



MNPD Crime Laboratory

Latent Print Technical Procedures Manual



Metropolitan Government of Nashville & Davidson County Police Department



Table of Contents

ADMINISTRATIVE PROCESSING AND STORAGE OF LATENT EVIDENCE

New Latent Evidence

Old Latent Evidence

Transfers of evidence out of the Latent Print Unit

Release of Latent Evidence

AFIS PROCESSING

Procedure – General

AFIS Performance Check Instructions

AFIS Search and Registration

Local AFIS TLI (Reverse) Hits

ULW /NGI Searches

AFIS HIT NOTIFICATIONS

Procedure – General

AFIS Notification Instructions

Technical Reviewer Instructions – AFIS Hit Notifications

Administrative Reviewer Instructions – AFIS Hit Notifications

BLIND VERIFICATION

CONSULTATIONS

DETERMINING WORKABILITY

DISCOVERY REQUESTS / MEETINGS / COURT PRESENTATIONS

DOCUMENTATION AND EXAM RECORDS

Procedure – General

DEMS Exam Records



IDENTIFICATIONS – DOCUMENTATION AND NOTIFICATIONS

LIMITED EXAMINATIONS

QUALITY PROGRAM – LATENT PRINTS

Procedure – General

Reviews of Preliminary Processing

Reviews of AFIS Hit Notifications

Reviews of Comparisons and Official Reports

REQUESTS FOR SERVICE

Procedure

Requests from CSI/EPU

Requests from the Tenprint Unit

Requests from the Cold Case / Missing Persons Unit

REQUEST FOR SERVICE FROM NON-MNPD AGENCIES

REPORTING

RESOLVING DIFFERENCES IN FINDINGS

TECHNICAL AND ADMINISTRATIVE REVIEW

WORKABLE SUBMISSIONS – EXAMINATIONS, METHODOLOGY AND CONCLUSIONS

Procedure – General

Analysis

Comparison

Evaluation

Verification

APPENDIX A DEMS AND PHOTOSHOP INSTRUCTIONS



APPENDIX B SUBMISSION AND PROCESSING OF LATENT DIGITAL IMAGES

APPENDIX C ULW INSTRUCTIONS



Administrative Processing and Storage of Latent Evidence

Scope: Describes the latent evidence workflows as received, administratively processed, and stored by the Latent Print Unit (LPU).

New Latent Evidence

Latent Print Unit personnel retrieve latent evidence from the Crime Lab Evidence Receiving Unit (ERU) upon notification from the ERU that new evidence has been received into the Lab. (Evidence that was received prior to November 2014 was routed directly to the Latent Print Unit and did not receive an Evidence Storage Section (now Division) barcode).

Latent evidence in the form of lifts is typically received in a sealed MNPDP Latent Evidence submission envelope. However, there are instances such as when known standards are submitted as evidence that the Latent Evidence submission envelope is not utilized. The preferred manner for receipt of these items are sealed packaging from the ERU. The seals of evidence received are initially checked by ERU personnel at the time of submission and again by the LPU personnel upon receipt.

Evidence in the form of checks or other documents such as collected knowns (postmortem, major case prints, etc.) may be hand-delivered in some instances. If LPU personnel are not available to take custody of the evidence, laboratory personnel will advise the detective/investigator to return at a later date when LPU personnel are available or to submit through the Evidence Receiving Unit. Hand-delivered evidence will be entered into LIMS, barcoded, and a note will be made in the electronic casefile to initiate the chain of custody record using the Evidence Transfer Log ERU form. All items are maintained in the Latent Print Unit vault after completion of examination unless otherwise requested by the detective/investigator.

Digital evidence collected by CSI field units or the Evidence Processing Unit (EPU) is submitted to the Latent Print Unit via the Digital Evidence Management Software (DEMS), typically by email notification to the Latent Print Unit at CrimeLabLPU@nashville.gov.

Upon receipt, and thereafter, all latent evidence submissions shall be administratively processed to include documentation of chain-of-custody transfers.

The latent evidence submission and all contents must bear a unique case identifier.

Administrative processing of latent evidence **should include**:

- Numbering the submission envelope to correspond with LIMS – 000 format
 - Itemizing and barcoding of all lift cards (preferably on the back-information side), photographs or known standards inside the submission envelope. In instances where media is submitted as evidence (such as a thumb drive or disc), barcoding is not required.
 - Digital evidence is not barcoded but itemized in LIMS.
- Numbering lift cards/items (preferably on the front) contained in the submission envelope
- Scan envelope and all lift cards to DEMS-See Appendix A DEMS and Photoshop Instructions



At the conclusion of administrative processing, latent submissions receive a preliminary assessment of workability. See: [Determining Workability](#). At the conclusion of this assessment, latent submissions are stored in the Latent Print Unit evidence vault.

When latent evidence is removed from the vault for examinations, the evidence may remain in the custody of the technician or scientist during the examination process. Evidence should be in custody no longer than 90 days unless circumstances warrant otherwise. Evidence shall be locked in the secured Personal Storage Location of the technician or scientist, or the Latent Print Unit evidence vault at the end of the workday. At the conclusion of the examination and review process, the evidence will be returned to the vault. If there are numerous submissions, the examiner will ensure the evidence is in the appropriate submission envelope. The chain of custody is maintained through internal transfers.

Latent evidence which has been opened for **administrative processing and workability assessment** is sealed, initialed, and dated no later than twelve (12) months following receipt.

Evidence determined to be Not Workable/No Value, or evidence in which all latent prints have been identified, may be sealed following Technical and Administrative Reviews.

Evidence may remain unsealed past 12 months since date of receipt if the case is currently in process of examination/analysis or reviews. These instances may be stored unsealed or with a temporary/convenience seal for up to one year if considered in process; however, at the conclusion of the review process, it is best practice to reseal the evidence at that time.

Latent evidence may be moved to secure off-site storage 60 months following receipt.

Latent evidence submissions from agencies other than MNPDP are received in sealed MNPDP Latent Evidence envelopes and the chain of custody is documented in the same manner as MNPDP submissions.

Known standards retrieved from MNPDP files or requested from the FBI or other available database for comparison purposes are considered exam records and bear a unique identifying number (such as OCA – Originating Case Agency or FBI number, or SID-State Identification Number).

Standards from sources other than database files are considered evidence and are submitted in the same manner as latent evidence as described at the beginning of this section.

Old Latent Evidence

Old latent evidence which does not bear an ESD barcode will be processed in the same manner as new latent evidence, with the following additional steps:

- File>New Case adding Agency Info (Apply to generate the Lab Case Number)
- Add Evidence of the Submission/envelope
- Initiate internal Chain of Custody transfer (vault to examiner)
- Apply submission/envelope barcode



Submissions received prior to 2015 which are sealed and marked as no value will be processed in LIMS and the Digital Evidence Management Software (DEMS) for the submission envelope only

Transfers of evidence out of the Latent Print Unit

Latent evidence collected by MNPD may be released to the assigned MNPD investigator, the submitting Officer, and/or the courts, as circumstances require. If a latent evidence submission will be temporarily or permanently removed from the Latent Print Unit vault (example: admitted as evidence in court), transfers of custody shall be recorded as follows:

- Record the transfer in LIMS, including explanation in the Transfer Notes
- Complete an Evidence Transfer Log form, including signature and transfer information
- Complete the LIMS transaction (without barcode) using the location (example: Court Storage) and time from the log
- Upload completed Evidence Transfer Log to LIMS Attachments

Release of Latent Evidence

Latent evidence collected by MNPD may be released to another law enforcement agency only upon written authorization from the assigned MNPD investigator. The transfer of custody shall be recorded in the case file in the same manner as described above.



AFIS Processing

Scope: Describes how latent impressions are processed in the various Automated Fingerprint Identification Systems (AFIS) available to the MNPD Latent Print Unit, which include the local MNPD AFIS operated by NEC and the FBI NGI (Next Generation Identification) databases.

Procedure – General

Latent Print Unit personnel routinely search newly received evidence or evidence requested for updated database searches in available AFIS databases without the requirement of a 282 Forensic Services Request.

Only authorized personnel may use the AFIS. Instructions for use are available in the online Help file of the NEC software.

The AFIS is considered a reference tool. Viewing of the candidate list does not constitute a complete comparison.

AFIS candidate lists provide the unique identifying number of each candidate. Prior to making any identification, a copy exemplar(s) of a candidate must be retrieved and used for comparisons. If an image request for exemplar(s) is needed (IRQ or other circumstance), the exemplar should be at least 500 dpi for acquisition and comparisons. On screen side by side AFIS images shall not be used to make final conclusions of identity.

AFIS database performance checks which are performed in the local MNPD AFIS with impressions where ground truth is known are conducted monthly and documented in Quality Management System with the Workflow: LP AFIS Performance Log. Records are maintained for a minimum of two years.

AFIS Performance Check Instructions

The performance (accuracy and reliability) of the Automated Fingerprint Identification System should be checked monthly and documented as follows.

- A Ground Truth AFIS search and resulting identifications will be established for a latent finger impression and a latent palm impression.
- Searches will request no more than ten (10) candidates.
- Search parameters and candidate lists for Ground Truth data are maintained in Quality Management System, logging with the Workflow: LP AFIS Performance Log.
- The performance check when administered should utilize similar parameters and different operators for each occurrence.
- A Passing result will place the Ground Truth subject within the list of asterisked candidates, but not necessarily at the same rank or score.
- Any Failing result shall be researched for cause and documented in the Quality Management System LP AFIS Performance Log.
- A satisfactory explanation for a Failing result would include a rolled print substitution subsequent to the Ground Truth search.



- If there is no satisfactory explanation for a Failing result, the affected workstation(s) will be taken out of service and clearly marked with signage, and the problem reported to the AFIS vendor via NECMBIS@necam.com.
- Only when the workstation is shown by performance check to operate correctly can it be returned to service.

AFIS Search and Registration

Impressions which are identifiable are typically considered AFIS quality, with the exception of proximal and medial joints and high tips. Consideration should be given to multiple search parameters as needed.

Initial searches are documented as follows:

- In the LIMS Evidence Data Extension Field
- On the AFIS Activity worksheet, which is maintained in the electronic case file
- AFIS Hit or No Hit Reports, which are also maintained in the electronic case file

Based on workload and staffing, the supervisor may determine that incoming new evidence receive limited AFIS searches. The extent of this routine (incoming) processing will be posted in the AFIS Workroom. Examples of levels of processing include:

- Enter only the most probative and/or best evidence
- Enter all AFIS quality impressions
- Enter until a hit is obtained
- Entry level based on crime types being processed

Exam notes shall clearly indicate the extent of AFIS processing in a case by utilizing the AFIS Activity Worksheet.

- The minutiae marked at AFIS entry is considered to be a documented analysis of features observed when determining workability. See Determining Workability procedure.

Unidentified latent impressions determined to be AFIS quality and searched shall be registered in the respective AFIS database(s) unless circumstances warrant otherwise. For impressions that are searched but not registered, or not searched in an available database, reasoning should be notated on the AFIS Activity worksheet and/or the Latent Exam Worksheet. An example of circumstance may be the poor quality/lack of information in the impression searched. For the NGI database, impressions may be searched at multiple orientations, but should be registered only in the most likely orientation(s). The AFIS Activity Worksheet should reflect all entries and their search results.

Local AFIS TLI (Reverse) Hits

The local MNPD AFIS should be checked routinely for reverse search potential hits. In the NEC application, filter jobs as follows:

- Dates: Remove all dates
- Package Type: Tenprint
- Phases: TLI, TLIP



- Processes: Verify
- Status: Wait
- Apply
-

Reverse hits shall be processed in the same manner as search hits, with the following exceptions:

- If impression has been previously identified, remove registrations from all applicable databases.
- Bring to the attention of a supervisor any pending LIMS Latent Print Requests in the same case. Also notify analyst if the pending LIMS request is in assignment.
- If the impression is from a case in which it is known that the statute of limitations has passed, it may be determined that the notification is not needed. Documentation of the potential hit will be retained.

Reverse hit reports should be saved in an electronic shared folder prior to disposition for reference and retrieval. LPU personnel clearing the TLI queue should notify the original examiner of any potential reverse hits to be reviewed. If the LPU personnel is no longer employed, the reverse hit will be assigned for review.

ULW /NGI Searches

Searches of the FBI's NGI database are determined on a case-by-case basis, with consideration given to the following: results of other database searches and comparisons, offense, location and quality of latent, and other pertinent information received from the Requestor. It is considered a reference tool with comparison and result guidelines as with MNPD AFIS.

NGI submissions are submitted via the Universal Latent Workstation (ULW). See [Appendix C ULW Instructions](#) for creating an FBI compliant ULW file.

NGI submissions should be documented in the case file in the same manner as MNPD AFIS searches.

To comply with ULW requirements, all impressions images searched using ULW software shall be of either 500ppi or 1000ppi resolution. There is a conversion option when submitting the search to meet this requirement if the original latent file is of a different resolution.

ULW search and response files are routed through the ULW Transaction Manager as entries and searches are conducted. Unsolved Latent Match Response (ULM), or reverse hits, should be checked on a weekly or monthly basis by each user in Transaction Manager, and periodically using the ADMIN login for the ULW Software.

ULW software updates are coordinated with the Crime Lab IT Manager.



AFIS Hit Notifications

Scope: Describes the processing of AFIS searches determined to be hits/associations and resulting Notifications.

Procedure – General

As a result of database searches, AFIS hits (and Notifications) may occur prior to the submission of any 282 request.

AFIS Notifications are memorandums of database hits that have been reviewed by an authorized examiner or supervisor. Such Notifications shall clearly indicate that a complete examination has not been conducted, and that examinations and official reports are available upon request.

