



Introduction

The Unidentified Persons (UP) Database provides a place to enter the 10-finger fingerprint classification. Over the years, several classification systems have been used, including Henry, NCIC, and most recently, IAFIS. This document provides a basic description of each of these systems and offers guidance on how to enter the fingerprint classification into the UP database.

The Henry Fingerprint Classification System

The Henry fingerprint classification system is seldom used today, but it may have been used to classify fingerprints in cases of unidentified persons in years past. Because it might still be encountered, familiarity with it is prudent.

As with all fingerprint classification systems, the fingers are numbered 1 through 10, with 1 being the right thumb and 6 being the left thumb.

In the Henry system, fingers that have a whorl pattern are used to define a primary grouping for the set of fingerprints. A number is assigned to those fingers that have a whorl pattern. The numbers are assigned for each finger as follows:

Finger	1	2	3	4	5	6	7	8	9	10
Number	16	16	8	8	4	4	2	2	1	1

It is then determined for each finger if its basic pattern is an arch, whorl or loop. The results can be reported with 10 consecutive letters starting from Finger 1 and going to Finger 10, such as AWALLWLAAL.

From this, a finger value is then calculated. Fingers that do not have a whorl are given a finger value of 0. Only fingers with a whorl pattern are assigned a number other than 0. In the following example, the finger values would be:

Finger	1	2	3	4	5	6	7	8	9	10
Pattern	Arch	Whorl	Arch	Loop	Loop	Whorl	Loop	Arch	Arch	Loop
Number	16	16	8	8	4	4	2	2	1	1
Finger Value	0	16	0	0	0	4	0	0	0	0



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Finally, a primary grouping is established using the following formula:

1 + (The sum of finger values for the even-numbered fingers)

Divided by:

1 + (The sum of finger values for the odd-numbered fingers)

Thus, in applying the formula to the example above:

The numerator is $1 + 16 + 4 = 21$ and the denominator is $1 + 0 = 1$. Therefore, the primary grouping is 21/1.

If the Henry classification were used to report results in the Unidentified Persons system, it could be done as follows for the example above:

Fingerprints		
Classification	Card	Comments
RT A W A L L	Photo Not Available	The classification at the left is the Henry Classification and the primary group is 21/1
LT W L A A L		

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The fingerprint **Comments** box could include a notation that the Henry system was used and the primary grouping is 21/1.

The text for the boxes is:

Classification box: A W A L L

W L A A L.

Comments box: The classification at the left is the Henry Classification and the primary group is 21/1.



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NCIC Fingerprint Classification (FPC)

The National Crime Information Center (NCIC) method of fingerprint classification is utilized in many ways by the justice system to better establish the identity of an individual.

When a wanted person's fingerprint classification is available, the NCIC FPC should always be included in the wanted person's record for entry into the TIME System Warrant/Wanted Persons file.

While not a positive identifier, the NCIC fingerprint classification can be of assistance in eliminating a person as a suspected wanted person or as a suspect in a criminal investigation. It is also included on the Crime Information Bureau Identification Transcript as an additional identifier. The use of the NCIC FPC in communications is less subject to error in transmission than the Henry classification and is convertible to the Henry classification for searching fingerprint files. The NCIC FPC formula is printed in a straight line of 20 alphabetic and numeric characters, beginning with the right thumb as number 1, and continuing through number 10, with the left thumb being number 6.



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Two characters are to be used for each finger as shown in the following table:

Pattern Type	Pattern Subgroup	NCIC FPC Code
Arch	Plain Arch	AA
	Tented Arch	TT
Loop	Radial Loop	2 numeric characters. Determine actual ridge count and add fifty (50).
	Ulnar Loop	2 numeric characters indicating actual ridge count. If ridge count is less than 10, precede the count with a zero (0).
Whorl	Plain Whorl	Enter "P" followed by tracing of whorl.
	Inner Tracing	PI
	Meeting Tracing	PM
	Outer Tracing	PO
	Central Pocket Loop	Enter "C" followed by tracing of whorl.
	Inner Tracing	CI
	Meeting Tracing	CM
	Outer Tracing	CO
	Double Loop	Enter "d" followed by tracing of whorl.
	Inner Tracing	dI
	Meeting Tracing	dM
	Outer Tracing	dO
	Accidental	Enter "X" followed by tracing of whorl.
	Inner Tracing	XI
	Meeting Tracing	XM
	Outer Tracing	XO
Missing or Amputated Finger		XX
Completely Scarred or Mutilated Pattern		SR

Thus, for the purpose of the UP database, the classification could be reported as shown in the following example.

Fingerprints		
Classification	Card	Comments
RT <input type="text" value="AA"/> <input type="text" value="TT"/> <input type="text" value="PM"/> <input type="text" value="PO"/> <input type="text" value="XX"/> LT <input type="text" value="PI"/> <input type="text" value="PO"/> <input type="text" value="PM"/> <input type="text" value="PI"/> <input type="text" value="TT"/>	Photo Not Available	The classification shown is the NCIC classification.
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The fingerprint **Comments** box could contain a note that the NCIC classification was used.

IAFIS Classification

When the fingerprint analyst receives a tenprint fingerprint card for processing in the Integrated Automated Fingerprint Identification System (IAFIS), the analyst reviews the prints to ensure they are of good quality and in the correct sequence for fingers 1 through 10. The FBI's IAFIS comprises five segments, and one is the AFIS, or fingerprint segment.

The AFIS scans the prints and generates a classification based on whether the fingerprint pattern is a whorl, arch, right loop, left loop, scarred to the extent that a pattern cannot be determined or absent because of amputation. The codes applied for these patterns, respectively, are WU, AU, RS, LS, SR and XX.

The AFIS further scans the prints for additional details and creates another classification determined by ridge counts and other reference points. This classification can be compared with the classification of other prints electronically but can't be written in text form for reading by a person. Thus, in the UP database, the basic AFIS pattern classification would have to be reported, such as:

Fingerprints		
Classification	Card	Comments
WU <input type="text" value="AU"/> <input type="text" value="AU"/> <input type="text" value="SR"/> <input type="text" value="XX"/> LS <input type="text" value="RS"/> <input type="text" value="LS"/> <input type="text" value="AU"/> <input type="text" value="WU"/>	Photo Not Available	The classification shown is the IAFIS classification.
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The Tenprint Fingerprint Card and Image Uploads

The tenprint fingerprint card has an appropriately numbered box for the fingerprint from each finger, with box 1 being the right thumb and box 6 being the left thumb. There is also a place on the card where the prints of all fingers of the left hand may be transferred simultaneously and another place for all the fingers of the right hand. This is done so a fingerprint analyst can verify that the individual prints in boxes 1 through 10 have indeed been entered in the correct boxes on the card.

When uploading digital images of the fingerprint card to the UP database, it is advisable to upload more than one image, as follows:

- An image of the entire tenprint card
- An image that shows only the 10 boxes so the resolution of the prints will provide more clarity for classification purposes
- Additional images as needed to improve the clarity of individual fingerprints

For information about specifications for fingerprint images, see:

http://www.fbi.gov/hq/cjisd/iafis/efts71/appendix_f.htm

For general information about IAFIS, see:

<http://www.fbi.gov/hq/cjisd/iafis.htm>

Sources of Information in this Document

<http://www.biometricgroup.com/Henry%20Fingerprint%20Classification.pdf>

<http://www.doj.state.wi.us/dles/cibmanuals/files/Ident/HTML/ncicfingerprintclassification.htm>

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