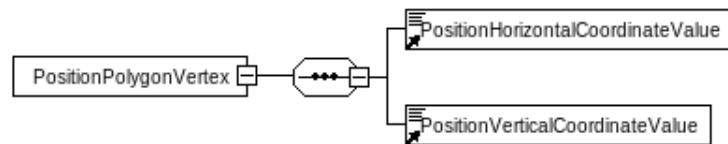
### Summary

Number of vertices for the occlusion polygon.

### Valid Examples

```
<biom:PositionPolygonVertexQuantity>4</biom:PositionPolygonVertexQuantity>
```

## 13.29. Position Polygon Vertex (XML)



**Field Reference:** 14/ASEG/HPO\_14/ASEG/VPO

**Content Type:** Set\_X

**XML Tag Name:** PositionPolygonVertex

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 3

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:VertexType

**Field ID:** [14.025-C\_14.025-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 4

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageSegmentPositionPolygon
      ↳/biom:PositionPolygonVertex

```

### Summary

Number of polygon vertices/coordinate pairs.

### Notes

Applies to 14.025-C and 14.025-D

## 13.30. Horizontal Point Offset (XML) - HPO

### PositionHorizontalCoordinateValue

**Field Reference:** 14/ASEG/HPO:X

**Content Type:** Data\_X

**XML Tag Name:** PositionHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.025-C:X]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageSegmentPositionPolygon
      ↳/biom:PositionPolygonVertex
        ↳/biom:PositionHorizontalCoordinateValue
```

#### Summary

Pixel count to the right (x coordinate).

#### Valid Examples

```
<biom:PositionHorizontalCoordinateValue>100</biom:PositionHorizontalCoordinateValue>
```

### 13.31. Vertical Point Offset (XML) - VPO

#### PositionVerticalCoordinateValue

**Field Reference:** 14/ASEG/VPO:X

**Content Type:** Data\_X

**XML Tag Name:** PositionVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [14.025-D:X]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/biom:FingerImpressionImage
    ↳/biom:FingerprintImageSegmentPositionPolygon
      ↳/biom:PositionPolygonVertex
        ↳/biom:PositionVerticalCoordinateValue
```

#### Summary

Pixel count down from the origin (y coordinate).

#### Valid Examples

```
<biom:PositionVerticalCoordinateValue>15</biom:PositionVerticalCoordinateValue>
```

## 13.32. Device Monitoring Mode - DMM

### CaptureDeviceMonitoringModeCode

**Field Reference:** 14/DMM

**Content Type:** Data

**XML Tag Name:** CaptureDeviceMonitoringModeCode

**Data Type:** A

**Minimum Length:** 7

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table [A.17](#)

**Base type:** biom:DeviceMonitoringModeCodeType

**Field ID:** [14.030]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 10

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage  
    ↴/biom:ImageCaptureDetail  
      ↴/biom:CaptureDeviceMonitoringModeCode
```

#### Summary

Level of human monitoring associated with biometric sample capture.

#### Valid Examples

```
<biom:CaptureDeviceMonitoringModeCode>ASSISTED</biom:CaptureDeviceMonitoringModeCode>
```

### 13.33. Subject Acquisition Profile - Fingerprint - FAP



**Field Reference:** 14/FAP

**Content Type:** Data

**XML Tag Name:** FingerprintImageAcquisitionProfileCode

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table A.23

**Base type:** biom:FingerprintImageAcquisitionProfileCodeType

**Field ID:** [14.031]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage  
    ↴/biom:FingerprintImageAcquisitionProfileCode
```

#### Summary

FAP level associated with the fingerprint acquisition device.

#### Notes

Even if there is no control of the acquisition profile, It is recommended to use devices that permit an acquisition profile of 45 or better.

#### Valid Examples

```
<biom:FingerprintImageAcquisitionProfileCode>20</biom:FingerprintImageAcquisitionProfileCode>
```

## 13.34. Friction Ridge Capture Technology - FCT



**Field Reference:** 14/FCT

**Content Type:** Data\_X

**XML Tag Name:** FrictionRidgeCaptureTechnology

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..7,9..17}

**Code table:** see table [A.24](#)

**Base type:** biom:FrictionRidgeCaptureTechnologyType

**Field ID:** [14.901]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageFingerprintImageRecord  
  ↴/biom:FingerImpressionImage  
    ↴/biom:FrictionRidgeCaptureTechnology
```

### Summary

The technology used to capture friction ridge data

### Valid Examples

```
<biom:FrictionRidgeCaptureTechnology>0</biom:FrictionRidgeCaptureTechnology>
```

## 13.35. Fingerprint Image - DATA

### BinaryBase64Object

**Field Reference:** 14/DATA

**Content Type:** Data

**XML Tag Name:** BinaryBase64Object

**Data Type:** B

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:base64Binary

**Field ID:** [14.999]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

**Dependency table**

Type of dependency	Value
Other Dependency	This field is mandatory in all cases, except for when 14/AMP={"UP"}. When 14/AMP={"UP"}, the field is optional.

#### XPath

```
/itl:PackageFingerprintImageRecord
  ↳/bion:FingerImpressionImage
    ↳/nc:BinaryBase64Object
```

#### Summary

Contains the fingerprint image.

#### Notes

Binary for Traditional encoding or Base64 for XML

#### Technical Notes

This field is mandatory in all cases, except for when 14/AMP="UP". When 14/AMP="UP", the field is optional.

#### Valid Examples

```
<nc:BinaryBase64Object>mrHbPdrko3u1s7ahtgPBjtm01s85tfG2U7bpofY94Czu2SbY7d7wF9fQ7ZptgGrtk02a2dsJ7wZbe8BlzvAmQ7xq+
Y94GoHeEsR3ikWd4DIGhzmp3k42d4DRmzs94DKveDTB3hqw6PeBLrtpPep0H/+h</nc:BinaryBase64Object>
```

### 13.36. Field Mandatoriness in Fingerprint Image Record

The following table shows a summary of the fields and information items in each record type and its corresponding XML elements, and in particular the fields and items that are mandatory.

Table 13.1.: Field Summary for Type 14 Records

Field Id	Code	Field Name	Card.	Notes
14/XRCC:X	[14.001:X]	XML Record Category Code	M	
14/IDC	[14.002]	Information Designation Character	M	
14/IMP_14/DATA	[14.003_14.999]	Finger Impression Image (XML)	M	
14/IMP	[14.003]	Impression Type	M	
14/SRC_14/SAN	[14.004_14.993]	Capture Organization (XML)	M	
14/SRC	[14.004]	Source Agency	M	
14/FCD:X	[14.005:X]	Fingerprint Capture Date (XML)	M	
14/HLL	[14.006]	Horizontal Line Length	D	This field is required (and not permitted otherwise) if 14/DATA is/are present.
14/VLL	[14.007]	Vertical Line Length	D	This field is required (and not permitted otherwise) if 14/DATA is/are present.
14/SLC	[14.008]	Scale Units	D	This field is required (and not permitted otherwise) if 14/DATA is/are present.
14/THPS	[14.009]	Transmitted Horizontal Pixel Scale	D	This field is required (and not permitted otherwise) if 14/DATA is/are present.
14/TVPS	[14.010]	Transmitted Vertical Pixel Scale	D	This field is required (and not permitted otherwise) if 14/DATA is/are present.
14/CGA	[14.011]	Compression Algorithm	D	This field is required (and not permitted otherwise) if 14/DATA is/are present.
14/BPX	[14.012]	Bits Per Pixel	D	This field is required (and not permitted otherwise) if 14/DATA is/are present.
14/FGP	[14.013]	Friction Ridge Generalized Position	M	
14/AMP	[14.018]	Amputated or Bandaged	O	
14/AMP/FRAP	[14.018-A]	Friction Ridge Amputated or Bandaged Position	M^	
14/AMP/ABC	[14.018-B]	Amputated or Bandaged Code	M^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

### 13. Fingerprint Image Record (aka Type 14)

Table 13.1.: Field Summary for Type 14 Records

Field Id	Code	Field Name	Card.	Notes
14/SEG	[14.021]	Finger Segment Position	D	<ul style="list-style-type: none"> <li>This field is optional (and should not be entered otherwise) if [14/FGP]IN{13,14}</li> <li>INTERPOL's implementation is more restrictive than the umbrella standard and only allow the transmission of segmentation information for the left and right four-finger images. This field must not be used for the other images.</li> </ul>
				In case of a slap-only acquisition (no rolled images), this is not enough to transmit the 4 images (2 4-finger slap images and 2 plain 1-thumb image) with the segmentation information; the segmented individual flat finger images must also be sent in their own Type 14 as well. If rolled finger images are part of the acquisition, then the segmented individual flat finger extracted from the slap images must not be included.
14/SEG/FRSP	[14.021-A]	Friction Ridge Segment Position	M^	
14/SEG/LHC	[14.021-B]	Left Horizontal Coordinate Value	M^	
14/SEG/RHC	[14.021-C]	Right Horizontal Coordinate Value	M^	
14/SEG/TVC	[14.021-D]	Top Vertical Coordinate Value	M^	
14/SEG/BVC	[14.021-E]	Bottom Vertical Coordinate Value	M^	

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

Table 13.1.: Field Summary for Type 14 Records

Field Id	Code	Field Name	Card.	Notes
14/ASEG	[14.025]	Alternate Finger Segment Position(s)	D	<ul style="list-style-type: none"> <li>This field is optional (and should not be entered otherwise) if [14/FGP]IN{13,14}</li> <li>INTERPOL's implementation is more restrictive than the umbrella standard and only allow the transmission of segmentation information for the left and right four-finger images. This field must not be used for the other images.</li> </ul> <p>In case of a slap-only acquisition (no rolled images), this is not enough to transmit the 4 images (2 4-finger slap images and 2 plain 1-thumb image) with the segmentation information; the segmented individual flat finger images must also be sent in their own Type 14 as well. If rolled finger images are part of the acquisition, then the segmented individual flat finger extracted from the slap images must not be included.</p> <p>Finally, while the umbrella standard allows to define the segmentation as an up-to-99 vertices polygon, INTERPOL's implementation restrict that to rectangle.</p>
14/ASEG/FRAS	[14.025-A]	Friction Ridge Alternate Segment Position	M^	
14/ASEG/NOP	[14.025-B]	Number of Points	M^	
14/ASEG/HPO_14/ASEG/VPO	[14.025-C_14.025-D]	Position Polygon Vertex (XML)	M^	
14/ASEG/HPO:X	[14.025-C:X]	Horizontal Point Offset (XML)	M^	
14/ASEG/VPO:X	[14.025-D:X]	Vertical Point Offset (XML)	M^	
14/DMM	[14.030]	Device Monitoring Mode	O	
14/FAP	[14.031]	Subject Acquisition Profile - Fingerprint	O	
14/FCT	[14.901]	Friction Ridge Capture Technology	O	
14/DATA	[14.999]	Fingerprint Image	D	This field is mandatory in all cases, except for when 14/AMP="UP". When 14/AMP="UP", the field is optional.

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## **14. Palmprint Image Record (aka Type 15)**

This chapter describes all the fields that are used in the Palmprint Image Record.

## 14.1. Package Palmprint Image Record (XML)

**Field Reference:** 15

**Content Type:** Set\_X

**XML Tag Name:** PackagePalmprintImageRecord

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** itl:PackagePalmprintImageRecordType

**Field ID:** [15]

**Condition:** Optional

**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** \*

**Regular Expression:** n/a

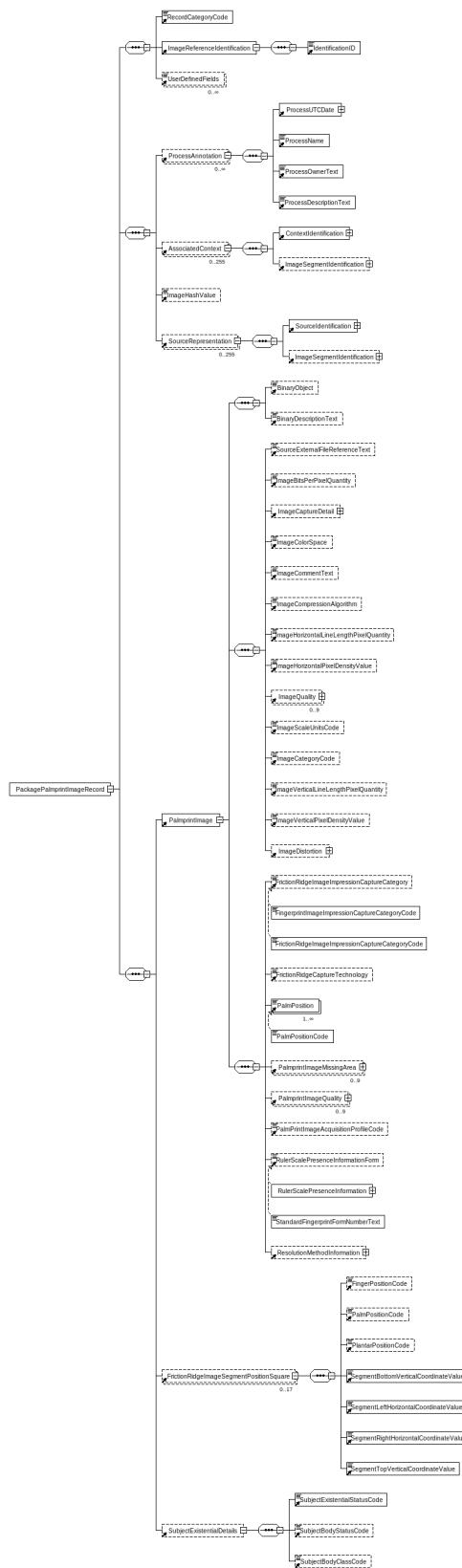
**Namespace:** <http://biometrics.nist.gov/standard/2011>

### XPath

/itl:PackagePalmprintImageRecord

### Summary

Contains and is used to exchange palm print image data together with fixed and user-defined textual information fields pertinent to the digitized image.



