Best Practice Procedures for The Exchange of Latent Identification Services

The Texas Experience

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Texas DPS
Addressing the Needs of the Texas Latent User

Latent exchange must:
- Be Inexpensive
- Be Easy to Use
- Be Vendor independent
- WORK!

Evaluation of solutions in Texas pointed to the deployment of Universal Latent Workstations and a Texas DPS hosted Store & Forward device.
Factors In Decision

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**Inexpensive**
- Costs to latent user are limited to PC, 1000 ppi scanner, WSQ license and internet connectivity costs. ULW software is free.
- Costs to host include mail server and (if needed) minor upgrades to AFIS system.

**Easy to use**
- ULW software is intuitive and easy to learn
- Exchanging latents is as simple as using email

**Vendor Independent**
- Type 9 Record provides AFIS vendor with vendor specific feature set
- Use of standard FBI EFTS TOTs (LFFS / SRL)

**It works**
- Texas users have made many hits against IAFIS and the Texas DPS NEC AFIS utilizing ULW and Type 9 records.
The Texas Implementation

Outbound Latent Exchange

- Universal Latent Workstation (ULW) to non-Texas DPS AFIS

Inbound

- ULW to Texas DPS AFIS (Inbound)
ULW Outbound

- NEC FW-L (with installed ULW) generated LFFS transaction or standalone ULW
- LFFS transaction is forwarded to Store and Forward device
- S&F mails the LFFS to the FBI’s IAFIS via the CJIS WAN
- LFFS transaction is processed and returned to the contributor as an SRL or ERRL using the same path.
- DPS will be able to route transactions to other AFIS systems as they are able to accept Type 9 submissions.

Harris County (Houston, Tx)
Major difference between inbound and outbound concerns the need to manipulate images maintained in AFIS to insure compliance with national standards.

For Texas, images stored in the NEC AFIS are modified by adding the 18 extra bytes of data necessary to distinguish the image as a NIST Type 4 record.
Many AFIS systems do not store fingerprint images in NIST Type 4 format. While these proprietary image structures are optimized for use in their native systems, they are not in a readily exchangeable format. Modifications must be made to these images in order to use them in dissimilar systems.
Logical record length (LEN) - This mandatory four-byte binary field shall occupy bytes one through four. It shall contain the length of the logical record specifying the total number of bytes, including every byte of all nine fields contained in the record.

Image designation character (IDC) - This mandatory one-byte binary field shall occupy the fifth byte of a Type-4 record. It shall be used to identify the image data contained in this record. The IDC contained in this field shall be a binary representation of the IDC found in the file content (CNT) field of the Type-1 record.

Impression type (IMP) - This mandatory one-byte binary field shall occupy the sixth byte of a Type-4 record. The code selected from Table 5, describing the manner by which the fingerprint image information was obtained, shall be entered in this field.

Finger position (FGP) - This mandatory fixed-length field of 6 binary bytes shall occupy the seventh through twelfth positions of a Type-4 record. It shall contain possible finger positions beginning in the leftmost byte of the field (byte seven of the record). The decimal code number for the known or most probable finger position shall be taken from Table 6 and entered as a binary number right justified and left zero filled within the eight-bit byte.

Image scanning resolution (ISR) - This mandatory one-byte binary field shall occupy the thirteenth byte of a Type-4 record. It shall contain a binary value of 0 if the minimum scanning resolution is used, and 1 if the native scanning resolution is used.

Horizontal line length (HLL) - This mandatory two-byte binary field shall occupy the fourteenth and fifteenth bytes of the Type-4 record. It shall be used to specify the number of pixels contained on a single horizontal line of the transmitted image.

Vertical line length (VLL) - This mandatory two-byte binary field shall occupy the sixteenth and seventeenth bytes of the Type-4 record. It shall be used to specify the number of horizontal lines contained in the transmitted image.

Grayscale compression algorithm (GCA) - This mandatory one-byte binary field shall occupy the eighteenth byte of a Type-4 record. It shall be used to specify the type of grayscale compression algorithm used (if any). A binary zero denotes no compression. Otherwise, the contents of this byte shall be a binary representation for the number allocated to the particular compression technique used by the interchange parties. The domain registrar will maintain a registry relating these numbers to the compression algorithms.
Additional Considerations

Security
- Authentication
- Encryption

S&F Functionality
- Logging
- Job Cueing

IIETF Best Practices Document
Questions?

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