Prior to issuing an AFIS Notification, a series of reviews shall occur.

AFIS Notification Instructions

Following a database hit:

- Upload documentation in the appropriate LIMS Request folder, which should include AFIS Activity Worksheet(s), Hit Report(s), and include No Hit Report(s) if applicable, for all searches conducted.
- Upload associated known used in comparison to DEMS.
- If multiple hits occur to the same individual, choose most probative or best evidence to document a comparison. A comparison for each hit to the same individual is not required.
- Follow the Documenting Latent Analysis and Comparison instructions in Appendix A DEMS and Photoshop Instructions for an association comparison.
- Refer to AutoText for LIMS regarding AFIS Notifications reporting.
- Follow [Blind Verification procedure](#) (if applicable), or if a consultation occurred, document per consultation procedure.
- Scan the back of the lift cards of any reported association to DEMS for subsequent review process.
- Return all evidence to the vault.
- Assign Technical Review in LIMS

Technical Reviewer Instructions – AFIS Hit Notifications

- Initiate the AFIS Hit Notification Review Form
- Check evidence chain of custody for accuracy
- Check LIMS for any existing 282 Requests:
 - Notify assigned examiner of pending Latent Print request, if unassigned notify supervisor of pending request.

If no pending Requests, continue as follows:

- Review the LIMS AFIS Processing request(s) for accuracy of the drafted AFIS Notification(s) supported by documentation.
- Check data extension field: Testing Metrics; Requesting Rep Precinct
- Check evidence description.
- Review documented association(s) prepared for accuracy



- Document the reviewed association(s) with initials and date on the AFIS Hit Notification Review Form
- Verify that all required documentation has been scanned into the electronic case file.
 - Followed [Blind Verification procedure](#) (if applicable), or if a consultation occurred, properly documented per consultation procedure.
- Update LIMS Technical Review milestone and data extension fields
- Sign and date [AFIS Hit Notification Review Form](#)
- Assign Administrative Review in LIMS

Administrative Reviewer Instructions – AFIS Hit Notifications

- Check that the Notification corresponds with the electronic folder contents.
 - Lift card/item related for reviewed impression only in results statement (additional statement for multiple hits to the same individual will follow in Supplemental Information section of Notification).
 - One subject listed per Notification.
 - Incident number, OCA, Name, Item, Requesting Representative
 - Check that AFIS Hit Notification Review Form has Technical Reviewer's initials/date for the reviewed association(s)
 - Add lifting officer to CC list for the Request in LIMS
- Update LIMS Admin Review milestone and data extension fields
- Sign and date the completed [AFIS Notification Review Form](#)
- Verify storage in the electronic case file, or scan into the electronic case file:
 - Signed Review form
 - AFIS Activity Worksheet
 - AFIS Hit Report and No Hit Reports, if applicable
 - Any additional file contents.



Blind Verification

Scope: Describes circumstances in which a Blind Verification (BV) may occur and the procedure for that process.

General

Blind verification is the independent examination of one or more friction ridge impressions by another competent examiner (hereafter referred to as the blind verifier). The blind verifier is provided with no, or limited, contextual information, and has no expectation or knowledge of the determinations or conclusions of the original examiner. Blind verification can be used at any step of the Analysis, Comparison, and Evaluation (ACE) process.

The aim of incorporating a blind verification process into a QA system is to test the reproducibility of the determinations or conclusions made at any step during Analysis, Comparison, Evaluation, and Verification (ACE-V). This is accomplished by performing another examination in an environment that minimizes the influences of any context information that might lead to invalid results.

Blind verification may be performed in instances such as:

- Single exclusion or inconclusive decisions to a subject
- Complex impressions and/or comparisons
- Circumstances with strong contextual bias
- Examinations related to probative evidence
- Other circumstances deemed necessary by the Supervisor/Technical Lead.

NOTE When conducting examinations of 282 requests for testing, for reporting of a single identification to a subject, blind verification shall be utilized by the examiner for impressions that are determined to have "Low" overall quality/quantity of information during the analysis stage. See the procedure for Workable Submissions, Analysis.

Procedure

All Blind Verification materials are considered as part of the case file. If a Blind Verification process is called for, the examiner should notify the Supervisor/TL and prepare an electronic BV folder (for example, Case A) on the shared L:Drive with the following materials:

- Scanned latent lift card or copy of digital image (no case number or examiner identifiers, no markings of identity)
- For comparison verifications, the known exemplar(s) if the latent impression is determined to have comparable value during the BV examination.

The Supervisor/TL will initiate a blind review of the involved evidence via an email communication with the selected BV examiner and request an analysis determination first on the latent impression, and then if determined to be of value for comparison, the known exemplar will be added to be compared and evaluated. The BV examiner shall indicate their conclusion and supporting narrative (notes) if necessary in the email communication. Inconclusive findings require that the reason for inconclusive is noted.

Regardless of findings, the Blind Verifier should always prepare an image in DEMS as



documentation of their observations. All images created will be uploaded to DEMS in the incident folder once work is complete. An email will document the response for the decision and will be uploaded to the LIMS request folder for documentation of the review. The Supervisor/TL will advise the requesting examiner once the review is complete.

If the Blind Verifier reaches an identification decision, they shall add the standard identification markings for both the evidence and the exemplar, as described in the procedure for proper documentation for identifications.

Examiners should not discuss findings while a case is in the BV process.

If there is a difference in findings between the original examiner and the BV examiner, the Resolving Differences in Findings procedure will be followed.



Consultations

Scope: Defines circumstances which are considered as consultations for reporting examiners and related requirements for documentation.

Procedure

A consultation is a significant interaction between examiners regarding one or more impressions in question. An interaction is considered significant when the opinion of one or more involved examiners results in a change of the original examiner's conclusion.

Consultations are supported as a positive part of the scientific process and may occur at any stage of analysis, comparison, evaluation, and verification (ACE-V), both before and after decisions are made during the examination.

Consultations may result in recognition of differences of determinations or conclusions and are also used as part of the process to address such differences.

Significant interactions rising to the level of a consultation include discussions concerning:

- Value determinations in analysis
- Decisions at the Evaluation stage of ACE-V
- Presence of significant distortions impacting the analysis or comparison
- Presence of specific features during the analysis or comparison
- Simultaneity of impressions
- Whether an examination is complex or non-complex

Interactions that are discussions, not rising to the level of consultation include:

- Suitability for automation fingerprint identification system (AFIS) entry
- AFIS parameters
- Anatomical origin of the impression(s)
- Orientation of the impression(s)

There may be situations where a discussion rises to the threshold of a consultation because it has a significant impact on the case. If there is doubt whether a discussion has risen to the level of a consultation, it should be treated as a consultation.

The purpose of documenting a consultation is to record information or guidance obtained as a result of the consultation.

Consultations must be documented in the case record and must include the following:

- Specific friction ridge impression(s) reviewed
- The nature and result of the consultation
- Initials, signature, or equivalent (e.g., unique identifier for the examiners involved)
- Date of the consultation
- The stage of the ACE-V process in which the consultation took place



Depending on the nature and extent of the consultation, the consultant examiner may satisfy the above minimum documentation requirements by initialing and dating the information within the notes of the initial analyst.

If the consultant creates any separate notes, annotations, or images, these shall be included in the case record.

An examiner who acts as a consultant during the comparison or evaluation of an impression shall not be the verifying examiner for that impression.

An examiner who acts as a consultant during the analysis phase can be assigned as the verifying examiner for that impression.



Determining Workability

Scope: Describes the process for determining latent evidence workability (commonly referred to as suitability), the standard by which workability is determined, and how workability is documented including any subsequent reviews and changes.

Procedure – General

Workability of latent evidence is determined using ACE-V methodology in a qualitative/quantitative assessment of Level 1, Level 2, and Level 3 details. The Analysis phase, which determines if the impression is suitable for comparison, is defined in [SWGFAST Document #10, Standards for Examining Friction Ridge Impressions and Resulting Conclusions](#). Additional analysis and ACE-V procedural information can be found in the [Workable Submissions section](#) of this TPM.

Procedure – Preliminary Workability

Upon initial receipt of evidence in the Latent Print Unit, authorized personnel make a preliminary “Workability” determination for each submission during the Administrative Processing of latent evidence.

For this process, a submission is designated as “workable” if at least one impression in the submission is determined to be of value for comparison.

The preliminary assessment will also determine if the submission contains any AFIS quality workable impressions. If the submission contains AFIS quality impressions, the AFIS Processing procedure will be followed.

NOTE Workability information is posted on the Department’s website (PDWEB>Quick Links>Reports) link for Preliminary Latent Status.

NOTE Upon case assignment following a 282, the preliminary status determination may change based on the opinion of the reporting examiner.

Documenting Workability

When documenting preliminary workability of submissions and impressions:

- Observed data of at least one (1) impression should be marked using the Brush tool in the Photoshop application as follows:
 - Blue markings = observed confident detail
 - Yellow markings = observed cautious detail
 - Red markings = observed agreement in latent and known impressions
 - Other markings/tracings for notable details observed may be added, but should be described in the asset notes so that a reviewing examiner may interpret
 - Impression numbers and other labels for the asset such as OCA#/names should be in red text
- Document impression anatomical area and orientation electronically in red, using anatomical area/orientations listed below and in the Reference: [Marking Latent Prints Guide](#)



- If Workable-AFIS Quality, label above impression: A- (or subsequent alpha designator)
- If Workable-Not AFIS Quality, label above impression: A (or subsequent alpha designator) *These impressions have fewer than 8 discernible minutiae marked in unit relationship.
- No Value determinations for overall evidence should be notated in the DEMS description for the item
- In all cases, orientation and alpha designators should be marked in a location as near as possible to the impression without obscuring any details of surrounding impressions. However, since markings are made on a copy of the latent evidence for new cases, the original evidence will be readily viewable for future examinations. *Cases prior to 2024 will have a scanned copy of the original evidence as received.*
- Anatomical area and orientation:
 - Fingerprints – half moon above top of finger
 - Palm prints – bracket to indicate the base of the palm, or PP? for Palm Print with uncertainty in orientation
 - Joints – parallel lines, arrow indicating top of finger direction if known
 - Impression with unknown anatomical location or orientation – encircled
- Update LIMS data extension field in the Evidence Tab for workability status of overall submission

Workability/Value Guidelines

Preliminary Analysis of Latent Evidence-Forensic Technicians

For purposes of preliminary analysis, a submission will be determined “No Value” (not workable/not suitable for comparison) when the latent impressions submitted have fewer than 5 minutiae marked in confidence (blue) and lack a focal/anchor point.

- An anchor/focal point may include a delta, core, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which a clear and accurate ridge count or spatial relationship can be determined in respect to the target group(s).

A submission may be determined “Workable, Not AFIS Quality” when latent impressions submitted have an anchor/focal point and at least (3) minutiae in proximity to observe relationships between the characteristics. Or, if the submission has non-database quality “Workable” impression(s) (proximal and medial joints and high tips are not typically entered and searched in the databases).

At a minimum, a latent impression will be determined to be “Workable, AFIS Quality,” suitable for AFIS entry and search, if it contains at least eight (8) discernable Level Two minutiae in unit relationship.

Quantity, as applied in this section, is the number of ridge endings, bifurcations, and dots (minutiae) in contiguous ridges, determined without any reference to known impressions. All minutiae are considered here including indistinct minutiae for which type or exact location cannot be established. Overall quantity of all features in the impression is not part of this measure.



NOTE: The number of minutiae as applied in this section is to assist in the preliminary analysis and triage of latent evidence submitted to the Latent Print Unit. This practice should not be considered as suggesting or endorsing the use of minutia counts as the sole criteria for a decision threshold. Minutia counts remain, however, as a discrete, measurable aspect of all prints and their enumeration is a part of the systematic, formal consideration of quantity.

Secondary Analysis of Latent Evidence-Forensic Scientists

As cases are assigned following 282 requests for official examination and reporting, the case examiner (authorized scientist) shall conduct a second independent analysis of all requested evidence to determine suitability for comparison and database search. Latent impressions will be annotated as described above in “Documenting Workability.” Any changes to preliminary workability shall be documented, with clear indication of the examiner making the change and may be supplemented with the Notes section in DEMS or in the Latent Exam Worksheet. The case examiner is also responsible for updating any change(s) the LIMS data extension field, which will update the Preliminary Latent Status link.



Discovery Requests / Meetings / Court Presentations

Preparing for Discovery Requests

Refer to the Crime Lab Quality Manual under 4.2.4, in addition:

- Social Security numbers should be redacted prior to scanning/release.
- Associated work product, exemplars and the court order should be copied to the appropriate Latent folder on the L: Drive. The requested items in this folder will then be reproduced on the requestor's media source (one may be provided by the lab as needed).
- The Administrative Unit may coordinate delivery and pick-up of the media as well as maintaining copies of any court order requiring the release of materials.

Meetings with Attorneys

Meetings and all communications with attorneys pertaining to details of the case shall be documented in the electronic case file.

Court Presentations

All charts or presentations that will be used in presenting testimony should be reviewed by a Unit supervisor prior to pre-trial meetings and/or testimony.



Documentation and Exam Records

Procedure – General

Exam records shall be recorded and maintained using unique case identifiers. The Crime Lab (CL) case number is considered the primary case number, however the MNPD Incident Number is frequently used in referencing a case.

Known standards maintained by the Forensic Services Division are considered exam records and bear a unique identifying number (OCA – Originating Case Agency). Likewise known standards generated from database searches are considered exam records.