## 14.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 15/XRCC:X

**Content Type:** Data\_X

**XML Tag Name:** RecordCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {15}

**Code table:** n/a

**Base type:** biom:RecordCategoryCodeType

**Field ID:** [15.001:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackagePalmprintImageRecord  
  ↴/biom:RecordCategoryCode
```

#### Summary

Numeric representation of Record Type.

#### Valid Examples

```
<biom:RecordCategoryCode>15</biom:RecordCategoryCode>
```

### 14.3. Information Designation Character - IDC



**Field Reference:** 15/IDC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..99}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [15.002]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

#### XPath

```
/itl:PackagePalmprintImageRecord  
  ↴/biom:ImageReferenceIdentification  
    ↴/nc:IdentificationID
```

#### Summary

IDC assigned to this Type-15 record as listed in 1.003.

#### Valid Examples

```
<nc:IdentificationID>8</nc:IdentificationID>
```

## 14.4. Palmprint Image (XML)

**Field Reference:** 15/IMP\_15/DATA

**Content Type:** Set\_X

**XML Tag Name:** PalmprintImage

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:PalmprintImageType

**Field ID:** [15.003\_15.999]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

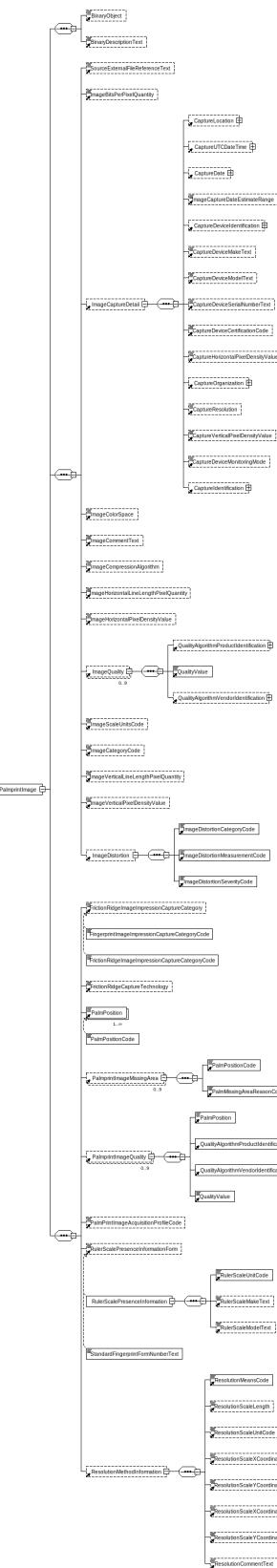
```
/itl:PackagePalmprintImageRecord  
  ↳/biom:PalmprintImage
```

### Summary

Image and associated information.

### Notes

Applies to 15.003, 15.004, 15.005, 15.006, 15.007, 15.008, 15.009, 15.010, 15.011, 15.012, 15.013, 15.018, 15.024, 15.903, 15.016, 15.017, 15.020, 15.030, 15.904, 15.993, 15.998 and 15.999



## 14.5. Impression Type - IMP

### FingerprintImageImpressionCaptureCategoryCode

**Field Reference:** 15/IMP

**Content Type:** Data

**XML Tag Name:** FingerprintImageImpressionCaptureCategoryCode

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {0,8,24,25,28,29,41,42}

**Code table:** see table A.31

**Base type:** biom:ImpressionCaptureCategoryCodeType

**Field ID:** [15.003]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:FingerprintImageImpressionCaptureCategoryCode
```

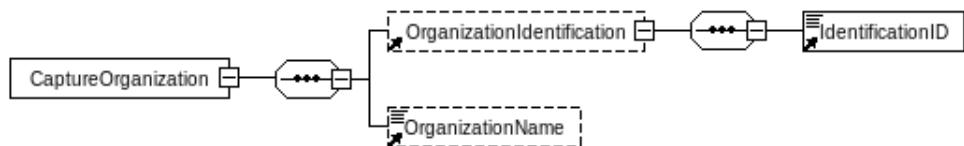
#### Summary

Manner by which palm print was obtained.

#### Valid Examples

```
<biom:FingerprintImageImpressionCaptureCategoryCode>10</biom:FingerprintImageImpressionCaptureCategoryCode>
```

## 14.6. Capture Organization (XML)



**Field Reference:** 15/SRC\_15/SAN

**Content Type:** Set\_X

**XML Tag Name:** CaptureOrganization

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:OrganizationType

**Field ID:** [15.004\_15.993]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
```

### Summary

Identifier of agency that created record and supplied information contained in it.

### Notes

Applies to 15.004 and 15.993

## 14.7. Source Agency - SRC



**Field Reference:** 15/SRC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [15.004]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
```

### Summary

Identifier of agency that created and supplied information contained in the record. The source agency name may be entered in 15.993.

### Valid Examples

```
<nc:IdentificationID>WI013415Y</nc:IdentificationID>
```

## 14.8. Palmprint Capture Date (XML) - PCD



**Field Reference:** 15/PCD:X

**Content Type:** Data\_X

**XML Tag Name:** Date

**Data Type:** NS

**Minimum Length:** 10

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:date

**Field ID:** [15.005:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** [-]

**Maximum Length:** 10

**Maximum Occurrences:** 1

**Regular Expression:** \d{4}-\d{2}-\d{2}

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackagePalmprintImageRecord  
  ↳/biom:PalmprintImage  
    ↳/biom:ImageCaptureDetail  
      ↳/biom:CaptureDate  
        ↳/nc:Date
```

### Summary

Palmprint capture date.

### Valid Examples

```
<nc:Date>2007-01-01</nc:Date>
```

## 14.9. Horizontal Line Length - HLL

### ImageHorizontalLineLengthPixelQuantity

**Field Reference:** 15/HLL

**Content Type:** Data

**XML Tag Name:** ImageHorizontalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [15.006]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	15/DATA

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
```

#### Summary

Number of pixels contained on a single horizontal line of the image.

#### Valid Examples

```
<biom:ImageHorizontalLineLengthPixelQuantity>80</biom:ImageHorizontalLineLengthPixelQuantity>
```

## 14.10. Vertical Line Length - VLL

### ImageVerticalLineLengthPixelQuantity

**Field Reference:** 15/VLL

**Content Type:** Data

**XML Tag Name:** ImageVerticalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [15.007]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Presence of other Field	15/DATA

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
```

#### Summary

Number of pixels contained on a single vertical line of the image.

#### Valid Examples

```
<biom:ImageVerticalLineLengthPixelQuantity>65</biom:ImageVerticalLineLengthPixelQuantity>
```

## 14.11. Scale Units - SLC



**Field Reference:** 15/SLC

**Content Type:** Data

**XML Tag Name:** ImageScaleUnitsCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {1}

**Code table:** see table A.59

**Base type:** biom:ScaleUnitsCodeType

**Field ID:** [15.008]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	15/DATA

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageScaleUnitsCode
```

### Summary

Image sampling frequency (pixel density).

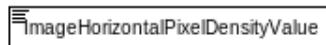
### Notes

Only code 1 (ppi) is allowed in INTERPOL's implementation.

### Valid Examples

```
<biom:ImageScaleUnitsCode>1</biom:ImageScaleUnitsCode>
```

## 14.12. Transmitted Horizontal Pixel Scale - THPS



**Field Reference:** 15/THPS  
**Content Type:** Data  
**XML Tag Name:** ImageHorizontalPixelDensityValue  
**Data Type:** N  
**Minimum Length:** 1  
**Minimum Occurrences:** 0  
**Value range:** {1000,500}  
**Code table:** n/a  
**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [15.009]  
**Condition:** Dependent (see table)  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:** 5  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	15/DATA

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageHorizontalPixelDensityValue
```

### Summary

Integer pixel density in the horizontal direction (if 15/SLC = 1 or 2); otherwise, if 15/SLC = 0, the horizontal component of the pixel aspect ratio.

### Notes

For example, if the SLC value = 1, then the value of THPS could be '1000' for a 1000 ppi sensor.

### Technical Notes

If 15/SLC=1,2, then THPS shall equal TVPS.

### Valid Examples

```
<biom:ImageHorizontalPixelDensityValue>1000</biom:ImageHorizontalPixelDensityValue>
```

## 14.13. Transmitted Vertical Pixel Scale - TVPS



**Field Reference:** 15/TVPS

**Content Type:** Data

**XML Tag Name:** ImageVerticalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {1000,500}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [15.010]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	15/DATA

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageVerticalPixelDensityValue
```

### Summary

Integer pixel density in the vertical direction (if 15/SLC = 1 or 2); otherwise, if 15/SLC = 0, the vertical component of the pixel aspect ratio.

### Technical Notes

If 15/SLC=1,2, then THPS shall equal TVPS.

### Valid Examples

```
<biom:ImageVerticalPixelDensityValue>1000</biom:ImageVerticalPixelDensityValue>
```

## 14.14. Compression Algorithm - CGA

### ImageCompressionAlgorithmText

**Field Reference:** 15/CGA

**Content Type:** Data

**XML Tag Name:** ImageCompressionAlgorithmText

**Data Type:** AN

**Minimum Length:** 3

**Minimum Occurrences:** 0

**Value range:** {"JP2","JP2L","WSQ20"}

**Code table:** see table [A.6](#)

**Base type:** nc:TextType

**Field ID:** [15.011]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	15/DATA

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageCompressionAlgorithmText
```

#### Summary

Algorithm used to compress the transmitted grayscale images.

#### Notes

INTERPOL standard restricts the possible formats to the following ones, depending on the image resolution:

**500ppi images** WSQ

**1000ppi images** JPEG 2000 lossless, or JPEG 2000 lossy, with a compression ratio of 10:1

#### Valid Examples

```
<biom:ImageCompressionAlgorithmText>WSQ20</biom:ImageCompressionAlgorithmText>
```

## 14.15. Bits Per Pixel - BPX



**Field Reference:** 15/BPX

**Content Type:** Data

**XML Tag Name:** ImageBitsPerPixelQuantity

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {8}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [15.012]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Mandatory on Presence of other Field	15/DATA

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:ImageBitsPerPixelQuantity
```

### Summary

Number of bits per pixel.

### Notes

This field shall contain an entry of "8" for normal grayscale values of "0" to "255". Any entry in this field greater than "8" shall be used to represent a grayscale pixel with increased proportion. For color, BPX represents the total number of bits per pixel (not per color). For instance, BPX=24 represents a 24-bit RGB image using 8 bits for each color.

INTERPOL's implementation only supports 8-bit grayscale images.

### Valid Examples

```
<biom:ImageBitsPerPixelQuantity>8</biom:ImageBitsPerPixelQuantity>
```

## 14.16. Friction Ridge Generalized Position - FGP

### PalmPositionCode

**Field Reference:** 15/FGP

**Content Type:** Data

**XML Tag Name:** PalmPositionCode

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {21..28}

**Code table:** see table [A.25](#)

**Base type:** biom:PalmPositionCodeType

**Field ID:** [15.013]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↴/biom:PalmprintImage
    ↴/biom:PalmPositionCode
```

#### Summary

Palm print position.

#### Notes

INTERPOL's implementation only allows FGP between 21 and 28.

#### Valid Examples

```
<biom:PalmPositionCode>21</biom:PalmPositionCode>
```

## 14.17. Amputated or Bandaged - AMP

**Field Reference:** 15/AMP

**Content Type:** Set

**XML Tag Name:** PalmprintImageMissingArea

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:PalmprintImageMissingAreaType

**Field ID:** [15.018]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 9

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackagePalmprintImageRecord  
  ↳/biom:PalmprintImage  
    ↳/biom:PalmprintImageMissingArea
```

### Summary

Specifies if a hand is amputated or bandaged.

## 14.18. Friction Ridge Amputated or Bandaged Position - FRAP

### PalmPositionCode

**Field Reference:** 15/AMP/FRAP

**Content Type:** Data

**XML Tag Name:** PalmPositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {21..28}

**Code table:** see table [A.25](#)

**Base type:** biom:PalmPositionCodeType

**Field ID:** [15.018-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageMissingArea
      ↳/biom:PalmPositionCode
```

#### Summary

Friction ridge amputated or bandaged position.

#### Notes

INTERPOL's implementation only allows FGP between 21 and 28.

#### Valid Examples

```
<biom:PalmPositionCode>20</biom:PalmPositionCode>
```

## 14.19. Amputated or Bandaged Code - ABC

**Field Reference:** 15/AMP/ABC

**Content Type:** Data

**XML Tag Name:** PalmMissingAreaReasonCode

**Data Type:** A

**Minimum Length:** 2

**Minimum Occurrences:** 1

**Value range:** {"XX","UP"}

**Code table:** see table A.1

**Base type:** biom:FrictionRidgeImageMissingAreaReasonCodeType **Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [15.018-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImage
    ↳/biom:PalmprintImageMissingArea
      ↳/biom:PalmMissingAreaReasonCode
```

### Summary

Amputated or bandaged code.

### Notes

XX shall be used only when a partial print exists due to amputation; therefore it contains some friction ridge detail. (The palm is not totally amputated, some countries might qualify such print as "mutilated")

UP shall be used with the complete block where an image was to be transmitted, but there is no image due to amputation or total lack of friction ridge detail (such as with a bandage).

An image with a scar should not be marked XX or UP, the 14.018 field should not be present. The SR (scar) code of the ANSI-NIST standard should not be used in INTERPOL's implementation.

Note that if a palm has simply not been acquired (for instance in the case of a 2-finger acquisition), no type 15 should be created for this palm.

### Valid Examples

```
<biom:PalmMissingAreaReasonCode>UP</biom:PalmMissingAreaReasonCode>
```

## 14.20. Palm Segment Position - SEG



**Field Reference:** 15/SEG

**Content Type:** Set

**XML Tag Name:** FrictionRidgeImageSegmentPositionSquare

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:FrictionRidgeImageSegmentPositionSquareType **Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [15.021]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 17

**Regular Expression:** n/a

Dependency table

Type of dependency	Value
Optional on Value of other Field, should not be set otherwise.	[15/FGP]IN{20,21,23}

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:FrictionRidgeImageSegmentPositionSquare
```

### Summary

Offsets to the locations of palm image segments.

### Notes

If the segmentation information are present, it is up to the receiving system to decide whether or not it will be used. There is hence no guaranty that the receiving system will use the same segmentation as the emitting one.

**Valid Examples**

```
<biom:FrictionRidgeImageSegmentPositionSquare>
  <biom:PalmPositionCode>23</biom:PalmPositionCode>
  <biom:SegmentLeftHorizontalCoordinateValue>48255</biom:SegmentLeftHorizontalCoordinateValue>
  <biom:SegmentRightHorizontalCoordinateValue>49244</biom:SegmentRightHorizontalCoordinateValue>
  <biom:SegmentTopVerticalCoordinateValue>48255</biom:SegmentTopVerticalCoordinateValue>
  <biom:SegmentBottomVerticalCoordinateValue>49244</biom:SegmentBottomVerticalCoordinateValue>
</biom:FrictionRidgeImageSegmentPositionSquare>
```

## 14.21. Friction Ridge Segment Position - FRSP

### PalmPositionCode

**Field Reference:** 15/SEG/FRSP

**Content Type:** Data

**XML Tag Name:** PalmPositionCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {25..28}

**Code table:** see table [A.25](#) and table [A.26](#)

**Base type:** biom:PalmPositionCodeType

**Field ID:** [15.021-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↴/biom:FrictionRidgeImageSegmentPositionSquare
    ↴/biom:PalmPositionCode
```

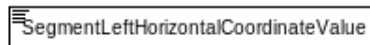
#### Summary

Friction ridge segment position.

