

Oklahoma State Bureau of Investigation

Management of Information Systems



Livescan Interface Specifications Document Version 1.11

February 21, 2003

Table of Revisions

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August 2, 2000	Draft 1.0	Draft Release
August 4, 2000	Draft 1.1	Added Section 3.9
August 29, 2000	Draft 2.0	Added LVA transaction and LV, LVJ flow diagrams. Also added section 3.6 Email Transfer Protocol.
August 30, 2000	Draft 2.1	Added Fingerprint, PalmPrint, and Mug Shot Image Transmission sections.
September 13, 2000	Version 1.0	Deleted Generic Workflow Section
October 1, 2000	Version 1.0	Reformatted the Document
January 28, 2003	Version 1.1	Added Type 15 logical record layout. Added reference to mushot interface in Section 3.6.
February 21, 2003	Version 1.11	Modified Palm Print Form.

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1.0 Introduction

This section provides the scope, purpose, background, and reference for the Oklahoma State Bureau of Investigation's (OSBI) Livescan interface.

1.1 Scope

This document is the only document that defines the interface described herein. This document, once approved, shall be the defining control document and shall not be changed or modified without the express written consent of the OSBI, and notated in this document. **This document is to be used for law enforcement applications only.**

1.2 Purpose

This document defines the interface specifications for a Livescan device that may be produced by any Livescan vendor today. However, the OSBI recommends that the participating agency purchase an OSBI Certified Livescan so that it will be fully integrated to the OSBI AFIS.

1.3 Background

In the manual world of Fingerprinting, cards must be physically transported and processed. This process causes substantial delays in the identification cycle. To improve the speed and accuracy of the Fingerprint identification process and eliminate the need for contributing agencies to create and mail paper Fingerprint cards to the OSBI for processing, the OSBI is purchasing a National Institute of Standards and Technology (NIST) compliant AFIS. This will allow any agency that wants to submit Fingerprint data electronically, via a Livescan, to do so as long as the specifications in this document are followed.

1.4 References

OSBI Type-2 Record Specifications Version 4.01,
Revised March 29, 2005

OSBI Mug shot Interface Specifications Version 2.1,
Revised February 19, 2003

WSQ Gray-scale Fingerprint Image Compression Specification,
February 16, 1993, IAFIS-IC-0110V2

American National Standards Institute (ANSI), Data Format for the
Interchange of Fingerprint Information,
ANSI/NIST-ITL 1-2000

Transmission Control Protocol (TCP),
September 1, 1981, RFC 793 (Request for Comments – Proposed Standard)

Internet Protocol (IP),
September 1, 1981, RFC 791 (Requests for Comments – Proposed Standard)

Simple Mail Transfer Protocol (SMTP),
August 1, 1982, RFC 821 (Requests for Comments – Proposed Standard)

Federal Bureau of Investigation (FBI), Electronic Fingerprint
Transmission Specification,
January 1999, CJIS-RS-0010 (V7)

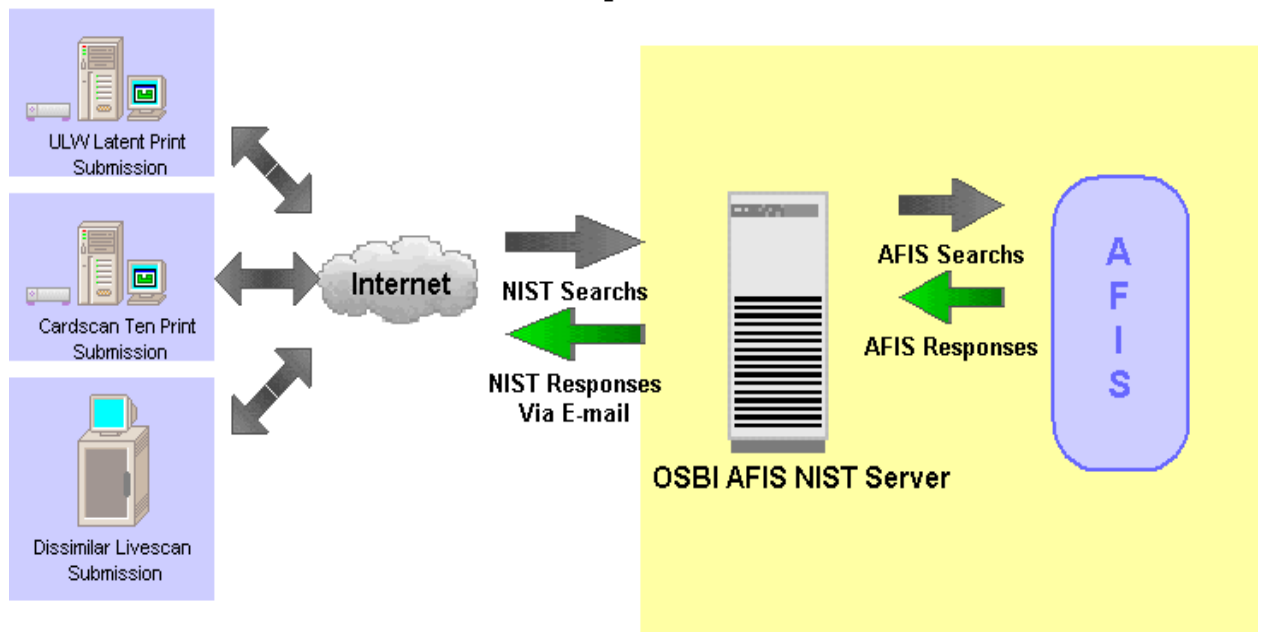
OSBI Palm Print Form Specifications
OSBI-Palm form Rev 12, 2002