Examination records shall include:

- Start and finish dates
- Each examination activity conducted and sequence
- The results of the examination activities
- Initials, or electronic equivalent, of persons making a change on any record

Examiners' documentation shall be such that another qualified examiner can determine what was done and interpret the data. Documentation shall be made at the time of the examination and may be in the form of annotated latent lift cards and/or latent submission envelopes, annotated images, narratives, worksheets, annotated legible copies, sketches, Automated Fingerprint Identification System (AFIS) reports or electronic records, or any combination of these methods. This documentation will be a part of the case record.

A case record consists of the administrative and technical records, whether hard copy or electronic, pertaining to a particular case. The case record may include digital or physical files of latent lifts, printed photographs, chain of custody records, exemplars, case notes, requests, and reports.

Exam notes shall indicate which impressions were analyzed, compared, evaluated and conclusions reached. Notes and reports will also acknowledge the existence and disposition of any impressions that are not analyzed, compared, or evaluated.

Analysis documentation of a latent print of value shall be completed prior to comparison. The quality and quantity of the information present in the latent print will dictate the extent of the documentation. At a minimum, the following shall be documented in the case record:

- Anatomical source (e.g., fingerprint, palmprint)
- Anatomical orientation (e.g., distal direction)
- Presence of level 1 detail
- Presence of level 2 detail
- Presence of level 3 detail

The substrate, development medium, or preservation method can have a significant impact on the appearance of a latent print. If the latent print or legible copy is part of the case record and



contains this information, it may be considered documented.

The analysis of latent prints may also include documentation of additional factors such as:

- Deposition pressure
- Superimposed impressions (e.g., double taps)
- Slippage, including lateral and rotational movement
- Non-contiguous ridge detail
- Substrate distortion
- Matrix distortion
- Development medium (incomplete ridge development)
- Indistinct minutiae
- Tonal reversal

Observations made during the Analysis phase will be documented in the DEMS and on the [Latent Exam Worksheet](#) when applicable (if all impressions examined are no value, the use of Latent Exam Worksheet is not required).

Observations made during the Comparison and Evaluation phases will also be documented in the DEMS and on the [Latent Exam Worksheet](#).

The no value lift card(s) should be listed on the [Latent Exam Worksheet](#). The location of the no value lift card is not required on this worksheet.

During the Comparison phase, examiners must also:

- Conduct analysis of the known exemplars, noting any deficiencies
- Acquire known standards into the DEMS
 - The DEMS records the electronic signature of the scanning examiner
 - The reporting examiner must initial and date known standards only if someone else initially acquires the standards into the DEMS (this does not include instances where the verifying examiner adds records considered to DEMS to complete their review)
- Document observations of agreement and/or disagreement in latent and known exemplars, as required or requested by a reviewing examiner
- Document explanations for any significant discrepancies in Analysis and Comparison observations

When an identification decision results in the Evaluation phase, documentation in the form of comparison images shall result and be stored in the DEMS case file. All significant features should be marked on the comparison images (known and unknown) in an appropriate manner to allow another examiner to clearly distinguish the features relied upon during comparison. Any significant differences in features observed during analysis and those relied upon during comparison and providing the basis for a conclusion shall be noted and discussed in the [Latent Exam Worksheet](#) or DEMS notes for the image(s).

Complex Examinations

On occasion, latent examinations will involve uncommon circumstances such as the



existence of significant distortion aspects, low quality or quantity, the possibility of simultaneity, and other characteristics which cause these to be considered as complex latent print examinations.

Extensive documentation by the examiner is required in these instances, utilizing the DEMS and/or [Latent Exam Worksheet](#) during the analysis and subsequent comparison phase of the examination process to establish a foundation for conclusions. Analysis of a complex latent print may be documented using images, in conjunction with annotations, notations on a worksheet, or narrative description. Analytical factors provide the basis for interpretation of distortion and understanding of variation in appearance.

Reference [SWGFAST Standard for the Documentation of Analysis, Comparison, Evaluation, and Verification](#), 7.2 for additional information concerning factors involved in complex impressions.

Reference [Appendix A – DEMS and Photoshop Instructions](#), for Exclusion Documentation

At the completion of all examinations, DRAFT reports should be created in LIMS and all records shall be initialed and dated, either electronically or hard copy. The completed case file is then submitted for verification.

In addition to these items, case files shall include any other applicable exam records. Such as:

- [Limited Examination Approval Form](#)
- AFIS Candidate list(s) of identifications
- AFIS Activity worksheets
- Emails related to case
- Copies of any LCM reports (exams reported prior to LIMS)

No value cases require only the submission of draft LIMS reports, Form 282, latent evidence, and copies of any LCM reports and emails related to the case, if applicable.

DEMS Exam Records

The Digital Evidence Management Software (DEMS) / Adams Web provided by Foray is the primary repository of exam notes made on copies of the original latent evidence for the Latent Print Unit. These exam records are created and retained in the DEMS as evidence is received and examined, and include:

- ACE-V observations
 - Workability of submission – Preliminary analysis of workable impression (s)
 - Analysis documentation for all comparable impressions resulting from official lab requests (282s)
 - Comparison mark-ups
 - Verification markings
- Digital Evidence submissions
- Known exemplars used in comparisons

Latent lift cards acquired for documentation and initial analysis shall be captured at no less than



1000ppi. The quality of an impression or database entry may require capture at higher resolutions.

For digital image submissions, it is recommended that the image be captured at a minimum 1000ppi resolution. Justification of less than 1000ppi shall be documented on a case-by-case basis (e.g., the only available image was captured at less than 1000ppi).

Known exemplars shall be captured at a resolution of no less than 500ppi.

Latent images captured and submitted to the Latent Print Unit as evidence other than with a scanner set 1:1 should include a scale in the image. Associated case information should be able to be ascertained from the digital file (to include who took the image, case number, date, etc.) if not contained within the image. If a scale is not included, it may be determined to not be searchable in the available databases or comparable, unless an object with a known dimension is captured within the same image. If no scale or object is available, then written circumstances and/or communication shall be added to the case notes for items not tested.

Captured impressions shall be saved to the DEMS prior to being subjected to any enhancement techniques. Any enhancements to the original image will be saved as a new file. The Foray software performs this function automatically.

The DEMS records all processing steps in Adobe Photoshop, including calibrations and enhancement applications, to the extent that the final image may be reproduced from the original. See [Appendix A: DEMS and Photoshop Instructions](#)

NOTE Historical exam records may have been stored electronically in the local AFIS archives (Integra ID Archive-Document Management tab) and as hard copies in secure off-site archives facilities.



Identifications – Documentation and Notifications

Scope: Describes additional documentation and notification requirements associated with findings of identity.

Procedure

All identifications on new incoming evidence, , shall be initialed and dated on copies of the submitted evidence, which may include latent lift cards and/or digitally stored images. All markings shall be made with Photoshop tool annotations.

A legible reproduction of the identified known exemplar shall be retained as part of the case record.

Proper documentation on the latent exemplar includes:

- The “ident” symbol adjacent to each identified latent
- The fingerprint number (or hand/foot area) of the known exemplar
- The OCA number (or other unique identifying number) of the known exemplar
- The initials of the examiner
- The date of the identification

Proper documentation on the known exemplar includes:

- The “ident” symbol adjacent to each identified known
- The impression identified adjacent to each identified known if not contained in a merged comparison image
- The initials of the examiner
- The date of the identification
 - Note: One “ident” symbol adjacent to the identified latent or known is sufficient if in a merged comparison image, as well as one set of initials/date, if clearly marked/understandable for a reviewing examiner.
- The incident number associated with the known exemplar (if uploading hardcopy known to LIMS)

Prior to any written or verbal notifications of identity, a second examiner/supervisor shall verify, initial, and date the identification.

Verifications of identifications shall be documented with examiner initials and date on a copy of the latent evidence in DEMS as well as the Latent Exam Worksheet.



Limited Examinations

Scope: Defines circumstances for limited examinations of latent evidence and required documentation.

Procedure

Unless otherwise specified, the Latent Print Unit will select the most appropriate method for processing of requests, in accordance with technical procedures and supervisor instructions. The MNPD-CL, and in turn the Latent Print Unit, retain the right to limit or expand the final scope of analysis and comparison, to include which items are tested and which are not.

Limited Examinations for 282 Requests (Outside of backlog reduction procedures when in place and outlined/communicated to the department):

To achieve efficient and effective processing of a case after consideration of submitted evidence (substrate, specified probative evidence from the investigator, etc.), limited examinations may be conducted on latent evidence with prior written supervisory approval. See: [Limited Examination Approval Form](#).

Limited Manual Examinations of 282 Subjects-Backlog Reduction Procedure:

Limited manual examinations include examining the most probative items for and/or concluding examinations once each named subject has been identified to an item of latent evidence. These limited exams will be conducted at the direction of the supervisor of the Latent Print Unit and do not require the Limited Examination Approval Form if backlog reduction measures that have been communicated with the customer are in effect. For each case, "backlog reduction" will be notated in the case documentation, and specifically on the Latent Exam Worksheet.

For 282 requests, database searching of remaining unidentified impressions may be limited due to identification(s) to the name subject(s).

Limited exams may also be conducted on the designated probative items. Supervisory approval and direction for designated probative items will be documented on the Limited Examination Approval Form and maintained in the case file. See: [Limited Examination Approval Form](#). Appropriate instances for this form may include when examinations of probative items cease prior to each name subject being identified, due to the volume of evidence and/or comparable impressions in a given case.

In the course of backlog reduction, examiners may communicate with investigators/customers if all requested probative items are determined to be of no value, allowing for additional selections of remaining evidence items for testing. This communication will be documented in the case file.

If backlog reduction is not currently in place, the Limited Examination Approval Form will be used in all instances listed above.

The extent of limited examinations will be reported accurately, clearly, unambiguously, and



objectively in a written Examination Report.

In all instances, reporting of results for all items received by the Latent Print Unit will include statements for items on which no testing was performed. See Guide for Summary Reporting and Limited Examinations.

At the written request of a relevant customers (i.e. investigating officer/ legal counsel), full examinations may be conducted on any case that originally received limited examinations.

As subpoenas are received on cases that include limited examinations, the reporting examiner should contact the subpoenaing attorney and determine if full examinations are requested. Additional examinations may be conducted, if given adequate notice prior to trial.



Quality Program – Latent Prints

Scope: Describes Unit procedures for assuring the quality of test results. Defines non-conforming work encountered in analyzing and comparing latent evidence, and responsibilities for documenting and correcting errors.

Procedure – General

In addition to the quality assurance measures of the MNPD Crime Laboratory, the Latent Print Unit employs several measures to assure the quality of test results.

Reviews of Preliminary Processing

In all cases, the reporting examiner is responsible for reviewing the preliminary test results of technicians and for making any necessary corrections. Reviews and corrections include, but are not limited to:

- Workability assessments and status in LIMS
- LIMS descriptions of evidence
- Documentation of technicians' preliminary testing in the electronic case file
- AFIS entries
 - If the reporting examiner determines that additional searches may prove beneficial (opinion of details/orientation) the search shall be documented on the [AFIS Activity Worksheet](#) and in AFIS as an additional search.
 - If the reporting examiner determines that AFIS searches are incorrect, that examiner is responsible for conducting corrected AFIS searches/registrations and necessary deletions from the AFIS database. The correction and explanation shall be documented on the AFIS Activity Worksheet.

Reviews of AFIS Hit Notifications

AFIS Hit Notifications are reviewed for accuracy as follows:

- Authorized scientists conduct a technical review of association decisions reported in the AFIS Hit Notification.
- Authorized LPU personnel review AFIS Hit Notification drafts for clerical and grammatical accuracy prior to setting the admin review milestone and releasing the Notification.



Reviews of Comparisons and Official Reports

Official Latent Examination Reports are reviewed for accuracy as follows:

- Verification of conclusions
 - An authorized Forensic Scientist or Supervisor will verify all conclusions and decisions of workability.
 - The Technical Reviewer is responsible for determining that all decisions are properly documented on exam records and that all procedures and directives in place were followed and setting the Technical Review milestone in LIMS.
- Review of report accuracy
 - Technicians, Scientists, or Supervisors review Official Reports for clerical and grammatical accuracy.
 - The reviewer is responsible for setting the Administrative Review milestone in LIMS.

Quality System Notifications

Information concerning incidents, procedures, issues, or equipment that may impact the quality of test results is recorded using the Quality Management System Workflow titled Quality System Notification and in accordance with the [Crime Lab Quality Manual](#). The Latent Print Unit tracks casework errors in the LIMS data extension fields as well as detailed review forms, and this information may be used to support a reported quality incident.

Errors in General

- Errors may be discovered as examiners review the preliminary work of technicians or during verification/technical/administrative reviews of examinations.
- An error discovered at technical review is considered as the work of the reporting examiner, who is responsible for reviewing and correcting the preliminary work of technicians.
- Verified erroneous conclusions are considered as errors on the part of the examiner and the verifier.
- Clerical errors are not considered erroneous conclusions if other case records document the correct conclusion.
- There may be circumstances in which examiners' differences in opinions are variances in tolerance or interpretation of impression data and are not considered as non-conforming work/errors. For example, an inconclusive finding in which similarities are documented is different from another examiner's identification decision on the same comparison but is not necessarily considered as an error if determined to be due to examiner tolerances.
- For the purpose of tracking any trends, errors discovered in the verification, technical and administrative review processes should be recorded in the data extension fields of the LIMS request by the reviewing examiner.



Requests for Service

Scope: Describes how requests for service are received and prioritized in the Latent Print Unit.

Procedure

Requests for Latent Print Unit services are as follows:

MNPD form 110 (Property/Evidence Report)

Communicates requests for the MNPD Evidence Storage Division (ESD) to transport latent evidence items to the MNPD-CL Evidence Receiving Unit.