#### Valid Examples

```
<biom:PalmPositionCode>23</biom:PalmPositionCode>
```

## 14.22. Left Horizontal Coordinate Value - LHC



**Field Reference:** 15/SEG/LHC

**Content Type:** Data

**XML Tag Name:** SegmentLeftHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [15.021-B]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackagePalmprintImageRecord  
  ↳/biom:FrictionRidgeImageSegmentPositionSquare  
    ↳/biom:SegmentLeftHorizontalCoordinateValue
```

### Summary

Horizontal offset in pixels to the left edge of the bounding box relative to the origin positioned in the upper left corner of the image.

### Valid Examples

```
<biom:SegmentLeftHorizontalCoordinateValue>48255</biom:SegmentLeftHorizontalCoordinateValue>
```

## 14.23. Right Horizontal Coordinate Value - RHC

### SegmentRightHorizontalCoordinateValue

**Field Reference:** 15/SEG/RHC

**Content Type:** Data

**XML Tag Name:** SegmentRightHorizontalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [15.021-C]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↴/biom:FrictionRidgeImageSegmentPositionSquare
    ↴/biom:SegmentRightHorizontalCoordinateValue
```

#### Summary

Horizontal offset in pixels to the right edge of the bounding box relative to the origin positioned in the upper left corner of the image.

#### Valid Examples

```
<biom:SegmentRightHorizontalCoordinateValue>49244</biom:SegmentRightHorizontalCoordinateValue>
```

## 14.24. Top Vertical Coordinate Value - TVC



**Field Reference:** 15/SEG/TVC

**Content Type:** Data

**XML Tag Name:** SegmentTopVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [15.021-D]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackagePalmprintImageRecord  
  ↴/biom:FrictionRidgeImageSegmentPositionSquare  
    ↴/biom:SegmentTopVerticalCoordinateValue
```

### Summary

Vertical offset (pixel counts down) to the top of the bounding box.

### Valid Examples

```
<biom:SegmentTopVerticalCoordinateValue>48255</biom:SegmentTopVerticalCoordinateValue>
```

## 14.25. Bottom Vertical Coordinate Value - BVC

### SegmentBottomVerticalCoordinateValue

**Field Reference:** 15/SEG/BVC

**Content Type:** Data

**XML Tag Name:** SegmentBottomVerticalCoordinateValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [15.021-E]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackagePalmprintImageRecord  
  ↳/biom:FrictionRidgeImageSegmentPositionSquare  
    ↳/biom:SegmentBottomVerticalCoordinateValue
```

#### Summary

Vertical offset (in pixels) from the upper left corner of the image down to the bottom of the bounding box.

#### Valid Examples

```
<biom:SegmentBottomVerticalCoordinateValue>49244</biom:SegmentBottomVerticalCoordinateValue>
```

## 14.26. Subject Acquisition Profile – Palmprint - PAP

**Field Reference:** 15/PAP

**Content Type:** Data

**XML Tag Name:** PalmprintImageAcquisitionProfileCode

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table A.41

**Base type:** biom:PalmprintImageAcquisitionProfileCodeType

**Field ID:** [15.031]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackagePalmprintImageRecord  
  ↳/biom:PalmprintImpressionImage  
    ↳/biom:PalmprintImageAcquisitionProfileCode
```

### Summary

PAP level associated with the palmprint acquisition device.

### Valid Examples

```
<biom:PalmprintImageAcquisitionProfileCode>70</biom:PalmprintImageAcquisitionProfileCode>
```

## 14.27. Friction Ridge Capture Technology - FCT



**Field Reference:** 15/FCT

**Content Type:** Data\_X

**XML Tag Name:** FrictionRidgeCaptureTechnology

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {0..7,9..17}

**Code table:** see table A.24

**Base type:** biom:FrictionRidgeCaptureTechnologyType

**Field ID:** [15.901]

**Condition:** Optional

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/biom:PalmprintImpressionImage
    ↳/
      ↳/biom:FrictionRidgeCaptureTechnology
```

### Summary

The technology used to capture friction ridge data

### Valid Examples

```
<biom:FrictionRidgeCaptureTechnology>0</biom:FrictionRidgeCaptureTechnology>
```

## 14.28. Palmprint Image - DATA

### BinaryBase64Object

**Field Reference:** 15/DATA

**Content Type:** Data

**XML Tag Name:** BinaryBase64Object

**Data Type:** B

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:base64Binary

**Field ID:** [15.999]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

**Dependency table**

Type of dependency	Value
Other Dependency	Field is mandatory for all cases, except when 15.018/AMP="UP" (then is optional).

#### XPath

```
/itl:PackagePalmprintImageRecord
  ↳/bion:PalmprintImage
    ↳/nc:BinaryBase64Object
```

#### Summary

Palmprint image.

#### Notes

Binary for Traditional encoding or Base64 for XML

#### Technical Notes

Field is mandatory for all cases, except when 15.018/AMP="UP" (then is optional).

#### Valid Examples

```
<nc:BinaryBase64Object>mrHbPdrko3u1s7ahtgPBjtm01s85tfG2U7bpofY94Czu2SbY7d7wF9fQ7ZptgGrtk02a2dsJ7wZbe8BlzvAmQ7xq+
Y94GoHeEsR3ikWd4DIGhzmp3k42d4DRmzs94DKveDTB3hqw6PeBLrtPep0H/+h</nc:BinaryBase64Object>
```

## 14.29. Field Mandatoriness in Palmprint Image Record

The following table shows a summary of the fields and information items in each record type and its corresponding XML elements, and in particular the fields and items that are mandatory.

Table 14.1.: Field Summary for Type 15 Records

Field Id	Code	Field Name	Card.	Notes
15/XRCC:X	[15.001:X]	XML Record Category Code	M	
15/IDC	[15.002]	Information Designation Character	M	
15/IMP_15/DATA	[15.003_15.999]	Palmprint Image (XML)	M	
15/IMP	[15.003]	Impression Type	M	
15/SRC_15/SAN	[15.004_15.993]	Capture Organization (XML)	M	
15/SRC	[15.004]	Source Agency	M	
15/PCD:X	[15.005:X]	Palmprint Capture Date (XML)	M	
15/HLL	[15.006]	Horizontal Line Length	D	This field is required (and not permitted otherwise) if 15/DATA is/are present.
15/VLL	[15.007]	Vertical Line Length	D	This field is required (and not permitted otherwise) if 15/DATA is/are present.
15/SLC	[15.008]	Scale Units	D	This field is required (and not permitted otherwise) if 15/DATA is/are present.
15/THPS	[15.009]	Transmitted Horizontal Pixel Scale	D	This field is required (and not permitted otherwise) if 15/DATA is/are present.
15/TVPS	[15.010]	Transmitted Vertical Pixel Scale	D	This field is required (and not permitted otherwise) if 15/DATA is/are present.
15/CGA	[15.011]	Compression Algorithm	D	This field is required (and not permitted otherwise) if 15/DATA is/are present.
15/BPX	[15.012]	Bits Per Pixel	D	This field is required (and not permitted otherwise) if 15/DATA is/are present.
15/FGP	[15.013]	Friction Ridge Generalized Position	M	
15/AMP	[15.018]	Amputated or Bandaged	O	
15/AMP/FRAP	[15.018-A]	Friction Ridge Amputated or Bandaged Position	M^	
15/AMP/ABC	[15.018-B]	Amputated or Bandaged Code	M^	
15/SEG	[15.021]	Palm Segment Position	D	This field is optional (and should not be entered otherwise) if [15/FGP]IN20,21,23
15/SEG/FRSP	[15.021-A]	Friction Ridge Segment Position	M^	
15/SEG/LHC	[15.021-B]	Left Horizontal Coordinate Value	M^	
15/SEG/RHC	[15.021-C]	Right Horizontal Coordinate Value	M^	
15/SEG/TVC	[15.021-D]	Top Vertical Coordinate Value	M^	
15/SEG/BVC	[15.021-E]	Bottom Vertical Coordinate Value	M^	
15/PAP	[15.031]	Subject Acquisition Profile – Palmprint	O	
15/FCT	[15.901]	Friction Ridge Capture Technology	O	
15/DATA	[15.999]	Palmprint Image	D	Field is mandatory for all cases, except when 15.018/AMP="UP" (then is optional).

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

## 15. Source Representation Record (aka Type 20)

This chapter describes all the fields that are used in the Source Representation Record.

## 15.1. Package Source Representation Record (XML)

**Field Reference:** 20  
**Content Type:** Set\_X  
**XML Tag Name:** PackageSourceRepresentationRecord  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** itl:PackageSourceRepresentationRecordType

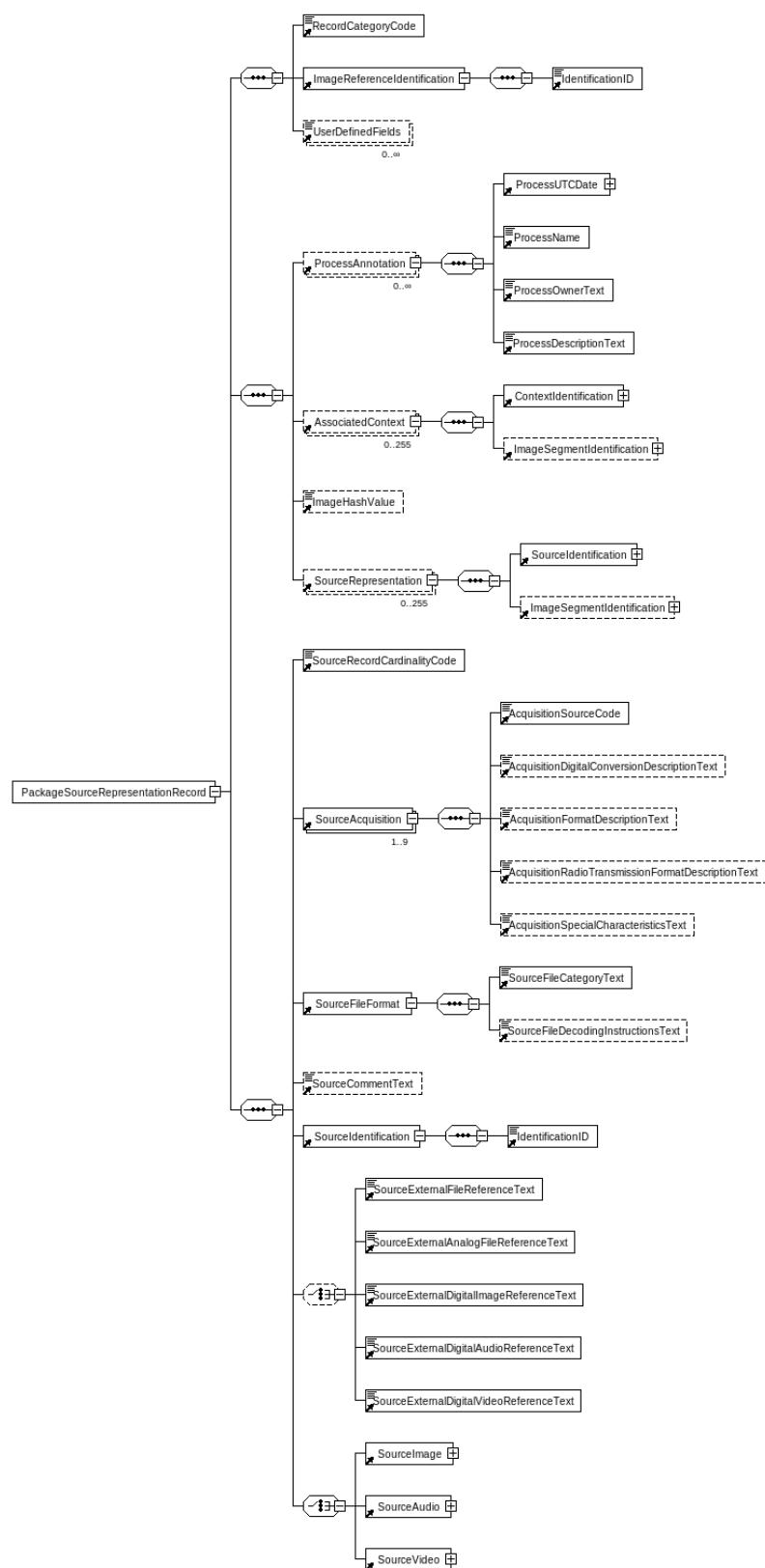
**Field ID:** [20]  
**Condition:** Optional  
**Defined in:** xsd/itl/2011/ITL-2007f-Package.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** \*  
**Regular Expression:** n/a  
**Namespace:** <http://biometrics.nist.gov/standard/2011>

### XPath

/itl:PackageSourceRepresentationRecord

### Summary

Source representation(s) from which other Record Types were derived.



## 15.2. XML Record Category Code - XRCC

### RecordCategoryCode

**Field Reference:** 20/XRCC:X

**Content Type:** Data\_X

**XML Tag Name:** RecordCategoryCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {20}

**Code table:** n/a

**Base type:** biom:RecordCategoryCodeType

**Field ID:** [20.001:X]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageSourceRepresentationRecord  
  ↴/biom:RecordCategoryCode
```

#### Summary

Numeric representation of Record Type.

#### Valid Examples

```
<biom:RecordCategoryCode>20</biom:RecordCategoryCode>
```

### 15.3. Information Designation Character - IDC



**Field Reference:** 20/IDC

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..99}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [20.002]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

#### XPath

```
/itl:PackageSourceRepresentationRecord  
  ↴/biom:ImageReferenceIdentification  
    ↴/nc:IdentificationID
```

#### Summary

IDC assigned to this Type-20 record as listed in 1.003.

#### Valid Examples

```
<nc:IdentificationID>10</nc:IdentificationID>
```

## 15.4. SRN Cardinality - CAR

### SourceRecordCardinalityCode

**Field Reference:** 20/CAR

**Content Type:** Data

**XML Tag Name:** SourceRecordCardinalityCode

**Data Type:** A

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {"D"}

**Code table:** see table [A.4](#)

**Base type:** biom:SourceRecordCardinalityCodeType

**Field ID:** [20.003]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceRecordCardinalityCode
```

#### Summary

Indicates how the record is being used. It describes the cardinality: one to one (S), one to many (D), or many-to-one (M) of how the source representation record relates to other record(s) within the transaction.