2.0 Description of Operational Concepts

The OSBI AFIS will be connected to the Internet in order to enable agencies with a NIST compliant Livescan and an Internet connection to submit NIST data to the OSBI. The overall NIST based Internet communication is listed in Figure 1.0.

Figure 1.0

*AFIS NIST BASED INTERNET COMMUNICATIONS CONCEPT
Diagram 1.0*



3.0 Specifications

This section defines the specifications for the submitting Livescan.

3.1 FBI Certified Livescan

The Livescan system must be FBI/IQS (Appendix G) certified.

3.2 Information Captured

The Livescan device must be capable of capturing rolled impressions, plain impressions, palm/flat impressions and Mug Shots.

3.3 Descriptor Data

All descriptor data must be formatted according to the OSBI Type-2 Record Specifications before being submitted from the Livescan to the OSBI.

3.4 Fingerprint Image Transmission

All Fingerprint images transmitted from the Livescan must be NIST Type 4 high-resolution grayscale records as described in the ANSI/NIST-ITL 1-2000 standard in section 11.

3.5 Palm Print Image Transmission

All Palm Print images transmitted from the Livescan must be NIST Type 15 variable-resolution Palm Print image records as described in the ANSI/NIST-ITL 1-2000 standard in section 22. Table 1 describes the mandatory OSBI Type 15 logical record layout. For a complete description of these Type 15 fields and edits see Section 22 of the ANSI/NIST-ITL 1-2000 standard. **No Type 15 Palm Print images can be sent to the OSBI without also sending descriptor Type 2 and ten print Type 4 records.**

Table 1

Ident	Cond code	Field number	Field name	Char type	Field size per occurrence		Occurrence count	
					min	max	min	max
LEN	M	15.001	LOGICAL RECORD LENGTH	N	4	8	1	1
IDC	M	15.002	IMAGE DESIGNATION CHARACTER	N	2	5	1	1
IMP	M	15.003	IMPRESSION TYPE	A	2	2	1	1
SRC	M	15.004	SOURCE AGENCY / ORI	AN	10	21	1	1
PCD	M	15.005	PALMPRINT CAPTURE DATE	N	9	9	1	1
HLL	M	15.006	HORIZONTAL LINE LENGTH	N	4	5	1	1
VLL	M	15.007	VERTICAL LINE LENGTH	N	4	5	1	1
SLC	M	15.008	SCALE UNITS	N	2	2	1	1
HPS	M	15.009	HORIZONTAL PIXEL SCALE	N	3	5	1	1
VPS	M	15.010	VERTICAL PIXEL SCALE	N	3	5	1	1
CGA	M	15.011	COMPRESSION ALGORITHM	A	5	7	1	1
BPX	M	15.012	BITS PER PIXEL	N	2	3	1	1
FGP	M	15.013	FINGER POSITION	N	2	3	1	6
DAT	M	15.999	IMAGE DATA	B	2	--	1	1