- Evidence is subsequently transferred to the Latent Print Unit
- All new submissions receive Administrative Processing, which includes a preliminary assessment of workability.
- Workability information is posted at the Department's website link for Preliminary Latent Status.
- All new submissions receive AFIS Processing, which includes multiple levels of database entry and search available for "AFIS quality" impressions.
 - Note: For workability assessment and AFIS entry of digital evidence submitted via the Digital Evidence Management Software (DEMS), an email is sent to the Latent Print Unit at CrimeLabLPU@nashville.gov

MNPD Form 282 (Forensic Services Request)

Typically communicates requests to compare specific known exemplars to latent evidence and are initially submitted to the MNPD-CL Evidence Receiving Unit.

- The Latent Print Unit receives notification of 282 requests as Latent Print requests are entered by ERU into the LIMS.
- All Latent Print requests should be supported by a corresponding Form 282 in the LIMS Attachments and on the Crime Lab secure server, with the exception of LIMS requests generated by LPU personnel. For example, LPU personnel may enter a LIMS request to report comparisons of deceased prints or AFIS Notifications.
- Only those requests which include a named suspect(s) require an Official Latent Examination Report, and requests which are submitted without a named suspect(s) are considered as requests for AFIS processing.
- The inclusion of victim's names on the 282 request is considered for information purposes only unless the Special Notes section describes the need to conduct comparisons of victim standards.

Requests from CSI/EPU

Requests for the CSI Evidence Processing Unit (EPU) to process items for latent prints are initially submitted to the MNPD-CL Evidence Receiving Unit via Form 282.

- The Latent Print Unit receives notification of any new requests that result from EPU processing as Latent Print requests are entered by ERU into the LIMS.

Note: A secondary 282 request must be submitted after evidence is processed by EPU for Crime Laboratory testing to occur.



- All Latent Print requests should be supported by a corresponding Form 282 in the LIMS Attachments and on the Crime Lab secure server.

On occasion, and as the result of a 282, the Latent Print Unit may request that the ERU facilitate the submission of additional test items other than latent evidence for comparison, such as checks and known exemplars from other agencies.

Requests from the Tenprint Unit

There may be instances in which LPU personnel are requested by the Tenprint Unit to assist in AFIS/NGI searches only, as needed. At no time in these instances will the Latent Print Unit member be involved with the actual processing and direct comparison of the tenprints. The database search results (Hit or No-Hit Reports) will be uploaded to DEMS and the Tenprint Unit notified via email that the searches have been completed. If a hit results, it will be provided as an association that the Tenprint Unit will confirm.

Unknown Deceased / Identity Confirmation

Requests for identification of deceased individuals from the Medical Examiner's Office are frequently submitted to the Forensic Services Division for an identity confirmation (comparison to a presumed identity) or AFIS/ NGI search if there is no presumed identity. These requests are initiated by an email from the Medical Examiner's Office to the Tenprint Unit. Submission of postmortem impressions that are determined to be of poor quality, often due to decomposition, may require assistance from a latent examiner and will be forwarded to the Latent Print Unit for further testing and reporting.

A Latent Print Unknown Deceased request is initiated in LIMS for reporting purposes and an examiner is assigned to the case when these instances are forwarded from the Tenprint Unit. These cases are expedited to facilitate the requesting Medical Examiner's ability to release a body from its custody.

The postmortem impressions are acquired into DEMS (Foray) by a member of the Latent Print Unit (if not already acquired by a member of the Tenprint Unit) where they are stored as evidence and available for the examiner to conduct an examination and complete the request. A copy of the email initiating the request will be obtained from the Tenprint Unit and scanned into the LIMS case images folder. The postmortem impressions are compared with the known impressions if there is a presumed identity and evaluated for positive identification. The comparison is then verified by a second qualified examiner. If the postmortem impressions are determined to be no value for comparison, they will be reviewed by a second qualified examiner and the submitting agency will be notified. See Workable Submissions-Examinations, Methodology and Conclusions in this manual.

If an identification is determined, the examiner will clearly label the postmortem impressions with the following minimum information:

- The "ident" symbol adjacent to each identified postmortem impression (labeled PM1, PM2, PM3, etc.)
- The fingerprint number (or hand/foot area) of the known exemplar
- The OCA number (or other unique identifying number) of the known exemplar



- The initials of the examiner
- The date of the identification

The known impressions will also be labeled with the following:

- The “ident” symbol adjacent to each identified known impression
- The postmortem impression (i.e., PM1) identified adjacent to each identified known impression
- The initials of the examiner
- The date of the identification

Appendix A DEMS and Photoshop Instructions for Documenting latent analysis and comparison will be utilized when an identification is determined for postmortem impressions.

In the event the comparison results in an exclusion, or there is no presumed identity, AFIS/NGI searches are conducted. If the AFIS/NGI search generates a “hit”, the same comparison, evaluation, and verification steps will be performed. This request type does not require a blind verification.

When postmortem impressions are forwarded to the Latent Print Unit, the chain of custody will be documented first by the email chain and continued in the DEMS (Foray) Chain of Custody of the acquired postmortem impressions, as well as LIMS if barcodes are created for a printout of the postmortem impression for documentation in the examination process. Copies of the printout with markings if utilized will be retained in DEMS (Foray) and/or LIMS upon completion of the examination.

A copy of the reported results from LIMS will be sent to the Medical Examiner’s office in an encrypted email.

Record Consolidations and Manual Confirmations

Additional instances involving assistance to the Tenprint Unit would include record consolidations and manual confirmations of poor-quality record (known) impressions. These instances will be initiated with an email from the Tenprint Unit requesting the comparison of records already uploaded in DEMS. An examiner from the LPU will be assigned. Analysis and comparison of these records will be documented in DEMS by the assigned examiner and results reported back to the Tenprint Unit supervisor via email communication following a verification review by another qualified examiner.

Requests from the Cold Case / Missing Persons Unit

There may be instances in which members of the MNPD Cold Case / Missing Persons Unit request updated database searches only and not direct comparisons. These types of requests may be fulfilled and documented through email correspondence with the Latent Print Unit that will be uploaded to LIMS case attachments. Any associated work product (AFIS Activity Worksheet(s), Hit/No-Hit Report(s)) will be added to the Requests folder for the incident in LIMS. A new Admin Processing Request should be created to document the work conducted and for the purposes of metric collection. If no LIMS case exists yet for the incident, then the case can be created in LIMS for the storage of documentation.



Request for Service from Non-MNPD Agencies

Scope: Describes requirements for examining latent evidence for other agencies.

General

The analysis and comparison of latent evidence from non-MNPD agencies is allowed as described in the [Crime Lab Quality Manual](#) (7.1 Review of requests, tenders, and contracts).

Database Search Requests

On occasion, non-MNPD agencies may request database searches to expand search parameters from the databases available to the requesting agency, especially if it is believed that the suspect was previously arrested in MNPD jurisdiction.

For database search requests the evidence is generally received digitally via secure email and/or link to shared file software due to size and/or image quality.

NOTE A request for an MNPD incident number will need to be approved and facilitated by the Laboratory Director or FSD Director in these instances. Once approved, an MNPD Officer/Investigator will be identified as the liaison and will follow the same process as MNPD requests for MNPD-CL services.



Reporting

Procedure – General

Interpretations and opinions that result from MNPDP Form 282 Forensic Services Request are reported in the Official Latent Examination Report.

The results shall be reported accurately, clearly, unambiguously and objectively, and as described in the [Workable Submissions](#) section of this TPM.

Analytical findings and conclusions shall be reported for each specific item of evidence that was examined as the result of a submitted 282 request, unless a limited examination is approved and documented. See the [Limited Examinations](#) section of this TPM.

All comparable impressions observed will be itemized within the Results section of the report.

When comparative examinations result in the elimination of an individual, the report shall clearly communicate the elimination.

When no definitive conclusions can be reached, the report shall clearly communicate the reason(s).

The Supplemental Information section of Official Latent Examination Reports shall include applicable information concerning the extent database searches and registrations, any limited examinations, any items not tested, and if comparable impressions remain at the conclusion of all exams related to a 282 Request.

For consistency in reporting, the Latent Print Unit reference documents [AutoText for LIMS and Guide for Summary Reporting and Limited Examinations](#) should be utilized in creating LIMS reports.

At the conclusion of all examinations, the reporting examiner shall draft, proofread and electronically sign all reports, ensuring completeness and accuracy.

Release of test results are made at the conclusion of Verification, Technical and Administrative Reviews and according to the [Crime Lab Quality Manual](#).

If a case is adjudicated before the work or report is completed or if a customer cancels a request before work is completed or similar situation, a report of the analytical work is not required. Documentation in the case file shall record the reason test results were not reported. LIMS Requests should be cancelled with a noted explanation added rather than deleted.



Resolving Differences in Findings

Scope: Describes how differing findings are resolved for reporting.

Procedure

The verification and review process may result in occasional differing opinions between examiners. Resolution of these differences will maintain quality standards, with the opinions of each examiner recorded in case files.

If during the verification process the original conclusion is not verified, the Supervisor/TL will be notified. If the difference in findings cannot be resolved through consultation between the original examiner and verifying examiner, then a subsequent mediation between the examiner, verifier, and Supervisor/TL will occur.

The differences may be resolved through additional examination(s) conducted by different examiner(s), as assigned by the Supervisor/Technical Lead after review.

If the differences are attributable to examiner tolerances for impression variations and cannot be resolved through additional examination(s) and/or consultations, the most conservative decision will be reported. The details of the discrepancy and the resolution will be documented in the case file.

If the differences are attributable to what appears to be examiner error, the Supervisor/Technical Lead will initiate a case review to determine the extent of any nonconforming work.

All examiners involved in the resolution shall clearly document their decisions at each stage of the resolution process. Initials and dates will be electronically captured in DEMS, and notes pertaining to any consultation will be added as appropriate, either in the DEMS notes field, email communication, and/or Latent Exam Worksheet.

Images of each examiner's documented analysis, comparison, and evaluation involved in the resolution process will be included in the case file.



Technical and Administrative Review

Scope: Describes the responsibilities of Technical and Administrative Review and how reviews are documented.

Procedure

Technical Review shall be conducted on a minimum of 10% of the initial no value, not AFIS quality, and AFIS search/no hit decisions made during administrative processing. These reviews are documented using the LIMS Admin Processing Tech Review request, as per the Admin Processing Technical Review Guidelines.

Technical and Administrative Reviews shall be conducted on 100% of AFIS association decisions reported in the AFIS Hit Notification. These reviews are described in the AFIS Hit Notifications section of these procedures and are documented on the AFIS Hit Notification Review form(s).

Technical and Administrative Reviews shall be conducted on 100% of casework related to 282 Requests that are reported in the Official Latent Examination Report. Reviews shall be conducted in accordance with the MNPD Crime Lab Quality Manual and are documented on the Latent Print Unit forms Technical Review Checklist and Administrative Review Checklist.

Any discrepancies are noted on these checklists by the reviewing examiner, recording the responses and signatures (physical or electronic) of the reporting examiner if needed and the signature of all reviewers.

When all discrepancies are noted and corrected, the Technical Reviewer shall sign and date the Technical Review Checklist (physically or by digital signature) and set the LIMS milestone.

Upon determining that all exam records are uniquely identified in case documentation, Administrative Review shall ensure that the unique identifier of a Social Security number is not reported in LIMS/Crime Lab Portal.

When all discrepancies are noted and corrected, the Administrative Reviewer shall sign and date the Administrative Review Checklist (physically or by digital signature) and set the LIMS milestone.

If corrections to the Latent Exam Worksheet are required as the result of the case review process, the reporting examiner shall update the most recent electronic worksheet and save in the electronic case file while clearly indicating the updated file (i.e. V1, V2, V3, etc.). The reporting examiner shall also make a mark through the incorrect hard copy and return to the reviewer hard copies of both the original and corrected worksheets. All original and corrected worksheets shall be maintained in the electronic case file.

At the conclusion of Technical and Administrative Reviews, the reporting examiner shall review the case file to verify that all exam records are completely and accurately preserved in the electronic case file. This review shall be documented by completing and adding the [Case Review](#) Checklist to LIMS.



Workable Submissions – Examinations, Methodology and Conclusions

Scope: Describes methodology for conducting examinations and acceptable conclusions.

Procedure – General

Friction ridge impression examinations are conducted using the Analysis, Comparison, Evaluation, and Verification (ACE-V) methodology, utilizing a qualitative and quantitative assessment of Level 1, Level 2, and Level 3 details.

The examination of friction ridge impressions and the resulting conclusions are based on ridge flow and ridge paths; the location, direction, and spatial relationships of minutiae; creases or wrinkles, and scars; and ridge structure (shape, texture, and morphology).

Application of ACE-V includes observations, measurements, assessments, decision making, and documentation, which are enabled by the education, training, skill, and experience of the examiner.

APPENDIX A DEMS and Photoshop Instructions will be utilized to preserve documentation digitally in conjunction with the Latent Exam Worksheet for the ACE-V methodology as describe in this section.

ACE-V is not generally applied as a strictly linear process because it may include a return to any previous phase.

Numerous factors affect the qualitative and quantitative aspects of friction ridge impressions. An examiner shall be mindful of these factors while conducting examinations and that they influence friction ridge impression reproducibility. These factors may cause an apparent dissimilarity between impressions from the same source. Failure to properly assess the occurrence and influence of these factors could result in misinterpretation.

Analysis

Analysis is the qualitative/quantitative assessment of an impression to determine its value based on the observed presence and location of friction ridge features in regard to Level 1, 2, and 3 details.