#### Notes

Only cardinality "D" is possible in INTERPOL's implementation.

#### Valid Examples

```
<biom:SourceRecordCardinalityCode>D</biom:SourceRecordCardinalityCode>
```

## 15.5. Source Type (XML)

**Field Reference:** 20/SRC\_20/DATA

**Content Type:** Set\_X

**XML Tag Name:** SourceVideo or SourceAudio or SourceImage

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:VideoType or biom:SegmentedImageType or biom:AudioType      **Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Field ID:** [20.004\_20.999]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

### XPath

```
if [20/AQS/AQT] IN 1..6, 11 then
/itl:PackageSourceRepresentationRecord
  ↘/biom:SourceImage
elseif [20/AQS/AQT] IN 7..10, 19..21 then
/itl:PackageSourceRepresentationRecord
  ↘/biom:SourceVideo
elseif [20/AQS/AQT] IN 12..18, 22..29 then
/itl:PackageSourceRepresentationRecord
  ↘/biom:SourceAudio
elseif [20/AQS/AQT] IN 0, 30, 31 then
/itl:PackageSourceRepresentationRecord
  ↘/biom:SourceAudio
OR
/itl:PackageSourceRepresentationRecord
  ↘/biom:SourceVideo
or
/itl:PackageSourceRepresentationRecord
  ↘/biom:SourceImage
endif
```

### Summary

How the record is being used.

### Notes

Applies to 20.004, 20.005, 20.006, 20.007, 20.008, 20.009, 20.010, 20.011, 20.012, 20.013, 20.016, 20.017, 20.018, 20.019, 20.903, 20.904, 20.993, 20.998, and 20.999

## 15.6. Biometric/Image Capture Detail (XML)

<b>Field Reference:</b> 20/SRC_20/GEO	<b>Field ID:</b> [20.004_20.998]
<b>Content Type:</b> Set_X	<b>Condition:</b> Optional
<b>XML Tag Name:</b> ImageCaptureDetail or BiometricCaptureDetail	<b>Defined in:</b> xsd/niem/biometrics/1.0/biometrics.xsd
<b>Data Type:</b>	<b>Special Characters:</b> n/a
<b>Minimum Length:</b>	<b>Maximum Length:</b>
<b>Minimum Occurrences:</b> 0	<b>Maximum Occurrences:</b> 1
<b>Value range:</b> n/a	<b>Regular Expression:</b> n/a
<b>Code table:</b> n/a	
<b>Base type:</b> biom:BiometricCaptureType	<b>Namespace:</b> <a href="http://niem.gov/niem/biometrics/1.0">http://niem.gov/niem/biometrics/1.0</a>
biom:ImageCaptureType	

### XPath

```

if [20/AQS/AQT] IN 1..6, 11 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
elseif [20/AQS/AQT] IN 7..10, 19..21 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
elseif [20/AQS/AQT] IN 12..18, 22..29 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
elseif [20/AQS/AQT] IN 0, 30, 31 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
endif

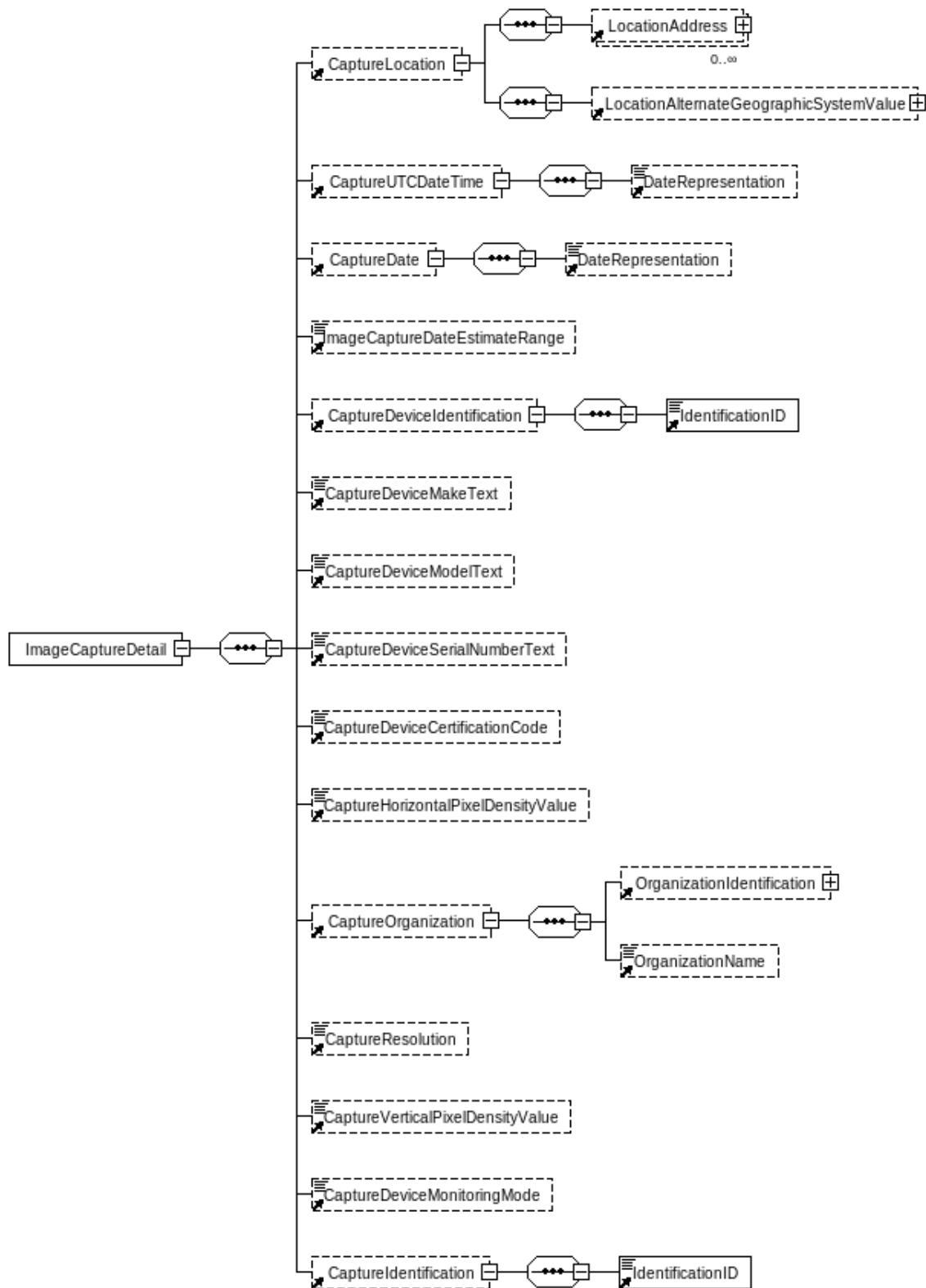
```

### Summary

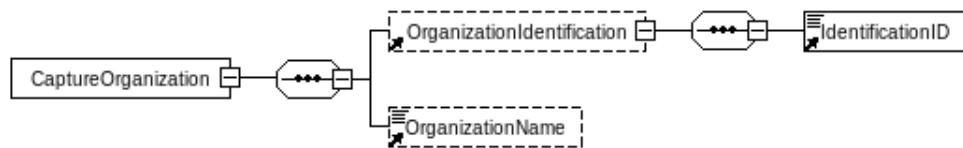
Image and associated information.

### Notes

Applies to 20.004, 20.005, 20.006, 20.007, 20.008, 20.009, 20.010, 20.011, 20.013, 20.016, 20.017, 20.018, 20.019, 20.903, 20.904, 20.993, and 20.998



## 15.7. Capture Organization (XML)



**Field Reference:** 20/SRC\_20/SAN  
**Content Type:** Set\_X  
**XML Tag Name:** CaptureOrganization  
**Data Type:**  
**Minimum Length:**  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** nc:OrganizationType

**Field ID:** [20.004\_20.993]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd  
**Special Characters:** n/a  
**Maximum Length:**  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```

if [20/AQS/AQT] IN 1..6, 11 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
elseif [20/AQS/AQT] IN 7..10, 19..21 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
elseif [20/AQS/AQT] IN 12..18, 22..29 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
elseif [20/AQS/AQT] IN 0, 30, 31 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
endif
  
```

### Summary

Identifier of agency that created record and supplied information contained in it.

---

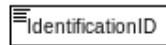
15. Source Representation Record (aka Type 20)

---

**Notes**

Applies to 20.004 and 20.993

## 15.8. Source Agency - SRC



**Field Reference:** 20/SRC  
**Content Type:** Data  
**XML Tag Name:** IdentificationID  
**Data Type:** U  
**Minimum Length:** 1  
**Minimum Occurrences:** 1  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** niem-xsd:string

**Field ID:** [20.004]  
**Condition:** Mandatory  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** n/a  
**Maximum Length:** \*  
**Maximum Occurrences:** 1  
**Regular Expression:** n/a  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

if [20/AQS/AQT] IN 1..6, 11 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
elseif [20/AQS/AQT] IN 7..10, 19..21 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
elseif [20/AQS/AQT] IN 12..18, 22..29 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
elseif [20/AQS/AQT] IN 0, 30, 31 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureOrganization
        ↳/nc:OrganizationIdentification
          ↳/nc:IdentificationID
  
```

## 15. Source Representation Record (aka Type 20)

---

endif

### **Summary**

Identifier of agency that created and supplied information contained in the record. The source agency name may be entered in 20.993.

### **Valid Examples**

```
<nc:IdentificationID>WI013415Y</nc:IdentificationID>
```

## 15.9. Source Representation Date (XML) - SRD



**Field Reference:** 20/SRD:X  
**Content Type:** Data\_X  
**XML Tag Name:** DateTime  
**Data Type:** NS  
**Minimum Length:** 12  
**Minimum Occurrences:** 0  
**Value range:** n/a  
**Code table:** n/a  
**Base type:** [niem-xsd:dateTime](#)

**Field ID:** [20.005:X]  
**Condition:** Optional  
**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd  
**Special Characters:** [:]  
**Maximum Length:** 16  
**Maximum Occurrences:** 1  
**Regular Expression:** \d{4}-\d{2}-\d{2}T\d{2}:\d{2}  
**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```

if [20/AQS/AQT] IN 1..6, 11 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:DateTime
elseif [20/AQS/AQT] IN 7..10, 19..21 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:DateTime
elseif [20/AQS/AQT] IN 12..18, 22..29 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:DateTime
elseif [20/AQS/AQT] IN 0, 30, 31 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:DateTime
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/biom:BiometricCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:DateTime
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCaptureDetail
      ↳/biom:CaptureDate
        ↳/nc:DateTime
endif

```

### Summary

Date and time that the source representation contained in the record was captured.

## 15. Source Representation Record (aka Type 20)

---

### Notes

This field uses the Local Date & Time format found in section 7.7.2.4.

### Valid Examples

```
<nc:DateTime>2011-01-01T05:25</nc:DateTime>
```

## 15.10. Horizontal Line Length - HLL

### ImageHorizontalLineLengthPixelQuantity

**Field Reference:** 20/HLL

**Content Type:** Data

**XML Tag Name:** ImageHorizontalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [20.006]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

#### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageHorizontalLineLengthPixelQuantity
```

#### Summary

Number of pixels contained on a single horizontal line of the image.

#### Technical Notes

Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

#### Valid Examples

```
<biom:ImageHorizontalLineLengthPixelQuantity>80</biom:ImageHorizontalLineLengthPixelQuantity>
```

## 15.11. Vertical Line Length - VLL

### ImageVerticalLineLengthPixelQuantity

**Field Reference:** 20/VLL

**Content Type:** Data

**XML Tag Name:** ImageVerticalLineLengthPixelQuantity

**Data Type:** N

**Minimum Length:** 2

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:integer

**Field ID:** [20.007]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageVerticalLineLengthPixelQuantity
```

### Summary

Number of pixels contained on a single vertical line of the image.

### Technical Notes

Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

### Valid Examples

```
<biom:ImageVerticalLineLengthPixelQuantity>65</biom:ImageVerticalLineLengthPixelQuantity>
```

## 15.12. Scale Units - SLC



**Field Reference:** 20/SLC

**Content Type:** Data

**XML Tag Name:** ImageScaleUnitsCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {1..2}

**Code table:** see table A.59

**Base type:** biom:ScaleUnitsCodeType

**Field ID:** [20.008]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageScaleUnitsCode
```

### Summary

Image sampling frequency (pixel density).

### Notes

Code 0 is not allowed in INTERPOL's implementation: the scale must be provided.

### Technical Notes

Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted

### Valid Examples

```
<biom:ImageScaleUnitsCode>1</biom:ImageScaleUnitsCode>
```

## 15.13. Transmitted Horizontal Pixel Scale - THPS



**Field Reference:** 20/THPS

**Content Type:** Data

**XML Tag Name:** ImageHorizontalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [20.009]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted. If 20/SLC={1,2}, then THPS shall equal TVPS.

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageHorizontalPixelDensityValue
```

### Summary

Integer pixel density in the horizontal direction (if 20/SLC = 1 or 2); otherwise, if 20/SLC = 0, the horizontal component of the pixel aspect ratio.

### Notes

For example, if the SLC value = 1, then the value of THPS could be '1000' for a 1000 ppi sensor.

### Technical Notes

Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted. If 20/SLC=1,2, then THPS shall equal TVPS.

### Valid Examples

```
<biom:ImageHorizontalPixelDensityValue>1000</biom:ImageHorizontalPixelDensityValue>
```

## 15.14. Transmitted Vertical Pixel Scale - TVPS



**Field Reference:** 20/TVPS

**Content Type:** Data

**XML Tag Name:** ImageVerticalPixelDensityValue

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** {10..99999}

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [20.010]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted. If 20/SLC={1,2}, then THPS shall equal TVPS.

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageVerticalPixelDensityValue
```

### Summary

Integer pixel density in the vertical direction (if 20/SLC = 1 or 2); otherwise, if 20/SLC = 0, the vertical component of the pixel aspect ratio.

### Technical Notes

Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted. If 20/SLC=1,2, then THPS shall equal TVPS.

### Valid Examples

```
<biom:ImageVerticalPixelDensityValue>1000</biom:ImageVerticalPixelDensityValue>
```

## 15.15. Compression Algorithm - CGA



**Field Reference:** 20/CGA

**Content Type:** Data

**XML Tag Name:** ImageCompressionAlgorithmText

**Data Type:** AN

**Minimum Length:** 3

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table A.6

**Base type:** nc:TextType

**Field ID:** [20.011]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 5

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is included in this record. Otherwise, it shall be omitted.