KEY FOR CHARACTER TYPE: N=NUMERIC; A=ALPHABETIC; AN=ALPHA NUMERIC; B=BINARY

3.6 Mug Shot Image Transmission

All Mug Shot and SMT (scars, marks, and tattoos) images transmitted from the Livescan must be NIST Type 10 facial & SMT image records as described in the ANSI/NIST-ITL 1-2000 standard in section 17. See the OSBI Mug Shot Interface Specifications for the complete description of mug shot requirements. **No Type 10 Mug Shot/ SMT images can be sent to the OSBI without also sending descriptor Type 2 and ten print Type 4 records.**

3.7 Data Transfer Protocol

TCP/IP will be the protocol used for all file transfer, and network communications between the Livescan and the OSBI.

3.8 Email Transfer Protocol

SMTP (Simple Mail Transfer Protocol) will be the protocol used for all email exchange between the Livescan and the OSBI.

3.9 Valid Email Account

A valid email account will have to be set up on the Livescan and the OSBI will have to be notified of the account name in order to exchange email messages between the Livescan and the OSBI.

3.10 Fingerprint Image Compression/Decompression

The Wavelet Scalar Quantization (WSQ) compression/decompression algorithm will be used for all gray-scale Fingerprint images transferred to and from the OSBI. For information regarding the WSQ algorithm refer to the Wavelet Scalar Quantization Grayscale Fingerprint Image Compression Specification, dated February 16, 1993.

3.11 FBI Certified Printer

The Livescan printer must contain two card trays, print double-sided and be FBI/IQS (Appendix F) certified.

3.12 Rolls To Flats Comparison

In order to ensure correct placement of fingers and without duplicates the Livescan must be able to compare rolled impressions to the flat impressions. **This comparison must be a minutiae-based comparison.**

3.13 Fingerprint Processing

It is desired that the Livescan be able to perform image enhancements, extract minutiae and thinned images, and classify Fingerprint patterns before submitting data to the OSBI.

3.14 Printable Card Types

Due to the different types of cards that have to be submitted to different agencies, the Livescan must be capable of printing 6 different cards types. The card types are as follows: FBI Criminal, FBI Applicant, State Criminal, State Palm Print, State Filing Report Form, and State Disposition Report Form. For further information on card types refer to Section 5.0.

$$P_x = 11 - 3 = 8$$

The letter corresponding to 8 is P, this matches the one entered, therefore it is a correct entry.

4.0 Types of Transactions

This section describes the types of transactions that can be submitted from a Livescan to the OSBI. The particular type of transaction is identified in the Type Of Transaction (TOT) Field in the Type-1 record that is used with each transaction. For further information about a Type-1 record refer to the American National Standards Institute (ANSI), Data Format for the Interchange of Fingerprint Information, ANSI/NIST-ITL 1-2000. Table 1 lists the types of transactions that are accepted by the OSBI.

Table 2

Type Of Transaction	Description
LV	Criminal Adult
LVJ	Criminal Juvenile
LVA	Civil Police Applicant