Level 1 detail refers to the overall ridge flow. Level 2 detail refers to individual friction ridge paths, friction ridge events (e.g., bifurcations, ending ridges, dots, and continuous ridges), and their relative arrangements. Level 3 detail refers to ridge structures (edge shapes and pores), and their relative arrangements. Creases or wrinkles, scars, warts, incipient ridges, and other features may be reflected in all three levels of details.

The assessment evaluates the quality of features (clarity of the observed features), the quantity of features (number of observed features and area), the specificity of features, and their relationships.

Quality is the assessment of the clarity of ridge features. Generally, as quality increases so does



the discernibility and reliability of the ridge features. It is recognized that quality is not necessarily constant throughout an impression.

The level of quality determines the degree of tolerances or allowances for variation in appearance and spatial relationships of ridge features that will be used during the comparison process.

Preliminary ACE-examinations conducted by Forensic Technicians of the Latent Print Unit will follow the Workability / Value Guidelines in the Preliminary Workability section of this manual.

For 282 Forensic Services Requests, assigned case examiners may utilize the chart provided in [SWGFAST Document #10, Standards for Examining Friction Ridge Impressions and Resulting Conclusions](#) as a guide for determining the level of quality/quantity of information in a latent impression, which is described as follows:

High: Level 1 is distinct; Level 2 details are distinct; there are abundant distinct Level 3 details.

Medium: Level 1 is distinct; few to most of the Level 2 details are distinct; there are minimal distinct Level 3 details.

Low: Level 1 may not be distinct; Most of the Level 2 details are indistinct; there are no distinct Level 3 details.

The quality/quantity of information is recorded in the Latent Exam Worksheet at the time of analysis, as well as the designation of anatomical region and orientation resulting from the interpretation of the impression.

If the impression is of value for comparison, the analysis further indicates the features and their tolerances to be used in the comparison.

If the impression does not support reliable features to proceed to the comparison phase of the examination process the examination will stop at the analysis phase and will be reported as no value for comparison.

The analysis may also provide possible anatomical information to prioritize the potential corresponding areas and limit unnecessary comparisons.

If a latent impression is determined to be suitable for comparison, at a minimum the observed data supporting the analysis decision will be documented including the presence and location of features.

The observable data in the latent impression is analyzed and should be documented by the examiner prior to comparison with an exemplar friction ridge impression.

Comparison

Comparison is the direct or side-by-side observation of friction ridge detail to determine whether the details in two impressions are in agreement or disagreement based upon similarity or



dissimilarity, sequence and spatial relationship, and within the tolerances of clarity and distortion.

If the Analysis phase provides indicators as to the probable anatomical area, a side-by-side comparison with the appropriate area of the known print is initially conducted. In the absence of indicators, all areas of available known impressions must be compared.

Comparison of features should account for all of the features interpreted during analysis.

Features assessed as corresponding should be documented for comparisons which will be evaluated for a source conclusion. Features assessed in disagreement should be documented.

If an identification is documented with a majority of blue marks that lack feature correspondence in the known, explanation should be given in case notes (Latent Exam Worksheet or DEMS Notes related to the comparison).

Evaluation

Evaluation is the formulation of a conclusion based upon analysis and comparison of friction ridge impressions.

Once the examination progresses from the Comparison phase into the Evaluation phase, a determination is made as to whether the information is sufficient to form one of several conclusions or return to the Analysis phase and reassess value for comparison.

In the Evaluation phase, the examiner will ultimately decide whether the unknown impression is from a different source or the same source as the compared impression, or if the evaluation is inconclusive. Exam records shall include legible digital copies of all known standards used in a comparison. Acceptable conclusions are defined below.

Identification

Identification is the decision by an examiner that there are sufficient features in agreement to conclude that two areas of friction ridge impressions originated from the same source. Identification of an impression to one source is the decision that the likelihood the impression was made by another (different) source is so remote that it is considered as a practical impossibility.

Exclusion

Exclusion is the decision by an examiner that there are sufficient features in disagreement to conclude that two areas of friction ridge impressions did not originate from the same source.

Exclusion of a subject can only be reached if all relevant comparable anatomical areas are represented and legible in the known exemplars. Additionally, the criteria listed below shall be met to reach an exclusion decision.

- At least one target group of second level characteristics in the friction ridge impression must be present in analysis and used in a comparison. Target groups can be defined as



two or more distinct ridge characteristics in proximity to observe relationships between the characteristics. The examiner must attempt to define additional target groups if the corresponding area in the known exemplar is unclear.

- The impression must include the presence of an anchor/focal point. An anchor/focal point may include a delta, core, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which a clear and accurate ridge count or spatial relationship can be determined in respect to the target group(s).

Inconclusive

Inconclusive is the decision by an examiner that an unknown impression of comparison value cannot be excluded or identified. The reason for each inconclusive conclusion must be documented in the Latent Exam Worksheet and reported. For example, exam notes on the [Latent Exam Worksheet](#) and/or in the DEMS images should clearly and specifically indicate the deficiencies of a known standard if findings are inconclusive due to inadequate subject exemplars. Inconclusive conclusions do not apply to impressions determined to be of no value for comparison. Reasons for inconclusive may be:

Inconclusive – Need Control (or Better Control) Standards

Results when a decision of identification or exclusion cannot be reached, due to an absence of complete and legible known prints (e.g., poor quality fingerprints and lack of comparable areas). In such an instance, the inconclusive conclusion means that the impression needs to be re-examined and compared using clearly and completely recorded known impressions.

Example Reporting language: *Inconclusive for this impression; need additional standards from this subject.*

Inconclusive – Unable to Reliably Determine Anatomical Location or Orientation

Results when a decision of identification or exclusion cannot be reached, due to the lack of sufficient quality/quantity to reliably determine anatomical location or proper orientation. Exam notes should clearly indicate which locations and/or orientation were considered.

Example Reporting language: *Inconclusive for this impression; comparisons conducted without certainty of anatomical source and/or orientation.*

Inconclusive – Partial Agreement or Disagreement Observed, Insufficient for Determination

Results when corresponding features are observed but are insufficient to identify, or (in the same instance) dissimilar features may be observed but insufficient to exclude; the examiner is unable to explain whether a specific ridge event or sequence of events constitutes a discrepancy or dissimilarity. An Inconclusive conclusion with partial agreement or disagreement shall not be construed as a statement of probability.

Example Reporting language: *Inconclusive for this impression; unable to identify or exclude due to insufficient reliable friction ridge features observed between the latent and known exemplar.*



Verification

Verification is the independent application of the ACE process by a subsequent fully authorized examiner, to either support or refute the conclusions of the original examiner. Verification shall be conducted on 100% of casework related to 282 Requests that are reported in the Official Latent Examination Report. Verification review includes analysis (suitability / workability determinations to include no value) and the comparison conclusions of the original examiner. At minimum, the case file submitted for verification review shall include:

- All Latent Exam Worksheet(s)
- All latent evidence
- All known exemplars

The verifying examiner shall indicate verification of all identification, exclusion, and/or inconclusive decisions by circling, initialing, and dating the conclusion on the Latent Exam Worksheet in permanent ink.

Verifying examiners are not required to verify exclusion or inconclusive decisions for impressions which were subsequently identified by the reporting examiner. In these instances, verifying the identification is sufficient if the verifying examiner agrees with the identification decision.

The verifying examiner shall further document verifications of identification decisions on the digital copies of the latent evidence and the known exemplars.

The verifying examiner is responsible for uploading the completed Verification Worksheet to the electronic case file.

If release of results are called for and needed prior to Technical Review and Administrative Reviews, the Verification Review shall be completed with a signed review form, and any identified impression shall be initialed and dated by the verifying examiner as well as the original examiner. Verbal release of results will follow the guidelines outlined in the Crime Lab Quality Manual.

Following Verification, the completed case file (electronic or hardcopy) submitted for Technical Review shall include:

- All Latent Exam Worksheet(s)
- All latent evidence
- All known exemplars
- Draft LIMS report
- All 282 Requests for Service



APPENDIX A DEMS and Photoshop Instructions

Acquiring

- All lift cards and all known standards must be scanned into DEMS for completion of the electronic case file
- Flatbed Scanner Settings: Use Professional mode – reflective – document table - photo – 1000dpi minimum resolution for lift cards (TIFF); minimum 500dpi resolution when acquiring knowns (TIFF); backs of lift cards and other documents may be scanned at a lower resolution such as 300 dpi, and saved as other file types (JPEG, PDF, etc)
 - Uncheck all Adjustments (such as Unsharp mask)
- PREVIEW - place/adjust box around item to scan – SCAN
- Scan Again if doing multiple Acquires – otherwise, Complete
- Open ADAMS Web and go to the Acquire function
- Enter the incident #
- Select Crime type
- Select Category
- Use of “unknown” as a crime category is acceptable
- Select files to be acquired
- Start upload

At completion of acquisition

- Go to incident folder view
- Select individual asset
- Update the Description field for each asset by selecting the EDIT option
 - Descriptions should be unique, such as 001-02, FPs of 12345, PPs of 12345 and appropriately describe the asset
 - Descriptions should also indicate the purpose of the image, such as Analysis or Comparison
- Save changes to asset by selecting OK
- Refresh page to see changes

Documenting latent analysis and comparison

Move items to Photoshop processing

- Select item(s) for Photoshop processing
- Choose PROCESS option and make appropriate selection, for example, Process in Photoshop as TIF

Annotation of Latent Impressions

- Observed data in the latent impression(s) should be marked using the Brush tool as follows:
 - Blue markings = confident detail
 - Yellow markings = cautious detail
 - Red markings = agreement in latent and known images
 - Other markings for details observed may be added, but should be described in the



- asset notes
 - Impression numbers and other labels for the asset such as OCA#/names should be in red text
- Document impression anatomical area and orientation electronically in red, using anatomical area/orientations listed below and in the Reference: [Marking Latent Prints Guide](#)
- If Workable, AFIS quality, label above impression: A- (or subsequent alpha designator)
- If Workable, not AFIS quality, label above impression: A (or subsequent alpha designator)
- In all cases, value determinations should be marked in a location as near as possible to the impression without obscuring any details of surrounding impressions. NV determinations for overall evidence should be notated within the latent evidence image and/or image description.
- Anatomical area and orientation:
 - Fingerprints – half moon above top of finger
 - Palm prints – bracket to indicate the base of the palm, or PP? for Palm Print with uncertainty in orientation
 - Joints – parallel lines, arrow indicating top of finger direction if known
 - Impression with unknown anatomical location or orientation – encircled

Suggested Photoshop Tools for processing images in the Latent Print Unit:

- Brightness/Contrast
- Levels
- Curves
- Black& White
- Channel Mixer
- Invert
- Dodge
- Burn
- Shadows/Highlights
- Crop & Zoom

NOTE The Spot Healing Brush and the Clone Stamp tools shall not be utilized under any circumstance for processing images in the Latent Print Unit.

Document comparison with two separate images

- Mark impression details as described above
- Save each image separately and close

Document comparison with one image/ side-by-side impressions

- Bring both images into Photoshop, calibrate as needed, and crop them. If needing to change the image resolution for charting, be sure “Resample” is checked and update the resolution value to match the image that will be merged.
 - For example: Open Known exemplar: Go to Image>Image Size, check “Resample” and update the ppi to be the same of the latent.
- Highlight (select) one of the images on tool bar



- Go to Window-Arrange-Tile
 - Bottom left of image make images similar size
- Choose Move tool
- Drag image to approximate same area on image
- Close image that was moved - Do not save changes
- There will be two layers; rename layers by appropriately and delete/hide previous text layers as needed
- Rename images as latent or known.
- Go to Image-Canvas- Adjust canvas size appropriately in inches
- Click on specific layer (known or latent) to adjust images side by side
- Crop two images together
- Mark comparison as described above using a layer to chart both images
- Save as a single image and close

When all documentation is completed, closing images returns to DEMS.

In DEMS Assets View

- Add a Description to the new images using EDIT
- *Note: The PROCESSED folder will now contain all images that were modified in an incident

Folder Tags

Tags can help organize a large case but are not required.

- If using Tags, go to Edit - Enter description for Tag field
- Suggested Tag folders:
 - Analysis
 - Idents
 - Knowns
 - Verification

Exclusion Documentation Instructions

When documenting an exclusion is called for, including instances of complexity in the comparison, examiners may use separate layers in Photoshop or multiple images. In either case (layers or multiple images) the examiner should create a latent exclusion image and corresponding known exclusion image(s).