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageCompressionAlgorithmText
```

### Summary

Algorithm used to compress the transmitted images.

### Notes

As Type 20 is meant to transmit evidences in INTERPOL's implementation, it is recommended to use lossless algorithms to compress it.

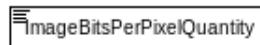
### Technical Notes

Mandatory if a 2D still image is included in this record. Otherwise, it shall be omitted.

### Valid Examples

```
<biom:ImageCompressionAlgorithmText>JP2</biom:ImageCompressionAlgorithmText>
```

## 15.16. Bits Per Pixel - BPX



**Field Reference:** 20/BPX

**Content Type:** Data

**XML Tag Name:** ImageBitsPerPixelQuantity

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:nonNegativeInteger

**Field ID:** [20.012]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

Dependency table

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageBitsPerPixelQuantity
```

### Summary

Number of bits per pixel.

### Notes

This field shall contain an entry of "8" for normal grayscale values of "0" to "255". Any entry in this field greater than "8" shall be used to represent a grayscale pixel with increased proportion. For color, BPX represents the total number of bits per pixel (not per color). For instance, BPX=24 represents a 24-bit RGB image using 8 bits for each color.

### Technical Notes

Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

### Valid Examples

```
<biom:ImageBitsPerPixelQuantity>8</biom:ImageBitsPerPixelQuantity>
```

## 15.17. Color Space - CSP



**Field Reference:** 20/CSP

**Content Type:** Data

**XML Tag Name:** ImageColorSpaceCode

**Data Type:** A

**Minimum Length:** 3

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** see table [A.14](#)

**Base type:** biom:ColorSpaceCodeType

**Field ID:** [20.013]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 4

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Other Dependency	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/biom:ImageColorSpaceCode
```

### Summary

Image color space.

### Notes

See Section 7.7.10.3 Color Image Data for a detailed description of this field.

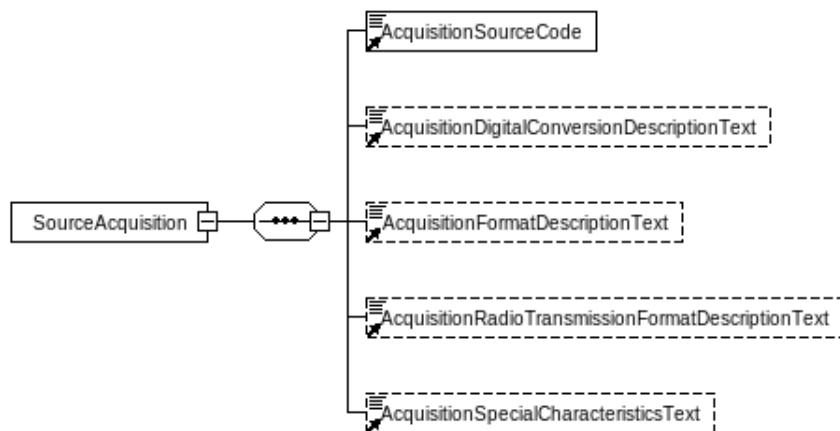
### Technical Notes

Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.

### Valid Examples

```
<biom:ImageColorSpaceCode>GRAY</biom:ImageColorSpaceCode>
```

## 15.18. Acquisition Source - AQS



**Field Reference:** 20/AQS

**Content Type:** Set

**XML Tag Name:** SourceAcquisition

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:SourceAcquisitionType

**Field ID:** [20.014]

**Condition:** Mandatory

**Defined in:** xsd://niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 9

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳biom:SourceAcquisition
```

### Summary

Describes the acquisition source.

## 15.19. Acquisition Source Type - AQT

### AcquisitionSourceCode

**Field Reference:** 20/AQS/AQT

**Content Type:** Data

**XML Tag Name:** AcquisitionSourceCode

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {0..6}

**Code table:** see table [A.3](#)

**Base type:** biom:AcquisitionSourceCodeType

**Field ID:** [20.014-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 2

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageSourceRepresentationRecord
  ↴/biom:SourceAcquisition
    ↴/biom:AcquisitionSourceCode
```

#### Summary

Acquisition source type.

#### Notes

INTERPOL's implementation only allows still images acquired with a camera or a scanner.

#### Valid Examples

```
<biom:AcquisitionSourceCode>6</biom:AcquisitionSourceCode>
```

## 15.20. Analog to Digital Conversion - A2D

**Field Reference:** 20/AQS/A2D

**Content Type:** Data

**XML Tag Name:** AcquisitionDigitalConversionDescriptionText

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [20.014-B]

**Condition:** ?

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 200

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

**Dependency table**

Type of dependency	Value
Mandatory on Value of other Field, optional otherwise.	[20/AQS/AQT]IN{9,13}

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAcquisition
    ↳/biom:AcquisitionDigitalConversionDescriptionText
```

### Summary

Describes the analog to digital equipment used to transform the source. This field should address parameters used, such as sample rate, if known.

## 15.21. Acquisition Special Characteristics - AQSC

**Field Reference:** 20/AQS/AQSC

**Content Type:** Data

**XML Tag Name:** AcquisitionSpecialCharacteristicsText

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [20.014-D]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 200

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAcquisition
    ↳/biom:AcquisitionSpecialCharacteristicsText
```

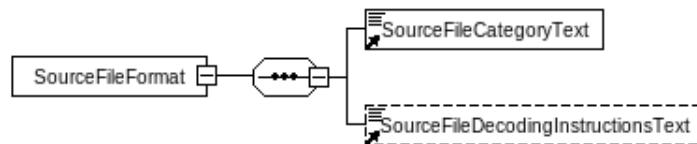
### Summary

Free text field which describes any specific conditions not mentioned in the table.

### Valid Examples

```
<biom:AcquisitionSpecialCharacteristicsText>Near-infrared camera outputting images in visible wavelengths</biom:
  AcquisitionSpecialCharacteristicsText>
```

## 15.22. Source Representation Format - SFT



**Field Reference:** 20/SFT

**Content Type:** Set

**XML Tag Name:** SourceFileFormat

**Data Type:**

**Minimum Length:**

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** n/a

**Base type:** biom:SourceFileType

**Field ID:** [20.015]

**Condition:** Mandatory

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:**

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceFileFormat
```

### Summary

Source representation format.

## 15.23. File Type - FTY

### SourceFileCategoryText

**Field Reference:** 20/SFT/FTY

**Content Type:** Data

**XML Tag Name:** SourceFileCategoryText

**Data Type:** U

**Minimum Length:** 3

**Minimum Occurrences:** 1

**Value range:** n/a

**Code table:** see table [A.30](#) \*

**Base type:** nc:TextType

**Field ID:** [20.015-A]

**Condition:** Mandatory within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 6

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageSourceRepresentationRecord
  ↴/biom:SourceFileFormat
    ↴/biom:SourceFileCategoryText
```

#### Summary

File type. If the source representation is a digital file, this shall contain the suffix indicating the file type (such as JPG).

#### Valid Examples

```
<biom:SourceFileCategoryText>ANALOG</biom:SourceFileCategoryText>
```

\*The code table is optional, defining commonly-used or special-purpose values, rather than definitive (listing all possible values).

## 15.24. Decoding Instructions - DEI

### SourceFileDecodingInstructionsText

**Field Reference:** 20/SFT/DEI

**Content Type:** Data

**XML Tag Name:** SourceFileDecodingInstructionsText

**Data Type:** U

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** nc:TextType

**Field ID:** [20.015-B]

**Condition:** Optional within a field

**Defined in:** xsd/niem/biometrics/1.0/biometrics.xsd

**Special Characters:** n/a

**Maximum Length:** 1000

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/biometrics/1.0>

#### XPath

```
/itl:PackageSourceRepresentationRecord  
  ↴/biom:SourceFileFormat  
    ↴/biom:SourceFileDecodingInstructionsText
```

#### Summary

Free text providing decoding instructions.

## 15.25. Source Representation Number - SRN



**Field Reference:** 20/SRN

**Content Type:** Data

**XML Tag Name:** IdentificationID

**Data Type:** N

**Minimum Length:** 1

**Minimum Occurrences:** 1

**Value range:** {1}

**Code table:** n/a

**Base type:** niem-xsd:string

**Field ID:** [20.021]

**Condition:** Mandatory

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** 3

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

### XPath

```
/itl:PackageSourceRepresentationRecord
  ↴/biom:SourceIdentification
    ↴/nc:IdentificationID
```

### Summary

Reference number for the source representation stored in this record. It is an integer, numbered sequentially beginning at one and incremented for each instance of Record Type-20.

### Valid Examples

```
<nc:IdentificationID>8</nc:IdentificationID>
```

## 15.26. Source Representation Data - DATA

### BinaryBase64Object

**Field Reference:** 20/DATA

**Content Type:** Data

**XML Tag Name:** BinaryBase64Object

**Data Type:** B

**Minimum Length:** 1

**Minimum Occurrences:** 0

**Value range:** n/a

**Code table:** n/a

**Base type:** niem-xsd:base64Binary

**Field ID:** [20.999]

**Condition:** Dependent (see table)

**Defined in:** xsd/niem/niem-core/2.0/niem-core.xsd

**Special Characters:** n/a

**Maximum Length:** \*

**Maximum Occurrences:** 1

**Regular Expression:** n/a

**Namespace:** <http://niem.gov/niem/niem-core/2.0>

#### Exceptions

see Technical Notes below

Dependency table

Type of dependency	Value
Mandatory on Absence of other Field	20/EFR

#### XPath

```

if [20/AQS/AQT] IN 1..6, 11 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/nc:BinaryBase64Object
elseif [20/AQS/AQT] IN 7..10, 19..21 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/nc:BinaryBase64Object
elseif [20/AQS/AQT] IN 12..18, 22..29 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/nc:BinaryBase64Object
elseif [20/AQS/AQT] IN 0, 30, 31 then
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceImage
    ↳/nc:BinaryBase64Object
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceVideo
    ↳/nc:BinaryBase64Object
or
/itl:PackageSourceRepresentationRecord
  ↳/biom:SourceAudio
    ↳/nc:BinaryBase64Object
endif

```

#### Summary

Data associated with the record.

#### Notes

Binary for Traditional encoding or Base64 for XML

**Technical Notes**

Field is mandatory for a 2D still image. One of the two fields (20.994 or 20.999) shall be present in all instances of this record type.

**Valid Examples**