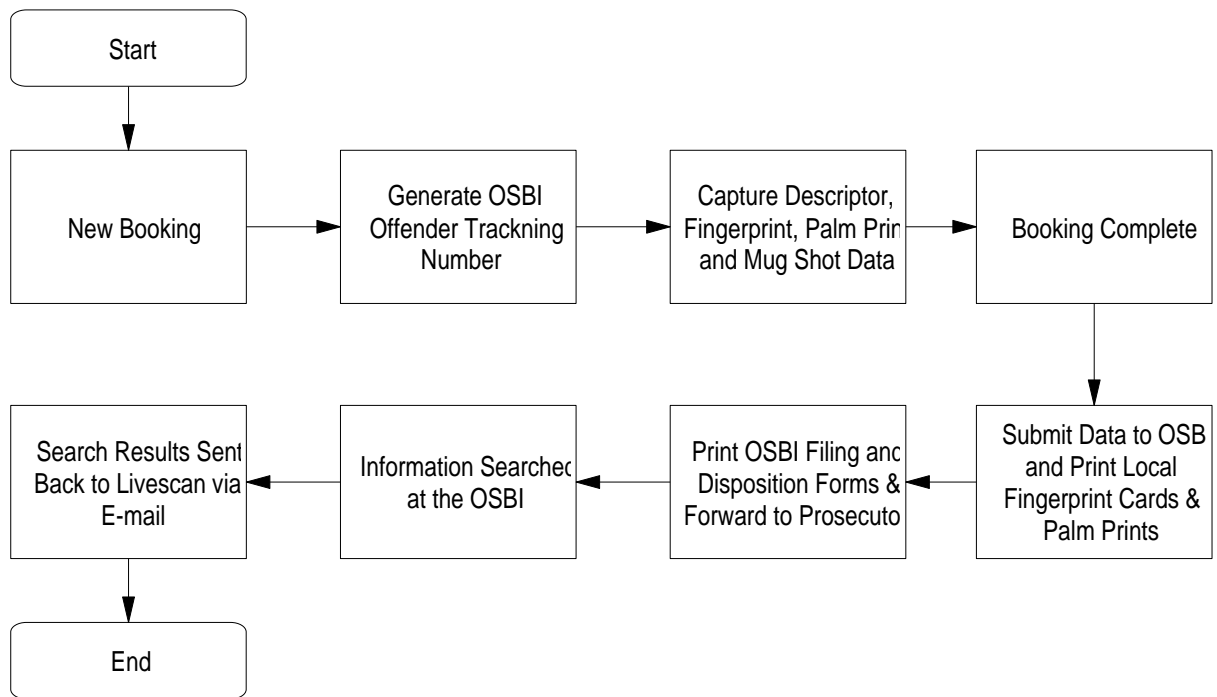
4.1 LV Transaction

LV transaction type will be used when booking a criminal over 18 years of age.

4.1.1 LV Transaction Data Flow Diagram

The LV functional data flow is described in Figure 2.0.

Figure 2.0



4.1.2 LV Data Flow Narrative

- As soon as the Livescan operator starts a new booking the Livescan must generate a valid Offender Tracking Number (OTN) using the OSBI OTN check digit algorithm as described in Section 3.15.
- After the OTN number is generated the descriptor, Fingerprint, Palm Print, and Mug Shot data will be captured.
- Once the data is captured the booking is complete and all data is transmitted electronically to the OSBI. Local printing of Fingerprint and Palm Print cards will also take place at this point.
- Print OSBI Filing and Disposition Forms and forward to prosecutor.
- At this point the information will be searched at the OSBI and search results will be e-mailed back to the Livescan notifying the user of a hit or no hit. If the search produces a hit the email will contain the SID number and descriptor information.