Creating a Latent Exclusion Image

- Mark target groups in the latent impression
 - Target groups can be defined as 2 or 3 minutiae
 - Use original analysis images
 - Minutiae used should be of high confidence
 - Attempt to define two separate target areas with circling

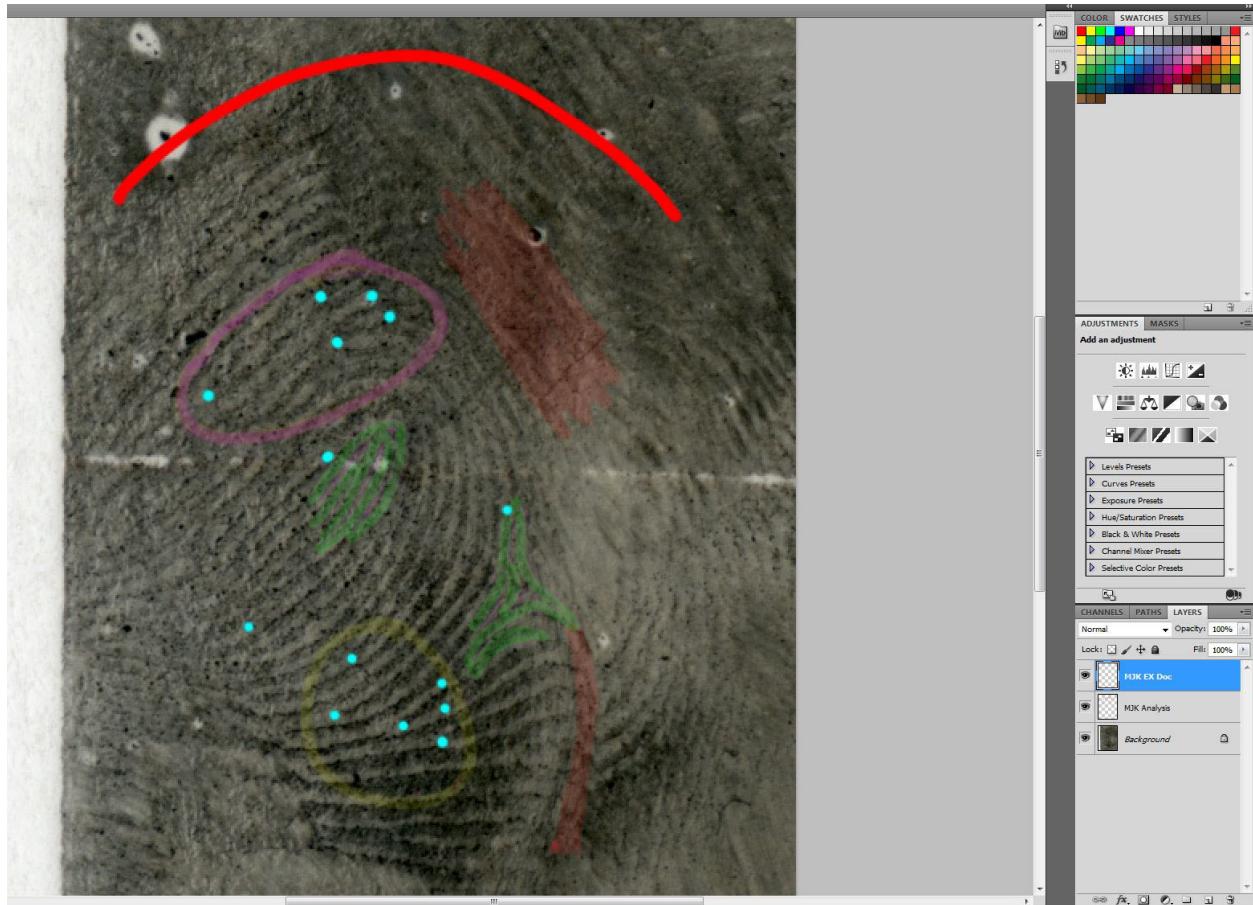


- Circle target groups using different colors
- Mark areas of distortion (red or contrasting shading, with appropriate opacity)
- Indicate orientation (using proper marking (Marking Latent Prints Guide in LP References))
- Mark Anchor/Focal Points
 - Anchor points are deltas, cores, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which clear and accurate ridges count or spatial relationship can be determined in respect to the target group(s).
 - Trace the anchor areas for comparison using a low opacity

Creating a Known Exclusion Image(s)

- Documentation must clearly indicate what areas were compared in the knowns.
- Circle or shade the area compared using the same corresponding color as the circled target group(s) in the latent (where you would expect your target group to be in the known).
- The known should be marked in an appropriate manner to allow another examiner to clearly distinguish the significant differences in features relied upon during comparison.

The detailed analysis of the latent impression may be documented similarly to the sample image below:



Using Photoshop layers:

1st LAYER: Analysis Mark-up: Create new layer called “Analysis.” Use **BLUE** marks for high confidence detail, and when applicable, **YELLOW** for cautious detail. **RED** shading may be used for any cautious areas of distortion (use also in no value analysis markups). Also indicate orientation in this layer using proper marking (Marking Latent Prints Guide in LP References).

2nd LAYER: Prints of value for identification—Marking Target Group(s) and Anchor/Focal Points: Anchor points are deltas, cores, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which a clear and accurate ridge count or spatial relationship can be determined in respect to the target group(s). Create an additional layer and title “EX Doc” (exclusion documentation) and **TRACE** the anchor areas for comparison using a low opacity % (8-12%) in **GREEN**. **CIRCLE** two (2) target group(s)* of second level characteristics from original Analysis markup in **TWO (2) different colors of choice**.

*Target groups can be defined as two or three minutiae or an anchor point with clear minutiae. Minutiae used should be of high confidence. Attempt to define two separate target areas with circling.



APPENDIX B Submission and Processing of Latent Digital Images

SUBMISSION REQUIREMENTS

Digital submissions must meet the following requirements for acceptance:

- Be received as evidence for analysis via Adams Foray
- Include a description of the item of evidence processed in the DEMS Description field (provided by CSI member or field investigator)
- Include a scale in the image to be analyzed (if no scale is provided, an object within the image if dimensions are known may be used)
- Be in 60 MB or less in size and savable in TIFF format (typically received in RAW file type)

Digital evidence collected by CSI field units or the Evidence Processing Unit (EPU) is submitted to the Latent Print Unit via the Digital Evidence Management Software (DEMS), typically by email notification to the Latent Print Unit at CrimeLabLPU@nashville.gov. The chain of custody for the submitted images is tracked in the DEMS.

ADMIN PROCESSING

Latent Prints will administratively process the submission as follows:

- Conduct Quality Assurance (QA) of submission:
 - Check that all images include a description of the evidence item
 - Check that images in DEMS are 60 MB or less
 - Create Sendback email for discrepancies and/or excessive file size and upload to LIMS Case Attachments once resolved

LIMS

An Admin Processing Request shall be created in LIMS, itemizing the evidence as follows:

- Number the digital evidence submission (000)
- Itemize and assign a LIMS number to each asset
 - Assets numbers shall begin with 01
 - The LIMS Description field shall be completed as:
 - Digital image of latent impression marked as from: description of what the print was developed on

DEMS

All Digital submissions will be further documented in the DEMS as follows:

- Update information for each asset as:
 - Description: LIMS item number
- Check calibration of all images, resizing as necessary
- Enter LIMS item number (XXX) in the Description field of all itemized assets
-

Documentation of Submission Workability:



- Choose an asset to use for documenting Workability
 - Process the image for Workability in Adobe Photoshop application
 - Mark Level 2 details used to determine Workability, adding any necessary notes to the Notes section
 - Annotate the image with the LIMS item number and impression letter
 - Save the image as new and update description

AFIS

Export AFIS quality impressions to an electronic folder or media device, or access DEMS at the AFIS terminal, import images and search in AFIS (see AFIS Processing).



APPENDIX C ULW INSTRUCTIONS

Next Generation Identification (NGI) / Universal Latent Workstation (ULW) Instructions (ULW terminal)

Additional information can be found in the ULW instruction manual and electronic help file within the ULW software.

Click on ULW Transaction Manager Icon:



Log into the Transaction Manager using your user name and password if needed.

A screenshot of the ULW Transaction Manager login interface. It features a light blue background with a white text box at the top containing instructions: "If you would like to use your Windows Credentials for logging in, please select Windows Credentials. Otherwise, please select Custom Credentials, or create a new user." Below this are two radio buttons: "Windows Credentials" (selected) and "Custom Credentials". There are input fields for "User Name" (containing "rehooper") and "Password". A checkbox for "Stay Signed In" is present. At the bottom, there are three buttons: "Login", "Exit", and "Help". Below these buttons is the text "New to ULW? Create a new user account" and a button labeled "Create New User >>".

Then enter the following into the pop up box (case sensitive):

Email address: nashvillempd@tbides001.local

Login ID: nashvillempd

Password: Morphotrak



Please specify your email address, username and password for sending and receiving transactions via email. This information is not stored and will only be used for the duration of your login to Transaction Manager.

Email Address:

Email Login ID:

Password:

OK Cancel

You are now ready to submit searches in the Next Generation Identification (NGI) Database.

Images must be 500 ppi or 1000 ppi and in Grayscale.

Best image types are Bitmaps (BMP) or TIF but ULW will import most RAW, JPG, PNG and GIF files. It will **NOT** import JP2 files.

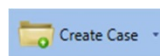
If Photoshop enhancement of your latent impression(s) is needed:

- Scan/capture latent impressions/images as a bitmap (BMP) or TIF file at 500 ppi or 1000 ppi. Enhance with Photoshop and save file. Go to ULW Transaction Manager.

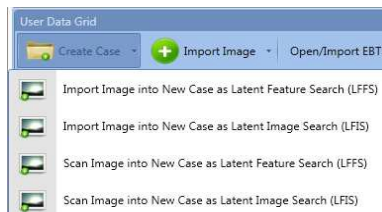
If enhancement is not needed go straight into ULW Transaction Manager.

Create a new case in Transaction Manager for each impression for which you want to submit searches.

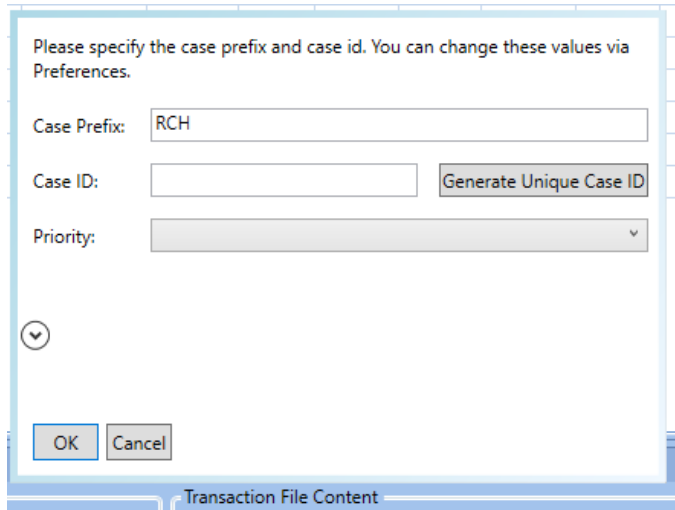
Click the Create Case button



Choose between LFFS or LFIS. *See [Helpful Hints](#) or page 19 in ULW training manual.*



Either import the enhanced image or choose the scan option and scan image directly into Transaction Manager. This box will pop up. Enter the required information.



Case Prefix: User initials

Case ID: Case/incident number. (Format Ex: 20160123456-00101a) *Note: Includes impression searched for each entry

Priority: 1 - Homicide, Rape, and Special Circumstances (unless otherwise told)

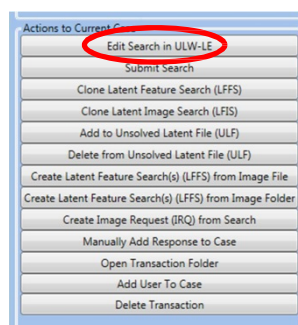
- Originating ORI: TNTBI0900
- Destination ORI: WVIAFIS0Z (eighth character is zero)
- Controlling Agency Identifier: TN0193900

Case Prefix, Originating ORI, Destination ORI, and Controlling Agency Identifier should be automatically filled in after first time set up/use.

Use the Create Case option for each new impression so each transaction has the unique impression identifier included in the case number.

To edit images or mark minutia/orientation for a case:

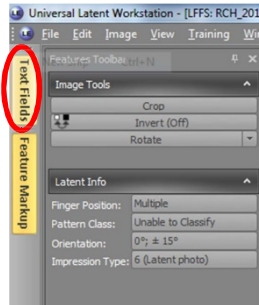
- Highlight the case in your Data Grid.
- Click Edit Search in ULW-LE in the Actions to Current Case Menu.



This will take you into ULW Latent Editor and automatically import your image.



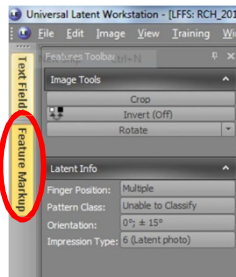
Click Text Field button in upper left hand corner of latent editor screen.



Fill in required text fields if needed (depending on settings should be automatically filled in):

- Destination ORI: WVIAFIS0Z (eighth character is zero)
- Originating ORI: TNTBI0900
- Prefix: User Initials or ADMIN
- Identifier: Incident number / impression number-what was entered at the “Case ID” step
- Contributor Case ID Extension (for when entering multiple images for single case)
- Priority: 1 - Homicide, Rape, and Special Circumstances (unless otherwise told)
- Source Agency/ORI: TNTBI0900
- Controlling Agency Identifier: TN0193900

Click the Feature markup button to edit your image:



For a LFIS:

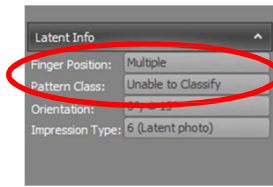
- Crop/Rotate if needed.
- Save LFIS file
 - NOTE: (This will be done automatically if you close the Latent Editor box using the red ‘X’ in the top right corner. If going to File options, do NOT choose the ‘Save As’ option. Choose the Save option with predetermined file name).
- Close Latent Editor.
- Return to Transaction Manager.

For LFFS:

- Rotate, crop, etc. if desired using image toolbars.



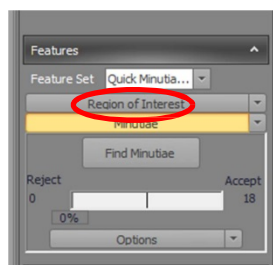
- Crop to the area with distinct ridges and minimal background noise
- Latent Info



*“It is recommended that finger position and pattern class **NOT** be designated in latent editor.*

It will be done before submitting the search.”

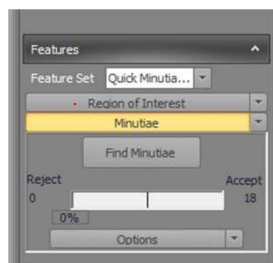
All LFFS require a Region Of Interest (ROI).