```
<nc:BinaryBase64Object>mrHbPdrko3u1s7ahtgPBjtm01s85tfG2U7bpofY94Czu2SbY7d7wF9fQ7ZptgGrtk02a2dsJ7wZbe8BlzvAmQ7xq+
Y94GoHeEsR3ikWd4DIGhzmp3k42d4DRmzs94DKveDTB3hqw6PeBLrtpPepOH/+h</nc:BinaryBase64Object>
```

## 15.27. Field Mandatoriness in Source Representation Record

The following table shows a summary of the fields and information items in each record type and its corresponding XML elements, and in particular the fields and items that are mandatory.

Table 15.1.: Field Summary for Type 20 Records

Field Id	Code	Field Name	Card.	Notes
20/XRCC:X	[20.001:X]	XML Record Category Code	M	
20/IDC	[20.002]	Information Designation Character	M	
20/CAR	[20.003]	SRN Cardinality	M	
20/SRC_20/DATA	[20.004_20.999]	Source Type (XML)	M	
20/SRC_20/GEO	[20.004_20.998]	Biometric/Image Capture Detail (XML)	O	
20/SRC_20/SAN	[20.004_20.993]	Capture Organization (XML)	M	
20/SRC	[20.004]	Source Agency	M	
20/SDR:X	[20.005:X]	Source Representation Date (XML)	O	
20/HLL	[20.006]	Horizontal Line Length	D	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.
20/VLL	[20.007]	Vertical Line Length	D	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.
20/SLC	[20.008]	Scale Units	D	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted
20/THPS	[20.009]	Transmitted Horizontal Pixel Scale	D	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted. If 20/SLC=1,2, then THPS shall equal TVPS.
20/TVPS	[20.010]	Transmitted Vertical Pixel Scale	D	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted. If 20/SLC=1,2, then THPS shall equal TVPS.
20/CGA	[20.011]	Compression Algorithm	D	Mandatory if a 2D still image is included in this record. Otherwise, it shall be omitted.
20/BPX	[20.012]	Bits Per Pixel	D	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.
20/CSP	[20.013]	Color Space	D	Mandatory if a 2D still image is contained in this instance of the record. Otherwise, it shall be omitted.
20/AQS	[20.014]	Acquisition Source	M	
20/AQS/AQT	[20.014-A]	Acquisition Source Type	M^	
20/AQS/A2D	[20.014-B]	Analog to Digital Conversion	D^	This field is required (and optional otherwise) if [20/AQS/AQT]IN9,13
20/AQS/AQSC	[20.014-D]	Acquisition Special Characteristics	O^	
20/SFT	[20.015]	Source Representation Format	M	
20/SFT/FTY	[20.015-A]	File Type	M^	
20/SFT/DEI	[20.015-B]	Decoding Instructions	O^	
20/SRN	[20.021]	Source Representation Number	M	
20/DATA	[20.999]	Source Representation Data	D	<ul style="list-style-type: none"> <li>• This field is only permitted if 20/EFR is/are absent.</li> <li>• Field is mandatory for a 2D still image. One of the two fields (20.994 or 20.999) shall be present in all instances of this record type.</li> </ul>

M=Mandatory, O=Optional, M^=Mandatory Info Item within a Field, O^=Optional Info Item within a Field, D=Dependent on other Fields/Info Items

# **Appendix A.**

## **Code Tables**

The following tables list codes used in INT-I XML in various fields. The bulk of these codes are directly taken from the ANSI/NIST-ITL 1-2011[[ansi-nist-2011](#)] through the use of the [MRT](#) found in [[ansi-nist-mrt](#)]. Some (TOT, SEX, ERR) are INT-I specific.

## A.1. Table of Amputated or Bandaged Codes

Table A.1.: Table of Amputated or Bandaged Codes

Code	Description
UP	Unable to print (e.g., bandaged or completely amputated)
XX	Partial print due to amputation
SR	Scar

## A.2. Table of Direction Uncertainty Codes

Table A.2.: Table of Direction Uncertainty Codes

Code	Description
180	Angle cannot be determined or is undefined

### A.3. Table of Acquisition Source Type Codes

Table A.3.: Table of Acquisition Source Type Codes

Code	Description
0	Unspecified or unknown
1	Static digital image from an unknown source
2	Static digital image from a digital still-image camera
3	Static digital image from a scanner
4	Single video frame from an unknown source
5	Single video frame from an analog video camera
6	Single video frame from a digital video camera
7	Video sequence from an unknown source
8	Video sequence from an analog video camera, stored in analog format
9	Video sequence from an analog video camera, stored in digital format
10	Video sequence frame from a digital video camera
11	Computer screen image capture
12	Analog audio recording device; stored in analog form (such as a phonograph record)
13	Analog audio recording device; converted to digital
14	Digital audio recording device
15	Landline telephone - both sender and receiver
16	Mobile telephone - both sender and receiver
17	Satellite telephone - both sender and receiver
18	Telephone - unknown or mixed sources
19	Television - NSTC
20	Television - PAL
21	Television - Other
22	Voice-over-internet protocol (VOIP)
23	Radio transmission: short-wave (specify single side band or continuous wave in FDN)
24	Radio transmission: amateur radio (specify lower side band or continuous wave in FDN)
25	Radio transmission: FM (87.5 MHz to 108 MHz)
26	Radio transmission: long-wave (150 kHz to 519 kHz)
27	Radio transmission: AM (570 kHz to 1720 kHz)
28	Radio transmission: Aircraft frequencies
29	Radio transmission: Ship and coastal station frequencies
30	Vendor specific capture format
31	Other

## A.4. Table of Source Cardinality Codes

Table A.4.: Table of Source Cardinality Codes

Code	Description
D	The representation in this Type-20 record is the source of one or more biometric type records, excluding Type-4 and Type-9, which have been derived from it
M	A single biometric type record, excluding Type-4 and Type-9, has been prepared from multiple Type-20 records
S	The representation in this Type-20 record is the source of another Type-20 record

## A.5. Table of Appendix F Status Codes

Table A.5.: Table of Appendix F Status Codes

Code	Description
APPF	Acquisition equipment certified as compliant with FBI Appendix F specifications.
NONE	Acquisition equipment does not conform with FBI Appendix F specifications.

## A.6. Table of Image Compression Algorithm Labels

Table A.6.: Table of Image Compression Algorithm Labels

Label	Standard Name
JP2	JPEG 2000, ISO/IEC 15444-1:2004 (Lossy)
JP2L	JPEG 2000, ISO/IEC 15444-1:2004 (Lossless)
JPEGB	JPEG, ISO/IEC 10918, JFIF 1.02:1992 (Lossy)
JPEGL	JPEG, ISO/IEC 10918, JFIF 1.02:1992 (Lossless)
NONE	Uncompressed (Lossless)
PNG	Portable Network Graphics (Lossless)
WSQ20	WSQ (Wavelet Scalar Quantization): Version 3.1 (Lossy)

## A.7. Table of Civil Codes

Table A.7.: Table of Civil Codes

Code	Description
AMN	AMNESIA
CIT	CITIZENSHIP
DEC	DECEASED
IMM	MISSING PERSON
IU	UNIDENTIFIED BODIES
OTH	NOT LISTED REASON
VIS	VISA

## A.8. Table of Permanent Flexion Crease Codes

Table A.8.: Table of Permanent Flexion Crease Codes

Code	Description
DIP	Distal interphalangeal crease
DTC	Distal transverse crease (top palm crease)
PDC00	Proximal digital crease, unknown finger
PDC01	Proximal digital crease, right thumb
PDC02	Proximal digital crease, right index finger
PDC03	Proximal digital crease, right middle finger
PDC04	Proximal digital crease, right ring finger
PDC05	Proximal digital crease, right little finger
PDC06	Proximal digital crease, left thumb
PDC07	Proximal digital crease, left index finger
PDC08	Proximal digital crease, left middle finger
PDC09	Proximal digital crease, left ring finger
PDC10	Proximal digital crease, left little finger
PDC16	Proximal digital crease, right extra digit
PDC17	Proximal digital crease, left extra digit
PIP	Proximal interphalangeal crease
PTC	Proximal transverse crease (middle palm crease)
RLC	Radial longitudinal crease (bottom palm crease)
WC	Wrist crease (wrist bracelet)

## A.9. Table of Feature Field Number Codes

Table A.9.: Table of Feature Field Number Codes

Code	Description
320	Cores
321	Deltas
324	Distinctive Characteristics
331	Minutiae
340	Dots
341	Incipient Ridges
342	Creases and Linear Discontinuities
343	Ridge Edge Features
345	Pores
373	Ridge Path Segments

**A.10. Table of Feature Correspondance Codes**

Table A.10.: Table of Feature Correspondance Codes

Code	Description
DF	Possible or debatable correspondence (Feature)
DP	Possible or debatable correspondence (Point)
F	Definite correspondence (Feature)
P	Definite correspondence (Point)
R	Inconclusive (Out of region)
U	Inconclusive (Unclear area)
X	Definite lack of correspondence

## A.11. Table of Center Location Method Codes

Table A.11.: Table of Center Location Method Codes

Code	Description
0	Uppermost point of the ridge with greatest curvature
1	Overall fingerprint focal point
H	Human estimate of finger center
L	Lateral center only

## A.12. Table of CSI Codes

Table A.12.: Table of CSI Codes

Code	Description
0	7-bit ASCII (Default)
2	16 bit Unicode
3	8-bit Unicode
4	32-bit Unicode

## A.13. Table of CSN Codes

Table A.13.: Table of CSN Codes

Code	Description
ASCII	7-bit ASCII (Default)
UTF-16	16 bit Unicode
UTF-32	32-bit Unicode
UTF-8	8-bit Unicode

## A.14. Table of Image Color Space Codes

Table A.14.: Table of Image Color Space Codes

Code	Description
GRAY	Grayscale (monochrome)
RGB	Undetermined color space for an RGB image
SRGB	sRGB (IEC 61966-2-1)
SYCC	YCbCr (JPEG 2000 compressed)
UNK	Undefined
YCC	YCbCr (legacy)

## A.15. Table of Delta Category Codes

Table A.15.: Table of Delta Category Codes

Code	Description
	Other delta
C	Carpal delta
I00	Interdigital delta, unknown finger
I02	Interdigital delta under right index finger
I03	Interdigital delta under right middle finger
I04	Interdigital delta under right ring finger
I05	Interdigital delta under right little finger
I07	Interdigital delta under left index finger
I08	Interdigital delta under left middle finger
I09	Interdigital delta under left ring finger
I10	Interdigital delta under left little finger
I16	Interdigital delta under right extra digit
I17	Interdigital delta under left extra digit
L	Left fingerprint delta
R	Right fingerprint delta

## A.16. Table of Distinctive Feature Type Codes

Table A.16.: Table of Distinctive Feature Type Codes

Code	Description
CLEAR	Large clear field of ridges; large clear area with no minutiae
CORE	Unusually distinctive core area
CREASE	Unusually distinctive crease
DELTA	Unusually distinctive delta area
DYSPLASIA	Dissociated ridges / Dysplasia
MINGROUP	Unusual group or cluster of minutiae
MINUTIA	Unusually shaped minutia
OTHERFEAT	Other unusual features not characterized elsewhere; details should be noted in comments
SCAR	Scar
WART	Wart or blister

## A.17. Table of Device Monitoring Mode Codes

Table A.17.: Table of Device Monitoring Mode Codes

Code	Description
ASSISTED	Person available to provide assistance to subject submitting the biometric
CONTROLLED	Operator physically controls the subject to acquire the biometric sample
OBSERVED	Person present to observe operation of the device but provides no assistance
UNATTENDED	No one present to observe or provide assistance
UNKNOWN	No information is known

**A.18. Table of Value Assessment Codes**

Table A.18.: Table of Value Assessment Codes

Code	Description
LIMITED	The impression is of limited, marginal, value. It is not of value for individualization, but may be appropriate for exclusion.
NONPRINT	The image is not a friction ridge impression.
NOVALUE	The impression is of no value, is not appropriate for further analysis, and has no use for potential comparison.
VALUE	The impression is of value and is appropriate for further analysis and potential comparison. Sufficient details exist to render an individualization and/or exclusion decision.

## A.19. Table of Determination Result Codes

Table A.19.: Table of Determination Result Codes

Code	Description
EX_SRC	Exclusion of source
EX_SUB	Exclusion of subject
INC_C	Inconclusive, but with corresponding features noted
INC_D	Inconclusive, but with dissimilar features noted
INC_I	Inconclusive due to insufficient information
INC_N	Inconclusive due to no overlapping area
INDIV	Individualization
NONE	No determination

## A.20. Table of EFS Feature Set Profile Codes

Table A.20.: Table of EFS Feature Set Profile Codes

Code	Description
0	Image-only profile
1	Minimal markup profile
2	Quick minutiae search profile
3	Detailed markup profile
10	Skeleton profile
11	Minutiae ridge count profile
20	Legacy IAFIS latent feature search profile
21	Quick minutiae search profile without image
30	Search response profile with all, and corresponding, minutiae
31	Search response profile without corresponding minutiae
90	Full annotation profile

## A.21. Table of Fraud Type Codes

Table A.21.: Table of Fraud Type Codes

Code	Description
EVA	Evidence of evasion
FAB	Evidence of fabricated evidence
FOR	Evidence of forged evidence
SPO	Evidence of spoofing

## A.22. Table of Error Codes

Table A.22.: Table of Error Codes

Code	Description
001	ERROR: RECORD NOT FOUND
002	ERROR: RECORD ALREADY EXISTS
003	ERROR: UNAUTHORISED ACCESS
101	ERROR: MANDATORY ELEMENT MISSING
102	ERROR: INVALID RECORD TYPE
103	ERROR: UNDEFINED ELEMENT
104	ERROR: EXCEED THE MAXIMUM OCCURRENCE
105	ERROR: INVALID NUMBER OF SUBELEMENTS
106	ERROR: ELEMENT LENGTH TOO SHORT
107	ERROR: ELEMENT LENGTH TOO LONG
108	ERROR: ELEMENT IS NOT A NUMBER AS EXPECTED
109	ERROR: ELEMENT NUMBER VALUE TOO SMALL
110	ERROR: ELEMENT NUMBER VALUE TOO BIG
111	ERROR: INVALID CHARACTER
112	ERROR: INVALID DATE
113	ERROR: INVALID TIME
114	ERROR: INVALID DATE OR TIME
115	ERROR: INVALID ITEM VALUE
116	ERROR: INVALID TYPE OF TRANSACTION
117	ERROR: INVALID RECORD DATA
118	ERROR: INVALID RECORD IMAGE SIZE
201	ERROR: INVALID TCN
501	ERROR: INSUFFICIENT FINGERPRINT QUALITY
502	ERROR: MISSING FINGERPRINTS
503	ERROR: FINGERPRINT SEQUENCE CHECK FAILED
999	ERROR: RECORD NOT FOUND

## A.23. Table of Fingerprint Acquisition Profiles

Table A.23.: Table of Fingerprint Acquisition Profiles

Code	Description
10	FAP 10 (acquire rolled images = No; min scanning resolution = 490-510 ppi; min image dimensions = .5"x.65"; max compression ratio = 10:1; compression algorithm = WSQ v2.0 or above; simultaneous # fingers = 1; sensor certification = PIV)
20	FAP 20 (acquire rolled images = No; min scanning resolution = 490-510 ppi; min image dimensions = .6"x.8"; max compression ratio = 10:1; compression algorithm = WSQ v2.0 or above; simultaneous # fingers = 1; sensor certification = PIV)
30	FAP 30 (acquire rolled images = No; min scanning resolution = 490-510 ppi; min image dimensions = .8"x1.0"; max compression ratio = 10:1; compression algorithm = WSQ v2.0 or above; simultaneous # fingers = 1; sensor certification = PIV)
40	FAP 40 (acquire rolled images = optional; min scanning resolution = 490-510 ppi; min image dimensions = 1.6"x1.5"; max compression ratio = 15:1; compression algorithm = WSQ v2.0 or above; simultaneous # fingers = 1-2; sensor certification = PIV)