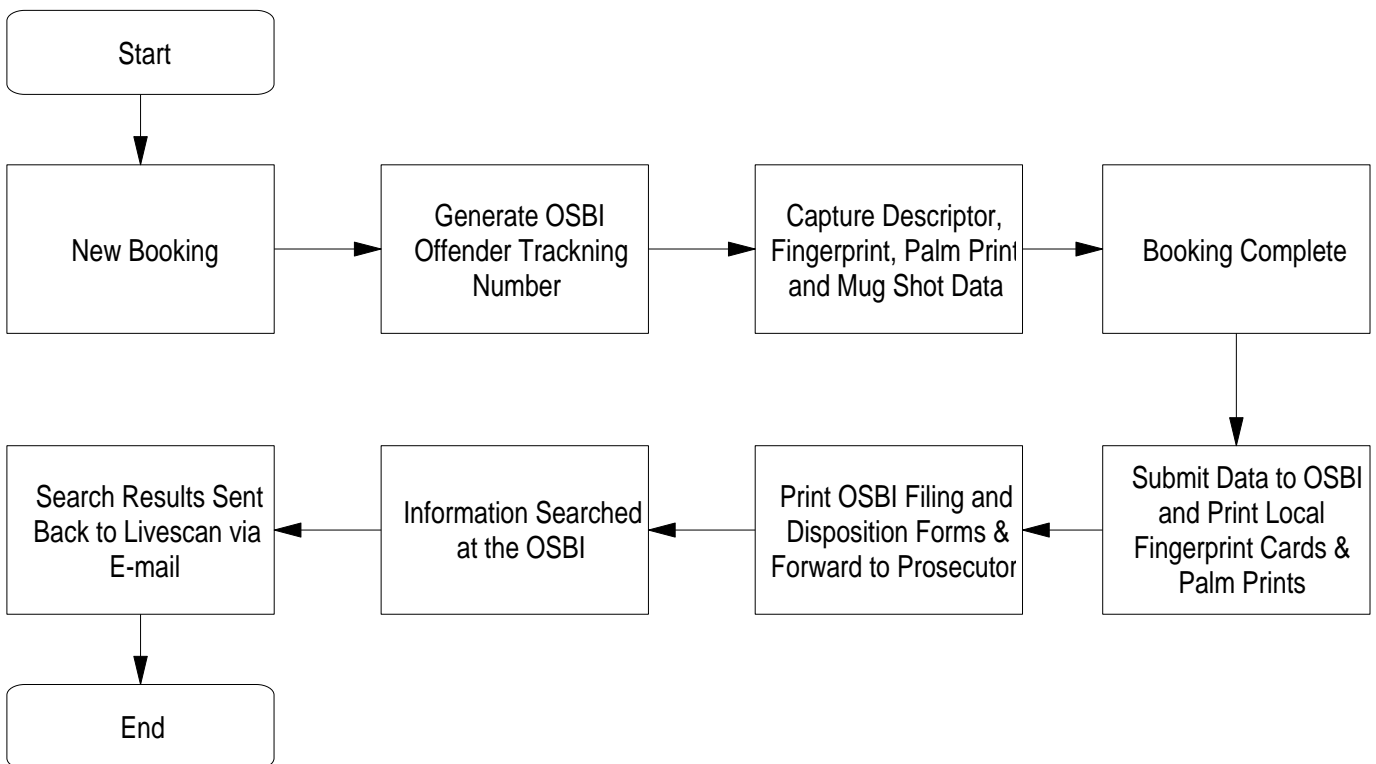
4.2 LVJ Transaction

LVJ transaction type will be used when booking a criminal under 18 years of age.

4.2.1 LVJ Transaction Data Flow Diagram

The LVJ functional data flow is described in Figure 3.0.

Figure 3.0



4.2.2 LVJ Data Flow Narrative

- As soon as the Livescan operator starts a new booking the Livescan must generate a valid Offender Tracking Number (OTN) using the OSBI OTN check digit algorithm as described in Section 3.15.
- After the OTN number is generated the descriptor, Fingerprint, Palm Print, and Mug Shot data will be captured.
- Once the data is captured the booking is complete and all data is transmitted electronically to the OSBI. Local printing

of Fingerprint cards will also take place at this point.

- At this point the information will be searched at the OSBI and search results will be emailed back to Livescan notifying the user of a "Hit", "In Progress at OSBI" or "No Hit". If the search produces a "Hit" the email will contain the SID number and descriptor information.