Mark region of interest.

- Adjust as necessary to meet system limitations:
 - Minimum size for region of interest:
 - 384 x 384 for 1000 ppi
 - 192 x 192 for 500 ppi
 - Maximum size for FINGERPRINT searches:
 - 1200 x 1200 for 1000 ppi
 - 600 x 600 for 500 ppi
 - Maximum size for PALMPRINT searches:
 - 4800 x 4800 for 1000ppi
 - 2400 x 2400 for 500 ppi

For LFFS transaction, you may choose between LFFS-Minimal Mark Up Search or LFFS Quick Minutia Search



LFFS-Minimal Markup

To be used when you want to zone out parts of an impression or other impressions within the



same image, but do not need to manually mark the impression. See page 19 in the instruction manual for examples.

No manual markup of minutia needed. Save transaction after cropping/rotating if needed and marking ROI.

LFFS- Quick Minutia

- Mark ROI.
- Mark minutia points, core, and delta(s).
- Minutia can be done manually or using Find Minutia feature.
- Refer to ULW manual pages 28-29 for best practices on marking images and page 63 for additional tips on core and delta placements.

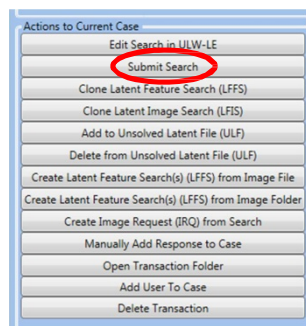
Save file.

- NOTE: (This will be done automatically if you close the Latent Editor box using the red 'X' in the top right corner. If going to File options, do NOT choose the 'Save As' option. Choose the Save option with predetermined file name).

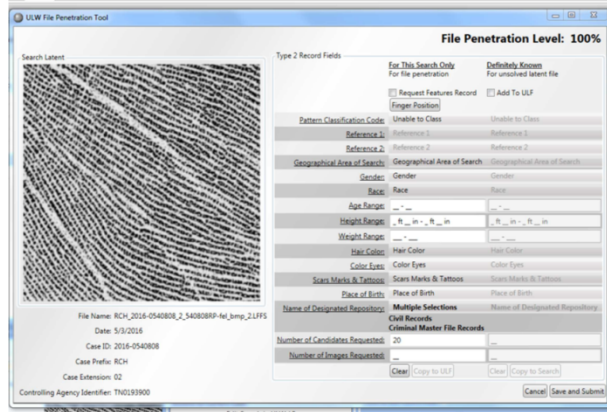
Close out of Latent Editor and return to Transaction manager.

For BOTH LFFS and LFIS cases:

Highlight appropriate transaction and hit the Submit Search button.



This will bring up the File Penetration Tool.



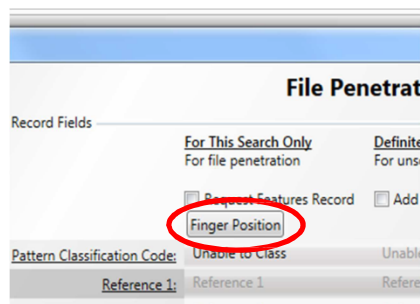
Recommended level for file penetration is 50% or less for fingerprints. Penetration will remain at 100% for palm prints.

Complete relevant information in order to reduce the file penetration level.

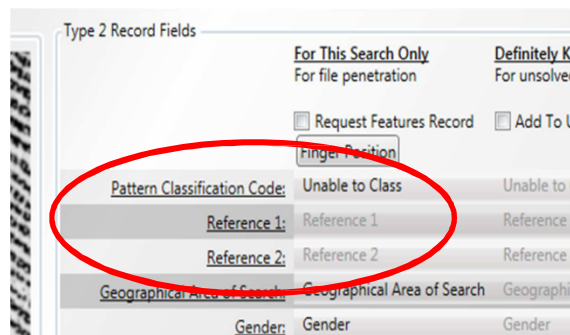
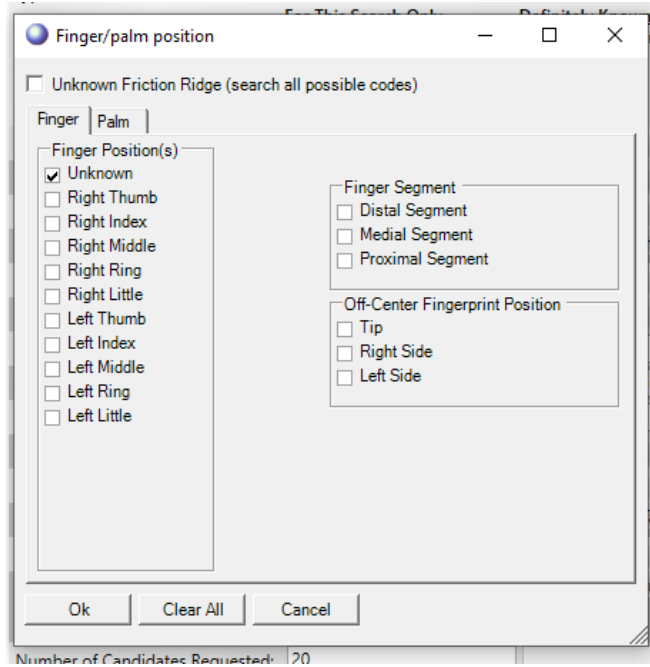
- Pattern Classification codes for fingers
 - Finger or Palm position if known
- Within the File Penetration tool you can also edit the number of candidates requested and select which repositories to search. See training manual for more information on repositories.

Request Features Record and Add to ULF boxes may be automatically checked. Make sure Request Features Record and Add to ULF boxes are not checked unless this is your intent.

Click Finger Position button and mark selections.



DO NOT use Unknown friction skin. Use unknown finger or unknown palm options under the “Finger Position” button if necessary or submit multiple searches for possible Finger Positions. Fill out pattern classification code and any necessary references. **DO NOT** select any options under Finger Segment or Off-Center Fingerprint Position. See image below for example:



Save and submit when you finish selecting options. This submits your file to the NGI database for searches



Cloning a Transaction

You can use the Clone feature to easily duplicate a transaction. See Page 36 in manual for additional information.

Examples of when this may be helpful:

- Convert a LFIS that did not hit to an LFFS that can then be manually encoded.
- Search additional friction skin (fingerprint search followed by a palm search).
- Encode different clusters of minutia.

Select the appropriate transaction

Click the appropriate button:

- Clone Latent Feature Search (LFFS)
- Clone Latent Image Search (LFIS)

The new transaction will have the same Latent # but a new Ext (CIX)

Clones that can be created:

- LFFS → LFFS
- LFFS → LFIS
- LFIS → LFIS
- LFIS → LFFS

Reviewing Responses

When response returns:

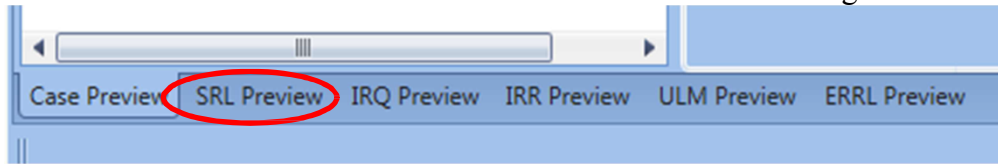
- File is automatically sent to transaction manager with the log in of either the original user or ADMIN.
- Date responded column in data grid should be filled out when response is in transaction manager.

Date Modified	Date Created	Date Submitted	Date Responded	Date Compared
5/3/2016 8:40:33 AM	5/3/2016 7:33:15 AM	5/3/2016 7:38:09 AM	5/3/2016 8:40:33 AM	5/3/2016 8:43:46 AM
5/2/2016 4:27:05 PM	5/2/2016 3:25:03 PM	5/2/2016 3:37:56 PM	5/2/2016 4:27:05 PM	5/3/2016 6:25:48 AM
5/2/2016 4:25:35 PM	5/2/2016 2:25:59 PM	5/2/2016 2:37:12 PM	5/2/2016 4:25:35 PM	5/3/2016 6:24:28 AM
5/2/2016 1:36:32 PM	5/2/2016 1:36:32 PM			
5/3/2016 8:41:30 AM	5/3/2016 7:33:26 AM	5/3/2016 7:43:42 AM	5/3/2016 8:41:30 AM	5/3/2016 9:35:15 AM
5/2/2016 4:28:40 PM	5/2/2016 3:38:12 PM	5/2/2016 3:46:11 PM	5/2/2016 4:28:40 PM	5/3/2016 6:36:10 AM

To view/compare response:



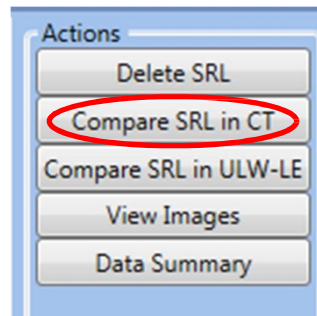
- Highlight appropriate transaction.
- Go to SRL Preview tab in bottom left hand corner of data grid screen.



There are multiple

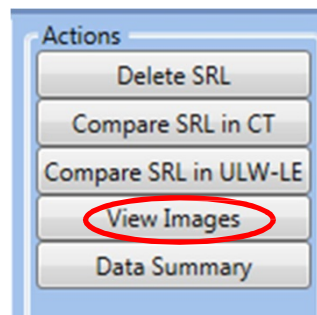
ways to view the candidate responses:

1. Select Compare SRL in CT

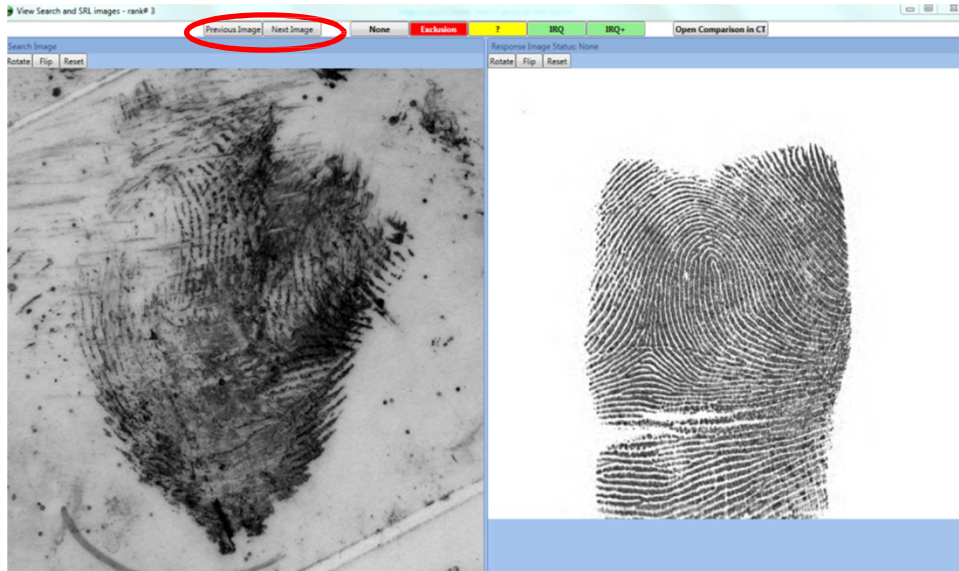


This will take you to the ULW Comparison Tool where you can compare your candidates and make comparison markups on the latent and the knowns.

2. Select View Images.

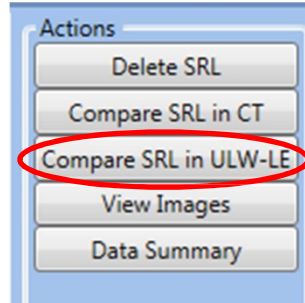


This will bring up the search print and the response knowns in a side by side box. Use the Previous/Next images buttons to navigate between response images.



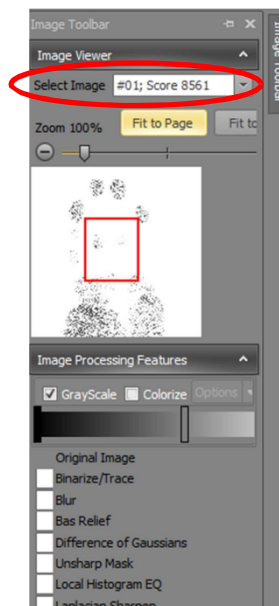


3. Select Compare SRL in ULW-LE



This will take you the ULW Latent Editor. Here you can see the minutia points you marked on your search image.

To navigate through candidate list in Latent Editor, click the down arrow next to Select Image in the image toolbar on the known image side of your screen.



Documentation

Document any ULW searches on [AFIS Activity worksheet](#) to be maintained in case file. Make clear on worksheet that search was made using the ULW software.

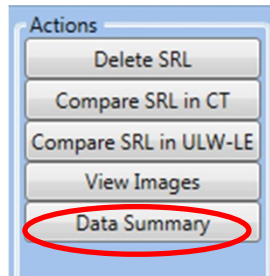
For HITS

Print the candidate list and a side by side of latent and known print (showing the candidate's identifying information) to be maintained in case file and request an IRQ for comparisons. Prior to making any identification, a copy of the exemplar(s) of a candidate must be retrieved and used for comparisons. The copy should clearly display the name and FBI unique identifier. In instances where this is not clearly captured on the IRQ received, the name/unique identifier will be added to the record either by hand or by electronic means for documentation purposes. The



NGI images shall not be used to make final conclusions of identity.
To Print the candidate list:

- Go into Transaction manager
- Go to the SRL Preview tab.
- Click on the Data Summary button. This will give you a list of the candidates, their FBI numbers and scores.