45	FAP 45 (acquire rolled images = optional; min scanning resolution = 495-505 ppi; min image dimensions = 1.6"x1.5"; max compression ratio = 15:1; compression algorithm = WSQ v2.0 or above; simultaneous # fingers = 1-2; sensor certification = Appendix F)
50	FAP 50 (acquire rolled images = optional; min scanning resolution = 495-505 ppi; min image dimensions = 2.5"x1.5"; max compression ratio = 15:1; compression algorithm = WSQ v3.1 or above; simultaneous # fingers = 1-3; sensor certification = Appendix F)
60	FAP 60 (acquire rolled images = optional; min scanning resolution = 495-505 ppi; min image dimensions = 3.2"x3.0"; max compression ratio = 15:1; compression algorithm = WSQ v3.1 or above; simultaneous # fingers = 1-4; sensor certification = Appendix F)

## A.24. Table of Friction Ridge Capture Technology Codes

Table A.24.: Table of Friction Ridge Capture Technology Codes

Code	Description
0	Unknown Capture technology not provided by sensor manufacturer.
1	Other Capture technology not sufficiently characterized by table.
2	Scanned ink on paper Ink applied to friction ridge skin and then applied to paper, typically with assistance from a trained technician.
3	Optical - Total Internal Reflection (TIR) – bright field Using optical angle of incidence effects, a contact livescan device captures ridge information such that ridges absorb light, and absence of ridges reflects light back to the sensor (dark ridges on a white background).
4	Optical - TIR - dark field Using optical angle of incidence effects, a contact livescan device captures ridge information such that ridges reflect light, and absence of ridges absorb light (white ridges on a dark background).
5	Optical direct imaging – native Light reflected from the friction ridge is imaged, resulting in a light gray on darker gray image. This may be performed contact or contactless, and may incorporate merging images from multiple sensors or rocking or swaying sensors / subjects.
6	Optical direct imaging – low frequency unwrapped Light reflected from the friction ridge is imaged onto one or more sensors. This may be performed contact or contactless, and utilizes the low frequency 3D detail to “unwrap” or project the image texture onto a 2D grayscale image.
7	3-dimensional imaging – high frequency unwrapped High frequency friction ridge information is collected (optically, acoustically, etc.) and then “unwrapped” to create a 2D image from the 3D point cloud or mesh.
8	Reserved
9	Capacitive A contact technology in which the capacitance of the friction ridge skin is assessed via a conducted AC signal.
10	Capacitive – radio frequency (RF) A contact technology in which the capacitance of the friction ridge skin is assessed via a radiated RF signal.
11	Electro-luminescent (EL) optical direct imaging A contact technology in which the ridges and an alternating current (AC) signal cause an EL panel to emit light which is captured by an imaging system.
12	Reflected ultrasonic image A contact technology in which the friction ridge reflects ultrasonic energy which is assessed by the sensor.
13	Ultrasonic impediography A contact technology in which the absorption of ultrasonic energy is measured by changes in the impedance of a piezo-electric material.
14	Thermal imaging A contact technology in which the sensor measures the heat reflected from the friction ridge skin in contact with the sensor.
15	Direct pressure sensitive A contact technology in which the pressure of the fingerprint ridge skin against a material is measured.
16	Indirect pressure A contact technology in which the pressure of the fingerprint ridge skin against a deformable material is assessed optically to produce a friction ridge image.
17	Live tape (one time use) A technology in which tape is used on friction ridge skin to collect friction ridge detail and the tape is then subsequently imaged by traditional photography.
18	Latent impression A capture process in which the digital image of the latent impression is acquired directly from the latent impression, using a scanner or digital camera.
19	Latent photo Physical photograph of the latent impression subsequently scanned using a flatbed scanner or digital camera.
20	Latent molded / cast impression A capture process in which a mold / cast is taken from a latent friction ridge and then subsequently a “duplicate” is generated from moldable / printable material and imaged.

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## Appendix A. Code Tables

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Table A.24.: Table of Friction Ridge Capture Technology Codes

Code	Description
21	Latent tracing An older legacy latent friction ridge capture process in which a hand-drawn or computer-drawn tracing would subsequently be imaged by a flatbed scanner or photographed.
22	Latent lif A process in which powder or a chemical is applied to a latent friction ridge print, subsequently transparent tape is applied to lift the print from the latent surface, and the tape is then placed on paper to be imaged.

## A.25. Table of Generalized Fingerprint Position Codes

Table A.25.: Table of Generalized Fingerprint Position Codes

Code	Description	Code Group
00	Unknown finger (references every finger position from 1 - 10, 16, and 17)	Finger
01	Right thumb	Finger
02	Right index finger	Finger
03	Right middle finger	Finger
04	Right ring finger	Finger
05	Right little finger	Finger
06	Left thumb	Finger
07	Left index finger	Finger
08	Left middle finger	Finger
09	Left ring finger	Finger
10	Left little finger	Finger
11	Plain right thumb	Finger
12	Plain left thumb	Finger
13	Plain right four fingers (may include extra digits)	Finger
14	Plain left four fingers (may include extra digits)	Finger
15	Left & right thumbs	Finger
16	Right extra digit	Finger
17	Left extra digit	Finger
18	Unknown friction ridge (not known whether the print is from a hand or foot)	Unknown
19	EJI or tip (latent image that includes substantive portion of the medial or proximal segments of a finger, or the extreme tip of a fingerprint)	Finger
20	Unknown palm (references every listed palm print position)	Palm
21	Right full palm	Palm
22	Right writer's palm	Palm
23	Left full palm	Palm
24	Left writer's palm	Palm
25	Right lower palm	Palm
26	Right upper palm	Palm
27	Left lower palm	Palm
28	Left upper palm	Palm
29	Right other	Palm
30	Left other	Palm
31	Right interdigital	Palm
32	Right thenar	Palm
33	Right hypothenar	Palm
34	Left interdigital	Palm
35	Left thenar	Palm
36	Left hypothenar	Palm
37	Right grasp	Palm
38	Left grasp	Palm
40	Right index/middle	2 Fingers
41	Right middle/ring	2 Fingers
42	Right ring/little	2 Fingers
43	Left index/middle	2 Fingers
44	Left middle/ring	2 Fingers
45	Left ring/little	2 Fingers
46	Right index / left index	2 Fingers
47	Right index/middle/ring	3 Fingers
48	Right middle/ring/little	3 Fingers

## Appendix A. Code Tables

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Table A.25.: Table of Generalized Fingerprint Position Codes

<b>Code</b>	<b>Description</b>	<b>Code Group</b>
49	Left index/middle/ring	3 Fingers
50	Left middle/ring/little	3 Fingers
60	Unknown sole (references every listed plantar position)	Plantar
61	Sole - right foot	Plantar
62	Sole - left foot	Plantar
63	Unknown toe	Plantar
64	Right big toe	Plantar
65	Right second toe	Plantar
66	Right middle toe	Plantar
67	Right fourth toe	Plantar
68	Right little toe	Plantar
69	Left big toe	Plantar
70	Left second toe	Plantar
71	Left middle toe	Plantar
72	Left fourth toe	Plantar
73	Left little toe	Plantar
74	Front / ball of right foot	Plantar
75	Back / heel of right foot	Plantar
76	Front / ball of left foot	Plantar
77	Back / heel of left foot	Plantar
78	Right middle of foot	Plantar
79	Left middle of foot	Plantar
81	Right carpal delta area	Palm
82	Left carpal delta area	Palm
83	Right full palm, including writer's palm	Palm
84	Left full palm, including writer's palm	Palm

## A.26. Table of XML Generalized Fingerprint Position Codes

Table A.26.: Table of XML Generalized Fingerprint Position Codes

Code	Description
0	Unknown finger (references every finger position from 1 - 10, 16, and 17)
1	Right thumb
2	Right index finger
3	Right middle finger
4	Right ring finger
5	Right little finger
6	Left thumb
7	Left index finger
8	Left middle finger
9	Left ring finger
10	Left little finger

## A.27. Table of Minutiae Type Codes

Table A.27.: Table of Minutiae Type Codes

Code	Description
0	Minutia of type "other"
1	Ridge ending
2	Ridge bifurcation

## A.28. Table of Minutiae Quality Codes

Table A.28.: Table of Minutiae Quality Codes

Code	Description
0	No quality value is available

## A.29. Table of Off-Center Fingerprint Codes

Table A.29.: Table of Off-Center Fingerprint Codes

Code	Description
L	Left side of the finger or thumb
R	Right side of the finger or thumb
T	Tip (plain or rolled tip of the finger or thumb)

## A.30. Table of File Type Codes

Table A.30.: Table of File Type Codes

Code	Description
ANALOG	Analog file
OTHER	Digital data stored in other formats that do not have computer file names and suffixes (such as digital tape)

## A.31. Table of Fingerprint Impression Types

Table A.31.: Table of Fingerprint Impression Types

Code	Description
0	Plain contact Finger(s) / palm / plantar presented on platen or paper without rolling
1	Rolled contact Finger rolled on platen or paper
2	DEPRECATED Non-livescan, plain fingerprint
3	DEPRECATED Non-livescan, rolled fingerprint
4	Latent image Image or impression of friction skin deposited on a surface
5	DEPRECATED Latent fingerprint tracing
6	DEPRECATED Latent fingerprint photo
7	DEPRECATED Latent fingerprint lift
8	Live-scan swipe Finger / palm / plantar swiped on platen
10	DEPRECATED Livescan (type unknown or unspecified), palm
11	DEPRECATED Non-livescan, palm
12	DEPRECATED Latent palm impression
13	DEPRECATED Latent palm tracing
14	DEPRECATED Latent palm photo
15	DEPRECATED Latent palm lift
20	DEPRECATED Livescan optical contact, fingerprint plain
21	DEPRECATED Livescan optical contact, fingerprint rolled
22	DEPRECATED Livescan non-optical contact, fingerprint plain
23	DEPRECATED Livescan non-optical contact, fingerprint rolled
24	Plain contactless – stationary finger Finger(s) / palm / plantar presented stationary, in view of a stationary sensor and sensor captures plain contact equivalent
25	Rolled contactless – stationary subject Finger(s) / palm/ plantar presented stationary, in view of a stationary sensor and sensor captures rolled equivalent
26	DEPRECATED Livescan non-optical contactless, fingerprint plain
27	DEPRECATED Livescan non-optical contactless, fingerprint rolled
28	Other
29	Unknown
30	DEPRECATED Livescan (type unknown or unspecified), plantar
31	DEPRECATED Non-livescan plantar
32	DEPRECATED Latent plantar impression

Table A.31.: Table of Fingerprint Impression Types

Code	Description
33	DEPRECATED Latent plantar tracing
34	DEPRECATED Latent plantar photo
35	DEPRECATED Latent plantar lift
36	DEPRECATED Latent impression, unknown friction ridge
37	DEPRECATED Latent source tracing, unknown friction ridge
38	DEPRECATED Latent photo, unknown friction ridge
39	DEPRECATED Latent lift, unknown friction ridge
41	Rolled contractless – moving subject Finger(s) / palm / plantar move through the capture volume of a sensor and sensor captures rolled equivalent
42	Plain contactless – moving subject Finger(s) / palm / plantar move through the capture volume of a sensor and sensor captures plain equivalent.

## A.32. Table of Type of Substance Codes

Table A.32.: Table of Type of Substance Codes

Code	Description
1	Natural perspiration and/or body oils (eccrine and/or sebaceous)
2	Blood
3	Paint
4	Ink
5	Oil or grease
6	Dirt or soil
7	Other visible contaminants
8	Impression in pliable material
9	Contaminant removal via touch
10	Other/unknown matrix

## A.33. Table of Latent Processing Method Codes

Table A.33.: Table of Latent Processing Method Codes

Code	Description
12I	1,2 Indanedione
ADX	Ardrox
ALS	Alternate light source
AMB	Amido black
AY7	Acid yellow 7
BAR	Basic red 26
BLE	Bleach (sodium hypochlorite)
BLP	Black powder
BPA	Black powder alternative (for tape)
BRY	Brilliant yellow (basic yellow 40)
CBB	Coomassie brilliant blue
CDS	Crowle's double stain
COG	Colloidal gold
DAB	Diaminobenzidine
DFO	1,8-diazafluoren-9-one
FLP	Fluorescent powder
GEN	Genipin
GRP	Gray powder
GTV	Gentian violet
HCA	Hydrochloric acid fuming
IOD	Iodine fuming
ISR	Iodine spray reagent
LAS	Laser
LCV	Leucocrystal violet
LIQ	Liquinox
LQD	Liquid-drox
MBD	7-p-methoxybenzylamino-4-nitrobenz-2-oxa-1, 3-diazole
MBP	Magnetic black powder
MGP	Magnetic grey powder
MPD	Modified physical developer
MRM	Maxillon flavine 10gff, Rhodamine 6g, and MBD
NIN	Ninhydrin
OTH	Other
PDV	Physical developer
R6G	Rhodamine 6G
RAM	Cyanoacrylate fluorescent dye (Rhodamine 6G, Arrox, MBD)
SAO	Safranin O
SDB	Sudan black
SGF	Superglue fuming (cyanoacrylate)
SPR	Small particle reagent
SSP	Stickyside powder
SVN	Silver nitrate
TEC	Theonyl Europiom Chelate
TID	Titanium dioxide
VIS	Visual (patent image, not processed by other means)
WHP	White powder
ZIC	Zinc chloride

## A.34. Table of Quality Issue Codes

Table A.34.: Table of Quality Issue Codes

Code	Description
ARTIFACT	Digital artifacts, such as occasionally caused by compression or livescan devices.
BACKGROUND	Interference with background makes following ridges difficult (e.g. check patterns)
COMPRESSED	Distorted area in which ridges are compressed together
DISTORT	Miscellaneous distortion (See also Compressed and Stretched)
NEGATIVE	Portion of the friction ridge image is tonally reversed (ridges appear white and valleys appear black). Note that Field 9.314 Tonal Reversal (TRV) is used if the entire image is tonally reversed.
OTHER	Other quality issues not characterized elsewhere; details should be noted in Comments
OVERDEV	Overdeveloped area: excessive processing medium such as ink, powder, etc.
OVERLAP	Area in which another friction ridge impression is superimposed over the impression of interest
SMEAR	Smeared or smudged area
STRETCHED	Distorted area in which ridges are stretched apart from each other
TAPE	Lifting tape artifacts (crease, bubble, etc.)

## A.35. Table of Latent Substrate Codes

Table A.35.: Table of Latent Substrate Codes

Code	Description
1A	Paper
1B	Cardboard
1C	Unfinished/raw wood
1D	Other/unknown porous substrate
2A	Plastic
2B	Glass
2C	Metal, painted
2D	Metal, unpainted
2E	Glossy painted surface
2F	Tape, adhesive side
2G	Tape, nonadhesive side
2H	Aluminum foil
2I	Other/unknown nonporous substrate
3A	Rubber or latex
3B	Leather
3C	Photograph, emulsion side
3D	Photograph, paper side
3E	Glossy or semi-glossy paper or cardboard
3F	Satin or flat finish painted surface
3G	Other/unknown semi-porous substrate
4A	Other substrate (Specify)
4B	Unknown substrate