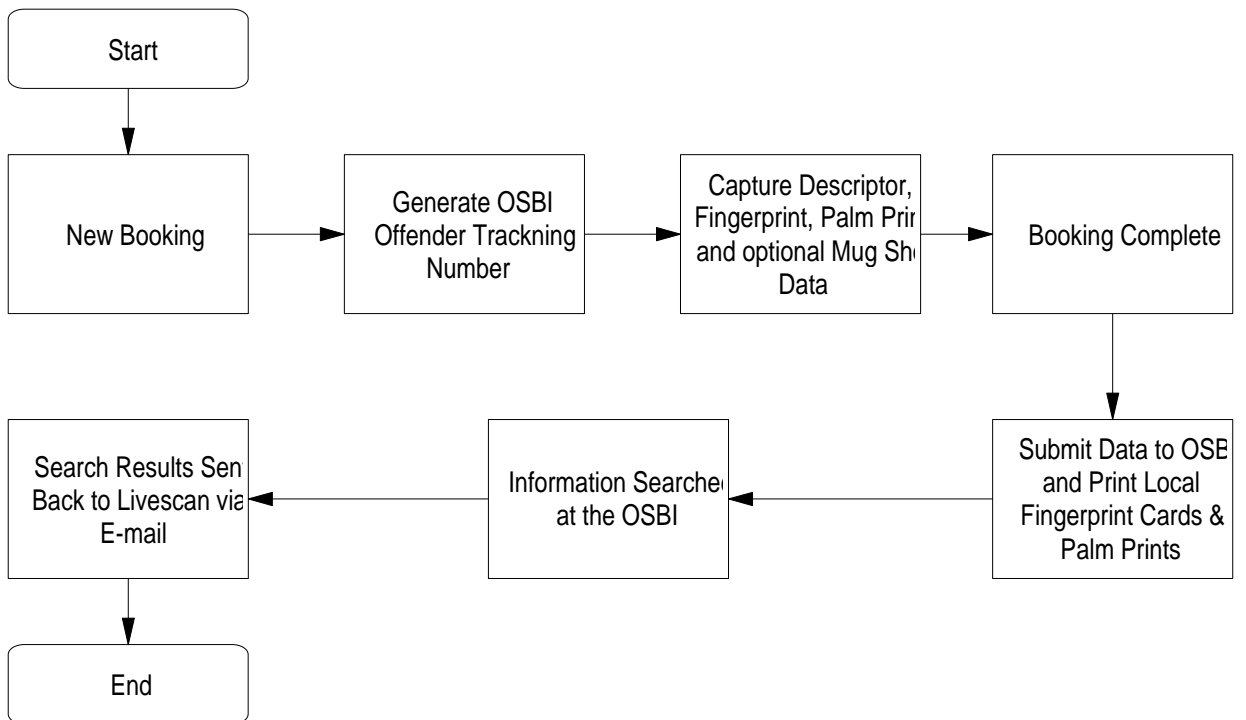
4.3 LVA Transaction

LVA transaction type will be used when processing police applicants or personnel at the local agency or for other law enforcement agencies.

4.3.1 LVA Transaction Data Flow Diagram

The LVA functional data flow is described in Figure 4.0.

Figure 4.0.



4.3.2 LVA Data Flow Narrative

- The Livescan operator starts a new booking and selects the Applicant transaction.
- Descriptor, Fingerprint, Palm Print, and optional Mug Shot data will be captured at this point.
- Once the data is captured the booking is complete and all data is transmitted electronically to the OSBI. Local printing of Fingerprint and Palm Print cards will also take place at this point.
- At this point the information will be searched at the OSBI and search results will be emailed back to Livescan notifying the user of a "Hit", "In Progress at OSBI" or "No Hit". If the search produces a "Hit" the email will contain the SID number and descriptor information.

5.0 Card Types

This section shows the different card types that the Livescan must be capable of printing.

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5.1 Oklahoma Criminal Fingerprint Card Front

LEAVE BLANK		OTM	LAST NAME		FIRST NAME	MIDDLE NAME	ALIASES					
SIGNATURE OF PERSON FINGERPRINTED			DATE		CONTRIBUTOR ORI							
SIGNATURE OF OFFICIAL TAKING FINGERPRINTS			CIRCLE ONE Felony or Misdemeanor		Crime Against Child							
CHARGE - ADDITIONAL CHARGES ON BACK (YES) or (NO)			F - M	Y - N	DATE ARRESTED OR RECEIVED		AGE	DATE OF BIRTH Month Day Year		PLACE OF BIRTH		
1			F - M	Y - N	SOCIAL SECURITY NO.		SEX	RACE	HEIGHT	WEIGHT	EYES	HAIR
2			F - M	Y - N			SEX	RACE	HEIGHT	WEIGHT	EYES	HAIR
3			F - M	Y - N								
FINAL DISPOSITION - CHARGE			OCA NO.		SID NO.		CLASS					
1												
2			ALIEN REGISTRATION #		FBI NO.							
3												
1 R THUMB			2 R INDEX			3 R MIDDLE			4 R RING		5 R LITTLE	
6 L THUMB			7 L INDEX			8 L MIDDLE			9 L RING		10 L LITTLE	
LEFT FOUR FINGERS TAKEN SIMULTANEOUSLY				L THUMB		R THUMB		RIGHT FOUR FINGERS TAKEN SIMULTANEOUSLY				

5.2 Oklahoma Criminal Fingerprint Card Back

ADDITIONAL CHARGES	CIRCLE ONE		FINAL DISPOSITION
	Felony or Misdemeanor	Crime Against Child	
4	F - M	Y - N	4
5	F - M	Y - N	5
6	F - M	Y - N	6
7	F - M	Y - N	7
8	F - M	Y - N	8
9	F - M	Y - N	9
10	F - M	Y - N	10
EMPLOYER	JUVENILE FINGERPRINT SUBMISSION? YES <input type="checkbox"/>	COUNTRY OF CITIZENSHIP	
OCCUPATION	TREAT AS ADULT? YES <input type="checkbox"/>	WARRANT #S	
RESIDENCE OF PERSON FINGERPRINTED	PHOTO AVAILABLE? YES <input type="checkbox"/>		
SCARS, MARKS, TATTOOS, AND AMPUTATIONS	PALM PRINTS TAKEN? YES <input type="checkbox"/>	ADDITIONAL INFORMATION/BASIS FOR CAUTION	
DATE OF OFFENSE			
MISC. NO.			