Print in landscape mode for an easier to read candidate list.



IRQs

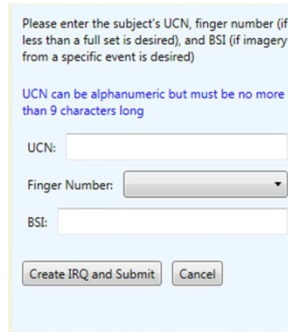
There are several ways to request an IRQ (Image Request)

First Method (IRQ not necessarily associated with a case):

- Click Create IRQ button



IRQ box will open. Fill in the UNC box with the FBI# of the record you are requesting.



Please enter the subject's UCN, finger number (if less than a full set is desired), and BSI (if imagery from a specific event is desired)

UCN can be alphanumeric but must be no more than 9 characters long

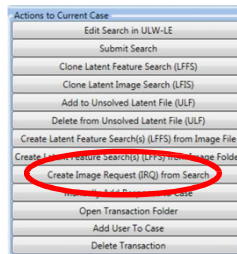
UCN:

Finger Number:

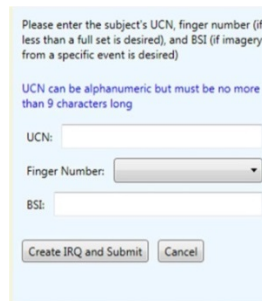
BSI:

Click Create IRQ and Submit button. An IRQ transaction will appear in your Transaction Manager data grid. **Second Method** (IRQ associated with a case):

Highlight specific transaction and click the Create Image Request (IRQ) from search button in Actions to Current Case menu.



IRQ box will open. Fill in the UNC box with the FBI# of the record you are requesting.



Please enter the subject's UCN, finger number (if less than a full set is desired), and BSI (if imagery from a specific event is desired)

UCN can be alphanumeric but must be no more than 9 characters long

UCN:

Finger Number:

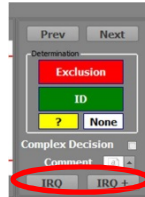
BSI:

Click Create IRQ and Submit button.



Third Method (requesting IRQ for any candidate in a response in the Comparison Tool):

- Within the Comparison Tool for a response,
- Highlight the candidate for which you would like to request an IRQ.
- Choose either IRQ or IRQ+ depending on circumstances.



IRQ –Automatically creates an Image Request for the master/composite associated with the highlighted candidate. These may not be the images returned in the response. If the UNC appears multiple times in the SRL multiple sets of prints will be requested.

IRQ+ - Generates the IRQ pop-up where the UNC and BSI (Biometric Set Identifier) are prepopulated. Keeping the BSI populated will return a response associated with a specific event.

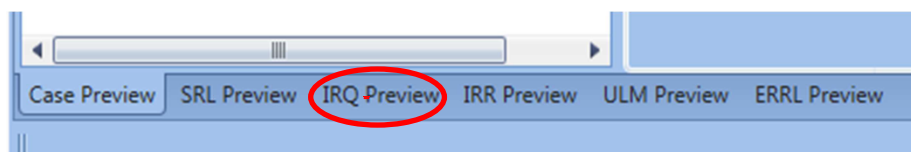
Remove the BSI and the response will be the master/composite record.

The IRQ Column in your Transaction Manager data grid will now have the number of IRQs requested for that transaction.

Archived	Prefix	Case ID	Ext (CX)	Latent#	Search	Edited	Submitted	In ULF	SRL	IRQ	IRR	ULM	ERRL	Notes
	RCH	2016-0540808	1	1	LFPS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	1	0	0	0	

To edit or

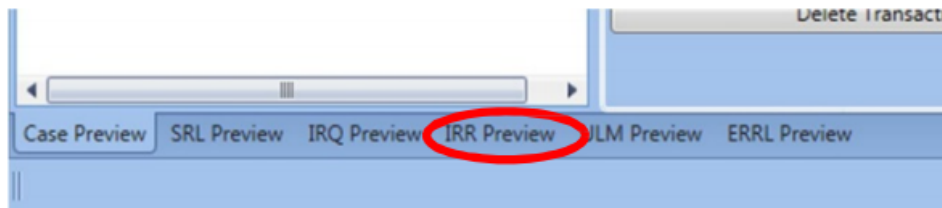
delete an IRQ, go to the IRQ Preview tab in the bottom left hand corner of your Transaction Manager screen.



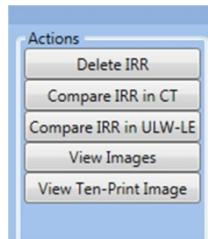
The NGI sends two responses for successful IRQs: an Image Summary Response (ISR) and an Image Request Response (IRR).

- The ISR is an automated response without images that confirms the IRQ was received.
- The IRR is the response from NGI with the fingerprint/palm images of requested individual(s).

To View the IRR, click on the IRR Preview tab in the lower left hand corner of your Transaction Manager data grid.



Select the appropriate option under the Actions Menu.



View Tenprints in either a comparison method or use the View Ten-Print Image. Palms must be viewed using one of the comparison methods.

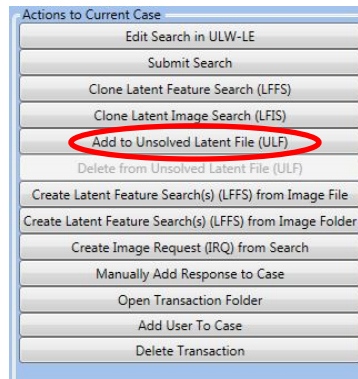
If you use "View Ten-Print Image" you will be able to save to electronic case file or print the exemplar record.

Delete transactions that resulted in a hit from the Data Grid after saving necessary case information in the case file.



For Non Hits

Register to the ULF by clicking on the “Add to Unsolved Latent File (ULF)” which is under the Actions to Current Case column while the appropriate transaction is highlighted.



If multiple transactions have the same image (i.e. clone) only submit ONE of the transactions

When the File Penetration Tool pops up, check the Add to ULW box.

Click Save and Submit button.

A SRL will return, confirming the image was added to the ULF successfully.

Unsolved Latent Match Response (ULM)

If a potential match is generated for an image in the ULF, an Unsolved Latent Match Response (ULM) will be sent.

To view the ULM, select the ULM preview tab at the bottom of the Transaction Manager and select an available comparison option.

See page 61 in Instruction Manual for more information

If identification is made to a ULM, an Unsolved Latent Delete (ULD) request should be sent for that transaction.

Select the appropriate transaction and then click the Delete from Unsolved Latent File (ULF) button under the Actions to Current Case column



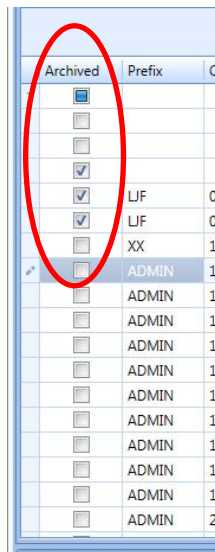
Archiving Transactions and Filtering the Data Grid

To make the Data Grid more manageable, it is advisable to archive non hit transactions and filter the data grid to show only transactions that have not been archived.

If there is a reverse hit on an impression at a later date, the transaction needs to still be available so the reverse hit file (ULM) will have somewhere to go. If a reverse hit is received the transaction should automatically come out of archive status and show in the Transaction Manager Data Grid.

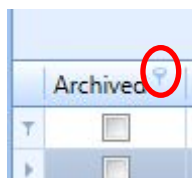
To Archive a transaction:

- Check the box in the Archive column next to the appropriate transaction.



To filter transactions by archive status:

- Hover your mouse within the Archive column header box and then click on the symbol. This will give you filtering options for the archive column.



All columns can be filtered by clicking in the respective column header boxes

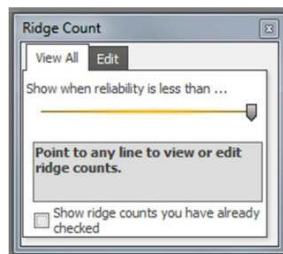


NGI HELPFUL HINTS

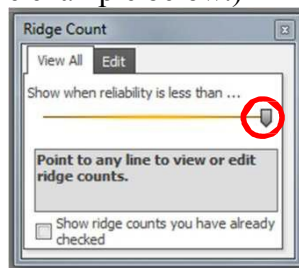
- The ULW workbook has additional information.
- LFIS vs LFFS
 - LFIS (Latent Friction Ridge Image Search) – used with latent images with good ridge and feature quality. Minimal background noise is preferred. NGI encodes the print.
 - LFFS (Latent Friction Ridge Feature Search)
 - Minimal Markup LFFS search – NGI encodes the print. Useful when there are additional friction ridges that are not being searched but could be helpful when making a decision. Examiner only needs to rotate if necessary and mark the ROI (mandatory).
 - Quick Minutia LFFS search – Used when images have a lot of background noise, poor ridge detail, double taps, overlaid ridges, etc. Examiner encodes the print; crop and rotate is needed; mark ROI; minutia; clear cores and deltas.
- Use the spacebar to toggle minutia points/ROI on and off.
- Hover over a minutia point, when it turns yellow click to delete.
- Hover over a minutia point, when it turns yellow right click to mark uncertainty radius for point.
- Use the same ULW terminal to send file and receive the response.

Ridge Counting in Latent Editor Tips:

When you click the Ridge Count button, the following box will pop up:

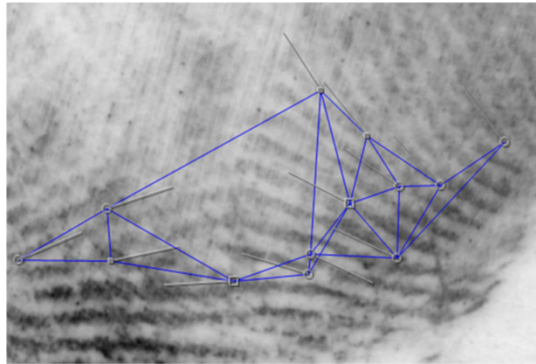


The slider allows you to display the ridge counts based on reliability of that ridge count. If you move the slider all the way to the right, a ridge counting matrix will appear on your print displaying all ridge counts. (*See the example below.)

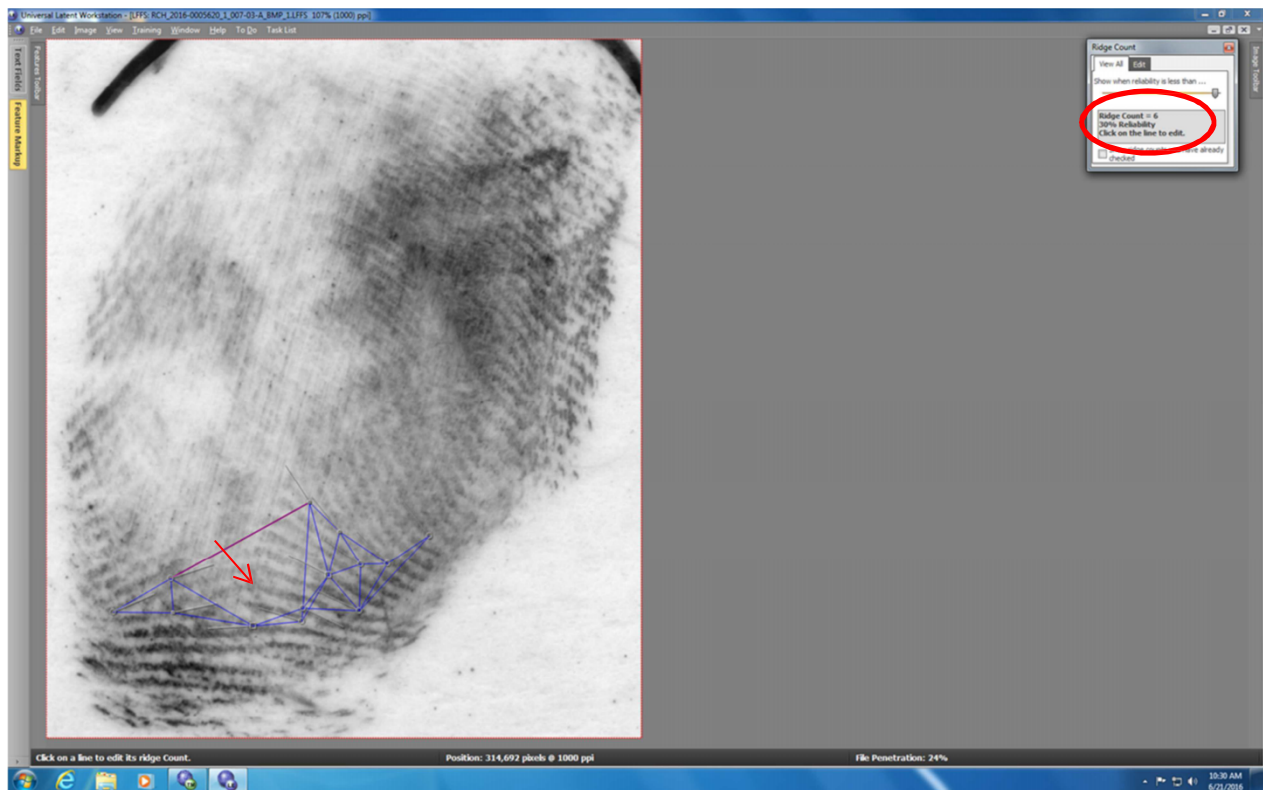




*Example of ridge counting matrix displaying all ridge counts:



If you hover over one of the lines until it turns red, the ridge counting box will display the current ridge count between those ridges and the reliability of that count.



You can then click on that highlighted line to edit that specific ridge count.