## A.36. Table of Feature Detection Method Codes

Table A.36.: Table of Feature Detection Method Codes

Code	Description
AUTO	The fingerprint features were detected and encoded by an automated process without any possibility of human editing. The algorithm shall be noted in the appropriate information item.
EDIT	The fingerprint features were detected and encoded by an automated process, but manually edited. The algorithm and examiner's name shall be noted in the appropriate information items.
MAN	The fingerprint features were manually detected and encoded. The examiner's name shall be noted in the appropriate information item.
REV	The fingerprint features were detected and encoded by an automated process, and manually reviewed without the need for manual editing. The algorithm and examiner's name shall be noted in the appropriate information item.

## A.37. Table of Minutiae Type Codes

Table A.37.: Table of Minutiae Type Codes

Code	Description
B	Ridge bifurcation
E	Ridge ending
X	Ridge ending or bifurcation, no distinction provided

## A.38. Table of Minutiae Ridge Count Algorithm Codes

Table A.38.: Table of Minutiae Ridge Count Algorithm Codes

Code	Description
EFTS7	Identical to OCTANT algorithm, except that ridge count values are one more than the number of intervening ridges. This was the format used by the FBI in its EFTS Version 7.1
OCTANT	The minutiae used for ridge counts are the nearest neighbors in eight octants, with the center of the 0th octant defined by the current minutia's theta, and the 1st through 7th octants proceeding counter clockwise. Ridge count values are set to number of intervening ridges. (Default)
QUADRANT	The minutiae used for ridge counts are the nearest neighbors in four quadrants, defined by the image's vertical and horizontal axes. The quadrants, with the 1st quadrant at the upper right and the 2nd through 4th quadrants proceeding counterclockwise. Ridge count values are set to the number of intervening ridges

## A.39. Table of Minutiae Residual Codes

Table A.39.: Table of Minutiae Residual Codes

Code	Description
0	Neighboring minutia lies in the clockwise half of the octant
1	Neighboring minutia lies in the counterclockwise half of the octant

## A.40. Table of Offense Codes

Table A.40.: Table of Offense Codes

Code	Description
ICM	CRIMES AGAINST CHILDREN
IFA	AIDING A CRIMINAL
IFE	ESCAPED
IFL	AT LARGE
IHG	GENOCIDE
IHH	CRIMES AGAINST HUMANITY
IHW	WAR CRIME
III	ILLEGAL IMMIGRATION
IIO	ILLEGAL IMMIGRATION ORGANIZER
IIP	TRAFFIC IN HUMAN BEINGS ORGANIZER
IIT	TRAFFIC IN HUMAN BEINGS
IKA	CRIME AGAINST FAMILY/ABDUCTION
IKK	KIDNAPPING/ILLEGAL IMPRISONMENT
IKP	MARITIME PIRACY/ROBBERY ON THE HIGH SEAS
ILA	ASSAULT/MALTREATMENT
ILB	TORTURE/BARBAROUS ACT
ILG	DESECRATION OF BURIAL PLACE
ILM	INJURY CAUSING DEATH/MANSLAUGHTER/MURDER
ILO	ORGANS (HORMONES to be considered)
ILT	THREATS
IOO	CRIMINAL ORGANIZATION/ASSOCIATION/GROUP
IRO	ROAD TRAFFIC RELATED OFFENCE
ISE	SEXUAL EXPLOITATION/PROSTITUTION
ISP	PRODUCTION/DISTRIBUTION OF PORNOGRAPHY
ISR	RAPE
ISS	SEXUAL OFFENCES
ITA	TERRORISM LOGISTIC SUPPORT
ITB	BIOLOGICAL TERRORISM
ITC	CHEMICAL TERRORISM
ITF	TERRORISM FINANCING
ITM	TERRORIST GROUP MEMBER
ITR	RADIOLOGICAL/NUCLEAR TERRORISM
ITT	TERRORISM RELATED CRIME
ITZ	TERRORISM ACTS
NLC	NOT LISTED CRIME
PAA	WORK OF ART
PCF	FORGERY
PCM	COUNTERFEIT CURRENCY
PCO	PHARMACEUTICAL CRIME
PCP	INTELLECTUAL PROPERTY CRIME
PCT	FORGERY OF TRAVEL DOCUMENTS
PDA	DOPING AGENTS AND ANABOLICS
PDC	CANNABIS
PDD	DRUG(S)
PDH	HEROIN/MORPHINE/OPIUM
PDO	COCAINE
PDP	PSYCHOTROPICS
PEB	BACTERIOLOGICAL/BIOLOGICAL/NUCLEAR
PEC	CHEMICAL SUBSTANCES
PEE	ENVIRONMENTAL CRIME
PEW	WILDLIFE CRIME
PFB	BANKING/FINANCIAL FRAUD

## Appendix A. Code Tables

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Table A.40.: Table of Offense Codes

Code	Description
PFC	BRIBERY/CORRUPTION
PFF	FRAUD
PFG	FRAUD AGAINST GOVERNMENT
PFM	COMMERCIAL FRAUD
PFV	CURRENCY CONTROL VIOLATION
PHH	HIJACKING OF MEANS OF TRANSPORT (PLANE, SHIP, BUS, CAR...)
PIH	HIGH TECH CRIME
PMM	MONEY LAUNDERING
PTA	AGGRAVATED THEFT
PTB	BURGLARY
PTE	EXTORTION
PTR	RECEIVING STOLEN PROPERTY
PTS	THEFT
PTW	ARMED ROBBERY
PTY	ROBBERY
PVV	VANDALISM/DAMAGE/LOOTING/HOOLIGANISM
PWA	ARSON
PWC	AMMUNITION/COMPONENTS/FIREARMS/WEAPONS/EXPLOSIVES
PWE	USE OF AN EXPLOSIVE DEVICE (BOMBING)

**A.41. Table of Palmprint Acquisition Profiles**

Table A.41.: Table of Palmprint Acquisition Profiles

Code	Description
70	PAP 70 (min scanning resolution = 500 ppi+/-1%; min image dimensions = 5"x5"; max compression ratio = 15:1; compression algorithm = WSQ v3.1 or above)
80	PAP 80 (min scanning resolution = 500 ppi+/-1%; min image dimensions = 5"x8"; max compression ratio = 15:1; compression algorithm = WSQ v3.1 or above)
170	PAP 170 (min scanning resolution = 1000 ppi+/-1%; min image dimensions = 5"x5"; max compression ratio = 10:1; compression algorithm = JPEG 2000)
180	PAP 180 (min scanning resolution = 1000 ppi+/-1%; min image dimensions = 5"x8"; max compression ratio = 10:1; compression algorithm = JPEG 2000)

**A.42. Table of Pattern Classification Codes**

Table A.42.: Table of Pattern Classification Codes

Code	Description
AU	Arch
DR	Dissociated Ridges/Dysplasia (Unable to classify)
LS	Left Slant Loop
RS	Right Slant Loop
SR	Complete Scar (Unable to classify)
UC	Unable to Classify
UP	Temporarily unable to print (e.g., bandaged)
WU	Whorl
XX	Amputation (Unable to print)

## A.43. Table of Pattern Classification Subcodes

Table A.43.: Table of Pattern Classification Subcodes

Code	Description
AW	Accidental Whorl
CP	Central Pocket Loop Whorl
DL	Double Loop Whorl
PA	Plain Arch
PW	Plain Whorl
TA	Tented Arch

## A.44. Table of Whorl-Delta Relationship Codes

Table A.44.: Table of Whorl-Delta Relationship Codes

Code	Description
I	Inner (ridge flow from left delta is above right delta)
M	Meeting (ridge flow from left delta meets right delta)
O	Outer (ridge flow from left delta is below right delta)

## A.45. Table of Growth or Shrinkage Type Codes

Table A.45.: Table of Growth or Shrinkage Type Codes

Code	Description
B	Both: impression may be larger or smaller than exemplars or other prints from the same subject
G	Growth: impression is believed to be larger than exemplars or other prints from the same subject
S	Shrinkage: impression is believed to be smaller than exemplars or other prints from the same subject

## A.46. Table of Possible Lateral Reversal Codes

Table A.46.: Table of Possible Lateral Reversal Codes

Code	Description
L	Image is known to be laterally reversed.
U	Image may be laterally reversed

## A.47. Table of Subject Pose Codes

Table A.47.: Table of Subject Pose Codes

Code	Description
A	Angled Pose
D	Determined 3D Pose
F	Full Face Frontal
L	Left Profile (-90 degree)
R	Right Profile (90 degree)

## A.48. Table of Quality Value Codes

Table A.48.: Table of Quality Value Codes

Code	Description
254	No attempt to calculate a quality score was made
255	Failed attempt to calculate a quality score

## A.49. Table of Method of Ridge Counting Codes

Table A.49.: Table of Method of Ridge Counting Codes

Code	Description
A	Auto: The ridge count was automatically performed without human review
M	Manual Ridge Count: The ridge count was determined or validated manually by a human examiner
T	Manual Tracing: The ridge count was automatically determined, based on a skeletonized image created by a human examiner

**A.50. Table of Ridge Count Extraction Method Codes**

Table A.50.: Table of Ridge Count Extraction Method Codes

Code	Description
0	No assumption shall be made about the method used to extract ridge counts, nor their order in the record
1	For each center minutiae, ridge count data was extracted to the nearest neighboring minutiae in four quadrants
2	For each center minutiae, ridge count data was extracted to the nearest neighboring minutiae in eight octants

## A.51. Table of Result Determination Mode Codes

Table A.51.: Table of Result Determination Mode Codes

Code	Description
AC	AUTO CONFIRMED - Request / Result from an automated “lights out” search (i.e. no operator verification or intervention. A single candidate only response anticipate where match results, meeting the agreed positive match confidence parameters. For no match response , all candidates would be below any agreed negative match parameters and none returned.
UC	UNCONFIRMED – Request / Result for a set of possible matches with one or more candidates (or an agreed number of candidates) or no match result; Further verification activity anticipated on any response to confirm matches.
QS	QUICK SEARCH – Requests a set of possible matches with one or more candidates. Appropriate match confidence rating (separate field) where results potentially to be used without further verification activity anticipated.
CO	CONFIRMED – Request/ Results verified/confirmed on the system receiving the request. Only positive match candidates or no match response returned.
SL	SILENT – No Results anticipated via this channel.

## A.52. Table of Record Type Codes

Table A.52.: Table of Record Type Codes

Code	Description
1	Transaction information
2	User-defined descriptive text
4	High-resolution grayscale fingerprint image
7	User-defined image
8	Signature image
9	Minutiae data
01	Transaction information
02	User-defined descriptive text
04	High-resolution grayscale fingerprint image
07	User-defined image
08	Signature image
09	Minutiae data
10	Face, other body part, or scar, mark, tattoo (SMT) image
13	Variable-resolution latent friction ridge image
14	Variable-resolution fingerprint image
15	Variable-resolution palmprint image
16	User-defined variable-resolution testing image
17	Iris image
18	DNA data
19	Variable-resolution plantar image
20	Source representation
21	Associated context
98	Information assurance
99	CBEFF biometric data record

## A.53. Table of Type of Feature Codes

Table A.53.: Table of Type of Feature Codes

Code	Description
D	Discontinuity (point where a ridge stops briefly)
I	Indentation (abrupt decreases in ridge width)
P	Protrusion (abrupt increases in ridge width)

## A.54. Table of Ridge Flow Data Format Codes

Table A.54.: Table of Ridge Flow Data Format Codes

Code	Description
B64	Base-64 format ridge flow map
UNC	Uncompressed (concatenated hexadecimal) ridge flow map

## A.55. Table of Ridge Quality Data Format Codes

Table A.55.: Table of Ridge Quality Data Format Codes

Code	Description
RLE	Run-length encoded ridge quality map
UNC	Uncompressed ridge quality map

## A.56. Table of Ridge Quality Map Codes

Table A.56.: Table of Ridge Quality Map Codes

Code	Description
0	Background (no ridge information)
1	Debatable ridge flow (continuity of ridge flow is uncertain)
2	Definitive ridge flow, debatable minutiae (continuity of ridge flow is certain; minutiae are debatable)
3	Definitive minutiae, debatable ridge edges (minutiae, and ridge flow are obvious and unambiguous; ridge edges are debatable)
4	Definitive ridge edges, debatable pores (Ridge edges, minutiae, and ridge flow are obvious and unambiguous; pores are either debatable or not present)
5	Definitive pores (Pores and ridge edges are obvious and unambiguous)

**A.57. Table of Subject Acquisition Profile Codes**

Table A.57.: Table of Subject Acquisition Profile Codes

Code	Description
0	Unknown acquisition profile
1	Surveillance facial image
10	Driver's license image (AAMVA)
11	ANSI Full Frontal facial image (ANSI 385)
12	ANSI Token facial image (ANSI 385)
13	ISO Full Frontal facial image (ISO/IEC 19794-5)
14	ISO Token facial image (ISO/IEC 19794-5)
15	PIV facial image (NIST SP 800-76)
20	Legacy Mugshot
30	Best Practice Application - Level 30
32	Mobile ID Best Practice - Level 32
40	Best Practice Application - Level 40
42	Mobile ID Best Practice - Level 42
50	Best Practice Application - Level 50
51	Best Practice Application - Level 51
52	Mobile ID Best Practice - Level 52

## A.58. Table of Sex Codes

Table A.58.: Table of Sex Codes

Code	Description
M	Male
F	Female
U	Unknown

## A.59. Table of Scale Units Codes

Table A.59.: Table of Scale Units Codes

Code	Description	Notes
0	No scale is provided	
1	Pixels per inch (ppi)	
2	Pixels per centimeter (ppcm)	

## A.60. Table of Types of Transactions

Table A.60.: Table of Types of Transactions

Code	Description
CPS	Complete Person Search -> Global Searches on a Person with search modalities determined by capabilities of receiving system FP -> TP/TP (PP/PP), TP/UL, PP/UP FA -> FA/FA, FA/UF
PPS	Person-To-Person Search -> Compatibility w/ PRUM if only FP (Type 14/15) are provided (e.g. Border/Identity Checks) FP -> TP/TP (PP/PP) FA -> FA/FA
PUS	Person-To-Unknown Search (e.g. Known Individual) FP -> TP/UL, PP/UP FA -> FA/UF
CCS	Complete Case Search -> Global Searches on a Case (multiple latents/evidences) with search modalities determined by capabilities of receiving system FP -> LT/TP, LT/UL, LP/PP, LP/UP FA -> LF/FA, LF/UF
UPS	Unknown-To-Person Search (e.g. Dead body identification (DVI), Crime solving only) FP -> LT/TP, LP/PP FA -> LF/FA
UUS	Unknown-To-Unknown Search (e.g. Crime Pattern and Forensic Intelligence/Analysis, Deduplication of cases) FP -> LT/UL, LP/UP FA -> LF/UF
ATP	Add To Person -> Global Search and Store on a Person Note: Person to be created if not existing. An update/edit may require a combination of DFP and ATP. - search modalities determined by receiving system FP -> TP/TP (PP/PP), TP/UL, PP/UP FA -> FA/FA, FA/UF
ATC	Add To Case -> Global Search and Store on a Case (multiple latents/evidences) with search modalities determined by capabilities of receiving system Note: Case to be created if not existing. An update/edit may require a combination of DFC and ATC. FP -> LT/TP, LT/UL, LP/PP, LP/UP FA -> LF/FA, LF/UF
DFP	Delete From Person > At Person level -> At Registration level Note: Type 2 field to identify the registration
DFC	Delete From Case -> At Case level -> At Event level -> At Data level (Evidence & Latent) Note: Type 2 field (multi-subfields) to identify the data
BDQ	Biometric Data reQuest -> Case/Person level -> Registration/Event level -> Evidence/Latent level (for cases only)
ACK	ACKnowledgement -> with confirmation of data references
SRE	Search REsult
ERR	ERRor
BDR	Biometric Data Response -> Case/Person level -> Registration/Event level -> Evidence/Latent level (for cases only)
PMS	Print-To-Mark Search -> Compatibility w/ PRUM FP -> TP/UL, PP/UP
MPS	Mark-To-Print Search -> Compatibility w/ PRUM
MMS	Mark-To-Mark Search -> Compatibility w/ PRUM

## A.61. Table of Tonal Reversal Codes

Table A.61.: Table of Tonal Reversal Codes

Code	Description
N	Negative - ridges are light and valleys are dark throughout the image.
P	Partial - ridges are light and valleys are dark only in portions of the image