5.3 Oklahoma Filing Report Form

LEAVE BLANK		OTN	LAST NAME	FIRST NAME	MIDDLE NAME	ALIASES						
SIGNATURE OF PERSON FINGERPRINTED			DATE	CONTRIBUTOR ORI								
SIGNATURE OF OFFICIAL TAKING FINGERPRINTS			CIRCLE ONE Felony or Misdemeanor		Crime Against Child							
CHARGE - ADDITIONAL CHARGES OR BACK (YES) or (NO)			F - M	Y - N	DATE ARRESTED OR RECEIVED	AGE	DATE OF BIRTH Month Day Year		PLACE OF BIRTH			
1				F - M	Y - N	SOCIAL SECURITY NO.	SEX	RACE	HEIGHT	WEIGHT	EYES	HAIR
2				F - M	Y - N							
3				F - M	Y - N							
FINAL DISPOSITION - CHARGE			OCA NO.	SID NO.		CLASS						
1												
2				ALIEN REGISTRATION #	FBI NO.							
3												
FILING REPORT												
<input type="checkbox"/> Referred to District Attorney				FOR PROSECUTORS USE ONLY					<input type="checkbox"/> Referred to Municipal Court			
ORI	AGENCY NAME				DATE FILED		CASE NUMBER					
CHARGES					FELONY OR MSD. (F or M)	COUNTS	GENERAL OFFENSE CODE	CONTROLLED SUBSTANCE	DA DECLINES TO FILE			
STATUTE / OFFENSE												
CHG 1												
CHG 2												
CHG 3												
CHG 4												
CHG 5												
CHG 6												
CHG 7												
CHG 8												
CHG 9												
CHG 10												

5.4 Oklahoma Disposition Report Form

LEAVE BLANK		OTN		LAST NAME		FIRST NAME		MIDDLE NAME		ALIASES						
SIGNATURE OF PERSON FINGERPRINTED				DATE		CONTRIBUTOR ORI										
SIGNATURE OF OFFICIAL TAKING FINGERPRINTS				CIRCLE ONE Felony or Misdemeanor		Other Against Child										
CHARGE - ADDITIONAL CHARGES ON BACK (YES) or (NO)				F - M		Y - N		DATE ARRESTED OR RECEIVED		AGE	DATE OF BIRTH Month Day Year		PLACE OF BRTH			
				F - M		Y - N		SOCIAL SECURITY NO.		SEX	RACE	HEIGHT	WEIGHT	EYES	HAIR	
				F - M		Y - N										
FINAL DISPOSITION - CHARGE				DCA NO.		SID NO.		CLASS								
				ALIEN REGISTRATION #		FBI NO.										
DISPOSITION REPORT																
<input type="checkbox"/> Referred to District Attorney				FOR PROSECUTORS USE ONLY				<input type="checkbox"/> Referred to Municipal Court								
ORI		AGENCY NAME				DISPOSITION DATE			CASE NUMBER							
CHARGES AT CONVICTION		FELONY OR MISD (F or M)	COUNTS	HEARING CODE	DISPOSITION CODE	PROVISION CODE	REASON CODE	SENTENCE				DOC SUPV. (Y)				
CHG 1																
CHG 2																
CHG 3																
CHG 4																
CHG 5																
CHG 6																
CHG 7																
CHG 8																
CHG 9																
CHG 10																
JUDGE: _____				PROSECUTOR: _____				F - FINE	R/L - LOCAL RESTITUTION		J - JAIL		D - DEFERRED	R/S - STATE RESTITUTION	S - SUSPENDED	P - PRISON

5.5 Oklahoma Left Palm Print Form

For a complete description of the left OSBI Palm Print Form see the *OSBI Palm Print Form Specifications*.

5.6 Oklahoma Right Palm Print Form

For a complete description of the right OSBI Palm Print Form see the *OSBI Palm Print Form Specifications*.

5.7 FBI Criminal Fingerprint Card Front

LEAVE BLANK		CRIMINAL		(STAPLE HERE)				LEAVE BLANK				
STATE USAGE		OFF SECOND		SUBMISSION		APPROXIMATE CLASS		AMPUTATION		SCAR		
SIGNATURE OF PERSON FINGERPRINTED		SOCIAL SECURITY NO.				LEAVE BLANK						
ALIASES/MAIDEN LAST NAME, FIRST NAME, MIDDLE NAME, SUFFIX		LAST NAME, FIRST NAME, MIDDLE NAME, SUFFIX										
FBI NO.		STATE IDENTIFICATION NO.		DATE OF BIRTH MM DD YY			SEX	RACE	HEIGHT	WEIGHT	EYES	HAIR
1 R THUMB		2 R INDEX		3 R MIDDLE		4 R RING			5 R LITTLE			
6 L THUMB		7 L INDEX		8 L MIDDLE		9 L RING			10 L LITTLE			
LEFT FOUR FINGERS TAKEN SIMULTANEOUSLY				L THUMB		R THUMB		RIGHT FOUR FINGERS TAKEN SIMULTANEOUSLY				

5.8 FBI Criminal Fingerprint Card Back

FEDERAL BUREAU OF INVESTIGATION, UNITED STATES DEPARTMENT OF JUSTICE WASHINGTON, D.C. 20537			
<small>PRIVACY ACT OF 1974 (P.L. 93-579) REQUIRES THAT FEDERAL, STATE, OR LOCAL AGENCIES INFORM INDIVIDUALS WHOSE SOCIAL SECURITY NUMBER IS REQUESTED WHETHER SUCH DISCLOSURE IS MANDATORY OR VOLUNTARY, BASIS OF AUTHORITY FOR SUCH SOLICITATION, AND USES WHICH WILL BE MADE OF IT.</small>			
JUVENILE FINGERPRINT SUBMISSION YES <input type="checkbox"/> TREAT AS ADULT YES <input type="checkbox"/>	DATE OF ARREST MM DD YY	ORI CONTRIBUTOR ADDRESS OKOB10000 OKLA ST B OF I OKLAHOMA CITY, OK REPLY YES <input type="checkbox"/> DESIRED?	
SEND COPY TO: (ENTER OR#)	DATE OF OFFENSE MM DD YY	PLACE OF BIRTH (STATE OR COUNTRY)	COUNTRY OF CITIZENSHIP
MISCELLANEOUS NUMBERS	SCARS, MARKS, TATTOOS, AND AMPUTATIONS		
	RESIDENCE/COMPLETE ADDRESS	CITY	STATE
OFFICIAL TAKING FINGERPRINTS (NAME OR NUMBER)	LOCAL IDENTIFICATION/REFERENCE	PHOTO AVAILABLE? YES <input type="checkbox"/> PALM PRINTS TAKEN? YES <input type="checkbox"/>	
EMPLOYER: IF U.S. GOVERNMENT, INDICATE SPECIFIC AGENCY. IF MILITARY, LIST BRANCH OF SERVICE AND SERIAL NO.		OCCUPATION	
CHARGE/CITATION 1		DISPOSITION 1	
2		2	
3		3	
ADDITIONAL		ADDITIONAL	
ADDITIONAL INFORMATION/BASIS FOR CAUTION		STATE BUREAU STAMP	
FD-249 (Rev. 12-1-94)		U.S. GPO: 1996-405-015/20032	

6.0 Glossary of Terms

WSQ	-	Wavelet Scalar Quantization
NIST	-	National Institute of Standards and Technology
TCP/IP	-	Transmission Control Protocol / Internet Protocol
OSBI	-	Oklahoma State Bureau of Investigation
OTN	-	Offender Tracking Number
ASCII	-	American Standard for Computer Information Interchange
SID	-	State Identification Number
AFIS	-	Automated Fingerprint Identification System
IQS	-	Image Quality Specification
FBI	-	Federal Bureau of Investigation
TOT	-	Type Of Transaction
SMTP	-	Simple Mail Transfer Protocol
SMT	-	Scars, Marks, and Tattoos

7.0 OSBI Technical Contact Information

OSBI Management of Information Systems
6600 North Harvey
Oklahoma City, Oklahoma 73116
Phone: (405) 879-2972 Fax: (405) 879-2542
Toll Free 1-800-522-8017